# PUBLIC SECTOR PERFORMANCE PROGRAMME 2022-2025

## An International Benchmarking Study
## Sub-Study 2025

**The European Institute of Public Administration (EIPA) in cooperation with the Ministry of the Interior and Kingdom Relations of the Netherlands**

EIPA European Institute of Public Administration

Ministerie van Binnenlandse Zaken en Koninkrijksrelaties

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# 1. INTRODUCTION

# 1.1. FOREWORD

**The European Institute of Public Administration (EIPA) has conducted a benchmarking study 2022–2025, having as an objective an in-depth analysis of public sector performance in 35 countries. It is the fourth edition of the study with previous reports published in 2004, 2012, and 2015. The current edition updates key indicators and extends the previous editions by including additional indicators and policy areas.**
**Over the period 2022 to 2024, the programme analysed public sector performance in ten policy areas; in 2025, the respective sub-studies were updated and revised to include the latest data, recent developments, trends, and best practices.**
**This final report presents results of the 2025 update of the Public Sector Performance Programme sub-studies published between 2022 and 2024 with the latest figures, information, and further analysis of public services in the following policy areas (except the International Best Practices in Social Security Systems and Economy, Infrastructure and Science, and Technology and Innovation chapters):**

- Public Administration
- Education
- Housing
- Social Safety
- Social Security, Employment, Income and Wealth
- Environmental Protection and Climate Change
- Health
- Sports

The Public Sector Performance Programme was conducted thanks to the generous grant of the **Ministry of the Interior and Kingdom Relations of the Netherlands ("the Ministry")**, which enabled the extension in terms of scope and depth of analysis of public sector performance in respective policy areas. From the Ministry side the programme was led by Frans van Dongen (Programme Manager Public Performance) 2021–2024, and Dr. Jelle Kort (Senior Scientific Officer) in 2025. The EIPA team is very grateful to them for their support throughout the project and is particularly happy about the fruitful cooperation with the Ministry. The EIPA team consists of Dr. Iwona Karwot (Project Leader and Senior Expert), Christoph Klika (Expert on EU policymaking), Miranda Lovell-Prescod (Senior Research Officer and EIPA data expert), and Björn Hölbling (Research Officer), who were also responsible for the preparation of the update of the public administration chapter.

The EIPA team wishes to express its gratitude to external experts involved in the preparation of the 2025 update of the following chapters:
for education, Prof. Tommaso Agasisti and Dr. Gaetano Francesco Coppeta (Politecnico di Milano, Italy), Prof. Kristof de Witte and Prof. Giovanna D'Inverno (KU Leuven, Belgium); for housing Dr. Kees Dol (independent housing expert) and Pieter Kranenborg (RIGO Research & Advies, Amsterdam, NL); for social safety Prof. Lorenzo Pasculli (University College London, UK); for Social Security, Employment, Income and Wealth Dr. Michael Dauderstädt (former Director of the Division for Economic and Social Policy of the Friedrich Ebert Foundation, DE); for environmental protection and climate change – Prof. Emma Avoyan and Prof. Iulian Barba Lata (Radboud University Nijmegen, NL); for health – Dr. Enrique Bernal-Delgado, (Institute for Health Sciences (IACS), ES) and Daniel García-Abiétar (Catalan Health Institute, ES), for sport – Prof. Nils Asle Bergsgard (University of South-Eastern Norway, NO).

The EIPA team would also like to thank Dr. Martijn Eskinasi and Lauren Antonides (Ministry of the Interior and Kingdom Relations), Herman Scholten (Ministry of Education, Culture and Science), Fons van Gessel (Ministry of Justice and Security), Robin Bode (Ministry of Social Affairs and Employment), Florien Kruse (Ministry of Health, Welfare and Sport), Abel d'Ailly (Ministry of Economic Affairs and Climate Policy), Bram ter Schegget and Renate van Noort (Ministry of Health, Welfare and Sport) for their support during the preparation of the 2025 final report.

The EIPA team would also like to thank Paolo Giovanetti (Research Officer, former EIPA colleague and member of the team) for his contribution to the Public Administration chapter and substantial work on dashboards for each domain covered by the study, and Drs. Waldemar de Haas (Power BI Knowledge) for his contribution, advice, and help during preparation of the interactive dashboards of the 2022–2025 Benchmarking Study.

The preparatory process of the 2025 update report between all partners involved in the study (Ministry, external experts, and the EIPA team) began in mid-2024, and continued until the end of October 2025, based on regular meetings. At the end of November it was also agreed to carry out the final conference to present its results on the 3rd and 4th of February 2026.

# 1.2. INTRODUCTION

In response to recent social and economic crises, we are witnessing the acceleration of the trend of increasing state intervention in various social and economic policies. After years of contractionary fiscal policies, de-regulation, and privatisation, this "return of the state" seems to reverse at least some of these trends, thus shifting the balance between the public and the private, and the state and the market, in the production and delivery of public services. While this balance is subject to specific historical, social, and political contingencies in various political systems, the overarching objectives of all democratic systems of governance is the efficient and effective provision of public services for citizens. For it is the citizenry that, in democratic systems, delegates specific tasks to state institutions, which are in turn accountable to these same citizens. Hence, public sector performance is essential for upholding this circle of delegation and accountability, and thereby the quality and legitimacy of government action.

The EIPA Public Sector Performance Programme 2022–2025 examined the performance of the public sector in 35 countries (see Box 1). The EIPA study updated the SCP (*Sociaal en Cultureel Planbureau* – Netherlands Institute for Social Research) report and broadened its perspective by including additional indicators. Moreover, all policy areas were analysed in depth and separately to support better insight into the achievements of every policy domain. It was the fourth edition of the study since the last report published in 2015, prepared by the SCP, covering the period from 1995 to 2012.

**Countries included in the study with abbreviations**

| | | | | | |
|---|---|---|---|---|---|
| AT | Austria | ES | Spain | NL | The Netherlands |
| AU | Australia | FI | Finland | NO | Norway |
| BE | Belgium | FR | France | NZ | New Zealand |
| BG | Bulgaria | HR | Croatia | PL | Poland |
| CA | Canada | HU | Hungary | PT | Portugal |
| CH | Switzerland | IE | Ireland | RO | Romania |
| CY | Cyprus | IS | Iceland | SE | Sweden |
| CZ | Czechia | IT | Italy | SI | Slovenia |
| DE | Germany | LT | Lithuania | SK | Slovakia |
| DK | Denmark | LU | Luxembourg | UK | United Kingdom |
| EE | Estonia | LV | Latvia | USA | United States of America |
| EL | Greece | MT | Malta | | |

In this final, 2025 report, we present the updated results of the analysis of the following eight policy areas covered by the Public Sector Performance Programme including recent developments, trends, and best practices:

- Public Administration
- Education
- Housing
- Social Safety
- Social Security, Employment, Income and Wealth
- Environmental Protection and Climate Change
- Health
- Sports

The main objective of the study was to provide a comprehensive analysis of public sector performance in the respective policy areas by answering the following questions:

- What are the similarities and differences in terms of input, output, and outcome? Which countries perform best and which are the worst?
- How do inputs, outputs, and outcomes change over time?
- How effective are countries in the achievement of objectives? How efficient are countries in the process of service delivery? What is the correlation between inputs and outputs?
- What is the perception of citizens and other relevant stakeholders, regarding service delivery (e.g. satisfaction, trust)?
- How can we explain similarities and differences between countries?

The report is structured as follows. First, we introduce the conceptual framework and research design underpinning the study. This framework will inform the analysis in the ten thematic chapters providing a common terminology and conceptualisation of public sector performance 2022–2024. Six following chapters cover six updated and revised domains from sub-studies 2022–2023, including the latest available data. Two remaining policies areas from the sub-study 2024, Health and Sports, covered by chapters nine and ten, are mainly concentrated on recent trends and best practices (the newest available data was published in February 2025 in sub-study 2024). In the concluding chapter, the results of the updated chapters are synthesised.

# 2. RESEARCH DESIGN AND CONCEPTUAL FRAMEWORK

**The research design of the Public Sector Performance Programme was developed in line with the objectives and research questions of the study. The design is based on the following steps (Van Dooren, 2015): defining study objectives, selection of indicators, data collection, analysis and reporting.**

The **conceptual framework** is based on the input–output–outcome model commonly applied in benchmarking studies (see Figure 1)[1]. The model distinguishes between output, outcome and impact, and includes the relation between input and output, i.e. throughput and processes and the efficiency of service delivery, as well as causal mechanisms to explain outcomes and the relation between input–outcome related to the cost-effectiveness.

It includes the following concepts:

- **Environment:** social, economic and political context of a public service or policy area;
- **Needs:** the functional requirements of service deliver and the political demands stemming from the environment;
- **Objectives:** the goals set as a result of these demands;
- **Input:** anything that is put into a system, e.g. an organisation that addresses input with a view to produce an output – in the context of benchmarking studies, these are non-monetary and monetary resources dedicated to service delivery;
- **Activity:** actions that are necessary to process input with a view to producing an output;
- **Output:** anything that comes out of a system being the result of input processing – output might be used immediately or be readily available for use by citizens in the future;
- **Effect/outcome:** anything going beyond output, i.e. the societal, economic and political results relevant for a policy area;
- **Trust:** the belief of citizens in the ability of public sector organisations to deliver services and to achieve desirable objectives.

In addition to the concepts included in the model, the study will also take into consideration the concept of **satisfaction**, defined as a subjective indicator which measures the quality of a specific service (Bouckaert & van de Walle, 2003).

The concept of **environment** will be further developed to include the **mechanisms, policy design and institutional arrangements**. These elements are relevant in shaping the policy outputs and outcomes, and contribute to explaining the differences in the countries' performances.

The model entails two **dimensions of analysis**: the span of performance and the depth of performance.

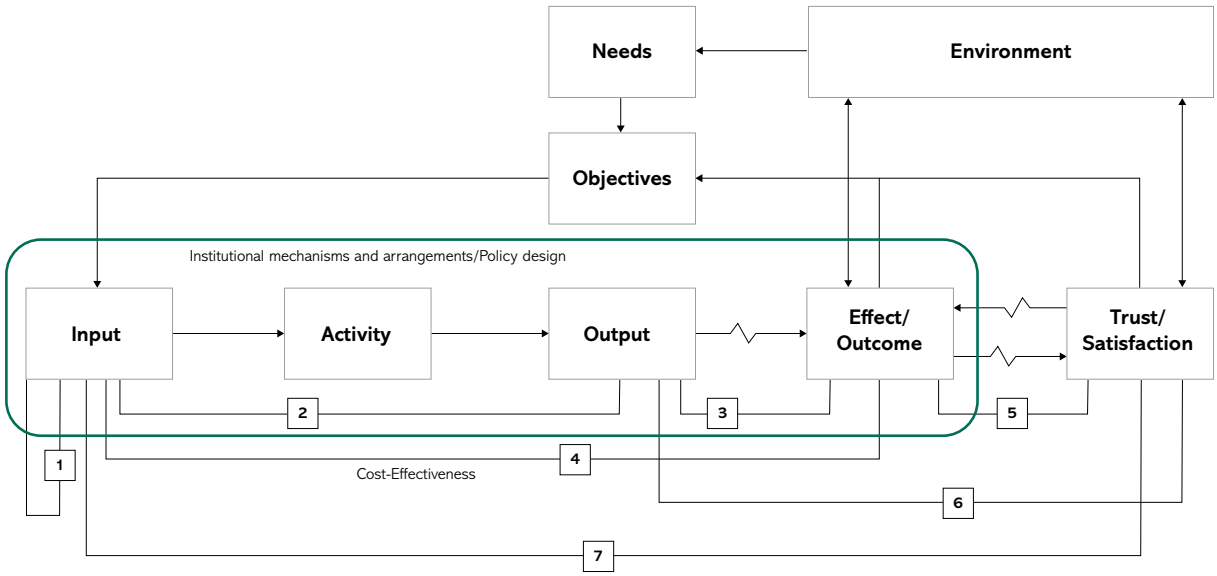
The **span of performance** relates to the causal relationships between concepts. Three relationships can be distinguished: efficiency, effectiveness and cost-effectiveness, and trust and satisfaction. These relationships link the various concepts of the model and range from a minimum to a maximum span (see numbers in Figure 1).

- **Link 1 (economy) and 2 (efficiency)**
  The minimum span of performance relates input with output. It is concerned with the efficiency of service delivery, i.e. the level of productivity in transforming input into output.

- **Link 3 (effectiveness) and 4 (cost-effectiveness)**
  The medium span of performance relates input with outcome, and output with outcome. It is concerned with the effects of service delivery, i.e. the effectiveness in achieving objectives and the comparison between relative costs and outcomes. Hence, analysing the medium span of performance also includes consideration of the environment of service delivery and the setting of objectives based on environmental needs and demands.

- **Link 5, 6 and 7 (satisfaction and trust)**
  The maximum span of performance relates input, output and outcome with satisfaction and trust. It is concerned with the effects of efficient and effective service delivery on satisfaction and trust. Hence, the analysis of the medium span of performance includes consideration of the environment of service delivery and the setting of objectives based on environmental needs and demands. Moreover, satisfaction is not only affected by public performance, but also affects service delivery; there are inverse causal relations.

*Figure 1: Conceptual framework*




*Source: Bouckaert and Halligan 2008:16 (modified)*

[1] This section follows the chapter "What is managing performance?" (see Bouckaert and Halligan, 2008: 11-34).

The **depth of performance** relates to the level of analysis.

- The **micro-level** relates to direct **service delivery to the user/customer/citizen**. The perception of citizens as users of services is thus an important element of performance measurement. The level of satisfaction is the result of the interaction between citizens' expectation and the quantity and quality of service delivery. In this respect, trust in the service-delivering organisation is positively related to outcomes and thus has an impact on satisfaction.
- The **meso-level** relates to **service delivery by several organisations in a specific policy area**. This level is concerned with performance of polices and thus satisfaction with, and trust in, the delivery of policies to achieve specific, policy-relevant objectives.
- The **macro level** relates to **public performance of countries**, including several performance indicators from various policy areas. This level is ultimately concerned citizens' trust in the state institutions and the state itself.

The scope covering 35 countries, 10 policy areas and the study objectives were defined in close cooperation with the Ministry. Defining study objectives is essential for benchmarking as it narrows down and specifies which public services will be the subjects for examination. The study objectives relate to the analytical value added by the Public Sector Performance Programme:

- updating the results of the 2015 SCP report;
- broadening the scope by including additional indicators;
- providing more comprehensive analysis.

In line with the elements of the conceptual framework of the study, the main objective is to examine the effectiveness, efficiency, cost-effectiveness, satisfaction and trust of citizens, enterprises and other relevant stakeholders. This regards available products, services, provisions and outcomes in ten policy areas in 35 countries, with a longitudinal perspective.

These specifications facilitate the selection of performance indicators and data collection. The data informing the study is based on primary and secondary data (policy-relevant and academic literature). The primary data consist of datasets that include numerical data measuring performance and other indicators in policy areas and countries within the scope of the study. In general, indicators are essential for measuring performance in line with the conceptual framework underlying the analysis.

There are three characteristics of indicators which are most relevant in terms of measurement: objective and subjective measurement, single and ratio indicators, and composite indicators.

### Objective and subjective measurements

**Objective measurement** refers to a 'precise assessment of a dimension of performance' and involves an 'external process to verify its accuracy' (Andrews et al., 2007). The best example is perhaps the results of school exams. **Subjective measurement** refers to a dimension of performance, but is subject to judgement either by individuals inside (e.g. managers) or outside the organisation (e.g. clients and citizens).

### Single and ratio indicators

**Single indicators** measure characteristics of separate elements of the conceptual framework; **ratio indicators** measure the relationship of elements (Van Dooren, 2015). The distinction between single and ratio indicators corresponds with the grouping of research objects. Single indicators measure performance based on isolated concepts, whereas ratio indicators measure performance of related concepts (see Table 1).

*Table 1: Indicators*

| Single Indicators | Ratio Indicators |
|---|---|
| Environment | Efficiency (input–output) |
| Input | Effectiveness (output–outcome) |
| Output | Cost-effectiveness (input–outcome) (environment) |
| Outcome | Satisfaction and trust (input–output–outcome–trust) (environment) |

The use of ratio indicators requires that indicators for two related concepts have to be combined to analyse efficiency, effectiveness, cost-effectiveness and the related effects on satisfaction and trust. This includes input indicators and indicators that measure the environment (or relevant aspects of it) in which the delivery of public services takes place. There are several input factors that are presumably relevant to services across the board, but we assume that for each policy area, specific environmental aspects, and thus input indicators, are relevant for service delivery in the respective areas.

### Composite indicators

While indicators measure specific aspects of performance, these aspects can be conceptualised as being multi-dimensional. For instance, the quality of an educational system can be appraised with several dimensions, e.g. the number of graduates or equality in terms of access. Single indicators only provide snapshots of complex realities while composite indicators account for the multidimensionality of objects. By doing so, composite indicators also reduce the number of single indicators needed for assessing performance. At the same time, the construction of composite indicators is methodologically challenging. These pros and cons should be kept in mind.

The study adopts two main **data collection methods**: administrative data from programme or agency records, and 'customer' surveys (Hatry, 1999). The first method is useful for gathering input, output and, to some extent, outcome indicators, while the second one is an important source of information about service quality and outcomes.

The data come from **external data sources** provided by national and international organisations, i.e. Eurostat, OECD, UN statistics, the World Bank and National Statistics Institutes. The data search is also complemented by other methods, e.g. 'snowballing' by reviewing reference lists in the selected relevant literature.

The selection of the data has been performed taking into account the full coverage of the countries considered by the benchmarking study, the indicators used in the previous version of the study, and new relevant indicators for comparing and measuring the performances of public sector in each policy area, as well as the perception of service delivery, user satisfaction and citizens' trust.

The selection has been made also taking into consideration the coverage of the time frame 2007–2020, however the most recent data was used whenever available.

In terms of analysis, the most important element of the Public Sector Performance Programme is the comparison of performance against a specific norm or target. For comparative analysis at the systems level (countries), the performance of other countries can be used as a benchmark. The comparison of indicators facilitates learning by confronting specific elements of performance (e.g. output) between comparable countries.

The 2022–2025 study aimed to examine public sector performance from a comparative and longitudinal perspective. This included comparison of countries' performance horizontally (across countries) and over time, usually based on quantitative single or ratio indicators as well as composite indicators. Moreover, the study utilises several univariate and multivariate methods of quantitative analysis; details are provided in the respective chapters and technical annexes.

# 3. PUBLIC ADMINISTRATION

# 3.1. INTRODUCTION

**This chapter explores how public administrations can build and sustain trust by enhancing legitimacy at different stages of the policymaking process. In the context of the Benchmarking Study, public administration can be defined as the "management of public affairs or the implementation of public policies" (Shafritz, 2000: 6)[1]. The chapter builds on the initial Benchmarking Study published in 2022, which primarily employed a quantitative approach to examine the relationship between systemic inputs and administrative performance in terms of output. While this chapter includes updates on significant indicators, its main contribution is qualitative: it analyses specific examples in more detail, particularly best and innovative practices, that demonstrate how legitimacy can be enhanced throughout the policymaking process. Rather than focusing on a wide range of policy outputs, these examples are intended to provide insight and lessons on how trust in government can be strengthened by reinforcing legitimacy.**

### Why is trust important?

The notion of "trust" has received increasing attention in the scholarly literature and among practitioners in recent years. While this attention is largely driven by serious concerns about declining levels of trust in public institutions, there is no commonly accepted definition of trust shared among academics, practitioners, and the public. This is because trust is a multidimensional concept relevant for both person-to-person relationships and trust in government, however defined. Moreover, trust is closely related to concepts such as "satisfaction" without clarity regarding the precise nature of this relationship. Yet academics, practitioners, and promoters of good governance like international institutions such as the OECD, agree that trust in the public sector is essential for the functioning of democratic political systems and societies at large.

In this chapter, we draw on the OECD Trust Survey to derive a working definition that conceptualises trust as citizens' expectation that public institutions are reliable and responsive in formulating and implementing policies and services, and that in doing so, they uphold essential values such as fairness, integrity, and openness (see OECD, 2024: 38). This definition includes aspects relevant for the material and ideational inputs to the public sector, the processes of government activity and the related outcomes. These aspects inform the conceptual framework underpinning this chapter (see below).

In line with this framework, it is also important to emphasise that citizens' trust in the public sector is highly contingent on the type of institution. Citizens typically experience the public sector through a range of institutions – such as courts, police, regulatory authorities, or public service agencies – and their interactions with these institutions shape perceptions of the government more broadly. Research shows that when institutional processes are perceived as fair, transparent, and effective, they enhance broader trust in government, while governance failures in any key institution can erode trust in the entire system (Mungiu-Pippidi & Johnston, 2017). Hence, it is impossible to discuss trust in government without mentioning trust in institutions as they are closely interrelated, particularly because government is itself one of the core state institutions and often the most visible expression of institutional performance. Conversely, general trust in government can influence how much confidence people place in the institutions it oversees.

Hence, trust is both a fundamental outcome of effective government performance and a necessary condition for sustaining the legitimacy of policies and institutions. Citizens' belief in the competence and fairness of policymakers and public administrations underpins the resilience and stability of political systems. This dual function of trust is of critical importance in view of technological innovation and societal transformations as well as multiple crises ("polycrisis"), which bring about new challenges for political systems. Not only are governments confronted with increasingly volatile domestic and international systems, but citizens' satisfaction with public sector performance and trust in institutions also shape the very environment in which governments operate. Not surprisingly, "building and maintaining trust in public institutions has emerged as a priority for many governments around the world" (OECD, 2024). Building and sustaining trust is essential for ensuring the economic and social well-being of citizens within stable and resilient systems of democratic governance.

[1] Unlike chapters that focus on specific policy sectors such as education, health, or the economy, this chapter examines the machinery of public administration as a whole, analysing how its structures, behaviours, and practices contribute to trust in government. Hence, public administration refers to all those activities and procedures related to the formulation and implementation of policy and governmental and other public programmes, and to the management of the organisations and activities involved. For a deeper understanding of the performance of various policy areas, separate chapters in this study address those domains individually.

### Key development: declining levels of trust

In recent years, a general erosion of trust has been observed (see OECD Trust Survey; Table 1). In many countries, there was a brief increase in trust during the COVID-19 pandemic (2020 and 2021), followed by an often sharp decline in the subsequent two years. While trust is generally higher in Northern and Western Europe and lower in Southern and Eastern Europe, the most substantial decreases happened in Northern and Western European countries, as opposed to their Southern and Eastern counterparts, where more stability was registered (while remaining at comparatively lower levels). The non-European countries of the sample (Australia, New Zealand, Canada, United States) witnessed a general reduction in trust as well.

These findings confirm what emerged from the original chapter in the 2022 sub-study, which pointed to an increasing difficulty for governments in providing public services of good quality and maintaining a stable and high level of trust among their citizens. In addition, it appears that after initially feeling protected by governments in the depths of COVID-19, many citizens turned against politicians and institutions in the immediate post-pandemic period.
This was likely exacerbated by an unfavourable economic conjuncture characterised by high energy costs and inflation. This general erosion of trust is applicable to all levels of government although there is some variation in trust in different levels of government. On average, less than half of respondents have high or moderately high trust in each level of government. The level of trust is quite similar between the national civil service (47.6%, the highest) and local government (46.4%). Respondents seem to place less confidence in the regional government (42.5%) and especially the national government (39.6%) and parliament (38.6%).

### Methodological approach and chapter outline

This chapter is based on the conceptual framework adopted for the performance assessment of public administration in 35 countries as part of the 2022 sub-study. It includes both quantitative and qualitative methods for stocktaking recent developments regarding trust and promising practices to build and maintain trust. The chapter first presents an update of key indicators on trust in government and subnational levels of government (Section 2). Building on this framework, the chapter conceptualises input, throughput, and output legitimacy throughout the policy process. The concepts are commonly accepted as useful dimensions contributing to democratic decision-making and, ultimately, trust. This framework is complemented with action-oriented categories to enhance trust, drawing on the OECD Trust Survey (OECD, 2024) (Section 3). This approach allows the chapter to examine a wide variety of public sector action to improve trust based on a general literature review and case studies. In Section 4, the chapter examines different instruments of participation enabling input legitimacy. In Section 5, the chapter examines enablers of throughput legitimacy from the perspective of procedural fairness, openness, and transparency. In Section 6, the chapter examines public sector performance and service delivery, with a specific focus on digital transformation, enabling output legitimacy. The chapter concludes with a summary and recommendations for building and maintaining trust (Section 8).

# 3.2. THE EVOLVING LANDSCAPE OF TRUST IN GOVERNMENT

As this chapter ultimately focuses on trust in government as a key outcome of interest, it begins by examining the current situation across the sample of countries. Building on the analysis conducted in the 2022 sub-study, this section updates the findings by identifying recent trends in trust and assessing how the performance of public administrations has evolved across different national contexts. For details on the methodology and indicators used in this analysis, see Annex 1.

Trust can be assessed at different levels, including overall trust in government and trust in specific institutions or levels of governance.

Trust can be assessed at different levels, including overall trust in government and trust in specific institutions or levels of governance. Analysing these different dimensions is important because trust is not evenly distributed across the public sector: citizens may place greater confidence in local administrations or specific public services while being more sceptical of national institutions or political actors. Disaggregating trust in this way therefore provides a more nuanced understanding of how citizens perceive government performance and accountability across various layers of governance.

### 3.2.1. Trust in government

According to the OECD Trust Survey, over recent years, a general erosion of trust in government has been observed, as reflected in both the OECD Trust Survey and indicators from the OECD Well-Being Database. In many countries, there was a brief increase during the peak of the COVID-19 pandemic (2020 and 2021), followed by a decline in the subsequent two years, in some cases a sharp one. A few countries, however, recorded stable or slightly higher levels of trust in the same time period, with Belgium standing out as a notable exception (see Table 1).

Regional trends indicate that trust tends to be higher in Northern and Western Europe and lower in Southern and Eastern Europe. Nonetheless, the steepest declines occurred in Northern and Western European countries, while Southern and Eastern European countries displayed greater stability, albeit at lower levels. The non-European countries in the sample (Australia, New Zealand, Canada, and the United States) also experienced a general decline in trust.

These findings confirm the conclusions drawn in the 2022 sub-study, which highlighted the growing challenge governments face in delivering high-quality public services and maintaining consistently strong levels of citizen trust. Moreover, after initially feeling protected by their governments during the depths of the pandemic, many citizens turned against political leaders and institutions in the immediate post-pandemic period – a trend likely compounded by an unfavourable economic context marked by high energy prices and inflation.

*Table 1: Trust in Government indicator*

| Country | Region | 2010 | 2013 | 2016 | 2019 | 2022 | 2023 | 2023 | Change |
|---|---|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **44,96** | -2,19 | 1,37 | 5,02 | -2,06 | 0,00 | **47,10** | 2,14 |
| Belgium | Western Europe | **45,77** | 3,06 | -3,19 | -3,29 | 11,71 | 0,00 | **54,06** | 8,29 |
| France | Western Europe | **47,10** | -3,80 | -13,35 | 9,04 | 5,07 | 0,00 | **44,06** | -3,05 |
| Germany | Western Europe | **47,58** | 4,28 | 8,86 | 0,20 | -1,32 | 0,00 | **59,60** | 12,02 |
| Ireland | Western Europe | **38,55** | 2,05 | 14,46 | 6,21 | 1,59 | 0,00 | **62,87** | 24,32 |
| Luxembourg | Western Europe | **82,43** | -2,95 | -9,73 | 8,27 | 2,77 | 0,00 | **80,81** | -1,63 |
| Netherlands | Western Europe | **65,51** | -4,62 | -4,42 | 8,59 | -17,90 | 0,00 | **47,17** | -18,34 |
| Switzerland | Western Europe | | | **79,62** | 4,68 | -1,88 | 0,00 | **82,41** | 2,80 |
| United Kingdom | Western Europe | **43,19** | 0,19 | 0,43 | -2,89 | -7,06 | 0,00 | **33,86** | -9,33 |
| Denmark | Northern Europe | **64,60** | -16,19 | 2,75 | 10,61 | -1,85 | 0,00 | **59,93** | -4,67 |
| Finland | Northern Europe | **61,27** | -6,48 | -2,50 | 8,65 | 14,91 | 0,00 | **75,85** | 14,58 |
| Iceland | Northern Europe | | **40,77** | 0,10 | 5,14 | 2,61 | 0,00 | **48,62** | 7,85 |
| Norway | Northern Europe | | | **66,72** | 0,11 | -5,59 | 0,00 | **61,24** | -5,48 |
| Sweden | Northern Europe | **60,64** | 3,99 | -11,22 | 0,43 | 4,64 | 0,00 | **58,47** | -2,17 |
| Cyprus | Southern Europe | | | | | | | | |
| Greece | Southern Europe | **29,77** | -14,06 | 11,38 | -1,91 | 6,98 | 0,00 | **32,17** | 2,40 |
| Italy | Southern Europe | **42,12** | -17,85 | 2,96 | -4,75 | 20,08 | 0,00 | **42,57** | 0,45 |
| Malta | Southern Europe | | | | | | | | |
| Portugal | Southern Europe | **34,57** | -11,48 | 5,45 | 22,76 | 0,51 | 0,00 | **51,80** | 17,23 |
| Spain | Southern Europe | **47,31** | -18,32 | -2,44 | 4,91 | 7,36 | 0,00 | **38,82** | -8,49 |
| Bulgaria | Central and Eastern Europe | | | | | | | | |
| Croatia | Central and Eastern Europe | | | | | | | | |
| Czech Republic | Central and Eastern Europe | **37,09** | -14,97 | 22,46 | -44,58 | **37,39** | 0,00 | **37,39** | 0,30 |
| Estonia | Central and Eastern Europe | | **34,93** | 5,15 | 8,58 | 4,59 | 0,00 | **53,25** | 18,32 |
| Hungary | Central and Eastern Europe | **24,84** | 7,75 | 1,85 | 12,35 | -5,81 | 0,00 | **40,98** | 16,14 |
| Latvia | Central and Eastern Europe | | **19,38** | 11,99 | -5,05 | 5,48 | 0,00 | **31,80** | 12,42 |
| Lithuania | Central and Eastern Europe | **14,59** | 10,82 | 10,28 | 4,13 | 1,31 | 0,00 | **41,13** | 26,54 |
| Poland | Central and Eastern Europe | **36,51** | -9,63 | 4,35 | 21,68 | -14,61 | 0,00 | **38,29** | 1,78 |
| Romania | Central and Eastern Europe | | | | | | | | |
| Slovakia | Central and Eastern Europe | **35,02** | 0,05 | 1,15 | -4,10 | -10,12 | 0,00 | **22,00** | -13,02 |
| Slovenia | Central and Eastern Europe | **36,51** | -16,43 | 1,26 | 8,06 | 16,73 | 0,00 | **46,14** | 9,63 |
| Australia | Oceania | **64,89** | -16,61 | -0,07 | -0,65 | 4,35 | 0,00 | **51,90** | -12,99 |
| New Zealand | Oceania | **58,66** | 3,58 | 0,34 | 4,39 | -14,86 | 0,00 | **52,11** | -6,55 |
| Canada | Northern America | **59,49** | -5,52 | 6,26 | 0,75 | -9,94 | 0,00 | **51,05** | -8,44 |
| United States | Northern America | **43,88** | -9,48 | -0,94 | 2,30 | -4,83 | 0,00 | **30,93** | -12,95 |

*Source: OECD Well-Being Database, based on data from the Gallup World Poll*

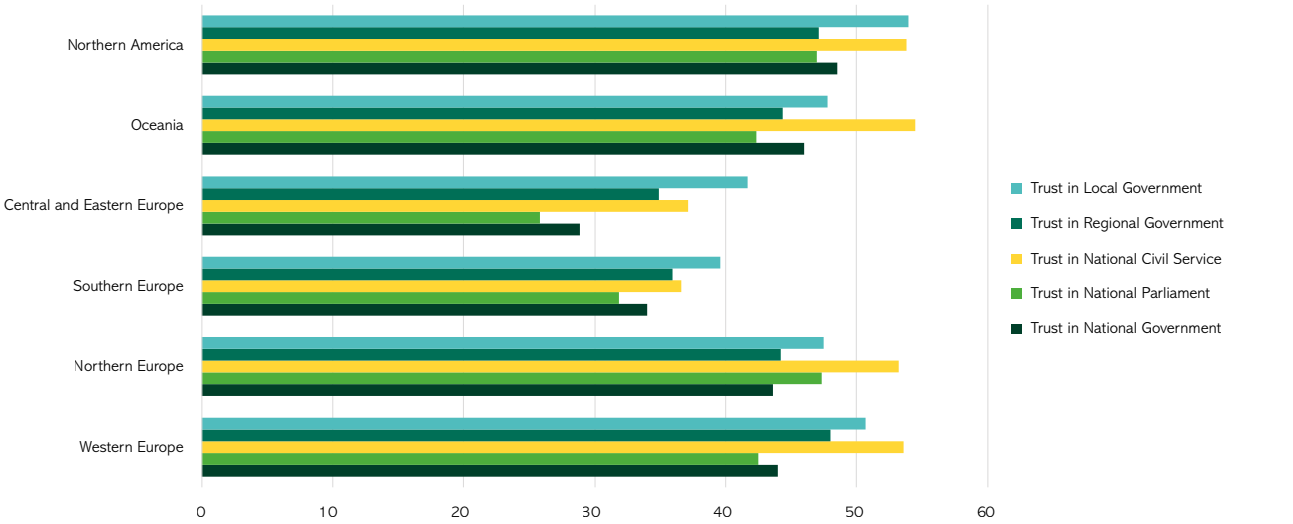
### 3.2.2. Trust at different levels of government

In the context of trust in government, examining different levels of governance – national, regional, and local – is essential for several conceptual and empirical reasons. Trust is not uniformly distributed across government tiers and each level interacts with citizens in distinct ways, which shapes how trust is formed, maintained, or eroded. Scholars argue that disaggregating trust helps capture the nuances of political legitimacy, state capacity, and citizen experience with public institutions.

The assertion that local government, because of its smaller size, is generally perceived to be "closer" to citizens, more accountable and, as a result, more trustworthy, finds ample support in the literature (for a summary, see Muñoz (2017)).

Moreover, the data from the OECD Trust Survey reflects such findings, as trust in local government is higher than in the regional government, which in turn is higher than in the national government (see Figure 1). On average, less than half of respondents have high or moderately high trust in each level of government. The level of trust is quite similar between the national civil service (47.6%, the highest) and the local government (46.4%). Respondents seem to place less confidence in the regional government (42.5%), and especially the national government (39.6%) and parliament (38.6%).

*Figure 1: Trust in different levels of Government*




*Source: OECD Trust Survey Indicators*

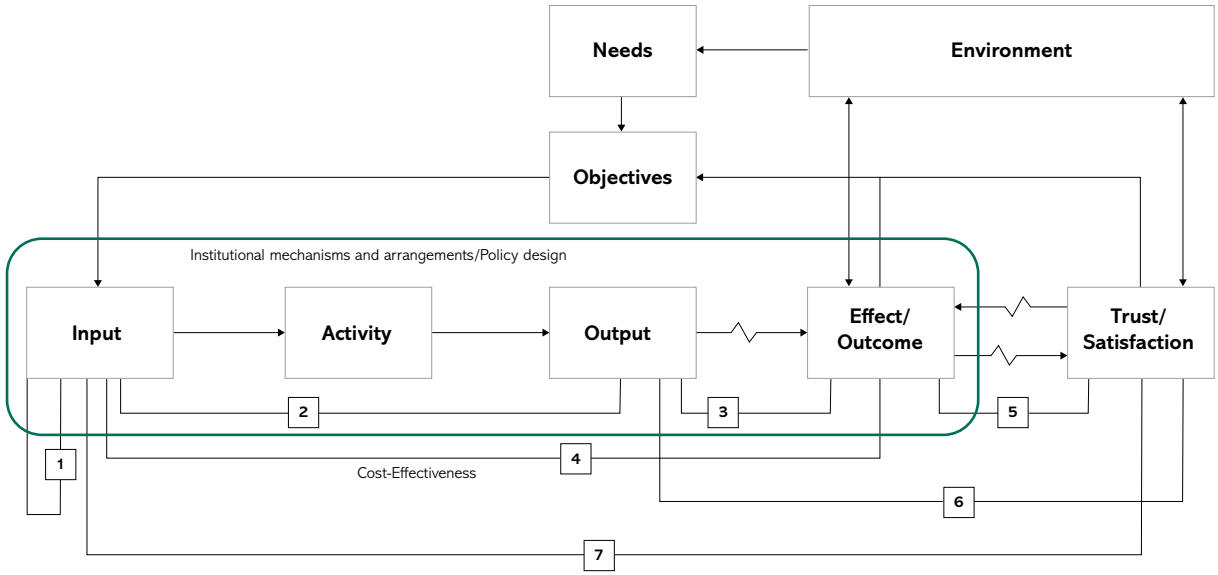
Considering the evolution since the previous edition of the trust survey in 2021 (for countries where data is available in both editions) a general erosion of trust is observed, at all levels of government. This is particularly the case at the national level, where there were conspicuous decreases in several countries (with the notable exception of Belgium, where a 15-point increase is observed) – see Annex 2, Tables 1–5.)

# 3.3. CONCEPTUAL FRAMEWORK: ENABLING TRUST THROUGH LEGITIMACY

The EIPA Benchmarking Study assesses the performance of the public sector in key policy areas based on a comprehensive input–output model Figure 2. Based on the needs and objectives of social, economic, and political systems and the environment, institutions receive input and channel such input through the design and implementation of administrative activities (throughput) to create output (short-term) and outcome (long-term) effects respectively. The 2022 sub-study on public administration was concerned with material input such as expenditure and staff as well as the efficiency and effectiveness of administrative processes. Based on quantitative, cross-country research design, the study set out to assess the performance of 35 countries, utilising an extensive set of numerical indicators.

In addition to the update of selected indicators this complementary sub-study, while not neglecting material conditions of administration, is concerned primarily with non-material input. As visible in Figure 2, the effects (outcomes) of administrative activity are linked to satisfaction and trust with public policy and service delivery. These are essential for the functioning of democratic political systems and societies at large as demonstrated through the link to the broader environment in which governments operate. To capture this non-material input, this chapter relies on the notion of "legitimacy", defined as citizens' acceptance of government action. In line with the overarching model, institutional performance can be assessed from the perspective of input legitimacy, throughput legitimacy and, ultimately, output legitimacy (Scharpf, 1999; Schmidt, 2013). This perspective makes it possible to analyse governments' activities in collecting and processing input to produce output/outcome with the overarching objective of building and maintaining trust.

*Figure 2: Conceptual framework underpinning the benchmarking study (see study introduction)*




*Source: Bouckaert and Halligan 2008:16 (modified)*

### 3.3.1. Dimensions of legitimacy: input, throughput, and output

Input legitimacy refers to the extent to which citizens' preferences are meaningfully integrated in the policy process (Scharpf, 1998; see also Scharpf, 1999; Schmidt, 2013). In democratic systems of governance, the participation of citizens through elections and other instruments is a fundamental prerequisite for input legitimacy. Equality of representation is essential for all participatory instruments to ensure that diverse societal groups and stakeholders have a voice in shaping policies (Fung, 2006; Eshuis & Edwards, 2013; Torfing et al., 2012).

Throughput legitimacy refers to the perceived quality of decision-making procedures, specifically how fair, transparent, inclusive, and accountable governance processes are (Schmidt, 2013). This dimension of legitimacy is increasingly recognised as essential to trust in public administration, as citizens and stakeholders not only expect effective outcomes but also ethical and procedurally sound governance.

Output legitimacy refers to the effectiveness and impact of policies as perceived by those affected (Scharpf, 1999; Klijn & Koppenjan, 2015). It relates to whether public decisions result in tangible improvements, problem-solving capacity, and equity in service delivery or redistribution (Schmidt, 2013). From a trust perspective, it includes both objective performance metrics and perceived acceptance – whether citizens and stakeholders feel that outcomes reflect their needs and are of high quality (Emerson & Nabatchi, 2015).

The interaction between the three dimensions of legitimacy is a much-discussed question (see e.g. Klijn & Edelenbos, 2013; Van Meerkerk et al., 2015). Most controversial is the question of whether input and output legitimacy are mutually reinforcing or competing dimensions. From the perspective of competing dimensions, citizens' participation is seen as potentially detrimental to the provision of optimal outcomes. Emphasising output legitimacy thus prioritises government-led processes, where outcomes are clear, expectations are managed, and decision makers retain authority to modify or reject participatory input if necessary (Nederhand & Edelenbos, 2022). From the perspective of mutual reinforcement, clear pathways linking participation to concrete policy changes is seen as beneficial for output legitimacy as well (Torfing et al., 2012). If outputs are detached from prior participatory input or if outcomes are weakly communicated, this dimension may fail to offset deficits in the other two legitimacy dimensions. Both perspectives stress the importance of delivering high-quality services, with a view to maintain trust in government capabilities, but disagree regarding the extent and value of citizen participation. The role of throughput legitimacy further complicates interactions as there is no common understanding about the effects on input and output legitimacy (see Caby & Frehen, 2021). In view of these continuing ambiguities, the conceptual framework in this chapter is built on the assumption that input, throughput, and output legitimacy are related, while refraining from stating normative expectations with regard to the nature of these interactions.

### 3.3.2. Drivers of trust

In line with the comprehensive input–output model underpinning this study, it is important to take a systemic or holistic view recognising that enhancing trust requires action throughout the policy process. To operationalise such action, enabling the analysis of concrete cases, the chapter complements the input–output model with the OECD Framework on the Drivers of Trust. This framework includes action-oriented drivers which are grouped in three categories of factors contributing to trust:

1) ***Governance***: the competencies and values deployed by political systems in formulating and implementing policies and services;
2) ***Perceived capacity***: the belief of citizens that political systems have the capacity to address major policy challenges and to ensure economic and social well-being;
3) ***Individual and group attributes***: the cultural and socio-economic factors affecting individual citizens' perceptions of political systems.

Although these categories interact with each other, this chapter will focus on governance, as it concerns the competencies and values applied by political systems in formulating and implementing policies and services[2]. As such, it addresses those areas of action where governments can directly influence citizens' perceptions of public institutions.

[2] Focusing on governance enables a more objective and comparable analysis across countries, whereas perceived capacity and individual or group attributes reflect subjective factors that vary significantly between countries and are often shaped by cultural and socio-economic contexts. Moreover, within the current scope of the chapter they go beyond the direct sphere of influence of policymakers.

In the governance category, the framework conceptualises five drivers of trust:

- **Reliability**
  Reliability is defined as general satisfaction with administration and specific aspects of administrative processes (e.g. data protection, use of advanced information technology) in regular operation and times of crisis.

- **Responsiveness**
  Responsiveness is defined as evidence-informed decision-making and service delivery based on citizens' input and feedback.

- **Openness**
  Openness is defined as the participation and engagement of citizens at all levels of government, as well as the accountability and transparency of political and administrative processes.

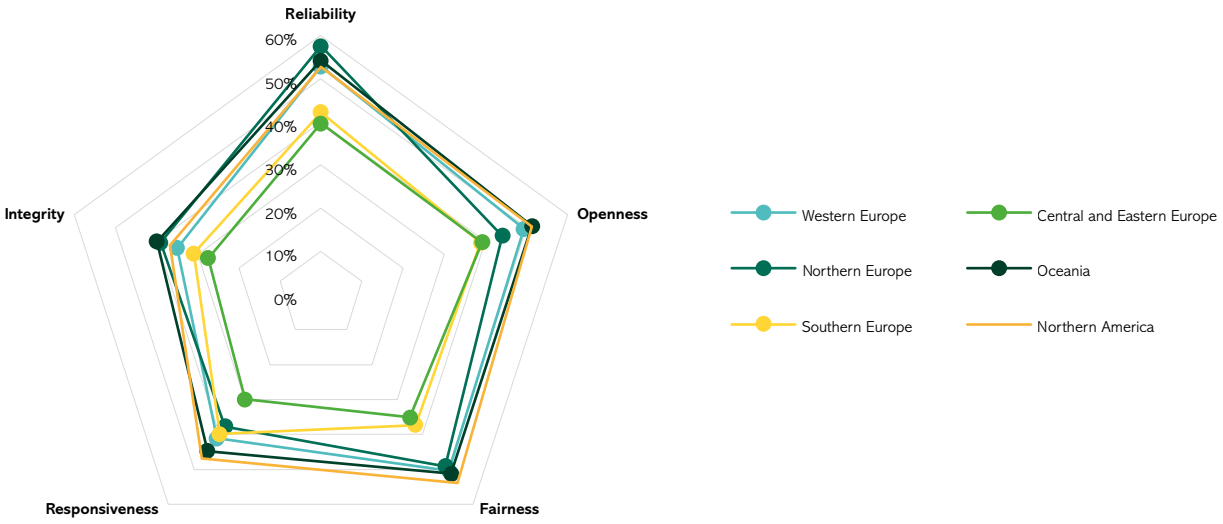
- **Integrity**
  Integrity comprises public sector integrity (e.g. tackling corruption, "revolving doors"), a "level playing field" for interest representation and accountability between branches of government.

- **Fairness**
  Fairness is defined as the representation of territorial and societal needs as well as the equal, fair, and consistent treatment of citizens.

The drivers are broadly defined categories and thus amenable to a wide variety of public sector action to improve trust. Drawing on the latest numbers obtained through the OECD Trust Survey, the most critical drivers are responsiveness and integrity. Whereas citizens across all countries are fairly confident that their governments are reliable (49% on average), fair (45%), and open (45%), citizens are least confident regarding responsiveness and integrity. On average, only 38% of citizens are confident about their governments being responsive to citizen input and feedback, and only 34% are confident about their governments' integrity including a level playing field for interest representation (see Table 2 for full results). This underscores the need for designing and implementing actions to improve perceptions of these two drivers.

This need, while generally applicable, is of particular salience in Central and Eastern Europe and, to some extent, in Southern Europe. In these regions, citizens are significantly less confident across all drivers compared to Western and Northern Europe (see Figure 3).

*Figure 3: Share of respondents confident their government acts in line with each trust driver, by region*




*Source: OECD Trust Survey*

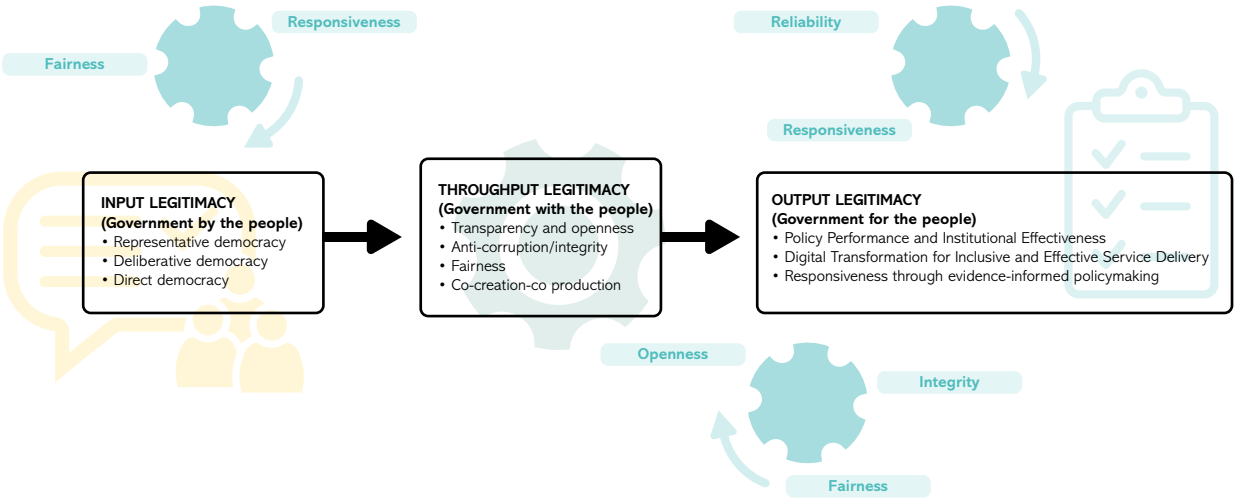
These drivers can be integrated into the overarching input–output model (see Figure 2). By examining how these trust drivers are interrelated with input, throughput, and output legitimacy, the chapter aims to identify targeted ways to improve trust at each stage of government activity. Ultimately, while these concepts are deeply interconnected and may not always be perfectly delineated, using both frameworks together offers a comprehensive structure for understanding and enhancing trust in public institutions.

Input legitimacy aligns with the responsiveness and fairness. When participatory processes are inclusive, representative, and allow meaningful citizen influence, they reflect responsiveness to diverse societal demands and promote distributive equity (see Connelly, 2011; Edelenbos & van Meerkerk, 2016). Three main enablers can enhance input legitimacy: representative democracy, deliberative democracy, and direct democracy. Each offers distinct avenues through which citizens can engage with and shape public decision-making, thereby reinforcing perceptions of responsiveness and fairness (see Section 4.2.a for a detailed discussion).

Throughput legitimacy aligns with openness, fairness, and integrity. Improving processes by making them transparent and fair processes, and ethical standards, can play a pivotal role in reinforcing trust in government institutions overall (see Nederhand & Edelenbos, 2022). Four main enablers can strengthen throughput legitimacy: transparency, integrity and anti-corruption, fairness, and co-creation and co-production. Each contributes to ensuring that governance processes are conducted openly, ethically, and collaboratively, thereby reinforcing citizens' trust in the quality of policymaking (see Section 4.2.b for a detailed discussion).

Output legitimacy primarily connects to the OECD drivers of reliability and responsiveness. This underscores the importance of governments reliably providing high-quality public services, in line with citizens' demands and necessities. Three main enablers can enhance output legitimacy: policy performance and institutional effectiveness, digital transformation for inclusive and effective service delivery, and responsiveness through evidence-informed policymaking. Each strengthens trust by ensuring that government actions deliver tangible results, provide equitable access to services, and respond effectively to citizens' needs (see Section 4.2.c for a detailed discussion).

*Figure 4: Model showing conceptual framework: The interrelation between dimensions of legitimacy and the drivers of trust*




This framework illustrates how trust in public institutions can be strengthened through different, yet interconnected, dimensions of legitimacy. Input legitimacy (fairness and responsiveness), throughput legitimacy (openness, fairness, integrity), and output legitimacy (responsiveness and reliability) are shown as cogs, highlighting that each driver is interdependent and can set others in motion. Trust may be enhanced through two pathways: either by improving a single legitimacy dimension directly, or by reinforcing connections across the whole chain of input, throughput, and output, which together can generate more resilient and sustainable trust.

*Table 2: Share of respondents expressing confidence in their government's actions related to each driver of trust in 2024*

| Country | Region | Reliability | Openness | Fairness | Responsiveness | Integrity |
|---|---|---|---|---|---|---|
| Austria | Western Europe | 55,66% | 52,46% | 55,43% | 47,80% | 36,81% |
| Belgium | Western Europe | 52,66% | 48,13% | 48,35% | 43,91% | 34,77% |
| France | Western Europe | 48,29% | 43,80% | 44,54% | 40,61% | 34,50% |
| Germany | Western Europe | 48,21% | 42,93% | 43,61% | 33,49% | 30,16% |
| Ireland | Western Europe | 54,02% | 53,21% | 56,39% | 29,98% | 35,85% |
| Luxembourg | Western Europe | 53,91% | 48,11% | 50,33% | 41,72% | 35,50% |
| Netherlands | Western Europe | 59,57% | 53,40% | 57,50% | 46,51% | 38,24% |
| Switzerland | Western Europe | 60,40% | 59,89% | 55,09% | 55,95% | 40,59% |
| United Kingdom | Western Europe | 42,55% | 42,20% | 42,02% | 29,48% | 28,62% |
| Denmark | Northern Europe | 59,16% | 48,99% | 50,00% | 42,22% | 45,07% |
| Finland | Northern Europe | 71,26% | 49,30% | 57,44% | 43,61% | 39,25% |
| Iceland | Northern Europe | 49,38% | 42,01% | 46,01% | 29,60% | 30,70% |
| Norway | Northern Europe | 55,10% | 35,48% | 46,80% | 33,96% | 40,82% |
| Sweden | Northern Europe | 52,81% | 44,93% | 45,00% | 38,96% | 39,27% |
| Cyprus | Southern Europe | | | | | |
| Greece | Southern Europe | 38,18% | 39,02% | 34,85% | 39,23% | 25,35% |
| Italy | Southern Europe | 47,44% | 39,35% | 39,95% | 41,44% | 34,09% |
| Malta | Southern Europe | | | | | |
| Portugal | Southern Europe | 36,78% | 35,76% | 33,22% | 37,60% | 29,59% |
| Spain | Southern Europe | 46,37% | 41,53% | 41,02% | 41,04% | 34,74% |
| Bulgaria | Central and Eastern Europe | | | | | |
| Croatia | Central and Eastern Europe | | | | | |
| Czech Republic | Central and Eastern Europe | 36,40% | 36,89% | 32,51% | 25,43% | 24,25% |
| Estonia | Central and Eastern Europe | 45,96% | 42,76% | 38,67% | 31,47% | 28,56% |
| Hungary | Central and Eastern Europe | | | | | |
| Latvia | Central and Eastern Europe | 36,54% | 38,48% | 37,81% | 28,85% | 25,01% |
| Lithuania | Central and Eastern Europe | | | | | |
| Poland | Central and Eastern Europe | | | | | |
| Romania | Central and Eastern Europe | | | | | |
| Slovakia | Central and Eastern Europe | 39,51% | 41,01% | 33,74% | 33,10% | 31,77% |
| Slovenia | Central and Eastern Europe | 39,65% | 37,25% | 32,86% | 30,91% | 27,70% |
| Australia | Oceania | | | | | |
| New Zealand | Oceania | 54,20% | 51,36% | 51,25% | 44,70% | 39,90% |
| Canada | Northern America | 52,64% | 51,27% | 53,79% | 46,80% | 36,73% |
| United States | Northern America | | | | | |

*Source: OECD Trust Survey 2024*

# 3.4. ENABLERS OF INPUT LEGITIMACY

Input legitimacy refers to the integration of citizens' preferences in the policy process through various participatory instruments such as elections or societal consultation. The mechanisms of such integration vary depending on the general institutional features (polity) of the politico-administrative system. The drivers of openness, fairness, and responsiveness are closely related to input legitimacy because they are positively associated with citizens' opportunities to express preferences through various instruments of participation.

### Section outline and key messages

The section first presents the classic distinction between two ideal types, direct democracy and representative democracy, for examining different forms and purposes of citizen participation. Drawing on these ideal types, it examines the potential of action-oriented reform of different instruments of citizen participation. This examination is based on the literature review, which further explores the general features, limitations, and potentials of all three types. The case study Citizens' Assemblies in Ireland is used to provide illustration and further reflection on the interactions between different participatory instruments.

The section then presents evidence across all countries based on the "voice and accountability" indicator of the World Bank Good Governance survey. The indicator measures fundamental freedoms and citizens' participation in selecting governments, thus touching upon essential components relevant for input legitimacy.

**Key messages**

- **Citizens' disengagement stems from perceived policy disconnects.**
  When people feel that government decisions do not reflect their demands, they may withdraw support not only from specific governments or parties but from democratic participation itself.
- **Tools such as frameworks for intergenerational fairness clarify long-term impacts.**
  These structured tools are designed to make the effects of today's policies on future generations visible and open to scrutiny. By doing so, they create space for under-represented voices and strengthen citizens' sense of inclusion in policymaking.
- **Deliberative democracy complements representative institutions.**
  It enhances input legitimacy by enabling informed, collective reasoning among citizens, reducing reliance on partisan contestation or elite-driven negotiations alone.
- **Scaling deliberative practices remains a challenge.**
  While citizen assemblies and similar initiatives are multiplying, they often stay peripheral to core decision-making. Their long-term legitimacy depends on robust institutionalisation and the ability to meaningfully shape outcomes.
- **Citizen-driven insights improve the social grounding of policies.**
  Deliberative mechanisms enrich traditional democratic processes, ensuring that decisions are not only technically sound but also socially acceptable and broadly supported.
- **Deliberation helps manage disagreement on sensitive issues.**
  By fostering inclusive dialogue, it can reduce polarisation and build shared understanding on contentious policy questions.
- **Direct and consensual democracy can enhance responsiveness.**
  Elements of direct democracy or more consensual forms of governance can improve perceptions of government responsiveness and strengthen citizens' trust.
- **Direct democracy works best when paired with deliberation.**
  Using deliberative mechanisms as a preparatory step ensures that direct democratic tools are informed, inclusive, and less prone to polarisation and more likely to succeed.

### Citizen participation in ideal types: representative, direct, and deliberative democracy

The classic distinction between two ideal types, direct democracy and representative democracy, is useful for examining different forms and purposes of citizen participation. However, most countries have combinations of these ideal types including direct democratic and representational elements. Moreover, there is also variation of these elements within countries between the national and subnational levels.

Drawing on these types, different forms and purposes of political participation can be distinguished (see Teorell, 2006). The fundamental purpose for citizen participation in both direct and representative democracy is the change of government and influencing policies. The expression of policy preferences through elections or popular vote (referenda) is of particular importance because it is closely related to the responsiveness driver. When expressing their preferences by casting their votes in elections, citizens expect the respective legislatures/governments to respond by adopting policies in line with these preferences. Hence, open and fair electoral processes are critical for input legitimacy, yet responsiveness contributes to output legitimacy assuming that citizens values outcomes that are in line with stated preferences.

The link between input and output legitimacy is most visible in some types of direct democracy. In case of referenda that include concrete policy choices and that are binding on governments, citizens' participation is directly linked to decision-making power. In other cases, for instance non-binding referenda, preferences expressed by citizens contribute to policy shaping but participation does not translate into power directly. Whereas both representative and direct democracy entail deliberation among citizens with a view to form and adjust preferences, the specific inclusion of citizens in shaping policies and options is often seen as third ideal type, namely deliberative democracy.

Hence, political action, innovation, and reform to increase meaningful participation of citizens can be geared towards one or more of the three ideal types of democracy. Such reform can address specific drivers such as openness, fairness, and ultimately, responsiveness with a view to increasing input legitimacy.

#### 3.4.1. Representative democracy

The countries covered in the Benchmarking Study are all representative democracies and representation of citizens in legislatures through regular and free elections remains a cornerstone of input legitimacy. To ensure the quality of representative democracy, a key prerequisite is the guarantee of free and fair elections, depending on the specificities of the national electoral rules and party system. However, in recent years, discontent with classic forms of representation has been growing with representative democracy facing several challenges (Lacelle-Webster & Warren 2021; Wike et al., 2019). This discontent is associated with declining global rates of participation (voter turnout) since the 1940s (see Kostelka & Blais, 2021). These challenges are directly related to drivers of trust such as openness, fairness, and responsiveness.

For instance, the socio-economic attributes of elected officials do often not represent identity-based demographics, such as ethnicity or gender. Regarding age, Stockemer and Sundström (2025) argue that such inequalities – notably the under-representation of young people – are particularly problematic, especially given long-term policy challenges such as climate change and digital transformation. Hence, citizens feel disconnected from legislative bodies that do not reflect the demographic diversity of the population at large (see also Gerring et al., 2023). Such disconnect is directly related to perceptions of lack of openness and fairness, and often results in abstaining from participation through elections altogether.

While electoral mandates are a powerful source of input legitimacy, neglecting other forms of participation risks undermining trust in the openness and fairness of representation (Yang & Callahan, 2007; Crosby et al., 2008; Nederhand & Edelenbos, 2022). Hence, other channels of citizen participation are important to increase fairness and responsiveness. To provide input between elections, for instance, most political systems entail several participatory tools such as consultations. Between 2014 and 2023, the overall trend in societal consultation across the country sample was one of relative stability, with modest positive developments (see Table 4)[3]. Thirteen countries showed no change in their scores, while nine recorded slight increases, and seven experienced declines. The most common situation was no change at all, suggesting that institutional approaches to societal consultation have remained consistent for many governments. Notably, the greatest increase observed was +2 (Cyprus, Ireland, Greece, and Malta), indicating a moderate strengthening of consultation practices[4]. In contrast, Poland saw a significant decline of −4, marking the greatest decrease in the sample and pointing to a substantial erosion in participatory engagement.

[3] The indicator assesses the degree to which governments engage with societal actors such as trade unions, business and employer associations, and civil society groups (e.g. environmental or religious organisations). High levels of societal consultation signal a political system attentive to democratic input, while low levels may indicate a participatory gap, with implications for trust and policy effectiveness.

[4] ADD SCALE

In the last two years, the societal consultation indicator has remained largely unchanged across most countries, with only a few registering slight improvements (+1 or an improvement of 2 points in the US, and the Netherlands experiencing a minor decline (−1). Decrease in societal consultation may indicate a weakening of input legitimacy, with fewer opportunities for meaningful participation, potentially leading to perceptions of exclusion or disconnection, and as a result, declining trust in government. In general, when citizens are given opportunities to participate beyond elections, but their contributions are consistently ignored, participation risks being reduced to a symbolic exercise.

*Table 3: Societal Consultation*

| Country | Region | 2014 | 2016 | 2018 | 2020 | 2022 | 20222 | Change |
|---|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **8** | 0 | 0 | -1 | 0 | **7** | -1 |
| Belgium | Western Europe | **7** | -1 | 0 | 0 | 0 | **6** | -1 |
| France | Western Europe | **6** | -1 | 1 | 0 | 0 | **6** | 0 |
| Germany | Western Europe | **7** | 0 | 0 | 0 | 0 | **7** | 0 |
| Ireland | Western Europe | **4** | 1 | 1 | 0 | 0 | **6** | 2 |
| Luxembourg | Western Europe | **8** | 0 | 0 | -1 | 0 | **7** | -1 |
| Netherlands | Western Europe | **9** | 0 | 0 | -1 | -1 | **7** | -2 |
| Switzerland | Western Europe | **10** | 0 | 0 | 0 | 0 | **10** | 0 |
| United Kingdom | Western Europe | **5** | 2 | 0 | 0 | 0 | **7** | 2 |
| Denmark | Northern Europe | **9** | 0 | 0 | 0 | 0 | **9** | 0 |
| Finland | Northern Europe | **10** | -1 | -1 | 0 | 0 | **8** | -2 |
| Iceland | Northern Europe | **6** | 0 | 0 | 0 | 0 | **6** | 0 |
| Norway | Northern Europe | **10** | 0 | 0 | 0 | 0 | **10** | 0 |
| Sweden | Northern Europe | **8** | 0 | 0 | 0 | 1 | **9** | 1 |
| Cyprus | Southern Europe | **5** | 0 | 0 | 0 | 0 | **5** | 0 |
| Greece | Southern Europe | **2** | 1 | 0 | 0 | 1 | **4** | 2 |
| Italy | Southern Europe | **4** | 0 | 1 | -1 | 1 | **5** | 1 |
| Malta | Southern Europe | **5** | 1 | 0 | 0 | 0 | **6** | 1 |
| Portugal | Southern Europe | **4** | 0 | 0 | 1 | 1 | **6** | 2 |
| Spain | Southern Europe | **5** | 0 | 0 | 1 | 0 | **6** | 1 |
| Bulgaria | Central and Eastern Europe | **5** | 0 | 0 | 0 | 1 | **6** | 1 |
| Croatia | Central and Eastern Europe | **4** | 0 | 0 | 0 | 0 | **4** | 0 |
| Czech Republic | Central and Eastern Europe | **5** | 1 | 0 | 0 | 0 | **6** | 1 |
| Estonia | Central and Eastern Europe | **8** | -1 | 0 | 0 | 0 | **7** | -1 |
| Hungary | Central and Eastern Europe | **2** | 0 | 0 | 0 | 0 | **2** | 0 |
| Latvia | Central and Eastern Europe | **7** | 0 | 1 | 0 | 0 | **8** | 1 |
| Lithuania | Central and Eastern Europe | **7** | 0 | 0 | 0 | 0 | **7** | 0 |
| Poland | Central and Eastern Europe | **7** | 0 | -3 | -1 | 0 | **3** | -4 |
| Romania | Central and Eastern Europe | **3** | 1 | -1 | 0 | 0 | **3** | 0 |
| Slovakia | Central and Eastern Europe | | 0 | 0 | 0 | 0 | | |
| Slovenia | Central and Eastern Europe | **4** | 1 | 0 | 0 | 0 | **5** | 1 |
| Australia | Oceania | **7** | 0 | 0 | 0 | 0 | **7** | 0 |
| New Zealand | Oceania | **8** | 0 | 0 | 0 | 0 | **8** | 0 |
| Canada | Northern America | **7** | 0 | 1 | 0 | 0 | **8** | 1 |
| United States | Northern America | **8** | 0 | -3 | 0 | 2 | **7** | -1 |

*Source: Societal Governance Indicator Network*

Hence, another key challenge is responsiveness, i.e. the extent to which governments adopt policies that are in line with citizens' preferences, as mediated through elections and party-political government formation. Through elections, citizens expect to not only contribute to the formation of government but to change policy in line with their aggregated preferences. Yet, perceived non-responsiveness conflicts with such expectations and thus undermines the legitimacy of the electoral process. The disconnection between citizens and government is associated with citizens' perceptions that policies do not reflect their demands and as a result, they withdraw their support, not only of governments or specific parties, but of the democratic process of voting as such.

### 3.4.2. Deliberative democracy

Deliberative democracy can be defined as "a form of government in which free and equal citizens (and their representatives), justify decisions in a process in which they give each other reasons that are mutually acceptable and generally accessible, with the aim of reaching conclusions that are binding in the present on all citizens but open to challenge in the future" (Gutmann & Thompson, 2016: 7). Whereas representative democracy entails deliberation among citizens, given that electoral processes are embedded in broader societal debates, deliberative democracy involves creating structured opportunities for citizens to discuss public issues, exchange arguments, and influence policy decisions through inclusive and reasoned dialogue. This is often realised through institutional mechanisms such as citizens' assemblies, deliberative polls, or mini-publics, where randomly selected or demographically representative citizens deliberate on complex policy topics and present informed recommendations to decision makers (Smith, 2009). These processes are typically facilitated, evidence-based, and designed to promote mutual respect and understanding among participants. Such initiatives demonstrate how deliberative democracy can function alongside representative institutions to enhance input legitimacy, by giving citizens a direct role in shaping public policy through informed, collective reasoning rather than partisan contestation or elite negotiation alone.

Deliberative democracy has gained significant traction as both a normative ideal and a practical approach to strengthening democratic legitimacy, particularly in an era marked by overlapping global crises. According to Curato et al. (2022), the growing popularity of deliberative practices reflects a response to the shortcomings of electoral and representative institutions, which often struggle to handle complex, long-term challenges such as climate change, economic instability, and public health emergencies. In what the authors describe as an "age of serial crisis", deliberative processes, such as citizens' assemblies, mini-publics, and deliberative polls, are increasingly adopted to promote inclusive, reasoned debate among diverse actors. These mechanisms are valued for their potential to produce more reflective, equitable, and legitimate public decisions, especially in polarised or fragmented political environments.

However, the authors also warn that deliberative democracy faces critical tensions and limitations in this context. While deliberative initiatives are multiplying, they often remain marginal to core decision-making structures and risk being instrumentalised for legitimacy without genuinely influencing outcomes. Curato et al. (2022) argue that the future of deliberative democracy depends on its capacity to institutionalise itself more robustly, as a transformative force embedded in the everyday functioning of democratic governance. The challenge lies in scaling and sustaining deliberative practices in ways that are both inclusive and politically consequential. These potentials and possible pitfalls are further discussed in relation to citizens' assemblies in Ireland, which represent an instrument of deliberative democracy, allowing discussion on complex and potentially divisive topics, the formulation of policy and legislative recommendations, and possibly preparing the ground for nationwide consultations (see case study on next page).

### 3.4.3. Case study: Citizens' Assemblies in Ireland

**What is this tool?**

The Citizens' Assemblies in Ireland are institutionalised forums for deliberative democracy, introduced in 2016. They consist of randomly selected citizens who are tasked with discussing and issuing recommendations on complex and often contentious societal issues. The goal is to ensure that the views of a diverse cross-section of the public are considered in shaping national policy (Citizens' Assembly, n.d.).

**What is the problem it addresses? What is the added value?**

The key problem addressed is the limited responsiveness and inclusiveness of representative democracy, especially when dealing with morally complex or politically polarising issues. Citizens' assemblies serve as a way to broaden input legitimacy by involving ordinary people in policy formation, enabling decision makers to better understand public values in a deliberative and informed setting.

The added value lies in their ability to supplement traditional democratic processes with citizen-driven insights, helping to ensure that public decisions are not only technically sound, but socially grounded and broadly acceptable.

**How does it work in general and in this case?**

The assemblies are established by the government and approved by parliament. Participants are selected to broadly reflect the demographic makeup of Irish society. They meet over several sessions to examine evidence, hear from experts and stakeholders, and deliberate in small, facilitated groups. The public can also submit written input to inform the discussions. At the end of the process, the assembly publishes a report with non-binding recommendations, which the government is required to review and respond to publicly (Citizens' Assembly, n.d.; Citizens' Information, n.d.).

A clear example is the Citizens' Assembly on the Eighth Amendment, which took place between 2016 and 2017. The assembly recommended repealing the constitutional restriction on abortion, leading to a 2018 referendum and the subsequent legalisation of abortion in Ireland (Participedia, n.d.).

**How does it address the problem?**

The assemblies strengthen input legitimacy by ensuring that a diverse group of citizens, rather than just elected officials or organised interests, can shape the policy agenda. Through transparent procedures, inclusive selection, and public engagement, they create a channel for citizen voice that complements electoral processes. By incorporating expert knowledge and structured deliberation, they also increase the quality of citizen input, moving beyond opinion polling to reasoned collective judgement. By being exposed to reasoning that supports views other than their own, participants may come to regard outcomes they personally disagree with as more acceptable or legitimate than they would have otherwise (Grönlund et al., 2010).

**Is it transferable to other scenarios?**

The Irish model has inspired deliberative processes in several other democracies, including in France and Scotland. Key features that support transferability include random selection, state sponsorship with clear mandates, structured deliberative formats, and institutional follow-up through government responses or referenda. Its success in Ireland demonstrates how deliberative mechanisms can enhance democratic legitimacy and manage public disagreement on sensitive issues.

**Challenges**

While the flexible and lightly regulated nature of citizens' assemblies has enabled their broad application across diverse issues, their lack of institutionalisation and binding power has, at times, limited their effectiveness (Courant, 2021). For example, despite the success of the Assembly on abortion rights, other initiatives – such as the assembly on gender equality – failed to produce impactful results, with a referendum in 2024 rejecting constitutional changes that diverged from the Assembly's recommendations. This highlights the need to embed deliberative mechanisms within robust institutional frameworks to safeguard their legitimacy and maintain public trust.

Moreover, concerns have been raised about the representativeness of mini-publics. According to Spada and Peixoto (2025), the small size of these bodies, combined with self-selection bias due to high refusal rates, can undermine their legitimacy. There is also a risk of exclusion or domination by certain groups. To address this, the authors suggest organising multiple parallel assemblies or designing deliberative processes specifically for marginalised groups, aligning more closely with the fairness driver of trust.

### 3.4.4. Direct democracy

In recent years, the use of direct democracy in Western countries, understood in the strict sense as binding referenda, citizen initiatives, and recall votes, has followed a pattern of cautious expansion, particularly at subnational levels. While national referenda remain rare in most Western democracies, Switzerland continues to stand out with its frequent and binding use of popular votes. As already mentioned, other countries – such as Ireland – selectively deploy referenda for major constitutional or societal issues, often following deliberative processes or judicial oversight (Egger & Magni-Berton, 2024).

Subnationally, citizen initiatives have become more prevalent, particularly in federal systems such as Germany and the United States. In German Länder, instruments such as *Volksbegehren* and *Volksentscheide* allow citizens to directly influence local legislation on housing, environmental policy, and education. Similarly, many US states offer mechanisms for citizen-initiated laws and ballot referenda, although their quality and inclusiveness vary significantly depending on procedural safeguards (Bernhard, 2024).

Legal reforms in some countries aim to make direct democratic instruments easier to use while also ensuring they are fair, well-informed, and not easily manipulated. Finland, for instance, has simplified procedural requirements for citizen initiatives, while US states such as Oregon have institutionalised deliberative panels to inform voters before ballot initiatives. However, recent developments in direct democracy suggest a general pattern of selective and context-specific adoption, reflecting both the democratic potential and inherent risks of direct democracy mechanisms (Rattanasevee et al., 2024).

While it has been argued that the introduction of elements of direct democracy should lead to higher perceived government responsiveness (Hero & Tolbert, 2004), some of the literature adds some further nuance to this assumption. According to Kern (2017), the availability of instruments of direct democracy is positively related to perceptions of government responsiveness and trust. However, the actual use of such instruments has no impact on perceived responsiveness and a negative impact on trust. Such a finding can be explained by the fact that on the one hand, the existence of a system with elements of direct democracy might be more important in the eyes of citizens than their actual fruition. On the other hand, the need to adopt direct democracy might acquire a negative connotation if elected representatives are perceived as not competent and trustworthy in taking decisions on behalf of those they represent.

A country that has been well known for its conspicuous use of direct democracy in the form of referenda and popular initiatives is Switzerland. As stated by (2024), the country enjoys high levels of satisfaction with democracy, political stability, and economic prosperity. Nevertheless, he also points to the peculiarities of the Swiss political system, which is highly consensual and characterised by very broad governing coalitions. The coexistence of direct democracy and strongly consensual governance has a mutually reinforcing effect. The possibility of challenging legislative proposals in a referendum leads governments to pursue as much consensus as possible in their decisions. As a result, it is unlikely that citizens will be asked to vote on overly divisive topics with consequences that might hinder political and social stability.

It could also be argued that referenda and popular initiatives are "institutionalised" political actions, as opposed to "non-institutionalised" actions. Institutionalised actions are directly linked to the institutional process such as voting, joining political parties, and reaching out to government officials. Non-institutionalised actions, such as engaging in protests, signing petitions, and boycotting products, lie outside the institutional process (Hooghe & Marien, 2013). Participation in the former has been associated with higher levels of political trust, while the latter with lower levels (Hooghe & Marien, 2013). The ample opportunities for Swiss citizens to join institutionalised forms of political action such as referenda might in part explain their high level of trust. Indeed, referenda and popular initiatives are often embraced by societal movements, with the effect of integrating dissent in the institutional process (Kübler, 2024). In other countries, such dissent has no other way to be expressed than in non-institutionalised ways.

The rather unique Swiss political configuration and practices would be difficult to replicate in countries with different institutional systems, societal characteristics, political culture, and history and cultural heritage (Dardanelli, 2005; Linder & Mueller, 2021). Nevertheless, certain elements of direct democracy or, more generally, of consensual government could be more easily applicable in the contexts of other countries and could potentially benefit perceptions of government responsiveness and, in the end, citizens' trust.

The case study of Citizens' Assemblies in Ireland, presented in the previous subsection, represents a good example of engaging in direct democracy (through a referendum) after a careful collection and consideration of the views and desires of society as a whole on a potentially divisive topic such as abortion rights. This is quite unique to Ireland. In other countries, there is the possibility for citizens to ask for a national referendum or to submit legislative proposals; however, this is generally less efficient and effective.

In most countries under consideration, citizens can ask for a national referendum, which can be of a binding or non-binding nature. Typically, this requires the collection of a certain number of signatures, which varies according to their size. While there are instances of referenda being held, resulting in changes to policy, legislation, or the constitution, the success of these initiatives is often limited. This can be attributed, for instance, to stringent requirements for signature collection and the possibility of governments rejecting proposed referenda. This was the case in Italy in 2022, when a proposed referendum on allowing active euthanasia, for which sufficient signatures had been gathered, was not allowed by the Constitutional Court (Krintovski, 2021). Moreover, in cases where referenda are actually held, the minimum thresholds for turnout are often not met.

Several countries allow the submission of citizen-initiated proposals or constitutional amendments, with similar requirements for the number of signatures. The success of such initiatives has been quite limited, with few exceptions. In addition to bureaucratic and logistical challenges, governments have often been unresponsive to such proposals, which have struggled to advance in legislative processes.

The general experience with citizen-initiated referenda and legislative proposals underscores that the high costs in terms of effort required for such initiatives often do not yield the desired results. The logistically difficult process of gathering signatures risks being wasted if proposed referenda are rejected by the government, or if they do not attract a sufficient participation of voters. Moreover, non-binding referenda and legislative proposals can be ignored, frustrating the efforts of proponents.

The Irish approach, centred on the role of citizens' assemblies, is generally more efficient and effective. Rather than collecting signatures and submitting proposals to the government without prior consultation, the assemblies allow an initial stage of discussion among citizens and with the government. This has the advantage of better reflecting on the subject at hand, refining the content of the legislative proposal or constitutional amendment and, if necessary, laying the groundwork for a referendum with a higher chance of success.

Therefore, while there is the possibility of implementing direct democracy, it is advisable to do so in conjunction with deliberative democracy, especially as a preparatory step.

### Voice and accountability across countries

In conclusion of this section, the evolving landscape of input legitimacy is provided by drawing on the "voice and accountability" indicator of the World Bank Good Governance survey[5]. The indicator measures the perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media[6]. It touches upon essential components relevant for input legitimacy including electoral processes, pluralism, civil liberties, political rights and participation, freedom of the press, and civil society engagements.

As can be seen in Table 4, almost all countries (29 out of 35) subject to the Benchmarking Study experienced an increase in voice and accountability between 2019 and 2023. This indicates a positive trend, given that the remaining countries show only small decreases in the same period (less than 0.1). However, there is higher variation at the country level than the aggregate numbers would suggest. In contrast to the general trend, some countries show significant decline, i.e. Hungary (−0.68), Malta (−0.33), Bulgaria (−0.30), Poland (−0.25), and the United States (−0.23). While several countries are in Central and Eastern Europe, the variation regarding key features of the respective politico-administrative systems is noteworthy. Among the countries indicating decline are unitary and federal states, with different types of executive government and administrative cultures. This variation points to the fact that fundamental rights, electoral processes, and participation are amenable to improvement (as demonstrated by the majority of countries) and decline irrespective of system features.

[5] The indicator measures the perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.

[6] The indicator is based on perceptions of these components and aggregates information from over 30 sources.

*Table 4: Voice and accountability*

| Country | Region | 2007 | 2011 | 2015 | 2019 | 2023 | Change |
|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **1,37** | 0,03 | -0,02 | -0,05 | 0,07 | **1,41** | 0,04 |
| Belgium | Western Europe | **1,36** | -0,04 | 0,06 | -0,08 | 0,02 | **1,33** | -0,04 |
| France | Western Europe | **1,26** | -0,09 | 0,04 | -0,09 | 0,04 | **1,15** | -0,11 |
| Germany | Western Europe | **1,34** | 0,01 | 0,07 | -0,07 | 0,11 | **1,46** | 0,12 |
| Ireland | Western Europe | **1,40** | -0,09 | 0,03 | -0,03 | 0,18 | **1,48** | 0,09 |
| Luxembourg | Western Europe | **1,54** | 0,07 | -0,06 | -0,06 | 0,14 | **1,63** | 0,09 |
| Netherlands | Western Europe | **1,52** | 0,01 | 0,02 | -0,08 | 0,07 | **1,56** | 0,03 |
| Switzerland | Western Europe | **1,50** | 0,08 | -0,03 | -0,06 | 0,17 | **1,67** | 0,16 |
| United Kingdom | Western Europe | **1,34** | -0,04 | 0,00 | -0,03 | 0,00 | **1,26** | -0,07 |
| Denmark | Northern Europe | **1,48** | 0,07 | 0,00 | -0,01 | 0,12 | **1,66** | 0,19 |
| Finland | Northern Europe | **1,46** | 0,05 | 0,04 | 0,02 | 0,07 | **1,63** | 0,17 |
| Iceland | Northern Europe | **1,43** | -0,02 | -0,03 | -0,07 | 0,14 | **1,45** | 0,01 |
| Norway | Northern Europe | **1,55** | 0,08 | 0,06 | -0,03 | 0,12 | **1,78** | 0,23 |
| Sweden | Northern Europe | **1,51** | 0,10 | -0,05 | -0,01 | 0,02 | **1,57** | 0,06 |
| Cyprus | Southern Europe | **1,07** | -0,01 | -0,02 | 0,02 | -0,07 | **0,97** | -0,09 |
| Greece | Southern Europe | **0,98** | -0,16 | -0,17 | 0,16 | 0,20 | **1,01** | 0,03 |
| Italy | Southern Europe | **1,11** | -0,20 | 0,12 | -0,13 | 0,21 | **1,12** | 0,00 |
| Malta | Southern Europe | **1,24** | -0,10 | 0,06 | -0,12 | -0,17 | **0,91** | -0,33 |
| Portugal | Southern Europe | **1,23** | -0,12 | 0,02 | 0,07 | 0,02 | **1,21** | -0,02 |
| Spain | Southern Europe | **1,12** | -0,04 | -0,04 | -0,01 | 0,16 | **1,19** | 0,07 |
| Bulgaria | Central and Eastern Europe | **0,69** | -0,24 | -0,02 | -0,08 | 0,03 | **0,39** | -0,30 |
| Croatia | Central and Eastern Europe | **0,52** | 0,00 | 0,03 | -0,10 | 0,12 | **0,57** | 0,05 |
| Czech Republic | Central and Eastern Europe | **1,00** | 0,03 | 0,02 | -0,21 | 0,24 | **1,08** | 0,08 |
| Estonia | Central and Eastern Europe | **1,07** | 0,06 | 0,05 | -0,01 | 0,04 | **1,22** | 0,15 |
| Hungary | Central and Eastern Europe | **1,04** | -0,20 | -0,28 | -0,22 | 0,02 | **0,36** | -0,68 |
| Latvia | Central and Eastern Europe | **0,83** | -0,09 | 0,11 | 0,01 | 0,14 | **0,99** | 0,16 |
| Lithuania | Central and Eastern Europe | **0,89** | -0,03 | 0,11 | 0,02 | 0,08 | **1,07** | 0,18 |
| Poland | Central and Eastern Europe | **0,88** | 0,15 | 0,01 | -0,37 | -0,05 | **0,63** | -0,25 |
| Romania | Central and Eastern Europe | **0,50** | -0,12 | 0,11 | 0,03 | -0,01 | **0,50** | 0,00 |
| Slovakia | Central and Eastern Europe | **0,95** | 0,02 | 0,00 | -0,10 | 0,05 | **0,91** | -0,03 |
| Slovenia | Central and Eastern Europe | **1,06** | -0,01 | -0,07 | -0,01 | 0,10 | **1,08** | 0,02 |
| Australia | Oceania | **1,37** | 0,08 | -0,10 | -0,09 | 0,24 | **1,51** | 0,14 |
| New Zealand | Oceania | **1,48** | 0,10 | -0,02 | -0,02 | 0,15 | **1,69** | 0,21 |
| Canada | Northern America | **1,38** | 0,00 | 0,09 | -0,04 | 0,05 | **1,48** | 0,09 |
| United States | Northern America | **1,11** | 0,02 | -0,02 | -0,20 | -0,03 | **0,88** | -0,23 |

*Source: World Bank's Good Governance Indicators*

# 3.5. ENABLERS OF THROUGHPUT LEGITIMACY

Throughput legitimacy refers to the perceived quality of governance processes, focusing on how fair, transparent, inclusive, and accountable decision-making procedures are (Schmidt, 2013). This dimension highlights that citizens' trust in public administration depends not only on policy outcomes, but also on the procedural integrity through which these outcomes are achieved. Throughput legitimacy therefore suggests that citizens are more likely to accept binding political decisions when they perceive the underlying rules and processes as fair, transparent, and ethically sound.

### Section outline and key messages

The section examines key enablers such as transparency and openness, integrity and anti-corruption mechanisms, procedural fairness, and the co-creation or co-production of policies and services. These aspects strengthen the procedural foundations of trust and correspond closely to the OECD's trust drivers of integrity, fairness, and openness. Drawing on literature and selected case studies, the section explores how procedural improvements – whether through anti-corruption reforms, participatory co-design, or greater institutional transparency – enhance the legitimacy of governance and citizens' confidence in public institutions.

**Key messages**

- **Transparency and openness have improved, but gaps remain.**
  Governments have made notable progress in enabling citizen feedback and addressing dissatisfaction with services. However, more effort is needed to ensure timely and comprehensive access to public information, a key dimension of procedural transparency.
- **Integrity pacts promote fairness and accountability.**
  These mechanisms involve citizens directly in the oversight of public expenditure, reducing corruption risks and enhancing trust in how public funds are used by increasing procedural fairness and civil monitoring.
- **A culture of integrity must be actively cultivated.**
  Upholding ethical standards in the public sector depends not only on legislation but also on sustained communication and training that embed integrity into institutional culture and day-to-day operations.
- **AI-powered tools strengthen anti-corruption efforts.**
  These technologies improve the detection of fraud and abuse by analysing complex data quickly and consistently. They reduce human bias, increase efficiency, and free up staff to focus on higher-value tasks, thereby boosting capacity and fairness in oversight.
- **Automation requires regulation and public trust.**
  While artificial intelligence (AI) tools can be applied across domains, they must be governed by clear rules and human oversight. Citizens are particularly sensitive to the perceived fairness and transparency of automated procedures.
- **Co-creation brings legitimacy into practice.**
  Participatory approaches such as co-creation and co-production translate abstract principles of openness, fairness, and integrity into concrete practices by involving citizens in the design and delivery of services and policies.
- **Innovation labs can make policymaking more transparent and inclusive.**
  When backed by political support and adequate capacity, public innovation labs – such as the Latvian Innovation Laboratory – promote collaboration and iterative experimentation, making decision-making more inclusive, adaptive, and aligned with real needs.
- **Collaborative initiatives foster ownership and trust.**
  Projects such as Co-City demonstrate how bottom-up, community-driven processes can enhance procedural fairness and responsiveness, while building shared ownership of public decisions and strengthening mutual trust.

### 3.5.1. Transparency and openness

As mentioned above, transparency and openness are the foundations of throughput legitimacy. Transparency, intended as the disclosure of data and information, including procedures and decision-making, is also instrumental in obtaining citizens' confidence (Schmidthuber et al., 2021). Openness concerns citizens' ability to actively participate in public decision-making, which increases the level of influence they can exert on government affairs. This is generally associated with a higher level of trust in public institutions (Schmidthuber et al., 2021).

Nevertheless, according to Pomburescu (2015), more openness and transparency do not automatically lead to higher levels of trust. The provided information may lack relevance in the eyes of citizens and therefore have a counterproductive effect. Governments and public administrations may decide to apply transparency selectively, by withholding facts that may lead to a decrease in trust (for the potentially negative effects of transparency, see Grimmelikhuijsen et al., 2013). Finally, citizens may be hesitant to trust information coming directly from government sources, hence the importance of relying on trusted intermediaries to disseminate knowledge and facts about governments' actions.

Pomburescu also cautions about the claim that transparency is instrumental to responsiveness. It is not sufficient to provide more information to citizens; it is also necessary to provide them with concrete ways to take action based on it. However, in reality, this rarely happens (Pomburescu, 2015).

According to the Transparency Index[7] by CorruptionRisk.org, governments are generally transparent, as testified by their average high scores. Such scores increased between 2021 and 2024 (the first and the last year for which data is available) in all countries except in Cyprus and Poland (see Table 30 in Annex 2).

The Open Government Index by the World Justice Project has a broader scope, as it estimates openness according to four criteria[8]. The overall score is characterised by more variability between countries, along regional lines, with best performers located in Northern and Western Europe, as well as in Oceania and North America, and lower scores found in Southern and Central and Eastern Europe (see Table 5). Nevertheless, an overall increasing trend is observed between 2013 and 2023, with a minority of countries experiencing small decreases.

[7] The Transparency Index gauges, on a 0 to 20 scale, Internet-based transparency by measuring the online availability of information from governments. This is conceptualised as how much of the data governments promised to share is in fact publicly available.

8 The World Justice Project Open Government Index measures four dimensions of government openness: publicised laws and government data, right to information, civic participation, and complaint mechanisms. Scores range between 0 and 1, with 1 indicating greatest openness.

*Table 5: Open Government Index*

| Country | Region | 2013 | 2016 | 2019 | 2022 | 2023 | Change |
|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **0,80** | -0,05 | -0,03 | -0,01 | **0,70** | -0,11 |
| Belgium | Western Europe | **0,67** | 0,06 | 0,04 | 0,01 | **0,76** | 0,09 |
| France | Western Europe | **0,75** | 0,01 | 0,02 | -0,02 | **0,75** | 0,00 |
| Ireland | Western Europe | | | | 0,80 | **0,79** | -0,01 |
| Luxembourg | Western Europe | | | | 0,79 | **0,82** | 0,03 |
| Netherlands | Western Europe | **0,90** | -0,06 | -0,02 | 0,00 | **0,83** | -0,08 |
| Switzerland | Western Europe | | | | | | |
| United Kingdom | Western Europe | **0,78** | 0,05 | -0,04 | 0,01 | **0,79** | 0,01 |
| Germany | Western Europe | **0,73** | 0,06 | 0,00 | 0,00 | **0,79** | 0,07 |
| Finland | Northern Europe | **0,84** | 0,02 | 0,01 | -0,01 | **0,86** | 0,02 |
| Norway | Northern Europe | **0,84** | 0,03 | 0,01 | -0,01 | **0,88** | 0,03 |
| Sweden | Northern Europe | **0,93** | -0,09 | 0,02 | -0,01 | **0,84** | -0,09 |
| Denmark | Northern Europe | **0,82** | 0,04 | 0,00 | 0,01 | **0,86** | 0,04 |
| Iceland | Northern Europe | | | | | | |
| Italy | Southern Europe | **0,49** | 0,14 | 0,00 | 0,00 | **0,63** | 0,15 |
| Malta | Southern Europe | | | | 0,63 | **0,64** | 0,01 |
| Portugal | Southern Europe | **0,62** | 0,06 | 0,00 | -0,02 | **0,64** | 0,02 |
| Spain | Southern Europe | **0,61** | 0,06 | 0,02 | 0,01 | **0,70** | 0,09 |
| Greece | Southern Europe | **0,51** | 0,07 | 0,03 | -0,01 | **0,61** | 0,10 |
| Czech Republic | Central and Eastern Europe | **0,49** | 0,20 | -0,03 | 0,03 | **0,69** | 0,20 |
| Estonia | Central and Eastern Europe | **0,71** | 0,10 | -0,01 | 0,01 | **0,81** | 0,09 |
| Hungary | Central and Eastern Europe | **0,52** | 0,01 | -0,07 | -0,01 | **0,45** | -0,07 |
| Croatia | Central and Eastern Europe | **0,53** | 0,06 | 0,02 | 0,00 | **0,61** | 0,08 |
| Bulgaria | Central and Eastern Europe | **0,53** | 0,05 | -0,04 | 0,02 | **0,57** | 0,04 |
| Cyprus | Central and Eastern Europe | | | | 0,60 | **0,60** | 0,00 |
| Latvia | Central and Eastern Europe | | | | 0,72 | **0,72** | 0,00 |
| Lithuania | Central and Eastern Europe | | | | 0,75 | **0,75** | 0,00 |
| Poland | Central and Eastern Europe | **0,59** | 0,13 | -0,10 | -0,03 | **0,58** | -0,01 |
| Romania | Central and Eastern Europe | **0,51** | 0,16 | -0,05 | 0,01 | **0,63** | 0,12 |
| Slovakia | Central and Eastern Europe | | | | 0,69 | **0,69** | 0,00 |
| Slovenia | Central and Eastern Europe | **0,63** | 0,03 | -0,01 | -0,01 | **0,66** | 0,02 |
| Australia | Oceania | **0,84** | -0,06 | 0,04 | -0,02 | **0,81** | -0,03 |
| New Zealand | Oceania | **0,84** | 0,00 | -0,03 | 0,00 | **0,82** | -0,03 |
| Canada | Northern America | **0,84** | -0,04 | 0,01 | -0,02 | **0,80** | -0,04 |
| United States | Northern America | **0,77** | 0,01 | 0,00 | -0,02 | **0,76** | -0,01 |

*Source: World Justice Project*

A similar picture emerges when analysing the different subindicators corresponding to the criteria informing the overall index (see Annex 2). However, it is worth mentioning that higher scores are observed for the complaint mechanisms indicator[9]. On the other hand, generally lower scores are associated with the indicator of right to information[10], as well as a decreasing trend.

The data suggests that, by and large, there has been a growing effort to enhance the transparency and openness of governments. This has been particularly successful when it comes to citizens' ability to express their disappointment about public services and the actions of public officials and governments' attention to such feedback.

On the other hand, it appears that more efforts are needed when it comes to quickly and exhaustively fulfilling requests for government information, in an affordable and corruption-free way. This also refers to citizens' awareness of their right to information and the accessibility of public records.

[9] The indicator measures whether people are able to bring specific complaints to the government about the provision of public services or the performance of government officers in carrying out their legal duties in practice, and how government officials respond to such complaints.

[10] The indicator measures whether requests for information held by a government agency are granted, whether these requests are granted within a reasonable time period, if the information provided is pertinent and complete, and if requests for information are granted at a reasonable cost and without having to pay a bribe. It also measures whether people are aware of their right to information, and whether relevant records are accessible to the public upon request.

A logical consequence of promoting transparency and openness in decision-making is to ensure integrity and lack of corruption in the process. Open access to information, such as public procurement data, budget allocations, or officials' declarations of interest, enhances public oversight and reduces opportunities for abuse of power (Bauhr & Grimes, 2014). When transparency is institutionalised through legal and procedural safeguards, it strengthens the accountability mechanisms needed to uphold ethical conduct in the public sector. The next subsection focuses on the topic of anti-corruption and integrity in public administration.

### 3.5.2. Public sector integrity

According to van Ryzin (2011) honesty, integrity, and lack of corruption in the public sector are even more important than the outcomes in ensuring citizens' trust. Therefore, citizens place considerable importance on the professionalism, rectitude, and accountability of civil servants, which take precedence over evaluations of final outcomes.
Similar findings were uncovered by Morelock (2021), who focused on trust in civil servants. Measures of good governance (government effectiveness, voice and accountability, rule of law, and control of corruption), which capture the quality of government processes, appear to be stronger determinants of confidence than outcome indicators (economic growth, unemployment, inflation, and inequality).

Integrity refers to the consistent application of ethical principles, such as impartiality, honesty, and accountability, by public officials. It is essential for throughput legitimacy, as it ensures that decision-making processes serve the public interest rather than personal or political gain (Huberts, 2018). When integrity is embedded in public service culture, citizens are more likely to perceive institutions as trustworthy.

Even in systems that are formally transparent or participatory, corruption distorts governance processes and creates perceptions of unfairness. It reduces citizens' willingness to engage with government and undermines belief in the impartial application of rules (Rothstein & Teorell, 2008; Bauhr & Grimes, 2014). Corruption signals to citizens that procedures are manipulated for private interests, weakening trust even in the presence of policy success.

When citizens perceive public servants as honest and trustworthy, they are more likely to accept decisions and comply with laws, even when outcomes are unfavourable (Levi & Stoker, 2000).

Integrity cannot rely solely on sanctions for misconduct, as it requires systems that promote ethical behaviour by design. This includes transparent procedures, risk assessments, leadership commitment, integrity training, and public accountability mechanisms (Mungiu-Pippidi, 2015; OECD, 2020). Preventive approaches strengthen the procedural dimension of legitimacy and build more resilient public trust.

Three indicators are presented to obtain an overview of the progress towards integrity and anti-corruption in the public sector. These are the Rule of Law and Control of Corruption from the World Bank, and Corruption Prevention from the Sustainable Governance Indicators.

Regarding the Rule of Law and Control of Corruption (see Annex 2), the declining trend observed in the original chapter is confirmed. Regional disparities persist in 2023, with Western and Northern Europe maintaining the highest average scores, though several countries experienced declines. Most increases were recorded in Central and Eastern Europe, whose scores remain low on average.

Concerning measures aiming to prevent corruption, similar regional differences are observed, especially when looking at levels (see Table 6). When considering changes in 2022, the latest data point, overall stability is observed, with most countries obtaining the same score as in 2020. Three countries gained a point (Ireland, Greece, and the United States) and three lost one (the Netherlands, the United Kingdom, and Hungary).

*Table 6: Corruption Prevention*

| Country | Region | 2014 | 2016 | 2018 | 2020 | 2022 | 20222 | Change |
|---|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **8** | 0 | 0 | 0 | 0 | **8** | 0 |
| Belgium | Western Europe | **7** | 1 | 0 | 0 | 0 | **8** | 1 |
| France | Western Europe | **5** | 0 | 2 | 0 | 0 | **7** | 2 |
| Germany | Western Europe | **7** | 1 | 0 | 0 | 0 | **8** | 1 |
| Ireland | Western Europe | **7** | 0 | 1 | -1 | 1 | **8** | 1 |
| Luxembourg | Western Europe | **8** | 0 | 0 | 0 | 0 | **8** | 0 |
| Netherlands | Western Europe | **7** | 0 | 0 | 0 | -1 | **6** | -1 |
| Switzerland | Western Europe | **9** | 0 | 0 | 0 | 0 | **9** | 0 |
| United Kingdom | Western Europe | **7** | 1 | 0 | 0 | -1 | **7** | 0 |
| Denmark | Northern Europe | **10** | 0 | 0 | 0 | 0 | **10** | 0 |
| Finland | Northern Europe | **9** | 0 | 0 | 0 | 0 | **9** | 0 |
| Iceland | Northern Europe | **7** | -1 | -1 | -1 | 0 | **4** | -3 |
| Norway | Northern Europe | **9** | 0 | 0 | 0 | 0 | **9** | 0 |
| Sweden | Northern Europe | **10** | -1 | 0 | 0 | 0 | **9** | -1 |
| Cyprus | Southern Europe | **4** | 0 | 0 | -1 | 0 | **3** | -1 |
| Greece | Southern Europe | **5** | 0 | 0 | 0 | 1 | **6** | 1 |
| Italy | Southern Europe | **4** | 1 | 1 | 0 | 0 | **6** | 2 |
| Malta | Southern Europe | **4** | 1 | 0 | 0 | 0 | **5** | 1 |
| Portugal | Southern Europe | **7** | 0 | 0 | 0 | 0 | **7** | 0 |
| Spain | Southern Europe | **5** | 1 | 1 | 0 | 0 | **7** | 2 |
| Bulgaria | Central and Eastern Europe | **4** | 0 | 0 | 0 | 0 | **4** | 0 |
| Croatia | Central and Eastern Europe | **4** | 1 | 0 | -1 | 0 | **4** | 0 |
| Czech Republic | Central and Eastern Europe | **4** | 1 | 1 | -2 | 0 | **4** | 0 |
| Estonia | Central and Eastern Europe | **8** | 0 | 0 | 1 | 0 | **9** | 1 |
| Hungary | Central and Eastern Europe | **4** | -1 | 0 | 0 | -1 | **2** | -2 |
| Latvia | Central and Eastern Europe | **7** | 0 | 0 | 0 | 0 | **7** | 0 |
| Lithuania | Central and Eastern Europe | **6** | 0 | 0 | 0 | 0 | **6** | 0 |
| Poland | Central and Eastern Europe | **7** | 0 | -2 | -1 | 0 | **4** | -3 |
| Romania | Central and Eastern Europe | **5** | 0 | 0 | -1 | 0 | **4** | -1 |
| Slovakia | Central and Eastern Europe | | | | | | | |
| Slovenia | Central and Eastern Europe | **5** | 1 | 0 | -1 | 0 | **5** | 0 |
| Australia | Oceania | **8** | 0 | 0 | -1 | 0 | **7** | -1 |
| New Zealand | Oceania | **10** | 0 | 0 | 0 | 0 | **10** | 0 |
| Canada | Northern America | **8** | 0 | 0 | 0 | 0 | **8** | 0 |
| United States | Northern America | **9** | 0 | -2 | -1 | 1 | **7** | -2 |

*Source: Sustainable Governance Indicator*

The data update underscores the importance of devoting more attention to policies and initiatives to tackle corruption and promote integrity in the public sector, given their importance to obtain trust and legitimacy described by the literature.

## Case studies

Two examples of concrete actions to bolster integrity in the public sector are presented. These are Integrity Pacts, which empower citizens to monitor the legality of public spending, and AI solutions to detect and prevent corruption.

### 3.5.3. Case studies

#### Case study: Integrity Pacts

**What is the problem it addresses? What is the added value?**
The key problem addressed is corruption and lack of transparency in public procurement, particularly involving EU funds. This directly affects citizens' trust in institutions and the perceived fairness of public spending. Additionally, it targets the democratic deficit in representative governance, where often decisions are made without meaningful citizen input or oversight.

The added value of the Integrity Pacts lies in enabling direct citizen involvement and civil oversight, thereby increasing procedural fairness, reducing opportunities for corruption, and enhancing public trust in how government money is spent.

**What is this tool?**
Integrity Pacts are formal cooperation agreements between public authorities, contractors, and civil society organisations aimed at promoting transparency, accountability, and integrity in public procurement. Developed with the support of Transparency International and the European Commission, they are designed to prevent corruption in the spending of public (especially EU) funds.

**How does it work in general and in this case?**
In general, an Integrity Pact commits the parties involved in a procurement process to adhere to anti-corruption standards. CSOs act as independent monitors, overseeing procurement from the design to the implementation phase. They issue recommendations, participate in training, disseminate findings to the public, and facilitate transparency throughout the project lifecycle.

In the pilot project "Integrity Pacts – Civil Control Mechanism for Safeguarding EU Funds" (2016–2021), Integrity Pacts were applied across 11 EU Member States characterised by low trust in government. A total of 15 CSOs monitored 18 EU co-funded projects, including infrastructure, cultural heritage, and education initiatives. A total of 768 recommendations were issued, and the vast majority of civic monitors were satisfied with the response of public authorities (European Commission, 2022). The results were published in publicly accessible reports and guides, and key lessons were shared EU-wide.

**How does it address the problem?**
The initiative increases transparency, introduces third-party monitoring, and ensures that citizens and civil society organisations can engage in every stage of project implementation. By making monitoring results public and involving stakeholders directly affected by the projects, Integrity Pacts enhance equal treatment and prevent the capture of public funds by narrow interests. This approach reflects procedural fairness principles by ensuring inclusiveness, transparency, and accountability.

Theoretically, this aligns with the idea that deliberative and participatory practices improve the legitimacy of decision-making (Nabatchi & Leighninger, 2015) and that citizen involvement can enhance perceptions of equity (Jakobsen & Andersen, 2013).

It is important to note, however, that the initiative has so far been limited to a pilot phase. While initial evaluations suggest that Integrity Pacts hold considerable promise in addressing corruption and enhancing transparency in public spending, these findings remain preliminary. A broader and more sustained implementation, going beyond EU-funded projects and across various levels of government, would be necessary to fully assess their long-term impact and scalability.

**Is it transferable to other scenarios?**
The European Commission has published a handbook for implementation and a policy guide for using Integrity Pacts in future investment frameworks, including those funded under the 2021–2027 Multiannual Financial Framework and NextGenerationEU recovery instruments. Their flexibility and adaptability to local contexts make them suitable for broader application in any setting where public procurement integrity is at stake.

**Challenges**
The planned timelines of certain projects were not adhered to, due to broader administrative and bureaucratic issues beyond the control of the Pacts, or, in a few cases, projects could not be completed. Nevertheless, at least in one instance, efforts were made to keep the public informed about delays. Even unsuccessful projects contributed to enhancing public procurement procedures and the engagement with citizens. In some instances, not all recommendations resulting from monitoring activities were taken on board by public authorities, which sometimes – especially in the early stages – were reluctant to fully commit to the Pacts. This underscores the importance of fostering and establishing a culture of integrity through communication, training, and legislation.

**Case study: AI solutions to detect and prevent corruption**
**What is the problem they address? What is the added value?**
As Rothstein and Teorell (2008) mentioned, the quality of government is fundamentally linked to the impartiality (fairness) of public administration. The authors argue that reaching impartiality is very different from the types of misconduct found mainly in public administration and in other areas of government. Impartiality is weakened when government actions are influenced by corruption or serve personal interests, rather than the public good. This loss of fairness erodes public trust and harms the quality of governance. While corruption is conventionally defined as the abuse of public office for private gain, Rothstein and Teorell (2008) specify that corruption entails a public office holder's violation of this impartiality principle to achieve personal benefit. Effectively, government quality is not determined by size or policy scope, but rather by adherence to impartiality, which inherently excludes corruption, clientelism, patronage, nepotism, political favouritism, and discrimination (Rothstein & Teorell, 2008).

To be able to fight against corruption, many countries have started to use AI anti-corruption tools. AI-powered anti-corruption tools enhance efficiency and precision by rapidly analysing vast and complex datasets, such as procurement records or financial transactions, to detect hidden networks, bid-rigging, and fraud that would otherwise remain unnoticed (Aarvik, 2019). By applying consistent, data-driven criteria, they reduce human bias and political influence in oversight processes (Straub et al., 2024). Importantly, these tools optimise government staff capacity by automating routine data screening and administrative tasks, allowing civil servants and auditors to focus on high-value investigative and strategic work; for example, a UK trial showed AI assistants saved officials around 26 minutes daily, equivalent to two weeks of work per year (UK Government Digital Service, 2025). In addition, they enhance transparency and accountability through real-time monitoring and make systemic vulnerabilities more visible, supporting early prevention and informing institutional reforms (Kendall & Rahim, 2024).

**What are these tools?**
AI anti-corruption tools use machine learning and data analysis to detect fraud, monitor public administration activities, and ensure transparency in government. AI helps governments identify misconduct, improve oversight, and enhance accountability. AI-based solutions implemented by different governments have significantly demonstrated impact in fighting corruption, in areas such as procurement integrity, fraud detection, and anti-money laundering (Zinnbauer, 2025).

**How do they work in general and in this case?**
AI can analyse large datasets, identify irregularities, and predict potential misconduct. In this case, governments have used AI for procurement integrity, fraud detection, anti-money laundering, and risk assessments (Zinnbauer, 2025). Examples include The European Anti-Fraud Office's AI, which detects suspicious language in emails. The "Datacros AI" is used in Lithuania, Romania, and France to identify corruption, collusion, and money laundering. The Dutch tax authorities used AI technology to detect benefit fraud but raised concerns about discrimination (Nicaise & Hausenkamph, 2025; Kuźniacki, 2023).

**How do they address the problem?**
These AI tools enhance monitoring and transparency by detecting fraud patterns, assisting in procurement supervision, and flagging financial irregularities in public administration (Zinnbauer, 2025).

**Are they transferable to other scenarios?**
AI anti-corruption tools can be adapted for taxation, law enforcement, procurement processes, and fraud prevention worldwide. However, proper regulations and human oversight are necessary to prevent misuse or bias (Kuźniacki, 2023).

**Challenges**
One notable AI pilot project was the Dutch tax authority's AI system, which aimed to detect benefit fraud. While AI can process vast amounts of data efficiently, this project demonstrated the risks of unregulated AI in governance. The system flagged dual nationality and low income as high-risk factors, leading to discriminatory treatment of vulnerable groups. Due to these ethical concerns, the project was discontinued (Nicaise & Hausenkamph, 2025). Moreover, the childcare benefit controversy in the Netherlands further illustrated the dangers of excessive automation, where AI used legally insignificant factors such as gender, religion, and race, leading to biased decisions (Kuźniacki, 2023).

Regardless the failure of the project, it appears that the Netherlands is ahead of other countries by using AI in taxation. Humans are unable to process vast amounts of data with the same speed and accuracy as algorithms. Given tax agencies' access to large datasets, not deploying AI would represent a missed opportunity. The goal is to employ AI properly, specifically to avoid harming the interests of citizens (Kuźniacki, 2023).

The case of the Netherlands demonstrates that the government cannot impose taxes on citizens simply because AI suggests it. Consequently, there must be an employee with decision-making authority and knowledge of AI's internal logic to oversee and validate final decisions.

### 3.5.4. Fairness

Once processes are transparent and ethical, attention turns to whether they are applied in a fair and non-discriminatory manner. Fairness strengthens legitimacy by promoting consistency and upholding principles of equal treatment.

The perceived fairness of decision-making processes has been identified as a stronger determinant of trust in public institutions than the perceived ability to exert influence on government decisions (Grimes, 2006). An implication of this could be that the introduction of new public consultation tools should have as a primary goal to improve the real and perceived fairness of public decision-making. Such tools should be seen by citizens as ways to fairly represent and convey their needs and desires. It is therefore not sufficient to merely give them the impression of being listened to.

Tyler (1994) highlights the importance of procedural fairness to secure trust in government, especially in more diverse societies, where it is more challenging for different groups to have a say in public decision-making. Procedural fairness, therefore, entails giving such groups the possibility to voice their opinions and requests, treating them with equality and respect. Public authorities should make decisions impartially, without preferential treatment and discriminatory practices. This ideally leads to a society where everyone trusts that the government has the best interests of its citizens at heart and that it acts fairly. As a result, citizens also accept decisions they do not agree with, as long as they were taken through a fair process.

In public administration, the principle of fairness as equal treatment requires that similar cases be treated alike and that variations in decisions be justifiable and non-discriminatory. As Raaphorst (2021) highlights, this concept is especially relevant at the "street level" (intended as in direct interactions between citizens and public administrations), where civil servants and frontline workers often exercise discretionary power. Here, citizens' perceptions of fairness are not shaped only by the outcomes they receive, but also by whether they are treated consistently in relation to others. Equal treatment, therefore, functions as a procedural safeguard, reinforcing citizens' belief that the system operates according to shared standards rather than arbitrary or biased judgement.

In practice, achieving equal treatment is complicated by the need to balance consistency with responsiveness. Raaphorst (2021) points out that public officials must often navigate tensions between rule-following and tailoring their responses to individual circumstances. While responsiveness can increase satisfaction and perceived legitimacy, it also risks undermining fairness if discretion leads to inconsistent or preferential treatment. As a result, public institutions must carefully manage this trade-off by providing clear procedural frameworks and adequate training, while maintaining space for justifiable differentiation.

These concerns are increasingly relevant in the context of algorithmic decision-making in public services, as mentioned when discussing the use of AI to prevent corruption. Algorithmic decision-making refers to the use of computational systems, often powered by AI, including machine learning and statistical models, to support, guide, or automate decisions that affect individuals or groups. In the public sector, ADM systems are applied in domains such as welfare distribution,

risk prediction, healthcare triage, policing, and eligibility screening. These tools analyse large datasets to detect patterns, classify cases, or assign scores, with the aim of enhancing efficiency, consistency, or predictive capacity (Starke et al., 2022).

A growing body of empirical research shows that citizens are highly sensitive to fairness in automated systems, not only in terms of outcome distribution, but especially regarding how procedures are structured and explained. Starke et al. (2022) note that perceptions of fairness in algorithmic systems depend heavily on whether individuals believe the rules are applied equally and whether they can understand the rationale behind decisions. The opacity of many algorithmic tools poses a serious challenge to the ideal of equal treatment, as citizens may perceive them as rigid, unaccountable, or biased if they lack transparency and contextual sensitivity.

One of the components[11] of the Rule of Law Index from the World Justice Project aims to measure equal treatment and absence of discrimination in relation to public services.

The performance of countries in this domain highlights the usual divergence between countries in Southern, Central, and Eastern Europe, and countries in other regions (see Table 7). There are, however, notable exceptions, such as the particularly high scores of the Baltic countries in 2023 and the low score of the United States.

The average score for all countries in 2023 was 0.69. Between 2013 and 2023 there was an overall decreasing trend to stable, with only the Netherlands and Slovenia significantly improving.

The data highlights the importance of continuing efforts to ensure the equal treatment of all citizens in the provision of public services, especially at a time of greater use of algorithmic decision-making as a result of the rapid development of AI.

[11] The indicator measures whether individuals are free from discrimination – based on socio-economic status, gender, ethnicity, religion, national origin, sexual orientation, or gender identity – with respect to public services, employment, court proceedings, and the justice system. It ranges from 0 to 1.

*Table 7: Rule of Law Index*

| Country | Region | 2007 | 2011 | 2015 | 2019 | 2023 | 2023 | Change |
|---|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **1,94** | -0,14 | 0,02 | 0,05 | -0,12 | **1,75** | -0,20 |
| Belgium | Western Europe | **1,32** | 0,12 | 0,02 | -0,12 | -0,04 | **1,30** | -0,02 |
| France | Western Europe | **1,46** | -0,03 | -0,06 | 0,00 | -0,19 | **1,18** | -0,28 |
| Germany | Western Europe | **1,76** | -0,14 | 0,14 | -0,18 | -0,03 | **1,55** | -0,20 |
| Ireland | Western Europe | **1,73** | 0,02 | -0,02 | -0,38 | 0,29 | **1,63** | -0,09 |
| Luxembourg | Western Europe | **1,75** | 0,08 | 0,01 | -0,09 | 0,00 | **1,75** | 0,00 |
| Netherlands | Western Europe | **1,77** | 0,04 | 0,09 | -0,17 | -0,09 | **1,64** | -0,13 |
| Switzerland | Western Europe | **1,83** | -0,11 | 0,19 | -0,05 | -0,10 | **1,76** | -0,07 |
| United Kingdom | Western Europe | **1,72** | -0,06 | 0,11 | -0,20 | -0,17 | **1,40** | -0,32 |
| Denmark | Northern Europe | **2,00** | -0,08 | 0,10 | -0,18 | 0,08 | **1,91** | -0,09 |
| Finland | Northern Europe | **1,90** | 0,04 | 0,11 | -0,04 | -0,05 | **1,97** | 0,07 |
| Iceland | Northern Europe | **1,83** | -0,14 | -0,05 | 0,09 | -0,01 | **1,72** | -0,11 |
| Norway | Northern Europe | **1,93** | -0,06 | 0,11 | -0,03 | -0,11 | **1,83** | -0,09 |
| Sweden | Northern Europe | **1,89** | 0,03 | 0,07 | -0,20 | -0,19 | **1,60** | -0,29 |
| Cyprus | Southern Europe | **1,11** | -0,04 | -0,06 | -0,28 | -0,10 | **0,63** | -0,48 |
| Greece | Southern Europe | **0,86** | -0,33 | -0,28 | -0,09 | 0,06 | **0,21** | -0,65 |
| Italy | Southern Europe | **0,47** | 0,02 | -0,20 | -0,02 | 0,12 | **0,39** | -0,08 |
| Malta | Southern Europe | **1,61** | -0,33 | -0,17 | -0,19 | -0,22 | **0,70** | -0,91 |
| Portugal | Southern Europe | **1,00** | -0,01 | 0,11 | 0,00 | -0,04 | **1,07** | 0,06 |
| Spain | Southern Europe | **1,15** | 0,02 | -0,28 | 0,10 | -0,17 | **0,82** | -0,33 |
| Bulgaria | Central and Eastern Europe | **-0,06** | -0,08 | -0,02 | 0,12 | 0,03 | **-0,01** | 0,05 |
| Croatia | Central and Eastern Europe | **0,04** | 0,07 | 0,02 | 0,22 | 0,01 | **0,36** | 0,32 |
| Czech Republic | Central and Eastern Europe | **0,88** | 0,14 | 0,09 | -0,09 | 0,13 | **1,14** | 0,26 |
| Estonia | Central and Eastern Europe | **1,12** | 0,05 | 0,12 | -0,06 | 0,18 | **1,43** | 0,30 |
| Hungary | Central and Eastern Europe | **0,94** | -0,18 | -0,37 | 0,12 | -0,07 | **0,43** | -0,51 |
| Latvia | Central and Eastern Europe | **0,72** | 0,02 | 0,03 | 0,21 | 0,06 | **1,04** | 0,32 |
| Lithuania | Central and Eastern Europe | **0,69** | 0,08 | 0,21 | 0,01 | 0,28 | **1,27** | 0,58 |
| Poland | Central and Eastern Europe | **0,41** | 0,39 | 0,01 | -0,41 | 0,07 | **0,46** | 0,05 |
| Romania | Central and Eastern Europe | **-0,11** | 0,21 | 0,10 | 0,21 | 0,02 | **0,44** | 0,54 |
| Slovakia | Central and Eastern Europe | **0,43** | 0,17 | -0,13 | 0,03 | 0,10 | **0,60** | 0,17 |
| Slovenia | Central and Eastern Europe | **0,95** | 0,10 | -0,10 | 0,14 | -0,05 | **1,04** | 0,09 |
| Australia | Oceania | **1,74** | -0,01 | 0,06 | -0,10 | -0,17 | **1,52** | -0,22 |
| New Zealand | Oceania | **1,83** | 0,07 | 0,07 | -0,12 | -0,14 | **1,71** | -0,12 |
| Canada | Northern America | **1,80** | -0,07 | 0,08 | -0,09 | -0,25 | **1,47** | -0,32 |
| United States | Northern America | **1,61** | -0,02 | -0,03 | -0,14 | -0,10 | **1,33** | -0,28 |

*Source: World Justice Project*

### 3.5.5. Collaborative governance

#### Co-creation/co-production (openness)

Ensuring openness, transparency, integrity, and fairness in public decision-making is not only about internal procedures but also about how institutions engage with the public. Participatory approaches such as co-creation and co-production provide concrete means of putting these trust-enhancing principles into practice by involving citizens directly in the design and delivery of public services and policies.

In the context of declining public trust and increasing fiscal pressures, co-creation and co-production have gained traction as innovative approaches to public service design and delivery. These models reflect a shift from government as the sole provider to governance as a collaborative process, where citizens are not passive recipients but active contributors to value creation (Pestoff, 2014). Co-creation focuses on engaging citizens in the early stages, such as agenda setting, needs identification, and service design. Co-production centres on citizens' involvement during the actual implementation or delivery of public services (Voorberg et al., 2015).

In theory, co-creation and co-production should be associated with higher levels of throughput legitimacy and, as a result, of trust. Nevertheless, this relationship should not be viewed in absolute terms (Fledderus et al., 2014).

Co-creation and co-production give citizens more control over public service delivery, developing ownership, and increasing their awareness of public interests and their sense of belonging to society (Fledderus et al., 2014). Moreover, co-creation and co-production should lead to better decisions and, in the end, more efficient and effective public services (Røiseland, 2022).

Concerns have been raised about the real inclusiveness of such initiatives, given that they can only involve a limited number of citizens (Røiseland, 2022). There is also a risk that those who do participate are already more trustful of government, therefore limiting the positive effects (Fledderus et al., 2014). Finally, while it is easy for participants to take the credit for positive results, they are more likely to deflect blame for failures, with potentially negative repercussions on trust (Fledderus et al., 2014).

### 3.5.6. Case studies

Two case studies are presented (Timeus & Gasco, 2018). One is an example of co-creation of policies from Latvia, which consists of experimenting with ideas in a laboratory setting before real-world implementation. The other is an example of co-production at the local level, focusing on urban regeneration actions in the Italian city of Turin.

#### 3.5.6.1. Case study: the Innovation Laboratory in Latvia

**What is the problem it addresses? What is the added value?**
The lab addresses several interlinked problems: limited citizen participation in policymaking, slow bureaucratic innovation, and the failure of traditional policymaking to deliver tailored or effective solutions. The added value lies in empowering citizens and civil servants to co-create more responsive and innovative policies, broadening the scope of participation.

**What is this tool?**
A public innovation lab is a specialised unit designed to foster innovation within public administration by involving citizens and stakeholders in the co-creation of public policies and services. These labs function as experimental spaces to test and refine new policy solutions before broader implementation. Latvia's Innovation Laboratory, launched in 2018, exemplifies this model.

**How does it work in general and in this case?**
Public innovation labs generally operate with a high degree of organisational autonomy, often outside rigid bureaucratic structures, and aim to generate user-driven solutions to public challenges. They adopt flexible, design-oriented methods such as Agile and the Double Diamond models to develop, test, and iterate policy ideas.

In Latvia, the Innovation Laboratory is hosted within the State Chancellery and engages civil servants, experts, civil society, and citizens in collaborative processes. Participants co-develop policy responses, benefit from skills development, and gain influence over decisions affecting them. So far, 108 co-creating sessions have taken place, involving more than 300 people. Of the 47 tested policy prototypes, several have been implemented as pilot projects in the real world. These include experimentation guidelines for the public sector, a remuneration policy for medical personnel, and initiatives to reduce administrative burdens (OECD, 2023).

**How does it address the problem?**
The Latvian lab creates an environment where citizen input and cross-sector collaboration guide policy experimentation. This helps to align services with real needs and allows governments to test policies on a small scale before applying them more widely, minimising risks and waste. Through iterative design and user engagement, the lab fosters procedural fairness, innovation, and transparency in decision-making.

Moreover, the lab supports institutional learning and cultural change by equipping civil servants with new tools and methodologies, encouraging long-term reform beyond the scope of individual projects.

Innovation labs can be instrumental to throughput legitimacy thanks to their contribution to transparency and inclusivity in the policymaking process (Zeigermann & Ettelt, 2023).

**Is it replicable in other scenarios?**
The Latvian Innovation Laboratory is considered highly replicable – including at local government levels – due to its relatively low cost, scalable design, and emphasis on small-scale experimentation. Its operational flexibility and emphasis on practical outputs make it adaptable across different institutional contexts.

**Challenges**
While the Latvian case is widely regarded as a success, challenges remain. Translating ideas into policy action proved difficult without consistent support from high-level policymakers. At times, the lab faced resource limitations and lacked internal expertise, requiring reliance on external consultants. These constraints suggest that without sustained political buy-in and adequate capacity, innovation labs risk becoming peripheral or symbolic rather than systemically transformative.

### 3.5.6.2. Case study: the Co-City project

**What is the problem it addresses? What is the added value?**
The project addresses the democratic and practical limitations of top-down urban governance, particularly in disadvantaged neighbourhoods where public trust is low and infrastructure is neglected. It also tackled the underuse of public assets, social exclusion, and the lack of citizen influence over urban planning.

The added value lies in its bottom-up, inclusive approach, which empowers communities to co-create public value. It enhances procedural fairness and responsiveness by allowing citizens to actively shape decisions and implement solutions relevant to their context. The project also built mutual trust and fostered a sense of ownership and belonging.

**What is this tool?**
The Co-City project is a participatory urban regeneration initiative, carried out in Turin (Italy) between 2017 and 2020. Its central tool was the creation of "pacts of collaboration" between citizens and the local administration, enabling communities to repurpose underutilised public spaces and co-manage them as urban commons.

**How does it work in general and in this case?**
The project relied on formalised collaboration between local authorities and citizen groups to manage public goods. In Turin, the municipality launched a call for proposals, inviting resident groups and associations to suggest ways to revitalise abandoned buildings or public spaces. Out of 124 submissions, 46 were approved and transformed into legally binding collaboration agreements.

Municipal officials and citizens co-designed the interventions, with the city providing access to the spaces, tools, and resources needed to implement the projects. A digital platform (FirstLife) was used to share information and display the location and content of ongoing activities, enhancing transparency and visibility. The initiative was grounded in a newly adopted regulation on the care and regeneration of urban commons, inspired by a similar framework introduced in Bologna.

**How does it address the problem?**
Co-City strengthens throughput legitimacy by embedding openness, transparency, and fairness into local decision-making. Citizens are treated as equal partners in the governance process and given tangible responsibilities, while the municipality ensures support and oversight. Public monitoring and shared rule-setting improve integrity and procedural accountability.

Evaluation data confirm these effects: 73% of participants said the municipality was open to collaboration, and 66% agreed that such initiatives improved citizen–government relations (Municipality of Turin, 2020). The legal and digital infrastructures underpinning the project also ensured that interactions were consistent and accessible to a broad range of actors.

Given the local nature of the project, it is clear that the scope and size of its effects were limited. Nevertheless, even small improvements to, for instance, the quality of life in a disadvantaged neighbourhood are important results and represent a first step in making citizens more involved in public decision-making and closer to public administrations.

**Is it transferable to other scenarios?**
The Co-City model has already inspired similar projects in Budapest, Gdańsk, and Cluj-Napoca. Key transferable elements include the legal framework for citizen–administration collaboration, the use of digital platforms for public engagement, and the provision of municipal resources to enable local action. These features make the approach suitable for cities seeking to enhance legitimacy and public trust through participatory governance.

**Challenges**
Challenging aspects were mostly related to the experimental nature of the initiative, as it had not been previously tested. As a result, it is natural that the implementation of the project involved a learning process, with setbacks and opportunities for improvement. For instance, there was limited awareness of the new regulatory framework adopted to facilitate pacts of collaboration, which slowed down the initiatives. Moreover, there was some uncertainty regarding procedures, the scope of interventions, and the roles of public officials.
Finally, some ideas had to be downsized due to financial constraints.

### 3.5.7. Evidence-informed decision-making

Throughput legitimacy concerns the quality, fairness, and transparency of the processes through which political and administrative decisions are made. It opens the "black box"' between input and output legitimacy, focusing on how institutions process citizens' contributions and evidence to arrive at collective decisions (Schmidt, 2013; Bekkers & Edwards, 2007). Defined as "government with the people", throughput legitimacy depends on procedural norms such as accountability, inclusiveness, and openness, ensuring that decision-making is transparent, participatory, and responsive (Dryzek, 2000; Haus & Heinelt, 2004). Within the OECD's framework for good governance, it aligns closely with principles of integrity, evidence-informed deliberation, and accessibility of policymaking processes. Mechanisms such as Better Regulation, strategic foresight, and regulatory sandboxes exemplify efforts to enhance throughput legitimacy by embedding transparency, dialogue, and adaptability into governance. When evidence is used not as a constraint but as a shared resource for deliberation, throughput legitimacy strengthens public trust by demonstrating that policy decisions result from reasoned, accountable, and inclusive processing rather than opaque or politicised negotiation.

Evidence-informed policymaking can be positioned within both throughput and output legitimacy. On the one hand, it resonates strongly with throughput legitimacy, which emphasises the quality of decision-making processes – openness, transparency, fairness, and integrity (Nederhand & Edelenbos, 2022, p. 523–525). Instruments such as strategic foresight and regulatory sandboxes illustrate this procedural orientation, because they strengthen co-creation, inclusiveness, and the capacity to engage with uncertainty in a transparent and responsive manner (European Commission, 2022).
On the other hand, the broader concept of evidence-informed policymaking is closely associated with output legitimacy, as it focuses on ensuring that policy outcomes are effective, reliable, and responsive to societal needs by grounding decisions in robust and diverse forms of evidence (European Commission, 2022). For the purposes of this sub-study, evidence-informed policymaking is therefore situated under throughput legitimacy. At the same time, as depicted in Figure 3: Model showing conceptual framework: The interrelation between dimensions of legitimacy and the drivers of trust(source: Nederhand & Edelenbos, 2022), the drivers of legitimacy are represented as interlinked cogs, underlining that improvements in one dimension (e.g. fairness or openness in the policy process) can also activate and reinforce others, ultimately strengthening trust through multiple pathways.

Contemporary public policymaking unfolds in a landscape characterised by volatility, uncertainty, complexity, and ambiguity (VUCA) (Störmer et al, 2020). In this context, volatility refers to the speed and unpredictability of change (e.g. financial crises, pandemics), while uncertainty denotes the limited predictability of outcomes and availability of complete information. Complexity highlights the interdependencies among numerous actors, interests, and variables, and ambiguity reflects situations in which causal relationships are unclear, and problems are interpreted differently by different groups.

Compounding this is the prevalence of "wicked problems", that is, issues that defy definitive solutions due to contradictory knowledge bases, plural values, interdependent systems, and evolving problem definitions (Rittel & Webber, 1973; Störmer et al, 2020). Examples include climate change, demographic transitions, AI governance, and public health emergencies. In such cases, policy decisions must be made despite incomplete evidence, contested framings, and shifting societal priorities.

These conditions render linear, expert-led policymaking insufficient. Instead, throughput legitimacy increasingly depends on how well governments anticipate, adapt to, and integrate evidence under real-world constraints (Edelenbos & van Meerkerk, 2016; Tyler, 2006). This demands a form of policymaking that is anticipatory, adaptive, and grounded in plural forms of knowledge (Edelenbos & van Meerkerk, 2016).

#### 3.5.7.1. The evidence–responsiveness tension

One central tension in throughput legitimacy is between technocratic authority – the exercise of decision-making power by experts based on technical knowledge, data, and evidence – and democratic responsiveness, which refers to the extent to which policymaking reflects the preferences, needs, and values of the public. This tension is often framed as a contrast between evidence-based policymaking and evidence-informed policymaking (OECD, 2020; European Commission, 2023a).

While evidence-based policymaking relies on scientifically rigorous methods such as randomised control trials or systematic reviews (European Commission, 2021), it risks neglecting the role of political values, feasibility, and stakeholder perceptions. By contrast, evidence-informed policymaking acknowledges that empirical evidence is one input among many. It encourages the use of the best available knowledge in combination with public values and political context (Störmer et al, 2020).

In practice, policy decisions rarely follow strict evidence hierarchies. Multiple forms of knowledge – quantitative data, expert opinion, citizen input, and administrative experience – are synthesised through deliberative and political processes. Moreover, evidence is not neutral: how problems are framed, which indicators are chosen, and which sources are legitimised all reflect underlying normative choices (Sienkiewicz et al, 2020). This makes transparency and pluralism in evidence use essential to legitimacy.

Responsiveness refers to the ability of institutions to adapt policies in response to changing conditions, public concerns, or emerging risks (Klijn & Koppenjan, 2015; OECD, 2022). In a VUCA world, with wicked problems, institutional responsiveness becomes a critical factor in sustaining public trust.

This tension is not only theoretical but plays out concretely in how governments structure their sources of evidence and expertise. While much attention has focused on methodological standards for scientific evidence, such as experimental design or modelling precision, less attention has been given to the diversity of epistemic input into the policy process itself. In other words, who generates the evidence, and which knowledge sources are considered legitimate or influential? The extent to which policymaking is informed by a wide range of disciplinary perspectives, institutional actors, and advisory ecosystems significantly shapes how evidence is used, interpreted, and prioritised. This is especially relevant in contemporary policy environments characterised by high complexity, contested values, and systemic interdependencies.

Across the 35 countries, the institutional configuration of policy advice varies significantly. Some systems are more permeable to non-governmental input from academia, think tanks, or civil society, while others rely almost exclusively on internal ministerial expertise.

An important yet often underexamined determinant of output legitimacy is the diversity of policy advice available to decision makers which, if processed, will ultimately lead to more widely accepted public interventions. This dimension concerns the variety of epistemic and institutional sources from which governments draw when developing public policies. It reflects the extent to which policy processes are open to knowledge generated outside the core executive, particularly from academic, non-governmental, and civil society actors. In turn, it affects the ideological pluralism, evidence base, and perceived impartiality of policymaking (Pollitt & Bouckaert, 2017).

Diversity of policy advice enhances the legitimacy and analytical quality of public decision-making in two principal ways. First, it expands the range of viewpoints, problem framings, and methodological approaches that enter the policy arena, reducing the risk of groupthink and unchallenged orthodoxy. Second, it enables access to more impartial or methodologically rigorous perspectives, particularly where governments are structurally inclined to favour sectoral, political, or internal administrative preferences. External academic experts are often more insulated from short-term political pressures and may bring innovative or long-range perspectives that civil service cultures tend to resist.

Drawing on the work from the previous Public Administration chapter in sub-study 2022, variation in this dimension is considerable across the sample. Drawing on comparative analyses of politico-administrative systems in the 35 countries, a typology emerges linking administrative traditions, state structure, and executive culture with levels of policy advice diversity. Countries such as Canada, Ireland, Luxembourg, Norway, Portugal, and the United States exhibit high diversity in their policy advisory ecosystems. In these jurisdictions, decision makers routinely engage political advisers, external consultants, academics, and think tanks, either within the executive (e.g. special advisors, secondments) or through structured mechanisms such as advisory boards, government-funded research institutes, or commissioned studies.

In contrast, a second group of countries – Austria, Belgium, Croatia, Greece, Romania, Slovakia, Slovenia, Spain, and Switzerland – exhibit low diversity, characterised by a heavy reliance on civil servants as the primary source of policy input. These systems tend to follow a more legalistic or corporatist administrative culture (e.g. *Rechtsstaat*), in which expertise is internalised within the state bureaucracy, and policymaking is less permeable to external ideas. Such arrangements may offer procedural stability and institutional memory, but risk insularity and reduced adaptability in complex or emergent policy domains.

Most other countries fall into the medium diversity category. Here, governments rely primarily on civil service expertise but maintain channels for consulting external actors, especially in specialised or high-salience areas. For example, Germany, Finland, Netherlands, and Australia operate largely within the civil service model, but engage non-governmental experts systematically in advisory councils, stakeholder fora, or regulatory consultations.

### 3.5.7.2. Institutional mechanisms to enhance throughput legitimacy

Institutional mechanisms for promoting responsiveness and evidence use in public policymaking encompass a diverse range of tools, frameworks, and processes. These mechanisms differ in their scope, function, and normative underpinnings, and may include high-level governance systems as well as operational and anticipatory instruments. This section discusses four approaches – two at the system level, and two tools that can be embedded in the policymaking process. These are (1) regulatory systems such as the EU's Better Regulation framework, (2) agile legislative models, (3) regulatory sandboxes (tool), and (4) strategic foresight (tool), that together exemplify how evidence and responsiveness are systematically embedded across policymaking environments.

**1. Regulatory Systems: Having a Better Regulation Framework**

At the systemic level, the European Commission's Better Regulation agenda illustrates a comprehensive, institutionalised effort to enhance policymaking through evidence, stakeholder input, and transparent governance (European Commission, 2021). The framework integrates several core instruments:

a) Regulatory Impact Assessments (RIAs). These are structured ex ante evaluations that assess expected effects across economic, social, environmental, and fundamental rights dimensions. Most EU Member States have embedded RIA requirements for primary legislation. For instance, Austria mandates RIAs for all laws and regulations, supported by a threshold test that determines whether a simplified or full RIA is required. A dedicated ministry evaluates both RIAs and ex post evaluations, and publishes results online with public consultation mechanisms via an interactive platform (OECD, 2025).

b) Scrutiny and oversight ensure that RIAs concerning major legislation are reviewed to maintain methodological integrity and impartiality. Finland offers another strong example, where the Finnish Council of Regulatory Impact Analysis reviews selected RIAs, and stakeholder engagement has been systematically expanded to include under-represented groups such as children. In Germany, the National Regulatory Control Council reviews the cost assessments in RIAs, and a Digital Check was introduced to ensure legislation is digitally implementable. Czechia and Denmark similarly maintain quality control mechanisms via arm's-length RIA boards.

c) Ex post evaluations and fitness checks serve as retrospective tools that assess the effectiveness of legislation (or a set of legislations within a particular area) and inform potential revisions.

d) Stakeholder consultation, where the views of citizen, stakeholders (including SMEs) views are systematically collected and used to inform the policy process.

There are also horizontal elements, which can be systematically incorporated to ensure improved input. First, there is the use of behavioural insights incorporated into the policy process to account for how individuals and organisations respond to regulatory design in real-world contexts (Van Bavel, 2020). Australia has institutionalised the use of behavioural insights in policy design, particularly through the Behavioural Economics Team of the Australian Government (BETA), which collaborates with departments to apply behavioural insights such as "nudge" techniques in domains such as tax compliance, health, and social welfare (Afif et al., 2019).

Second, there has been a recent emphasis on taking "myside" bias and values reflection into consideration, which foster epistemic humility and critical reflexivity (Scharfbillig et al, 2021). The Dutch central government has acknowledged the importance of bias awareness as part of its broader strategy for diversity and inclusion in the civil service. Its current policy framework includes initiatives aimed at raising awareness of unconscious bias, particularly among those involved in recruitment and selection processes (Government of the Netherlands, n.d.). These efforts are designed to improve impartiality and representation within the public sector workforce and reflect a growing recognition that individual values, assumptions, and cognitive shortcuts can influence institutional outcomes. While these projects are primarily targeted at internal human resource practices, they highlight an institutional commitment to fostering reflexivity and fairness in public administration—principles that are equally relevant to regulatory and policy decision-making.

These sessions are designed to foster reflexivity and encourage officials to critically examine their assumptions, thereby promoting more balanced and evidence-informed rule-making.

Another element is a push to systematically included strategic foresight into the policy process (this will be fully discussed below).

These systems enhance transparency and accountability, but their strength and rigour can become a constraint. As noted in the OECD Regulatory Policy Outlook (2021), many countries struggle with timely and proportionate use of Better Regulation tools. The procedural depth required for high-quality RIAs often leads to delayed policymaking, limited responsiveness during crises, and tokenistic consultation when political decisions have already been made (EIPA, 2022). Moreover, countries such as Belgium and France show that even where frameworks are formally in place, they may be inconsistently applied or have limited influence on final decisions.

Despite its strengths, the Better Regulation system has faced criticism for its procedural inflexibility and limited capacity to respond quickly under conditions of urgency or uncertainty. The time and resources required for RIAs and consultations can impede agility in crisis or innovation-driven contexts (Renda, 2015).

## 2. Agile Legislation: Flexibility in Legal Design

Agile legislation offers a legal-technical framework for policymaking under uncertainty. Rather than seeking exhaustive ex ante regulation, it emphasises modularity, revisability, and learning (OECD, 2022). Its core design features include the following.

a) *Update mechanisms* are legal provisions that allow adjustments to technical elements via secondary legislation or implementing acts. An example of this in practice is the UK's Digital Markets, Competition and Consumers Act 2024 which establishes a Digital Markets Unit within the Competition and Markets Authority (CMA), empowered to undertake periodic evidence reviews and investigations into designated "strategic market status" firms as delegated by parliament – a clear application of agile legislative principles through delegated authority and ongoing oversight (Competition and Markets Authority, 2025). This mechanism enables the CMA to monitor rapidly evolving digital markets and update regulatory interventions based on new evidence, without requiring primary legislation amendments.

b) Additionally, *sunset clauses and review clauses* can be included in new legislation. Sunset clauses are time-bound provisions that expire unless explicitly renewed, thereby prompting periodic legislative review. Review clauses on the other hand, mandate formal evaluations after a set number of years (e.g. two or three), creating institutionalised feedback loops. During the COVID 19 pandemic, **Australia** and **New Zealand** enacted emergency legal measures that included sunset clauses, ensuring restrictions expired automatically unless actively renewed by parliament, thereby preserving legislative oversight and proportionality. Similarly, both countries have embedded sunset and review clauses in data privacy and digital policy regulations to adapt to rapid technological change, reflecting an institutional commitment to agile lawmaking and evidence-driven reassessment.

c) Pilot and experimental clauses provide a legal basis for time-limited regulatory trials, which may feed into regulatory sandboxes (discussed below).

d) Embedded foresight requires lawmakers to consider alternative future scenarios during the legislative drafting process (see below).

Agile legislation and Better Regulation frameworks are complementary. The former provides adaptability, while the latter ensures analytical rigour. Their interplay highlights the need for institutional architectures that balance stability with flexibility.

### 3. Regulatory Sandboxes: Structured Experimentation

Regulatory sandboxes are additional tools that can be used as part of Better Regulation systems or agile legislation. They are controlled environments that allow experimentation under supervisory oversight. They originated in the fintech sector but have since expanded to areas such as health and AI (Zetzsche et al., 2017). Key design elements include:

a) Eligibility criteria that are applied to selected applicants based on factors such as innovation potential, consumer benefit, and acceptable levels of regulatory risk;

b) Monitoring and feedback mechanisms, which involve real-time data collection and ongoing dialogue between regulators and participants;

c) Exit strategies, which are designed to provide structured pathways for concluding the sandbox process, leading either to full regulatory compliance or informed revisions of existing frameworks.

The UK has been a global pioneer in the use of regulatory sandboxes to support fintech innovation. In 2016, the Financial Conduct Authority (FCA) launched the world's first regulatory sandbox, enabling firms to test new financial products and services in a controlled environment with reduced regulatory barriers and enhanced supervision. Since its inception, the FCA sandbox has supported over 700 firms and has been widely emulated across jurisdictions (Zetzsche et al., 2017; OECD, 2021). Australia's Securities and Investments Commission (ASIC) followed closely with its Innovation Hub, which offers tailored guidance and operates a similar fintech sandbox focused on emerging areas such as open banking and *regtech*. ASIC's approach includes licensing exemptions and close monitoring, allowing early-stage firms to test financial products without full authorisation (ASIC, 2020). In Canada, the Ontario Securities Commission introduced the "LaunchPad" initiative in 2016, targeting fintech startups and providing regulatory clarity and customised guidance within a risk-managed framework (OSC, 2022). These cases illustrate how sandboxes can foster financial innovation while maintaining regulatory safeguards, embodying the principles of agile, evidence-informed governance.

Regulatory sandboxes' contribution to throughput legitimacy lies in enhancing the quality of policy design through learning-by-doing, which will ultimately lead to output legitimacy as the resulting policies should be more effective and efficient. However, their legitimacy depends on transparent selection criteria, inclusive participation, and rigorous evaluation (Zetzsche et al., 2017).

### 4. Strategic Foresight: Anticipating Change

As mentioned above, strategic foresight is a tool that can be incorporated within policymaking systems. It refers to structured processes that help policymakers explore long-term trends, uncertainties, and system dynamics. While not a regulatory mechanism in itself, foresight enhances anticipatory governance and institutional resilience (Störmer et al, 2020). Typical methods include:

a) Megatrend mapping, which involves identifying systemic drivers such as climate change, digitalisation, demographic shifts, or geopolitical transformation;

b) Scenario planning that supports the construction of multiple plausible futures that can be used to test the robustness of policy options;

c) Participatory engagement, which brings diverse stakeholders into dialogue to co-create interpretations of how future developments could impact policy choices;

d) Speculative design tools, such as design fiction and future personas, are used to explore and communicate complex policy trade-offs.

In the UK, the Government Office for Science leads national foresight efforts, including horizon scanning, trend reports, and in-depth policy foresight projects (Government Office for Science, 2023). It has run flagship exercises such as the *Future of Cities, Future of Transport*, and *Emerging Technologies and Industries* reports. These initiatives aim to inform long-term decision-making across departments by identifying weak signals and emerging risks, and they have influenced areas such as infrastructure planning and data governance (Government Office for Science, 2023).

In Canada, Policy Horizons Canada, a central agency under the Privy Council Office, is a globally recognised best practice in government foresight. It conducts regular foresight cycles on systemic transformations – such as the future of work, AI and governance, and disruptive bio-economies – and supports departmental integration of foresight into planning and regulatory strategies (Policy Horizons Canada, 2022). Their foresight is explicitly designed to anticipate challenges before crises emerge and ensure early signals are incorporated into whole-of-government responses.

New Zealand has developed an ecosystem of foresight institutions, with the McGuinness Institute playing a leading role in public sector futures thinking. Its Project 2058 has provided a series of strategic planning resources and scenario studies aimed at addressing long-range issues such as demographic shifts, climate adaptation, and resilience in public health systems (McGuinness Institute, 2020). Simultaneously, Treasury New Zealand's ForesightNZ initiative supports internal capacity-building and scenario development for economic and fiscal planning (McGuinness Institute, 2020).

In Australia, strategic foresight is supported through a networked approach. The Department of the Prime Minister and Cabinet commissions and coordinates foresight activities, while the Commonwealth Scientific and Industrial Research Organisation (CSIRO) delivers futures research through its *Futures* programme. CSIRO has published extensively on megatrends, including in areas such as climate transition, health futures, and digital disruption, and its insights have informed sectoral strategies across agriculture, health, and energy (CSIRO, 2022). Horizon scanning is also used by state governments and sector-specific bodies to guide policy adaptation under uncertainty. Incorporating strategic foresight as part of increasing throughput legitimacy contributes to output legitimacy by aligning present-day interventions with long-term public values. It also strengthens policymaking under uncertainty, complementing both Better Regulation and agile legislative approaches by clarifying domains of resilience and disruption.

# 3.6. ENABLING DRIVERS OF OUTPUT LEGITIMACY

Output legitimacy refers to the effectiveness, reliability, and impact of public policies in delivering results that address societal needs. It concerns the extent to which public decisions generate tangible improvements and demonstrate a sustained capacity to solve collective problems. From a trust perspective, this dimension encompasses both objective performance and perceived satisfaction, reflecting whether citizens and stakeholders consider policy outcomes to be responsive, high quality, and aligned with their expectations.

### Section outline and key messages

The section analyses recent trends in policy performance and institutional effectiveness, focusing on indicators such as government effectiveness, satisfaction with public services, and overall quality of governance. It further explores broader societal outcomes, including the quality of democracy and life satisfaction, as complementary aspects of output legitimacy. Particular attention is given to the digitalisation of public services as a driver of legitimacy when it enhances accessibility, inclusiveness, and service quality. Finally, the section examines how evidence-informed policymaking strengthens responsiveness and effectiveness in public service delivery, thereby reinforcing citizens' trust in government.

**Key messages**

- **Output legitimacy is under pressure in many democracies.**
  Despite some progress in lower-performing countries, long-standing democracies are facing declining perceptions of government effectiveness and broader democratic outcomes.
- **Governments are becoming more digitally mature.**
  International indices such as the European Commission eGovernment Benchmark and OECD Digital Government Index reveal increasing digital capacity across public administrations, creating opportunities for more effective and citizen-centred services.
- **Digital transformation can strengthen service delivery.**
  When guided by openness, user empowerment, and institutional accountability, digital reforms improve not only administrative efficiency but also the legitimacy of public service provision.
- **Digital reforms must be equitable to be legitimate.**
  Cases such as Belgium's e-ID reform show that while digitalisation can enhance efficiency and connectivity, it may also deepen inequality if certain groups are left behind. Inclusive design and support for digital literacy are essential.
- **Trust in digital services requires informed and capable users.**
  To engage meaningfully with public administration online, citizens and businesses must understand both the benefits and risks of digital tools. Improving digital literacy is essential for legitimate and effective service delivery.
- **Secure digital identity fosters accountability.**
  Projects such as GLASS illustrate how interoperable, user-controlled digital identities can enable transparent, verifiable interactions between citizens and institutions, removing redundancy and building trust in digital administration.
- **Empathetic design builds public trust.**
  The Dutch TRB initiative shows how embedding public services in empathetic, citizen-oriented frameworks, such as pausing debt collection and protecting privacy, can increase perceived fairness and institutional reliability.
- **Technology alone does not build trust.**
  Political trust requires more than technical solutions. Transparent communication, accessibility, and institutional accountability are critical for ensuring that digital innovations contribute to effective and trusted governance.

### 3.6.1. Performance and institutional effectiveness

A core component of output legitimacy lies in the performance and effectiveness of public institutions. Citizens are more likely to view governments as legitimate when they perceive that policies achieve intended goals and deliver tangible improvements to their quality of life. This includes both the capacity to design and implement policies competently and the ability to ensure consistent and equitable delivery of services. Indicators such as government effectiveness, regulatory quality, and service satisfaction rates are commonly used to gauge these dimensions.

High institutional performance contributes to citizens' trust in government. According to the OECD Trust Survey (2024), trust levels are significantly higher in countries where public services are perceived as effective, accessible, and responsive to societal needs. In contrast, when citizens encounter low-quality services, corruption, or inefficient bureaucracies, they are less likely to believe that the system works in their interest, undermining both trust and output legitimacy. This connection is particularly strong in areas such as health care, education, and social protection, where policy outcomes are highly visible and personal (OECD, 2024).

However, performance alone does not guarantee legitimacy. According to Rothstein and Teorell (2008), the impartiality of outcomes takes precedence over their efficiency. As a result, policy outcomes that are not equally accessible to citizens can lead to distrust and dissatisfaction with government. This supports the idea that legitimacy stems from both effectiveness and inclusiveness.

An indicator capturing perceptions regarding important determinants of output legitimacy is the Government Effectiveness Indicator[12], which is part of the World Bank Worldwide Governance Indicators.

The most recent data points confirm an overall declining trend, both when looking at the evolution between 2007 and 2023 (the first and last years of available data) and in 2023 (see Table 8). In general, however, declines are concentrated in countries starting from high levels, while increases are more often seen in countries starting from low levels. Two emblematic cases are those of Belgium, which started from a score of 1.60 in 2007 and ended up with a score of 1.04 in 2023, losing 0.56 points. On the other hand, Italy's score in 2007 equalled 0.19, and it increased to 0.61 in 2023, which remains a low level, despite gaining 0.42 points.

[12] The indicator, ranging from −2.5 to 2.5, "captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies".

*Table 8: Government effectiveness*

| Country | Region | 2007 | 2011 | 2015 | 2019 | 2023 | 2023 | Change |
|---|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **1,86** | -0,26 | -0,15 | 0,04 | -0,17 | **1,33** | -0,54 |
| Belgium | Western Europe | **1,60** | 0,12 | -0,19 | -0,42 | -0,08 | **1,04** | -0,57 |
| France | Western Europe | **1,46** | -0,07 | 0,03 | -0,08 | -0,19 | **1,14** | -0,32 |
| Germany | Western Europe | **1,63** | -0,13 | 0,16 | -0,16 | -0,31 | **1,19** | -0,45 |
| Ireland | Western Europe | **1,55** | -0,10 | 0,07 | -0,26 | 0,33 | **1,59** | 0,04 |
| Luxembourg | Western Europe | **1,59** | 0,16 | -0,05 | 0,00 | 0,22 | **1,91** | 0,33 |
| Netherlands | Western Europe | **1,72** | 0,10 | 0,01 | -0,06 | -0,14 | **1,63** | -0,10 |
| Switzerland | Western Europe | **2,04** | -0,17 | 0,11 | -0,05 | 0,22 | **2,13** | 0,10 |
| United Kingdom | Western Europe | **1,64** | -0,04 | 0,10 | -0,26 | -0,29 | **1,16** | -0,48 |
| Denmark | Northern Europe | **2,35** | -0,25 | -0,31 | 0,08 | 0,14 | **2,02** | -0,33 |
| Finland | Northern Europe | **1,97** | 0,27 | -0,39 | 0,13 | -0,23 | **1,74** | -0,23 |
| Iceland | Northern Europe | **1,79** | -0,21 | -0,12 | 0,02 | 0,07 | **1,56** | -0,23 |
| Norway | Northern Europe | **2,02** | -0,19 | 0,00 | -0,01 | -0,03 | **1,80** | -0,22 |
| Sweden | Northern Europe | **2,02** | -0,09 | -0,24 | -0,01 | -0,07 | **1,60** | -0,42 |
| Cyprus | Southern Europe | **1,42** | 0,14 | -0,54 | -0,06 | -0,22 | **0,74** | -0,68 |
| Greece | Southern Europe | **0,55** | -0,10 | -0,31 | 0,17 | -0,17 | **0,15** | -0,40 |
| Italy | Southern Europe | **0,19** | 0,21 | 0,09 | -0,04 | 0,16 | **0,61** | 0,42 |
| Malta | Southern Europe | **1,20** | -0,01 | -0,37 | 0,01 | -0,43 | **0,40** | -0,80 |
| Portugal | Southern Europe | **0,89** | 0,03 | 0,24 | -0,02 | -0,15 | **0,99** | 0,09 |
| Spain | Southern Europe | **0,99** | -0,01 | 0,18 | -0,19 | -0,22 | **0,75** | -0,23 |
| Bulgaria | Central and Eastern Europe | **-0,12** | 0,05 | 0,06 | 0,19 | -0,13 | **0,05** | 0,17 |
| Croatia | Central and Eastern Europe | **0,46** | 0,05 | -0,04 | 0,00 | 0,26 | **0,71** | 0,26 |
| Czech Republic | Central and Eastern Europe | **0,85** | 0,08 | 0,10 | -0,11 | 0,19 | **1,11** | 0,27 |
| Estonia | Central and Eastern Europe | **1,01** | 0,06 | -0,03 | 0,10 | 0,12 | **1,26** | 0,26 |
| Hungary | Central and Eastern Europe | **0,69** | -0,04 | -0,14 | -0,06 | -0,08 | **0,37** | -0,32 |
| Latvia | Central and Eastern Europe | **0,43** | 0,26 | 0,36 | 0,01 | -0,37 | **0,70** | 0,27 |
| Lithuania | Central and Eastern Europe | **0,66** | 0,04 | 0,45 | -0,14 | 0,04 | **1,05** | 0,39 |
| Poland | Central and Eastern Europe | **0,36** | 0,24 | 0,14 | -0,23 | -0,09 | **0,42** | 0,06 |
| Romania | Central and Eastern Europe | **-0,35** | 0,16 | 0,29 | -0,31 | 0,12 | **-0,09** | 0,26 |
| Slovakia | Central and Eastern Europe | **0,69** | 0,09 | -0,04 | -0,19 | -0,32 | **0,23** | -0,46 |
| Slovenia | Central and Eastern Europe | **0,89** | 0,09 | -0,04 | 0,10 | 0,00 | **1,04** | 0,15 |
| Australia | Oceania | **1,82** | -0,13 | -0,16 | 0,01 | 0,05 | **1,59** | -0,23 |
| New Zealand | Oceania | **1,66** | 0,21 | -0,02 | -0,22 | -0,10 | **1,53** | -0,13 |
| Canada | Northern America | **1,75** | 0,02 | -0,04 | -0,03 | -0,18 | **1,52** | -0,24 |
| United States | Northern America | **1,64** | -0,13 | -0,08 | 0,02 | -0,24 | **1,22** | -0,43 |

*Source: World Bank's Good Governance Indicators*

A more specific measurement of the satisfaction with public services, concerned with the administrative sphere, comes from the OECD Trust Survey. It represents the most important driver of trust in the national civil service and the second-most important one for confidence in local government (OECD, 2024). The OECD Trust Surveys of 2021 and 2023 both measured how satisfied citizens were with administrative services[13] (see Table 17).

The findings paint a rather positive picture, as, on average, close to two-thirds of respondents were satisfied in 2023. There are nonetheless some differences between countries. In two instances (Portugal and Italy), less than half of respondents were satisfied (40.11% and 48.31% respectively), or, as in the case of Germany (51.05%), France (50.28%), and Ireland (50.74%), very thin majorities reported being satisfied. On the other hand, more than 80% of respondents were pleased with administrative services in Estonia (82.87%), Finland (82.7%), Luxembourg (82.37%), and Switzerland (81.36%).

[13] The data shows the within-country distributions of responses to the question "On a scale of 0 to 10, how satisfied are you with the quality of administrative services in [COUNTRY] (for example applying for an ID, registering a birth or applying for benefits)?" in 2021 and 2023 waves. The "satisfaction" proportion, which is the one presented here, is the aggregation of responses from 6–10 on the scale.
A number of countries were only surveyed in 2023 in relation to the satisfaction with administrative services, and only focusing on recent users of administrative services. Those countries are Czechia, Finland, Germany, Greece, Italy, Norway, Slovakia, Slovenia, Spain, and Switzerland.

Finally, the countries for which data is available both for 2021 and 2023 are roughly equally split into three groups. In some countries there was a marked increase in the level of satisfaction (especially Australia (+11.84)); in a few, there was barely any change and in others, there were significant declines (especially Portugal (−14.07) and Ireland (−12.47)).

The indicators that are presented next are of a different nature. Instead of aiming to capture perceptions around the quality of policy outcomes and public services, they are about the broader societal outcomes of the quality of democracy and life satisfaction. These can be seen as the final result of output legitimacy. Good-quality public services are associated with higher levels of trust, which, in turn, is a crucial prerequisite for democratic health (Blind, 2007). Moreover, they are also positively associated with life satisfaction (Helliwell & Huang, 2008), measured by the Happiness indicator from the World Happiness Report.

The Democracy Index by the Economist Intelligence Unit (see Table 9) aims to measure the state of democracy in 165 countries across the world. It does so by evaluating countries on five categories: electoral process and pluralism; civil liberties; the functioning of government; political participation; and political culture[14]. According to their scores, countries are subdivided into five "regime types"[15]: full democracies (scores >8), flawed democracies (scores between 6 and 8), hybrid regimes (scores between 4 and 6), and authoritarian regimes (scores <4).

The data between 2008 and 2023 shows a general erosion of democracy, parallel to similar trends observed with trust. In the vast majority of countries under consideration, there have been declines in scores, which, in some instances, are quite sizeable. That is the case in three Eastern European countries (Hungary, with a decrease of 0.76, and Romania and Bulgaria, both with a decrease of 0.61), but also, perhaps surprisingly, in three Western and Northern countries (the Netherlands, losing 0.53 points, Belgium, losing 0.52 points, and Sweden, losing 0.49 points). It should be noted, however, that the latter three countries still retained comparatively high scores.

In a small minority of countries, slight increases were registered, perhaps with the exceptions of Estonia and New Zealand, which gained 0.28 and 0.42 points, respectively.

Concerning the classification into regime types (see Table 9), countries were equally split in 2023 between "full democracies" (18) and "flawed democracies" (17). It should not come as a surprise that no countries are part of the lowest categories, given that the sample is exclusively made up of Western and industrialised countries. However, it should be a reason for concern that, between 2008 and 2023, five countries moved from the "full democracies" group to the "flawed" one (Czechia, Malta, the United States, Portugal, and Belgium). As a result, half of the countries in the sample are characterised by weaknesses in their democratic systems, related, for instance, to their governance, political culture, and participation. No country moved from the "flawed" to the "full" group.

Finally, concerning the geographic distribution, it emerges that all "full democracies" are located in Western and Northern Europe, North America, and Oceania (except Greece and Spain). The remaining countries from Southern and Eastern Europe, plus Belgium and the United States, are classified as "flawed democracies".

Turning to the Happiness indicator, while a continuing increase in scores is observed between 2022 and 2024 in Eastern European countries, in most other countries, declines are observed (See Table 10). Albeit remaining at comparatively high levels, countries in Northern and Western Europe, as well as in Oceania and North America, potentially suffered from issues that characterised the post-pandemic recovery such as rising living costs. A similar division between high-scoring countries losing points and low-scoring countries gaining points is observed when considering the entire 2015–2024 timeframe.

[14] The Index is based on a 0 to 10 scale. Each category has a rating on a 0 to 10 scale, and the overall Index is the simple average of the five category indexes.

[15] For definitions of each regime type, see the Appendix in *Democracy Index 2023* (2024), Economist Intelligence Unit.

*Table 9: The Democracy Index*

| Region | 2008 | 2011 | 2014 | 2017 | 2020 | 2023 | Change | Democracy type in 2008 | Democracy type in 2023 |
|---|---|---|---|---|---|---|---|---|---|
| Western Europe | **8,49** | 0,00 | 0,05 | -0,12 | -0,26 | 0,12 | **8,28** | -0,21 | Full | Full |
| Western Europe | **8,16** | -0,11 | -0,12 | -0,15 | -0,27 | 0,13 | **7,64** | -0,52 | Full | Flawed |
| Western Europe | **8,07** | -0,30 | 0,27 | -0,24 | 0,19 | 0,08 | **8,07** | 0 | Full | Full |
| Western Europe | **8,82** | -0,48 | 0,30 | -0,03 | 0,06 | 0,13 | **8,8** | -0,02 | Full | Full |
| Western Europe | **9,01** | -0,45 | 0,16 | 0,43 | -0,10 | 0,14 | **9,19** | 0,18 | Full | Full |
| Western Europe | **9,1** | -0,22 | 0,00 | -0,07 | -0,13 | 0,13 | **8,81** | -0,29 | Full | Full |
| Western Europe | **9,53** | -0,54 | -0,07 | -0,03 | 0,07 | 0,04 | **9** | -0,53 | Full | Full |
| Western Europe | **9,15** | -0,06 | 0,00 | -0,06 | -0,20 | 0,31 | **9,14** | -0,01 | Full | Full |
| Western Europe | **8,15** | 0,01 | 0,15 | 0,22 | 0,01 | -0,26 | **8,28** | 0,13 | Full | Full |
| Northern Europe | **9,52** | 0,00 | -0,41 | 0,11 | -0,07 | 0,13 | **9,28** | -0,24 | Full | Full |
| Northern Europe | **9,25** | -0,19 | -0,03 | 0,00 | 0,17 | 0,10 | **9,3** | 0,05 | Full | Full |
| Northern Europe | **9,65** | 0,00 | -0,07 | 0,00 | -0,21 | 0,08 | **9,45** | -0,2 | Full | Full |
| Northern Europe | **9,68** | 0,12 | 0,13 | -0,06 | -0,06 | 0,00 | **9,81** | 0,13 | Full | Full |
| Northern Europe | **9,88** | -0,38 | 0,23 | -0,34 | -0,13 | 0,13 | **9,39** | -0,49 | Full | Full |
| Southern Europe | **7,7** | -0,41 | 0,11 | 0,19 | -0,03 | -0,18 | **7,38** | -0,32 | Flawed | Flawed |
| Southern Europe | **8,13** | -0,48 | -0,20 | -0,16 | 0,10 | 0,75 | **8,14** | 0,01 | Full | Full |
| Southern Europe | **7,98** | -0,24 | 0,11 | 0,13 | -0,24 | -0,05 | **7,69** | -0,29 | Flawed | Flawed |
| Southern Europe | **8,39** | -0,11 | 0,11 | -0,24 | -0,47 | 0,25 | **7,93** | -0,46 | Full | Flawed |
| Southern Europe | **8,05** | -0,24 | -0,02 | 0,05 | 0,06 | -0,15 | **7,75** | -0,3 | Full | Flawed |
| Southern Europe | **8,45** | -0,43 | 0,03 | 0,03 | 0,04 | -0,05 | **8,07** | -0,38 | Full | Full |
| Central and Eastern Europe | **7,02** | -0,24 | -0,05 | 0,30 | -0,32 | -0,30 | **6,41** | -0,61 | Flawed | Flawed |
| Central and Eastern Europe | **7,04** | -0,31 | 0,20 | -0,30 | -0,13 | 0,00 | **6,5** | -0,54 | Flawed | Flawed |
| Central and Eastern Europe | **8,19** | 0,00 | -0,25 | -0,32 | 0,05 | 0,30 | **7,97** | -0,22 | Full | Flawed |
| Central and Eastern Europe | **7,68** | -0,07 | 0,13 | 0,05 | 0,05 | 0,12 | **7,96** | 0,28 | Flawed | Flawed |
| Central and Eastern Europe | **7,44** | -0,40 | -0,14 | -0,26 | -0,08 | 0,16 | **6,72** | -0,72 | Flawed | Flawed |
| Central and Eastern Europe | **7,23** | -0,18 | 0,43 | -0,23 | -0,01 | 0,14 | **7,38** | 0,15 | Flawed | Flawed |
| Central and Eastern Europe | **7,36** | -0,12 | 0,30 | -0,13 | -0,28 | 0,18 | **7,31** | -0,05 | Flawed | Flawed |
| Central and Eastern Europe | **7,3** | -0,18 | 0,35 | -0,80 | 0,18 | 0,33 | **7,18** | -0,12 | Flawed | Flawed |
| Central and Eastern Europe | **7,06** | -0,52 | 0,14 | -0,24 | -0,04 | 0,05 | **6,45** | -0,61 | Flawed | Flawed |
| Central and Eastern Europe | **7,33** | 0,02 | 0,00 | -0,19 | -0,19 | 0,10 | **7,07** | -0,26 | Flawed | Flawed |
| Central and Eastern Europe | **7,96** | -0,20 | -0,19 | -0,07 | 0,04 | 0,21 | **7,75** | -0,21 | Flawed | Flawed |
| Oceania | **9,09** | 0,13 | -0,21 | 0,08 | -0,13 | -0,30 | **8,66** | -0,43 | Full | Full |
| Oceania | **9,19** | 0,07 | 0,00 | 0,00 | -0,01 | 0,36 | **9,61** | 0,42 | Full | Full |
| Northern America | **9,07** | 0,01 | 0,00 | 0,07 | 0,09 | -0,55 | **8,69** | -0,38 | Full | Full |
| Northern America | **8,22** | -0,11 | 0,00 | -0,13 | -0,06 | -0,07 | **7,85** | -0,37 | Full | Flawed |

*Source: Economist Intelligence Unit*

The current state of output legitimacy across democratic systems reflects a general trend of erosion, particularly in perceptions of government effectiveness and broader democratic outcomes. While some improvements are visible in lower-performing countries, many established democracies show declining scores. The 2024 OECD Trust Survey indicates that, although a majority of citizens remain satisfied with administrative services, levels vary significantly and have declined in several cases since 2021. Similarly, the Democracy Index shows a widespread deterioration in democratic quality, with an increasing number of countries classified as "flawed democracies". Trends in life satisfaction, as captured by the World Happiness Report, also show stagnation or decline in many high-income countries. Together, these indicators highlight growing challenges to output legitimacy, even in long-standing democratic contexts.

*Table 10: Happiness Index*

| | Region | 2015 | | 2018 | | 2021 | | 2024 | 2024 | Change |
|---|---|---|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **7,20** | ▼ | -0,06 | ▲ | 0,13 | ▼ | -0,36 | **6,90** | -0,30 |
| Belgium | Western Europe | **6,94** | ▼ | -0,01 | ▼ | -0,09 | ▲ | 0,06 | **6,89** | -0,04 |
| France | Western Europe | **6,57** | ▼ | -0,09 | ▲ | 0,20 | ▼ | -0,08 | **6,61** | 0,03 |
| Germany | Western Europe | **6,75** | ▲ | 0,22 | ▲ | 0,19 | ▼ | -0,44 | **6,72** | -0,03 |
| Ireland | Western Europe | **6,94** | ▲ | 0,04 | ▲ | 0,11 | ▼ | -0,25 | **6,84** | -0,10 |
| Luxembourg | Western Europe | **6,95** | ▼ | -0,04 | ▲ | 0,41 | ▼ | -0,20 | **7,12** | 0,18 |
| Netherlands | Western Europe | **7,38** | ▲ | 0,06 | ▲ | 0,02 | ▼ | -0,14 | **7,32** | -0,06 |
| Switzerland | Western Europe | **7,59** | ▼ | -0,10 | ▲ | 0,08 | ▼ | -0,51 | **7,06** | -0,53 |
| United Kingdom | Western Europe | **6,87** | ▲ | 0,32 | ▼ | -0,13 | ▼ | -0,32 | **6,75** | -0,12 |
| Denmark | Northern Europe | **7,53** | ▲ | 0,03 | ▲ | 0,07 | ▼ | -0,04 | **7,58** | 0,06 |
| Finland | Northern Europe | **7,41** | ▲ | 0,23 | ▲ | 0,21 | ▼ | -0,10 | **7,74** | 0,33 |
| Iceland | Northern Europe | **7,56** | ▼ | -0,07 | ▲ | 0,06 | ▼ | -0,03 | **7,53** | -0,04 |
| Norway | Northern Europe | **7,52** | ▲ | 0,07 | ▼ | -0,20 | ▼ | -0,09 | **7,30** | -0,22 |
| Sweden | Northern Europe | **7,36** | ▼ | -0,05 | ▲ | 0,05 | ▼ | -0,02 | **7,34** | -0,02 |
| Cyprus | Southern Europe | **5,69** | ▲ | 0,07 | ▲ | 0,46 | ▼ | -0,15 | **6,07** | 0,38 |
| Greece | Southern Europe | **4,86** | ▲ | 0,50 | ▲ | 0,37 | ▲ | 0,21 | **5,93** | 1,08 |
| Italy | Southern Europe | **5,95** | ▲ | 0,05 | ▲ | 0,48 | ▼ | -0,16 | **6,32** | 0,38 |
| Malta | Southern Europe | **6,30** | ▲ | 0,32 | ▼ | -0,02 | ▼ | -0,26 | **6,35** | 0,04 |
| Portugal | Southern Europe | | | | | | | | **6,03** | |
| Spain | Southern Europe | **6,33** | ▼ | -0,02 | ▲ | 0,18 | ▼ | -0,07 | **6,42** | 0,09 |
| Bulgaria | Central and Eastern Europe | **4,22** | ▲ | 0,72 | ▲ | 0,33 | ▲ | 0,20 | **5,46** | 1,24 |
| Croatia | Central and Eastern Europe | **5,76** | ▼ | -0,44 | ▲ | 0,56 | ▲ | 0,06 | **5,94** | 0,18 |
| Czech Republic | Central and Eastern Europe | | | | | | | | **6,82** | |
| Estonia | Central and Eastern Europe | **5,43** | ▲ | 0,31 | ▲ | 0,45 | ▲ | 0,26 | **6,45** | 1,02 |
| Hungary | Central and Eastern Europe | **4,80** | ▲ | 0,82 | ▲ | 0,37 | ▲ | 0,02 | **6,02** | 1,22 |
| Latvia | Central and Eastern Europe | **5,10** | ▲ | 0,84 | ▲ | 0,10 | ▲ | 0,20 | **6,23** | 1,14 |
| Lithuania | Central and Eastern Europe | **5,83** | ▲ | 0,12 | ▲ | 0,30 | ▲ | 0,56 | **6,82** | 0,98 |
| Poland | Central and Eastern Europe | **5,79** | ▲ | 0,33 | ▲ | 0,04 | ▲ | 0,28 | **6,44** | 0,65 |
| Romania | Central and Eastern Europe | **5,12** | ▲ | 0,82 | ▲ | 0,19 | ▲ | 0,35 | **6,49** | 1,37 |
| Slovakia | Central and Eastern Europe | **5,99** | ▲ | 0,18 | ▲ | 0,16 | ▼ | -0,07 | **6,26** | 0,26 |
| Slovenia | Central and Eastern Europe | **5,85** | ▲ | 0,10 | ▲ | 0,51 | ▲ | 0,28 | **6,74** | 0,90 |
| Australia | Oceania | **7,28** | ▼ | -0,01 | ▼ | -0,09 | ▼ | -0,13 | **7,06** | -0,23 |
| New Zealand | Oceania | **7,29** | ▲ | 0,04 | ▼ | -0,05 | ▼ | -0,25 | **7,03** | -0,26 |
| Canada | Northern America | **7,43** | ▼ | -0,10 | ▼ | -0,22 | ▼ | -0,20 | **6,90** | -0,53 |
| United States | Northern America | **7,12** | ▼ | -0,23 | ▲ | 0,07 | ▼ | -0,23 | **6,72** | -0,39 |

*Source: World Happiness Report*

### 3.6.2. Digital transformation for inclusive and effective service delivery

Rather than considering digitalisation as an end, this section explores how digital tools enhance output legitimacy in public administration by delivering tangible improvements in access, quality, and fairness of public services. As digital governance evolves, it is increasingly important to approach technological innovation, particularly in domains such as data, infrastructure, and AI development, in a coordinated and trustworthy manner. Emerging technologies initiatives aim to strengthen this coordination by aligning digital transformation with EU values and legal frameworks, while addressing fragmentation across public sector systems (Navajas et al., 2025).

Crucially, the deployment of advanced digital tools must be accompanied by robust governance mechanisms to ensure interoperability, data privacy, and service transparency. As generative technologies expand, challenges relating to data governance and computational capacity must be addressed in parallel with opportunities for innovation. In this context, digital transformation enhances public service delivery when it is grounded in openness, user empowerment, and institutional accountability. It is this intersection between technological advancement, citizen experience, and public administration that defines the legitimacy of public sector digital reforms (Navajas et al., 2025).

The European Commission eGovernment benchmark, OECD Digital Government Index, and UN e-government index highlight an increasing trend in the digital maturity of public administrations. The UN egovernment development index highlights that most countries, particularly in Southern and Eastern Europe, experienced sharp improvements between 2022 and 2024. This growth indicates sustained institutional investment in digital infrastructure and service accessibility.

Within the European Union, the eGovernment Benchmark provides a multidimensional view of digital public service performance across four core areas: user-centricity, transparency, cross-border mobility, and key enablers. Between 2021 and 2023, (see Table 11), every participating country improved its composite score, with Poland (+13.78) and Cyprus (+9.84) recording the most significant gains. Countries with already high digital maturity, such as Denmark and the Netherlands, maintained their leadership positions with smaller improvements. Malta, Estonia, and Luxembourg emerged as top performers with scores above 89, while Romania and Switzerland trailed behind with values under 60. These findings reflect an overall upward trend and convergence in public service digitalisation across the EU (European Commission, 2023).

*Table 11: eGovernment Benchmark*

| Country | Region | 2021 | | 2022 | | 2023 | 2023 | Change |
|---|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **76,30** | ▲ | **77,75** | | | | 1,46 |
| Belgium | Western Europe | **74,10** | ▲ | 3,38 | ▲ | 0,38 | **77,86** | 3,76 |
| France | Western Europe | **69,69** | ▼ | -0,01 | ▲ | 3,88 | **73,55** | 3,87 |
| Germany | Western Europe | **63,23** | ▲ | 1,88 | ▲ | 0,60 | **65,72** | 2,49 |
| Ireland | Western Europe | **70,68** | ▲ | 0,97 | ▲ | 2,55 | **74,19** | 3,52 |
| Luxembourg | Western Europe | **87,11** | ▲ | 1,67 | ▲ | 0,85 | **89,63** | 2,52 |
| Netherlands | Western Europe | **85,06** | ▲ | 0,25 | ▼ | -0,12 | **85,18** | 0,13 |
| Switzerland | Western Europe | **54,64** | ▲ | 3,14 | ▲ | 1,90 | **59,67** | 5,03 |
| United Kingdom | Western Europe | | | | | | | |
| Denmark | Northern Europe | **84,30** | ▲ | 0,82 | ▲ | 0,14 | **85,26** | 0,95 |
| Finland | Northern Europe | **84,53** | ▲ | 1,46 | ▲ | 2,02 | **88,01** | 3,48 |
| Iceland | Northern Europe | **86,40** | ▲ | 1,76 | ▲ | 0,00 | **88,16** | 1,76 |
| Norway | Northern Europe | **79,16** | ▲ | 0,45 | ▲ | 2,76 | **82,37** | 3,20 |
| Sweden | Northern Europe | **73,61** | ▲ | 3,05 | ▲ | 5,14 | **81,80** | 8,19 |
| Cyprus | Southern Europe | **50,22** | ▲ | 3,16 | ▲ | 6,68 | **60,05** | 9,84 |
| Greece | Southern Europe | | | | | | | |
| Italy | Southern Europe | **60,85** | ▲ | 0,47 | ▲ | 0,46 | **61,78** | 0,93 |
| Malta | Southern Europe | **95,47** | ▲ | 0,25 | ▲ | 1,17 | **96,88** | 1,41 |
| Portugal | Southern Europe | **78,38** | ▲ | 0,69 | ▲ | 1,82 | **80,90** | 2,52 |
| Spain | Southern Europe | **78,85** | ▲ | 0,64 | ▼ | -0,01 | **79,48** | 0,63 |
| Bulgaria | Central and Eastern Europe | **61,36** | ▲ | 1,22 | ▲ | 7,16 | **69,74** | 8,38 |
| Croatia | Central and Eastern Europe | **60,64** | ▲ | 2,54 | ▲ | 3,73 | **66,91** | 6,27 |
| Czech Republic | Central and Eastern Europe | **62,62** | ▲ | 1,17 | ▲ | 4,71 | **68,50** | 5,88 |
| Estonia | Central and Eastern Europe | **89,98** | ▲ | 1,78 | ▲ | 0,27 | **92,04** | 2,06 |
| Hungary | Central and Eastern Europe | **66,18** | ▲ | 1,94 | ▲ | 4,73 | **72,84** | 6,66 |
| Latvia | Central and Eastern Europe | **80,17** | ▲ | 1,51 | ▲ | 3,02 | **84,70** | 4,53 |
| Lithuania | Central and Eastern Europe | **83,43** | ▲ | 1,69 | ▲ | 0,88 | **86,00** | 2,57 |
| Poland | Central and Eastern Europe | **54,93** | ▲ | 7,31 | ▲ | 6,46 | **68,70** | 13,78 |
| Romania | Central and Eastern Europe | **41,81** | ▲ | 3,99 | ▲ | 1,91 | **47,71** | 5,90 |
| Slovakia | Central and Eastern Europe | **59,84** | ▲ | 2,51 | ▲ | 1,82 | **64,17** | 4,33 |
| Slovenia | Central and Eastern Europe | **66,58** | ▲ | 2,12 | ▲ | 6,13 | **74,83** | 8,25 |
| Australia | Oceania | | | | | | | |
| New Zealand | Oceania | | | | | | | |
| Canada | Northern America | | | | | | | |
| United States | Northern America | | | | | | | |

*Source: European Commission*

At a broader level, the OECD Digital Government Index evaluates the extent to which governments implement coherent and human-centred digital strategies. Between 2019 and 2023, Iceland, Ireland, and Finland demonstrated strong progress, while Denmark, the United Kingdom, and Norway ranked as the most advanced in applying whole-of-government digital policies (see Annex 2). The index reveals a similar trajectory to the EU benchmark but includes a wider array of countries and emphasises systemic digital governance maturity rather than service-level performance.

Together, these indicators suggest that digital transformation is not only spreading but is increasingly supporting governments in delivering legitimate and responsive public services.

### Key Themes

Accessibility is a crucial theme in the domain of the digital transformation of public services. One example of this is the simplification of service entry points through tools such as electronic identification. The case of Belgium shows how e-ID marked a significant milestone in Belgium's digital transformation, which began with its Federal eGovernment Strategy in 2009 (European Commission, 2020).

In 2017, the law on electronic identification came into force, and the subsequent royal decree recognised private sector solutions, namely "itsMe", for secure mobile authentication, marking a pivotal moment. This single sign-on structure, aligned with the goals of the Federal eGovernment Strategy, illustrates the potential of integrated platforms to improve user autonomy, streamline service access, and increase public satisfaction (Dumortier & Robben, 2010; NIFO, 2024).

The reform had both advantages and disadvantages. On the one hand, citizens have obtained secure and easy access to public services, while public administration has experienced integrated service delivery and improved data management. On the other hand, it excluded certain segments of the population, such as the elderly and low-income individuals, who face challenges in accessing these services due to a lack of digital skills. Furthermore, smaller private sector actors may struggle due to market concentration among dominant providers such as "itsMe" (Cordella & Bonina, 2012; European Commission, 2023)

Belgium's e-ID reform has demonstrated the potential of digital transformation in public administration, fostering efficiency, increasing trust in government, and boosting interoperability among different levels of government and regions. The e-ID promotes interoperability across the public and private sectors by offering a standardised and secure form of identification. In addition, e-ID in Belgium has successfully supported government-citizen connections by the simplified tax filing process via "Tax-on-Web", which has seen strong uptake among Internet users (Statista, 2023). Beyond taxation, the use of e-ID has grown to encompass safe access to health records and criminal reporting, witnessing its increasing incorporation into daily life (European Commission, 2023; Statista, 2023).

However, addressing digital exclusion and ensuring fair market competition remains crucial for sustainable progress. The Belgian experience provides valuable insights into the complexities of implementing digital reforms and the importance of balancing technological advancement with social equity.

Inclusiveness has also become more pronounced, particularly in policy agendas that seek to bridge the digital divide. While Belgium's reform improved access for most citizens, groups such as the elderly and those with low digital literacy reported lower satisfaction levels (Cordella & Bonina, 2012). Ensuring that digitalisation does not exacerbate inequality is critical for sustaining public legitimacy. Addressing these challenges requires a balanced approach that combines inclusive service design with broader support for digital skills and infrastructure.

In addition, to effectively use digital public services and engage with public administration, citizens and businesses must understand both the risks and benefits of the digital world, enabling them to navigate it more confidently and make informed decisions about their digital footprints. In this context, citizens should be encouraged to improve their digital skills, which should cover ethical, technological, legal, ecological, and social issues, among others (Oliveira et al., 2024). In 2002, the Spanish government created the "Generation D Pact", a public–private cooperation aimed at improving digital skills through job and training opportunities. The goal is to develop a comprehensive ecosystem that engages Spanish society in digital transformation and closes the digital skills gap, increasing the percentage of Spanish citizens with these abilities from 70% to 100%. To achieve this goal, an online portal (ACM Digital Library) was developed to increase awareness and give a platform for all stakeholders to promote their digital skills-related activities, publications, or events (Oliveira et al., 2024).

Outcomes refer to the concrete improvements citizens experience when interacting with digital public services. As outlined by Scott et al. (2009), benefits of digitalising public services include reduced service delivery time, better communication with the administration, greater personalisation, increased convenience, accessing services without interacting with government employees, exercising control over services, making services more convenient, personalising services, and making information on services more accessible. Citizens no longer need to navigate bureaucratic channels manually, because digital platforms allow them to control, monitor, and tailor their interactions. These improvements enhance the perception that government is responsive, fair, and competent – core elements of output legitimacy.

### 3.6.3. Case studies

Two case studies demonstrate how digitalisation can enhance output legitimacy by leading to measurable improvements in citizens' experience of public services, particularly in terms of access, quality, and fairness. These examples include the GLASS project, which offers a blockchain-based digital identity solution for cross-border services, and the Red Button initiative, which enables fast access to emergency protection for vulnerable groups.

**What is blockchain?**

Blockchain is a digital, decentralised ledger technology that can be used by public administrations to improve transparency, security, and efficiency in managing public data and services. Unlike traditional databases controlled by a central authority, blockchain distributes data across a network of nodes, ensuring that once a record is entered, it cannot be altered without the consensus of the network. This immutability and traceability is particularly valuable for public sector tasks that require trust and accountability, such as managing social welfare records, tracking debt repayments, or monitoring sensitive data related to human trafficking cases. For example, blockchain can ensure that welfare benefits are disbursed fairly by recording every transaction transparently, reducing fraud and enabling real-time auditing (Cagigas et al., 2021; Aliti et al., 2022).

In practice, blockchain supports specific parts of administrative processes, such as data validation, document authentication, and the secure exchange of information across agencies. When applied to cross-border efforts to combat human trafficking, for instance, blockchain can be used to securely store and share identity records or case histories between law enforcement and social services, while preserving data integrity and protecting sensitive information (Cagigas et al., 2021). For debt or tax records, blockchain can automate and verify payments using smart contracts – self-executing agreements based on pre-set conditions – thereby reducing administrative overheads and delays (Aliti et al., 2022). In this way, blockchain does not replace entire systems but strengthens key steps in data handling, verification, and coordination, particularly where accuracy and trust are critical.

**Case study: the digital identity (GLASS project)**

**What is the problem it addresses?**

The GLASS project responds to growing demands for secure, interoperable, and user-controlled digital identities within the EU. As governments accelerate the digitalisation of public services, the need for a trustworthy system that enables citizens to access services across borders, while ensuring privacy, security, and control, has become critical. Traditional identity systems often rely on centralised authorities and do not offer cross-border compatibility or sufficient transparency, undermining citizen trust and limiting the scope of digital service delivery across EU Member States (Chrysoulas et al., 2022; Kasimatis et al., 2024).

**What is the added value?**

GLASS offers a decentralised and user-centric solution that enhances mobility and integration of public services throughout the EU. By allowing individuals to independently control their digital identities and credentials, the project eliminates reliance on third parties for trust verification. This increases transparency and gives users full sovereignty over their data. In addition, the system supports easier relocation, temporary residence, or employment abroad, improving citizens' access to public services regardless of location (Chrysoulas et al., 2022; Kasimatis et al., 2024).

**What is this tool?**

The GLASS project is a digital identity solution built on the European Blockchain Services Infrastructure (EBSI). It enables citizens to manage a secure digital wallet that stores verifiable credentials. These wallets interface with a distributed trust framework that spans Member States, incorporating national-level digital signers and administrative domains. The tool is part of the broader European Commission initiative to deploy an EU Digital Identity Wallet, mandated by the updated 2021 eIDAS Regulation (Chrysoulas et al., 2022; Kasimatis et al., 2024).

**How does it work in general and in this case?**
In general, GLASS operates on blockchain technology to ensure immutability, decentralisation, and transparency. Each user manages a digital wallet, which includes secure keys used to sign transactions, documents, and credentials. This wallet provides a graphical interface for interacting with both public and private services. The system tracks digital signers by country and verifies their authorisation, making it adaptable to national administrative frameworks.

In this specific case, the GLASS project ties directly into the EU's broader digital governance vision. It serves as a bridge between national identity systems and pan-European digital service access. By eliminating third-party intermediaries, it empowers users to identify directly with authorised entities, supporting activities such as cross-border employment, access to healthcare, and residence documentation (Chrysoulas et al., 2022; Kasimatis et al., 2024).

**How does it address the problem?**
The project directly addresses concerns around trust, interoperability, and data control by anchoring identity verification in user-managed, blockchain-enabled wallets. This approach mitigates concerns regarding privacy, security, and convenience, issues consistently identified in recent investigations as the user retains full oversight of their credentials. By using qualified electronic signatures and distributed ledger technologies, the GLASS project aims to ensure that interactions between citizens and institutions are verifiable, secure, and transparent. It also removes administrative redundancy by facilitating seamless public and private sector integration (Chrysoulas et al., 2022; Kasimatis et al., 2024).

**Is it transferrable to other scenarios?**
The GLASS architecture is designed for scalability and interoperability. Its modular trust infrastructure, based on country-specific domains and the EBSI framework, allows other EU Member States to adopt or integrate it without needing to rebuild their national identity systems. Moreover, the principles of decentralised identity and direct verification, by using blockchain technology and user sovereignty, can extend beyond the EU context, especially in regions aiming to digitalise public services while maintaining individual data control.

**Challenges**
Despite its potential, the implementation of GLASS faces several challenges. Although blockchain is used in the development and implementation of e-governance systems in the EU, a few challenges remain, such as aligning identity linkages with a special type of digital certificate to enable harmonised citizen integration with public services (Kasimatis et al., 2024). Delivering this key component of the EU Digital Identity Wallet by 2024 demands close coordination and collaboration between national and EU-level authorities. In addition to technical issues, there are still important concerns about end users, particularly related to privacy, security, and convenience, as the project remains under development. As highlighted by Chrysoulas et al. (2022) and Kasimatis et al. (2024), even technically robust systems must address the human dimension of digital trust to ensure widespread adoption.

**Case study: the Dutch "Red Button"**

**What is the problem it addresses?**
Over-indebtedness is a pressing issue affecting many citizens, undermining both individual well-being and social cohesion. Traditional debt collection systems tend to be rigid, bureaucratic, and not transparent, offering little room for individuals to recover their financial stability in a dignified way (Stanojević, 2023). Citizens facing multiple debts often lack access to temporary relief mechanisms and face stigma when seeking public institutional support. This problem in general could be amplified by limited data privacy protections and insufficient integration between local governance and national strategies (Aassve et al., 2022).

**What is the added value?**
The Dutch Red Button (TRB) initiative offers a novel and decentralised response to debt distress by combining a temporary pause in debt collection with strong data privacy and citizen empowerment measures. The core value lies not only in technological innovation but in embedding public services within a more empathetic and trust-building framework. Unlike conventional systems, the TRB initiative leverages emerging technologies to shift control from the administration to the citizen, thereby increasing both the perceived and actual responsiveness of institutions (Stanojević, 2023).

**What is this tool?**
The Dutch TRB initiative, launched in 2018, is a blockchain-based project and a collaborative effort between the Central Judicial Collection Agency and two municipalities; the initiative is ongoing. The initiative represents a novel governmental approach to alleviate the burden of multiple debts on citizens. TRB aims to provide a mechanism for individuals facing overwhelming debt to temporarily pause collection, offering a crucial window for sustainable recovery planning. This initiative, operating at the intersection of local governance and national poverty policy, leverages blockchain technology to address citizens' privacy and data control concerns, a central premise of its design (Stanojević, 2023).

**How does it work in general and in this case?**
Generally, TRB is activated by the citizen, literally pressing a digital "red button", which triggers a pause in debt enforcement actions. Technically, it uses blockchain's immutable and decentralised structure to support secure and verifiable identity management. This reduces the role of central authorities and ensures data protection across interactions.

In this specific case, what makes TRB truly innovative is its method of service delivery. Rather than relying on formal office settings, the initiative shifts identity verification to informal "kitchen table conversations" held in the citizen's home. These face-to-face interactions serve both practical and symbolic functions, reducing intimidation and building direct relationships between citizens and debt counsellors. This personalised form of governance represents an alternative, human-centric vision of digital welfare services, aligning with the argument that decentralisation alone is not enough, as relational trust and accessibility are also key (Stanojević, 2023; Müller et al., 2021).

**How does it address the problem?**
Stanojević (2023) highlights that citizens' concerns extend beyond data protection, as they also seek transparency, accessibility, and confidence in the government's ability to act fairly and empathetically.

In practice, TRB builds trust by replacing impersonal, centralised procedures with informal, in-home consultations. This fosters a more personal and less intimidating environment. Yet, even here, Stanojević (2023) highlights that the success of TRB lies less in the technology itself and more in its ability to demonstrate reliability and responsiveness. Citizens' concerns extend beyond data security to encompass broader dimensions of legitimacy, including trust in institutions, perceived fairness, and procedural accessibility.

**Is it transferrable to other scenarios?**
The TRB model is potentially transferable to other jurisdictions confronting challenges related to poverty, debt, or public distrust in welfare systems. Its design aligns with emerging standards in digital governance that favour decentralised identity and proactive service intervention (OECD, 2023). However, in general, its success depends on cultural, administrative, and political factors that support informal engagement such as "kitchen communication" and the local piloting phase. For transferability to be effective, there must be parallel investment in organisational flexibility, trust-building mechanisms, and legal frameworks that protect citizen data while enabling local autonomy (Stanojević, 2023; Cordella & Bonina, 2012).

**Challenges**
The TRB initiative serves as a compelling case study for understanding the complexities of implementing emerging digital technologies in governance. Stanojević's (2023) research reveals that simply implementing the technology does not automatically translate to increased political trust. Governments must prioritise building and maintaining political trust alongside technological implementation. This involves ensuring transparent communication, accessibility, and government accountability, rather than relying solely on technological solutions. Essentially, the success of initiatives such as TRB relies on a holistic approach that recognises the multifaceted nature of citizen trust and the need for governments to be reliable and responsive.

# 3.7. CONCLUSION AND RECOMMENDATIONS

## Conclusion

This chapter has shown how public administrations can foster trust in government by strengthening legitimacy at three interconnected levels of the policymaking cycle: input, throughput, and output legitimacy. As illustrated in Figure 3: Model showing conceptual framework: The interrelation between dimensions of legitimacy and the drivers of trust these dimensions function like interlinked cogs – when one turns, it drives the others, creating a mutually reinforcing process that supports democratic trust. Input legitimacy derives from citizens feeling represented and included; throughput legitimacy concerns the fairness, transparency, and integrity of policymaking processes; and output legitimacy rests on the perceived effectiveness, equity, and responsiveness of policy outcomes.

The case studies and practices examined highlight that legitimacy is not confined to a single stage of the policy cycle, but is dynamically co-constructed across inputs, processes, and outputs. Deliberative democracy, citizen engagement, strategic foresight, and policy design all help bridge citizens' perspectives with policymaking, while evidence-informed policymaking strengthens the effectiveness, fairness, and responsiveness of public services. In this sense, these tools are most relevant for output legitimacy, since they focus on the tangible quality and impact of policies. At the same time, many of them – particularly deliberative practices and co-creation – also enhance throughput legitimacy, by improving transparency, inclusiveness, and accountability in decision-making (Nederhand & Edelenbos, 2022).

The OECD trust framework complements this perspective by highlighting the drivers of trust — responsiveness, reliability, integrity, openness, and fairness – which align closely with the three legitimacy dimensions and help clarify their practical implications for day-to-day governance (OECD, 2024). The experiences reviewed in this chapter, from citizen assemblies and peer parliaments to strategic foresight exercises, the EU Policy Lab, and initiatives such as the GDPR consultations or New European Bauhaus, demonstrate how evidence and citizen engagement can reinforce both the procedural and substantive bases of trust in public institutions.

While innovative tools such as behavioural insights, strategic foresight, and digital governance reforms enhance the capacity of administrations to design effective, future-proof, and citizen-centred policies (European Commission, 2022; OECD, 2017), challenges remain. Scaling participatory practices without losing depth, managing uncertainty and conflicting evidence, and addressing cognitive and myside biases in both citizens and policymakers continue to test the resilience of democratic. Moreover, as seen in cases such as the Common Fisheries Policy or debates on climate and agricultural policies, political ideologies, short-term incentives, and identity-based conflicts can lead to decisions that diverge from evidence, straining legitimacy and trust.

## Recommendations

1. **Institutionalise citizen engagement and deliberation.**
   Ensure that participatory and deliberative processes (e.g. citizens' assemblies, juries, panels) are integrated across the policy cycle, supported by adequate resources, and designed to include diverse perspectives .

2. **Strengthen transparency and integrity.**
   Close remaining gaps in access to information, ensure the timely publication of evidence and consultation results, and cultivate a culture of integrity through training, communication, and clear accountability mechanisms (Nederhand & Edelenbos, 2022).

3. **Advance evidence-informed policymaking.**
   Use diverse sources of evidence – including data, scientific research, evaluations, expert advice, and stakeholder input – across all stages of the policy cycle (European Commission 2023a). Anticipate information needs early to align evidence generation with policy timelines.

4. **Leverage *innovation* and foresight for future-proof policies.**
   Apply **strategic foresight** (e.g. horizon scanning, scenarios, megatrends analysis) to anticipate risks and opportunities, reveal policy trade-offs, and support long-term decision-making (Störmer et al, 2020). Support **policy design** and **innovation labs** to enable iterative, user-centred, and creative approaches.

5. **Promote equity and digital inclusion in service delivery.**
   Ensure digital transformation efforts enhance not only efficiency but also fairness and accessibility. Invest in **digital literacy** and provide support to vulnerable groups to prevent deepening inequality (European Commission, 2020).

# 3.8. REFERENCES

Aarvik, P. (2019). Artificial intelligence – a promising anti-corruption tool in development settings? *Report*, U4, 1–38. Available at: https://www.u4.no/publications/artificial-intelligence-a-promising-anti-corruption-tool-in-development-settings.pdf

Aassve, A., Capezzone, T., Kavadias, D., Saeys, M., Consolini, M., & Ahrendt, D. (2022). Maintaining Trust During the COVID-19 Pandemic. Luxembourg: Publications Office of the European Union. DOI: 10.2806/707872

Afif, Z., Islan, W. W., Calvo-Gonzalez, O., & Dalton, A. G. (2019). *Behavioral science around the world: Profiles of 10 countries* (English). eMBeD Brief. Washington, D.C.: World Bank Group. Retrieved from: https://documents1.worldbank.org/curated/en/710771543609067500/pdf/132610-REVISED-00-COUNTRY-PROFILES-dig.pdf

Aliti, T., Leka, M., Luma, A., & Apostolova Trpkovska, M. (2022). *A Systematic Literature Review on Using Blockchain Technology in Public Administration.* 45th Jubilee International Convention on Information, Communication and Electronic Technology (MIPRO), Opatija, Croatia, 2002. https://ieeexplore.ieee.org/document/9803797

Bauhr, M., & Grimes, M. (2014). Indignation or resignation: The implications of transparency for societal accountability. *Governance, 27*(2), 291–320. DOI: 10.1111/gove.12033

Bekkers, V., & Edwards, A. (2016). Legitimacy and democracy: A conceptual framework for assessing governance practices. In *Governance and the democratic deficit* (pp. 35-60). Routledge.

Bernhard, L. (2024). Does direct democracy increase civic virtues? A systematic literature review. *Frontiers in Political Science, 6*. DOI: 10.3389/fpos.2024.1287330

Blind, P. K. (2007). Building trust in government in the twenty-first century: review of literature and emerging issues. *7th Global Forum on Reinventing Government Building Trust in Government* Vienna: Austria, 26–29 June 2007. UNDESA.

Bouckaert, G., & Halligan, J. (2008). *Managing performance: International comparisons.* Routledge.

Caby, V., & Frehen, L. (2021). How to produce and measure throughput legitimacy? Lessons from a systematic literature review. *Politics and Governance, 9*(1), 226–236. DOI: 10.17645/pag.v9i1.4011

Cagigas, D., Clifton, J., Díaz-Fuentes, D., & Fernández-Gutiérrez, M. (2021). Blockchain for public services: a systematic literature review. *IEEE Access, 9*, 13904–13921. https://ieeexplore.ieee.org/document/9326290

Camões, P. J., & Mendes, S. M. (2019). Do citizens trust the civil service differently? Comparing the determinants of confidence in political-administrative institutions. *International Journal of Public Administration, 42*(14), 1234–1244. DOI: 10.1080/01900692.2019.1592187

Chrysoulas, C., Thomson, A., Pitropakis, N., Papadopoulos, P., Lo, O., Buchanan, W. J., Domalis, G., Karacapilidis, D., Tsakalidid, D., & Tsolis, D. (2022). GLASS: Towards Secure and Decentralized eGovernance Services using IPFS. In: Katsikas, S., Lambrinoudais, C., Cuppens, N., Mylopoulos, J., Kalloniatis, C., Meng, W., Furnell, S., Pallas, F., Pohle, J., Angela Sasse, M., Abie, H., Ranise,S., Verderame, L., Cambiaso, E., Maestre Vidal, J., Sotel Monge M. A. *Computer Security. ESORICS 2021 International Workshops*, Darmstadt, Germany, October 4–8, 2021. Cham: Springer International Publishing. DOI: 10.1007/978-3-030-95484-0_3

Citizens Assembly. (n.d.). About the Citizens' Assembly. Retrieved from: https://citizensassembly.ie/

Citizens Information. (n.d.). Citizens Assembly. Retrieved from: https://www.citizensinformation.ie/en/government-in-ireland/irish-constitution-1/citizens-assembly/

Competition and Markets Authority. (2025). *How the UK's digital markets competition regime works*. GOV.UK. Available at: https://www.gov.uk/guidance/how-the-uks-digital-markets-competition-regime-works?utm_source=chatgpt.com

Connelly, S. (2011). Constructing legitimacy in the new community governance. *Urban Studies, 48*(5), 929-946.

Courant, D. (2021). Citizens assemblies for referendums and constitutional reforms: is there an "Irish model" for deliberative democracy? *Frontiers in Political Science, 2*, 1–20. DOI: 10.3389/fpos.2020.591983

Crosby, N., Kelly, J. M., & Schaefer, P. (2008). Citizen Panels. A New Approach to Citizen Participation. In: Roberts, N. C., (ed.). *The Age of Citizen Participation*. Routledge.

CSIRO. (2022). *Our future world: Global megatrends – A scientific view of the decade ahead.* Commonwealth Scientific and Industrial Research Organisation. https://www.csiro.au/-/media/D61/Our-Future-World-Megatrends-report/Our-Future-World-report-2022-2.pdf

Curato, N. C., Sass, J., Ercan, S. A., & Niemeyer, S. (2022). Deliberative democracy in the age of serial crisis. *International Political Science Review, 43*(1), 55–66. DOI: 10.1177/0192512120941

Dardanelli, P. (2005). *Swiss Direct Democracy: A Shining Example?* Presented at the 27th EGPA Annual Conference, Berne, Switzerland, 31 August–3 September 2005.

Dryzek, J. S. (2002). *Deliberative democracy and beyond: Liberals, critics, contestations*. OUP Oxford.

Dumortier, J., & Robben, F. (2010). User and Access Management in Belgian e-Government. In: Pohlmann, N., Reimer, H., & Schneider, W. (eds.). *ISSE 2009 Securing Electronic Business Processes.* Wiesbaden, Germany: Vieweg+Teubner. Retrieved from: https://doi.org/10.1007/978-3-8348-9363-5_9

Edelenbos J., & van Meerkerk, I. (2016). *Critical Reflections on Interactive Governance: Self-organization and Participation in Public Governance*. Cheltenham, UK: Edward Elgar. DOI:10.4337/9781783479078

Egger, C., & Magni-Berton, R. (2024). *The Global State of Direct Democracy 2024*. Cologne: Direct Democracy Navigator and Democracy International. https://direct-democracy-navigator.org/fileadmin/user_upload/State_of_Direct_Democracy_Report.pdf

Emerson, K., & Nabatchi, T. (2015). *Collaborative Governance Regimes.* Washington, DC: Georgetown University Press.

Eshuis, J., & Edwards, A. (2013). Branding the city: the democratic legitimacy of a new mode of governance. *Urban Studies, 50*(5), 1066–1082. DOI: 10.1177/0042098012459581

European Commission. (n.d.). European Commission, Directorate-General for Regional and Urban Policy. *Integrity Pacts.* Retrieved from: https://ec.europa.eu/regional_policy/policy/how/improving-investment/integrity-pacts_en

European Commission. (2020). Digital Economy and Society Index (DESI) 2020: Belgium. Retrieved from: https://digital-strategy.ec.europa.eu/en/library/digital-economy-and-society-index-desi-2020

European Commission. (2022). European Commission, Directorate-General for Regional and Urban Policy. *Monitoring public contracting: Experience from 18 integrity pacts in the EU.* Retrieved from: https://ec.europa.eu/regional_policy/sources/policy/how/improving-investment/integrity-pacts/booklet_impact_case_en.pdf

European Commission. (2023a). *Better Regulation Toolbox.* https://commission.europa.eu/system/files/2023-09/BR%20toolbox%20-%20Jul%202023%20-%20FINAL.pdf

European Commission. (2023b). *European Commission 2023 Country Report: Belgium (Institutional Paper 225).* Luxembourg: Publications Office of the European Union. Retrieved from: https://economy-finance.ec.europa.eu/publications_en?f%5B0%5D=oe_publication_title%3A225&f%5B1%5D=series_series%3A119

Fledderus, J., Brandsen, T., & Honingh, M. (2014). Restoring trust through the co-production of public services: A theoretical elaboration. *Public Management Review, 16*(3), 424-443.

Fung, A. (2006). Varieties of participation in complex governance. *Public Administration Review, 66*(s1), 66–75. DOI: 10.1111/j.1540-6210.2006.00667.x

Gerring, J., Jerzak, C. T., & Öncel, E. (2023). The composition of descriptive representation. American Political Science Review, 118(2), 784–801. DOI: 10.1017/s0003055423000680

Grimmelikhuijsen, S., Porumbescu, G., Hong, B., & Im, T. (2013). The effect of transparency on trust in government: a cross-national comparative experiment. *Public Administration Review, 73*(4), 575–586. DOI: 10.1111/puar.12047

Grimes, M. (2006). Organizing consent: the role of procedural fairness in political trust and compliance. *European Journal of Political Research, 45*(2), 285–315. DOI:10.1111/j.1475-6765.2006.00299.x

Grönlund, K., Setälä, M., & Herne, K. (2010). Deliberation and civic virtue: Lessons from a citizen deliberation experiment. *European Political Science Review, 2*(1), 95–117. DOI:10.1017/S1755773909990245

Government Office for Science. (2023). *Foresight projects and reports.* UK Government. https://www.gov.uk/government/collections/foresight-projects

Government of the Netherlands. (n.d.). *Diversity and inclusion among central government employees.* Retrieved November 30, 2025, from https://www.government.nl/topics/public-administration/diversity-and-inclusion-among-central-government-employees

Gutmann, A., & Thompson, D. (2016). What Deliberative Democracy Means. In: Blaug R., & Schwarzmantel, J. (eds.). *Democracy: A Reader.* New York: Columbia University Press.

Haus, M., & Heinelt, H. (2004). How to achieve governability at the local level? Theoretical and conceptual considerations on a complementarity of urban leadership and community involvement: Theoretical and conceptual considerations on a complementarity involvement. In *Urban governance and democracy* (pp. 22-49). Routledge.

Helliwell, J. F., & Huang, H. (2008). How's your government? International evidence linking good government and well-being. British Journal of Political Science, 38(4), 595–619. DOI:10.1017/S0007123408000306

Hero, R. E., & Tolbert, C. J. (2004). Minority voices and citizen attitudes about government responsiveness in the American states: do social and institutional context matter? *British Journal of Political Science, 34*(1), 109–121. DOI: 10.1017/S0007123403000371

Hooghe, M., & Marien, S. (2013). A comparative analysis of the relation between political trust and forms of political participation in Europe. *European Societies 15*(1), 131–152.

Huberts, L. W. J. C. (2018). Integrity: what it is and why it is important. *Public Integrity, 20*(supp 1), S18–S32. DOI: 10.1080/10999922.2018.1477404

Jakobsen, M., & Andersen, S. C. (2013). Coproduction and equity in public service delivery. *Public Administration Review, 73*(5), 704–713. DOI:10.1111/puar.12094

Kasimatis, C. N., Apostolou, D., Efthimiadou, A., & Mentzas, G. (2024). Agricultural Product Traceability Using Blockchain-Based Digital Product Passports. In: *2024 15th International Conference on Information, Intelligence, Systems & Applications (IISA 2024), Grand Arsenali, Chania, Crete, Greece, July 17-20*. IEEE. DOI:10.1109/IISA62523.2024.10786712

Kendall, J., & Rahim, S. (2024, October 30). *How AI could support the government's anti corruption agenda.* Oxford Insights. https://oxfordinsights.com/insights/how-ai-could-support-the-governments-anti-corruption-agenda/

Kern, A. (2017). The effect of direct democratic participation on citizens' political attitudes in Switzerland: the difference between availability and use. *Politics and Governance, 5*(2), 16–26. DOI:10.17645/pag.v5i2.820

Klijn, E. H., & Edelenbos, J. (2013). The influence of democratic legitimacy on outcomes in governance networks. *Administration and Society, 45*(6), 627–650. DOI: 10.1177/0095399712454113

Klijn, E. H., & Koppenjan, J. (2015). *Governance Networks in the Public Sector.* Abingdon, Oxfordshire: Routledge eBooks. DOI:10.4324/9781315887098

Kostelka, F., & Blais, A. (2021). The generational and institutional sources of the global decline in voter turnout. *World Politics, 73*(4), 629–667. DOI: 10.1017/s0043887121000149

Krintovski, A. (2021). Despite sufficient signatures, why referendums can fail. *Democracy International.* Retrieved from: https://www.democracy-international.org/despite-sufficient-signatures-why-referendums-can-fail

Kübler, D. (2024). Citizen participation through direct legislation: a road to success? A perspective from Switzerland. *Global Public Policy and Governance, 4*(3), 184–196. DOI:10.1007/s43508-024-00092-7

Kuźniacki, B. (2023). The Dutch childcare benefit scandal shows that we need explainable AI rules. University of Amsterdam. Available from: https://www.uva.nl/en/shared-content/faculteiten/en/faculteit-der-rechtsgeleerdheid/news/2023/02/childcare-benefit-scandal-transparency.html?cb

Lacelle-Webster, A., & Warren, M. E. (2021). Citizens' assemblies and democracy. *Oxford Research Encyclopedia of Politics.* Oxford: Oxford University Press. DOI: 10.1093/acrefore/9780190228637.013.1975

Levi, M., & Stoker, L. (2000). Political trust and trustworthiness. *Annual Review of Political Science, 3*(1), 475–507. DOI:10.1146/annurev.polisci.3.1.475

Linder, W., & Mueller, S. (2021). Switzerland in Europe and the World. In: Linder, W., & Mueller, S. (eds.). *Swiss Democracy: Possible Solutions to Conflict in Multicultural Societies.* Cham: Palgrave Macmillan. DOI: 10.1007/978-3-030-63266-3

McGuinness Institute. (2020). *Project 2058: Policy projects and foresight work.* McGuinness Institute. https://www.mcguinnessinstitute.org/projects/project-2058/

Morelock, A. L. (2021). In Bureaucrats we Trust? Good Governance and Trust in Civil Servants. *Public Administration Quarterly, 45*(3), 315-337. https://doi.org/10.37808/paq.45.3.6 (Original work published 2021)

Müller, A. P. R., Casiano Flores, C., Albrecht, V., Steen, T., & Crompvoets, J. (2021). A scoping review of empirical evidence on (digital) public services co-creation. Administrative Sciences 11(4), 130. DOI: 10.3390/admsci11040130

Mungiu-Pippidi, A. (2015). The Quest for Good Governance: *How Societies Develop Control of Corruption.* Cambridge: Cambridge University Press. DOI:10.1017/CBO9781316286937

Municipality of Turin. (2020). *Co-city report di valutazione* [Co-city Evaluation Report]. Retrieved from: http://www.comune.torino.it/benicomuni/bm~doc/co-city-report-di

Muñoz, J. (2017). Political Trust and Multilevel Government. In: Zmerli, S., van der Meer, T. W.G. (eds.). *Handbook on Political Trust.* Cheltenham, UK: Edward Elgar Publishing.

Nabatchi, T., & Leighninger, M. (2015). Public *Participation for 21st Century Democracy.* San Francisco, CA: Jossey-Bass.

(2025). Generative AI outlook report : exploring the intersection of technology, society, and policy. (E..Navajas Cawood,editor,M..Vespe,editor,A..Kotsev,editor,R..Van Bavel,edito) Publications Office of the European Union. https://data.europa.eu/doi/10.2760/1109679.

Nederhand, J., & Edelenbos, J. (2022). Legitimate public participation: A Q methodology on the views of politicians. *Public Administration Review, 83*(3), 522–536. DOI: 10.1111/puar.13556

Nicaise, G., & Hausenkamph, D. S. (2025). Unlocking AI's Potential in Anti-corruption: Hype vs. Reality. Bergen: U4 Anti-Corruption Resource Centre, Chr. Michelsen Institute (U4 Brief 2025:1)

NIFO. (2024). *Belgium: Digital Public Administration Factsheet 2024.* Retrieved from: https://interoperable-europe.ec.europa.eu/sites/default/files/inline-files/NIFO_2024%20DPAF_Belgium_vFinal.pdf

OECD. (2017). *Trust and Public Policy: How Better Governance Can Help Rebuild Public Trust.* Retrieved from: https://www.oecd.org/en/publications/trust-and-public-policy_9789264268920-en.html

OECD. (2020a). Building Capacity for Evidence-Informed Policy-Making: Lessons from Country Experiences. *OECD Public Governance Reviews.* Paris: OECD Publishing. https://www.oecd.org/content/dam/oecd/en/publications/reports/2020/09/building-capacity-for-evidence-informed-policy-making_827fd635/86331250-en.pdf

OECD. (2020b). *Public Integrity for an Effective COVID-19 Response and Recovery.* Paris: OECD Publishing. Retrieved from: https://www.oecd.org/en/publications/public-integrity-for-an-effective-covid-19-response-and-recovery_a5c35d8c-en.html

OECD. (2023). *Observatory of Public Sector Innovation. Public Sector Innovation Laboratory.* Retrieved from: https://oecd-opsi.org/innovations/public-sector-innovation-laboratory

OECD. (2024). *OECD Survey on Drivers of Trust in Public Institutions – 2024 Results.* Paris, OECD Publishing. Retrieved from: https://www.oecd.org/en/publications/oecd-survey-on-drivers-of-trust-in-public-institutions-2024-results_9a20554b-en/support-materials.html

OECD (2025), *OECD Regulatory Policy Outlook 2025*, OECD Publishing, Paris, https://doi.org/10.1787/56b60e39-en

Oliveira, C., Custers, N., Zonta, T., & Miscenà, E. (2024). The Berlin Declaration monitoring mechanism as an effective tool to monitor EU Member States' digital transformation: The Berlin Declaration monitoring mechanism: monitoring digital transformation in Europe. In: *Proceedings of the 25th Annual International Conference on Digital Government Research,* Taipei, Taiwan, June 11–14, 2024. DOI: 10.1145/3657054.3657259

Ontario Securities Commission. (2022). *OSC LaunchPad.* https://www.osc.ca/en/industry/osc-launchpad

Participedia. (n.d.). *Ireland's Citizens' Assembly: The Eighth Amendment.* Retrieved from: https://participedia.net/case/5317

Pestoff, V. (2014). Collective action and the sustainability of co-production. *Public Management Review, 16*(3), 383–401. DOI: 10.1080/14719037.2013.841460

Pollitt, C., & Bouckaert, G. (2017). Public management reform, a comparative analysis – into the age of austerity. Oxford University Press.

Porumbescu, Greg. (2015). Using Transparency to Enhance Responsiveness and Trust in Local Government: Can It Work?. State and Local Government Review. 47. 10.1177/0160323X15599427.

Raaphorst, N. J. (2021). Administrative Justice in Street-Level Decision Making. Equal Treatment and Responsiveness. In: Hertogh, M, Kirkham, M. R., Thomas, R., & Thomlinson, J. (eds.). *The Oxford Handbook of Administrative Justice*, 397–414. Oxford, UK: Oxford Academic.

Rattanasevee, P., Akarapattananukul, Y., & Chirawut, Y. (2024). Direct democracy in the digital age: opportunities, challenges, and new approaches. Humanities and Social Sciences *Communications, 11*(1), 1–9. DOI: 10.1057/s41599-024-04245-1

Riccucci, N. M., & Van Ryzin, G. G. (2017). Representative bureaucracy: A lever to enhance social equity, coproduction, and democracy. *Public Administration Review, 77*(1), 21–30. DOI:10.1111/puar.12649

Rittel, H. W. J., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences, 4*(2), 155–169. https://doi.org/10.1007/BF01405730

Røiseland, A. (2022). Co-creating democratic legitimacy: potentials and pitfalls. *Administration & Society, 54*(8), 1493–1515. DOI: 10.1177/0095399721106174

Rothstein, B., & Teorell, J. (2008). What is quality of government? A theory of impartial government institutions. *Governance, 21*(2), 165–190. DOI: 10.1111/j.1468-0491.2008.00391.x

Scott, M., DeLone, W. H., & Golden, W. (2009). Understanding net benefits: a citizen-based perspective on eGovernment success. In: *Proceedings of the International Conference on Information Systems (ICIS 2009)* Phoenix, Arizona, USA, December 15–18, 2009.

Scharpf, F. (1998). Interdependence and Democratic Legitimation. MPIfG Working Paper. Cologne: Max Planck Institute for the Study of Societies.

Scharpf, F. (1999). Governing in Europe: Effective and Democratic? Oxford: Oxford Academic. DOI: 10.1093/acprof:oso/9780198295457.001.0001

Scharfbillig, M., Smillie, L., Mair, D., Sienkiewicz, M., Keimer, J., Pinho Dos Santos, R., Vinagreiro Alves, H., Vecchione, E. and Scheunemann, L., Values and Identities - a policymaker's guide, Publications Office of the European Union, Luxembourg, 2021, doi:10.2760/349527, JRC126150.

Schmidt, V. A. (2013). Democracy and legitimacy in the European Union revisited: input, output and 'throughput'. *Political Studies, 61*(9), 2–22. DOI: 10.1111/j.1467-9248.2012.00962.x

Schmidthuber, L., Ingrams, A., & Hilgers, D. (2021). Government openness and public trust: the mediating role of democratic capacity. *Public Administration Review, 81*(1), 91–109. DOI: 10.1111/puar.13298

Shafritz, J. M. Jr., (Ed.). (2000). *Defining Public Administration. Selections From the International Encyclopedia of Public Policy Administration.* New York, NY: Routledge.

Sienkiewicz, M., van Nes, P., & Deleglise, M. A. (2020). Achieving policy impact. In *Science for policy handbook* (pp. 44-51). Elsevier.

Smith, G. (2009). *Democratic Innovations: Designing Institutions for Citizen Participation.* New York, NY: Cambridge University Press.

Spada, P., & Peixoto, T. C. (2025). The limits of representativeness in citizens' assemblies: a critical analysis of democratic minipublics. *Journal of Sortition, 1*(1), 137–159. DOI: 10.53765/3050-0672.1.1.137

Stanojević, A. (2023). Political trust, accessibility and privacy – issues that blockchain can (not) solve? 1–17. DOI: 10.2139/ssrn.4688056

Starke, C., Baleis, J., Keller, B., & Marcinkowski, F. (2022). Fairness perceptions of algorithmic decision-making: a systematic review of the empirical literature. *Big Data & Society, 9*(2). DOI: 10.1177/20539517221115189

Statista. (2023). *Electronic Identification Usage in Belgium in 2023, by Gender.* Retrieved from https://www.statista.com/statistics/1494045/e-id-usage-in-belgium-by-gender/

Stockemer, D., & Sundström, A. (2025). Age inequalities in political representation: a review article. *Government and Opposition, 60*(1), 1–18. DOI: 10.1017/gov.2023.11

Störmer, E., Bontoux, L., Krzysztofowicz, M., Florescu, E., Bock, A. K., & Scapolo, F. (2020). Foresight–Using science and evidence to anticipate and shape the future. In *Science for policy handbook* (pp. 128-142). Elsevier.

Straub, V. J., Hashem, Y., Bright, J., Bhagwanani, S., Morgan, D., Francis, J., ... & Margetts, H. (2024). AI for bureaucratic productivity: Measuring the potential of AI to help automate 143 million UK government transactions. Available at: https://arxiv.org/abs/2403.14712

Teorell, J. (2006). Political participation and three theories of democracy: a research inventory and agenda. *European Journal of Political Research, 45*(5), 787–810. DOI: 10.1111/j.1475-6765.2006.00636.x

Timeus, K., & Gascó, M. (2018). Increasing innovation capacity in city governments: do innovation labs make a difference? *Journal of Urban Affairs, 40*(7), 992–1008. DOI: 10.1080/07352166.2018.1431049

Torfing, J., Peters, B. G., Pierre, J., & Sørensen, E. (2012). Interactive Governance: Advancing the Paradigm. Oxford, UK: Oxford Academic. DOI: 10.1093/acprof:oso/9780199596751.001.0001

Tyler, T. R. (1994). Governing amid diversity: the effect of fair decisionmaking procedures on the legitimacy of government. *Law & Society Review, 28*(4), 809–832. DOI: 10.2307/3053998

Tyler, T. R. (2006). Why people obey the law (2nd ed.). Princeton University Press.

UK Government Digital Service. (2025). *Microsoft 365 Copilot Experiment: Cross-Government Findings Report (HTML).* Available at: https://www.gov.uk/government/publications/microsoft-365-copilot-experiment-cross-government-findings-report/microsoft-365-copilot-experiment-cross-government-findings-report-html

United Nations Development Programme (UNDP). (2020). *Trust in Public Institutions.* UNDP Oslo Governance Centre. Retrieved from https://www.undp.org/sites/g/files/zskgke326/files/migration/oslo_governance_centre/Trust-in-Public-Institutions-Policy-Brief_FINAL.pdf

Van Bavel, R. (2020). Behavioural insights for EU policymaking. In *Science for policy handbook* (pp. 196-205). Elsevier.

Van Meerkerk, I., Edelenbos, J., & Klijn, E-H. (2015). Connective management and governance network performance: the mediating role of throughput legitimacy. Findings from survey research on complex water projects in the Netherlands. *Environment and Planning C: Government and Policy, 33*(4), 746–764. DOI: 10.1068/c1345

Van Ryzin, G. G. (2011). Outcomes, process, and trust of civil servants. *Journal of Public Administration Research and Theory, 21*(4), 745–760. DOI: 10.1093/jopart/muq092

Voorberg, W. H., Bekkers, V. J. J. M., & Tummers, L. G. (2015). A systematic review of co-creation and co-production: embarking on the social innovation journey. *Public Management Review, 17*(9), 1333–1357. DOI: 10.1080/14719037.2014.930505

Wike, R., Silver, L., & Castillo, A. (2019). *Many Across the Globe Are Dissatisfied With How Democracy Is Working.* Pew Research Center. Retrieved from: https://www.pewresearch.org/global/2019/04/29/many-across-the-globe-are-dissatisfied-with-how-democracy-is-working/

Yang, K., & Callahan, K. (2007). Citizen involvement efforts and bureaucratic responsiveness: participatory values, stakeholder pressures, and administrative practicality. *Public Administration Review, 67*(2), 249–264. DOI: 10.1111/j.1540-6210.2007.00711.x

Zeigermann, U., & Ettelt, S. (2023). Spanning the boundaries between policy, politics and science to solve wicked problems: policy pilots, deliberation fora and policy labs. *Sustainability Science, 18*(2), 809–821. DOI: 10.1007/s11625-022-01187-y

Zetzsche, D. A., Buckley, R. P., Arner, D. W., & Barberis, J. N. (2017). Regulating a revolution: From regulatory sandboxes to smart regulation. *Fordham Journal of Corporate & Financial Law, 23*(1), 31–103. https://ir.lawnet.fordham.edu/jcfl/vol23/iss1/2

Zinnbauer, D. (2025). *Artificial Intelligence in Anti-corruption – a Timely Update on AI Technology.* Bergen: U4 Anti-Corruption Resource Centre. Retrieved from: https://www.u4.no/publications/artificial-intelligence-in-anti-corruption-a-timely-update-on-ai-technology

# 3.9. ANNEX

## 3.9.1. Methodology

This chapter employs a combination of quantitative data and qualitative case studies to explore trends in trust in government, as well as the various outcomes related to public administration performance in this context.

### 3.9.1.1. Quantitative

In alignment with previous editions of this chapter, we have selected a comprehensive set of indicators, updated with the most recent panel data, to provide a current and robust benchmarking tool across 35 countries. This analysis helps us understand the general state of play in areas such as public consultation levels and trust at various governmental levels. By utilising these indicators, we can identify key areas for improvement and highlight potential best practices that could be replicated in other contexts. The indicators are generally presented in the most closely related subsections of each legitimacy dimension.

### 3.9.1.2. Qualitative

The selection of case studies was informed by predefined criteria and supported by extensive desk research. The aim was to identify illustrative examples across diverse geographical, institutional, and policy contexts that could shed light on the key themes of the study.

a) A first criterion was relevance. In particular, relevance is in relation to the research question underlying this update chapter. That is, how public administrations can build and sustain trust by enhancing legitimacy at different stages of the policymaking and implementation process. Moreover, relevance was assessed according to the expected contribution of case studies to the legitimacy dimensions, and consequently also drivers of trust presented above.

b) A further criterion was impact, based on measurable outcomes and effectiveness in improving public service delivery.

c) Another criterion was to consider how innovative the potential cases were, by assessing the extent to which they employ novel technologies or approaches.

d) Finally, the potential for scalability and transferability to other contexts and locations was evaluated.

### 3.9.1.3. Identification of case studies

Cases were identified through systematic keyword searches, academic literature, grey literature (including reports from international organisations), and online databases, such as the OECD Observatory of Public Sector Innovation and EIPA's European Public Sector Award database. In addition, AI-assisted exploration (via OpenAI's ChatGPT) was employed to broaden the search scope, particularly to uncover recent or under-documented practices. This approach enabled the identification of both well-established and emerging initiatives. The selection process was iterative, meaning that case choices were reviewed and adjusted as the research progressed. In some instances, cases were excluded due to limited data availability, while others were added to ensure broader thematic representation across the study's focus areas.

### 3.9.1.4. Limitations

One of the primary limitations of this chapter is its focus on public administration as a whole, particularly on cross-cutting strategies that governments can use to build trust. As a result, while there are many interesting initiatives within specific policy areas – such as security or health – they are not the focus here. These specific domains have either been addressed in previous sub-studies in the Benchmarking Study or are explored separately in future updates. Therefore, the scope of this chapter remains on more horizontal, cross-cutting approaches to enhancing trust.

There are limitations on the replicability of results of interventions in one country in others. The potential for reform and the direction and scope of respective interventions is contingent on the often-stable characteristics of the politico-administrative systems in which governments operate. Trust is a multidimensional concept and can be measured as individual attributes and collective (aggregate phenomenon) at the country level. As the indicators used in this study represent aggregate data, possible interactions between system-level interventions and potential effects at the individual level cannot be inferred. Moreover, since trust is the result of complex interactions between system characteristics and individual attributes, governance-related interventions cannot be assumed to directly cause changes in aggregate levels of trust, as these are mediated through several factors and cause–effect pathways. Hence, given these complex interactions and the fact that the scope of this update does not include other types of data such as individual-level data, potential interventions and reforms should not be interpreted as necessary and sufficient conditions for increasing trust in all countries covered in this report.

Finally, it should be mentioned that the pool of potential case studies is limited due to language barriers. Given that it was not possible to search for examples and information in the languages of the countries under consideration, the selection of case studies was conducted exclusively in English, therefore reducing the number of search results.

### 3.9.2. Tables of Indicators

*Table 12: Trust in national government*

| Country | Region | 2021 | 2023 | Change |
|---|---|---|---|---|
| Austria | Western Europe | **25,81** | | |
| Belgium | Western Europe | **31,82** | **47,17** | 15,35 |
| France | Western Europe | **28,13** | **34,31** | 6,18 |
| Germany | Western Europe | | **36,01** | |
| Ireland | Western Europe | **50,61** | **46,59** | -4,02 |
| Luxembourg | Western Europe | **55,93** | **55,56** | -0,37 |
| Netherlands | Western Europe | **49,14** | **43,92** | -5,22 |
| Switzerland | Western Europe | | **61,94** | |
| United Kingdom | Western Europe | **34,78** | **26,65** | -8,13 |
| Denmark | Northern Europe | **48,77** | **44,04** | -4,73 |
| Finland | Northern Europe | **61,46** | **46,99** | -14,47 |
| Iceland | Northern Europe | **50,39** | **36,45** | -13,94 |
| Norway | Northern Europe | **63,78** | **47,63** | -16,15 |
| Sweden | Northern Europe | **38,98** | **42,95** | 3,97 |
| Cyprus | Southern Europe | | | |
| Greece | Southern Europe | | **31,66** | |
| Italy | Southern Europe | | **35,94** | |
| Malta | Southern Europe | | | |
| Portugal | Southern Europe | **40,73** | **31,53** | -9,20 |
| Spain | Southern Europe | | **36,77** | |
| Bulgaria | Central and Eastern Europe | | | |
| Croatia | Central and Eastern Europe | | | |
| Czech Republic | Central and Eastern Europe | | **18,55** | |
| Estonia | Central and Eastern Europe | **46,53** | **37,81** | -8,72 |
| Hungary | Central and Eastern Europe | | | |
| Latvia | Central and Eastern Europe | **24,53** | **28,72** | 4,19 |
| Lithuania | Central and Eastern Europe | | | |
| Poland | Central and Eastern Europe | | | |
| Romania | Central and Eastern Europe | | | |
| Slovakia | Central and Eastern Europe | | **31,48** | |
| Slovenia | Central and Eastern Europe | | **27,87** | |
| Australia | Oceania | **37,96** | **46,2** | 8,24 |
| New Zealand | Oceania | | **45,86** | |
| Canada | Northern America | **44,69** | **48,51** | 3,82 |
| United States | Northern America | | | |

*Table 13: Trust in national parliament*

| Country | Region | 2023 |
|---|---|---|
| Austria | Western Europe | |
| Belgium | Western Europe | **41,77%** |
| France | Western Europe | **33,42%** |
| Germany | Western Europe | **34,98%** |
| Ireland | Western Europe | **49,13%** |
| Luxembourg | Western Europe | **57,25%** |
| Netherlands | Western Europe | **43,20%** |
| Switzerland | Western Europe | **56,21%** |
| United Kingdom | Western Europe | **24,00%** |
| Denmark | Northern Europe | **47,30%** |
| Finland | Northern Europe | **53,67%** |
| Iceland | Northern Europe | **36,04%** |
| Norway | Northern Europe | **53,70%** |
| Sweden | Northern Europe | **46,06%** |
| Cyprus | Southern Europe | |
| Greece | Southern Europe | **32,07%** |
| Italy | Southern Europe | **30,86%** |
| Malta | Southern Europe | |
| Portugal | Southern Europe | **30,87%** |
| Spain | Southern Europe | **33,70%** |
| Bulgaria | Central and Eastern Europe | |
| Croatia | Central and Eastern Europe | |
| Czech Republic | Central and Eastern Europe | **19,73%** |
| Estonia | Central and Eastern Europe | **27,17%** |
| Hungary | Central and Eastern Europe | |
| Latvia | Central and Eastern Europe | **24,64%** |
| Lithuania | Central and Eastern Europe | |
| Poland | Central and Eastern Europe | |
| Romania | Central and Eastern Europe | |
| Slovakia | Central and Eastern Europe | **30,35%** |
| Slovenia | Central and Eastern Europe | **27,09%** |
| Australia | Oceania | **43,16%** |
| New Zealand | Oceania | **41,49%** |
| Canada | Northern America | **46,95%** |
| United States | Northern America | |

*Table 14: Trust in national civil service*

| Country | Region | 2021 | 2023 | Change |
|---|---|---|---|---|
| Austria | Western Europe | **45,44** | | |
| Belgium | Western Europe | **41,43** | **49,31** | 7,88 |
| France | Western Europe | **51,99** | **53,46** | 1,47 |
| Germany | Western Europe | | **49,98** | |
| Ireland | Western Europe | **67,62** | **66,46** | -1,16 |
| Luxembourg | Western Europe | **67,72** | **56,93** | -10,79 |
| Netherlands | Western Europe | **51,02** | **51,99** | 0,97 |
| Switzerland | Western Europe | | **55,59** | |
| United Kingdom | Western Europe | **55,48** | **45,31** | -10,17 |
| Denmark | Northern Europe | **51,95** | **44,13** | -7,82 |
| Finland | Northern Europe | **65,92** | **62,35** | -3,57 |
| Iceland | Northern Europe | **67,84** | **63,98** | -3,86 |
| Norway | Northern Europe | **61,38** | **53,7** | -7,68 |
| Sweden | Northern Europe | **39,89** | **41,84** | 1,95 |
| Cyprus | Southern Europe | | | |
| Greece | Southern Europe | | **31,07** | |
| Italy | Southern Europe | | **35,25** | |
| Malta | Southern Europe | | | |
| Portugal | Southern Europe | **46,35** | **42,61** | -3,74 |
| Spain | Southern Europe | | **37,61** | |
| Bulgaria | Central and Eastern Europe | | | |
| Croatia | Central and Eastern Europe | | | |
| Czech Republic | Central and Eastern Europe | | **34,19** | |
| Estonia | Central and Eastern Europe | **51,90** | **48,87** | -3,03 |
| Hungary | Central and Eastern Europe | | | |
| Latvia | Central and Eastern Europe | **35,25** | **39,31** | 4,06 |
| Lithuania | Central and Eastern Europe | | | |
| Poland | Central and Eastern Europe | | | |
| Romania | Central and Eastern Europe | | | |
| Slovakia | Central and Eastern Europe | | **33,29** | |
| Slovenia | Central and Eastern Europe | | **30,12** | |
| Australia | Oceania | **45,84** | **50,38** | 4,54 |
| New Zealand | Oceania | | **58,57** | |
| Canada | Northern America | **48,85** | **53,84** | 4,99 |
| United States | Northern America | | | |

*Table 15: Trust in regional government*

| Country | Region | 2023 |
|---|---|---|
| Austria | Western Europe | |
| Belgium | Western Europe | **45,96%** |
| France | Western Europe | **43,76%** |
| Germany | Western Europe | **41,19%** |
| Ireland | Western Europe | |
| Luxembourg | Western Europe | |
| Netherlands | Western Europe | **48,83%** |
| Switzerland | Western Europe | **60,35%** |
| United Kingdom | Western Europe | |
| Denmark | Northern Europe | **44,13%** |
| Finland | Northern Europe | **44,20%** |
| Iceland | Northern Europe | |
| Norway | Northern Europe | |
| Sweden | Northern Europe | **44,40%** |
| Cyprus | Southern Europe | |
| Greece | Southern Europe | **33,81%** |
| Italy | Southern Europe | **37,83%** |
| Malta | Southern Europe | |
| Portugal | Southern Europe | **31,78%** |
| Spain | Southern Europe | **40,48%** |
| Bulgaria | Central and Eastern Europe | |
| Croatia | Central and Eastern Europe | |
| Czech Republic | Central and Eastern Europe | **30,30%** |
| Estonia | Central and Eastern Europe | |
| Hungary | Central and Eastern Europe | |
| Latvia | Central and Eastern Europe | |
| Lithuania | Central and Eastern Europe | |
| Poland | Central and Eastern Europe | |
| Romania | Central and Eastern Europe | |
| Slovakia | Central and Eastern Europe | **39,48%** |
| Slovenia | Central and Eastern Europe | |
| Australia | Oceania | **46,19%** |
| New Zealand | Oceania | **42,48%** |
| Canada | Northern America | **47,15%** |
| United States | Northern America | |

*Table 16: Trust in local government*

| Country | Region | 2021 | 2023 | Change |
|---|---|---|---|---|
| Austria | Western Europe | **36,92** | | |
| Belgium | Western Europe | **48,61** | **52,27** | 3,66 |
| France | Western Europe | **47,58** | **56,4** | 8,82 |
| Germany | Western Europe | | **41,88** | |
| Ireland | Western Europe | **45,16** | **41,49** | -3,67 |
| Luxembourg | Western Europe | **68,96** | **61,86** | -7,10 |
| Netherlands | Western Europe | **56,59** | **54,39** | -2,20 |
| Switzerland | Western Europe | | **62,97** | |
| United Kingdom | Western Europe | **42,02** | **34,45** | -7,57 |
| Denmark | Northern Europe | **49,15** | **47,28** | -1,87 |
| Finland | Northern Europe | **52,13** | **55,54** | 3,41 |
| Iceland | Northern Europe | **51,93** | **41,89** | -10,04 |
| Norway | Northern Europe | **53,00** | **50,91** | -2,09 |
| Sweden | Northern Europe | **37,79** | **41,71** | 3,92 |
| Cyprus | Southern Europe | | | |
| Greece | Southern Europe | | **38,95** | |
| Italy | Southern Europe | | **37,83** | |
| Malta | Southern Europe | | | |
| Portugal | Southern Europe | **51,15** | **37,61** | -13,54 |
| Spain | Southern Europe | | **44** | |
| Bulgaria | Central and Eastern Europe | | | |
| Croatia | Central and Eastern Europe | | | |
| Czech Republic | Central and Eastern Europe | | **43,59** | |
| Estonia | Central and Eastern Europe | **53,96** | **46,33** | -7,63 |
| Hungary | Central and Eastern Europe | | | |
| Latvia | Central and Eastern Europe | **42,10** | **41,1** | -1,00 |
| Lithuania | Central and Eastern Europe | | | |
| Poland | Central and Eastern Europe | | | |
| Romania | Central and Eastern Europe | | | |
| Slovakia | Central and Eastern Europe | | **39,59** | |
| Slovenia | Central and Eastern Europe | | **37,59** | |
| Australia | Oceania | **43,47** | **50,76** | 7,29 |
| New Zealand | Oceania | | **44,78** | |
| Canada | Northern America | **49,98** | **53,97** | 3,99 |
| United States | Northern America | | | |

*Table 17: Satisfaction with administrative services*

| Country | Region | 2021 | 2023 | Change |
|---|---|---|---|---|
| Belgium | Western Europe | **71,07** | **71,39** | 0,32 |
| France | Western Europe | **51,85** | **50,28** | -1,57 |
| Germany* | Western Europe | | **51,05** | |
| Ireland | Western Europe | **63,21** | **50,74** | -12,47 |
| Luxembourg | Western Europe | **80,31** | **82,37** | 2,06 |
| Netherlands | Western Europe | **78,89** | **77,18** | -1,71 |
| Switzerland* | Western Europe | | **81,36** | |
| United Kingdom | Western Europe | **65,08** | **68,06** | 2,98 |
| Cyprus | Southern Europe | | | |
| Greece* | Southern Europe | | **54,17** | |
| Italy* | Southern Europe | | **48,31** | |
| Malta | Southern Europe | | | |
| Portugal | Southern Europe | **54,18** | **40,11** | -14,07 |
| Slovakia* | Southern Europe | | **53,93** | |
| Spain* | Southern Europe | | **56,99** | |
| Australia | Oceania | **53,25** | **65,09** | 11,84 |
| New Zealand | Oceania | **67,92** | **67,55** | -0,37 |
| Austria | Northern Europe | **66,49** | | |
| Denmark | Northern Europe | **62,53** | **68,98** | 6,45 |
| Finland* | Northern Europe | | **82,7** | |
| Iceland | Northern Europe | **61,73** | **61,92** | 0,19 |
| Norway* | Northern Europe | | **71,29** | |
| Slovenia* | Northern Europe | | **66,24** | |
| Sweden | Northern Europe | **59,93** | **67,59** | 7,66 |
| Canada | Northern America | **61,72** | **62,31** | 0,59 |
| United States | Northern America | | | |
| Bulgaria | Central and Eastern Europe | | | |
| Croatia | Central and Eastern Europe | | | |
| Czech Republic | Central and Eastern Europe | | **61,72** | |
| Estonia | Central and Eastern Europe | **75,33** | **82,87** | 7,54 |
| Hungary | Central and Eastern Europe | | | |
| Latvia | Central and Eastern Europe | **60,83** | **59,96** | -0,87 |
| Lithuania | Central and Eastern Europe | | | |
| Poland | Central and Eastern Europe | | | |
| Romania | Central and Eastern Europe | | | |

*Only recent users surveyed in 2023

*Table 18: Satisfaction with democracy*

| Country | Region | 2021 | 2023 | | 2024 | 2024 | Change |
|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **4,5** | ▲ | 0,70 | ▼ | -0,20 | **5** | 0,5 |
| Belgium | Western Europe | **4,2** | ▲ | 0,20 | ▼ | -0,10 | **4,4** | 0,2 |
| France | Western Europe | **4,2** | ▼ | -0,30 | ▲ | 0,20 | **4,2** | 0 |
| Germany | Western Europe | **4,9** | ▲ | 0,60 | ▼ | -0,20 | **5,3** | 0,4 |
| Ireland | Western Europe | **5,9** | ▲ | 0,20 | ▼ | -0,40 | **5,7** | -0,2 |
| Luxembourg | Western Europe | **6,6** | ▲ | 0,20 | ▼ | -0,10 | **5,9** | -0,7 |
| Netherlands | Western Europe | **5,4** | ▲ | 0,80 | ▼ | -0,50 | **4,8** | -0,6 |
| Switzerland | Western Europe | | | | | | | |
| United Kingdom | Western Europe | | | | | | | |
| Denmark | Northern Europe | **7,6** | ▼ | -0,50 | ▼ | -0,20 | **6,4** | -1,2 |
| Finland | Northern Europe | **7** | ▲ | 0,50 | ▼ | -2,10 | **4,9** | -2,1 |
| Iceland | Northern Europe | | | | | | | |
| Norway | Northern Europe | | | | | | | |
| Sweden | Northern Europe | **6,2** | ▲ | 0,40 | ▼ | -0,50 | **5,8** | -0,4 |
| Cyprus | Southern Europe | **3,5** | ▲ | 0,80 | ▼ | -0,80 | **3,7** | 0,2 |
| Greece | Southern Europe | **3,6** | ▼ | -0,10 | ▼ | -0,60 | **3,2** | -0,4 |
| Italy | Southern Europe | **4,8** | ▲ | 0,20 | ▼ | -0,40 | **4,3** | -0,5 |
| Malta | Southern Europe | **5,1** | ▼ | -0,40 | ▼ | -0,30 | **3,7** | -1,4 |
| Portugal | Southern Europe | **5,5** | ▼ | -0,20 | ▼ | -0,20 | **5** | -0,5 |
| Spain | Southern Europe | **4,6** | ▲ | 0,70 | ▼ | -0,50 | **4,6** | 0 |
| Bulgaria | Central and Eastern Europe | **2,8** | ▲ | 0,30 | ▼ | -0,10 | **3** | 0,2 |
| Croatia | Central and Eastern Europe | **2,9** | ▲ | 0,30 | ▼ | -0,40 | **3,2** | 0,3 |
| Czech Republic | Central and Eastern Europe | **3,9** | ▲ | 0,10 | ▲ | 0,10 | **5** | 1,1 |
| Estonia | Central and Eastern Europe | **5,2** | ▼ | -0,90 | ▼ | -0,80 | **4,1** | -1,1 |
| Hungary | Central and Eastern Europe | **3,2** | ▼ | -0,60 | ▼ | -0,40 | **2,7** | -0,5 |
| Latvia | Central and Eastern Europe | **4,1** | ▼ | -0,20 | ▲ | 0,10 | **4,8** | 0,7 |
| Lithuania | Central and Eastern Europe | **4,6** | ▲ | 0,80 | ▼ | -0,30 | **5** | 0,4 |
| Poland | Central and Eastern Europe | **2,7** | ▲ | 0,00 | ▲ | 1,70 | **4,9** | 2,2 |
| Romania | Central and Eastern Europe | **3,8** | ▲ | 0,20 | ▼ | -0,50 | **3,9** | 0,1 |
| Slovakia | Central and Eastern Europe | **3,4** | ▲ | 0,20 | ▲ | 0,20 | **4** | 0,6 |
| Slovenia | Central and Eastern Europe | **3,2** | ▲ | 1,10 | ▼ | -0,70 | **4** | 0,8 |
| Australia | Oceania | | | | | | | |
| New Zealand | Oceania | | | | | | | |
| Canada | Northern America | | | | | | | |
| United States | Northern America | | | | | | | |

*Table 19: eGovernment Index*

| Country | Region | 2008 | 2012 | 2016 | 2020 | 2024 | 2024 | Change |
|---|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **0,74** | ▲ 0,04 | ▲ 0,04 | ▲ 0,07 | ▲ 0,02 | **0,91** | 0,16 |
| Belgium | Western Europe | **0,68** | ▲ 0,09 | ▲ 0,02 | ▲ 0,02 | ▲ 0,01 | **0,81** | 0,13 |
| France | Western Europe | **0,80** | ▲ 0,06 | ▼ -0,02 | ▲ 0,03 | ▲ 0,00 | **0,87** | 0,07 |
| Germany | Western Europe | **0,71** | ▲ 0,09 | ▲ 0,01 | ▲ 0,03 | ▲ 0,09 | **0,94** | 0,22 |
| Ireland | Western Europe | **0,73** | ▼ -0,01 | ▲ 0,05 | ▲ 0,07 | ▲ 0,07 | **0,91** | 0,18 |
| Luxembourg | Western Europe | **0,75** | ▲ 0,05 | ▼ -0,03 | ▲ 0,06 | ▲ 0,02 | **0,85** | 0,10 |
| Netherlands | Western Europe | **0,86** | ▲ 0,05 | ▼ -0,05 | ▲ 0,06 | ▲ 0,03 | **0,95** | 0,09 |
| Switzerland | Western Europe | **0,76** | ▲ 0,05 | ▼ -0,06 | ▲ 0,14 | ▲ 0,01 | **0,90** | 0,14 |
| United Kingdom | Western Europe | **0,79** | ▲ 0,11 | ▲ 0,02 | ▲ 0,02 | ▲ 0,02 | **0,96** | 0,17 |
| Denmark | Northern Europe | **0,91** | ▼ -0,02 | ▼ -0,04 | ▲ 0,12 | ▲ 0,01 | **0,98** | 0,07 |
| Finland | Northern Europe | **0,75** | ▲ 0,10 | ▲ 0,03 | ▲ 0,06 | ▲ 0,01 | **0,96** | 0,21 |
| Iceland | Northern Europe | **0,72** | ▲ 0,07 | ▼ -0,02 | ▲ 0,14 | ▲ 0,06 | **0,97** | 0,25 |
| Norway | Northern Europe | **0,89** | ▼ -0,03 | ▼ -0,05 | ▲ 0,09 | ▲ 0,03 | **0,93** | 0,04 |
| Sweden | Northern Europe | **0,92** | ▼ -0,06 | ▲ 0,01 | ▲ 0,07 | ▲ 0,00 | **0,93** | 0,02 |
| Cyprus | Southern Europe | **0,60** | ▲ 0,05 | ▼ -0,05 | ▲ 0,27 | ▼ -0,01 | **0,86** | 0,26 |
| Greece | Southern Europe | **0,57** | ▲ 0,12 | ▲ 0,00 | ▲ 0,11 | ▲ 0,07 | **0,87** | 0,30 |
| Italy | Southern Europe | **0,67** | ▲ 0,05 | ▲ 0,06 | ▲ 0,05 | ▲ 0,01 | **0,84** | 0,17 |
| Malta | Southern Europe | **0,66** | ▲ 0,05 | ▲ 0,03 | ▲ 0,11 | ▲ 0,03 | **0,89** | 0,23 |
| Portugal | Southern Europe | **0,65** | ▲ 0,07 | ▲ 0,00 | ▲ 0,11 | ▲ 0,02 | **0,84** | 0,19 |
| Spain | Southern Europe | **0,72** | ▲ 0,05 | ▲ 0,04 | ▲ 0,07 | ▲ 0,04 | **0,92** | 0,20 |
| Bulgaria | Central and Eastern Europe | **0,57** | ▲ 0,04 | ▲ 0,02 | ▲ 0,16 | ▲ 0,02 | **0,81** | 0,24 |
| Croatia | Central and Eastern Europe | **0,56** | ▲ 0,17 | ▼ -0,02 | ▲ 0,06 | ▲ 0,11 | **0,88** | 0,32 |
| Czech Republic | Central and Eastern Europe | **0,67** | ▼ -0,02 | ▲ 0,00 | ▲ 0,17 | ▲ 0,01 | **0,82** | 0,15 |
| Estonia | Central and Eastern Europe | **0,76** | ▲ 0,04 | ▲ 0,03 | ▲ 0,11 | ▲ 0,03 | **0,97** | 0,21 |
| Hungary | Central and Eastern Europe | **0,65** | ▲ 0,07 | ▼ -0,05 | ▲ 0,10 | ▲ 0,03 | **0,80** | 0,15 |
| Latvia | Central and Eastern Europe | **0,59** | ▲ 0,07 | ▲ 0,02 | ▲ 0,10 | ▲ 0,11 | **0,89** | 0,29 |
| Lithuania | Central and Eastern Europe | **0,66** | ▲ 0,07 | ▲ 0,04 | ▲ 0,09 | ▲ 0,04 | **0,91** | 0,25 |
| Poland | Central and Eastern Europe | **0,61** | ▲ 0,03 | ▲ 0,08 | ▲ 0,13 | ▲ 0,01 | **0,86** | 0,25 |
| Romania | Central and Eastern Europe | **0,54** | ▲ 0,07 | ▼ -0,04 | ▲ 0,20 | ▲ 0,00 | **0,76** | 0,23 |
| Slovakia | Central and Eastern Europe | **0,59** | ▲ 0,04 | ▼ -0,04 | ▲ 0,19 | ▲ 0,02 | **0,80** | 0,21 |
| Slovenia | Central and Eastern Europe | **0,67** | ▲ 0,08 | ▲ 0,03 | ▲ 0,08 | ▲ 0,02 | **0,88** | 0,21 |
| Australia | Oceania | **0,81** | ▲ 0,03 | ▲ 0,08 | ▲ 0,03 | ▲ 0,01 | **0,96** | 0,15 |
| New Zealand | Oceania | **0,74** | ▲ 0,10 | ▲ 0,03 | ▲ 0,07 | ▼ -0,01 | **0,93** | 0,19 |
| Canada | Northern America | **0,82** | ▲ 0,03 | ▼ -0,01 | ▲ 0,01 | ▲ 0,00 | **0,85** | 0,03 |
| United States | Northern America | **0,86** | ▲ 0,00 | ▼ -0,03 | ▲ 0,09 | ▼ -0,01 | **0,92** | 0,06 |

*Table 20: eParticipation Index*

| Country | Region | 2008 | 2012 | 2016 | 2020 | 2024 | 2024 | Change |
|---|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **0,48** | -0,11 | 0,51 | 0,09 | -0,20 | **0,78** | 0,30 |
| Belgium | Western Europe | **0,41** | -0,28 | 0,51 | 0,01 | -0,15 | **0,51** | 0,10 |
| France | Western Europe | **0,93** | -0,35 | 0,32 | 0,01 | -0,10 | **0,81** | -0,12 |
| Germany | Western Europe | **0,16** | 0,60 | 0,00 | -0,01 | 0,22 | **0,97** | 0,81 |
| Ireland | Western Europe | **0,25** | -0,12 | 0,58 | 0,15 | 0,06 | **0,92** | 0,67 |
| Luxembourg | Western Europe | **0,61** | -0,22 | 0,30 | 0,01 | -0,07 | **0,63** | 0,02 |
| Netherlands | Western Europe | **0,52** | 0,48 | -0,05 | 0,02 | -0,03 | **0,93** | 0,41 |
| Switzerland | Western Europe | **0,41** | -0,07 | 0,23 | 0,33 | -0,08 | **0,82** | 0,41 |
| United Kingdom | Western Europe | **0,43** | 0,49 | 0,08 | -0,02 | 0,00 | **0,97** | 0,54 |
| Denmark | Northern Europe | **0,93** | -0,38 | 0,26 | 0,15 | 0,02 | **0,99** | 0,05 |
| Finland | Northern Europe | **0,27** | 0,46 | 0,18 | 0,04 | -0,06 | **0,89** | 0,62 |
| Iceland | Northern Europe | **0,07** | 0,09 | 0,50 | 0,11 | 0,19 | **0,96** | 0,89 |
| Norway | Northern Europe | **0,52** | 0,16 | 0,08 | 0,14 | -0,04 | **0,86** | 0,34 |
| Sweden | Northern Europe | **0,66** | 0,03 | 0,08 | 0,06 | -0,03 | **0,79** | 0,14 |
| Cyprus | Southern Europe | **0,09** | -0,01 | 0,45 | 0,43 | -0,25 | **0,70** | 0,61 |
| Greece | Southern Europe | **0,09** | 0,25 | 0,27 | 0,18 | -0,11 | **0,67** | 0,58 |
| Italy | Southern Europe | **0,23** | 0,04 | 0,65 | -0,09 | -0,16 | **0,66** | 0,43 |
| Malta | Southern Europe | **0,39** | -0,12 | 0,52 | 0,05 | -0,09 | **0,74** | 0,35 |
| Portugal | Southern Europe | **0,25** | 0,12 | 0,29 | 0,16 | -0,18 | **0,64** | 0,39 |
| Spain | Southern Europe | **0,36** | 0,14 | 0,43 | -0,09 | -0,04 | **0,81** | 0,44 |
| Bulgaria | Central and Eastern Europe | **0,05** | -0,02 | 0,67 | 0,20 | -0,22 | **0,67** | 0,63 |
| Croatia | Central and Eastern Europe | **0,14** | 0,15 | 0,49 | 0,11 | 0,02 | **0,92** | 0,78 |
| Czech Republic | Central and Eastern Europe | **0,20** | 0,06 | 0,30 | 0,17 | -0,14 | **0,59** | 0,38 |
| Estonia | Central and Eastern Europe | **0,73** | 0,04 | 0,05 | 0,19 | -0,04 | **0,96** | 0,23 |
| Hungary | Central and Eastern Europe | **0,20** | 0,24 | 0,04 | 0,19 | -0,13 | **0,55** | 0,34 |
| Latvia | Central and Eastern Europe | **0,23** | -0,02 | 0,31 | 0,06 | 0,20 | **0,78** | 0,55 |
| Lithuania | Central and Eastern Europe | **0,48** | 0,05 | 0,30 | -0,09 | 0,10 | **0,84** | 0,36 |
| Poland | Central and Eastern Europe | **0,23** | -0,04 | 0,70 | 0,08 | -0,21 | **0,75** | 0,53 |
| Romania | Central and Eastern Europe | **0,05** | 0,03 | 0,55 | 0,18 | -0,12 | **0,68** | 0,64 |
| Slovakia | Central and Eastern Europe | **0,07** | 0,06 | 0,41 | 0,16 | 0,00 | **0,70** | 0,63 |
| Slovenia | Central and Eastern Europe | **0,23** | -0,02 | 0,52 | 0,13 | -0,08 | **0,78** | 0,55 |
| Australia | Oceania | **0,89** | -0,12 | 0,22 | -0,02 | -0,10 | **0,86** | -0,02 |
| New Zealand | Oceania | **0,80** | -0,22 | 0,37 | 0,04 | -0,06 | **0,93** | 0,14 |
| Canada | Northern America | **0,61** | 0,07 | 0,23 | 0,03 | -0,02 | **0,92** | 0,30 |
| United States | Northern America | **1,00** | -0,08 | -0,02 | 0,10 | -0,05 | **0,95** | -0,05 |

*Table 21: Government effectiveness*

| Country | Region | 2007 | | 2011 | | 2015 | | 2019 | | 2023 | 2023 | Change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **1,86** | ▼ | -0,26 | ▼ | -0,15 | ▲ | 0,04 | ▼ | -0,17 | **1,33** | -0,54 |
| Belgium | Western Europe | **1,60** | ▲ | 0,12 | ▼ | -0,19 | ▼ | -0,42 | ▼ | -0,08 | **1,04** | -0,57 |
| France | Western Europe | **1,46** | ▼ | -0,07 | ▲ | 0,03 | ▼ | -0,08 | ▼ | -0,19 | **1,14** | -0,32 |
| Germany | Western Europe | **1,63** | ▼ | -0,13 | ▲ | 0,16 | ▼ | -0,16 | ▼ | -0,31 | **1,19** | -0,45 |
| Ireland | Western Europe | **1,55** | ▼ | -0,10 | ▲ | 0,07 | ▼ | -0,26 | ▲ | 0,33 | **1,59** | 0,04 |
| Luxembourg | Western Europe | **1,59** | ▲ | 0,16 | ▼ | -0,05 | ▲ | 0,00 | ▲ | 0,22 | **1,91** | 0,33 |
| Netherlands | Western Europe | **1,72** | ▲ | 0,10 | ▲ | 0,01 | ▼ | -0,06 | ▼ | -0,14 | **1,63** | -0,10 |
| Switzerland | Western Europe | **2,04** | ▼ | -0,17 | ▲ | 0,11 | ▼ | -0,05 | ▲ | 0,22 | **2,13** | 0,10 |
| United Kingdom | Western Europe | **1,64** | ▼ | -0,04 | ▲ | 0,10 | ▼ | -0,26 | ▼ | -0,29 | **1,16** | -0,48 |
| Denmark | Northern Europe | **2,35** | ▼ | -0,25 | ▼ | -0,31 | ▲ | 0,08 | ▲ | 0,14 | **2,02** | -0,33 |
| Finland | Northern Europe | **1,97** | ▲ | 0,27 | ▼ | -0,39 | ▲ | 0,13 | ▼ | -0,23 | **1,74** | -0,23 |
| Iceland | Northern Europe | **1,79** | ▼ | -0,21 | ▼ | -0,12 | ▲ | 0,02 | ▲ | 0,07 | **1,56** | -0,23 |
| Norway | Northern Europe | **2,02** | ▼ | -0,19 | ▲ | 0,00 | ▼ | -0,01 | ▼ | -0,03 | **1,80** | -0,22 |
| Sweden | Northern Europe | **2,02** | ▼ | -0,09 | ▼ | -0,24 | ▼ | -0,01 | ▼ | -0,07 | **1,60** | -0,42 |
| Cyprus | Southern Europe | **1,42** | ▲ | 0,14 | ▼ | -0,54 | ▼ | -0,06 | ▼ | -0,22 | **0,74** | -0,68 |
| Greece | Southern Europe | **0,55** | ▼ | -0,10 | ▼ | -0,31 | ▲ | 0,17 | ▼ | -0,17 | **0,15** | -0,40 |
| Italy | Southern Europe | **0,19** | ▲ | 0,21 | ▲ | 0,09 | ▼ | -0,04 | ▲ | 0,16 | **0,61** | 0,42 |
| Malta | Southern Europe | **1,20** | ▼ | -0,01 | ▼ | -0,37 | ▲ | 0,01 | ▼ | -0,43 | **0,40** | -0,80 |
| Portugal | Southern Europe | **0,89** | ▲ | 0,03 | ▲ | 0,24 | ▼ | -0,02 | ▼ | -0,15 | **0,99** | 0,09 |
| Spain | Southern Europe | **0,99** | ▼ | -0,01 | ▲ | 0,18 | ▼ | -0,19 | ▼ | -0,22 | **0,75** | -0,23 |
| Bulgaria | Central and Eastern Europe | **-0,12** | ▲ | 0,05 | ▲ | 0,06 | ▲ | 0,19 | ▼ | -0,13 | **0,05** | 0,17 |
| Croatia | Central and Eastern Europe | **0,46** | ▲ | 0,05 | ▼ | -0,04 | ▲ | 0,00 | ▲ | 0,26 | **0,71** | 0,26 |
| Czech Republic | Central and Eastern Europe | **0,85** | ▲ | 0,08 | ▲ | 0,10 | ▼ | -0,11 | ▲ | 0,19 | **1,11** | 0,27 |
| Estonia | Central and Eastern Europe | **1,01** | ▲ | 0,06 | ▼ | -0,03 | ▲ | 0,10 | ▲ | 0,12 | **1,26** | 0,26 |
| Hungary | Central and Eastern Europe | **0,69** | ▼ | -0,04 | ▼ | -0,14 | ▼ | -0,06 | ▼ | -0,08 | **0,37** | -0,32 |
| Latvia | Central and Eastern Europe | **0,43** | ▲ | 0,26 | ▲ | 0,36 | ▲ | 0,01 | ▼ | -0,37 | **0,70** | 0,27 |
| Lithuania | Central and Eastern Europe | **0,66** | ▲ | 0,04 | ▲ | 0,45 | ▼ | -0,14 | ▲ | 0,04 | **1,05** | 0,39 |
| Poland | Central and Eastern Europe | **0,36** | ▲ | 0,24 | ▲ | 0,14 | ▼ | -0,23 | ▼ | -0,09 | **0,42** | 0,06 |
| Romania | Central and Eastern Europe | **-0,35** | ▲ | 0,16 | ▲ | 0,29 | ▼ | -0,31 | ▲ | 0,12 | **-0,09** | 0,26 |
| Slovakia | Central and Eastern Europe | **0,69** | ▲ | 0,09 | ▼ | -0,04 | ▼ | -0,19 | ▼ | -0,32 | **0,23** | -0,46 |
| Slovenia | Central and Eastern Europe | **0,89** | ▲ | 0,09 | ▼ | -0,04 | ▲ | 0,10 | ▲ | 0,00 | **1,04** | 0,15 |
| Australia | Oceania | **1,82** | ▼ | -0,13 | ▼ | -0,16 | ▲ | 0,01 | ▲ | 0,05 | **1,59** | -0,23 |
| New Zealand | Oceania | **1,66** | ▲ | 0,21 | ▼ | -0,02 | ▼ | -0,22 | ▼ | -0,10 | **1,53** | -0,13 |
| Canada | Northern America | **1,75** | ▲ | 0,02 | ▼ | -0,04 | ▼ | -0,03 | ▼ | -0,18 | **1,52** | -0,24 |
| United States | Northern America | **1,64** | ▼ | -0,13 | ▼ | -0,08 | ▲ | 0,02 | ▼ | -0,24 | **1,22** | -0,43 |

*Source: World Bank's Good Governance Indicators*

*Table 22: Political stability*

| Country | Region | 2007 | 2011 | 2015 | 2019 | 2023 | 2023 | Change |
|---|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **1,28** | -0,09 | -0,06 | -0,24 | -0,16 | **0,73** | -0,56 |
| Belgium | Western Europe | **0,76** | 0,20 | -0,38 | -0,12 | -0,05 | **0,40** | -0,35 |
| France | Western Europe | **0,56** | 0,04 | -0,51 | 0,17 | 0,07 | **0,34** | -0,22 |
| Germany | Western Europe | **1,00** | -0,15 | -0,15 | -0,14 | 0,04 | **0,59** | -0,41 |
| Ireland | Western Europe | **1,22** | -0,27 | -0,05 | 0,06 | -0,06 | **0,90** | -0,31 |
| Luxembourg | Western Europe | **1,48** | -0,17 | 0,11 | -0,09 | -0,28 | **1,05** | -0,43 |
| Netherlands | Western Europe | **0,78** | 0,34 | -0,20 | -0,09 | -0,16 | **0,66** | -0,12 |
| Switzerland | Western Europe | **1,23** | 0,07 | 0,03 | -0,02 | -0,24 | **1,07** | -0,16 |
| United Kingdom | Western Europe | **0,57** | -0,22 | 0,15 | 0,02 | -0,01 | **0,51** | -0,06 |
| Denmark | Northern Europe | **1,12** | -0,02 | -0,21 | 0,08 | -0,12 | **0,85** | -0,27 |
| Finland | Northern Europe | **1,49** | -0,10 | -0,37 | -0,19 | -0,12 | **0,71** | -0,77 |
| Iceland | Northern Europe | **1,49** | -0,24 | 0,05 | 0,32 | -0,41 | **1,21** | -0,27 |
| Norway | Northern Europe | **1,15** | 0,19 | -0,19 | 0,00 | -0,25 | **0,89** | -0,25 |
| Sweden | Northern Europe | **1,27** | -0,04 | -0,30 | 0,08 | -0,25 | **0,76** | -0,51 |
| Cyprus | Southern Europe | **0,54** | 0,07 | -0,07 | 0,00 | -0,13 | **0,41** | -0,13 |
| Greece | Southern Europe | **0,52** | -0,62 | -0,14 | 0,40 | 0,08 | **0,24** | -0,28 |
| Italy | Southern Europe | **0,45** | 0,05 | -0,14 | 0,02 | 0,20 | **0,58** | 0,14 |
| Malta | Southern Europe | **1,27** | -0,21 | -0,01 | -0,04 | -0,16 | **0,86** | -0,41 |
| Portugal | Southern Europe | **0,82** | -0,08 | 0,16 | 0,15 | -0,34 | **0,71** | -0,11 |
| Spain | Southern Europe | **-0,28** | 0,30 | 0,22 | 0,05 | -0,01 | **0,29** | 0,56 |
| Bulgaria | Central and Eastern Europe | **0,36** | -0,06 | -0,29 | 0,55 | -0,22 | **0,34** | -0,02 |
| Croatia | Central and Eastern Europe | **0,61** | 0,02 | -0,04 | 0,10 | -0,09 | **0,60** | -0,01 |
| Czech Republic | Central and Eastern Europe | **1,02** | 0,09 | -0,14 | -0,03 | 0,03 | **0,97** | -0,05 |
| Estonia | Central and Eastern Europe | **0,63** | -0,02 | 0,00 | 0,02 | 0,03 | **0,66** | 0,03 |
| Hungary | Central and Eastern Europe | **0,75** | 0,00 | -0,01 | 0,02 | -0,03 | **0,73** | -0,02 |
| Latvia | Central and Eastern Europe | **0,56** | -0,24 | 0,12 | -0,01 | 0,16 | **0,59** | 0,03 |
| Lithuania | Central and Eastern Europe | **0,82** | -0,15 | 0,08 | 0,02 | -0,03 | **0,74** | -0,08 |
| Poland | Central and Eastern Europe | **0,68** | 0,39 | -0,21 | -0,31 | 0,01 | **0,56** | -0,12 |
| Romania | Central and Eastern Europe | **0,20** | -0,01 | 0,00 | 0,36 | -0,17 | **0,37** | 0,18 |
| Slovakia | Central and Eastern Europe | **1,04** | -0,06 | -0,11 | -0,20 | -0,09 | **0,57** | -0,46 |
| Slovenia | Central and Eastern Europe | **1,10** | -0,13 | -0,02 | -0,15 | 0,02 | **0,82** | -0,28 |
| Australia | Oceania | **0,93** | 0,01 | -0,06 | 0,04 | 0,00 | **0,92** | -0,01 |
| New Zealand | Oceania | **1,24** | 0,13 | 0,13 | -0,09 | -0,06 | **1,36** | 0,12 |
| Canada | Northern America | **1,01** | 0,07 | 0,19 | -0,27 | -0,17 | **0,82** | -0,18 |
| United States | Northern America | **0,37** | 0,22 | 0,07 | -0,54 | -0,09 | **0,03** | -0,35 |

*Source: World Bank's Good Governance Indicators*

*Table 23: Rule of law*

| Country | Region | 2007 | 2011 | 2015 | 2019 | 2023 | Change |
|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **1,94** | -0,14 | 0,02 | 0,05 | -0,12 | **1,75** | -0,20 |
| Belgium | Western Europe | **1,32** | 0,12 | 0,02 | -0,12 | -0,04 | **1,30** | -0,02 |
| France | Western Europe | **1,46** | -0,03 | -0,06 | 0,00 | -0,19 | **1,18** | -0,28 |
| Germany | Western Europe | **1,76** | -0,14 | 0,14 | -0,18 | -0,03 | **1,55** | -0,20 |
| Ireland | Western Europe | **1,73** | 0,02 | -0,02 | -0,38 | 0,29 | **1,63** | -0,09 |
| Luxembourg | Western Europe | **1,75** | 0,08 | 0,01 | -0,09 | 0,00 | **1,75** | 0,00 |
| Netherlands | Western Europe | **1,77** | 0,04 | 0,09 | -0,17 | -0,09 | **1,64** | -0,13 |
| Switzerland | Western Europe | **1,83** | -0,11 | 0,19 | -0,05 | -0,10 | **1,76** | -0,07 |
| United Kingdom | Western Europe | **1,72** | -0,06 | 0,11 | -0,20 | -0,17 | **1,40** | -0,32 |
| Denmark | Northern Europe | **2,00** | -0,08 | 0,10 | -0,18 | 0,08 | **1,91** | -0,09 |
| Finland | Northern Europe | **1,90** | 0,04 | 0,11 | -0,04 | -0,05 | **1,97** | 0,07 |
| Iceland | Northern Europe | **1,83** | -0,14 | -0,05 | 0,09 | -0,01 | **1,72** | -0,11 |
| Norway | Northern Europe | **1,93** | -0,06 | 0,11 | -0,03 | -0,11 | **1,83** | -0,09 |
| Sweden | Northern Europe | **1,89** | 0,03 | 0,07 | -0,20 | -0,19 | **1,60** | -0,29 |
| Cyprus | Southern Europe | **1,11** | -0,04 | -0,06 | -0,28 | -0,10 | **0,63** | -0,48 |
| Greece | Southern Europe | **0,86** | -0,33 | -0,28 | -0,09 | 0,06 | **0,21** | -0,65 |
| Italy | Southern Europe | **0,47** | 0,02 | -0,20 | -0,02 | 0,12 | **0,39** | -0,08 |
| Malta | Southern Europe | **1,61** | -0,33 | -0,17 | -0,19 | -0,22 | **0,70** | -0,91 |
| Portugal | Southern Europe | **1,00** | -0,01 | 0,11 | 0,00 | -0,04 | **1,07** | 0,06 |
| Spain | Southern Europe | **1,15** | 0,02 | -0,28 | 0,10 | -0,17 | **0,82** | -0,33 |
| Bulgaria | Central and Eastern Europe | **-0,06** | -0,08 | -0,02 | 0,12 | 0,03 | **-0,01** | 0,05 |
| Croatia | Central and Eastern Europe | **0,04** | 0,07 | 0,02 | 0,22 | 0,01 | **0,36** | 0,32 |
| Czech Republic | Central and Eastern Europe | **0,88** | 0,14 | 0,09 | -0,09 | 0,13 | **1,14** | 0,26 |
| Estonia | Central and Eastern Europe | **1,12** | 0,05 | 0,12 | -0,06 | 0,18 | **1,43** | 0,30 |
| Hungary | Central and Eastern Europe | **0,94** | -0,18 | -0,37 | 0,12 | -0,07 | **0,43** | -0,51 |
| Latvia | Central and Eastern Europe | **0,72** | 0,02 | 0,03 | 0,21 | 0,06 | **1,04** | 0,32 |
| Lithuania | Central and Eastern Europe | **0,69** | 0,08 | 0,21 | 0,01 | 0,28 | **1,27** | 0,58 |
| Poland | Central and Eastern Europe | **0,41** | 0,39 | 0,01 | -0,41 | 0,07 | **0,46** | 0,05 |
| Romania | Central and Eastern Europe | **-0,11** | 0,21 | 0,10 | 0,21 | 0,02 | **0,44** | 0,54 |
| Slovakia | Central and Eastern Europe | **0,43** | 0,17 | -0,13 | 0,03 | 0,10 | **0,60** | 0,17 |
| Slovenia | Central and Eastern Europe | **0,95** | 0,10 | -0,10 | 0,14 | -0,05 | **1,04** | 0,09 |
| Australia | Oceania | **1,74** | -0,01 | 0,06 | -0,10 | -0,17 | **1,52** | -0,22 |
| New Zealand | Oceania | **1,83** | 0,07 | 0,07 | -0,12 | -0,14 | **1,71** | -0,12 |
| Canada | Northern America | **1,80** | -0,07 | 0,08 | -0,09 | -0,25 | **1,47** | -0,32 |
| United States | Northern America | **1,61** | -0,02 | -0,03 | -0,14 | -0,10 | **1,33** | -0,28 |

*Table 24: Regulatory quality*

| Country | Region | 2007 | 2011 | 2015 | 2019 | 2023 | 2023 | Change |
|---|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **1,69** | -0,31 | 0,01 | 0,06 | -0,09 | **1,36** | -0,33 |
| Belgium | Western Europe | **1,42** | -0,18 | 0,04 | 0,00 | -0,11 | **1,17** | -0,25 |
| France | Western Europe | **1,29** | -0,13 | -0,04 | 0,32 | -0,28 | **1,15** | -0,13 |
| Germany | Western Europe | **1,62** | -0,07 | 0,16 | 0,00 | -0,26 | **1,46** | -0,16 |
| Ireland | Western Europe | **1,85** | -0,26 | 0,21 | -0,22 | 0,16 | **1,75** | -0,10 |
| Luxembourg | Western Europe | **1,74** | 0,12 | -0,21 | 0,04 | 0,24 | **1,93** | 0,19 |
| Netherlands | Western Europe | **1,80** | 0,00 | -0,02 | 0,06 | -0,06 | **1,79** | -0,01 |
| Switzerland | Western Europe | **1,65** | -0,03 | 0,11 | -0,08 | 0,08 | **1,73** | 0,08 |
| United Kingdom | Western Europe | **1,87** | -0,22 | 0,19 | -0,22 | -0,08 | **1,54** | -0,33 |
| Denmark | Northern Europe | **1,93** | -0,03 | -0,18 | -0,18 | 0,29 | **1,84** | -0,09 |
| Finland | Northern Europe | **1,55** | 0,26 | 0,01 | 0,01 | -0,08 | **1,77** | 0,22 |
| Iceland | Northern Europe | **1,51** | -0,46 | 0,21 | 0,10 | -0,08 | **1,28** | -0,23 |
| Norway | Northern Europe | **1,33** | 0,27 | -0,01 | 0,20 | -0,20 | **1,60** | 0,27 |
| Sweden | Northern Europe | **1,57** | 0,32 | -0,09 | -0,01 | -0,08 | **1,72** | 0,15 |
| Cyprus | Southern Europe | **1,33** | -0,10 | -0,18 | -0,05 | -0,22 | **0,78** | -0,55 |
| Greece | Southern Europe | **0,89** | -0,40 | -0,10 | 0,13 | 0,06 | **0,58** | -0,32 |
| Italy | Southern Europe | **0,94** | -0,23 | 0,00 | 0,23 | -0,30 | **0,64** | -0,30 |
| Malta | Southern Europe | **1,14** | 0,19 | -0,18 | -0,22 | -0,25 | **0,69** | -0,46 |
| Portugal | Southern Europe | **1,08** | -0,46 | 0,32 | 0,02 | -0,20 | **0,76** | -0,33 |
| Spain | Southern Europe | **1,22** | -0,15 | -0,27 | 0,25 | -0,34 | **0,69** | -0,52 |
| Bulgaria | Central and Eastern Europe | **0,64** | -0,09 | 0,03 | -0,05 | -0,12 | **0,41** | -0,24 |
| Croatia | Central and Eastern Europe | **0,41** | 0,03 | -0,21 | 0,31 | 0,09 | **0,64** | 0,23 |
| Czech Republic | Central and Eastern Europe | **1,05** | 0,14 | -0,11 | 0,15 | 0,07 | **1,30** | 0,25 |
| Estonia | Central and Eastern Europe | **1,32** | 0,06 | 0,27 | -0,08 | -0,15 | **1,43** | 0,11 |
| Hungary | Central and Eastern Europe | **1,21** | -0,18 | -0,28 | -0,16 | -0,27 | **0,32** | -0,89 |
| Latvia | Central and Eastern Europe | **0,95** | 0,00 | 0,12 | 0,11 | -0,01 | **1,17** | 0,22 |
| Lithuania | Central and Eastern Europe | **1,01** | -0,08 | 0,34 | -0,12 | 0,19 | **1,34** | 0,33 |
| Poland | Central and Eastern Europe | **0,77** | 0,19 | 0,00 | 0,06 | -0,23 | **0,78** | 0,01 |
| Romania | Central and Eastern Europe | **0,51** | 0,18 | -0,12 | -0,13 | -0,12 | **0,32** | -0,19 |
| Slovakia | Central and Eastern Europe | **0,97** | 0,03 | -0,23 | 0,22 | -0,40 | **0,60** | -0,37 |
| Slovenia | Central and Eastern Europe | **0,80** | -0,11 | -0,08 | 0,39 | -0,27 | **0,73** | -0,07 |
| Canada | Northern America | **1,61** | 0,08 | 0,02 | 0,00 | -0,07 | **1,64** | 0,04 |
| United States | Northern America | **1,49** | -0,04 | -0,21 | 0,09 | 0,06 | **1,39** | -0,10 |
| Australia | Oceania | **1,68** | 0,17 | -0,07 | 0,09 | 0,08 | **1,94** | 0,26 |
| New Zealand | Oceania | **1,72** | 0,25 | -0,05 | -0,04 | 0,04 | **1,91** | 0,19 |

*Table 25: Digital Index (OECD)*

| Country | Region | 2019 | 2023 | Change |
|---|---|---|---|---|
| Austria | Western Europe | **0,45** | **0,55** | 0,10 |
| Belgium | Western Europe | **0,41** | **0,54** | 0,13 |
| France | Western Europe | **0,57** | **0,67** | 0,09 |
| Germany | Western Europe | | | |
| Ireland | Western Europe | **0,41** | **0,71** | 0,30 |
| Luxembourg | Western Europe | **0,54** | **0,57** | 0,03 |
| Netherlands | Western Europe | **0,45** | **0,56** | 0,11 |
| Switzerland | Western Europe | | | |
| United Kingdom | Western Europe | **0,74** | **0,78** | 0,04 |
| Denmark | Northern Europe | **0,65** | **0,81** | 0,16 |
| Finland | Northern Europe | **0,36** | **0,64** | 0,28 |
| Iceland | Northern Europe | **0,28** | **0,64** | 0,35 |
| Norway | Northern Europe | **0,55** | **0,77** | 0,22 |
| Sweden | Northern Europe | **0,26** | **0,53** | 0,27 |
| Cyprus | Southern Europe | | | |
| Greece | Southern Europe | | | |
| Italy | Southern Europe | **0,53** | **0,58** | 0,04 |
| Malta | Southern Europe | | | |
| Portugal | Southern Europe | **0,58** | **0,64** | 0,06 |
| Spain | Southern Europe | **0,62** | **0,60** | -0,02 |
| Bulgaria | Central and Eastern Europe | | | |
| Croatia | Central and Eastern Europe | | | |
| Czech Republic | Central and Eastern Europe | **0,43** | **0,59** | 0,16 |
| Estonia | Central and Eastern Europe | **0,48** | **0,74** | 0,26 |
| Hungary | Central and Eastern Europe | | **0,49** | |
| Latvia | Central and Eastern Europe | **0,47** | **0,60** | 0,12 |
| Lithuania | Central and Eastern Europe | **0,40** | **0,61** | 0,21 |
| Poland | Central and Eastern Europe | | **0,57** | |
| Romania | Central and Eastern Europe | | | |
| Slovakia | Central and Eastern Europe | | | |
| Slovenia | Central and Eastern Europe | **0,51** | **0,50** | -0,02 |
| Australia | Oceania | | **0,75** | |
| New Zealand | Oceania | **0,56** | **0,50** | -0,06 |
| Canada | Northern America | **0,63** | **0,66** | 0,03 |
| United States | Northern America | | | |

*Table 26: Civic participation*

| Country | Region | 2013 | 2016 | 2019 | 2022 | 2023 | Change |
|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **0,83** | 0,05 | -0,05 | -0,03 | **0,79** | -0,04 |
| Belgium | Western Europe | **0,65** | 0,18 | 0,00 | -0,01 | **0,79** | 0,14 |
| France | Western Europe | **0,87** | -0,10 | -0,01 | -0,01 | **0,73** | -0,14 |
| Ireland | Western Europe | | | | **0,81** | **0,81** | 0,00 |
| Luxembourg | Western Europe | | | | **0,82** | **0,83** | 0,01 |
| Netherlands | Western Europe | **1,00** | -0,14 | -0,02 | 0,00 | **0,83** | -0,17 |
| Switzerland | Western Europe | | | | | | |
| United Kingdom | Western Europe | **0,78** | 0,08 | -0,02 | -0,01 | **0,82** | 0,04 |
| Germany | Western Europe | **0,72** | 0,16 | -0,01 | 0,00 | **0,86** | 0,14 |
| Finland | Northern Europe | **0,77** | 0,16 | -0,04 | -0,01 | **0,89** | 0,12 |
| Norway | Northern Europe | **0,76** | 0,19 | -0,03 | 0,00 | **0,92** | 0,16 |
| Sweden | Northern Europe | **0,96** | -0,09 | -0,02 | 0,00 | **0,84** | -0,12 |
| Iceland | Northern Europe | | | | | | |
| Denmark | Northern Europe | **0,82** | 0,12 | 0,00 | 0,01 | **0,94** | 0,12 |
| Italy | Southern Europe | **0,47** | 0,25 | -0,06 | 0,00 | **0,66** | 0,19 |
| Malta | Southern Europe | | | | **0,66** | **0,66** | 0,00 |
| Portugal | Southern Europe | **0,77** | 0,03 | -0,03 | -0,03 | **0,75** | -0,02 |
| Spain | Southern Europe | **0,57** | 0,14 | -0,01 | 0,00 | **0,70** | 0,13 |
| Croatia | Central and Eastern Europe | **0,43** | 0,23 | -0,01 | -0,02 | **0,64** | 0,21 |
| Greece | Central and Eastern Europe | **0,41** | 0,22 | 0,02 | -0,01 | **0,64** | 0,23 |
| Czech Republic | Central and Eastern Europe | **0,49** | 0,30 | -0,09 | 0,02 | **0,71** | 0,22 |
| Estonia | Central and Eastern Europe | **0,66** | 0,15 | -0,01 | 0,00 | **0,78** | 0,12 |
| Hungary | Central and Eastern Europe | **0,54** | -0,07 | -0,06 | 0,01 | **0,43** | -0,11 |
| Bulgaria | Central and Eastern Europe | **0,58** | 0,05 | -0,04 | 0,01 | **0,61** | 0,03 |
| Cyprus | Central and Eastern Europe | | | | **0,62** | **0,61** | -0,01 |
| Latvia | Central and Eastern Europe | | | | **0,69** | **0,68** | -0,01 |
| Lithuania | Central and Eastern Europe | | | | **0,74** | **0,74** | 0,00 |
| Poland | Central and Eastern Europe | **0,57** | 0,15 | -0,10 | -0,01 | **0,60** | 0,03 |
| Romania | Central and Eastern Europe | **0,46** | 0,24 | -0,09 | 0,00 | **0,61** | 0,15 |
| Slovakia | Central and Eastern Europe | | | | **0,68** | **0,69** | 0,01 |
| Slovenia | Central and Eastern Europe | **0,55** | 0,10 | 0,05 | -0,03 | **0,69** | 0,14 |
| Australia | Oceania | **0,81** | 0,01 | -0,03 | -0,02 | **0,78** | -0,03 |
| New Zealand | Oceania | **0,78** | 0,09 | -0,05 | 0,01 | **0,83** | 0,05 |
| Canada | Northern America | **0,82** | 0,05 | -0,02 | -0,01 | **0,84** | 0,02 |
| United States | Northern America | **0,78** | 0,05 | -0,04 | -0,06 | **0,74** | -0,04 |

*Table 27: Complaint mechanisms*

| Country | Region | 2013 | 2016 | 2019 | 2022 | 2023 | Change |
|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **0,52** | 0,21 | -0,01 | -0,02 | **0,68** | 0,16 |
| Belgium | Western Europe | **0,60** | 0,17 | 0,10 | 0,01 | **0,87** | 0,27 |
| France | Western Europe | **0,75** | 0,01 | 0,07 | -0,03 | **0,78** | 0,03 |
| Germany | Western Europe | **0,66** | 0,13 | 0,04 | 0,01 | **0,84** | 0,18 |
| Ireland | Western Europe | | | | 0,82 | **0,83** | 0,01 |
| Luxembourg | Western Europe | | | | 0,81 | **0,86** | 0,05 |
| Netherlands | Western Europe | **0,81** | 0,07 | 0,06 | -0,02 | **0,93** | 0,12 |
| Switzerland | Western Europe | | | | | | |
| United Kingdom | Western Europe | **0,83** | 0,02 | -0,07 | 0,00 | **0,78** | -0,05 |
| Denmark | Northern Europe | **0,84** | 0,02 | 0,00 | 0,00 | **0,87** | 0,03 |
| Finland | Northern Europe | **0,89** | -0,06 | 0,03 | 0,00 | **0,86** | -0,03 |
| Norway | Northern Europe | **0,93** | -0,05 | -0,01 | -0,02 | **0,85** | -0,08 |
| Sweden | Northern Europe | **0,89** | -0,08 | 0,08 | 0,00 | **0,87** | -0,02 |
| Cyprus | Southern Europe | | | | **0,63** | **0,63** | 0,00 |
| Greece | Southern Europe | **0,70** | -0,12 | 0,01 | 0,03 | **0,62** | -0,08 |
| Italy | Southern Europe | **0,56** | 0,02 | 0,02 | 0,02 | **0,61** | 0,05 |
| Malta | Southern Europe | | | | **0,72** | **0,70** | -0,02 |
| Portugal | Southern Europe | **0,67** | 0,02 | 0,04 | -0,03 | **0,68** | 0,01 |
| Spain | Southern Europe | **0,52** | 0,16 | 0,06 | 0,00 | **0,75** | 0,23 |
| Bulgaria | Central and Eastern Europe | **0,52** | 0,04 | 0,04 | -0,02 | **0,62** | 0,10 |
| Croatia | Central and Eastern Europe | **0,52** | 0,04 | 0,09 | 0,02 | **0,66** | 0,14 |
| Czech Republic | Central and Eastern Europe | **0,45** | 0,18 | 0,01 | 0,09 | **0,73** | 0,28 |
| Estonia | Central and Eastern Europe | **0,72** | 0,08 | -0,02 | 0,02 | **0,79** | 0,07 |
| Hungary | Central and Eastern Europe | **0,45** | 0,08 | -0,06 | -0,01 | **0,49** | 0,04 |
| Latvia | Central and Eastern Europe | | | | **0,74** | **0,75** | 0,01 |
| Lithuania | Central and Eastern Europe | | | | **0,76** | **0,77** | 0,01 |
| Poland | Central and Eastern Europe | **0,57** | 0,25 | -0,10 | -0,02 | **0,68** | 0,11 |
| Romania | Central and Eastern Europe | **0,57** | 0,17 | -0,02 | 0,02 | **0,76** | 0,19 |
| Slovakia | Central and Eastern Europe | | | | **0,76** | **0,75** | -0,01 |
| Slovenia | Central and Eastern Europe | **0,69** | -0,02 | -0,04 | -0,02 | **0,60** | -0,09 |
| Australia | Oceania | **0,81** | 0,02 | 0,06 | -0,02 | **0,87** | 0,06 |
| New Zealand | Oceania | **0,85** | -0,03 | 0,01 | 0,01 | **0,83** | -0,02 |
| Canada | Northern America | **0,84** | 0,03 | -0,04 | -0,02 | **0,83** | -0,01 |
| United States | Northern America | **0,73** | 0,08 | -0,01 | 0,00 | **0,80** | 0,07 |

*Table 28: Publicised laws and data*

| Country | Region | 2013 | 2016 | 2019 | 2022 | 2023 | Change |
|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **0,85** | -0,12 | -0,01 | -0,02 | **0,71** | -0,14 |
| Belgium | Western Europe | **0,66** | -0,03 | 0,08 | 0,00 | **0,70** | 0,04 |
| Germany | Western Europe | **0,65** | 0,08 | 0,01 | 0,00 | **0,74** | 0,09 |
| France | Western Europe | **0,74** | 0,04 | 0,06 | 0,00 | **0,84** | 0,10 |
| United Kingdom | Western Europe | **0,75** | 0,15 | 0,00 | 0,01 | **0,91** | 0,16 |
| Ireland | Western Europe | | | | **0,87** | **0,86** | -0,01 |
| Luxembourg | Western Europe | | | | **0,82** | **0,82** | 0,00 |
| Netherlands | Western Europe | **0,87** | -0,03 | -0,05 | -0,01 | **0,78** | -0,09 |
| Switzerland | Western Europe | | | | | | |
| Denmark | Northern Europe | **0,71** | 0,16 | -0,02 | 0,01 | **0,85** | 0,14 |
| Finland | Northern Europe | **0,72** | 0,14 | 0,04 | 0,01 | **0,91** | 0,19 |
| Norway | Northern Europe | **0,74** | 0,10 | 0,04 | 0,00 | **0,88** | 0,14 |
| Sweden | Northern Europe | **0,95** | -0,20 | 0,03 | -0,01 | **0,76** | -0,19 |
| Cyprus | Southern Europe | | | | **0,62** | **0,61** | -0,01 |
| Spain | Southern Europe | **0,74** | -0,05 | 0,01 | 0,00 | **0,71** | -0,03 |
| Greece | Southern Europe | **0,39** | 0,08 | 0,10 | -0,04 | **0,55** | 0,16 |
| Italy | Southern Europe | **0,45** | 0,17 | -0,02 | 0,00 | **0,60** | 0,15 |
| Malta | Southern Europe | | | | **0,69** | **0,69** | 0,00 |
| Portugal | Southern Europe | **0,53** | -0,01 | 0,04 | -0,01 | **0,55** | 0,02 |
| Bulgaria | Central and Eastern Europe | **0,54** | 0,11 | -0,09 | 0,00 | **0,56** | 0,02 |
| Croatia | Central and Eastern Europe | | | | | | |
| Czech Republic | Central and Eastern Europe | **0,50** | 0,18 | -0,02 | 0,02 | **0,67** | 0,17 |
| Estonia | Central and Eastern Europe | **0,65** | 0,21 | 0,01 | -0,01 | **0,88** | 0,23 |
| Croatia | Central and Eastern Europe | **0,60** | -0,06 | 0,01 | -0,01 | **0,55** | -0,05 |
| Hungary | Central and Eastern Europe | **0,63** | -0,03 | -0,06 | -0,01 | **0,54** | -0,09 |
| Lithuania | Central and Eastern Europe | | | | **0,80** | **0,81** | 0,01 |
| Latvia | Central and Eastern Europe | | | | **0,80** | **0,79** | -0,01 |
| Poland | Central and Eastern Europe | **0,67** | -0,06 | -0,01 | -0,02 | **0,57** | -0,10 |
| Romania | Central and Eastern Europe | **0,48** | 0,19 | -0,08 | 0,01 | **0,59** | 0,11 |
| Slovakia | Central and Eastern Europe | | | | **0,66** | **0,65** | -0,01 |
| Slovenia | Central and Eastern Europe | **0,66** | 0,06 | -0,05 | 0,02 | **0,69** | 0,03 |
| Australia | Oceania | **0,87** | -0,05 | 0,08 | -0,02 | **0,90** | 0,03 |
| New Zealand | Oceania | **0,82** | 0,06 | -0,03 | 0,00 | **0,86** | 0,04 |
| Canada | Northern America | **0,82** | -0,05 | 0,12 | -0,02 | **0,87** | 0,05 |
| United States | Northern America | **0,77** | -0,02 | 0,02 | 0,00 | **0,77** | 0,00 |

*Table 29: Right to information*

| Country | Region | 2013 | 2016 | 2019 | 2022 | 2023 | Change |
|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **1,00** | -0,32 | -0,05 | 0,01 | **0,61** | -0,39 |
| Belgium | Western Europe | **0,76** | -0,06 | -0,04 | 0,04 | **0,68** | -0,08 |
| Germany | Western Europe | **0,88** | -0,12 | -0,03 | 0,00 | **0,74** | -0,14 |
| France | Western Europe | **0,65** | 0,11 | -0,03 | -0,05 | **0,65** | 0,00 |
| United Kingdom | Western Europe | **0,78** | -0,04 | -0,06 | 0,01 | **0,68** | -0,10 |
| Ireland | Western Europe | | | | **0,69** | **0,68** | -0,01 |
| Luxembourg | Western Europe | | | | **0,72** | **0,77** | 0,05 |
| Netherlands | Western Europe | **0,93** | -0,13 | -0,07 | 0,04 | **0,77** | -0,16 |
| Switzerland | Western Europe | | | | | | |
| Denmark | Northern Europe | **0,93** | -0,14 | 0,00 | 0,01 | **0,80** | -0,13 |
| Finland | Northern Europe | **0,97** | -0,17 | 0,02 | -0,03 | **0,78** | -0,19 |
| Norway | Northern Europe | **0,95** | -0,12 | 0,04 | -0,02 | **0,86** | -0,09 |
| Sweden | Northern Europe | **0,95** | -0,01 | -0,02 | -0,01 | **0,90** | -0,05 |
| Cyprus | Southern Europe | | | | **0,55** | **0,56** | 0,01 |
| Spain | Southern Europe | **0,62** | 0,00 | 0,01 | 0,02 | **0,65** | 0,03 |
| Greece | Southern Europe | **0,54** | 0,07 | 0,00 | -0,01 | **0,62** | 0,08 |
| Italy | Southern Europe | **0,47** | 0,13 | 0,05 | 0,00 | **0,66** | 0,19 |
| Malta | Southern Europe | | | | **0,46** | **0,48** | 0,02 |
| Portugal | Southern Europe | **0,49** | 0,18 | -0,04 | -0,02 | **0,59** | 0,10 |
| Bulgaria | Central and Eastern Europe | **0,48** | -0,01 | -0,06 | 0,10 | **0,50** | 0,02 |
| Croatia | Central and Eastern Europe | | | | | | |
| Czech Republic | Central and Eastern Europe | **0,51** | 0,15 | -0,02 | -0,01 | **0,63** | 0,12 |
| Estonia | Central and Eastern Europe | **0,82** | -0,06 | -0,03 | 0,03 | **0,78** | -0,04 |
| Croatia | Central and Eastern Europe | **0,56** | 0,04 | -0,01 | 0,01 | **0,59** | 0,03 |
| Hungary | Central and Eastern Europe | **0,46** | 0,03 | -0,10 | -0,05 | **0,33** | -0,13 |
| Lithuania | Central and Eastern Europe | | | | **0,70** | **0,68** | -0,02 |
| Latvia | Central and Eastern Europe | | | | **0,66** | **0,66** | 0,00 |
| Poland | Central and Eastern Europe | **0,56** | 0,19 | -0,19 | -0,07 | **0,48** | -0,08 |
| Romania | Central and Eastern Europe | **0,53** | 0,05 | -0,01 | -0,01 | **0,55** | 0,02 |
| Slovakia | Central and Eastern Europe | | | | **0,66** | **0,66** | 0,00 |
| Slovenia | Central and Eastern Europe | **0,64** | -0,04 | 0,02 | 0,00 | **0,65** | 0,01 |
| Australia | Oceania | **0,88** | -0,23 | 0,04 | -0,02 | **0,68** | -0,20 |
| New Zealand | Oceania | **0,91** | -0,13 | -0,03 | -0,01 | **0,75** | -0,16 |
| Canada | Northern America | **0,88** | -0,20 | -0,01 | -0,03 | **0,65** | -0,23 |
| United States | Northern America | **0,79** | -0,07 | 0,00 | 0,00 | **0,72** | -0,07 |

*Table 30: Transparency Index*

| Country | Region | 2021 | | 2023 | 2024 | Change |
|---|---|---|---|---|---|---|
| Austria | Western Europe | **13** | ▲ | 1 | **14** | 1 |
| Belgium | Western Europe | **12** | ▲ | 1 | **13** | 1 |
| France | Western Europe | **18** | ▲ | 2 | **19** | 1 |
| Germany | Western Europe | **15** | ▲ | 1 | **16** | 1 |
| Ireland | Western Europe | **15** | ▲ | 2 | **17** | 2 |
| Luxembourg | Western Europe | **12** | ▲ | 1 | **13** | 1 |
| Netherlands | Western Europe | **12** | ▲ | 2 | **16** | 5 |
| Switzerland | Western Europe | **14** | ▲ | 1 | **15** | 1 |
| United Kingdom | Western Europe | **16** | ▲ | 1 | **17** | 1 |
| Denmark | Northern Europe | **15** | ▲ | 1 | **15** | 1 |
| Finland | Northern Europe | **16** | ▲ | 2 | **17** | 2 |
| Iceland | Northern Europe | **14** | ▲ | 2 | **16** | 2 |
| Norway | Northern Europe | **17** | ▲ | 1 | **18** | 1 |
| Sweden | Northern Europe | **13** | ▲ | 4 | **17** | 4 |
| Cyprus | Southern Europe | **10** | ▼ | -1 | **9** | -1 |
| Greece | Southern Europe | **13** | ▲ | 1 | **17** | 4 |
| Italy | Southern Europe | **15** | ▲ | 1 | **15** | 1 |
| Malta | Southern Europe | **14** | ▲ | 2 | **15** | 2 |
| Portugal | Southern Europe | **15** | ▲ | 2 | **17** | 2 |
| Spain | Southern Europe | **18** | ▲ | 1 | **18** | 1 |
| Bulgaria | Central and Eastern Europe | **16** | ▲ | 2 | **17** | 2 |
| Croatia | Central and Eastern Europe | **17** | ▲ | 2 | **18** | 1 |
| Czech Republic | Central and Eastern Europe | **14** | ▲ | 2 | **16** | 2 |
| Estonia | Central and Eastern Europe | **18** | ▲ | 2 | **19** | 2 |
| Hungary | Central and Eastern Europe | **13** | ▲ | 1 | **14** | 1 |
| Latvia | Central and Eastern Europe | **17** | ▲ | 1 | **18** | 1 |
| Lithuania | Central and Eastern Europe | **17** | ▲ | 2 | **19** | 2 |
| Poland | Central and Eastern Europe | **15** | ▼ | -1 | **14** | -1 |
| Romania | Central and Eastern Europe | **17** | ▲ | 1 | **18** | 1 |
| Slovak Republic | Central and Eastern Europe | **18** | ▲ | 2 | **19** | 2 |
| Slovenia | Central and Eastern Europe | **15** | ▲ | 3 | **17** | 2 |
| Australia | Oceania | **13** | ▬ | 0 | **16** | 3 |
| New Zealand | Oceania | **16** | ▲ | 2 | **17** | 1 |
| Canada | Northern America | **16** | ▲ | 1 | **17** | 1 |
| United States | Northern America | **17** | ▲ | 1 | **18** | 1 |

*Table 31: Equal treatment*

| Country | Region | 2013 | 2016 | 2019 | 2022 | 2023 | Change |
|---|---|---|---|---|---|---|---|
| Austria | Western Europe | **0,69** | 0,02 | 0,02 | 0,00 | **0,70** | 0,01 |
| Belgium | Western Europe | **0,78** | -0,02 | 0,02 | 0,00 | **0,77** | -0,01 |
| France | Western Europe | **0,69** | 0,00 | -0,06 | 0,03 | **0,66** | -0,03 |
| Germany | Western Europe | **0,77** | 0,00 | 0,01 | 0,00 | **0,77** | 0,00 |
| Ireland | Western Europe | | | | **0,73** | **0,71** | -0,02 |
| Luxembourg | Western Europe | | | | **0,73** | **0,76** | 0,03 |
| Netherlands | Western Europe | **0,70** | 0,13 | 0,00 | -0,02 | **0,80** | 0,10 |
| United Kingdom | Western Europe | **0,69** | 0,02 | 0,01 | -0,03 | **0,68** | -0,01 |
| Denmark | Northern Europe | **0,80** | -0,02 | -0,02 | 0,02 | **0,80** | 0,00 |
| Finland | Northern Europe | **0,86** | 0,00 | 0,02 | -0,04 | **0,84** | -0,02 |
| Norway | Northern Europe | **0,84** | -0,03 | -0,01 | 0,02 | **0,83** | -0,01 |
| Sweden | Northern Europe | **0,83** | -0,09 | -0,02 | 0,02 | **0,75** | -0,08 |
| Cyprus | Southern Europe | | | | **0,61** | **0,61** | 0,00 |
| Greece | Southern Europe | **0,66** | -0,04 | -0,08 | 0,03 | **0,58** | -0,08 |
| Italy | Southern Europe | **0,60** | 0,00 | 0,07 | -0,02 | **0,68** | 0,08 |
| Malta | Southern Europe | | | | **0,63** | **0,65** | 0,02 |
| Portugal | Southern Europe | **0,63** | 0,05 | 0,03 | -0,07 | **0,63** | 0,00 |
| Spain | Southern Europe | **0,77** | -0,10 | 0,04 | 0,02 | **0,71** | -0,06 |
| Bulgaria | Central and Eastern Europe | **0,61** | -0,01 | -0,02 | 0,00 | **0,59** | -0,02 |
| Croatia | Central and Eastern Europe | **0,66** | -0,05 | -0,01 | 0,00 | **0,61** | -0,05 |
| Czech Republic | Central and Eastern Europe | **0,72** | 0,05 | -0,06 | 0,01 | **0,72** | 0,00 |
| Estonia | Central and Eastern Europe | **0,80** | 0,03 | -0,02 | 0,01 | **0,83** | 0,03 |
| Hungary | Central and Eastern Europe | **0,61** | -0,09 | -0,08 | -0,03 | **0,40** | -0,21 |
| Latvia | Central and Eastern Europe | | | | **0,76** | **0,74** | -0,02 |
| Lithuania | Central and Eastern Europe | | | | **0,77** | **0,82** | 0,05 |
| Poland | Central and Eastern Europe | **0,78** | -0,02 | -0,07 | -0,12 | **0,60** | -0,18 |
| Romania | Central and Eastern Europe | **0,74** | -0,02 | 0,00 | 0,00 | **0,70** | -0,04 |
| Slovakia | Central and Eastern Europe | | | | **0,62** | **0,59** | -0,03 |
| Slovenia | Central and Eastern Europe | **0,62** | 0,14 | -0,08 | 0,01 | **0,74** | 0,12 |
| Australia | Oceania | **0,61** | 0,04 | 0,04 | -0,02 | **0,66** | 0,05 |
| New Zealand | Oceania | **0,83** | -0,08 | -0,03 | 0,00 | **0,71** | -0,12 |
| Canada | Northern America | **0,62** | 0,06 | 0,00 | -0,06 | **0,62** | 0,00 |
| United States | Northern America | **0,52** | 0,00 | 0,00 | -0,03 | **0,48** | -0,04 |
| Australia | Oceania | **0,61** | 0,04 | 0,04 | -0,02 | **0,66** | 0,05 |
| New Zealand | Oceania | **0,83** | -0,08 | -0,03 | 0,00 | **0,71** | -0,12 |
| Canada | Northern America | **0,62** | 0,06 | 0,00 | -0,06 | **0,62** | 0,00 |
| United States | Northern America | **0,52** | 0,00 | 0,00 | -0,03 | **0,48** | -0,04 |

# 4. EVIDENCE-BASED STRATEGIES FOR IMPROVING EDUCATION

*From Benchmarking to Reform: Evidence-based Strategies for Improving Education*

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**Abstract**

This chapter provides a comparative analysis of the Dutch education system in the context of other high-income countries across Europe, North America, Oceania, and Asia. By benchmarking a broad set of indicators – ranging from educational investment and resource allocation to learning outcomes and labour market integration – the chapter identifies key structural strengths and pressing challenges. Particular attention is paid to issues such as teacher shortages, educational inequality, under-enrolment in early childhood education, and declining performance in international assessments such as the Programme for International Student Assessment (PISA). Drawing on evidence from high-performing systems in Finland, Estonia, Canada, and Singapore, the analysis emphasises the importance of integrated policy strategies that enhance teacher quality, promote equity, and support early intervention.
The chapter concludes with evidence-based recommendations, advocating for coordinated governance, robust evaluation frameworks, and inclusive, data-informed reforms that respond to evolving societal needs while ensuring access to high-quality education for all learners.

# 4.1. INTRODUCTION

Education systems around the world are increasingly being evaluated not only by their capacity to expand access but also by their efficiency, equity, and responsiveness to changing societal needs (Agasisti et al., 2023). In this context, benchmarking national education systems against international peers has become a relevant tool for policymakers. Comparative analysis allows the identification of structural strengths and systemic weaknesses, and it fosters a deeper understanding of how investment, policy, and institutional arrangements shape educational outcomes. This chapter adopts such an international perspective, focusing on the Dutch education system in relation to other high-income countries across Europe, North America, Oceania, and Asia. By assessing trends in investment, outcomes, and system performance, the chapter aims to provide a comprehensive diagnostic framework that informs both ongoing reforms and strategic planning in Dutch education policy.

The benchmarking exercise is structured around a multidimensional set of indicators capturing inputs (such as educational expenditures and resources) and outputs (including enrolment rates, graduation levels, and standardised test scores), as well as broader outcomes related to educational attainment and labour market integration. In doing so, the analysis highlights how the Netherlands compares to other countries. Particular attention is paid to longitudinal trends, enabling the identification of shifts in performance and investment over time. While this approach facilitates the identification of best practices, it also underscores the contextual specificity of each education system; thus, the analysis avoids simplistic policy transfers and instead emphasises adaptable insights rooted in evidence.

Building on this comparative foundation, the chapter proceeds to examine several pressing challenges that are particularly salient in many education systems. These include persistent teacher shortages, increasing educational inequality, declining performance in international assessments such as the Programme for International Student Assessment (PISA), and the need for more inclusive and equitable early childhood and primary education. For each of these areas, the chapter presents a synthesis of relevant literature and evidence-based strategies, drawing on both academic research and case studies from high-performing systems. The goal is to provide evidence-based policy recommendations that can guide future interventions.

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# 4.2. CROSS-COUNTRY BENCHMARKING

**In this section, the Dutch education system is analysed in comparison with a selection of countries, using a set of indicators that reflect key dimensions of educational systems. The indicators used for this benchmarking exercise are defined and discussed in the following subsection. The aim of the comparative analysis is to highlight the main features and trends that characterise the Dutch system within the broader international context.**

### 4.2.1. The choice of indicators

Several indicators have been selected to describe and compare educational systems. These include measures of investment in education, along with key outputs and outcomes of the educational systems (see Table 0).

*Table 0: List of indicators adopted in the benchmarking analysis*

**Cross-Country Benchmarking**

| Description | Source | Years available | values |
|---|---|---|---|
| Indicator of investments in education | | | |
| Government expenditure on primary education as % of GDP (%) | Eurostat | From 2017 to 2022 | percentage |
| Government expenditure on secondary education as % of GDP (%) | Eurostat | From 2017 to 2022 | percentage |
| Government expenditure on tertiary education as % of GDP (%) | Eurostat | From 2017 to 2022 | percentage |
| Annual expenditure per student in primary education (ISCED 1) | Eurostat | From 2014 to 2021 | Purchasing power standard (PPS) |
| Annual expenditure per student in lower secondary education (ISCED 2) | Eurostat | From 2014 to 2021 | Purchasing power standard (PPS) |
| Annual expenditure per student in upper secondary non-tertiary education (ISCED 3-4) | Eurostat | From 2014 to 2021 | Purchasing power standard (PPS) |
| Annual expenditure per student in tertiary education (ISCED 5-8) | Eurostat | From 2014 to 2021 | Purchasing power standard (PPS) |
| Distribution of funding sources on primary education (ISCED 1) | Eurostat | 2021 | Million Purchasing power standard (PPS) |
| Distribution of funding sources on lower secondary education (ISCED 2) | Eurostat | 2021 | Million Purchasing power standard (PPS) |
| Distribution of funding sources on upper secondary education and non-tertiary education (ISCED 3 and 4) | Eurostat | 2021 | Million Purchasing power standard (PPS) |
| Distribution of funding sources on tertiary education (ISCED 5-8) | Eurostat | 2021 | Million Purchasing power standard (PPS) |
| Outputs and outcome of the educational systems | | | |
| Enrolment rate for 15-19 year-old | OECD | From 2013 to 2022 | percentage |
| Upper secondary graduation rate | OECD | From 2017 to 2020 | percentage |
| Tertiary graduation rate | OECD | From 2018 to 2021 | percentage |
| Mean PISA test score in mathematics, reading or science | OECD (PISA) | 2009; 2012; 2015; 2018; 2022 | mean =500, std.dev=100 |
| Mean ICCS civic knowledge test score | IEA (ICCS) | 2022 | mean =500, std.dev=100 |
| Mean ICCS scores for attitudes towards equal gender rights | IEA (ICCS) | 2022 | mean =10, std.dev=2 |
| Mean ICCS scores for attitudes towards equal rights for ethnic groups | IEA (ICCS) | 2022 | mean =10, std.dev=2 |
| Percentage of 25-64 year-old with primary education (ISCED 0-2) | OECD | 2023 | percentage |
| Percentage of 25-64 year-old with secondary education (ISCED 3-4) | OECD | 2023 | percentage |
| Percentage of 25-64 year-old with tertiary education (ISCED 5-8) | OECD | 2023 | percentage |
| NEET Rates Among Young People (Ages 15-24), 2019-2023 | Eurostat | From 2019 to 2023 | percentage |

To reflect the different levels of investment in education across countries, the analysis includes indicators on education expenditure. The total expenditure on education (as a percentage of GDP) is a measure of the quantity of available resources, although dependent upon the absolute value of the GDP (for the same percentage GDP, richer countries are investing more resources than poorer). It is also a measure of policy priority – the higher the proportion of GDP

invested in education, the higher the consideration of this policy domain by governments. The data is presented separately by level (primary, secondary, and tertiary education), from 2017 to 2023. In addition. the annual expenditure by students in purchasing power standard, separated by educational level, is a measure of the intensity of spending in the sector. The information is expressed on a student basis to consider the differences in the size of the country. In addition to the data reported in absolute values, this chapter also reports the percentage change (increase or decrease) in the period between 2014 and 2023. In this sense, the indicator measures the policy attention devoted by politicians to the educational sector (investments or divestments, with the related intensity). Finally, the distribution of funding sources (as a total expenditure in education) indicates whether the available resources come from investments by the government and other public sources or by private agents (such as families and students, foundations, and companies). This indicator reflects the importance of the private sector in supporting the educational system.

As measures of the outputs and outcomes of educational systems, this chapter includes various indicators related to enrolment and graduation rates. The "enrolment rate among 15–19-year-old students" indicates the proportion of students in this age cohort which is enrolled in a typically secondary educational programme. This variable measures the degree of participation of young students in secondary education, as a volume of formal education produced in the system. In addition to the absolute value in the last year, the trend between 2013 and 2022 is illustrated. The "upper secondary education graduation rate" represents the estimated percentage of people who will graduate from secondary education over their lifetime. This indicator reflects the effectiveness of the secondary education cycle – in other words, its ability to provide students with a secondary education degree. The indicator is observed over the period from 2018 to 2020. Similarly, the "tertiary graduation rate" refers to the proportion of individuals who are expected to complete a tertiary-level degree, also observed over the period 2018 to 2020. The indicator provides insight into the overall output of the higher education system. The percentage change from 2018 is included to capture recent trends and assess the progress made by education systems in expanding higher education attainment. Lastly, the average scores in the OECD's PISA tests in reading, mathematics, and science are compared across countries. These scores represent a measure of 15-year-old students' knowledge in three key domains that are essential for both social and economic life. The results are reported for the last waves, i.e. 2009, 2012, 2015, 2018, and 2022. In addition to cognitive outcome, this chapter examines indicators of civic attitudes and values, derived from the International Civic and Citizenship Education Study. These indicators measure: (i) civic knowledge, (ii) attitudes towards equal gender rights, (iii) attitudes towards equal rights for ethnic groups. Although not academic outcomes, these indicators are not soft skills in the strict sense, but proxies for the degree to which education systems foster civic values, democratic attitudes, and social responsibility consistent with modern democratic societies. Building on these student-level outcomes, it is also important to consider population-level measures of educational attainment. In this regard, a further indicator examines the "proportion of adult population (25–64 years old) who have attained an educational level" (i.e. obtained an educational degree), separated by primary, secondary, or tertiary education, based on the most recent data available (2023). This indicator measures whether an educational system can equip its adult population with a certain level of education. Finally, another important indicator concerns the "share of young people aged 15–29 in the EU who are not in employment, education, or training (NEET)". Reducing this rate is one of the objectives of the European Pillar of Social Rights, which sets a target of bringing it down to 9% by 2030. This indicator provides insight into how effectively education systems prepare young people for the labour market and promote their inclusion in economic and social life.

The benchmarking exercise refers to the following list of countries, when data are available: European countries (Estonia, Poland, Slovenia, Czech Republic, Latvia, Slovak Republic, Lithuania, Hungary, Croatia, Bulgaria, Romania, Denmark, Finland, Sweden, Norway, Portugal, Italy, Spain, Malta, Greece, Cyprus, the Netherlands, Belgium, United Kingdom, Germany, Ireland, Austria, Switzerland, France and Luxembourg), North America (Canada and the United States of America), Oceania (New Zealand and Australia), and Asia (South Korea and Japan).

### 4.2.2. Investments in education and resources

Before analysing educational outcomes, it is important to consider the level of investment that supports them. This section describes the resources devoted to education.

Figures 1a, 1b, and 1c compare the government expenditure on education as a proportion of GDP (by different levels) from 2017 to 2023. When looking at primary education, on average, countries invested around 1.8% of GDP, with the Netherlands falling below the average level, spending about 1.5% of GDP. However, Figure 1a shows some more marked differences. Sweden invested more than 4% of its GDP in primary and pre-primary education over the years.

On the other hand, Bulgaria, Lithuania, and Romania are economies investing less in primary education (between 0.7% and 0.9% of GDP). For all countries, on average, investment in primary education increased from 1.7% in 2017 to 1.9% in 2020. However, following this rise, spending gradually declined, returning to pre-COVID-19 levels of 1.7% in 2023.

Turning to secondary education (see Figure 1b), the Netherlands consistently allocated around 1.9–2.1% of its GDP to this level from 2017 to 2023, which is above the international average (around 1.6%) throughout the period. Other countries with the highest rate of GDP devolved to secondary education in the later years are Belgium (2.4%), Finland (2.6%), and the Czech Republic (2.2%) – the same countries that invested more in 2022. The Czech Republic is one of the countries that increased its spending the most, rising from 1.7% in 2017 to 2.2% in 2023. Similarly to primary education, some countries increased their share between 2019 and 2020, only to reduce it again in the following years, reaching lower levels by 2023. Concerning investments in tertiary education (see Figure 1c), the Netherlands allocated between 1.2% and 1.3% of its GDP to this level from 2017 to 2023, which is above the average (around 0.9%) but below the highest spending countries. In particular, Hungary, Finland, and Denmark are the countries with the highest proportion of GDP for tertiary education. Hungary significantly increased its share, rising from 0.9% in 2017 to 2.1% in 2023. The lowest rates are observed in Italy, Ireland, Luxembourg, and Spain.

Overall, the data suggests that the resources allocated to education at all levels remained relatively stable. However, during the COVID-19 pandemic, spending increased in almost all countries, but in most cases, it returned to pre-pandemic levels after the crisis. This evidence should be read together with the strong political debate about the importance of education which, however, seems not to influence decisions about the allocation of funding (at least, on average). Moreover, while the share of GDP invested in education provides useful insights into political priorities, it does not fully capture changes in actual investment. In particular, when GDP increases, a stable percentage can still correspond to a significant rise in the resources allocated per student. For this reason, it is important to complement this indicator with per-student spending measures.

*Figure 1a: Government expenditure on primary education as a percentage of GDP*

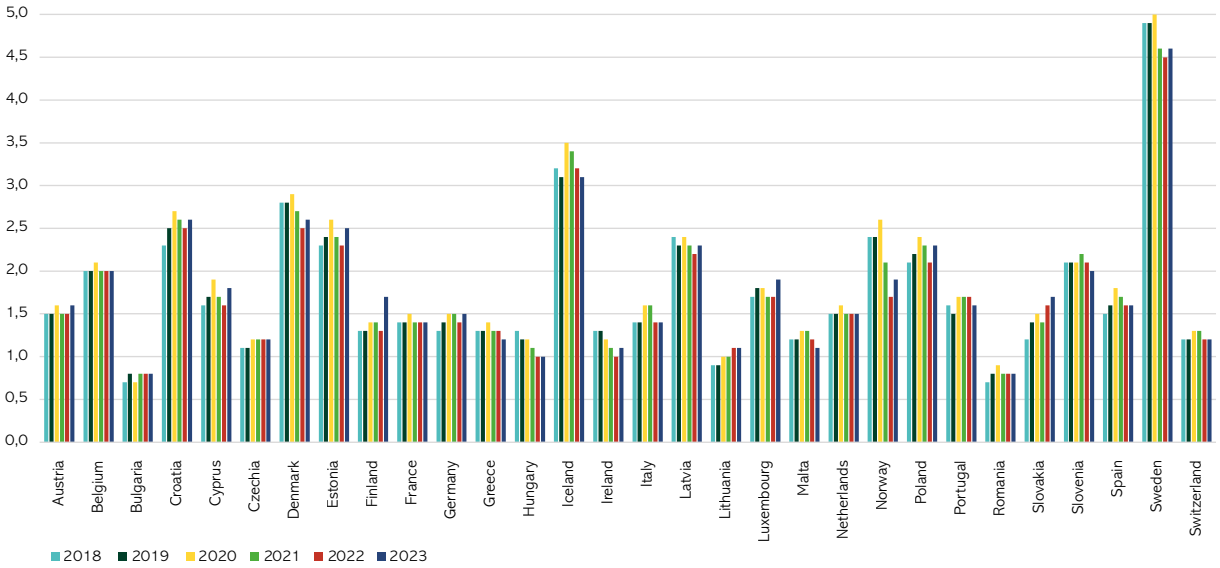


*Figure 1b: Government expenditure on secondary education as a percentage of GDP*

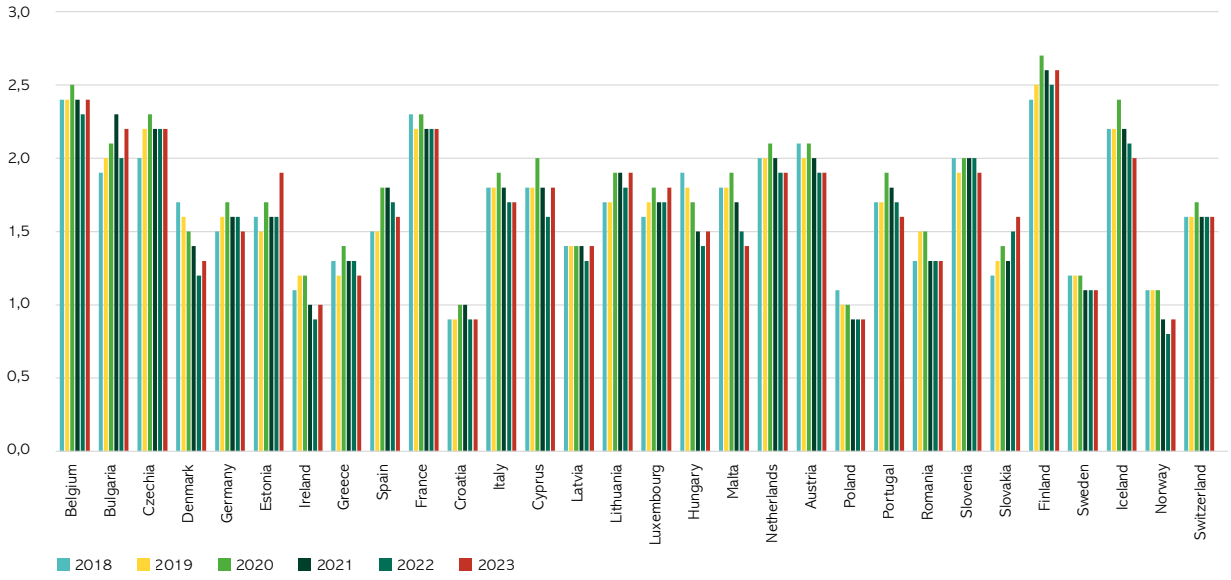
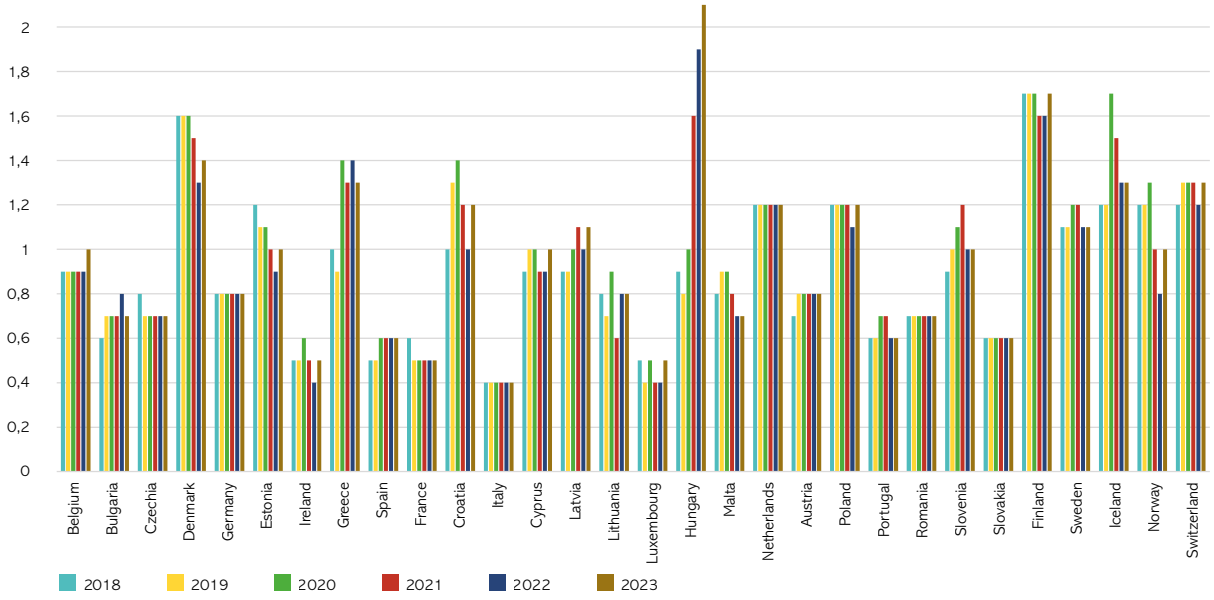



*Figure 1c. Government expenditure on tertiary education as a percentage of GDP*




Government expenditure on education per student provides a complementary perspective, as it measures the intensity of funding relative to the size of the educational system. Tables 1a, 1b, 1c, and 1d show this indicator by levels: primary, lower secondary, upper secondary non-tertiary, and tertiary.

It is interesting to note that the Netherlands increases the investment per student in every level, but some differences can be highlighted. The increase in expenditure per student is 40%, 30.4%, 27.7%, and 6.4% in primary, lower secondary, upper secondary, and tertiary, respectively. Luxembourg, Switzerland, and Norway are the countries with the highest annual government expenditure on primary education with an average of 14,149, 11,903 and 10,335 PPS, respectively; while Hungary, Bulgaria, and Romania are the lowest[1]. However, they also increased between 2014 and 2022 by 165.7% and 147.7%, with 75% showing a significant upward trend. Other important increases in annual expenditure in primary level are observed in Malta and Lithuania, with 55.7% and 71.6% respectively. The final consideration relates to the investment by years: on average investment increases, moving from 5,843 to 7,498 PPS. Similar considerations can be made for annual expenditure per student in secondary education (Tables 1b and 1c).

[1] The PPS is the purchasing power standard, an artificial currency unit standardised by country: with the same amount, it is possible to buy the same amount of goods in all the listed countries.

Again, it is interesting to observe that the highest increase in this indicator over years is registered for those countries which, at the beginning of the period, invested less money in the field. For lower secondary education Romania, Malta, and Bulgaria register an average increase of 107%, 87%, and 84%, respectively, while for upper secondary education in Romania, Bulgaria, and Malta the expenditure per student rose by 113%, 80%, and 43% respectively from 2014 to 2022[2]. Government expenditure per student in tertiary education (Table 1c) show again a particularly high value for Luxembourg, always at the top of these rankings, with an average investment of 36,385 PPS. It is followed by Norway, Sweden, and Switzerland with 24,719 PPS, 21,014 PPS, and 21,088 PPS respectively. At the bottom of this ranking, there are Bulgaria with 5,608 PPS per student and Croatia with 4,768 (in 2022). A decrease in expenditure per tertiary education student over the last years is registered for some countries: Cyprus, Finland, Norway, Portugal, and France experienced the most evident decreases (between −2% and −23.9%).

*Table 1a: Annual expenditure per student in primary education from 2014 to 2022*

| Country | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | mean by country | increase percentage |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bulgaria | 2987 | 2948 | 3126 | 3241 | 3482 | | 4183 | 4935 | 7938 | 4105 | 165,79% |
| Romania | 1371 | 1419 | 1360 | 1520 | 1672 | 2070 | 2059 | 2095 | 3395 | 1884 | 147,72% |
| Hungary | 2737 | 3699 | 3725 | 3532 | 3718 | 4937 | 4503 | 4579 | 4792 | 4025 | 75,11% |
| Lithuania | 3837 | 4041 | 4298 | 4281 | 4323 | 4752 | 5116 | 5269 | 6585 | 4722 | 71,64% |
| Malta | 4565 | 4709 | 4802 | 4916 | 5584 | 6349 | 6446 | 7261 | 7112 | 5749 | 55,79% |
| Estonia | 4270 | 4389 | 4561 | 4965 | 5502 | 6253 | 6505 | 6477 | | 5365 | 51,66% |
| Czechia | 3593 | 3784 | 3555 | 3987 | 4380 | | | 5342 | | 4107 | 48,69% |
| Finland | 6461 | 6978 | 6843 | 6675 | 6911 | 7307 | 7268 | 7606 | 9533 | 7287 | 47,54% |
| Slovakia | 4240 | 4836 | 4679 | 4556 | 4697 | | 5385 | 6135 | | 4932 | 44,69% |
| Netherlands | 6153 | 6367 | 6228 | 6432 | 6792 | 7013 | 7348 | 8054 | 8677 | 7007 | 41,03% |
| Germany | 6149 | 6312 | 6369 | 6491 | 6807 | 7211 | 7479 | 7966 | | 6848 | 29,55% |
| Spain | 4447 | 4691 | 4727 | 4853 | 4930 | 5124 | 5206 | 5677 | | 4957 | 27,64% |
| Poland | 4908 | 5046 | 4666 | 5012 | 5346 | 5628 | 6892 | 6180 | 5306 | 5443 | 25,91% |
| Cyprus | 7190 | 7637 | 7812 | 7585 | 8031 | 8205 | | 8877 | | 7905 | 23,46% |
| Cyprus | 7190 | 7637 | 7812 | 7585 | 8031 | 8205 | | 8877 | | 7905 | 23,46% |
| France | 5234 | 5381 | 5316 | 5563 | 5785 | 6206 | 6173 | 6428 | | 5761 | 22,82% |
| Norway | 9699 | 9777 | 9180 | 9684 | 10646 | 10649 | 10196 | 11374 | 11809 | 10335 | 21,76% |
| Sweden | 7985 | 8245 | 8248 | 8707 | 8914 | 9181 | 9261 | 9472 | 9693 | 8856 | 21,39% |
| Ireland | 5776 | 5558 | 5418 | 5659 | 5842 | 5976 | 6230 | 6854 | | 5914 | 18,66% |
| Austria | 8128 | 8696 | 8806 | 8777 | 8913 | 8738 | 8908 | 9464 | | 8804 | 16,43% |
| Belgium | | | 7546 | 7486 | 7744 | 7896 | 8132 | 8536 | | 7890 | 13,12% |
| Italy | 5674 | 6050 | 5596 | 6109 | 6155 | 6810 | 7454 | 8166 | 6314 | 6481 | 11,28% |
| Denmark | 8846 | | 7764 | 8098 | 8231 | 8231 | 9080 | 9395 | | 8521 | 6,21% |
| Luxembourg | 14525 | 15206 | 12322 | 12944 | 13793 | 14618 | 14482 | 15303 | | 14149 | 5,35% |
| Slovenia | 6215 | 5845 | 5698 | 5741 | 6122 | 6269 | 6700 | 7391 | 6356 | 6260 | 2,27% |
| Switzerland | | | 11623 | 11657 | 11693 | | 12265 | 12895 | 11285 | 11903 | -2,91% |
| Latvia | 4795 | 4973 | 4607 | 4267 | 4330 | 4530 | 4480 | 4392 | | 4547 | -8,40% |
| Croatia | | | 7500 | 7771 | 8429 | 9049 | | 4943 | | 7538 | -34,10% |
| mean by year | 5843,360714 | 5978,896296 | 6148,416129 | 6287,783871 | 6580,13871 | 7054,446154 | 7099,312 | 7497,907143 | | | |

[2] The calculus for the percentage increase in this indicator considers data from 2021 and from 2014, but for countries missing information in these years the closest data is used.

*Table 1b: Annual expenditure per student in lower secondary education from 2014 to 2022*

| Country | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | mean by country | increase percentage |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Romania | 2.481,10 | 2.703,80 | 2.648,80 | 3.053,10 | 3.566,80 | 4.540,00 | 4.417,80 | 4.507,20 | 5.146,10 | 3.489,83 | 107,41% |
| Malta | 5.413,00 | 6.732,40 | 8.676,40 | 8.442,00 | 9.556,20 | 10.157,00 | 10.840,60 | 11.491,40 | 10.141,80 | 8.913,63 | 87,36% |
| Bulgaria | 3.350,10 | 3.450,80 | 3.609,60 | 3.989,60 | 4.519,20 | | 5.268,70 | 6.219,80 | 6.195,10 | 4.343,97 | 84,92% |
| Estonia | 4.551,90 | 4.762,80 | 4.848,60 | 5.121,50 | 5.722,20 | 6.529,40 | 6.716,20 | 7.026,20 | 7.639,10 | 5.659,85 | 67,82% |
| Lithuania | 3.687,30 | 3.776,40 | 3.985,10 | 4.046,90 | 4.330,50 | 4.719,00 | 5.076,70 | 5.256,60 | 5.916,20 | 4.359,81 | 60,45% |
| Czechia | 5.957,00 | 6.302,30 | 5.978,20 | 6.739,70 | 7.478,60 | | | 9.105,00 | | 6.926,80 | 52,85% |
| Hungary | 2.831,60 | 3.411,90 | 4.004,00 | 3.421,00 | 3.587,60 | 4.309,20 | 4.023,10 | 4.218,90 | 4.307,20 | 3.725,91 | 52,11% |
| Netherlands | 8.706,10 | 9.078,70 | 8.991,70 | 9.005,10 | 9.416,30 | 9.567,00 | 9.720,10 | 10.691,50 | 11.353,20 | 9.397,06 | 30,41% |
| Spain | 5.643,50 | 5.949,40 | 5.921,60 | 5.991,30 | 5.951,00 | 6.288,90 | 6.366,80 | 6.946,40 | 7.261,90 | 6.132,36 | 28,68% |
| Germany | 7.573,50 | 7.796,00 | 7.896,00 | 8.101,10 | 8.464,30 | 8.884,50 | 9.172,60 | 9.520,00 | | 8.426,00 | 25,70% |
| Luxembourg | 15.527,60 | 15.521,10 | 15.292,70 | 15.510,80 | 17.240,30 | 16.783,80 | 17.309,30 | 18.664,00 | 19.396,00 | 16.481,20 | 24,91% |
| Poland | 4.888,70 | 4.888,60 | 4.908,40 | 4.734,20 | 5.235,20 | 5.620,60 | 5.080,20 | 5.645,70 | 6.071,10 | 5.125,20 | 24,19% |
| Norway | 10.343,10 | 10.740,00 | 9.931,60 | 9.797,40 | 10.805,90 | 10.848,10 | 10.425,60 | 11.605,80 | 12.580,00 | 10.562,19 | 21,63% |
| Slovakia | 4.373,30 | 4.394,90 | 4.408,80 | 4.161,70 | 4.311,30 | | 4.967,70 | 5.314,20 | | 4.561,70 | 21,51% |
| Finland | 10.165,80 | 11.009,10 | 10.893,90 | 10.669,90 | 11.026,90 | 11.654,60 | 11.488,80 | 11.977,80 | 12.243,90 | 11.110,85 | 20,44% |
| Portugal | 6.756,60 | 6.591,60 | 6.992,40 | 7.296,90 | 7.293,80 | | 7.336,90 | 7.956,90 | | 7.175,01 | 17,76% |
| Slovenia | 6.944,20 | 6.790,60 | 6.925,80 | 7.181,10 | 7.789,20 | 7.883,90 | 7.187,90 | 7.887,30 | 8.127,00 | 7.323,75 | 17,03% |
| Cyprus | 8.693,70 | 9.200,10 | 9.476,20 | 9.433,50 | 9.534,10 | 9.850,60 | | 10.077,40 | | 9.466,51 | 15,92% |
| Belgium | | | 9.525,50 | 9.915,60 | 10.018,70 | 10.189,00 | 10.661,80 | 11.009,30 | | 10.219,98 | 15,58% |
| Sweden | 8.623,20 | 8.912,90 | 8.906,50 | 9.203,90 | 9.373,90 | 9.330,60 | 9.403,90 | 9.587,60 | 9.962,70 | 9.167,81 | 15,53% |
| Switzerland | | | 14.626,60 | 14.369,50 | 14.426,20 | | 14.526,20 | 15.397,10 | 16.389,10 | 14.669,12 | 12,05% |
| France | 7.183,20 | 7.351,00 | 7.295,70 | 7.397,60 | 7.468,70 | 7.755,20 | 7.698,20 | 7.966,20 | | 7.514,48 | 10,90% |
| Denmark | 10.056,20 | | 7.641,50 | 8.082,80 | 8.111,60 | 9.558,50 | 10.804,40 | 11.064,50 | | 9.331,36 | 10,03% |
| Italy | 6.254,90 | 6.711,80 | 6.276,60 | 6.752,90 | 6.913,50 | 7.177,70 | 6.182,10 | 6.580,50 | | 6.606,25 | 5,21% |
| Austria | 11.007,30 | 11.534,00 | 11.657,80 | 11.521,80 | 11.273,10 | 11.262,20 | 10.998,10 | 11.541,70 | | 11.349,50 | 4,85% |
| Ireland | 7.477,00 | 6.931,30 | 6.532,60 | 5.956,50 | 6.776,10 | 6.846,70 | 7.281,30 | 7.718,40 | | 6.939,99 | 3,23% |
| Latvia | 4.780,90 | 5.010,50 | 4.645,40 | 4.351,60 | 4.373,90 | 4.610,50 | 4.490,30 | 4.476,40 | | 4.592,44 | -6,37% |
| mean by year | 6.855,04 | 6.982,92 | 7.399,11 | 7.458,89 | 7.839,64 | 8.218,63 | 8.297,81 | 8.868,66 | | | |

*Table 1c: Annual expenditure per student in upper secondary and non-tertiary education from 2014 to 2022*

| Country | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | mean by country | increase percentage |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Romania | 2.318,4 | 2.570,5 | 2.483,1 | 3.003,5 | 3.339,0 | 4.092,1 | 4.417,8 | 4.507,2 | 4.957 | 3.520,9 | 113,8% |
| Bulgaria | 2.864,3 | 2.849,0 | 2.899,0 | 3.023,3 | 3.181,8 | | 5.269 | 6.220 | 5.167 | 3.934,1 | 80,4% |
| Malta | 7.134,1 | 8.881,4 | 8.479,4 | 8.382,0 | 9.923,3 | 10.360,6 | 10.840,6 | 11.491,4 | 10.212 | 9.522,8 | 43,1% |
| Lithuania | 4.349,0 | 3.894,0 | 3.899,2 | 3.959,7 | 4.463,8 | 5.336,1 | 5.076,7 | 5.256,6 | 6.223 | 4.717,6 | 43,1% |
| Slovenia | 5.422,0 | 5.597,9 | 5.414,5 | 5.782,4 | 6.234,8 | 6.617,5 | 7.187,9 | 7.887,3 | 7.689 | 6.425,9 | 41,8% |
| Czechia | 5.209,0 | 5.612,0 | 5.391,0 | 5.821,7 | 6.973,1 | | | 9.105 | 7.298 | 6.487,1 | 40,1% |
| Portugal | 5.951,8 | 6.026,6 | 6.037,0 | 6.685,7 | 6.287,8 | | 7.337 | 7.957 | | 6.611,8 | 33,7% |
| Netherlands | 8.319,3 | 8.645,5 | 8.829,4 | 8.447,3 | 9.444,2 | 9.031,2 | 9.720,1 | 10.691,5 | 10.625 | 9.305,9 | 27,7% |
| Luxembourg | 14.714,0 | 14.185,7 | 14.612,6 | 14.746,0 | 16.225,2 | 16.038,2 | 17.309,3 | 18.664, | 18.442 | 16.104,1 | 25,3% |
| Austria | 10.543,6 | 11.027,5 | 11.313,4 | 11.101,2 | 11.206,6 | 10.706,0 | 10.998,1 | 11.541,7 | 12.638 | 11.230,7 | 19,9% |
| Poland | 4.078,4 | 4.224,7 | 4.424,6 | 4.433,5 | 4.631,9 | 4.814,7 | 5.080,2 | 5.645,7 | 4.770 | 4.678,2 | 17,0% |
| Norway | 13.083,6 | 13.192,7 | 12.793,6 | 13.296,9 | 14.220,2 | 14.135,6 | 10.425,6 | 11.605,8 | 15.299 | 13.117, | 16,9% |
| Spain | 6.042,5 | 6.436,5 | 6.698,8 | 6.925,4 | 6.912,4 | 7.215,5 | 6.366,8 | 6.946,4 | | 6.693, | 15,0% |
| Sweden | 9.566,8 | 9.892,9 | 9.776,1 | 10.328,4 | 10.716,3 | 10.754,7 | 9.403,9 | 9.587,6 | 10.966 | 10.110,3 | 14,6% |
| Cyprus | 8.821,5 | 9.373,2 | 9.765,0 | 10.287,9 | 11.073,9 | 10.812,7 | | 10.077,4 | | 10.030,2 | 14,2% |
| Germany | 8.340,6 | 8.521,0 | 8.552,3 | 8.816,4 | 9.219,2 | 9.523,2 | 9.172,6 | 9.520, | | 8.958,2 | 14,1% |
| Slovakia | 4.689,3 | 5.175,4 | 4.736,1 | 5.072,0 | 5.132,1 | | 4.968 | 5.314 | | 5.012,4 | 13,3% |
| Finland | 6.941,2 | 6.882,7 | | 6.032,5 | 6.275,8 | 6.797,5 | 11.488,8 | 11.977,8 | 7.579 | 7.996,9 | 9,2% |
| Belgium | | | 10.133,6 | 10.305,6 | 10.402,1 | 10.620,1 | 10.661,8 | 11.009,3 | | 10.522,1 | 8,6% |
| Italy | 6.256,6 | | 6.634,0 | 7.187,5 | 8.608,1 | 7.195,3 | 6.182,1 | 6.580,5 | | 6.949,2 | 5,2% |
| Estonia | 4.751,2 | 5.249,0 | 4.946,9 | 5.075,1 | 5.872,5 | 5.134,4 | 6.716,2 | 7.026,2 | 4.587 | 5.484,3 | -3,5% |
| Denmark | 12.135,4 | | 8.615,6 | 8.549,8 | 8.681,4 | 8.879,1 | 10.804,4 | 11.064,5 | | 9.818,6 | -8,8% |
| Latvia | 5.083,7 | 5.721,2 | 5.513,0 | 5.458,7 | 5.640,2 | 6.050,1 | 4.490,3 | 4.476,4 | | 5.304,2 | -11,9% |
| France | 9.356,2 | 9.548,0 | 9.400,0 | 9.375,4 | 9.569,7 | 10.020,6 | 7.698,2 | 7.966,2 | | 9.116,8 | -14,9% |
| Ireland | 9.262,9 | 6.964,4 | 7.078,1 | 7.339,4 | 8.178,7 | 8.323,6 | 7.698,2 | 7.718,4 | | 7.820,5 | -16,7% |
| Switzerland | | 14.217,0 | 9.477,1 | 9.363,7 | 9.228,6 | | 14.526 | 15.397 | 10.559 | 11.824, | -25,7% |
| Hungary | 6.093,2 | 5.682,5 | 5.731,0 | 6.083,8 | 6.273,7 | 5.055,0 | 7.698,2 | 4.218,9 | | 5.854,5 | -30,8% |
| mean by year | 7.325,87 | 7.730,47 | 7.361,36 | 7.484,69 | 7.949,64 | 8.332,55 | 8.629,98 | 9.036,41 | | | |

*Table 1d: Annual expenditure per student in tertiary education from 2014 to 2022*

| Country | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | mean by country | increase percentage |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bulgaria | 2.780,8 | 2.767,3 | 2.774,0 | 4.204,1 | 4.328,7 | | 4.975 | 5.598 | 5.607,3 | 3.918,3 | 101,6% |
| Slovenia | 7.008,4 | 7.262,9 | 7.500,8 | 8.141,8 | 9.539,6 | 10.263,8 | 10.752, | 10.979,3 | 12.263,6 | 8.931,1 | 75,0% |
| Hungary | 5.165,8 | 4.924,0 | 5.795,3 | 6.609,3 | 7.189,7 | 7.001,5 | 7.018,6 | 12.614,7 | 8.924,6 | 7.249,3 | 72,8% |
| Romania | 3.953,0 | 4.121,6 | 4.723,6 | 5.201,6 | 5.753,6 | 6.788,2 | 6.415,5 | 6.465,4 | 6.730,6 | 5.427,8 | 70,3% |
| Czechia | 5.039,4 | 5.496,5 | 5.395,4 | 5.956,1 | 8.634,5 | | | 8.816 | 8.149,4 | 6.556,3 | 61,7% |
| Poland | 5.777,8 | 6.346,6 | 5.846,8 | 6.358,1 | 6.853,4 | 7.856,4 | 8.254,7 | 8.817,5 | 8.583,3 | 7.013,9 | 48,6% |
| Croatia | | | 4.062,3 | 4.616,7 | 4.592,2 | 5.180,9 | | 5.386,7 | 5.766,5 | 4.767,8 | 42,0% |
| Ireland | 9.296,2 | 13.563,4 | 13.133,0 | 12.378,5 | 12.324,8 | 12.169,0 | 11.958,3 | 12.513,5 | | 12.167,1 | 34,6% |
| Denmark | 15.950,5 | | 17.573,8 | 16.854,3 | 17.393,2 | 18.954,3 | 19.371,8 | 20.971,1 | | 18.152,7 | 31,5% |
| Estonia | 7.391,6 | 7.711,9 | 8.537,6 | 7.765,7 | 8.751,5 | 8.578,2 | 8.759,5 | 9.528,3 | | 8.378, | 28,9% |
| Lithuania | 5.933,5 | 5.701,7 | 4.183,4 | 4.272,2 | 5.015,0 | 5.679,6 | 6.675,8 | 6.895,8 | 7.621,3 | 5.544,6 | 28,4% |
| Slovakia | 7.505,0 | 10.561,6 | 6.901,9 | 6.672,7 | 6.831,6 | | 8.123 | 9.623 | | 8.031,3 | 28,2% |
| Austria | 12.881,9 | 13.486,0 | 13.589,9 | 13.281,6 | 13.835,2 | 13.208,5 | 14.497,4 | 15.130,1 | 16.280,9 | 13.738,8 | 26,4% |
| Belgium | | | 12.859,4 | 13.310,4 | 13.869,1 | 14.766,9 | 14.548, | 14.552,6 | | 13.984,4 | 13,2% |
| Germany | 13.125,2 | 13.088,3 | 13.090,3 | 13.161,8 | 13.661,8 | 13.607,7 | 14.045,4 | 14.187,8 | | 13.496, | 8,1% |
| Italy | 6.985,5 | 6.993,2 | 6.916,4 | 7.127,0 | 7.293,7 | 7.267,4 | 7.137,8 | 7.510,8 | | 7.154, | 7,5% |
| Spain | 7.032,1 | 7.110,1 | 6.797,5 | 6.990,0 | 6.968,3 | 7.249,7 | 7.036,3 | 7.548,1 | | 7.091,5 | 7,3% |
| Luxembourg | 33.996,9 | 36.249,7 | 34.292,5 | 34.251,0 | 31.788,1 | 34.189,2 | 34.130,2 | 36.849,1 | 36.385,5 | 34.468,3 | 7,0% |
| Latvia | 5.304,0 | 6.010,9 | 3.924,2 | 3.823,2 | 4.383,9 | 5.176,0 | 5.232,6 | 5.659,5 | | 4.939,3 | 6,7% |
| Netherlands | 13.847,4 | 13.743,1 | 14.658,5 | 13.398,6 | 14.705,6 | 14.019,0 | 13.589,7 | 14.737,8 | | 14.087,5 | 6,4% |
| Switzerland | | | 20.123,0 | 20.270,9 | 20.243,2 | | 20.324 | 20.003 | 21.088,6 | 20.193, | 4,8% |
| Sweden | 20.730,4 | 21.552,2 | 20.291,4 | 20.196,7 | 20.678,7 | 20.740,7 | 20.465,1 | 20.781,2 | 21.014,1 | 20.679,6 | 1,4% |
| Malta | 15.681,1 | 15.985,6 | 15.023,2 | 13.470,0 | 14.542,3 | 16.489,7 | 16.021,1 | 15.792,7 | | 15.375,7 | 0,7% |
| Norway | 25.228,8 | 20.677,6 | 20.537,4 | 20.823,0 | 22.522,0 | 22.341,9 | 21.095,1 | 22.229,1 | 24.719,3 | 21.931,9 | -2,0% |
| France | 10.178,6 | 10.406,0 | 9.963,8 | 9.960,8 | 10.065,1 | 10.344,6 | 9.837,6 | 9.783,7 | | 10.067,5 | -3,9% |
| Portugal | 5.850,5 | 6.165,5 | 5.632,8 | 5.608,0 | 5.540,3 | | 5.465 | 5.419 | | 5.668,7 | -7,4% |
| Finland | 14.816,7 | 14.528,9 | 13.959,5 | 13.049,3 | 12.582,5 | 12.541,2 | 12.632,8 | 12.635,9 | | 13.343,4 | -14,7% |
| Cyprus | 6.522,7 | 6.702,6 | 5.893,2 | 6.367,9 | 5.299,8 | 4.783,2 | | 4.963,4 | | 5.790,4 | -23,9% |
| mean by year | 10.952,40 | 11.171,20 | 11.473,17 | 11.061,17 | 11.503,40 | 12.138,02 | 12.641,17 | 12.901,22 | | | |

So far, only government expenditure is considered to quantify the investment in education. However, it is relevant to look deeper into how different sources of funding are distributed among countries (Figures 2a, 2b, 2c, and 2d). These elaborations, provided by the Eurostat databases, show the composition of educational investments between public (general), private, and international investments. Capturing differences in terms of types of educational funding is useful for benchmarking purposes: it detects differences in political inclinations and the capacity to attract external (private or international) investors for the sector.

Starting from the lowest educational level, Figure 2a visually highlights an important contribution of state funding for primary education: government funding covers around 90% of the total sources; in countries such as Romania, Finland, and Norway this rate is almost 100%. Countries with the highest proportion of private investments are Malta, Poland, Portugal, and Spain. Several countries receive some level of international funding, but it accounts for less than 5% of the total. Secondary education funding (referring to Figures 2b and 2c) shows a smaller proportion of public sources (even if it is still above 80% on average), leaving room for private ones. The highest proportion of private funding refers to Poland and Ireland in lower education, and to Switzerland and the Netherlands for upper education with rates above 40% of the total funding[3]. The international investments are close to 10% of the total expenditure in Lithuania and Latvia for upper secondary education. As in the previous representation, a different story is depicted for the case of tertiary education. Figure 2d clearly shows a more heterogeneous composition of funding sources for the selected countries. Public investment represents an important source for Luxembourg, Romania, and Malta, accounting for more than 85% of the total. Considering private investments, Cyprus and Bulgaria, followed by Italy, the Netherlands, and Portugal reach almost 45% and 30% respectively, while international investments are attracted by Latvia, Lithuania and Croatia for around 15%.

[3] It should be noted that some government expenditure relates to payments and transfers for education to the non-educational private sector, this includes subsidies to households and students, as well as payments to other non-educational private entities. As such, this part is counted twice, once in government expenditure and a second time in the expenditure of households and other non-educational private entities. (See Eurostat, Educational expenditure statistics, available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Educational_expenditure_statistics).

*Figure 2a: Distribution of sources for educational expenditure by primary education (ISCED 1)*

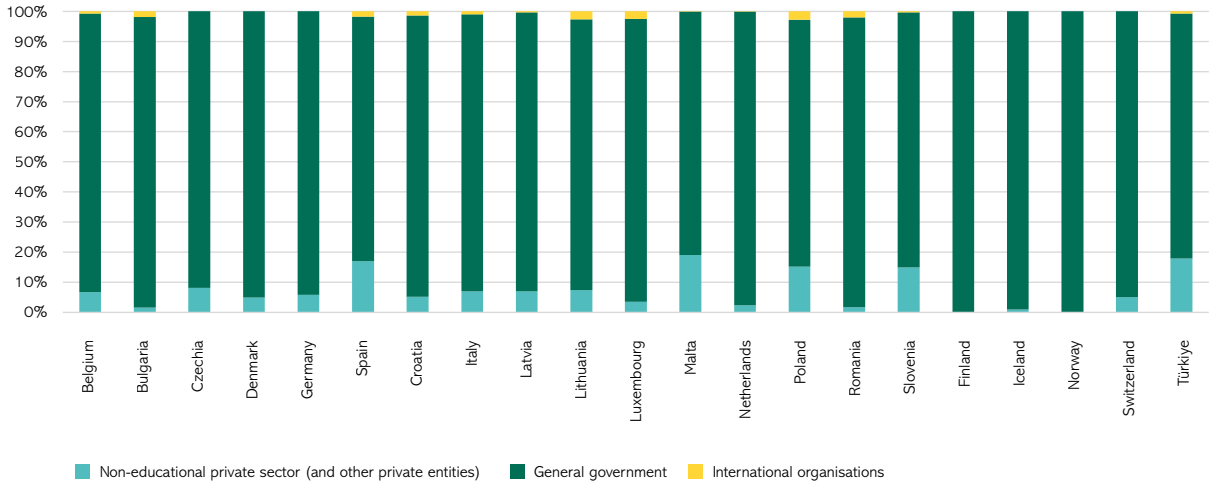



*Figure 2b: Distribution of sources for educational expenditure by lower secondary education (ISCED 2)*

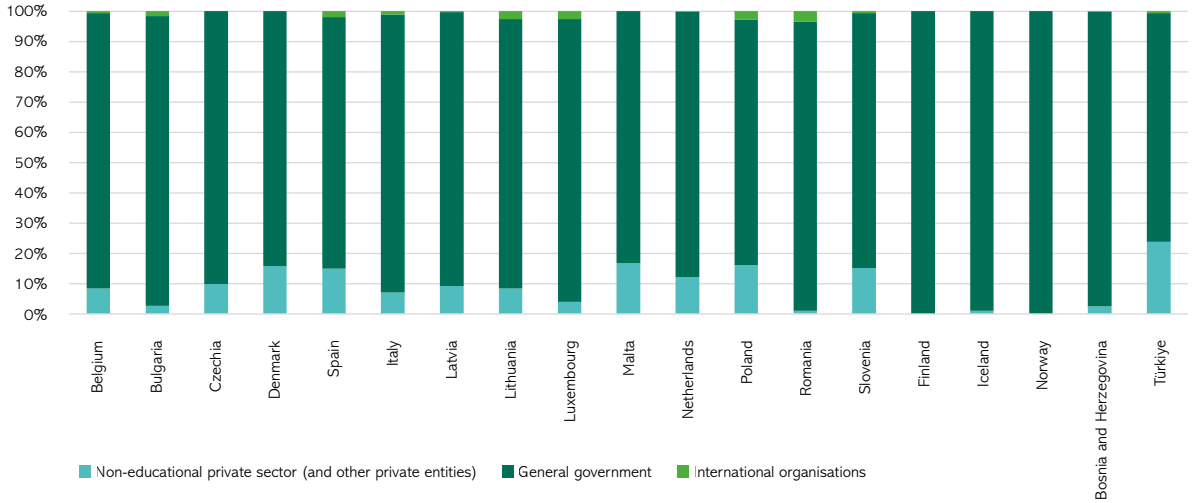



*Figure 2c: Distribution of sources for educational expenditure by upper secondary and non-tertiary education (ISCED 3-4)*

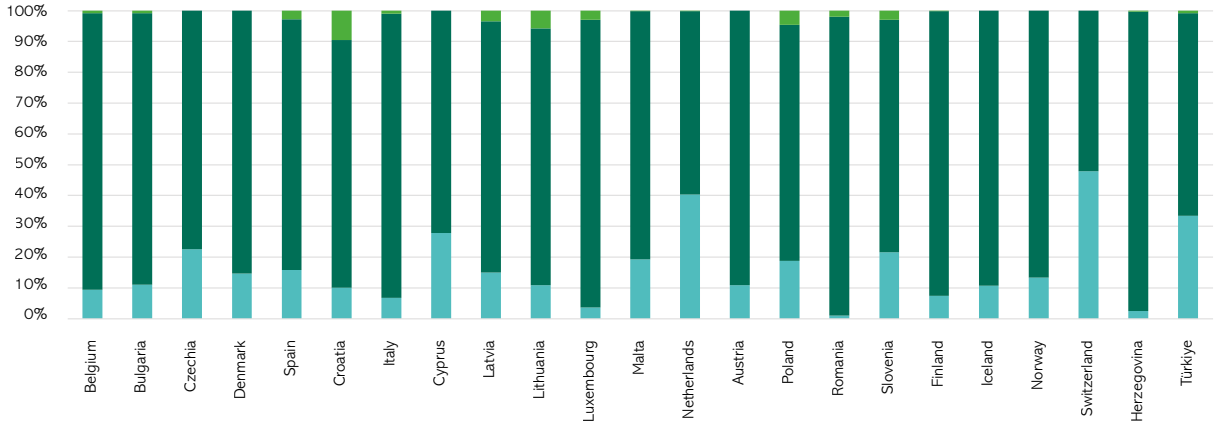
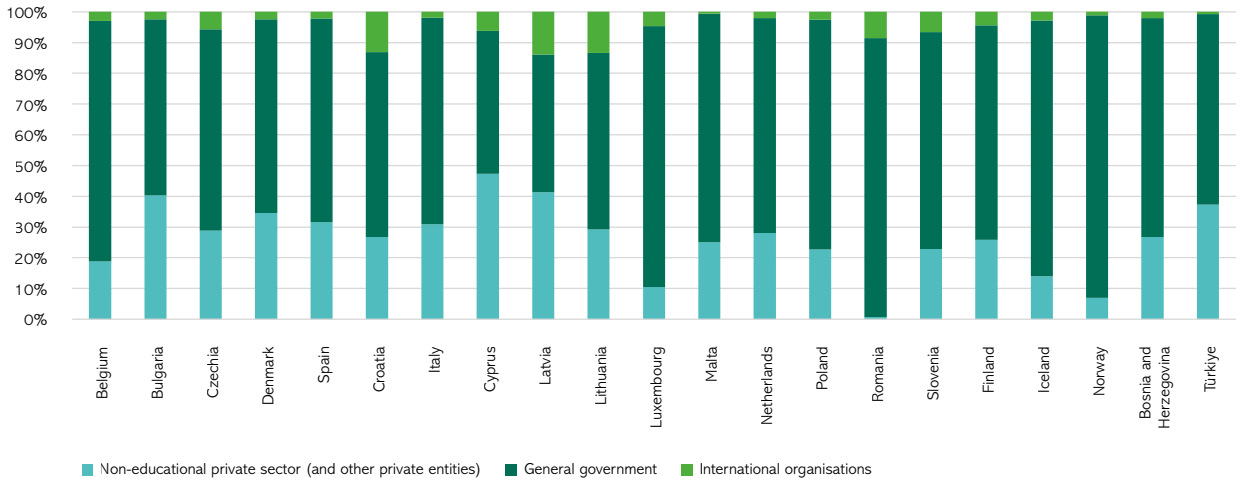


*Figure 2d: Distribution of sources for educational expenditure by tertiary education (ISCED 5-8)*




### 4.2.3. Outputs and outcome of the systems

According to the conceptual framework adopted in this chapter, the inputs are the main drivers of the educational system, but the outputs represent the short-term educational effect. As anticipated, the following indicators are discussed: (i) enrolment rate for 15–19-year-olds, (iii) upper secondary graduation rate, and (iii) tertiary graduation rate.

The first indicator about educational outputs relates to the enrolment rate for 15–19 years old students in secondary education to describe the universal nature of the educational system. For the considered age groups, education is no longer mandatory in most countries. Countries with the highest rate of enrolment in 2022 are Poland (96.35%), Lithuania (94.96%), and Slovenia (94.86%), while the lowest are observed in Austria (80.24%), Luxembourg (77.69%), and Canada (73.79%).

Table 2 presents the mean percentage increase in enrolment rate by regions between 2013 and 2019, and between 2019 and 2022. Considering global macro areas, Central and Eastern Europe show a negative difference in the first-time window, even if with lower intensity (from −0.61% to −2.76%). Northern and Western European countries, the ones with the highest enrolment rates, show a constant positive trend of +0.61% and +0.55% between 2010 and 2015, and +0.46% and +0.52% between 2015 and 2020, respectively. Southern Europe is significantly increasing enrolment rates among the 15–19 years old group, with a percentage increase of 1.18% and 2.99% in the two years' windows.

Table 2 presents the average percentage change in enrolment rate by regions in 2013–2019 and 2019–2022. Considering global macro areas, Central and Eastern Europe, as well as Eastern Asia, show a negative trend in the first period (−0.61% and −3.46% respectively) but a subsequent recovery (+2.76% and +1.67%). Oceania follows the opposite pattern, with an initial increase (+1.15%) followed by a decline (−2.70%). Northern and Western Europe, along with Northern America, maintain a generally stable positive trend. In particular, Northern and Western Europe register a growth in both periods (+0.52% and +0.08%, then +1.03% and +0.34%), while Northern America shows a slight rise (+1.21%), followed by small change in the second window (+0.08%). Finally, Southern Europe recorded the highest growth between 2013 and 2019 (+3.46%), even at a lower rate in the second period (+0.53%).

*Table 2: Enrolment rate among 15–19 years old students*

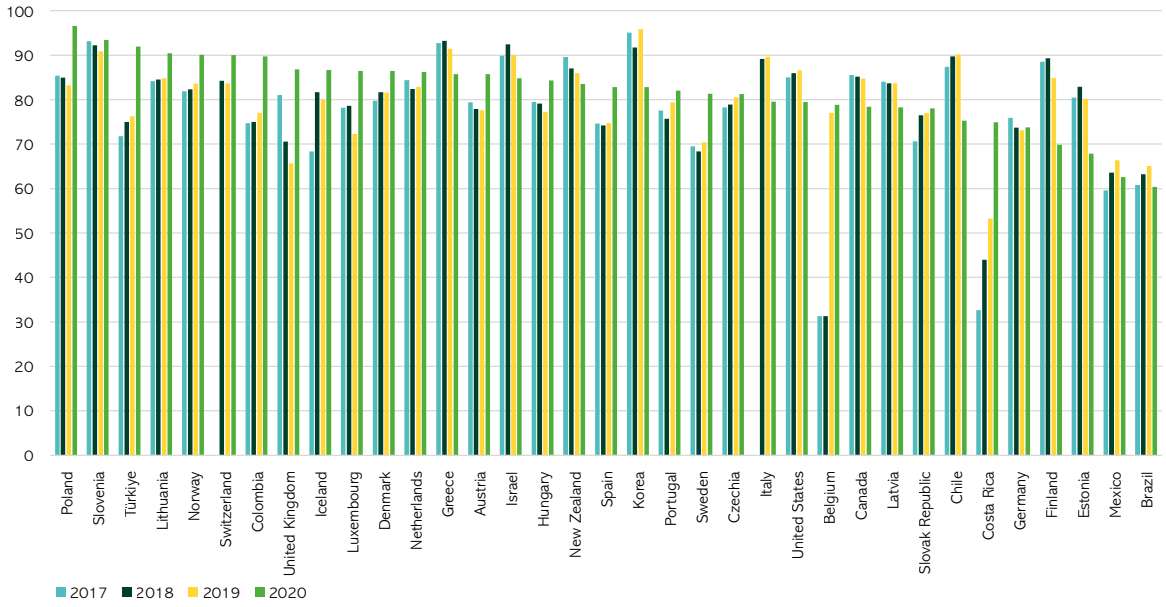
| Region | Average percentage change in enrolment rate among 15-19 year-old students (from 2013 to 2019) - % | Average percentage change in enrolment rate among 15-19 year-old students (from 2019 to 2022) - % | Country | Enrolment rate among 15-19 year-old students (2022) - % |
|---|---|---|---|---|
| Central and Eastern Europe | -0,61% | 2,76% | Czechia | 92,17 |
| | | | Estonia | 88,04 |
| | | | Hungary | 82,86 |
| | | | Lithuania | 94,96 |
| | | | Latvia | 91,98 |
| | | | Poland | 96,35 |
| | | | Slovenia | 94,86 |
| | | | Slovakia | 86,06 |
| Eastern Asia | -3,46% | 1,67% | Korea, Dem. People's Rep. | 84,90 |
| Northern America | 1,21% | 0,08% | Canada | 73,79 |
| | | | United States | 81,61 |
| Northern Europe | 0,52% | 1,03% | Denmark | 87,62 |
| | | | Finland | 87,91 |
| | | | Norway | 88,77 |
| | | | Sweden | 87,50 |
| Oceania | 1,15% | -2,70% | Australia | 84,87 |
| | | | New Zealand | 80,59 |
| Southern Europe | 3,46% | 0,53% | Spain | 87,75 |
| | | | Greece | 85,80 |
| | | | Italy | 87,31 |
| | | | Portugal | 90,66 |
| Western Europe | 0,08% | 0,34% | Austria | 80,24 |
| | | | Belgium | 93,06 |
| | | | Switzerland | 85,87 |
| | | | Germany | 87,03 |
| | | | France | 87,92 |
| | | | United Kingdom | 82,13 |
| | | | Ireland | 91,57 |
| | | | Luxembourg | 77,69 |
| | | | Netherlands | 92,07 |

The second output indicator is the upper secondary graduation rate: it is the estimated percentage of people who will graduate from secondary education over their lifetime. The OECD (2020) suggests that this indicator is not a measure of the proportion of graduates in a country at a specific time, but a measure of the probability of someone in the country graduating in the long term, based on current graduation patterns. Therefore, graduation rates are sensitive to any changes in education systems, such as the introduction of new programmes or variation in a programme's duration.

Figure 3 compares this rate over 2018, 2019, and 2020. Poland and Slovenia are the European countries with the highest rate in 2020 with 96.5% and 93.4% respectively, while Finland and Estonia are the lowest (around 70%)[4]. The Netherlands obtains a good ranking too, with 92.07% of enrolment rate. The Netherlands' data show positive results also in terms of upper secondary graduation rates, consistently above 80% – specifically 82.3%, 82.8%, and 86.2% in 2018, 2019, and 2020 respectively. While this upward trend reflects both high enrolment and an education system capable of retaining students until graduation, it is important to highlight that the increase observed in 2020 is likely COVID-related. During the pandemic, many education systems, including that of the Netherlands, implemented more lenient assessment and graduation policies to mitigate disruptions. As such, the higher graduation rate in 2020 should be interpreted with caution, as it may not fully reflect structural improvements in student retention or achievement, but rather temporary policy adjustments in response to the pandemic context.

[4] Both cases must be treated with caution, as the high variability over these years does not allow for precise considerations due to statistical errors in prediction.

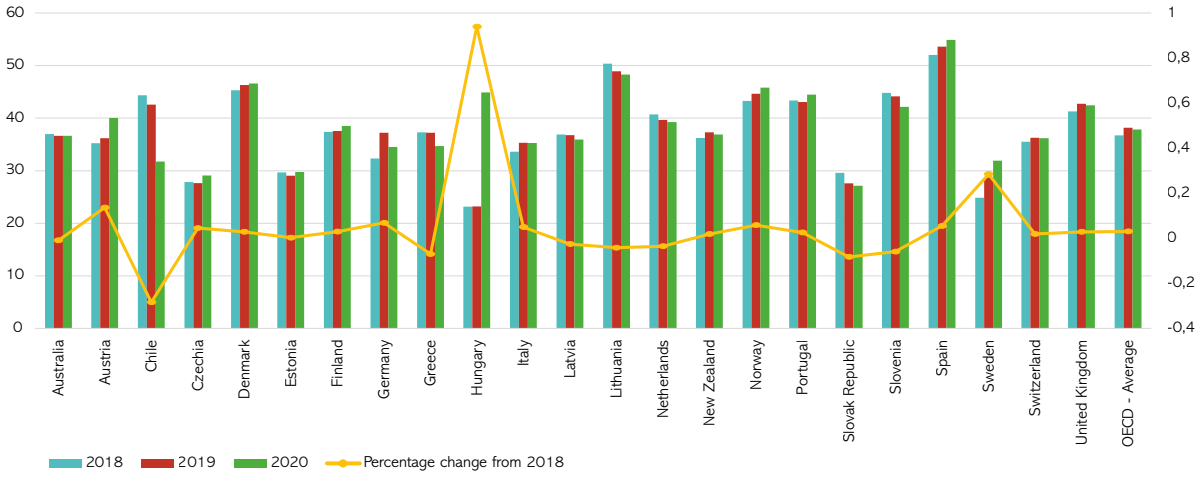
*Figure 3: Upper secondary education graduation rate from 2018 to 2020*




Moving to the tertiary education outputs, Figure 4 shows the tertiary graduation rate from 2018 to 2020. The indicator represents the expected probability of an individual graduating for the first time from tertiary education before reaching a specific age threshold. Specifically, age 30 is used as the upper limit for completing bachelor's degrees and first-time tertiary education overall. In contrast, age 35 is considered the upper age limit for graduation at the master's and doctoral levels. It is important to note that international students are excluded from this calculation.

The Netherlands shows a slight downward trend over the period, with the graduation rate falling from 40.7% in 2018 to 39.2% in 2020. However, the indicator does not account for international students and the reduction of foreign students may lead to lower reported rates, as these individuals are not considered first-time graduates within the country's education system. The variations in tertiary graduation rates should be interpreted with caution, particularly in nations where international mobility plays a significant role in higher education. Figure 4 also shows that some countries have particularly high graduation rates, such as Spain, Lithuania, and Portugal, which all have rates above 40%, with Spain reaching 54.9% in 2020, one of the highest among OECD countries. Looking at the trends, some countries experienced relevant increases in their graduation rates, for example, increases in the rate from 35.2% in 2018 to 40% in 2020. Hungary also recorded a significant growth from 23.2% in 2018 to 44.9% in 2020. Conversely, several countries have declined in their tertiary graduation rates, for example Chile, Greece, and Slovenia.

*Figure 4: Tertiary graduation rate from 2018 to 2020*



#### 4.2.3.1. PISA indicators of educational achievement

The OECD conducts internationally standardised and nationally representative tests to measure the performance of 15-year-olds in reading, mathematics, and science (PISA). It has carried out surveys every three years since 2000, and 2022. Performance scores are standardised, with a mean of 500 test-score points and a standard deviation of 100 points across the OECD countries. As explained by the OECD (2014a), not all PISA results can be compared over time due to differences in scaling, sampling, and testing conditions. To assess the last years' trends of students' performance, the waves of 2009, 2012, 2015, 2018, and 2022 of the three subjects are considered in this chapter.

Table 3 documents the average scores by countries between 2009 and 2022 for the three subjects. The Netherlands performed above the OECD average across almost all PISA waves and in all three subjects: mathematics, reading, and science. However, despite these relatively strong performances, the trend over time is negative, with declining scores from 2009 to 2022. This pattern is observed in several other countries as well. It is worth noting that PISA results are generally considered robust and internationally comparable, as they are based on large and representative samples, and use consistent methodologies across cycles. However, some caution is needed when interpreting long-term trends, particularly for reading, due to changes in the assessment framework introduced in 2018 and the transition to computer-based testing (OECD, 2023b, Annex A7). In this regard, the recent drop in scores appears to be particularly pronounced in the last two PISA cycles (2018 and 2022) rather than indicating a continuous decline over the entire period from 2009 to 2022. This suggests that the decline is a more recent phenomenon, potentially linked to broader social and educational disruptions, including the COVID-19 pandemic. Bulgaria, Cyprus, and Romania are the countries that achieved the lowest scores in 2022, while Northern European countries had the highest scores. The top positions in the three rankings are occupied by Estonia, Canada, and Finland for science; Estonia, Canada, and the Netherlands for mathematics; and Ireland, Canada, and the United States for reading.

*Table 3: Standardised test scores in PISA from 2009 to 2022 in mathematics, reading, and science*

| | | math | | | | | reading | | | | | science | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | Country | 2009 | 2012 | 2015 | 2018 | 2022 | 2009 | 2012 | 2015 | 2018 | 2022 | 2009 | 2012 | 2015 | 2018 | 2022 |
| Western Europe | Ireland | 487 | 501 | 504 | 500 | 492 | 496 | 523 | 521 | 518 | 516 | 508 | 522 | 503 | 496 | 504 |
| Northern America | Canada | 527 | 518 | 516 | 512 | 497 | 524 | 523 | 527 | 520 | 507 | 529 | 525 | 528 | 518 | 515 |
| Northern America | United States | 487 | 481 | 470 | 478 | 465 | 500 | 498 | 497 | 505 | 504 | 502 | 497 | 496 | 502 | 499 |
| Oceania | New Zealand | 519 | 500 | 495 | 494 | 479 | 521 | 512 | 509 | 506 | 501 | 532 | 516 | 513 | 508 | 504 |
| Oceania | Australia | 514 | 504 | 494 | 491 | 487 | 515 | 512 | 503 | 503 | 498 | 527 | 521 | 510 | 503 | 507 |
| Western Europe | United Kingdom | 492 | 494 | 492 | 502 | 489 | 494 | 499 | 498 | 504 | 494 | 514 | 514 | 509 | 505 | 500 |
| Central and Eastern Europe | Estonia | 512 | 521 | 520 | 523 | 510 | 501 | 516 | 519 | 523 | 490 | 528 | 541 | 534 | 530 | 526 |
| Northern Europe | Finland | 541 | 519 | 511 | 507 | 484 | 536 | 524 | 526 | 520 | 490 | 554 | 545 | 531 | 522 | 511 |
| Central and Eastern Europe | Poland | 495 | 518 | 504 | 516 | 489 | 500 | 518 | 506 | 512 | 489 | 508 | 526 | 501 | 511 | 499 |
| Northern Europe | Denmark | 503 | 500 | 511 | 509 | 489 | 495 | 496 | 500 | 501 | 489 | 499 | 498 | 502 | 493 | 494 |
| Central and Eastern Europe | Czech Republic | 493 | 499 | 492 | 499 | 487 | 478 | 493 | 487 | 490 | 489 | 500 | 508 | 493 | 497 | 498 |
| Northern Europe | Sweden | 494 | 478 | 494 | 502 | 482 | 497 | 483 | 500 | 506 | 487 | 495 | 485 | 493 | 499 | 494 |
| Southern Europe | Italy | 483 | 485 | 490 | 487 | 471 | 486 | 490 | 485 | 476 | 482 | 489 | 494 | 481 | 468 | 477 |
| Western Europe | Austria | 496 | 506 | 497 | 499 | 487 | 470 | 490 | 485 | 484 | 480 | 494 | 506 | 495 | 490 | 491 |
| Western Europe | Germany | 513 | 514 | 506 | 500 | 475 | 497 | 508 | 509 | 498 | 480 | 520 | 524 | 509 | 503 | 492 |
| Western Europe | Belgium | 515 | 515 | 507 | 508 | 489 | 506 | 509 | 499 | 493 | 479 | 507 | 505 | 502 | 499 | 491 |
| Southern Europe | Portugal | 487 | 487 | 492 | 492 | 472 | 489 | 488 | 498 | 492 | 477 | 493 | 489 | 501 | 492 | 484 |
| Northern Europe | Norway | 498 | 489 | 502 | 501 | 468 | 503 | 504 | 513 | 499 | 477 | 500 | 495 | 498 | 490 | 478 |
| Central and Eastern Europe | Latvia | 482 | 491 | 482 | 496 | 483 | 484 | 489 | 488 | 479 | 475 | 494 | 502 | 490 | 487 | 494 |
| Central and Eastern Europe | Croatia | 460 | 471 | 464 | 464 | 463 | 476 | 485 | 487 | 479 | 475 | 486 | 491 | 475 | 472 | 483 |
| Western Europe | France | 497 | 495 | 493 | 495 | 474 | 496 | 505 | 499 | 493 | 474 | 498 | 499 | 495 | 493 | 487 |
| Southern Europe | Spain | 483 | 484 | 486 | 481 | 473 | 481 | 488 | 496 | | 474 | 488 | 496 | 493 | 483 | 485 |
| Central and Eastern Europe | Hungary | 490 | 477 | 477 | 481 | 473 | 494 | 488 | 470 | 476 | 473 | 503 | 494 | 477 | 481 | 486 |
| Central and Eastern Europe | Lithuania | 477 | 479 | 478 | 481 | 475 | 468 | 477 | 472 | 476 | 472 | 491 | 496 | 475 | 482 | 484 |
| Central and Eastern Europe | Slovenia | 501 | 501 | 510 | 509 | 485 | 483 | 481 | 505 | 495 | 469 | 512 | 514 | 513 | 507 | 500 |
| Western Europe | Netherlands | 526 | 523 | 512 | 519 | 493 | 508 | 511 | 503 | 485 | 459 | 522 | 522 | 509 | 503 | 488 |
| Central and Eastern Europe | Slovak Republic | 497 | 482 | 475 | 486 | 464 | 477 | 463 | 453 | 458 | 447 | 490 | 471 | 461 | 464 | 462 |
| Southern Europe | Malta | 463 | | 479 | 472 | 466 | 442 | | 447 | 448 | 445 | 461 | | 465 | 457 | 466 |
| Southern Europe | Greece | 466 | 453 | 454 | 451 | 430 | 483 | 477 | 467 | 457 | 438 | 470 | 467 | 455 | 452 | 441 |
| Central and Eastern Europe | Romania | 427 | 445 | 444 | 430 | 428 | 424 | 438 | 434 | 428 | 428 | 428 | 439 | 435 | 426 | 428 |
| Central and Eastern Europe | Bulgaria | 428 | 439 | 441 | 436 | 417 | 429 | 436 | 432 | 420 | 404 | 439 | 446 | 446 | 424 | 421 |
| Southern Europe | Cyprus | | | 437 | 451 | 418 | | 449 | 443 | 424 | 381 | | 438 | 433 | 439 | 411 |
| Western Europe | Luxembourg | 489 | 490 | 486 | 483 | | 472 | 488 | 481 | 470 | | 484 | 491 | 483 | 477 | |

The second data elaboration using PISA scores is reported in Figures 5a, 5b, and 5c, one for each subject of assessment. The analysis shows the average score in the four PISA waves, together with the percentage change from 2009 to 2022.

The Netherlands presents a clear example of declining student scores across all three subjects. In mathematics, although still among the top performers in 2022, the Netherlands has experienced a downward trend over time, with an overall score reduction of 6.24% between 2009 and 2022. In reading, it faced the largest decline among the OECD, with a reduction of 9.72% – almost 50 points between 2009 and 2022. In science as well, the Dutch students recorded a decrease of 6.55%. These trends are coherent with the patterns observed in many other countries. Focusing on mathematics, only a few countries show an increase from 2009 to 2022 with Ireland, Malta, Croatia, Latvia, and Romania improving their scores by 1.0%, 0.67%, 0.67%, 0.22%, and 0.22%, respectively. On the contrary, the most substantial declines are recorded in Finland (−10.45%), New Zealand (−7.76%), and Greece (−7.74%). Despite this, Finland still scores above the OECD average. Turning to reading scores, the Dutch system is followed by Greece (−9.27%) and Finland (−8.56%), while Ireland (+4.11%), Austria (+2.07%), and the Czech Republic (+2.26%) stand out for their improvements. Ireland has consistently maintained scores above 500, reinforcing its strong position in reading performance. Finally, regarding science, Malta and Latvia show slight improvements, with score increases of 1.01% and 0.02%, respectively. However, the overall trend remains negative, as most countries experienced a decline in science performance. Finland (−7.77%), the Netherlands (−6.55%), and the Slovak Republic (−5.77%) recorded the largest decreases.

*Figure 5a: PISA mathematics scores from 2009 to 2022 – absolute mean and percentage increase*

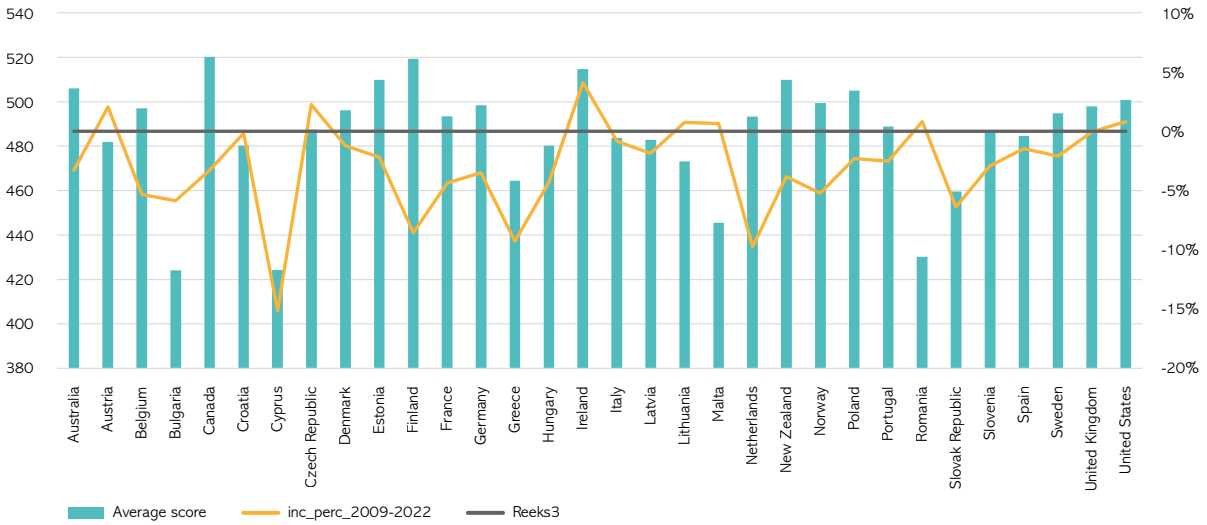



*Figure 5b: PISA reading scores from 2009 to 2022 – absolute mean and percentage increase*

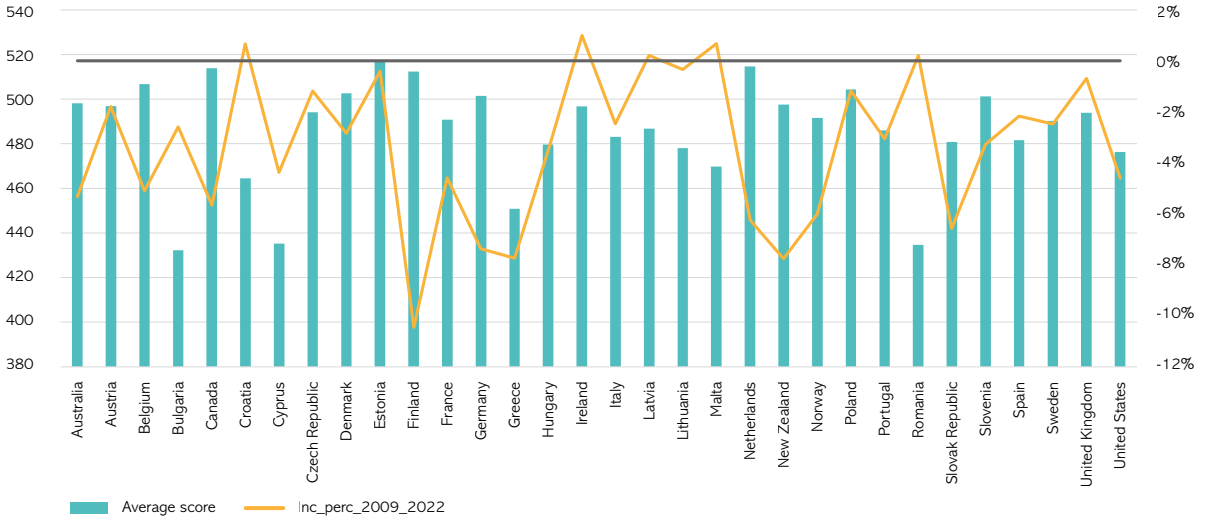
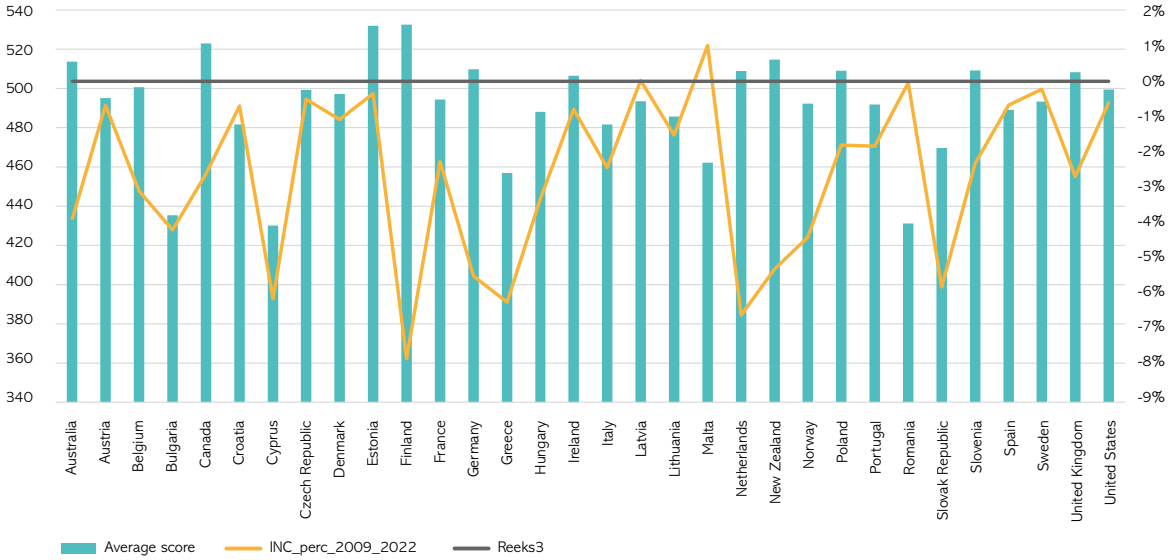



*Figure 5c: PISA science scores from 2009 to 2022 – absolute mean and percentage increase*



#### 4.2.3.2. ICCS indicators of civic knowledge, value beliefs, and attitudes

The general cognitive skills obtained through studying the traditional subjects discussed above enable people to find jobs and become active citizens. However, active citizenship shows different dimensions, beyond their academic performance achievement. In this view, the International Civic and Citizenship Education Study (ICCS) investigated how young people are prepared to undertake their roles as citizens in several countries in the second decade of the twenty-first century. The assessments, taking place in 2011, 2016, and 2022, cover students' knowledge and understanding of civic and citizenship, together with their value beliefs, attitudes, and activities. The 2016 and the 2022 assessments are a continuation of the one from 2009, showing the comparison of the three waves and giving an idea about how education systems evolved in shaping students' civic attitudes and values. ICCS targeted 8th grade students (enrolled in lower secondary school), involving 2,800 schools across 24 countries in its latest cycle. While 21 countries participated in 2009 and 13 in 2016, the ICCS 2022 edition expanded the number of participating countries to 19. To give the reader an overview, ICCS aims at investigating four spheres of civic and citizenship participation:

1. Students' knowledge and understanding of civics and citizenship and the factors associated with variations in this civic knowledge;
2. Students' current and expected future involvement in civic-related activities, their perceptions of their capacity to engage in these activities, and their perceptions of the value of civic engagement;
3. Students' beliefs about contemporary civil and civic issues in society, including those concerned with civic institutions, rules, and social principles (democracy, citizenship, and diversity), as well as their perceptions of their communities and threats to the world's future;
4. The ways in which countries organise civic and citizenship education, with a particular focus on general approaches, the curriculum and its delivery, and the processes used to facilitate future citizens' civic engagement and interaction within and across communities.

In this chapter, a selection of ICCS variables is used as outcome indicators: the civic knowledge measure (i), measures of attitudes towards equal gender rights (ii), and attitudes towards equal rights for ethnic groups (iii).

The ICCS civic knowledge reporting scale represents students' knowledge and understanding of concepts and issues related to civics and citizenship. The items measure different aspects of citizenship and society, including students' understanding of civic and political institutions, the functioning of government systems, and citizens' rights, as well as their ability to apply knowledge to concrete situations. The scale is standardised with an average score of 500 and a standard deviation of 100, allowing for international and temporal comparisons.

The indicator about attitudes towards gender rights, instead, is the mean of answers to the following statements student need to evaluate on a Likert scale: "Men and women should have equal opportunities to take part in government"; "Men and women should have the same rights in every way"; "Women should stay out of politics"; "When there are not many jobs available, men should have more right to a job than women"; "Men and women should get equal pay when they are doing the same jobs"; "Men are better qualified to be political leaders than women".

The indicator about beliefs towards equal rights for ethnic groups is calculated with the same procedure. The sentence to be evaluated by students are the following: "All ethnic groups should have an equal chance to get good jobs in [country name]"; "schools should teach students to respect members of all ethnic groups"; "members of all ethnic groups should be encouraged to run in elections for political office"; "all ethnic groups should have an equal chance to get a good education in [country]" (92%); and "members of all ethnic groups should have the same rights and responsibilities".

The main results from the 2022 assessment (Table 4) can be summarised as follows. The Netherlands shows a moderate score in civic knowledge (508), below countries such as Spain (510), France (508), and Italy (523), but still close to the average. In terms of attitudes, it shows better results in support for gender equality, with a score of 52, while the score for ethnic equality is lower, at 49, suggesting potential differences in perceptions of equality among demographic groups.

The highest scores in civic knowledge are shown by Sweden and Poland, with scores of 565 and 554 respectively, while the lowest are observed in Bulgaria (456) and Colombia (452). Malta, despite ranking lower in civic knowledge (490), exhibited one of the highest scores in attitudes towards gender and ethnic equality, scoring 54 and 52 respectively. Finally, although Estonia scores high in civic knowledge (545), it shows relatively lower support for equal rights, with both gender and ethnic equality scores at 51.

*Table 4: Performance in the ICCS test in 2022*

| Region | Country | | Country | Civic Knowledge Score | Gender Equality Score | Ethnic Equality Score |
|---|---|---|---|---|---|---|
| Central and Eastern Europe | Croatia | | Chinese Taipei | 583 | 58 | 58 |
| Central and Eastern Europe | Poland (*) | | Sweden | 565 | 56 | 57 |
| Central and Eastern Europe | Slovak Republic (*) | | Poland | 554 | 51 | 50 |
| Central and Eastern Europe | Slovenia | | Estonia | 545 | 51 | 51 |
| Central and Eastern Europe | Bulgaria | | Croatia | 531 | 54 | 52 |
| Central and Eastern Europe | Lithuania | | Norway | 529 | 52 | 56 |
| Central and Eastern Europe | Estonia | | Slovak Republic | 501 | 49 | 49 |
| Central and Eastern Europe | Latvia | | Netherlands | 508 | 52 | 49 |
| Northern Europe | Finland | | Lithuania | 509 | 49 | 54 |
| Northern Europe | Sweden | | Slovenia | 504 | 50 | 50 |
| Northern Europe | Norway | | Spain | 510 | 55 | 52 |
| Northern Europe | Denmark | | France | 508 | 56 | 54 |
| Oceania | New Zealand (*) | | Italy | 523 | 56 | 54 |
| Southern Europe | Italy | | Latvia | 490 | 48 | 48 |
| Southern Europe | Malta | | Cyprus | 459 | 51 | 50 |
| Southern Europe | Cyprus (*) | | Romania | | 50 | 52 |
| Southern Europe | Greece (*) | | Serbia | | 47 | |
| Southern Europe | Spain (*) | | Malta | 490 | 54 | 52 |
| Western Europe | Belgium (Flanders) | | Colombia | 452 | 48 | 51 |
| Western Europe | Netherlands | | Bulgaria | 456 | 46 | 49 |
| Western Europe | Austria (*) | | ICCS 2022 average | | 52 | 52 |
| Western Europe | Ireland (*) | | | | | |
| Western Europe | Luxembourg (*) | | | | | |

#### 4.2.3.3. Socio-emotional learning

In recent years, in addition to traditional test scores and civic engagement, increasing attention has been given to social emotional learning (SEL) as a core outcome of education systems. SEL refers to the set of processes through which individuals acquire skills to understand and manage emotions, set and achieve goals, feel and show empathy, establish positive relationships, and make responsible decisions[5]. These competencies are now considered foundational to academic success. A growing body of research has shown that SEL is associated not only with improvements in emotional and interpersonal skills, but also to higher academic performance and reduced behavioural problems (Taylor et al., 2017).

Despite growing interest, internationally comparable indicators to directly assess social SEL outcomes are still lacking. However, PISA 2022 provides several indirect metrics that can shed light on students' emotional and social development. One such metric is students' reported well-being, which is closely associated with SEL in the literature, as emotional regulation and self-awareness are key components of both constructs. In the Netherlands, for example, students report relatively high levels of subjective well-being, with an average score of 7.29 compared to the OECD average of 6.75 (on a scale from 0 to 10). Moreover, the proportion of students reporting low life satisfaction (below 4) is very small. The social climate in Dutch schools also appears favourable. The index of sense of belonging (with an average of 0 and a standard deviation of 1 across OECD countries) stands at 0.10 in the Netherlands, compared to the OECD average of −0.02.

Although comparable indicators are still limited, it is important to be aware that SEL is likely to become central in the future as one of the key dimensions of the education system.

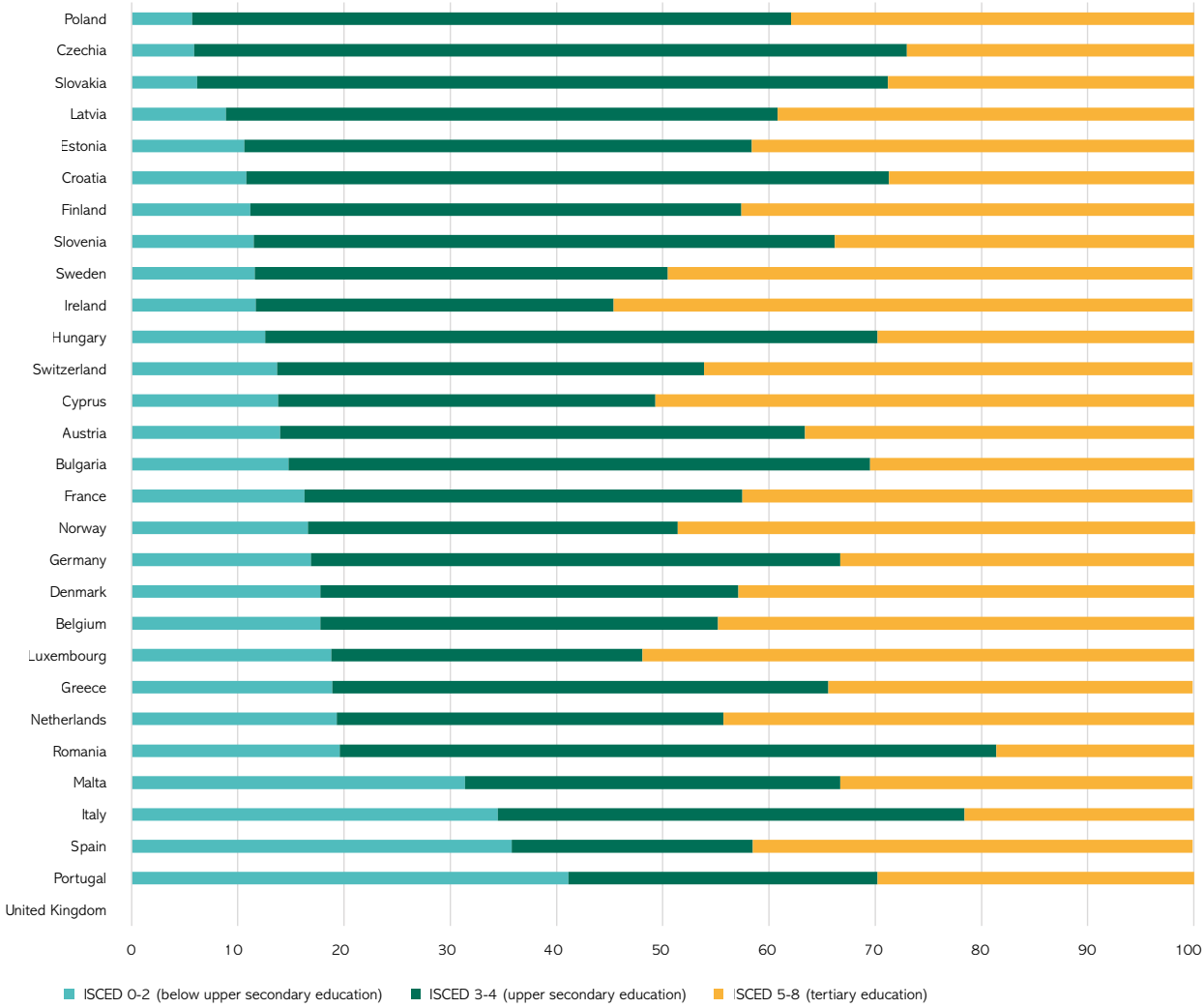
#### 4.2.3.4. Educational attainment

Another outcome indicator measures the highest level of education completed by the 25–64-year-old population. In Figure 6, the attainment levels are divided into below upper secondary, upper secondary, and tertiary education in 2023 (the latest available data). The idea behind this representation is to give an overview of the composition of educational completion among countries.

[5] See Fundamentals of SEL - CASEL.

The Netherlands is aligned with the average, with 19% of the population with below upper secondary education, 36% with upper secondary education, and 44% with tertiary education. Countries belonging to the Eastern and Central Europe, such as Lithuania, the Czech Republic, Poland, and the Slovak Republic show the lowest rate of primary educational attainment, while the highest are registered in Portugal (41%), Spain (36%), Italy (34.5%), and Malta (31%). When considering tertiary education attainment, Italy is among the last positions, with only 21% of the adult population with a degree. At the top of this ranking, Ireland (55%) and Luxembourg (52%) show the highest percentage of graduates among 25–64 year-olds.
Among the countries with the lowest share of 25–64 year-old population with tertiary education, Italy presents a sizeable share of the 25–64-year-old population with an educational attainment below upper secondary education (44%). In general, almost all countries display a higher share of the 25–64-year-old population with upper secondary education than below upper secondary education, with few remarkable exceptions –Spain (35% vs 23%) and Portugal (41% vs 29%).

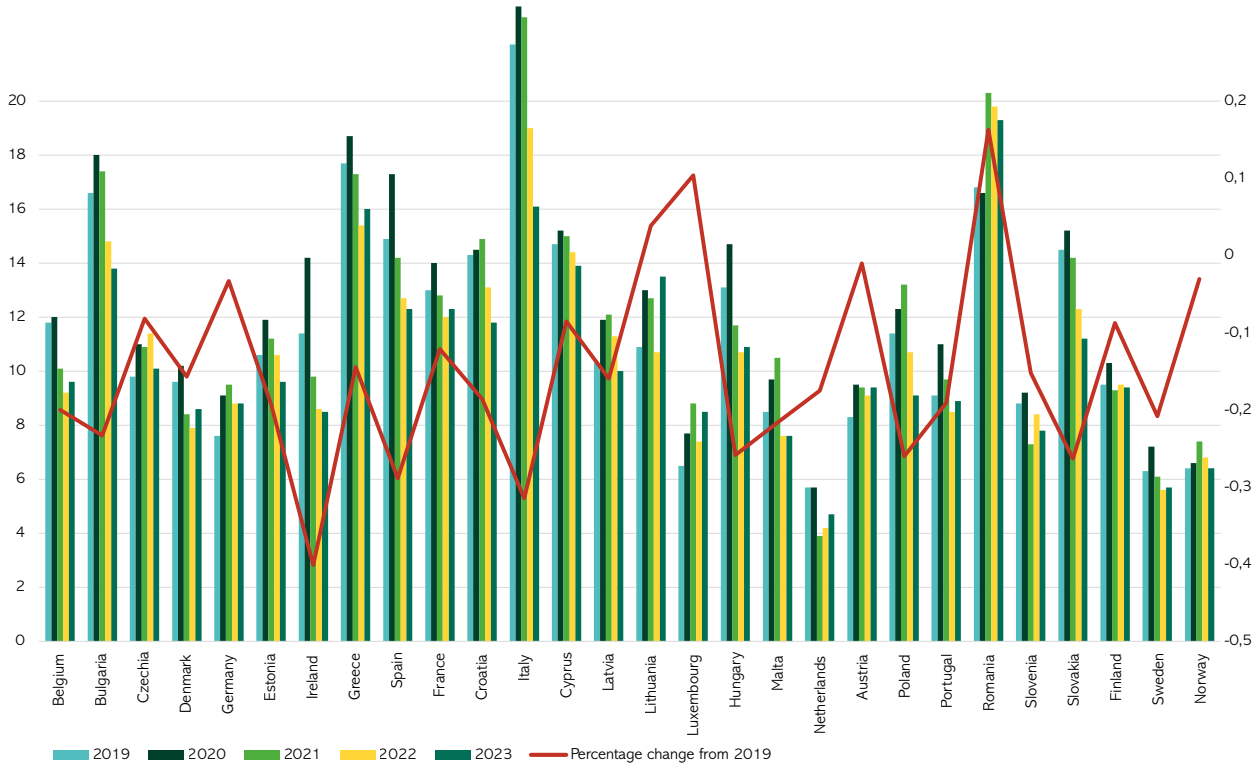
*Figure 6: 25–64 years old population by educational attainment level in 2023*




Another important indicator related to the educational system is the share of young people aged 15–29 in the EU who are NEET. Reducing this rate is one of the targets of the European Pillar of Social Rights; the goal is to lower the rate to 9% in 2030. This measure provides insights into the effectiveness of education systems in preparing students for the labour market and ensuring their participation in economic and social life.
Figure 7 illustrates the evolution of NEET rates across European countries over the last four years. The data reveal significant disparities among countries, with the Netherlands (4.7%) and Sweden (5.7%) registering the lowest NEET rates in 2023. In contrast, Romania and Italy showed the highest at 19.3% and 16.1%. These results place the Netherlands well below the European Pillar of Social Rights target of reducing the NEET rate to 9% by 2030.

However, it should be noted that the Netherlands' NEET rates recorded a small increase in 2023, after reaching its lowest level in 2021 (3.9%), suggesting that continuous attention is needed to sustain long-term improvements. The EU average is approximately 10.5%, showing an overall decreasing trend compared to pre-pandemic levels. Between 2019 and 2020, most countries experienced an increase in NEET rates influenced by the impact of the COVID-19 pandemic, which disrupted labour markets and education systems. However, by 2021 and 2022, many countries saw a significant recovery. Italy, for instance, decreased its NEET rate from 23.5% in 2020 to 16.1% in 2023, while Spain followed a similar trend, reducing its rate from 17.3% in 2020 to 12.3% in 2023. On the other hand, Romania remains one of the countries with the highest NEET rates in Europe. Some countries that initially experienced an increase in NEET rates, such as Lithuania and Luxembourg, have not yet fully recovered to 2019 levels. However, the general trend in NEET rates is encouraging, with most countries decreasing the rates. The persistence of disparities underscores the need for continued efforts to support youth integration into education and employment.

*Figure 7: NEET rates among young people (aged 15–24), 2019–2023*




### 4.2.4. Conclusion

The cross-country benchmarking analysis presented in this section provides an overview of the Dutch education system within the broader international context. Overall, the Netherlands performs well on many structural and outcome indicators. Public investment in education has remained stable as a share of GDP, while per-student spending has increased across all educational levels, particularly at the secondary level. This reflects a combination of demographic trends and increased levels of funding. In terms of outcomes, the Netherlands shows high levels of enrolment and upper secondary graduation, as well as one of the lowest NEET rates in Europe, already outperforming the EU 2030 target. However, some areas deserve closer attention. PISA scores reveal a recent downward trend across all subjects, especially in reading, where the Netherlands experienced the largest decline among OECD countries. These mixed results confirm the value of international benchmarking exercises for identifying both strengths and challenges. While the Dutch education system benefits from a solid institutional structure and delivers strong average performance, it also faces emerging issues that are common to many advanced economies. The second part of this chapter therefore shifts the focus from descriptive benchmarking to policy analysis. It explores selected challenges that are particularly relevant in the Dutch context, such as teacher shortages, educational inequality, and declining performance in reading and mathematics test scores, and discusses the main literature results and evidence-based practices from other systems that may offer useful insights and inspiration for future policy development.

# 4.3. EVIDENCE-BASED SOLUTIONS FOR TEACHER SHORTAGES

### 4.3.1. Introduction

The availability of qualified teachers is a key pillar of an effective education system. Teachers are instrumental in shaping students' learning outcomes, fostering equity, and ensuring societal progress. In many countries, however, education systems face increasing difficulties in attracting and retaining teachers; the Netherlands is no exception. Recent evidence underscores that teacher shortages are not only widespread but also persistent and increasingly unequally distributed across regions, sectors, and disciplines (OCW, 2023).

The urgency of the issue is evident from current statistics: as of 2023, the Dutch education system reports a shortage of approximately 9,800 full-time equivalent (FTE) teachers in primary education and 3,800 FTE in secondary education (OCW, 2023). In the major urban areas – commonly referred to as the G5 (Amsterdam, Rotterdam, The Hague, Utrecht, and Almere) – shortages are even more pronounced. This urban–rural divide is mirrored by disparities in subject-specific shortages: chronic shortages persist in core subjects such as mathematics, physics, chemistry, computer science, Dutch, and several foreign languages.

These shortages are not solely a matter of numbers but of educational quality and equity. Teacher shortages contribute to a reliance on underqualified personnel, increased workloads for existing staff, and frequent disruptions due to unfilled positions or ad hoc replacements. In disadvantaged schools – often serving students from lower socio-economic backgrounds – these issues are particularly acute. As documented in recent Dutch research, such schools are more likely to experience high staff turnover and are less likely to retain experienced teachers, thereby exacerbating educational inequalities (OCW, 2023).
Although recent policy efforts have led to a closing of the wage gap between primary and secondary education teachers, and the average gross monthly salary has increased significantly (e.g. from €4,000 in 2017 to €5,800 in 2023 in primary education), these financial incentives have not sufficed to reverse broader trends in teacher supply (OCW, 2023). Structural factors continue to undermine the attractiveness of the teaching profession. These include limited career progression opportunities, perceived high workload, high rates of part-time employment (with only 30% of primary teachers working 0.9 FTE or more), and a relatively high proportion of older teachers approaching retirement age (21% of primary school teachers are over 55). Furthermore, while enrolments in teacher education (e.g. Pedagogische Academie Basisonderwijs – PABO) have stabilised in recent years, dropout rates and delays in transitions to full-time teaching roles remain a concern.

Projections for the future are not reassuring. According to long-term labour market forecasts, teacher shortages in the Netherlands are expected to persist throughout the coming decade. While a short-term dip in primary education shortages may occur due to demographic changes, a subsequent rise is projected due to increased student numbers and ongoing retirements (OCW, 2023). In secondary education, shortages are expected to remain stable or even increase slightly, especially in science, technology, engineering, and mathematics (STEM)-related subjects.

Addressing these challenges is not straightforward. The dynamics of teacher shortages are shaped by a complex interplay of supply and demand factors including demographic trends, labour market competition, policy decisions, and societal perceptions of the profession. The Netherlands shares many of these challenges with other European countries, yet the severity of its regional and subject-specific shortages calls for targeted and evidence-based interventions.
This section aims to contribute to the policy debate by providing an overview of the situation in the Netherlands, benchmarking it against international best practices, and offering actionable insights based on a synthesis of recent literature. Drawing from both empirical evidence and comparative case studies, this section highlights strategies that can inform national and regional policies to better attract, retain, and support teachers in the Dutch context.

### 4.3.2. Best practice countries

While no system is entirely free of teacher shortages, some countries have lower levels of teacher vacancies.
This section highlights a few best practices and tries to identify why these countries avoided widespread shortages or significantly mitigated them, even under changing demographics.

#### 4.3.2.1 Finland

Finland maintains relatively high teacher qualification rates, yet the NLS (2023) report points to emerging teacher shortages, particularly in early childhood education (ECE). Stringent qualification requirements for ECE (bachelor's level training in pedagogy) have combined with increasing enrolments and policy reforms to heighten staff demand. Large cities, such as Helsinki, report shortfalls exceeding 40% for qualified ECE teachers in some districts (NLS, 2023). Under the Finnish Decree on qualification requirements (1998), a class teacher must hold a master's degree in primary education (Sahlberg, 2014). Municipalities and private schools typically advertise positions, with principals or heads of day care centres conducting interviews before a board formalises hiring. The NLS (2023) report confirms that only qualified teachers can receive permanent appointments in Finland; unqualified personnel can be recruited for no longer than a 12-month temporary period if no suitable applicants apply. Key factors and policy measures in Finland include first of all, the high-quality initial teacher education (ITE) programmes. Finland's high standards for teacher education historically helped stabilise supply. However, the NLS (2023) notes that ECE teacher education has been under-dimensioned for decades, resulting in a mismatch as ECE enrolment grows. Secondly, recent policy discussions revolve around increasing the annual intake of ECE teacher trainees and offering more permanent university funding lines (OECD, 2020). Despite continued competitiveness in teacher programmes overall, the NLS (2023) concludes that Finland must implement long-term workforce planning for ECE, strengthen teacher induction, and expand geographic incentives to ensure sustainable staffing.

#### 4.3.2.2 Singapore

Singapore consistently reports minimal teacher vacancy rates, with education authorities anticipating staffing needs years in advance (OECD, 2020). A key factor is the country's centralised workforce planning under the Ministry of Education, which tracks demographic and enrolment trends to align teacher supply with demand (Darling-Hammond et al., 2010). Furthermore, Singapore's well-defined career ladders (e.g. Master Teacher, Senior Specialist) offer clear progression paths. This system, combined with competitive salaries relative to other professions, signals that teaching can be a lifelong and rewarding career (EENEE-NESET, 2023). Schools also emphasise structured professional development and routine sharing of best practices, thus fostering a collaborative culture.

#### 4.3.2.3 Canada

Canada's overall teacher supply–demand balance has remained stable, though variations exist by province. Provinces such as Ontario have historically moderated teacher education enrolments based on labour forecasts, thus avoiding oversaturation in some areas and shortages in others. Many Canadian school boards also provide a comprehensive induction for newcomers. For instance, the New Teacher Induction Program in Ontario offers mentorship, additional training, and classroom feedback, lowering first-year attrition (Kutsyuruba et al., 2024). In tandem, compensation packages – especially in urban districts – remain competitive, preventing large-scale migration to other professions (EENEE-NESET, 2023).

#### 4.3.2.4 Denmark

Denmark has experienced persistent teacher shortages, particularly in public primary and lower secondary schools, where projections estimate a need for 13,000 additional teachers by 2030 (NLS, 2023). The shortage is even more pronounced in ECE, with a forecasted deficit of around 8,000 pedagogues by 2030 due to new child-to-adult ratio legislation. Danish law sets formal qualification requirements for teaching in public (*Folkeskole*) settings: a bachelor's in education (*folkeskolelærer*) or an approved equivalent. Municipalities oversee recruitment, but typically delegate final hiring to individual school heads (NLS, 2023). Private schools face no statutory requirement for teacher education, though most teachers employed there do hold recognised credentials. The Danish Union of Teachers (*Danmarks Lærerforening* – DLF) notes that raising salaries has become urgent especially for early childhood educators, who are among the lowest paid bachelor-level professionals in the public sector (NLS, 2023). Additional proposed measures include expanding *meritpædagog* (bridging programmes) for teaching assistants and unskilled staff, while improving mentorship for novices. To improve teacher supply, Denmark's Ministry of Children and Education aims to expand teacher education enrolment and strengthen induction programmes, especially in municipalities with acute shortages (NLS, 2023). The NLS (2023) also recommends re-recruiting the 28,000 qualified teachers currently not in teaching.

#### 4.3.2.5 Norway

Norway maintains relatively strict qualification requirements, and data indicate comparatively low percentages of unqualified teachers at the primary and secondary levels. Yet NLS (2023) emphasises that shortages persist in rural areas and in certain subjects, while ECE experiences an ongoing shortfall of qualified kindergarten teachers. Teacher qualifications are defined by the Norwegian Education Act and Kindergarten Act. Municipalities serve as employers, although the practical hiring authority typically resides with the heads of kindergartens or schools (NLS, 2023).

By law, an open application process is required, and only fully qualified teachers should receive permanent contracts. However, a temporary position can be offered if no fully qualified applicants emerge. Norway's teacher pay is relatively competitive, although cost of living and alternative career paths can deter potential candidates. Efforts to enhance teacher education – including more robust subject-specific training – and to retain older teachers beyond typical retirement ages are cited as key solutions (NLS, 2023). Despite the challenges, Norway's approach underscores the importance of tight qualification requirements, smaller class sizes, and supportive hiring practices. NLS (2023) concludes that bridging strategies, such as tuition-free or partially subsidised advanced training for unqualified staff, can reduce the reliance on temporary dispensations.

### 4.3.3. Evidence-based solutions and literature

Policymakers seeking to mitigate teacher shortages must address both attraction to the profession and retention of qualified teachers. The complexity of teacher shortages – encompassing demographic shifts, regional imbalances, and subject-specific gaps – demands a multilayered approach. This section synthesises interventions recommended in the EENEE-NESET report by De Witte et al. (2023), complemented by examples from across Europe and beyond, as well as the broader academic literature.

#### 4.3.3.1 Teacher-level interventions

**Salary and Financial Incentives**

Studies show higher teacher pay reduces turnover and boosts supply. Hendricks (2014) finds a 1% wage rise lowers turnover by 0.16 points, with the impact greatest for new teachers and fading after 19 years – so early-career rises are more cost-effective than across-the-board increases. Zarkin (1985) estimates a 20% salary increase would raise secondary-teacher supply 14% by drawing certified, inactive teachers back to classrooms. A discrete-choice experiment in England (Burge et al., 2021) suggests a 5% pay boost lifts retention at current schools by 5%. Overall, the literature confirms a positive wage–supply link but, despite these estimates, methodological limits and context-specific findings leave uncertainty about the cost-effectiveness of general increases; targeted financial incentives may yield better returns.

**Workload, Well-being, and Autonomy**

Excessive workload and burnout are key drivers of teacher attrition in countries across Europe (Carrizosa & De Witte, 2023). Multiple EU Member States have invested in teaching assistants to maintain the quality of education, and support teachers (e.g. Flanders, Bulgaria, Ireland, and Lithuania). English teachers would trade a 1% lighter workload for pay worth just 0.77% of salary (Burge et al., 2021). In theory, hiring an assistant who earns under 77% of a teacher's wage and can reliably take over routine tasks could boost job appeal more cheaply than a pay rise (De Witte et al., 2023). Yet Flemish student-teachers value four hours of weekly clerical help at only €83 a month – insufficient to cover an aide's cost (De Cort & De Witte, 2024), so the assistant model may not be economically justified everywhere. This measure has been associated with lower turnover and improved satisfaction. Autonomy can also be a major factor. Systems that grant teachers greater latitude in curriculum design, such as Finland, or in assessment choices, such as in parts of Sweden, report more robust teacher morale (OECD, 2020). Teachers who feel trusted to employ their professional judgment are likelier to remain in the profession, thus diminishing shortages (De Witte et al., 2024).

**Promotional Campaigns and Career Image**

Teacher shortages persist not merely due to poor job conditions but also because of perceptions of the profession. Media campaigns and outreach strategies, used notably in Portugal, rebranded teaching as an intellectually stimulating career path. Likewise, the Netherlands and France have tested marketing campaigns that emphasise societal impact, flexible work arrangements, and room for professional growth (EENEE-NESET, 2023). Although the measured long-term efficacy varies, initial increases in teacher education enrolments suggest that strategic communication about teaching can sway career choices among young graduates.

#### 4.3.3.2 School-level interventions

**School Leadership and Induction**

The role of principals and school leaders is pivotal in mitigating teacher shortages. Schools offering structured induction, mentoring support, and constructive performance feedback can substantially reduce first-year teacher attrition. Comprehensive induction programmes –particularly those pairing novice teachers with experienced mentors – are linked to improved teacher self-efficacy, job satisfaction, and retention rates (De Witte et al., 2023).
In addition, school leaders who foster collaborative cultures – encouraging peer observation, joint lesson planning, and professional learning communities – tend to see higher levels of teacher engagement (Bryant et al., 2023).

For instance, Ireland's Droichead programme (initial teacher induction) supports teacher development through mentorship and peer collaboration, substantially lowering dropout within the first three years of teaching (Teachers' Union of Ireland, 2022). Australian evidence (Burke et al., 2015) shows that would-be leavers value practical, day-to-day supports – shared resources, joint planning, co-teaching, and after-hours advice on discipline – whereas stayers value expert mentoring through lesson observation and reflective dialogue with veteran colleagues.

**Autonomy in Hiring and Remuneration**
Granting schools autonomy over hiring processes and, in some cases, limited flexibility in compensation can streamline vacancy-filling and foster better matches between teachers and local institutional goals (EENEE-NESET, 2023). While national pay scales remain standard in most European systems, local or regional top-ups are being piloted in certain Spanish autonomous communities, targeting rural schools with significant difficulties in attracting permanent staff (Eurydice, 2021).

**Professional Development and Learning Communities**
When professional development (PD) directly aligns with curriculum needs or local challenges, it can significantly boost teacher motivation. Continuing Professional Development (CPD) frameworks in Singapore and certain Canadian provinces offer iterative, job-embedded training, which improves classroom practice and cultivates a sense of professional mastery (OECD, 2020; EENEE-NESET, 2023). In many participating schools, professional learning communities promote peer-to-peer support, encourage reflective practice, and ultimately enhance teacher retention (Borman & Dowling, 2008). Moreover, PD can also create internal specialist roles (e.g. technology lead, literacy coach) that enable career advancement without leaving the classroom. In the UK, PD often leads to internal specialist roles – such as technology leads or literacy coaches – that allow teachers to advance without leaving the classroom. These vertical and lateral career pathways have been linked to improved retention (EENEE-NESET, 2023).

#### 4.3.3.3 System-level interventions

**Diversification of Career Structures**
Moving beyond individual schools, multiple European education systems are experimenting with diversified career frameworks. A well-known example is Singapore's three-track model, which includes a teaching track, a leadership track, and a specialist track. Such structures acknowledge the different strengths of teachers – some excel in classroom instruction, some in administrative leadership, and others in specialised research or pedagogical development. By recognising varied career ambitions, education systems can keep talented professionals within the profession instead of funnelling them all into one promotion pipeline (Kwek et al., 2023).

Several Eastern European countries (e.g. Estonia and Latvia) have introduced new teacher qualification frameworks to establish clearer stages of professional progression, from novice to senior mentor. Early data suggest that teachers who see a longer-term trajectory in their work are more likely to remain (Eurydice, 2021). For example, Estonia's Teacher Career Path model clearly delineates competencies expected at different career stages, linking them to both salary increments and leadership opportunities (EENEE-NESET, 2023).

**Strengthening ITE**
Evidence from diverse contexts, including the Netherlands, Poland, and Ireland, shows that teacher shortages often arise when ITE programmes do not align with contemporary classroom demands. This suggests that policymakers should bolster teacher education programmes in shortage areas – for instance, by offering scholarships to prospective mathematics or special needs teachers, and ensuring practicum components reflect real-world conditions (Gambi & De Witte, 2023). Collaborations between universities and school networks can facilitate practice-based training, such as the PD schools model in the United States or the dual training approach in Austria. These models integrate theory with intensive field experiences, thus better preparing candidates for the realities of teaching (EENEE-NESET, 2023). Research also suggests that robust mentoring during student teaching placements plays a substantial role in reducing early-career attrition (Borman & Dowling, 2008).

**Alternative Entry Routes and Return Pathways**
Teacher shortages can also be alleviated by supporting mid-career transitions and re-entry for those who have left the profession. In the United Kingdom's "Troops to Teachers" initiative, veterans receive structured pathways into teaching, bringing valuable real-world experience, particularly in STEM disciplines (EENEE-NESET, 2023). Likewise, in France, bridging programmes allow high-skilled professionals from technology or finance sectors to obtain teaching credentials more rapidly, encouraging career-switchers to fill persistent vacancies. Additionally, "return to teaching" campaigns – implemented in Germany – provide refresher courses and financial incentives for former educators to

re-enter the workforce (Martens, 2020). By simplifying administrative rehiring procedures and offering short induction updates, some regions have successfully tapped into this underutilised reservoir of experienced teachers.

**Technology-Enhanced Learning**

Finally, while digital solutions are by no means a substitute for qualified teachers, technology can complement the teacher workforce. Online and blended learning models have potential to mitigate shortages – particularly in rural or remote areas, where schools struggle to hire specialists in specific subjects. For instance, Jimenez & De Witte (2025) tested the effectiveness of an AI augmented learning path. They developed an autonomous AI tool that provided elaborated and personalised feedback to students. They observed that the AI tool improved the efficiency of education, and could mitigate the impact of teacher shortages. However, technology alone cannot rectify systemic vacancies; it must be coupled with pedagogical support, robust infrastructure, and teacher training in digital methodologies (OECD, 2020).

#### 4.3.3.4 Concluding remarks on evidence-based strategies

Teacher shortages derive from a variety of factors – ranging from demographic pressures to negative perceptions about teaching (EENEE-NESET, 2023). Policies focusing exclusively on a single dimension (such as pay) are often insufficient in isolation. Instead, coherent policy packages that combine teacher-level, school-level, and system-level interventions consistently yield better results over the long term (Borman & Dowling, 2008; Carrizosa & De Witte, 2023).

Central to success is the recognition that effective solutions must be both locally adapted and coordinated across multiple governance levels. For instance, introducing school autonomy over hiring will be ineffective without national frameworks that ensure competitive salaries or capacity-building for principals (Falch, 2011). Conversely, boosting teacher education enrolments will ring hollow if newly prepared teachers leave within a few years due to high workload or inadequate mentoring support.

By integrating evidence-based insights – such as structured induction, targeted financial incentives, career ladder diversification, and alignment between training institutions and schools – policymakers can move towards more stable, better-equipped, and more equitable teacher workforces. The goal is twofold: to ensure a sufficient quantity of qualified educators to meet rising demands, and to elevate the quality and prestige of teaching so that it remains an attractive, sustainable career choice.

### 4.3.4. Conclusion

Teacher shortages in the Netherlands represent a pressing and multifaceted challenge. Current data show not only a lack of qualified teachers – especially in large urban areas and specific subject domains – but also persistent imbalances in the distribution of existing staff. Low enrolments in teacher education, high rates of attrition, and an ageing workforce contribute to these shortages, putting pressure on already overstretched schools.

Key lessons derived from both national and international research highlight that improving teacher recruitment and retention requires a multilevel approach. Tackling the teacher shortages and their impact requires more than isolated interventions. It is the strategic alignment of interventions – targeting individual teachers, entire schools, and the education system – that delivers impact. Competitive salaries and targeted financial incentives can attract new entrants, but must be coupled with lower workloads, collaborative school environments, and robust PD to ensure teachers remain committed. Evidence suggests that promoting teacher autonomy, providing effective mentoring, and offering clear career pathways reduces turnover and stabilises workforce needs.

Moving forward, the Netherlands can benefit from deepening partnerships between universities and schools to ensure better alignment between teacher training and labour market needs. Equally important is continued support for alternative entry routes, along with innovative programmes to retain experienced teachers. Tackling these shortages in a systematic and evidence-based manner will be key to sustaining high-quality education and equitable outcomes for Dutch students.

# 4.4. EVIDENCE-BASED SOLUTIONS FOR REDUCING EDUCATIONAL INEQUALITY

### 4.4.1. Introduction

Equity is a core value and guiding principle in education policy, rooted in the idea that all individuals should have equal opportunities to reach their full potential regardless of their background (D'Inverno et al., 2025; De Witte et al., 2017). Over the twentieth century, as school enrolment increased, access to education expanded to previously excluded groups (De Witte & Tomini, 2017). Yet, disparities in educational achievement and learning outcomes, particularly along socio-economic lines, persist into the twenty-first century (OECD, 2023b). Although access to pre-primary and higher education has grown, gaps tied to gender, immigration status, location, disability, and other background factors have become more visible (Cherchye et al., 2010).

In the Netherlands, equity in education is defined by the belief that children with equal talent deserve equal opportunities and that a child's educational path should not be influenced by their family's background, economic situation, or special educational needs. This principle aligns with Article 1 of the Dutch Constitution, which prohibits discrimination in all forms (OECD, 2023a). Despite strong overall performance, the Dutch education system continues to struggle with inequalities, particularly for students from lower socio-economic backgrounds and those with a migrant background. Language barriers, socio-economic, and ethnic backgrounds along with the segregation exacerbated by the pandemic crisis constitute major threats to equity if not properly dealt with (OECD, 2020b).

Performance differences between immigrant and non-immigrant students in the Netherlands are largely linked to socio-economic factors and the language spoken at home. Only once these are accounted for, the performance gap in subjects such as mathematics and reading becomes statistically insignificant. The Netherlands remains one of the countries with a large initial gap between immigrant and non-immigrant students, partly explained by a higher share of disadvantaged students among the immigrant population (OECD, 2023b).

As of 2024, nearly 28% of the Dutch population has a migration background, either having been born abroad or having at least one parent who was. Recent increases are driven by arrivals from Ukraine and Syria, as well as continued migration from countries such as Turkey, Morocco, Suriname, and the Dutch Caribbean (Centraal Bureau voor de Statistiek, 2024). These demographic shifts have added pressure to the education system, especially in accommodating newcomers (Inspectie van het Onderwijs, 2024). Education policy in the Netherlands emphasises rapid acquisition of the Dutch language for newcomers. Since 2004, government funding for instruction in immigrant languages such as Turkish and Arabic has been withdrawn. Although cultural diversity is acknowledged in curriculum content, there is limited recognition of the educational value of students' mother tongues. Dutch remains the sole language of instruction, and the integration strategy continues to centre around language proficiency as a primary means of inclusion (Bilgili, 2019).

Schools face challenges, particularly at the secondary level, with many newcomers repeating grades, scoring lower on national assessments, and being disproportionately placed in the lowest educational tracks, which often limit their future educational opportunities (Bilgili, 2019). To this extent, early tracking in the education system represents another structural factor contributing to inequality and to the concentration of advantaged and disadvantaged students in different schools, limiting social interaction across groups and peer effects. In this context, reforms such as flexible pathways, de-stigmatisation of vocational tracks and equitable resource allocation across educational programmes may help mitigate the downsides of early tracking (OECD, 2023b).

Overall, while the Dutch education system performs well in many areas, targeted policies are needed to reduce inequalities and better support disadvantaged students (Inspectie van het Onderwijs, 2024). This section aims to contribute to the policy debate by providing an overview of the situation in the Netherlands, benchmarking it against international best practices, and offering actionable insights based on a synthesis of recent literature. Drawing from both empirical evidence and comparative case studies, the section highlights strategies that can inform national and regional policies to reduce educational inequality in the Dutch context.

### 4.4.2. Best practice countries

#### 4.4.2.1 Estonia

Estonia's education system is structured to provide all students with equal opportunities, regardless of their socio-economic status (D'Inverno et al., 2025). Notably, the country offers universal free school lunches and subsidised kindergarten, ensuring that children from disadvantaged backgrounds have access to essential educational resources from an early age. This approach has contributed to Estonia's high rankings in international assessments, such as PISA, by mitigating the impact of socio-economic disparities on educational outcomes[6]. To facilitate the integration of immigrants, Estonia launched the "Settle in Estonia" programme in 2015. This free and voluntary initiative provides newcomers with comprehensive support, including language courses, cultural orientation and information about public services, working, and studying[7]. Moreover, Estonia employs a comprehensive school system where students with varying abilities learn together, delaying division into vocational or upper secondary education until after basic education (OECD, 2023b).

Recognising the long-term benefits of early education, Estonia ensures that pre-primary education is accessible to the majority of children. In 2018, 95.1% of 15-year-olds confirmed participation in pre-primary education. This high participation rate positively impacts students' learning outcomes and is particularly beneficial for children from lower socio-economic backgrounds (OECD, 2020a). This is the result of a coherent and inclusive ECE system underpinned by strong national policies and sustained government investment. Since 2014, local governments have been legally required to provide preschool opportunities to all children aged 18 months to 7 years, including those with special educational needs, with the Estonian Lifelong Learning Strategy 2020 reinforcing the goal of at least one year of preschool education before school entry (OECD, 2020c). The system is predominantly public, ensuring equitable access across socio-economic groups, and remains affordable for families, with parental fees capped at 20% of the minimum wage, among the lowest in the OECD. High levels of public funding, supported by European structural funds, have expanded access and increased capacity, particularly in urban areas. Language support policies promote integration for non-Estonian speakers, and the overall approach emphasises children's well-being, and social and emotional development, reflecting a holistic vision of early education deeply embedded within Estonia's broader education framework. To address teacher shortages and ensure quality education, Estonia initiated specific teacher education programmes, such as Narva College – the only higher education institution in Estonia primarily focused on preparing teachers for Estonian schools where Russian is the language of instruction. This caters specifically for the needs of the Russian-speaking minority: the "Development of the Language Learning" programme supports Russian-speaking school teachers in studying Estonian with the help of language mentors to aid their PD. "Noored Kooli" (Young People to Schools) provides an alternative path to becoming a qualified teacher to reach more students (Donlevy et al., 2016).

#### 4.4.2.2 South Korea

South Korea has implemented several policies aimed at reducing educational inequality, particularly concerning students from low-income and immigrant backgrounds, often referred to as "multicultural students" (Lee et al., 2023). These students, as ethno-racial minorities with culturally distinct experiences and behaviours, bring diversity into the classroom. In response, government-led multicultural education has focused on addressing their perceived learning needs following the multiculturalist agenda of "embracing diversity" in schools. This includes programmes such as "Korean as a Second Language" and lessons aimed at promoting understanding of cultural differences.

Among different initiatives there is the "Education Welfare Priority Zone Program", that targets schools with a significant number of students from vulnerable social groups, including those from low-income families and multicultural backgrounds (Kim & Lee, 2020). The programme provides intensive support to enhance educational, cultural, and welfare services, aiming to bridge the educational gap.

Recognising the challenges faced by immigrant students, the government offers programmes such as "Rainbow Schools" to assist with language acquisition, cultural adaptation, and career development (Ghazarian, 2018). In February 2025, the South Korean government unveiled plans to improve education for students from multicultural families. The measures include expanding customised educational resources, enhancing teacher training, and introducing visa reforms to facilitate better integration and future employment opportunities for these students[8].

[6] https://www.theguardian.com/lifeandstyle/2024/mar/27/free-lunches-brain-breaks-and-happy-teachers-why-estonia-has-the-best-schools-in-europe
[7] https://www.settleinestonia.ee/programme
[8] https://www.koreatimes.co.kr/southkorea/society/20250211/south-korea-unveils-plans-to-enhance-education-for-students-from-multicultural-families

#### 4.4.2.3 Canada

Canada has introduced several policies to address educational inequality to improve access, support, and outcomes for all learners, especially for students from immigrant families and low-income backgrounds. Recognising the challenges faced by immigrant students, Canadian provinces have developed programmes to support English as an Additional Language (EAL) provision. For instance, in Alberta, immigrant parents have actively advocated for more equitable EAL policies, emphasising the need for inclusive practices that address linguistic barriers and promote social justice in education (Guo, 2021). Some provinces provide extra resources to schools in disadvantaged areas and focus on groups more likely to face exclusion, such as new immigrants, students from low-income families, indigenous youth, and students with special needs (UNESCO, 2020).

### 4.4.3. Evidence-based solutions and literature

This section synthesises the research on policy interventions aimed at fostering equal educational opportunity, particularly concerning school financing as discussed in De Witte et al. (2024), complemented by examples from across Europe and beyond, as well as the broader academic literature.

#### 4.4.3.1 School interventions

**Class-size Reduction**

While some believe smaller classes help learning, evidence is mixed. The STAR (student to teacher achievement ratio) experiment showed positive effects, but these are debated as some research found no extra benefit for disadvantaged students (Hoxby, 2000; Krueger & Whitmore, 2001; Nye et al., 2002; Ding & Lehrer, 2010). A Tennessee study showed a larger positive impact on black children (Shin, 2012). A Dutch study even found worse performance in smaller classes (Dobbelsteen et al., 2002). Overall, effects are usually small and not consistently proven and reducing class sizes is not seen as a very effective or efficient way to improve educational results (Mueller, 2013).

**Extra Funding for ICT – Materials**

Despite the assumption that better ICT helps, studies suggest little effect for investments in ICT to support disadvantaged students. A Dutch study found increased computer use but reduced test scores (Leuven et al., 2008). An Israeli lottery distributing computers also showed lower mathematics scores (Angrist & Lavy, 2002). A UK study found some positive effects in English and science, but not mathematics (Machin et al., 2007). The overall impact on traditional educational outcomes is unclear and costly.

**Extending Programmes**

Policies aim to improve skills by extending education length or teaching time. Extending compulsory education in Norway and Sweden reduced the impact of family background and increased equality (Aakvik et al., 2010; Palme & Meghir, 2005). In Norway the reform extended the compulsory years of schooling from seven to nine years. The school starting age stayed at 7, with the nine-year education structure split into two stages: the initial six years constituted primary education, followed by three years of lower secondary education designed to prepare students for entry into high school. Similarly, in Sweden the main elements of the reform were to increase the compulsory years to nine from seven or eight, to define a national curriculum and to abolish the tracking by ability.
However, increasing daily teaching time in the Netherlands showed no significant effect on test scores (Meyer & Van Klaveren, 2013). A study in southern Italy found extra instruction time in lower secondary school improved scores for the most disadvantaged, but overall effects were mainly due to the highest achievers (Battistin & Meroni, 2016). Simply extending programmes does not always yield expected results, but extending compulsory education seems to reduce inequality.

**Extra Funding for Staff in Schools Serving Disadvantaged Pupils**

Policies that aim to provide additional financial support to schools based on the proportion of disadvantaged students they serve represent a resource-driven approach intended to address inequalities in educational opportunities.
In Belgium, extra funding led to significant improvements only in spelling scores (Ooghe, 2011). A North Carolina study found positive effects on test scores, but the average improvement was not as high as for disadvantaged students (Henry et al., 2010). While these programmes might slightly improve overall outcomes, they are expensive and do not necessarily reduce inequality or lead to improved student outcomes if resources are not used effectively (D'Inverno et al., 2021; Badunenko et al., 2023).

#### 4.4.3.2 Teacher interventions

**Teachers' Working Conditions**

Across Europe, many teachers report feeling only somewhat prepared to work with students from diverse linguistic and cultural backgrounds. This highlights the need for better teacher training that focuses on addressing the needs of disadvantaged students as well as for newly arrived students. Key areas for development include intercultural education and building skills for linguistically responsive teaching (Koehler et al., 2022).

Policies aim to improve working conditions through additional funding for personnel in schools, particularly those serving minority students. However, a Dutch study found that additional funding to improve working conditions in schools with a high percentage of minority students did not significantly impact student achievement (Leuven et al., 2007). Research in New York City suggests that improving school safety, academic expectations, and teacher relationships can reduce teacher turnover, which in turn may increase student achievement (Kraft et al., 2016). Additionally, a study in Israel found that a 50% increase in the principal's salary led to improvements in students' grades (Lavy, 2008). However, the overall causal evidence on the effects of improved teaching rooms is limited.

**Teachers' Wages**

Increasing teachers' pay has been shown to reduce teacher turnover, particularly among inexperienced teachers (Hendricks, 2016). However, the direct causal link between teacher, pay, and student performance is challenging to establish, with studies showing mixed results (Hanushek, 2003). One approach to promote equity involves providing higher salaries in schools with many disadvantaged students to reduce turnover of experienced teachers.
A North Carolina programme offering bonuses to teachers in high-poverty or low-test-score schools reduced teacher turnover, especially among experienced teachers (Clotfelter et al., 2008). However, the effect of this bonus on student test scores was not measured. While higher wages in disadvantaged schools can increase equity by attracting and retaining more experienced (and thus more expensive) teachers, the impact on student outcomes needs further investigation.

**Teachers' Incentives**

Many policies aim to reward teachers who demonstrate the biggest impact on student achievement (value-added). Studies in India and Israel found that both individual and school-based incentives led to significant improvements in student performance (Lavy, 2008; Muralidharan & Sundararaman, 2011). Springer et al. (2016) showed that retention bonuses for effective teachers in disadvantaged schools had a significant positive effect on retention rates in Tennessee, while Steele et al. (2010) found that a California fellowship programme successfully attracted more teachers to low-performing schools with relatively low teacher turnover among participants. Teacher incentives can be more efficient than general wage increases by focusing on retaining and rewarding the most effective teachers in disadvantaged schools, thus potentially increasing equity. However, recent evidence from the Netherlands suggests that salary bonuses for teachers in disadvantaged schools had no significant effect on teacher retention or recruitment in the first year, possibly due to the late implementation and limited visibility of the policy (Visser et al., 2024).

**Group Incentives**

These programmes provide financial benefits to all or a subset of teachers in a school. Lavy (2002) found that in Israel, schools competing for bonuses based on year-to-year improvement in test scores showed significantly higher improvements than a control group. When comparing school-based and teacher-based incentives, the teacher-incentive programme was found to be more efficient in that context. However, Springer et al. (2012) showed that a Texas performance-pay programme for middle school teacher teams had no significant effects on teacher practices or student achievement. Overall, empirical evidence on the effects of group incentives is limited and unclear, requiring further research (Tirivayi et al., 2014).

#### 4.4.3.3 Student interventions

**Vouchers**

An alternative policy approach to support disadvantaged students involves providing additional resources directly to their families, often through school vouchers. These vouchers typically cover some or all school-related expenses, such as tuition fees, and are meant to give families more choice in selecting a school. The goal is to promote equity by enabling disadvantaged students to access a wider range of educational opportunities. Parents are generally free to decide whether to use the voucher and which school to apply it to. The idea behind this system is that it could create more competition among schools, with the expectation that schools delivering better results will attract more students. However, recent studies, including one in Italy, have not found strong evidence to support this assumption (Agasisti, 2011).

Overall, the impact of voucher programmes on student achievement appears mixed, and their effectiveness seems to vary depending on the context in which they are implemented (Urquiola, 2016). Key success factors include whether private schools demonstrate higher productivity rather than simply selecting higher-ability students, the extent to which student sorting is minimised, and thoughtful programme design, such as targeted vouchers, equitable payment schemes, and restrictions on selective admissions, which can enhance competition and improve outcomes for disadvantaged students.

**Conditional Cash Transfer Programmes**
Conditional cash transfer (CCT) programmes, like school vouchers, are designed to support disadvantaged families, but they operate differently. Instead of being limited to covering school expenses, CCTs provide monthly cash payments to low-income households, as long as their children are enrolled in and regularly attend school. Some versions of these programmes also include penalties for non-attendance. A key focus of many CCT initiatives is improving equity, with several specifically targeting girls' education. Studies show that CCT programmes are generally effective in reducing dropout rates and boosting daily attendance (Dee, 2011). Because they target the poorest households and promote both enrolment and progression in school, CCTs contribute to equity and adequacy in education.

### 4.4.4. Conclusion

Educational inequality is a challenge related not only to socio-economic and immigration background, but also to gender and the structure of the education system (OECD, 2023b). The combination of performance-targeted and socio-economically-targeted approaches should be adopted in systems like that in the Netherlands, where the correlation between these elements and performance is strong.

Actionable forms of interventions might cover different areas. First, teacher PD in intercultural education and inclusive pedagogy is crucial to ensure that all students are supported in their learning and to meet the needs of increasingly diverse classrooms. Language policy also plays a crucial role in equity by ensuring that all linguistic groups have fair access to quality education and the support they need to succeed. It often involves measures such as mandating instruction in an official or national language, providing targeted language support and immersion programmes for minority or non-native speakers, training bilingual teachers, and implementing curricula that promote both language acquisition and cultural inclusion, all aimed at reducing language barriers and improving educational equity. Recognising and valuing students' home languages can contribute to more inclusive and effective learning environments. Integration and support to families with low socio-economic backgrounds must be equally valued. Efforts to reduce segregation, strengthen peer connections, and involve families are vital. Expanding access to quality education for marginalised groups is key to promoting equal opportunities. Multicultural education also needs to move beyond a simplistic divide between "host" and "multicultural students". Instead, schools should foster spaces where all learners can explore their identities and challenge established norms of belonging and difference (Leet et al., 2023).
Finally, reducing educational inequality requires long-term and sustained investment. According to Bruce Baker's framework (Baker, 2025), promoting a more equitable funding system means designing a system where resources are distributed to ensure all children have equal opportunity to achieve common, adequate outcome goals, regardless of their circumstances. Educational equity is achieved when all children have equal opportunity to achieve common outcome goals, while educational adequacy is achieved when those outcome goals are sufficient for children to become productive, self-determined, and civically engaged adults. To promote equity, the following should be considered:

1. Ensure that funding systems are progressive rather than regressive, directing more resources to schools/districts with greater needs.
2. Identify and account for risk or need factors (economic disadvantage, language proficiency, disability status) that adversely affect educational outcomes.
3. Mitigate inequities caused by local wealth, income, or voter preferences – funding should not be determined by local tax capacity.
4. Calculate the actual costs required to achieve desired outcomes across different settings and student populations.
5. Translate complex cost analyses into practical policy alternatives such as weighted funding formulas.

The framework presents a two-part approach: first evaluating "what is" (current spending patterns in relation to needs and fiscal neutrality), then modelling "what should be" (cost modelling to determine appropriate spending levels). Ultimately, an equitable funding system ensures that resources are distributed based on actual needs of students rather than arbitrary factors such as where they live, delivering the funding necessary for each district and school to provide appropriate educational programmes and services for all children.

# 4.5. EVIDENCE-BASED SOLUTIONS FOR EARLY CHILDHOOD EDUCATION AND CARE

### 4.5.1. Introduction

Access to high-quality, affordable early childhood education and care (ECEC) is critical in supporting both child development and parental workforce participation in the Netherlands. ECEC refers to different types of childcare and early education provided by someone other than the parents, typically for children aged 0 to 6. It has been linked to positive outcomes in primary and secondary school, total years of education, highest level of education achieved, and employment and earnings. These benefits are especially strong for children from low socio-economic backgrounds, indicating that ECEC may help reduce socio-economic inequality (Dietrichson et al., 2020).

ECEC participation among children in the EU has been steadily rising and most children now attend formal care or preschool. In 2023, in the Netherlands 93.0% of children aged 3 and above took part in ECEC, which is slightly above the EU average of 92.5%, but still below the EU's target of 96% participation by 2030 (Source: Eurostat, [educ_uoe_enra21]; European Commission, 2024b). Moreover, the Netherlands has the highest participation rates in ECEC for children under 3 along with Denmark (Source: Eurostat, [tps00185]; European Education and Culture Executive Agency, 2025).

Of particular importance for low-income families is the so-called ECEC gap, which measures the time between the end of paid parental leave and a guaranteed ECEC place. The Netherlands reports an above average childcare gap among the OECD countries (OECD, 2024b). In addition, as in almost all OECD countries, the proportion of children at risk of poverty or social exclusion in formal childcare or education is consistently lower than that of children who are not at risk, but the Netherlands report one of the largest gaps for children below the age of 3, at over 35 percentage points (European Commission, 2024a; OECD, 2024b). A specific type of ECEC in the Netherlands is the voorschoolse educatie programme, which supports children aged 2.5 to 4 who are at risk of falling behind in their development (European Commission, 2024b). The goal is to give these children a strong foundation before they enter primary school. However, a recent study shows that around 30% of the facilities offering this programme are experiencing staff shortages, affecting about 25% of their total workforce (Bakker et al., 2023). National projections suggest that by 2031, the shortage could grow to 7,700 workers, five times the current gap. The staff are required to have a high qualification level during pre-primary education (children aged 3 and over), but not for the first phase. In addition, educational guidelines are provided only for settings working with children aged 3 and over, but not under 3, although its importance has been widely acknowledged (European Education and Culture Executive Agency, 2025)[9]. Free-of-charge and compulsory ECEC is granted only for the last year before primary school (European Commission, 2024a).

ECEC faces several persistent challenges that affect its overall effectiveness and accessibility (OECD, 2025). One of the most pressing issues is the shortage of qualified staff, particularly in programmes designed for disadvantaged children (European Commission, 2023). Alongside staffing problems, ensuring that the workforce is well-trained and supported with ongoing PD remains a significant concern. Access and equity are also major challenges. Not all children, especially those from low-income families, migrant backgrounds, or rural areas have equal opportunities to benefit from ECEC. This unequal access can deepen existing social and educational disparities even before children enter primary school. In many places, affordability adds another layer to the problem. High costs may prevent families, particularly those already facing financial difficulties, from enrolling their children in early education programmes. Quality across ECEC services varies widely and ensuring consistent standards remains difficult. Differences in provision between regions or types of facilities can lead to uneven experiences for young children. For children from diverse cultural or linguistic backgrounds, ECEC programmes may not always be suited to their needs, which can limit their development and make integration harder. Moreover, the lack of reliable data on participation, outcomes, and quality makes it challenging for policymakers to design effective strategies or measure the impact of current efforts. Finally, the transition from ECE to primary school is often overlooked, even though it plays a key role in shaping children's educational trajectories. Vulnerable children, in particular, may need more support during this shift to ensure they start school on an equal footing with their peers.

[9] Council recommendation of 22 May 2019 on high-quality early childhood education and care systems (OJ C 189,5.6.2019, p. 4), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019H0605(01)

This section seeks to support the policy discussion by outlining the current state of ECEC in the Netherlands, comparing it with international best practices and presenting practical recommendations drawn from recent research to tackle the main challenges in ECEC in the Dutch context.

### 4.5.2. Best practice countries

#### 4.5.2.1 Japan

In Japan, government investment in ECEal institutions relative to GDP increased by 42% between 2015 and 2021. Nevertheless, it allocates relatively limited government funding to ECE (0.1% of GDP, compared to 0.8% on average across the OECD) (OECD, 2024a). Several policies and practices have been implemented in Japan to enhance ECEC by establishing a unified system, ensuring qualified staff, providing curriculum standards, and promoting continuous PD through training, reflection, and collaborative dialogue focused increasingly on the perspectives and voices of children (Sakaue & Ogawa, 2016; Matsui, 2021). As a result of ECEC reforms, all private ECEC institutions in Japan became government-dependent in 2021 (OECD, 2024c).

Japan has been in a transitional stage from a traditional dual system (kindergartens under the Ministry of Education, Culture, Sports, Science and Technology – MEXT), and day nurseries under the Ministry of Health, Labour and Welfare (MHLW) towards a comprehensive support system. A key element of this was the creation of ECEC Centres (Nintei Kodomoen) in 2006, which function as both kindergartens and day nurseries, aiming to provide equal access to education and childcare and that received the status of both public education and welfare facilities from April 2015. Children can begin attending day care centres from birth, while kindergartens typically accept children from age 3[10].

Teacher conferences have become popular since the 1990s, as a form of case study where teachers discuss various resource materials (records, photos, videos) to improve their practices, shifting from teacher-centred to child-centred approaches, and there is a growing focus on these conferences on encouraging self-expression and considering children's perspectives (Matsui, 2021).

#### 4.5.2.2 Norway

In Europe only six EU Member States (Sweden, Denmark, Germany, Estonia, Slovenia, and Finland) together with Norway have no ECEC gap. Norway is one of the nine countries in Europe where the participation rate of children aged 3 and over is currently above the 2030 target of 96% (European Education and Culture Executive Agency, 2025). Norway and Sweden, together with five more European countries, are the only countries integrating the four dimensions of ECEC policy integration (European Education and Culture Executive Agency, 2025). To this extent, first, Norway's ECEC system is marked by a unified governance structure under one main authority. Second, every child has the right to a place in ECEC from an early age. Third, each group of children is supported by staff with a bachelor's degree in education. Finally, the same educational guidelines apply throughout the entire ECEC period.

Norwegian educational authorities have supported efforts to improve the quality of ECEC in several ways. In response to recommendations from the OECD's 2015 report (Early Childhood Education and Care Policy Review Norway, 2015), a number of political measures were introduced as discussed by Størksen et al., 2024. One key change was the tightening of teacher-to-child ratios in 2018. Currently, the minimum requirement is one staff member for every three children under the age of three and one for every six children aged three to five (Størksen et al., 2024). The Norwegian Directorate of Education has contributed by defining different aspects of quality on its national website (https://www.udir.no/in-english/), where short videos are also provided to illustrate good practice. Quality in ECEC is further promoted through official web content, national strategies, and white papers. Additional funding has been made available to support staff training and competence development.

There is increasing awareness of the role guided play can have in improving educational interactions and supporting children's learning (Størksen et al., 2024). In Norway's play-based ECEC system, the "playful learning curriculum", introduced through a one-day training session for teachers and supported by online resources, led to a clear improvement in five-year-old children's mathematics skills. The study indicates that even in an environment where play is already a core part of teaching, a structured and age-appropriate curriculum can further support early mathematics development, especially when existing curriculum guidelines are not very specific in countries such as Norway (Størksen et al., 2023).

[10] https://www.city.matsudo.chiba.jp/InternationalPortal/vi/forforeignresidents/childrearingsupport.files/ChildcareSystem_Eng.pdf

#### 4.5.2.3 Sweden

Sweden has reached the 2030 EU-level target of at least 96% children in ECEC (European Commission, 2024a). Sweden is one of the only seven EU countries that guarantee a place in ECEC for every child from an early age (6–18 months), often immediately after the end of childcare leave (European Commission, 2024a) and invests the most in ECEC together with Iceland (European Education and Culture Executive Agency, 2025). In Sweden, there is a two-year gap between when paid parental leave typically ends and when children become eligible for free ECE. Starting at age 1, all children in Sweden have the right to attend publicly funded ECEC. From the age of 3, they are guaranteed at least 15 hours per week of ECEC at no cost (European Education and Culture Executive Agency, 2025).

Sweden has undertaken initiatives to support immigrants in ECE by establishing policies that recognise the preschool's crucial role in the integration process. The preschool holds a specific responsibility for refugee children and their families and is considered as a foundational element in the broader societal integration of immigrant children and their families in Sweden (Lunneblad, 2017; Migdad et al., 2025). In addition, as in other Nordic countries, there is a formalised role of ECEC that includes a statutory right to parental involvement and to impact what happens in kindergartens and schools (Migdad et al., 2025).

### 4.5.3. Evidence-based solutions and literature

This section synthesises interventions recommended in the report of the expert group on quality investment in education and training (European Commission, 2022), complemented by existing literature reviews (Melhuis et al., 2015; Van Huizen & Plantenga, 2018; Dietrichson et al., 2020) with examples from across Europe and beyond, as well as the broader academic literature.

Establishing a clear causal link between ECEC attendance and later outcomes is difficult, as participation is not mandatory until age 5 in most EU countries. This leaves the decision of whether their children attend up to the parents, leading to differences in the characteristics of children who do and do not participate (European Commission, 2022).

For instance, children from low socio-economic backgrounds are generally less likely to attend ECEC. Early evidence from US experimental programmes shows strong benefits for disadvantaged children, but these findings may not fully translate to EU countries due to differences in programme design, quality, and universal access. Recent studies in Europe use quasi-experimental methods to assess large-scale programmes, showing positive but varied effects.

While research on ECEC quality, such as staff qualifications, ratios, and curriculum is limited, existing evidence points to its importance for child development.

#### 4.5.3.1 Teacher-level interventions

Teacher-level interventions explore, in particular, topics such as initial training and CPD. The importance of comprehensive initial training for staff is highlighted as an important determinant of process quality. The quality of childcare, including staff qualifications, is crucial for the effectiveness of ECEC. There is limited robust evidence on how teaching staff quality or different pedagogical approaches affect outcomes, but qualitative studies highlight the importance of quality (Melhuis et al., 2015).

Regarding CPD, effective methods identified by researchers include active learning methods, centre-embedded delivery, and personalised feedback through coaching or mentoring (Egert et al., 2018; Brunsek et al., 2020). Moreover, high-quality ECEC, such as universal programmes with regulations ensuring a high adult/children ratio as seen in Denmark or Norway, are associated with positive effects.

#### 4.5.3.2 Child-level interventions

Child-level interventions cover different topics, particularly concerning the age of entry into ECEC and its effects on development and inequalities. A significant body of research in early childhood development and the evaluation of ECEC programmes considers the role of starting age in their findings on child outcomes and the mitigation of inequalities.

Quality ECEC from a certain age (often starting around age 3 years in many European contexts) yields developmental benefits for cognitive and language development. Ulferts et al. (2019) report small but positive lasting effects on mathematics as well as language and literacy. Research shows that earlier and longer exposure to ECEC benefits low socio-economic status children, and lowering the kindergarten enrolment age (e.g. to 3 years) could support children of low socio-economic status mothers (Szabó-Morvai & Lovász, 2024). The benefits of ECEC are consistently greater for disadvantaged children than for children of advantaged backgrounds, in particular in socio-emotional and cognitive skills (Szabó-Morvai et al., 2023). Despite these advantages, universal childcare programmes often fail to attract these children despite subsidies (European Commission, 2022; OECD, 2025). Moreover, the literature from neuroscience, paediatrics, and psychology raises concerns regarding potential impacts on social and emotional development and health about the ECEC enrolment at very early ages (under one year), particularly with long hours (OECD, 2025).

#### 4.5.3.3 School-level interventions

School-level interventions explore topics such as curriculum alignment facilitating smooth transitions to primary school, the benefits of play-based learning, and the effects of different curricular approaches on children's development. This includes supporting pedagogical practices that are adapted to children's diverse needs throughout early and middle childhood, and promoting coordination between ECEC and primary school staff to ease transitions. Furthermore, there is an emphasis on integrating ECEC and primary school through aligned curricula and pedagogical approaches, potentially building on play-based learning from ECEC into the early years of primary school.
The development of a child-centred and comprehensive curriculum framework that addresses all aspects of children's development and includes structured components within a play-based approach is also a key focus, ideally guiding practices across ECEC and the initial years of primary education.
Regarding the development of a child-centred and comprehensive curriculum framework, research informs the discussion on supporting equity and inclusion in and through ECEC, placing particular focus on policy levers such as pedagogy and curriculum design. Shuey et al. (2019) provide a brief review and case studies on curriculum alignment.
The importance of play-based learning is also highlighted, with scientific evidence suggesting that reducing play and focusing solely on academic skills from an early age is not beneficial for children's overall development and well-being (Hirsh-Pasek et al., 2008).
Concerning the effectiveness of skill-specific curricula, the evidence suggests that while whole-child curricula may enhance the classroom environment, skills-focused and structured curricula appear to be more effective in directly improving specific academic skills such as mathematics and literacy (Jenkins et al., 2018). The study by Rege et al. (2024) further highlights the potential of structured curricula to have lasting impacts, particularly in mathematics and especially in lower-quality preschool settings.

#### 4.5.3.4 System-level interventions

System-level interventions involve combining universal and targeted approaches to ensure a baseline of support for all children, while directing additional resources to those most in need. A critical aspect is guaranteeing sufficient and sustained public funding across all early childhood years, as current systems often experience a drop in spending between ages 1 and 3. To improve workforce quality, interventions focus on designing funding mechanisms that support adequate wages and incentivise staff retention, particularly in disadvantaged areas. As reviewed by Dietrichson et al. (2020), there are studies calculating benefits-to-cost ratios for universal preschool programmes in Uruguay, the United States (Georgia and Oklahoma), and Spain, and found ratios clearly above one, indicating that the benefits outweighed the costs. Benefit–cost analyses typically include the direct cost of the programme for taxpayers and parents (net of decreased out-of-pocket spending) and suggest that the examined universal preschool programmes were a worthwhile investment. Moreover, even when programme costs are increased to account for deadweight losses of taxation, the benefit-to-cost ratios in the analysed studies remained above one. Similarly, the report by the European Commission (2022) shows that providing high-quality ECEC for disadvantaged children is a cost-effective policy. Evidence from both US experimental programmes and universal programmes in EU countries shows that it brings consistent short- and long-term benefits, and it also helps narrow the gap between high- and low socio-economic status families.

### 4.5.4. Conclusion

ECEC plays a key role in lifelong learning, personal development, and future employability, especially for disadvantaged children. However, many countries face ongoing and sometimes intertwined challenges such as budget limitations, staff shortages, and inconsistent training. Barriers to access, including cost, availability, administrative complexity, and lack of information disproportionately affect children from disadvantaged and immigrant backgrounds. Fragmented governance and coordination issues also make it difficult to ensure consistent quality across various ECEC settings, particularly as private providers expand (OECD, 2025). Building trust with underserved communities, reducing administrative burdens, and identifying vulnerable children for targeted support are also critical but complex tasks.

To tackle these issues, coordinated policies are needed to focus on sustainable funding, workforce development, and inclusive access. High-quality programmes with strong adult–child interaction have shown to improve long-term outcomes, particularly for disadvantaged children. Addressing staff shortages requires a mix of short- and long-term strategies: making ECEC careers more attractive through better pay, work conditions, and PD opportunities, as well as improving access to training and career pathways. Collaborative planning, inclusive recruitment, and stronger support for leadership roles can help stabilise and grow the workforce while maintaining quality standards.

# 4.6. EVIDENCE-BASED SOLUTIONS FOR IMPROVING PISA MATHEMATICS TEST SCORES

### 4.6.1. Introduction

Mathematics proficiency is a key indicator of students' ability to solve problems and think critically, skills which are essential for success in many academic and professional fields, crucial for engaging in society and for addressing real-life challenges (OECD, 2016; Hillmayr et al., 2020). The Netherlands has faced challenges in improving its performance in mathematics as measured by the PISA tests. In an increasingly globalised world, ensuring that Dutch students perform well in mathematics is crucial for their future opportunities and the competitiveness of the workforce (Slavin et al., 2009).

In the latest PISA 2022 assessment, the Netherlands showed strong performance in mathematics with scores higher than the OECD average and with 73% of students achieving at least the minimum level of proficiency, significantly above the OECD average of 69%. This proficiency level (Level 2) reflects the ability to interpret and recognise how simple situations can be represented mathematically. However, average 2022 results were down compared to 2018 in mathematics, as well as in reading and science (OECD, 2023e). Generally, the average performance was lower in 2022 than in any previous PISA assessment (since 2003) and marked a negative trajectory over time, with results behind the national performance standards defined for mathematics by the Meijerink Commission (Koninklijke Nederlandse Akademie van Wetenschappen, 2009; Scheltens et al., 2013; Bartelet et al., 2016).

Between 2018 and 2022, the gap between the high-achieving (top 10%) and low-achieving (bottom 10%) students widened in mathematics as well as in reading and science (OECD, 2023e). In mathematics, almost all students became weaker, but low achievers declined more than high achievers. Some 15% of students in the Netherlands were top performers in mathematics (Level 5 or 6), compared to the OECD average of 9%.

The PISA assessment shows that the socio-economic background is relevant when assessing student performance in mathematics. Socio-economic status accounted for 15% of the variation in mathematics performance in PISA 2022 in the Netherlands in line with the OECD average. Socio-economically advantaged students (top 25%) outperformed disadvantaged students (bottom 25%) by 106 points in mathematics, greater than the OECD average difference of 93 points. Between 2012 and 2022, the gap in mathematics performance between the top and bottom 25% of students in terms of socio-economic status widened. In mathematics, the average performance difference between immigrant and non-immigrant students was 58 points in favour of non-immigrant students. After accounting for socio-economic backgrounds, the difference was 27 points, with half of the students with an immigrant background classified as socio-economically disadvantaged (OECD, 2023e).

The Netherlands has one of the largest shares of students in schools that group students within their classes by ability for some subjects (77.4%), and that group students into different classes for all subjects (37.2%) (Table II.B1.4.26, OECD 2023f). The score difference in mathematics between students grouped into different classes by ability for some or all subjects and students not grouped for any subject is equal to −31. After accounting for students' and schools' socio-economic profile the score difference is equal to −19 and it is statistically significant (Table II.B1.4.30, OECD 2023f).
The PISA 2022 report noted a decline in the parental involvement in learning. Only 23% of students were in schools where the principal reported that at least half of the parents discussed their child's progress with a teacher on their own initiative (48% in 2018) and 59% of students were in schools where parents discussed progress on the teacher's initiatives (61% in 2018). Concerning the support of digital services, the PISA 2022 report showed that 33% of the students become distracted when introducing digital tools compared to the OECD average of 30%, although they are less likely to be distracted when the use of mobile phones is not allowed (OECD, 2023e).

Among OECD and partner countries with available data, the Netherlands had one of the lowest indexes of mathematics anxiety, but it also reported low teacher support and one of the lowest shares of students who consider mathematics to be one of their favourite subjects (OECD, PISA 2022 Database, Tables I.B1.2.1 and I.B1.2.16., Table V.B1.3.11).

The Netherlands also had one of the lowest shares of students whose teacher asked them to think about how new and old mathematics topics were related, in more than half of the lessons (Table V.B1.3.26, OECD, 2023c). In addition, the Netherlands had one of the highest shares of students who frequently extract mathematical information from diagrams, graphs, or simulations and feel confident in doing so, although it had one of the lowest shares of students who frequently interpret mathematical solutions in the context of a real-life challenge (OECD, 2023c).

As of 2020, more than 1,550 funding requests had been dealt with by the Ministry of Education, Culture and Science to recover learning losses in the aftermath of Covid (Kortekaas-Rijlaarsdam et al., 2020). Several interventions have been implemented, for example: extended school days and summer schools to provide additional instructional time focused on language and arithmetic, targeting students who had fallen behind; additional support during school hours to help students catch up in core subjects; and collaboration with external partners to enhance programme effectiveness and focus on socio-emotional developments. However, findings from the latest PISA assessment highlight the need for more effective and targeted interventions to enhance student performance in mathematics and other core subjects.

This section seeks to inform the policy debate by outlining the situation in the Netherlands, comparing it to international best practices, and presenting actionable insights from the recent literature. Based on empirical evidence and comparative case studies, this chapter identifies strategies that can support national and regional policies aimed at improving student performance in mathematics in the Dutch context.

### 4.6.2. Best practice countries

#### 4.6.2.1 Singapore

Singapore consistently ranks at the top in PISA mathematics scores, and it is one of the very few exceptions showing improvement over time (OECD, 2023d). Its success is attributed to a highly structured curriculum that integrates content knowledge with skills, processes, and – importantly – attitudes and values, while offering the possibility to cover optional advanced mathematics topics. This country has invested in strong teacher training programmes that emphasise pedagogical skills in teaching mathematics and promote "collective efficacy" as a core practice among educators, which is believed to promote higher levels of student achievement and teacher satisfaction (OECD, 2024d). In addition, it is characterised by a focus on mastery learning where students thoroughly understand mathematical concepts before moving on to a real-world relevance. The PISA 2022 report showed that Singapore had one of the highest shares of students who frequently feel confident in extracting mathematical information from diagrams, graphs, or simulations (OECD, 2023d).

#### 4.6.2.2 Estonia

Estonia has made significant improvements in its PISA mathematics scores, consistently ranking among the top countries in the Western world. The country's success stems from its comprehensive education reforms, which include a focus on teacher quality, a coherent national curriculum that promotes conceptual understanding, and a balanced curriculum coverage where the number of topics remains relatively consistent and aligned with global trends (OECD, 2024d).
Including digital literacy in the mathematics curriculum helps students not only understand mathematical concepts, but also to use digital tools to solve real-world problems. Estonia is one of the few countries leading in this area, with about 70% of its curriculum including digital skills, although mathematics is not the main subject where digital literacy is taught.

#### 4.6.2.3 Finland

Finland's model of education emphasises a deep understanding of mathematics rather than rote learning. It is noted as one of the countries that demonstrates both high performance in mathematics and lower levels of mathematics anxiety (OECD, 2024d). In addition, Finland places strong emphasis on teacher autonomy, with teachers required to have a master's degree and ongoing PD. This system encourages critical thinking and problem-solving skills in mathematics, and offers elective pathways in mathematics in upper secondary education, contributing to consistently high PISA scores.

### 4.6.3. Evidence-based solutions and literature

The literature proposes several evidence-based solutions to improve student mathematics performance that can be clustered in the following five groups: 1) teacher-led interventions, 2) parent-led interventions, 3) peer-led interventions, 4) digital- and technology-based interventions, and 5) external organisation-led interventions, as discussed and illustrated in the following.

#### 4.6.3.1 Teacher-led interventions

There are various strategies that teachers can implement to foster meaningful learning in mathematics. However, a central focus should be the promotion of a favourable learning environment, where the quality of communication is closely monitored, and efforts are made to spark students' interest by connecting mathematical content to real-world contexts (Koskinen & Pitkäniemi, 2022). Teachers should actively engage students in the learning process through guided instruction and support the integration of relevant and relatable contexts into their teaching. To achieve this, policy frameworks must play a supportive role, encouraging educators to bridge mathematical concepts with real-life phenomena that resonate with students and enhance their understanding. This section discusses different strategies where the teachers play a fundamental role to foster the learning of students in mathematics.

**One-to-one Tutoring**

This intervention focuses on individualised tutoring from a qualified teacher or a teaching assistant to address specific learning gaps. Providing individualised attention, targeted feedback, and tailored support have been proved to be one of the most effective strategies to mitigate learning loss (Higgins et al., 2016; Kortekaas-Rijlaarsdam et al., 2020; Koskinen & Pitkäniemi, 2022). However, this strategy is relatively very expensive and effective only if delivered by experienced and well-trained teaching assistants, leading to a preference for strategies that involve a larger – albeit still limited – number of students, as discussed below (Higgins et al., 2016).

**Focus on Smaller Groups**

Small-group tuition, defined as one teacher working with two to five pupils, enables focused and individualised instruction. This approach is often used to support lower attaining learners or those falling behind, but it can also serve as a general strategy to ensure effective progress or to tackle challenging topics. Evidence indicates that effectiveness is greatest when groups are small (Bonesrønning et al., 2022). Similarly, smaller class sizes allow for more individualised attention and differentiated instruction. During school hours, remedial teaching can offer valuable additional support. Di Tommaso et al. (2024) have shown that the absence of pressure and competition, facilitated by the small-group setting, is believed to particularly benefit girls and is useful to narrow the mathematics gender gap. The collaborative nature of the small groups, where students are encouraged to share and compare ideas, aligns with the principles of active and cooperative learning.

In terms of attainment grouping, students with similar levels of current achievement may be grouped together for specific lessons (setting) or as whole classes (streaming or tracking), based on the assumption that teaching is more effective with a narrower range of ability (Higgins et al., 2016). However, research shows that while this may benefit higher attaining pupils, it tends to be detrimental to those with mid-range or lower attainment and does not appear to raise the attainment of disadvantaged students, who are more often assigned to lower groups. Furthermore, scholars have noted that ability grouping and subject choice frequently exacerbate socio-economic inequalities in education. While mixed-ability grouping poses more challenges for teachers, ability grouping may negatively impact student self-confidence and reinforce existing disparities (Francis et al., 2017; Johnston et al., 2025).

**Teacher PD**

Training for teachers should focus on improving didactical and pedagogical skills, including instruction that adapts to the classroom. Positive outcomes were seen in studies on PD related to classroom management and organisation, as for example cooperative learning (Slavin & Lake, 2008; Slavin et al., 2009; Pellegrini et al., 2021). Investing in teacher PD has a major and enduring impact for the whole class, especially when pursued with a particular focus on coping with large differences among students (Ansyari et al., 2022a, 2022b, 2020; Compen et al., 2019). However, teachers are already in short supply and the time needed to invest in their PD makes the actual implementation challenging (Higgins et al., 2016).

In addition to pedagogical training, it is also important to invest in both cognitive and social skills for teachers, as these appear to complement each other (Grönqvist & Vlachos, 2016). Teachers with high cognitive and social skills tend to promote better student achievement. In contrast, high cognitive skills paired with low social skills can negatively affect students. Similarly, social skills are more effective when supported by strong cognitive abilities. Different teacher skills can influence different types of students in different ways, underlining the complexity of teacher effectiveness and the importance of considering how student–teacher matches impact learning outcomes (Grönqvist & Vlachos, 2016).

**Homework**

Homework, when assigned and managed by teachers to reinforce classroom learning, shows a small but positive relationship with achievement in mathematics. However, its effectiveness depends on various factors such as grade level, geographical location, and how homework is measured. This means that homework does not have the same

impact for all students or in all contexts (Maldonado et al., 2022). Research shows that indicators such as homework completion, homework grade, and effort are more strongly associated with achievement than the frequency or amount of time spent on homework. Simply assigning more homework or expecting students to spend longer on it does not necessarily lead to better results (Fan et al., 2017).

The quality of homework also matters, in particular with respect to task selection and cognitive challenge. When students view homework as well-chosen and interesting, their motivation and effort increase, which benefits class-level performance. While challenging tasks can reduce motivation at an individual level, cognitively demanding assignments given at the class level are linked to higher achievement in mathematics (Dettmers et al., 2010).

**Increase in Instructional Time**

Extra teaching time, whether through longer school days or years, or additional sessions before or after school, can help students in core subjects such as language and mathematics. This support is often provided by subject teachers and aimed at specific groups. However, the impact of these measures varies widely across studies, suggesting that additional time is not always used effectively (Meyer & Van Klaveren, 2013; Higgins et al., 2016). Targeted programmes tend to show more consistent results, though even here, the outcomes differ depending on how the programmes are designed and implemented.

Research shows that increasing instruction time is most beneficial in schools facing serious learning challenges. In such environments, assigning students to individualised activities appears more effective than simply increasing time. In particular, the most disadvantaged students are those who benefit most from extra instruction, while others may see little to no improvement. This highlights the importance of tailoring interventions to the students most in need to avoid wasted resources, especially when funding comes from sources such as EU development and social funds (Battistin & Meroni, 2016).

Findings also suggest that extra instruction time has a greater effect on mathematics achievement than on language. Students who receive additional support in mathematics not only perform better, but also develop a more positive attitude towards the subject. Gender differences are also significant: girls who receive extra mathematics instruction show gains in both mathematics and language. Despite this, gender is often overlooked in designing interventions, though it clearly plays an important role in shaping outcomes (Meroni & Abbiati, 2016).

### 4.6.3.2 Parent-led interventions

When it comes to children's learning, the focus is shifting from parental involvement in schools towards parental engagement. While involvement refers to simply taking part in school-related activities, engagement implies a deeper connection and a sense of commitment from parents for a more balanced partnership between parents and schools, where both play active roles in supporting student learning (Goodall & Montgomery, 2014).

Parental support can take two main forms: home-based and school-based strategies (Boonk et al., 2018). Home-based involvement covers actions supporting learning within the home environment and includes activities such as helping with homework, discussing school matters, monitoring progress, and setting academic expectations. School-based involvement involves parents being physically present at school, attending meetings, school events or volunteering, going on class trips, and participation in school functions (Boonk et al., 2018). Distinguishing between these two types is important when looking at their effects on student performance and they differ significantly from school-based support in their nature and influence. Research shows that academic socialisation such as parents setting clear academic expectations is one of the most effective factors to student success. School involvement also shows a positive impact, while home-based help such as assisting with homework is generally positive, though less consistently so (Kim, 2022).

Recent developments have made parental engagement even more essential. School closures during COVID-19 highlighted the need for parents to take a more active role in learning. At the same time, new technologies – especially AI – are changing the way education works. These shifts call for a deeper look at how schooling systems engage parents, challenging practices that keep them at a distance (Kent et al., 2022).

**Home-based Strategies**

Encouraging parents to engage in structured learning activities at home can positively influence student outcomes. Different studies define parental involvement in various ways, including communication about school (Maldonado & De Witte, 2021), supervision at home, help with homework, expectations, and general attitudes towards education (Wilder, 2014). Ongoing educational conversations between parents and children, such as discussing schoolwork, and academic goals and related matters, are linked to improved mathematics performance. Parental encouragement and emotional support also contribute to better homework habits, which in turn are associated with higher achievement

and lower dropout rates. Homework support, in particular, ranges from direct help with tasks to creating a supportive environment and helping children to stay organised and focused (Ribeiro et al., 2021). When parents show high aspirations and expectations, students often respond with improved academic performance, especially in mathematics throughout high school (Boonk et al., 2018).
However, while many forms of parental involvement are helpful, not all have positive effects. Excessive control or pressure, such as constant monitoring of homework, interfering with tasks, or applying academic pressure, can negatively impact students' confidence, motivation, and performance. High parental involvement that feels intrusive can lead to conflicts and reduce students' academic self-efficacy (Fiskerstrand, 2022).

**School-based Strategies**
Initiatives aimed at helping parents support their children's learning often include parental engagement programmes, involvement in school activities, and communication with teachers. However, being engaged in a child's learning does not always mean being engaged with the school. Some parents, especially those from minority backgrounds or facing economic difficulties, may strongly support their children's education but face barriers to participating in school life. As described in Goodall and Montgomery (2014), these barriers can include scheduling issues, lack of access to facilities, or unfamiliarity with school expectations. It is important for schools to recognise that a single approach to parental engagement will not work for everyone. Parents differ in their needs, challenges, and understanding of what engagement means. Teachers, often working under time pressure, may make assumptions about parents based on limited information, especially when there are differences in cultural background, life experience, or social capital between families and the school.

#### 4.6.3.3 Peer-led interventions
Together with one-to-one tuition, teacher PD, and parent engagement, peer-led activities and peer tutoring are considered in the literature to be among the most effective strategies for mitigating learning loss (Kortekaas-Rijlaarsdam et al., 2020). While the costs related to these initiatives are relatively low, many studies show moderate to high average effects (Higgins et al., 2016).

**Peer Tutoring**
Peer tutoring involves students working in pairs or small groups to support each other's learning during or after school hours (Higgins et al., 2016). This can include same-age tutoring or cross-age tutoring, where an older student helps a younger one. Structured study groups, where students support each other under teacher supervision, are also part of this cooperative learning approach.
Peer tutoring tends to be most effective when used to reinforce learning rather than to introduce new material.
To this extent, while it has great potential, it cannot be considered as a substitute for professional tutoring (Nickow et al., 2024). Studies have found positive outcomes for both peer and cross-age tutoring (Slavin et al., 2009). It is particularly beneficial for students from disadvantaged backgrounds and for low achievers. However, its success depends on ensuring the quality of peer interaction, such as using structured questioning guides (Higgins et al., 2016). These approaches may also be cost-effective and offer added benefits if tutors gain academically or socially. Nonetheless, maintaining consistent quality and ensuring that both tutors and tutees benefit can present ethical and practical challenges (Nickow et al., 2024).

**Learning by Teaching**
Learning by preparing to teach and learning by teaching denote a method where students learn by planning to explain or effectively explaining material to others. This approach improves understanding, promotes metacognitive thinking, and boosts academic performance, especially in areas such as mathematics. Students who prepare to teach tend to structure problems better, use more effective learning strategies, and demonstrate deeper engagement (De Cort & De Witte, 2024). Tools such as concept mapping and instructional videos help students organise and express their understanding, and technology (e.g. tablets and apps) can support this process. The benefits are more pronounced when students also teach the material, not just prepare it (Fiorella & Mayer, 2016; Muis et al., 2016). This aligns with the idea that actively explaining content (especially in front of a real or perceived audience) promotes better learning than passive strategies such as summarising or reviewing.

Using video creation as a homework activity, where students record themselves teaching a topic, has also proved effective and enjoyable (Hoogerheide et al., 2019). Compared to traditional methods such as restudying or summarising, creating teaching videos leads to better test performance and more mental effort during learning, which indicates deeper cognitive processing. This effect may be due in part to the social presence students feel when preparing to teach an audience.

Importantly, this method requires careful teacher planning, especially in larger or more complex classes. Teachers take on a new role, not just as content experts but as facilitators who guide, support, and inspire students while encouraging responsibility and active learning. This shift reflects a broader move in education towards more student-centred, participatory teaching methods (Kolbe, 2025).

#### 4.6.3.4 Digital- and technology-based interventions

Given the widespread use of the internet and digital devices among young students, technology-based learning approaches offer promising and cost-effective ways to support education. However, the overall effectiveness of these tools remains moderate, and their long-term impact on learning is still not fully understood. One commonly used strategy is blended learning, which combines traditional in-person instruction with digital tools to increase student engagement and personalise learning (Cheung & Slavin, 2013). Recently, the use of artificial intelligence in education (AIED) has also gained attention, offering new possibilities for tailoring instruction and providing real-time support to both students and teachers (Holmes & Tuomi, 2022). Computer-assisted instruction (CAI) programs, digital tools designed to support teachers and online tutoring, are among the main practices in this area, all aiming to enhance learning experiences and outcomes in different ways.

**CAI programs**

Digital tools such as CAI have shown to significantly improve student learning outcomes, especially when used to complement traditional classroom instruction (Cheung & Slavin, 2013; De Witte et al., 2015; Iterbeke et al., 2021; Iterbeke et al., 2022). Supplemental CAI targeting specific student needs tends to have the strongest impact.
These tools often provide various forms of feedback, ranging from basic right/wrong indicators to more in-depth instructional explanations (Hillmayr et al., 2020, Magalhães et al., 2020). Intelligent tutoring systems are a more advanced type of CAI and use artificial intelligence to personalise instruction based on student performance. While ITS programs are generally effective, those applied in humanities and social sciences have shown greater success compared to those used in mathematics (Ma et al., 2014). Dynamic mathematical tools such as GeoGebra™ allow students to interactively explore complex concepts, supporting deeper learning through experimentation together with ITS (Hillmayr et al., 2020). Importantly, the benefits of digital tools are amplified when used alongside other teaching methods rather than as stand-alone solutions. The teacher plays an important external motivation role and differential ITS effects might occur depending on the students' initial mathematics performance level and the specific mathematics domain (Bartelet et al., 2016).
Despite the benefits, digital distractions remain a concern. Students, and especially girls, can be more vulnerable to distractions from peer interactions or multitasking with technology (Xu, 2015). To address this issue, educators should help students elaborate their own perspectives on how families and teachers can support them, particularly by fostering productive homework environments and encouraging student effort (Xu, 2015). Creating a culture of peer support and sharing strategies to manage distraction can also help. Involving students in shaping classroom tech-use policies and promoting self-regulation strategies can lead to more effective and respectful use of technology in learning environments (Park et al., 2025).

**Tools for Teacher Support**

Technology can support teachers in managing classroom dynamics and improving learning efficiency. For example, approaches such as classroom orchestration characterise strategies to help teachers guide student activity, manage time, and respond to learning needs during lessons. To assist with orchestration, many student-focused AIED tools, especially intelligent tutoring systems, include teacher-facing interfaces or dashboards. These are often based on open learner models, which provide a real-time view of what individual students or groups have accomplished, including their progress, struggles, and misconceptions (Holmes & Tuomi, 2022). By giving teachers access to this dynamic information, these tools help make classroom interventions more targeted and well-timed. Although the overall effects on learning outcomes are limited, such technologies offer valuable support in helping teachers respond more effectively to students' needs during the learning process (VanLehn et al., 2021).

**Online Tutoring**

Virtual tutoring, whether one-to-one or in small groups, has become an effective and scalable way to support students through digital platforms. One promising model involves using volunteers as online tutors, significantly lowering costs since tutor wages often constitute the largest portion of the total expenses for a programme. Online delivery also removes barriers such as travel time, expands the pool of potential tutors beyond local areas, and allows for greater flexibility in scheduling. Additionally, it enables better matching of tutors and students based on shared interests or subject expertise (Kraft et al., 2022). Compared to in-person tutoring, which often disrupts school hours and requires extra coordination, virtual tutoring – especially when offered after school – presents fewer logistical challenges for

schools and teachers. Programmes have also found that using small-group formats, such as two students per tutor, can maintain similar effectiveness to one-to-one sessions while improving scalability and lowering costs. Pairing students from the same grade or class supports peer motivation and helps build a more connected learning environment (Gortazar et al., 2024).
In some cases, tutoring is delivered by qualified teachers rather than volunteers, particularly for subjects such as mathematics, where evidence suggests that professional educators are more effective. To ensure equitable access, students who lack the necessary technology at home should be provided with tablets and internet access. Comprehensive tutor training should also be a key part of a programme design, helping ensure quality instruction (Gortazar et al., 2024).

#### 4.6.3.5 External organisation-led interventions

**High-dosage Mathematics Tutoring**

High-dosage tutoring (HDT) programmes aim to provide structured and intensive academic support, often during the school day and in collaboration with external organisations (De Ree et al., 2023). These programmes typically involve small groups, usually two students per tutor, meeting several times per week over the school year. A key goal is to offer personalised instruction that reinforces and practises mathematics skills introduced in the classroom.
To reduce costs, these programmes often rely on paraprofessional tutors instead of certified teachers. Tutors receive basic training and follow structured lesson plans, coordinating with teachers to align content. Research shows that this approach can meaningfully improve mathematics achievement, with students spending most of their time actively solving problems under tutor supervision. The social aspect of tutoring, working in consistent pairs and building relationships, also helps create a comfortable environment that supports learning. Recent evaluations of HDT, including programmes inspired by Saga Education in the US and adapted in the Netherlands, suggest that these interventions are effective and potentially scalable across different education systems. Although initial implementation costs can be high (around €3,000–€4,000 per student annually), cost–benefit analyses indicate that long-term returns, in terms of increased lifetime earnings, could outweigh the investment. These findings also highlight that the academic gains are not primarily due to mentoring or emotional support, but to changes in the instructional model itself (Guryan et al., 2023). As tutoring programmes continue to expand, alternative versions such as hybrid models (which combine in-person support with CAI) and reduced-frequency formats are being tested to make high-impact tutoring more affordable and widely accessible (De Ree et al., 2023).

**Volunteer Tutoring**

Volunteer tutoring programmes, especially those organised by external agencies or community initiatives rather than peers, have gained attention as a low-cost alternative to professional tutoring. Informal support among students or volunteers can help expand access, especially where limited budgets make it difficult to hire professional tutors. While this approach increases the reach of tutoring interventions, particularly in underserved areas, there is still little reliable evidence on how effective volunteer-led programmes are in improving mathematics outcomes. Despite the growing interest and implementation of such programmes, many schools may be adopting volunteer tutoring without a solid understanding of the actual impact. To address this gap, it would be valuable for educators to develop volunteer-based initiatives that focus specifically on early mathematics skills, while researchers conduct studies to evaluate their effectiveness (Ritter et al., 2009).

**Sport Participation and Outdoor Adventure Learning**

Sport and adventure-based activities, often organised by external groups or school extracurricular programmes, can play a supportive role in student development, mainly by promoting discipline, teamwork, and motivation. However, research shows that their direct impact on academic performance is generally moderate. In the case of sports programmes, effectiveness often depends on factors such as the duration and intensity of the programme, as well as the outcomes being measured – not just academic achievement, but also self-esteem and student motivation (Van Klaveren & De Witte, 2015). Adventure learning programmes have shown mixed results, with more recent studies – using stronger research methods – reporting smaller effects than earlier ones. Despite this, both older and newer studies generally find some positive impact on academic outcomes. Qualitative research also suggests that students often view these experiences as valuable, particularly in terms of attitude and personal growth (Higgins et al., 2016). Additionally, informal social interactions outside the classroom, such as conversations on the school bus, have been shown to positively influence learning, especially in mathematics during the teenage years, underscoring the importance of out-of-school environments in shaping educational outcomes (Lenard & Silliman, 2025).

**Summer and Holiday Schools**

Holiday or summer school programmes, typically arranged by external organisations, aim to provide students with additional learning support during school breaks. As discussed by Higgins et al. (2016), these programmes are commonly used in both primary and secondary education to address learning gaps, especially in language, mathematics, and English, and to support students' social and emotional development. In primary education, the emphasis tends to be on catching up in language and arithmetic, while in secondary education, the focus shifts more towards mathematics and English. Most of these programmes are tailored to individual student needs and are often designed by the school's own subject teachers. While such initiatives can be effective in the short term, particularly for disadvantaged students, they also present several challenges. They are time- and resource-intensive to run, and engaging families, especially parents, can be difficult.

### 4.6.4. Conclusions

Declining test scores in mathematics is a central concern in many countries, including the Netherlands. To improve students' mathematics performance, both national and international research outlines a wide range of strategies, including curriculum reforms on both content and delivery (OECD, 2024d). Modern curricula need to integrate digital skills, data literacy, and problem-solving alongside traditional topics. It is crucial to consider the structured nature of mathematics, the pressures of exams, and the reliance on textbooks. Student attitudes – particularly mathematics anxiety – can hinder learning, so fostering confidence and promoting a growth mindset should be central to any reform effort. Teachers need proper preparation and support to implement these changes effectively. Policy should focus on creating alignment across the curriculum, assessments, textbooks, and teaching methods. Encouraging teacher involvement in curriculum design and promoting student ownership are essential for achieving long-term success. Reforms should also support interdisciplinary learning and offer students clear choices. Without addressing both teacher and students' needs, reforms risk being ineffective or unsustainable.

In addition to curriculum development and teaching practices, the importance of school infrastructure should not be overlooked. Recent studies show that investing in school facilities, such as improved classrooms and better learning conditions, can have a significant positive impact on mathematics performance, particularly for lower-achieving students (Belmonte et al., 2020). This highlights the need to prioritise capital investments as a key factor in improving student outcomes.

To effectively boost mathematics performance, the Netherlands can benefit from integrating curriculum reform, teaching practices, and infrastructure improvements, ensuring that all elements work together to create a supportive learning environment. This requires ongoing investment in teacher development, access to quality resources, and a policy framework that emphasises the importance of student understanding and engagement.

# 4.7. EVIDENCE-BASED SOLUTIONS FOR IMPROVING PISA READING TEST SCORES

### 4.7.1. Introduction

The PISA 2018 assessment and analytical framework, which was also employed in PISA 2022, defines reading literacy as "understanding, using, evaluating, reflecting on, and engaging with texts in order to achieve one's goals, to develop one's knowledge and potential, and to participate in society" (OECD, 2019). Reading skills are closely linked to educational attainment, workforce readiness, and economic growth making the assessment and evaluation of students' reading literacy essential. Moreover, in today's digital landscape, where information is abundant but not always reliable, the ability to critically evaluate sources and distinguish credible information from disinformation has become more important than ever (Suarez-Alvarez, 2021).

Dutch students have traditionally performed above the OECD average in PISA reading scores. However, their reading proficiency has declined in recent years, placing the Netherlands below the OECD average. Low reading literacy represents a concern as it is fundamental to students' academic success and lifelong learning. Enhancing reading outcomes could improve overall educational performance and provide Dutch students with critical skills for their future.
This section provides a detailed analysis of PISA reading scores data for the Netherlands and some high-performing countries. In addition, to identify best practices and effective policy strategies, a literature review examines the main factors associated with high and low proficiency in reading.

### 4.7.2. Best practice countries

According to the most recent PISA results, many OECD countries have experienced a decline in reading performance. However, some education systems have managed to keep high levels or even improve their students' outcomes. This section explores four high-performing countries (Ireland, Estonia, Finland, and Canada), that have performed well in reading literacy.

#### 4.7.2.1 Ireland

In recent years, Ireland has made significant progress in PISA reading scores. The country has implemented several targeted reforms to strengthen literacy from the early years of schooling. In particular, the National Literacy and Mathematics Strategy 2011–2020 introduced clear targets for student achievement, emphasising phonics-based instruction, early detection of reading difficulties, and improvement of teaching quality. The initial targets set by the strategy were successfully achieved and new ones have since been set, based on PISA results (Shiel et al., 2022), underlining a continued attention to educational outcomes. Further specific focus was placed on student engagement mechanisms, strengthening teaching skills, and promoting parental involvement. These combined efforts enabled Ireland to achieve high PISA results and to become one of the best performing countries.

#### 4.7.2.2 Finland

Finland is an example of a country that consistently ranks high in PISA reading results. A key strategy of the success can be found in the commitment to educational equity. The school system is fully publicly funded and free of charge, and it ensures equal learning opportunities across the country. This model has produced the lowest between-school variation in PISA reading scores among OECD countries, 7% of the overall variance (Ahonen, 2021). Furthermore, the performance of Finnish students is supported by a strong investment in teacher training; teachers work with high professional autonomy and are highly qualified. Furthermore, the Finnish school culture promotes student well-being, social cohesion, and lifelong learning (OECD, 2020c). These factors contribute to high reading achievement and Finland's reputation as a global model of equitable and effective education.

#### 4.7.2.3 Estonia

Estonia has emerged as a top-performing country in PISA reading. The strong performance is the result of a coherent, long-term set of policy measures focusing on quality, equity, and modernisation (Tire, 2021). Estonia has also pursued a clear digital vision for education. National programmes such as the "Tiger Leap" initiative and the "Lifelong Learning Strategy 2020" have promoted the integration of digital technologies, emphasised student-centred learning, and

established ambitious performance goals. In addition, Estonia implemented mandatory external examinations at the end of basic education, aligning with the competences measured by PISA. Assessment culture, educational equity, digitisation, and early intervention have enabled Estonia to become a model of effective education.

#### 4.7.2.4 Canada

Canada is another country that demonstrates a high-performing education system. In particular, Canada is able to combine a high level of equity (small differences in achievement related to socio-economic status) with broad inclusion, having a very high percentage of 15-year-old students achieving basic skills in reading OECD (2023b). Inclusion occurs especially with a broad focus on students from immigrant backgrounds in Canada, who achieve reading results equal to or higher than native peers OECD (2023f). In Canada, the education system is decentralised, but high educational standards are widespread everywhere, showing that a well-structured decentralised system can achieve excellent results on a national scale.

### 4.7.3. Relevant data on the Netherlands and best practice countries

To gain a deeper understanding of the key issues and the main characteristics of the students' results in reading and mathematics, we present a selection of key statistics.

Figure 8 shows the trend in PISA reading scores for the Netherlands from 2009 to 2022. A decline in reading proficiency over this period is evident. Although the negative trend is common across many OECD economies, especially in the post-pandemic period, the Duch context deserves special attention. First, the country's average score has moved from above to below the OECD average over the years, experiencing one of the most significant declines in reading performance between PISA 2018 and 2022, with a drop of 25 PISA points. As Figure 9 shows, the decline is also evident for the top-performing countries. The graph shows the evolution of PISA reading scores from 2009 to 2022 for selected high-achieving education systems (Finland, Canada, Estonia, and Ireland).

*Figure 8: Trends in PISA reading scores in the Netherlands and the OECD average (2009–2022)*

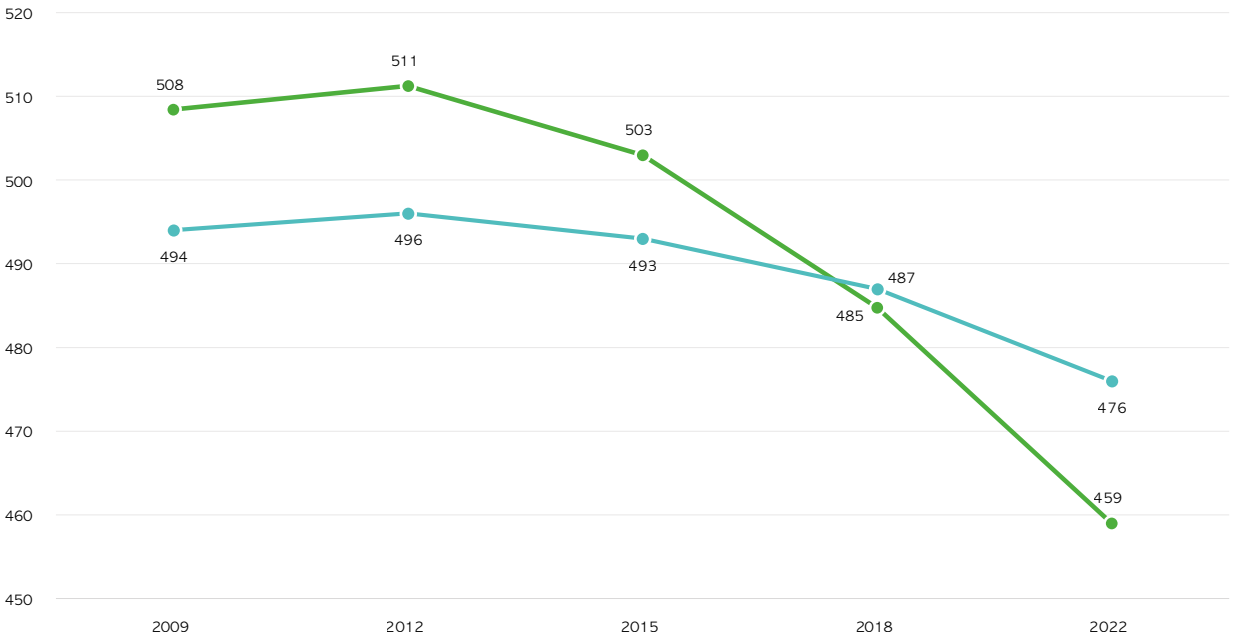
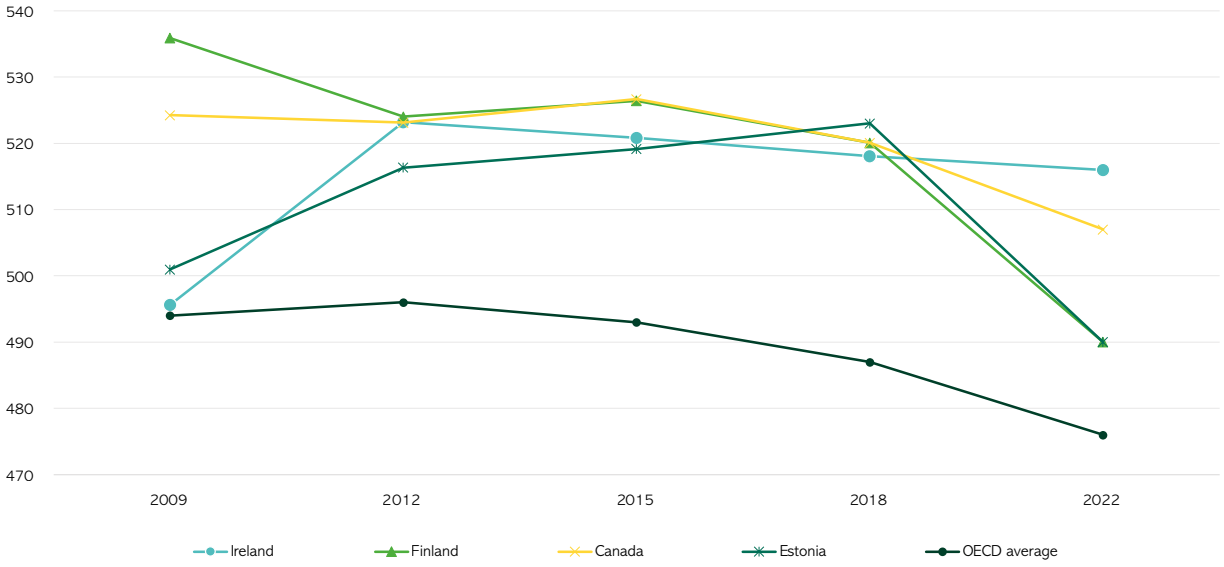


*Figure 9: Trends in PISA reading: top-performing countries and the OECD average (2009–2022)*




However, over the years, these countries have consistently outperformed the OECD average, although Finland and Estonia – two of the countries with the highest scores in reading performance – experienced a significant drop between 2018 and 2022, reflecting the widespread post-pandemic learning disruptions that affected many education systems. Despite this drop, the countries remain among the top performers in reading. Canada, on the other hand, maintained relatively stable reading scores for much of the period with a decline in 2022. Ireland, in contrast, has exhibited a more stable trend, with only moderate variations over the years. Ireland's reading performance in 2022 suggests a certain resilience, as it continues to maintain a high level of achievement.

Examining the results in greater detail, Table 5 presents several key PISA reading indicators for the Netherlands and several high-performing countries (Canada, Estonia, Finland, and Ireland), and the OECD average. The data provide insights into different aspects of reading performance, such as overall student achievement, gender differences, and the distribution of low and top performers.

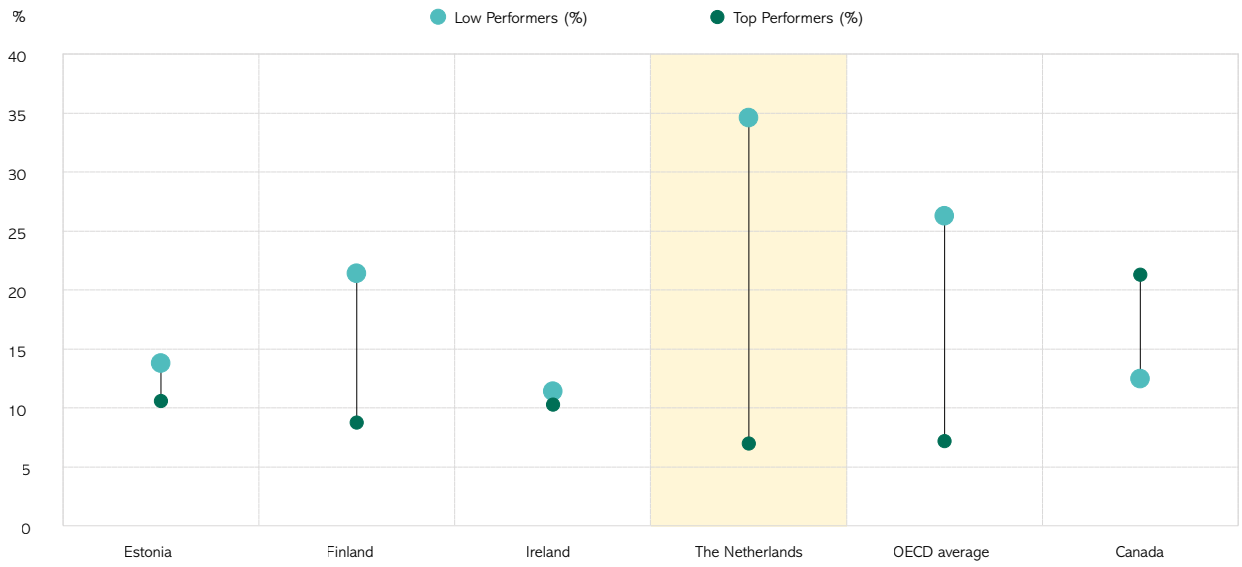
The Netherlands has the highest proportion of low-performing students (34.6%), significantly above the OECD average (26.3%) and much higher than countries such as Ireland (11.4%) and Estonia (13.8%). Additionally, low-performing boys in the Netherlands (39.3%) face particularly severe challenges compared to other countries, whereas the share of top-performing students remains one of the lowest among the selected countries. The gender gap is instead in line with the OECD average. Finally, Figure 11 presents shares of low-performing and top-performing students across selected countries in detail, showing that the contrast between low-performing and high-performing students is not only determined by average performance, but also by the balance of the distribution of performance in the student population. In some countries, such as Ireland, the percentage of low-performing students is very close to that of high-performing students, suggesting a relatively balanced distribution. Canada even has a higher percentage of high achievers than low achievers. On the other hand, the Netherlands shows a much wider gap, with a particularly high share of low-achieving students. This long tail of low achievement highlights a key challenge: efforts must now focus on targeted strategies to support struggling students.

*Table 5: Key PISA reading indicators*

| Dimensions of the reading score | Canada | Estonia | Finland | Ireland | Netherlands | OECD avg. |
|---|---|---|---|---|---|---|
| Student performance in reading (mean score) | 507 | 511 | 490 | 516 | 459 | 476 |
| Boys' performance in reading (mean score) | 495 | 498 | 468 | 507 | 447 | 464 |
| Girls' performance in reading (mean score) | 519 | 525 | 513 | 525 | 473 | 488 |
| Gender difference in reading performance, score-point difference (boys–girls) | −24 | −27 | −45 | −18 | −26 | −24 |
| Difference in reading performance between the 90th and the 10th percentiles (in score points) | 278 | 240 | 270 | 227 | 303 | 262 |
| Low performers in reading (percentage of students scoring below Level 2) | 18.1 | 13.8 | 21.4 | 11.4 | 34.6 | 26.3 |
| Top performers in reading (percentage of students scoring at Level 5 or 6) | 13.6 | 10.6 | 8.8 | 10.3 | 7 | 7.2 |
| Low-performing boys in reading (percentage of boys scoring below Level 2) | 21.8 | 17.5 | 28.2 | 14.5 | 39.3 | 30.7 |
| Top-performing boys in reading (percentage of boys scoring at Level 5 or 6) | 12 | 8.5 | 6 | 9.4 | 5.8 | 6.2 |
| Low-performing girls in reading (percentage of girls scoring below Level 2) | 14.4 | 9.9 | 14.3 | 8.2 | 29.6 | 21.7 |
| Top-performing girls in reading (percentage of girls scoring at Level 5 or 6) | 15.3 | 12.9 | 11.6 | 11.2 | 8.1 | 8.2 |
| Short-term change in mean reading performance (2018 to 2022, in score points) | −13 | −12 | −30 | −2 | −26 | - |

*Note: Source, Education GPS – Student performance (PISA 2022), Education GPS - Netherlands - Student performance (PISA 2022); the last column shows the OECD average.*

*Figure 10: Difference between the percentage of low and top performers in PISA reading scores*



### 4.7.4. Evidence-based solutions and literature

Reading skills are crucial not only for academic success, but also because they are closely linked to career opportunities and active participation in society. A growing body of literature has analysed the factors influencing students' reading performance using PISA data. These studies have highlighted the role of various determinants, including students' socio-economic background, family support, teaching strategies adopted, teaching quality, and student motivation (Hopfenbeck et al., 2018). In addition to factors associated with higher or lower PISA reading scores, another stream of literature has focused on strategies and interventions aimed at improving reading skills. What follows is a review of the main strategies, grouped by type of intervention: targeting at-risk students and personalised tutoring, technology-based interventions, and parental engagement.

#### 4.7.4.1 Targeting at-risk students and personalised tutoring

One of the most effective strategies for improving reading achievement among struggling students is individual or small-group tutoring. A meta-analysis by Slavin et al. (2011) across 607 studies found consistently positive average effects for tutoring interventions, with one-to-one formats yielding the strongest results. These programmes are particularly beneficial for socio-economically disadvantaged students, as confirmed by Dietrichson et al. (2017) and Neitzel et al. (2021), who also emphasised the effectiveness of interventions when tutoring is frequent, explicit (e.g. phonics and vocabulary instruction), and closely aligned with classroom instruction. Similarly, Gersten et al. (2020) found that structured literacy interventions in the early years of school led to significant improvements in basic reading skills when applied consistently and according to plan. For this reason, public policies should prioritise large-scale tutoring programmes, despite such interventions being resource intensive.

#### 4.7.4.2 Technology-based interventions

There is growing attention to the opportunity that digital tools and technology-based interventions can have on students' reading skills. Computer-assisted software can adapt to the specific needs of children, offering activities with engaging graphics and interactive elements that complement classroom instruction. Multiple interventions with different technologies have been analysed in the literature, and the target skills considered to be phonics (Li et al., 2020), fluency (Barber et al., 2018), and comprehension (Horne, 2017). Messer and Nash (2018), for example, studied the effects of using a computer program, Trainertext, which used a visual mnemonic to train phonological awareness. The results indicated that the participants significantly outperformed the control group in all measures. In the same vein, Horne (2017) studied the effect of using the Comprehension Booster programme, which addresses fluency and comprehension in reading and understanding texts at different levels of difficulty. Again, the treated group significantly outperformed the control group in terms of fluency and comprehension. Despite numerous positive results, some studies suggest that it is not the use of technology per se that produces effects, but the quality of pedagogical integration and adherence to the specific needs of students (Ni et al., 2022).

#### 4.7.4.3 PD for teachers

Professional development (PD) is another key ingredient to enhancing instructional practices and improving student literacy outcomes. A growing body of research underscores the importance of equipping teachers with evidence-based strategies to foster foundational reading skills. Wasik and Hindman (2011) demonstrated that intensive and sustained PD for teachers significantly improved classroom quality, and children's receptive vocabulary and phonological sensitivity. The intervention not only enhanced teachers' conceptual knowledge but also provided practical instructional strategies that directly affected the learning environment and children's early literacy development.

Extending this evidence, a comprehensive meta-analysis by Didion et al. (2020) reviewed 28 studies conducted between 1975 and 2017 to evaluate the impact of teacher PD on students' reading achievement from kindergarten eighth grade. Their findings confirmed that teacher PD has a moderate yet significant positive effect on student reading outcomes. The study highlighted the general efficacy of PD across diverse programmes and contexts, but also emphasised the need for better-designed studies to explore which PD characteristics are most impactful. These studies support the idea that targeted, research-based PD is a powerful policy for improving literacy instruction and student achievement, especially when it is intensive and closely tied to classroom practices.

#### 4.7.4.4 Parental engagement

Family involvement in a child's education is widely recognised as one of the key factors influencing academic performance. Positive family influence on children's development has beneficial effects from the earliest years of life. Exposure to books in early childhood is closely linked to the development of vocabulary and listening comprehension. Moreover, parental engagement in reading activities significantly supports the acquisition of early literacy skills, which in turn predict word reading abilities by the end of the first grade and reading proficiency in third grade (Sénéchal &

LeFevre, 2002). The relationship is often explained by the dual mechanism of the increasing perception of the student's cognitive competence and the quality of the student–teacher relationship (Topor et al., 2010). Recent studies confirm the multifaceted impact of parental involvement. Çalışkan and Ulaş (2022) found that structured reading activities with parental involvement significantly improved fourth grade students' reading comprehension, motivation, and attitude towards reading. This highlights how direct parental engagement contributes to the cognitive and affective dimensions of literacy development. However, van Bergen et al. (2017) point out that not all associations between home literacy environment and children's reading achievement are necessarily causal. Their study, which involved parent–child triads, found that when parental reading fluency was taken into account, most home literacy variables lost predictive power, except for the number of books in the home. This suggests that some effects commonly attributed to the home environment may instead reflect hereditary parental traits, underlining the importance of considering both environmental and genetic factors when interpreting the family's role in literacy development.

### 4.7.5. Conclusion

The decline in reading performance among Dutch students, as reflected in the PISA data from 2009 to 2022, introduces critical concerns about the effectiveness of current literacy policies and classroom practices. Although the decreasing trend is common in many countries, the negative trend in the PISA reading score for Dutch students appears particularly severe. The PISA average reading score moved below the OECD average in 2022, and more than one-third of students performed below the basic proficiency level.

Comparisons with high-performing countries such as Ireland, Finland, Estonia, and Canada reveal that policy focus, educational equity, and investment in teacher quality are key factors in maintaining high reading outcomes.

The analysis of PISA indicators shows that the Dutch system suffers from both low overall performance and a highly unequal distribution of results, with a long tail of low achievement. Countries such as Ireland and Canada show that it is possible to achieve both high performance and relative equity, limiting the share of low performers while maintaining a strong cohort of top achievers. This can and should be one of the future goals of the Dutch education system, focusing more strongly on disadvantaged students and implementing targeted measures to reduce the percentage of low performers.

Evidence from the literature confirms that effective solutions for improving reading must be multidimensional and targeted at the early levels of education. Interventions such as structured and frequent tutoring, especially for socio-economically disadvantaged students, have shown strong positive effects. PD for teachers plays a pivotal role, especially when it is intensive, research-based, and aligned with classroom practice. Technological tools, when well-integrated pedagogically, can complement instruction and support personalised learning. Additionally, parental engagement remains a powerful predictor of early literacy development, though its effects are influenced by both environmental and heritable factors.

Improving reading proficiency in the Netherlands will require a national, coordinated effort focused on equity, early intervention, teacher empowerment, and family engagement.

# 4.8. EVIDENCE-BASED SOLUTIONS FOR INCLUSIVE EDUCATION AND SUPPORT FOR DIVERSE LEARNERS

## 4.8.1. Introduction

The development of an inclusive education system has become a central priority for education systems across the world. Key documents such as UNESCO's Salamanca Statement (1994), the new Education 2030 Framework for Action and the Sustainable Development Goal 4 sustain the right to inclusive education for all students, emphasising inclusion and equity as the basis for quality education. However, translating the principles into practice remains a challenge, with many families of children with special educational needs (SEN) still concerned about the quality of their children's education. Despite increasing policy attention, children with SEN continue to be less likely to obtain high-level academic qualifications and face challenges in the labour market, as well as in achieving positive social outcomes (Jordan & Prideaux, 2018; OECD, 2023a). In this context, it is essential that countries invest in the implementation of policies aimed at supporting the academic, social, psychological, and physical development of students, focusing on the acquisition of skills and knowledge during their education (Mezzanotte, 2020).

The European Agency for Special Needs and Inclusive Education (EASNIE) has defined inclusive education as the "provision of high-quality education in schools that value the rights, equality, access, and participation of all learners" (EASNIE, 2018). Although a shared conceptual framework exists, there remains considerable differences in policies and practices across different Member States. These differences reflect the historical evolution of national education systems, and the multiple definition of SEN. Each country has developed its own definition, leading to divergent policy approaches and practical implementations (Brussino, 2020). Currently, in Europe, approaches to the education of students with SEN can generally be grouped into three models: (i) full inclusion of all students in mainstream education; (ii) separate education for most children with SEN; (iii) hybrid approaches combining elements of both systems. Traditionally, the Netherlands has maintained a strong separation between ordinary and special education, falling under the second model. However, recently the country has been progressively moving away from this tradition, evolving towards a more inclusive and hybrid educational model (Cera, 2015). It is important to emphasise that the concept of inclusive education goes beyond the mere physical integration of students into mainstream classrooms. It requires the creation of educational environments in which every student actively participates in the community and learns alongside their peers. Therefore, inclusion must be intended in a broad sense, referring to all students with SEN, physical or cognitive disabilities, learning disorders, language difficulties, or socio-economic disadvantage, whose needs require additional support to fully benefit from mainstream education (EASNIE, 2018).

This section examines the issue of establishing an inclusive education system with a focus on diverse learners. After a focus on best practices that can be learnt from other countries, an analysis of the literature evidence on interventions to promote an inclusive system is discussed, analysing the literature data on the topic.

## 4.8.2. Best practice countries

Several countries are recognised for their commitment to inclusive education. Among these, Finland, Canada, and Italy provide detailed models that may guide policy and practice.

### 4.8.2.1 Finland

Finland is recognised for its inclusive education system, which is considered egalitarian, non-selective, and comprehensive. The Finnish system recognises the importance of identifying and addressing learning disabilities early and providing appropriate resources and interventions to minimise the need for special education (Sahlberg, 2014). A strong focus is placed on teacher training and PD. CPD opportunities ensure that teachers are always up to date with the latest research and best practices in inclusive education (Niemi, 2015). Moreover, the Finnish education system's strong commitment to inclusion is evident in its flexible curriculum and assessment frameworks. A key feature of this approach is the implementation of individual learning plans, which establish tailored goals and strategies designed to support each student's unique educational needs and promote equitable learning outcomes. Furthermore, Finnish schools incorporate the principles of the Universal Design for Learning (UDL), to ensure that teaching methods and classroom environments are accessible to all students from the outset.

#### 4.8.2.2 Canada

Canada is widely recognised for its commitment to inclusive education, although approaches vary by province. The country follows a decentralised model, with provincial governments responsible for developing inclusive education policies tailored to the needs of local communities. In 2009, Inclusive Education Canada (IEC) was established as an autonomous organisation with the objective of promoting quality education for all students in inclusive schools and classrooms. IEC advocates for the creation of inclusive, welcoming, and supportive learning environments that guarantee equal opportunities for all students, regardless of their background or abilities. Although progress is uneven across provinces, some regions such as Ontario and British Columbia have implemented particularly effective inclusive education models. Both provinces mandate the use of individualised education plans for all students who need support, with the help of multidisciplinary teams involving teachers, special education specialists, and families. They also invest in PD programmes focused on inclusive pedagogy and the application of UDL principles in all classrooms (Milford et al., 2022).

#### 4.8.2.3 Italy

The Italian education system is noted for its strong legal and cultural commitment to the inclusion of SEN students. Law 517 of 1977 mandated the integration of students with disabilities into mainstream schools. The country integrated into the system the use of support teachers (*l'insegnanti di sostegno*) within regular classrooms, allowing students with disabilities to learn alongside their peers. These support teachers collaborate with general educators to implement personalised learning strategies. The European Agency for Special Needs and Inclusive Education highlights Italy as an exemplary case where co-teaching, peer tutoring, and family engagement are deeply embedded in everyday school practices (EASNIE, 2020). However, challenges remain for the Italian system, particularly regarding large class sizes and regional disparities in the allocation of resources and specialised training, which can affect the consistency of inclusive practices across the country.

### 4.8.3. Evidence-based solutions and literature

The literature over the past decades has produced numerous studies on strategies that promote an inclusive and supportive environment for all students, fostering the academic success of SEN students. This section examines some of these strategies, grouped into key macro groups: teacher training and PD, cooperative classroom teaching, family involvement, and technology and adaptive supports.

#### 4.8.3.1 Teacher training and PD

Teacher PD is recognised as an essential element in building an inclusive education system that is responsive to students' needs. A meta-analysis (Donath et al., 2023) aggregated the results of 342 studies focusing on inclusive education. The results show that teacher training has positive effects on multiple levels. After training, teachers demonstrate significantly increased knowledge about inclusion and improved teaching skills for diverse classrooms. In addition, improvements were also found in teachers' attitudes, reducing negative biases or concerns.
Finally, small to moderate improvements in students' academic performance and behavioural outcomes are also reported. In the same direction, Lautenbach and Heyder (2019), highlight that targeted interventions during pre-service teacher education, especially those combining theoretical instruction with direct field experience, are effective in fostering more positive attitudes towards inclusion.
However, Sims and Fletcher-Wood (2020) argue that while there is a consensus on certain characteristics of effective PD, such as being sustained, collaborative, and subject-specific, this consensus may be based on studies with methodological weaknesses. They emphasise the need for more rigorous evaluations to accurately identify the features of PD that truly impact student outcomes.

#### 4.8.3.2 Cooperative teaching in the classroom (co-teaching)

Cooperative teaching or co-teaching refers to an organisational model in which two teachers share responsibility for teaching and assessment for the same class. In an inclusive context, the most common form of co-teaching is the pair consisting of a curricular teacher and a support or special needs teacher, working together to instruct a group that includes pupils with special needs. The idea is that by combining skills the two teachers can differentiate teaching more effectively and provide support to those in need without removing them from the classroom.

Research on co-teaching indicates several benefits. From the perspective of students with disabilities, having two teachers in the classroom can result in greater individual attention and immediate adjustments during the lesson rather than ex post. A meta-analysis of co-teaching interventions (Murawski & Swanson, 2001) reported a positive effect on the academic performance of students with special needs, especially in mathematics and reading.

More recent studies confirm that students with disabilities in co-teaching classes show progress comparable to that achieved in special classroom settings, without compromising the performance of peers without disabilities. For example, research conducted in Canada (Tremblay, 2013) compared the mathematics and reading achievement of classes adopting co-teaching versus traditional special classrooms. Pupils in the first case, including those with learning disabilities, achieved significantly higher scores on standardised tests than peers in classes without co-teachers. Recent studies further support these conclusions, showing that co-teaching can enhance the academic achievement of students with disabilities when high-quality collaboration and effective instructional strategies are in place. However, simply placing two teachers in the same classroom is not sufficient and the success of the interventions depends on careful planning and strong collaboration (King-Sears et al., 2021).

#### 4.8.3.3 Family involvement

Family involvement in the education of students with special needs is widely recognised as a key success factor. Active parental participation is associated with better academic outcomes, greater motivation to learn, and fewer behavioural problems among students overall (Musendo et al., 2023; OECD, 2025). Collaboration between families and schools is particularly critical for students with disabilities, as educational goals are more effectively achieved when both environments work in synergy, sharing methodologies and reinforcing progress.

Sheridan et al. (2011), in a randomised trial of a parental engagement intervention designed to promote school readiness among disadvantaged preschoolers, found statistically significant differences in favour of the treatment group. Children whose families participated in the intervention showed greater improvements in language use, and reading and writing skills compared to controls, highlighting the critical role of family involvement in early academic development. Further, Sheridan et al. (2019) conducted a meta-analysis examining the effects of family–school interventions on children's social-behavioural competence and mental health. Their findings revealed significant positive effects with communication, collaboration, and strong parent–teacher relationships being particularly influential. These results indicate the substantial benefits of family–school partnerships and the importance of tailoring interventions to the specific needs of diverse families and communities.

#### 4.8.3.4 Technology and adaptive supports

Assistive technology and other adaptive supports can play a crucial role in accommodating diverse learning needs. Assistive technologies such as software, apps, communication devices, and visual schedules can help students with disabilities participate actively in general classrooms. Empirical studies show that integrating assistive technology can improve educational access and outcomes for students with special needs. Fernández-Batanero et al. (2022), in a literature review, underline how technology enhances the inclusion and accessibility of students with disabilities. However, they also identified significant barriers, such as insufficient teacher training, lack of information, and accessibility challenges. Alongside technology, other adaptive supports such as curricular accommodation and specialist support services are critical. Empirical evidence supports providing accommodation such as extra time, simplified instructions, or sensory breaks to students who need them, as these adjustments enable equitable learning outcomes without compromising high expectations (Hustus et al., 2021).
Equipping classrooms with appropriate assistive technologies and ensuring that students receive the necessary accommodation are effective strategies to break down barriers to inclusion. However, implementation is not without challenges, including insufficient training and support for teachers (Howard-Bostic et al., 2015; Dell et al., 2020), as well as limited funding, which often prevents schools from providing assistive technology to all students who need it. These findings suggest that positive outcomes can only occur alongside a corresponding investment in teacher training, adequate resources, and systemic support for inclusive practices.

#### 4.8.3.5 Peer-mediated interventions

A set of studies focused on approaches that involve training or guiding classmates without disabilities, to provide academic and social support to students with SEN within general education classrooms. A literature review by Brock and Huber (2017) found that peer support arrangements are an evidence-based practice for promoting social interactions for secondary students with severe disabilities. In the same direction, a randomised controlled experiment has been implemented to examine the efficacy of peer support arrangements to improve academic and social outcomes for students with severe disabilities in high school general education classrooms (Carter et al., 2016). Compared to students exclusively receiving adult-delivered support, students participating in peer support arrangements experienced increased interactions with peers, increased academic engagement, more progress on individualised social goals, increased social participation, and a greater number of new friendships. Importantly, the involvement of peers as intervention agents had no negative effects on peers' own learning. Peer helpers often maintain, or even improve their academic engagement through these experiences (Bowman-Perrott et al., 2013; Travers & Carter, 2022).

This evidence suggests that peer-mediated interventions are a functional inclusive strategy to enrich the learning and social belonging of students with disabilities, contributing substantially to more inclusive and supportive classroom communities.

#### 4.8.3.6 Social emotional learning (SEL) programmes

SEL programmes are designed to develop students' skills in emotional regulation, empathy, interpersonal relationships, and responsible decision-making. SEL initiatives are recognised as essential tools to foster inclusive school environments that support the success of all learners, including students with SEN, learning difficulties, socio-economic disadvantages, or cultural and linguistic diversity. Research shows that SEL programmes improve students' social interactions, reduce behavioural problems, and enhance academic outcomes (Durlak et al., 2011). By promoting a positive school climate and strengthening social belonging, SEL initiatives contribute to the active participation and integration of diverse learners within mainstream classrooms, reinforcing the goals of inclusive education.

### 4.8.4. Conclusion

The development of an inclusive education system has become a central goal of many countries around the world. Besides the main issues related to a sufficiently comprehensive definition of students with SEN and the structure of the education system that includes all students in mainstream schools, the inclusiveness process stems from the implementation of policies with a diverse range of interventions intended to sustain and help all students.
The literature highlights several key strategies that effectively support the inclusion of students with SEN. The ongoing PD of teachers, cooperative teaching models, active engagement of families, integration of assistive technologies, and peer-mediated interventions demonstrate that building an inclusive education system is not limited to the physical placement of students with SEN in mainstream classrooms. It involves creating learning environments in which all students can fully participate, interact, and achieve academic and social success. Evidence shows that well-supported, well-staffed, and adequately resourced mainstream schools can promote both equity and excellence. Policies must therefore focus on investing in teacher preparation, promoting collaborative practices, ensuring access to technological and adaptive tools, and building strong partnerships with families.

# 4.9. GENERAL CONCLUSION

Relying on a benchmarking analysis, this chapter has highlighted a number of critical challenges currently facing in many Western education systems. Among the most pressing are persistent teacher shortages, comparatively high levels of educational inequality, under-participation in ECEC – particularly among minority and immigrant children – and declining performance in key academic areas such as mathematics and reading. These issues are not isolated; they reflect complex systemic dynamics that require multifaceted and coordinated policy responses.

Drawing on comparative insights from countries often regarded as exemplars – such as Finland, Estonia, Canada, and Singapore – the chapter illustrates that effective responses typically involve integrated policy packages that address both structural and pedagogical dimensions. In particular, strategies that invest in the teaching profession are consistently associated with better outcomes. These include strengthening initial teacher education, improving the quality and accessibility of PD, creating diversified career pathways, and ensuring competitive remuneration.

Moreover, addressing educational inequality demands targeted support for disadvantaged populations, both at the school level and across the broader education system. In the Netherlands, students from lower socio-economic and immigrant backgrounds face significant barriers to educational success. Evidence from Estonia and South Korea suggests that early interventions – such as universal access to high-quality ECEC, language support programmes, and inclusive curricular approaches – can mitigate these disparities. Importantly, these interventions are most effective when delivered through coordinated governance structures that ensure alignment across funding, curriculum, teacher training, and accountability systems.

The decline in Dutch students' performance in PISA assessments, especially in reading, signals the need for renewed attention to curriculum design and instructional quality. Countries that have succeeded in maintaining or improving academic achievement often combine foundational knowledge with critical thinking, problem-solving, and civic education. This is complemented by the use of data-driven interventions and sustained support for low-performing schools and students. Furthermore, efforts to build trust with underserved communities – through parental engagement, culturally responsive pedagogy, and inclusive communication – are crucial for fostering equitable educational environments.

Despite the progress made in certain areas, there remains a limited understanding of how specific policy interventions translate into improved outcomes, particularly within the European context. The Netherlands can therefore benefit not only from adopting international best practices, but also from investing in the continuous evaluation of domestic reforms. A systematic and evidence-based approach – grounded in comparative data, robust policy experimentation, and stakeholder collaboration – will be essential to ensure that all students, regardless of background, can access high-quality education and develop the competencies needed to thrive in a rapidly changing world.

# 4.10. REFERENCES

Aakvik, A., Salvanes, K. G., & Vaage, K. (2010). Measuring heterogeneity in the returns to education using an education reform. *European Economic Review, 54*(4), 483– 500.

Agasisti, T. (2011). Does competition affect schools' performance? Evidence from Italy through OECD- PISA data. *European Journal of Education, 46*(4), 549– 565.

Agasisti, T., Cannistra, M., D'Inverno, G. and De Witte, K. (2023). The efficiency and effectiveness of education systems – A comparative Analysis. In EIPA. P*ublic Sector Performance Programme 2022-2025 – An International Benchmarking Study.* P. 216-265.

Ahonen, A. K. (2021). Finland: Success through equity — The trajectories in PISA performance. In *Improving a country's education: PISA 2018 results in 10 countries* (pp. 121–136).

Angrist, J., & Lavy, V. (2002). New evidence on classroom computers and pupil learning. *The Economic Journal, 112*(482), 735– 765.

Ansyari, F., Groot, W. & De Witte, K. (2020). Tracking the process of data use professional development interventions for instructional improvement: A systematic literature review. *Educational Research Review 31* (100362), p1-18.

Ansyari, F., Groot, W. & De Witte, K. (2022a). A systematic review and meta-analysis of data use professional development interventions. *Journal of Professional Capital & Community* 7 (3), p.256-289.

Ansyari, F., Groot, W. and De Witte, K. (2022b). Teachers' preferences for online professional development: Evidence from a discrete choice experiment. *Teaching and Teacher Education 119*, p. 1-13.

Badunenko, O., D'Inverno, G., & De Witte, K. (2023). On distinguishing the direct causal effect of an intervention from its efficiency-enhancing effects. *European Journal of Operational Researc*h, 310(1), 432-447.

Baker, B. D. (2025). Framework for Evaluating & Reforming Education Finance Systems.

Bakker et al. (2023): Bakker, A.F., Das, L., Lange, A. De, Leseman, P. & Varwijk, J.: Personeelstekort bij voorschoolse educatie. https://www.rijksoverheid.nl/documenten/rapporten/2023/10/27/rapportage-personeelstekort-bij-voorschoolse-educatie

Barber, M., Cartledge, G., Council III, M., Konrad, M., Gardner, R., & Telesman, A. O. (2018). The Effects of Computer-Assisted Culturally Relevant Repeated Readings on English Learners' Fluency and Comprehension. *Learning Disabilities: A Contemporary Journal, **16***(2), 205-229.

Bartelet, D., Ghysels, J., Groot, W., Haelermans, C., & Maassen van den Brink, H. (2016). The differential effect of basic mathematics skills homework via a web-based intelligent tutoring system across achievement subgroups and mathematics domains: A randomized field experiment. *Journal of Educational Psychology, 108*(1), 1.

Battistin, E., & Meroni, E. C. (2016). Should we increase instruction time in low achieving schools? Evidence from Southern Italy. *Economics of Education Review, 55*, 39– 56.

Belmonte, A., Bove, V., D'Inverno, G., & Modica, M. (2020). School infrastructure spending and educational outcomes: Evidence from the 2012 earthquake in Northern Italy. *Economics of Education Review, 75*, 101951.

Bilgili, Ö. (2019), "Policy approaches to integration of newly arrived immigrant children in schools: The case of the Netherlands", *OECD Education Working Papers, No. 206*, Paris: OECD Publishing.

Bonesrønning, H., Finseraas, H., Hardoy, I., Iversen, J. M. V., Nyhus, O. H., Opheim, V., ... & Schøne, P. (2022). Small-group instruction to improve student performance in mathematics in early grades: Results from a randomized field experiment. *Journal of Public Economics, 216*, 104765.

Boonk, L., Gijselaers, H. J., Ritzen, H., & Brand-Gruwel, S. (2018). A review of the relationship between parental involvement indicators and academic achievement. *Educational research review, 24*, 10-30.

Borman, G. D., & Dowling, N. M. (2008). Teacher attrition and retention: A meta-analytic and narrative review of the research. *Review of Educational Research, 78*(3), 367–409.

Bowman-Perrott, L., Davis, H., Vannest, K., Williams, L., Greenwood, C., & Parker, R. (2013). Academic benefits of peer tutoring: A meta-analytic review of single-case research. *School Psychology Review, 42*(1), 39–55.

Brock, M. E., & Huber, H. B. (2017). Are peer support arrangements an evidence-based practice? A systematic review. *The Journal of Special Education, 51*(3), 150–163.

Brunsek, A. et al. (2020), A meta-analysis and systematic review of the associations between professional development of early childhood educators and children's outcomes, *Early Childhood Research Quarterly, Vol. 53*, pp. 217-248

Brussino, O. (2020). Mapping policy approaches and practices for the inclusion of students with special education needs. *OECD Education Working Papers, No. 227.* Paris: OECD Publishing.

Burge, P., Lu, H., & Phillips, W. (2021). Understanding Teacher Retention: Using a Discrete Choice Experiment to Measure Teacher Retention in England. RR-A181-1. RAND Europe.

Burke, P. F., Aubusson, P. J., Schuck, S. R., Buchanan, J. D., & Prescott, A. E. (2015). How do early career teachers value different types of support? A scale-adjusted latent class choice model. *Teaching and teacher education, 47*, 241-253.

Çalışkan, M., & Ulaş, A. H. (2022). The effect of parental involvement on primary school students' reading comprehension, motivation and attitude. *International Journal of Educational Research Review, 7*(3), 246–258.

Carlo, A., Crespo, T., & Streit, E. (2013). Retaining teachers: An empirical study of motivational factors. *Teaching and Teacher Education, 32*, 91–103.

Carrizosa, L., & De Witte, K. (2023). Teacher absenteeism: a conceptual model developed from a systematic literature review. KU Leuven working paper series.

Carter, E. W., Asmus, J., Moss, C. K., Biggs, E. E., Bolt, D. M., Born, T. L., ... & Weir, K. (2016). Randomized evaluation of peer support arrangements to support the inclusion of high school students with severe disabilities. *Exceptional Children, 82*(2), 209-233.

Centraal Bureau voor de Statistiek (2024). Integratie en samenleven 2024. Den Haag/Heerlen/Bonaire.

Cera, R. (2015). National legislations on inclusive education and special educational needs of people with autism in the perspective of Article 24 of the CRPD. In V. Della Fina & R. Cera (Eds.), *Protecting the Rights of People with Autism in the Fields of Education and Employment* (pp. 67–98). Springer.

Cherchye, L., De Witte, K., Ooghe, E. and Nicaise, I. (2010), Equity and Efficiency in Private and Public Education: a nonparametric comparison. *European Journal of Operational Research 202* (2), 563-573.

Cheung, A. C., & Slavin, R. E. (2013). The effectiveness of educational technology applications for enhancing mathematics achievement in K-12 classrooms: A meta-analysis. *Educational research review, 9*, 88-113.

Clotfelter, C., Glennie, E., Ladd, H., & Vigdor, J. (2008). Would higher salaries keep teachers in high- poverty schools? Evidence from a policy intervention in North Carolina. *Journal of Public Economics, 92*(5- 6), 1352– 1370.

Compen, B., De Witte, K., and Schelfhout, W. (2019). The Role of Teacher Professional Development in Financial Literacy Education: A Systematic Literature Review. *Educational Research Review 26*, 16-31.

D'Inverno, G., Polo, C., Sicilia, G., & Simancas Rodríguez, R. (2025) International Differences in Educational Equity: An Assessment Using the Benefit of the Doubt Model. *Socio-Economic Planning Sciences, 99*, 102206

D'Inverno, G., Smet, M., & De Witte, K. (2021). Impact evaluation in a multi-input multi-output setting: Evidence on the effect of additional resources for schools. *European journal of operational research, 290*(3), 1111-1124.

Darling-Hammond, L., Wei, R.C., & Andree, A. (2010). *How High-Achieving Countries Develop Great Teachers.* Stanford: Stanford Center for Opportunity Policy in Education.

De Cort, W. & De Witte, K. (2024). The Potential of Tutoring in Higher Education: Students' Preferences, Consumption and the Role of Information. *Higher Education.* In Press.

De Cort, W., & De Witte, K. (2024). The potential of tutoring in higher education: students' preferences, consumption, and the role of information. *Higher Education*, 1-19.

De Ree, J., Maggioni, M. A., Paulle, B., Rossignoli, D., Ruijs, N., & Walentek, D. (2023). Closing the income-achievement gap? Experimental evidence from high-dosage tutoring in Dutch primary education. *Economics of Education Review, 94*, 102383.

De Witte, K. & Iterbeke, K. (2022). Het lerarentekort als katalysator voor onderwijshervormingen. *Leuvense Economische Standpunten, 191*, p. 16.

De Witte, K., and Tomini, F. (2017). Inequality and education: education as a cure for disadvantage. In Johnes, G., Johnes, J., Agasisti, T., and López-Torres, L. (Eds.). *Handbook of Contemporary Education Economics.* Edward Elgar Publishing.

De Witte, K., De Cort, W., & Gambi, L. (2023). Evidence-based solutions to Teacher Shortages. *EENEE-NESET Analytical Report,* p. 102.

De Witte, K., De Cort, W., Tobback, I., Van Belle, J., Schelfhout, W., Tanghe, E., Smet, M., Vansteenkiste, S. (2024). De in- en uitstroom in het lerarenberoep vanuit vergelijkend perspectief. *Tijdschrift voor Onderwijsrecht en onderwijsbeleid. 4*, p. 234-240.

De Witte, K., Haelermans, C. and Rogge, N. (2015). The effectiveness of a computer-assisted math learning program. *Journal of Computer Assisted Learning 31* (4), 314-329.

De Witte, K., Smet, M., & Van Assche, R. (2024). School financing and equal educational opportunity. *Privatization in and of Public Education, 177*. Oxford University Press.

De Witte, K., Smet, M., and Van Assche, R. (2017). Specific Interventions in Equity Funding – A review of policy interventions. Research Paper SONO/2017.OL3.1/2, pp. 29.

Dee, T. S. (2011). Conditional cash penalties in education: Evidence from the Learnfare experiment. *Economics of Education Review, 30*(5), 924– 937.

Dell, A. G., Newton, D. A., & Petroff, J. G. (2020). Assistive technology to support inclusive education. *Journal of Special Education Technology, 35*(2), 77–89. https://doi.org/10.1177/0162643420914624

Dettmers, S., Trautwein, U., Lüdtke, O., Kunter, M., & Baumert, J. (2010). Homework works if homework quality is high: using multilevel modeling to predict the development of achievement in mathematics. *Journal of Educational Psychology, 102*(2), 467.

Di Tommaso, M. L., Contini, D., De Rosa, D., Ferrara, F., Piazzalunga, D., & Robutti, O. (2024). Tackling the gender gap in mathematics with active learning methodologies. *Economics of Education Review, 100*, 102538.

Didion, L., Toste, J. R., & Filderman, M. J. (2020). Teacher professional development and student reading achievement: A meta-analytic review of the effects. *Journal of Research on Educational Effectiveness, 13*(1), 29-66.

Dietrichson, J., Bøg, M., Filges, T., & Klint Jørgensen, A. M. (2017). Academic interventions for elementary and middle school students with low socioeconomic status: A systematic review and meta-analysis. *Review of Educational Research, 87*(2), 243–282.

Dietrichson, J., Lykke Kristiansen, I., & Viinholt, B. A. (2020). Universal preschool programs and long-term child outcomes: A systematic review. *Journal of Economic Surveys, 34*(5), 1007-1043.

Ding, W., & Lehrer, S. F. (2010). Estimating treatment effects from contaminated multiperiod education experiments: The dynamic impacts of class size reductions. *The Review of Economics and Statistics, 92*(1), 31-42.

Dobbelsteen, S., Levin, J., & Oosterbeek, H. (2002). The causal effect of class size on scholastic achievement: Distinguishing the pure class size effect from the effect of changes in class composition. *Oxford Bulletin of Economics and Statistics, 64*(1), 17– 38.

Donath, J. L., Umesh, M., Decristan, J., Fauth, B., & Klieme, E. (2023). Does professional development effectively support the implementation of inclusive education? A meta-analysis. *Educational Psychology Review, 35*(1), 30–64.

Donlevy, V., Mejerkord, A., & Rajania, A. (2016). *Study on the diversity within the teaching profession with particular focus on migrant and minority background: Annexes.* Brussels: European Commission.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child development, 82*(1), 405-432.

Egert, F., R. Fukkink and A. Eckhardt (2018), Impact of In-Service Professional Development Programs for Early Childhood Teachers on Quality Ratings and Child Outcomes: A Meta-Analysis, *Review of Educational Research, Vol. 88*/3, pp. 401-433

Eurofound (2019). *Labour Market Challenges in the Education Sector*. Dublin: Eurofound.

European Agency for Special Needs and Inclusive Education (EASNIE), (2020). *Country report: Italy*.

European Agency for Special Needs and Inclusive Education, (EASNIE) (2018). *Evidence of the link between inclusive education and social inclusion: A review of the literature* (S. Symeonidou, Ed.). Odense, Denmark: European Agency for Special Needs and Inclusive Education.

European Commission (2022). *Education and Training Monitor.* Brussels: European Commission.

European Commission (2022). *Investing in our future – Quality investment in education and training*, Publications Office of the European Union, 2022, https://data.europa.eu/doi/10.2766/45896

European Commission (2023). *Staff shortages in early childhood education and care (ECEC) – Policy brief*, Publications Office of the European Union, 2023, https://data.europa.eu/doi/10.2766/385

European Commission (2024a). *Education and training monitor 2024a – Comparative report*, Publications Office of the European Union, 2024, https://data.europa.eu/doi/10.2766/815875

European Commission (2024b). *Education and training monitor 2024b – The Netherlands*, Publications Office of the European Union, 2024, https://data.europa.eu/doi/10.2766/29093

European Education and Culture Executive Agency (2025): *Eurydice, Key data on early childhood education and care in Europe 2025 – Eurydice report*, Publications Office of the European Union, 2025, https://data.europa.eu/doi/10.2797/66224

European Education and Culture Executive Agency (2025): *Eurydice, Structural indicators for monitoring education and training systems in Europe 2023 – Early childhood education and care*, Publications Office of the European Union, 2023, https://data.europa.eu/doi/10.2797/670097

Falch, T. (2010). The elasticity of labor supply at the establishment level. *Journal of Labor Economics, 28*(2), 237–266.

Falch, T. (2011). Teacher mobility responses to wage changes: Evidence from a quasi-natural experiment. *American Economic Review, 101*(3), 460-465.

Fan, H., Xu, J., Cai, Z., He, J., & Fan, X. (2017). Homework and students' achievement in math and science: A 30-year meta-analysis, 1986–2015. *Educational Research Review, 20*, 35-54.

Fernández-Batanero, J. M., Montenegro-Rueda, M., Fernández-Cerero, J., & Soto-Varela, R. (2022). Assistive technology for the inclusion of students with disabilities: A systematic review. *Educational Technology Research and Development, 70*(4), 1911–1930.

Finnish National Agency for Education (2020). *Teacher Education Policies in Finland*. Helsinki: EDUFI.

Fiorella, L., & Mayer, R. E. (2013). The relative benefits of learning by teaching and teaching expectancy. *Contemporary Educational Psychology, 38*(4), 281-288.

Fiskerstrand, A. (2022). Literature review–Parent involvement and mathematic outcome. *Educational Research Review, 37*, 100458.

Francis, B., Archer, L., Hodgen, J., Pepper, D., Taylor, B., & Travers, M. C. (2017). Exploring the relative lack of impact of research on 'ability grouping' in England: A discourse analytic account. *Cambridge Journal of Education, 47*(1), 1-17.

Gambi, L., & De Witte, K. (2023). The uphill battle: The amplifying effects of negative trends in test scores, COVID-19 school closures and teacher shortages. *FEB Research Report Department of Economics*.

Gersten, R., Haymond, K., Newman-Gonchar, R., Dimino, J., & Jayanthi, M. (2020). Meta-analysis of the impact of reading interventions for students in the primary grades. *Journal of Research on Educational Effectiveness, 13*(2), 401–427.

Ghazarian, P. G. (2018). Multiculturalism in South Korea: examining government aspirations through the second basic plan for immigration. *Multicultural Education Review, 10*(1), 18-34.

Goodall, J., & Montgomery, C. (2014). Parental involvement to parental engagement: a continuum. *Educational Review, 66*(4), 399-410.

Gortazar, L., Hupkau, C., & Roldán-Monés, A. (2024). Online tutoring works: Experimental evidence from a program with vulnerable children. *Journal of public economics, 232*, 105082.

Grönqvist, E., & Vlachos, J. (2016). One size fits all? The effects of teachers' cognitive and social abilities on student achievement. *Labour Economics, 42*, 138-150.

Guo, Y. (2021). Towards social justice and equity in English as an Additional Language (EAL) policies: The agency of immigrant parents in language policy advocacy in Alberta schools. ***International Review of Education, 67***(6), 811-832.

Guryan, J., Ludwig, J., Bhatt, M. P., Cook, P. J., Davis, J. M., Dodge, K., ... & Stoddard, G. (2023). Not too late: Improving academic outcomes among adolescents. *American Economic Review, 113*(3), 738-765.

Hanushek, E. A. (2003). The failure of input- based schooling policies. *The Economic Journal, 113*(485), 64– 98.

Hendricks, M. (2016). Differential teacher attrition: Do high-ability teachers exit at higher rates?. Available at SSRN 2824586.

Hendricks, M. D. (2014). Does it pay to pay teachers more? Evidence from Texas. *Journal of Public Economics, 109*, 50-63.

Henry, G. T., Fortner, C. K., & Thompson, C. L. (2010). Targeted funding for educationally disadvantaged students: A regression discontinuity estimate of the impact on high school student achievement, *Educational Evaluation and Policy Analysis, 32*(2), 183– 204.

Higgins, S., Katsipataki, M., Villanueva-Aguilera, A. B., Coleman, R., Henderson, P., Major, L. E., ... & Mason, D. (2016). The Sutton Trust-Education Endowment Foundation Teaching and Learning toolkit.

Hillmayr, D., Ziernwald, L., Reinhold, F., Hofer, S. I., & Reiss, K. M. (2020). The potential of digital tools to enhance mathematics and science learning in secondary schools: A context-specific meta-analysis. *Computers & Education, 153*, 103897.

Hirsh-Pasek, K., Michnick Golinkoff, R., Berk, L. E., & Singer, D. (2008). A Mandate for Playful Learning in Preschool: Presenting the Evidence (New York, 2008; online edn, Oxford Academic, 1 Apr. 2010), https://doi.org/10.1093/acprof:oso/9780195382716.001.0001, accessed 25 Mar. 2025.

Holmes, W., & Tuomi, I. (2022). State of the art and practice in AI in education. *European journal of education, 57*(4), 542-570.

Hoogerheide, V., Visee, J., Lachner, A., & van Gog, T. (2019). Generating an instructional video as homework activity is both effective and enjoyable. *Learning and Instruction, 64*, 101226.

Hopfenbeck, T. N., Lenkeit, J., El Masri, Y., Cantrell, K., Ryan, J., & Baird, J. A. (2018). Lessons learned from PISA: A systematic review of peer-reviewed articles on the programme for international student assessment. *Scandinavian Journal of Educational Research, 62*(3), 333-353.

Horne, J. K. (2017). Reading comprehension: A computerized intervention with primary-age poor readers. *Dyslexia, 23*(2), 119-140.

Howard-Bostic, C., Wood, L., Johnson, C., & Jones, E. (2015). Special education teachers' use of assistive technology with students with disabilities. *Journal of Instructional Pedagogies, 17*, 1–7.

Hoxby, C. M. (2000). The effects of class size on student achievement: New evidence from population variation. *The Quarterly Journal of Economics, 115*(4), 1239– 1285.

Hustus, C., Parham, L., & Griffin, A. (2021). Educational accommodations for students with disabilities: A review of the literature. *Frontiers in Education, 6*, 795266.

Inspectie van het Onderwijs (2024), De Staat van het Onderwijs 2024

Iterbeke, K., De Witte, K, and Schelfhout, W. (2021). The effects of computer-assisted adaptive instruction and elaborated feedback on learning outcomes. A randomized control trial. *Computers in Human Behavior 106666*, p. 1-19.

Iterbeke, K., Schelfhout, W. and De Witte, K. (2022). The Role of Students' Interests during Computer-Assisted Learning: A Field Experiment. *Computers in Human Behavior 130 (107168), p. 1-17.*

Jenkins, J. M., Duncan, G. J., Auger, A., Bitler, M., Domina, T., & Burchinal, M. (2018). Boosting school readiness: Should preschool teachers target skills or the whole child? *Economics of Education Review, 65*, 107-125.

Johnston, O., Spina, N., Macqueen, S., & Spooner-Lane, R. (2025). Why do schools continue to use between-class ability grouping? *PROSPECTS,* 1-18.

Jordan, V., & Prideaux, R. (2018). Access to quality education for children with special educational needs. *European Platform for Investing in Children (EPIC)*, European Commission.

Kent, C., du Boulay, B., & Cukurova, M. (2022). Keeping the parents outside the school gate - A critical review. *Education Sciences, 12*(10), 683.

Kim, C. M., & Lee, J. Y. (2020). Effects of South Korea's educational welfare priority project on elementary-and middle-school students' changes in self-esteem and adaptation to school life. *Children and Youth Services Review, 109*, 104618.

Kim, S. (2022). Fifty years of parental involvement and achievement research: A second-order meta-analysis. *Educational Research Review, 37*, 100463.

King-Sears, M. E., Stefanidis, A., Berkeley, S., & Strogilos, V. (2021). Does co-teaching improve academic achievement for students with disabilities? A meta-analysis. *Educational Research Review, 34*, 100405.

Koehler, C., N. Palaiologou and O. Brussino (2022), "Holistic refugee and newcomer education in Europe : Mapping, upscaling and institutionalising promising practices from Germany, Greece and the Netherlands", *OECD Education Working Papers, No. 264*, OECD Publishing, Paris

Kolbe, S. W. (2025). Learning by Teaching: A Pathway to Educational Justice. *International Journal of Teaching and Learning Sciences, 2*(2), 100116.

Koninklijke Nederlandse Akademie van Wetenschappen. (2009). Rekenonderwijs op de basisschool: Analyse en sleutels tot verbetering [Math education at primary school: Analysis and the keys for improvement].

Kortekaas-Rijlaarsdam, A. F., Ehren, M., & Meeter, M. (2020). Catch-up programmes in primary education in the Netherlands: overview of programmes (first tranche) and a literature review of effectiveness of programmes.

Koskinen, R., & Pitkäniemi, H. (2022). Meaningful Learning in Mathematics: A Research Synthesis of Teaching Approaches. *International electronic journal of mathematics education, 17*(2), Article em0679.

Kraft, M. A., List, J. A., Livingston, J. A., & Sadoff, S. (2022, May). Online Tutoring by College Volunteers. In *AEA Papers and Proceedings* (Vol. 112, pp. 614-618). American Economic Association.

Kraft, M. A., Marinell, W. H., & Shen- Wei Yee, D. (2016). School organizational contexts, teacher turnover, and student achievement: Evidence from panel data. *American Educational Research Journal, 53*(5), 1411– 1449.

Krueger, A. B., & Whitmore, D. M. (2001). The effect of attending a small class in the early grades on college- test taking and middle school test results: Evidence from Project STAR. *The Economic Journal, 111*(468), 1– 28.

Kutsyuruba, B., Godden, L., & Walker, K. (2024). Teacher Induction Policy Development and Implementation: A Case of Ontario's New Teacher Induction Program (NTIP). *International Journal of Education Policy and Leadership, 20*(2), 1-25.Kwek, D., Ho, J., & Wong, H. M. (2023). Singapore's Educational Reforms toward Holistic Outcomes:(Un) Intended Consequences of Policy Layering. Case Study. Center for Universal Education at The Brookings Institution.

Kyriacou, C., Hultgren, Å., & Stephens, P. (2003). Student teachers' motivation to become a secondary school teacher in England and Norway. *Teacher Development, 7*(3), 373–381.

Lautenbach, F., & Heyder, A. (2019). Changing attitudes to inclusion in preservice teacher education: A systematic review. *Educational Research, 61*(2), 231–253.

Lavy, V. (2002). Evaluating the effect of teachers' group performance incentives on pupil achievement. *Journal of Political Economy, 110*(6), 1286– 1317.

Lavy, V. (2008). Does raising the principal's wage improve the school's outcomes? Quasi-experimental evidence from an unusual policy experiment in Israel. *Scandinavian Journal of Economics, 110*(4), 639– 662.

Lee, S., So, K., & Park, J. (2023). Problematizing the paradoxical pedagogical gestures of 'embracing diversity': The case of multicultural education policies in South Korea. *International Journal of Educational Research, 120*, 102216.

Lenard, M. A., & Silliman, M. (2025). Informal social interactions, academic achievement and behavior: Evidence from peers on the school bus. *The Economic Journal.*

Leuven, E., Oosterbeek, H., & Rønning, M. (2008). Quasi- experimental estimates of the effect of class size on achievement in Norway. *Scandinavian Journal of Economics, 110*(4), 663– 693.

Li, Y., Chen, X., Li, H., Sheng, X., Chen, L., Richardson, U., & Lyytinen, H. (2020). A computer-based Pinyin intervention for disadvantaged children in China: Effects on Pinyin skills, phonological awareness, and character reading. *Dyslexia, 26*(4), 377-393.

Lunneblad, J. (2017). Integration of refugee children and their families in the Swedish preschool: strategies, objectives and standards. *European Early Childhood Education Research Journal, 25*(3), 359-369.

Ma, W., Adesope, O. O., Nesbit, J. C., & Liu, Q. (2014). Intelligent tutoring systems and learning outcomes: A meta-analysis. *Journal of educational psychology, 106*(4), 901.

Machin, S., Mcnally, S., & Silva, O. (2007). New technology in schools: Is there a payoff? *The Economic Journal, 117*, 1145– 1167.

Magalhães, P., Ferreira, D., Cunha, J., & Rosário, P. (2020). Online vs traditional homework: A systematic review on the benefits to students' performance. *Computers & Education, 152*, 103869.

Maldonado, J., and De Witte, K. (2021). The Impact of Information Provision to Parents: Experimental Evidence on Student Outcomes. *Journal of Behavioral and Experimental Finance 31*, p. 1-10.

Maldonado, J., De Witte, K., and Declercq, K. (2022). The Effects of Parental Involvement in Homework - Two Randomised Controlled Trials in Financial Education. *Empirical Economics 62*, 1639-1646.

Martens, B. (2020). Die Wende in den Schulen. Die Wende in den Schulen | Lange Wege der Deutschen Einheit | bpb.de Accessed May 2, 2025.

Matsui, G. (2021). Reflection on the professional development of early childhood education and care teachers in Japan based on children's voices. *International Journal of Early Childhood, 53*(3), 367-384.

McCormick, M. et al. (2020), Promoting content-enriched alignment across the early grades: A study of policies & practices in the Boston Public Schools, *Early Childhood Research Quarterly, Vol. 52*, pp 57-73

Melhuish, E., Ereky-Stevens, K., Petrogiannis, K., Ariescu, A., Penderi, E., Rentzou, K., ... & Leserman, P. (2015). A review of research on the effects of early childhood education and care (ECEC) on child development. Curriculum Quality Analysis and Impact Review of European Early Childhood Education and Care.

Meroni, E. C., & Abbiati, G. (2016). How do students react to longer instruction time? Evidence from Italy. *Education Economics, 24*(6), 592-611.

Messer, D., & Nash, G. (2018). An evaluation of the effectiveness of a computer-assisted reading intervention. *Journal of research in reading, 41*(1), 140-158.

Meyer, E., & Van Klaveren, C. (2013). The effectiveness of extended day programs: Evidence from a randomized field experiment in the Netherlands. *Economics of Education Review, 36*, 1– 11.

Mezzanotte, C. (2022), "The social and economic rationale of inclusive education: An overview of the outcomes in education for diverse groups of students", *OECD Education Working Papers, No. 263*, OECD Publishing, Paris.

Migdad, S. M., Lea, K., & Sjøen, M. M. (2025). Immigrant parents' experiences and perspectives on the early childhood education stages in Nordic contexts: A qualitative review and meta-synthesis. *Nordic Journal of Comparative and International Education (NJCIE), 9*(1).

Milford, T., Lawrence, B., McGhie-Richmond, D., & Brenton-Haden, S. (2022). Inclusive education in British Columbia: Teaching to diversity. In *The inclusion for students with special educational needs across the Asia Pacific: The changing landscape* (pp. 151-168). Singapore: Springer Nature Singapore.

Mueller, S. (2013). Teacher experience and the class size effect: Experimental evidence. *Journal of Public Economics, 98*, 44– 52.

Muis, K. R., Psaradellis, C., Chevrier, M., Di Leo, I., & Lajoie, S. P. (2016). Learning by preparing to teach: Fostering self-regulatory processes and achievement during complex mathematics problem solving. *Journal of Educational Psychology, 108*(4), 474.

Muralidharan, K., & Sundararaman, V. (2011). Teacher performance pay: Experimental evidence from India. *Journal of Political Economy, 119*(1), 39– 77.

Murawski, W. W., & Swanson, H. L. (2001). A meta-analysis of co-teaching research: Where are the data? *Remedial and Special Education, 22*(5), 258–267.

Musendo, D. J., Scherer, N., Jepkosgei, J., Maweu, L., Mupiwa, A., Hara, O., ... & Patel, D. (2023). A Systematic Review of Interventions Promoting Parental Involvement in the Education of School-Aged Children With Disabilities. *Australasian journal of special and inclusive education, 47*(2), 123-139.

Neitzel, A. J., Lake, C., Pellegrini, M., & Slavin, R. E. (2021). A synthesis of quantitative research on programs for struggling readers in elementary schools. *Reading Research Quarterly, 57*(1), 149–179.

Ni, A., Cheung, A. C., & Shi, J. (2022). Effects of educational technology on reading achievement for Chinese K-12 English second language learners: A meta-analysis. *Frontiers in Psychology, 13,* 1025761.

Nickow, A., Oreopoulos, P., & Quan, V. (2024). The promise of tutoring for PreK–12 learning: A systematic review and meta-analysis of the experimental evidence. *American Educational Research Journal, 61*(1), 74-107.

Niemi, Hannele. "Teacher professional development in Finland: Towards a more holistic approach." *Psychology, society & education 7.3* (2015): 279-294.

NLS (2023). Teacher Shortage in the Nordic Countries: Comparing the Current Situation. Nordiska Lärarorganisationers Samråd.

Nye, B., Hedges, L. V., & Konstantopoulos, S. (2002). Do low- achieving students benefit more from small classes? Evidence from the Tennessee Class Size Experiment. *Educational Evaluation and Policy Analysis, 24*(3), 201– 217.

OCW (2023). Trendrapportage Arbeidsmarkt Leraren PO, VO, en MBO 2023.

OECD (2005). *Teachers matter: Attracting, developing and retaining effective teachers*. Paris: OECD Publishing.

OECD (2016). PISA 2015 Results in Focus, *PISA in Focus, No. 67*, Paris: OECD Publishing.

OECD (2019). *PISA 2018 Assessment and Analytical Framework*, PISA, Paris: OECD Publishing.

OECD (2019a). *Teacher Resources and Teacher Policy in Finland.* Paris: OECD Publishing.

OECD (2020). *Education at a Glance 2020*. Paris: OECD Publishing.

OECD (2020a), *PISA 2018 Results (Volume V): Effective Policies, Successful Schools,* PISA, Paris: OECD Publishing.

OECD (2020b), *The impact of COVID-19 on student equity and inclusion: Supporting vulnerable students during school closures and school re-openings*, OECD Policy Responses to Coronavirus (COVID-19), Paris: OECD Publishing.

OECD (2020c), *Early Learning and Child Well-being in Estonia*, Paris: OECD Publishing

OECD (2023a), *Equity and Inclusion in Education: Finding Strength through Diversity*, Paris: OECD Publishing.

OECD (2023b), *PISA 2022 Results (Volume I): The State of Learning and Equity in Education*, PISA, Paris: OECD Publishing.

OECD (2023c). *PISA 2022 Results - Learning Strategies and Attitudes for Life (Volume V)*, Paris: OECD Publishing.

OECD (2023d). *PISA 2022 Results: Factsheets – Singapore*, Paris: OECD Publishing.

OECD (2023e). *PISA 2022 Results: Factsheets – Netherlands*, Paris: OECD Publishing.

OECD (2023f). *PISA 2022 Results - Learning During – and From – Disruption (Volume II)*, Paris: OECD Publishing.

OECD (2023f). *PISA 2022 Results (Volume I and II) - Country Notes: Canada*, Paris: OECD Publishing.

OECD (2024a), *Education at a Glance 2024 - Country notes: Japan*, Paris: OECD Publishing.

OECD (2024b), *Education at a Glance 2024 - Country notes: Netherlands*, Paris: OECD Publishing.

OECD (2024c), *Education at a Glance 2024 - OECD Indicators*, Paris: OECD Publishing.

OECD (2024d), *An Evolution of Mathematics Curriculum: Where It Was, Where It Stands and Where It Is Going*, Paris: OECD Publishing.

OECD (2025), *Reducing Inequalities by Investing in Early Childhood Education and Care, Starting Strong*, Paris: OECD Publishing.

OECD. (2020c). *Education Policy Outlook in Finland* (OECD Education Policy Perspectives, No. 14). Paris: OECD Publishing.

Ooghe, E. (2011). The impact of "equal educational opportunity" funds: A regression discontinuity design. CES - Discussion Paper Series DPS11.08. https:// ssrn.com/ abstract= 1833 251.

Palme, M., & Meghir, C. (2005). Ability, parental background, and education policy: Empirical evidence from a social experiment. *American Economic Association, 95*, 414– 424.

Park, J., Paxtle-Granjeno, J., Ok, M. W., Shin, M., & Wilson, E. (2025). Preventing digital distraction in secondary classrooms: A quasi-experimental study. *Computers & Education, 227*, 105223.

Pellegrini, M., Lake, C., Neitzel, A., & Slavin, R. E. (2021). Effective programs in elementary mathematics: A meta-analysis. *Aera Open, 7*, 2332858420986211.

Polanco, J. & De Witte, K. (2025). AI-powered economic and financial literacy education. KU Leuven Working paper.

Rege, M., Størksen, I., Solli, I. F., Kalil, A., McClelland, M. M., Ten Braak, D., ... & Hundeland, P. S. (2024). *Journal of Human Resources, 59*(2), 576-603.

Ribeiro, L. M., Cunha, R. S., Silva, M. C. A. E., Carvalho, M., & Vital, M. L. (2021). Parental involvement during pandemic times: Challenges and opportunities. *Education Sciences, 11*(6), 302.

Ritter, G. W., Barnett, J. H., Denny, G. S., & Albin, G. R. (2009). The effectiveness of volunteer tutoring programs for elementary and middle school students: A meta-analysis. *Review of Educational Research, 79*(1), 3-38.

Sahlberg, P. (2014). *Finnish lessons 2.0: What can the world learn from educational change in Finland?* New York, NY: Teachers College Press.

Sakaue, K., & Ogawa, K. (2016). Financing of early childhood care and education in Japan. *CMU Journal of Social Sciences and Humanities, 3*(2), 169-195.

Santiago, P. (2002). Teacher demand and supply: Improving teaching quality and addressing teacher shortages. *OECD Education Working Papers, 1,* OECD Publishing.

Scheltens, F., Hemker, B., & Vermeulen, J. (2013). Balans van het reken-wiskundeonderwijs aan het einde van de basisschool 5: Uitkomsten van de vijfde peiling in 2011 (PPON-reeks nummer 51) [Drawing up the balance sheet of math language at the end of primary school: Results from the fifth round].

Sénéchal, M., & LeFevre, J. A. (2002). Parental involvement in the development of children's reading skill: A five-year longitudinal study. *Child Development, 73*(2), 445–460.

Sheridan, S. M., Knoche, L. L., Kupzyk, K. A., Edwards, C. P., & Marvin, C. A. (2011). A randomized trial examining the effects of parent engagement on early language and literacy: The Getting Ready intervention. *Journal of school psychology, 49*(3), 361-383.

Sheridan, S. M., Smith, T. E., Moorman Kim, E., Beretvas, S. N., & Park, S. (2019). A meta-analysis of family-school interventions and children's social-emotional functioning: Moderators and components of efficacy. *Review of Educational Research, 89*(2), 296–332.

Shiel, G., McHugh, G., Denner, S., Delaney, M., Cosgrove, J., & McKeown, C. (2022). Reading literacy in Ireland in PISA 2018: Performance, policy and practice. Educational Research Centre.

Shin, Y. (2012). Do black children benefit more from small classes? Multivariate instrumental variable estimators with ignorable missing data. *Journal of Educational and Behavioral Statistics, 37*(4), 543– 574.

Shuey E. et al. (2019), "Curriculum alignment and progression between early childhood education and care and primary school: A brief review and case studies", *OECD Education Working Papers, No. 193*, Paris: OECD Publishing, https://doi.org/10.1787/d2821a65-en

Sims, S., & Fletcher-Wood, H. (2020). Identifying the characteristics of effective teacher professional development: A critical review. *School Effectiveness and School Improvement, 32*(1), 47–63.

Slavin R. E. & Lake C. (2008). Effective programs in elementary mathematics: A best-evidence synthesis. *Review of Educational Research, 78*(3), 427–515

Slavin, R. E., Lake, C., & Groff, C. (2009). Effective Programs in Middle and High School Mathematics: A Best-Evidence Synthesis. *Review of Educational Research, 79*(2), 839-911.

Slavin, R. E., Lake, C., Davis, S., & Madden, N. A. (2011). Effective programs for struggling readers: A best-evidence synthesis. *Educational Research Review, 6*(1), 1-26.

Springer, M. G., Pane, J. F., Le, V.- N., McCaffrey, D. F., Burns, S. F., Hamilton, L. S., & Stecher, B. (2012). Team pay for performance: Experimental evidence from the Round Rock Pilot Project on team incentives. *Educational Evaluation and Policy Analysis, 34*(4), 367– 390.

Springer, M. G., Swain, W. A., & Rodriguez, L. A. (2016). Effective teacher retention bonuses: Evidence from Tennessee. *Educational Evaluation and Policy Analysis, 38*(2), 199– 221.

Statistics Norway (2020). Employment in Education.

Steele, J. L., Murnane, R. J., & Willett, J. B. (2010). Do financial incentives help low-performing schools attract and keep academically talented teachers? Evidence from California. *Journal of Policy Analysis and Management, 29*(3), 451– 478.

Størksen, I., Lenes, R., ten Braak, D., McClelland, M., & Golinkoff, R. M. (2024). Quality in Norwegian Early Childhood Education and Care: Progress, Persistent Challenges, and Recommendations for the Future. *Early Childhood Education Journal,* 1-10.

Størksen, I., Rege, M., Solli, I. F., ten Braak, D., Lenes, R., & Geldhof, G. J. (2023). The playful learning curriculum: A randomized controlled trial. *Early Childhood Research Quarterly, 64,* 36-46.

Suarez-Alvarez, J. (2021). Are 15-year-olds prepared to deal with fake news and misinformation?, *PISA in Focus, No. 113*, OECD Publishing, Paris.

Szabó-Morvai, Á., & Lovász, A. (2024). Where can childcare expansion increase maternal labor supply? A comparison of quasi-experimental estimates from seven countries. *Empirical Economics, 66*(6), 2823-2879.

Szabó-Morvai, A., Horn, H., Lovász, A. and De Witte, K. (2023). Universal preschool and cognitive skills – the role of school starting age as a moderating factor. *Early Childhood Research Quarterly 64* (3), p. 278-289.

Taylor, R.D., Oberle, E., Durlak, J.A. & Weissberg, R.P. (2017), Promoting Positive Youth Development Through School-Based Social and Emotional Learning Interventions: A Meta-Analysis of Follow-Up Effects. *Child Dev, 88:* 1156-1171. https://doi.org/10.1111/cdev.12864

Tire, G. (2021). Estonia: A positive PISA experience. In *Improving a country's education: PISA 2018 results in 10 countries* (pp. 101–120).

Tirivayi, N., Maasen van den Brink, H., & Groot, W. (2014). Group incentives for teachers and their effects on student learning: A systematic review of theory and evidence. *School Effectiveness and School Improvement, 25*(4), 570– 601.

Topor, D. R., Keane, S. P., Shelton, T. L., & Calkins, S. D. (2010). Parent involvement and student academic performance: A multiple mediational analysis. *Journal of Prevention & Intervention in the Community, 38*(3), 183–197.

Travers, H. E., & Carter, E. W. (2022). A systematic review of how peer-mediated interventions impact students without disabilities. *Remedial and Special Education, 43*(1), 40–57.

Tremblay, P. (2013). Comparative outcomes of two instructional models for students with learning disabilities: Inclusion with co-teaching and solo-taught special education. *Journal of Research in Special Educational Needs, 13*(4), 251–258.

Trpin, A. (2024). Teaching Gifted Students in Mathematics: A Literature Review. *International Journal of Childhood Education, 5*(1), 1-13.

Ulferts, H., K. Wolf and Y. Anders (2019), Impact of Process Quality in Early Childhood Education and Care on Academic Outcomes: Longitudinal Meta-Analysis, *Child Development, Vol. 90*/5, pp. 1474-1489

UNESCO (2020). *Global Education Monitoring Report 2020: Inclusion and education: All means all*. Paris: UNESCO

Urquiola, M. (2016). Competition among schools: Traditional public and private schools. In E. Hanushek, S. Machin, & L. Woessmann (Eds.), *Handbook of the economics of education* (Vol. 5, pp. 209– 237). Elsevier North Holland.

Van Bergen, E., van Zuijen, T., Bishop, D., & de Jong, P. F. (2017). Why are home literacy environment and children's reading skills associated? What parental skills reveal. *Reading Research Quarterly, 52*(2), 147-160.

Van Huizen, T., & Plantenga, J. (2018). Do children benefit from universal early childhood education and care? A meta-analysis of evidence from natural experiments. *Economics of Education Review, 66*, 206-222.

Van Klaveren, C., & De Witte, K. (2015). Football to improve math and reading performance. *Education Economics, 23*(5), 577-595.

VanLehn, K., Burkhardt, H., Cheema, S., Kang, S., Pead, D., Schoenfeld, A., & Wetzel, J. (2021). Can an orchestration system increase collaborative, productive struggle in teaching-by-eliciting classrooms?. *Interactive Learning Environments, 29*(6), 987-1005.

Visser, D., Zumbuehl, M., & Schippers, K. (2024). Effecten eerste schooljaar arbeidsmarkttoelage Nationaal Programma Onderwijs.

Wasik, B. A., & Hindman, A. H. (2011). Improving vocabulary and pre-literacy skills of at-risk preschoolers through teacher professional development. *Journal of educational psychology, 103*(2), 455.

Wilder, S. (2014). Effects of parental involvement on academic achievement: a meta-synthesis. *Educational Review, 66*(3), 377-397.

Xu, J. (2015). Investigating factors that influence conventional distraction and tech-related distraction in math homework. *Computers & Education, 81*, 304-314.

Zarkin, G. A. (1985). The Importance of Economic Incentives in the Recruitment of Teachers. Final Report.

# 5. HOUSING

# 5.1. SUMMARY

### 5.1.1. A pan-European housing crisis

The indicators in this report clearly show a housing crisis with rising house prices and backlogs in housing production. The impact of this crisis is greatest for young persons and lower income households. Even when housing production levels are acceptable, the dwellings are often not affordable for them. The short supply of affordable housing can be traced back to the past three decades, when governments retrenched from direct investment in affordable housing in favour of more market-led solutions. Such an approach often leads to a focus on more supply of housing in the higher end of the market as this gives the highest financial returns.

The housing problem is a 'wicked problem' because there is no single solution. Also, the context per country differs immensely and what works in one country may not always be an adequate solution in others. For example, tenure patterns vary, with Western European countries still having a substantial affordable rental sector, while in Eastern and Southern Europe, availability of affordable housing is quite limited. Even though housing shortages are significant in Western Europe, their larger affordable rental sectors are open to a broader range of households than just the very lowest incomes, while the non-profit landlords can also take on the task of new construction. For other countries, it is an immense task to increase affordable (subsidised) housing construction without a mature non-profit housing sector.

However, there have been several government initiatives and experiments to address the problem, and studies by international organisations such as the OECD have forwarded solutions. These are:

- More *affordable* housing production, because this can counter cyclicality in housing production. The present focus is – still – often on higher end housing production, but this segment is especially vulnerable to economic circumstances, for example during the recent upward interest shock of 2022–2023.
- Distribution of affordable housing to lower incomes. This may seem logical but it is often forgotten, and these dwellings may even be rented out to tourists.
- Support for more efficient construction methods, including modular and factory-based building.
- A critical assessment of building and planning regulation, including the NIMBY problem. This may speed up construction processes.

Furthermore, several countries have introduced rent regulation in the private sector to grant affordability and accessibility for lower incomes, but this has led to heated responses from private landlords, who argue that their business model will fail and that they need will withdraw their investment. It is another difficult problem, because high rents will remain if nothing is done. Examples of countries where governments struggle with this dilemma are Germany, Spain, Portugal, Ireland, and the Netherlands.

The case studies present a few examples of policy approaches that some European countries use to address specific dimensions of the housing crisis. It acknowledges that ageing populations also have their own needs and may actually be a key to stimulate more mobility on the general housing market.

### 5.1.2. Case study: vertical extension of dwellings

Vertical extensions of dwellings offer possibilities to add new apartments to the housing stock. An additional benefit is that surpluses from sales (or rental) can be used to address maintenance backlogs and sustainable retrofitting of the entire complex. We explored experiences in France, Germany, Spain, the Netherlands, and the UK.

Lessons learned are:

- Flat roofs with sufficient weight-bearing capacity of dwellings are an important requirement for add-ons. Examples are rooftops in Paris, but perhaps even more so the 1950s and 1960s Plattenbau of East Berlin and Rotterdam. The case studies also show that some pre-war neighbourhoods in the Netherlands (Den Haag) offer possibilities for lightweight constructions.
- Scalability is often possible with complexes in the rental sector, with one single owner – the landlord – who decides to renovate. A condominium complex with individual owner-occupiers will require much coordination. Furthermore, in many countries, national legislation requires unanimity of all individual apartment owners in the decision to build add-ons. France passed legislation which only requires a two-thirds majority, but in the Netherlands a similar initiative has been abandoned.

### 5.1.3. Case study: landlady rentals

In many Western European countries, older households live in an underoccupied dwelling. They often have a spare room that can be rented out: so-called landlady rentals. Such may also help in providing housing alternatives for students and young adults. A recent report by Frank Wassenberg and Gerard van Bortel presented some relevant policy lessons outside the Netherlands, where landlady rental is only a marginal phenomenon. We drew on this report.

The authors come to the following conclusions:

- Several countries do not just regard landlady rentals as a solution for housing problems of young people, but they look for other mutual benefits. In France, intergenerational living is the focal point in policy. Lodgers may help the landlady/landlord with tasks in return for a lower rent. Such arrangements are quite relevant in ageing societies.
- A tax exemption can be a good incentive to release more rooms. It supplements incomes of people who live off small pensions or benefits. However, we suggest not only to look at financial incentives for landladies, but also the at social dimension with intergenerational help.
- In some countries a mandatory notification to the bank is required, which is often declined. This said, a majority of older households do not have a mortgage any more. However, banks may be more lenient if the lodgers' contract can be terminated at the owners' discretion. Often strong tenure security for any tenant, including lodgers, is an obstacle for banks.
- Those countries that aim to increase landlady rentals on shorter notice, may also consider supporting intermediary organisations. In several countries, bottom-up and commercial organisations have settled autonomously, but governments that aim to stimulate landlady rentals may assist in setting up these organisations and design appropriate regulation.

### 5.1.4. Case study: ageing populations and senior housing solutions

Another case study focuses on the important topic of ageing populations. During the golden ages of the Northern and Western European welfare state in the 1960s and 1970s, care homes and old-age homes were provided by governments and/or non-profit organisations, but this came at significant cost for the taxpayer. Under government retrenchment and austerity measures of the 1980s and 1990s the focus was much more on ageing at home.
It has become quite evident that many older Europeans would like to live in suitable dwellings for the active elderly, often among their peers or in a multigenerational complex. This avoids loneliness and it creates community.
In Southern Europe, people often age in extended family homes, but this model is under pressure because of more individualisation. Also, many Southern Europeans in their sixties do not have adult children in their household anymore.

One remarkable observation is that many older Northern and Western Europeans live in large single-family dwellings, often owner-occupied. In other words, under-occupation of dwellings is most often found with these older households. In case they wish to age in place this should be possible, but research reports indicate that a substantial part of this population – or a significant minority – would be happy to live in a smaller dwelling with peers around them, but there is scarce supply of such accommodation. This is a pity, because if these households could vacate their large single-family dwellings, young families can move into them.
'Senior housing solutions' generally provide an architectural design suited for seniors – an integration with care provision, as well as a community aspect. The market for these housing solutions is still relatively young.
Some lessons can be drawn from pioneering cases about how to get these projects off the ground, and how public policy can help.

A case study across five European countries provides the following lessons on the organisation of senior housing solutions, and the potential role of public policy.

- First of all, the cases show that the government can play various roles: whether it is through encouragement of initiatives, provision of information, regulation, provision of land, funding, or coordinating and facilitating the cooperation between different types of parties.
- Second, successfully combining the three 'pillars' of senior housing – architecture/design, care, and community – necessitates the development of new networks and habits of cooperation among diverse parties. Local government can play a key role in this.
- Third, there are different ways to organise the community aspect (self-organisation, intergenerational engagement, professional community builders, or integrating the neighbourhood or local volunteers).
- Fourth, it is vital to actively involve the target audience from the outset, as professionals may have the wrong assumptions about seniors' actual needs.

- Fifth, informing and reassuring various stakeholders (including investors, seniors, and their families) is important given the relative novelty of senior co-housing concepts.
- Finally, thoughtful allocation of housing is crucial for maintaining a healthy balance between active and more vulnerable residents in co-housing complexes. It also ensures that adapted housing ends up being used by the intended audience. Policymakers may consider providing greater flexibility in housing allocation law.

A study of senior co-housing in Denmark, Germany, and Spain also provides some lessons. The main hurdle for co-housing is accessibility of land. Local governments need to give some priority to these initiatives because commercial developers who also want scarce land are often willing to outprice the local initiatives. Local government may also promote co-housing initiatives in other ways. Even in Germany, where self-initiated housing is part of the housing culture, the experience is that self-organisation of co-housing is much more complex compared to building an individual house. Local governments often provide special helpdesks for new initiatives. Finally, the financial part can be complicated. When co-housing or cooperatives are uncommon, the financial sector is often reluctant to support these initiatives or only against a substantial down payment by the prospective owners. Government support via special (secondary) loans or guarantees could help this matter.

# 5.2. INTRODUCTION

### 5.2.1. The update

This chapter provides an update of the 2022 chapter on public sector performance in housing policy.[1] It also provides case studies on three contemporary topics in housing policy. First of all, we study the important topic of ageing of the European population and the search for suitable housing solutions. Secondly, we explore a couple of avenues for better use of the existing housing stock: vertical extension of dwellings and landlady rentals. In the latter, households provide a spare room to accommodate young persons or students.

The 2022 edition presented several housing indicators that show international variations in the three housing policy pillars of availability, affordability, and housing quality. These variations reflect national wealth, policy choices, and deeper-rooted cultural factors.

Two themes do not return in the present chapter. The previous 2022 chapter included a housing quality section, but because quality characteristics of the entire housing stock change very slowly, we do not include this section in this chapter. The 2022 chapter also included a section on housing satisfaction. Data were drawn from the Eurofound Quality of Life Survey (EQLS), but there has been no update since 2016. The data collection for the new EQLS is underway and will be published in 2026.

### 5.2.2. A pan-European housing crisis

Many of the presented indicators in the 2022 do not change quickly over two years, with the exception of affordability. For the update this implies that we focus much more on affordability, not in the least because there is a continuing housing crisis across Europe since Covid – and even before – with house price booms and insufficient new housing supply to address this problem. Lower incomes and young people have lack of access to affordable housing. The problem is most urgent in urban areas.

European policymakers acknowledge the problem and search for solutions; housing is a priority of policymakers in many European countries now. Even in those countries that previously had little political interest in provision of affordable rental housing, the aim is now to establish more affordable housing by non-profit organisations. Examples are Spain, Portugal, and Ireland. In Eastern Europe, any mention of public, cooperative, or social rental housing was often met with distrust as it invoked memories of the communist era. However, the housing crisis now seems to be opening policy windows for the provision of more affordable rental housing for a broader target group.

The housing crisis has also not gone unnoticed by the European Commission. According to EC president Ursula von der Leyen:

> *"Europe faces a housing crisis, with people of all ages and families of all sizes affected. Prices and rents are soaring. People are struggling to find affordable homes. This is why, for the first time, I will appoint a commissioner with direct responsibility for housing. We will develop a European Affordable Housing Plan, to look at all the drivers of the crisis and to help unlock the private and public investment needed. Typically, housing is not seen as a European issue. Some might say we should not get involved. But I want this Commission to support people where it matters the most. If it matters to Europeans, it matters to Europe."*

Housing policy was never a competence of the European Union, but the EC appointed a commissioner for Energy and Housing, Dan Jørgensen, who will present an Affordable Housing Plan in 2026. This plan will include some best practices across Europe.

1 https://www.eipa.eu/wp-content/uploads/2024/07/Housing-chapter.pdf

### 5.2.3. Solutions to the crisis?

We will provide a general overview of policies that have been suggested, and tried to address house price booms and stagnation of new housing. It shows that we deal with a difficult multidimensional problem with various interests at stake. For example, attempts to rapidly approve new housing construction locations are met with protests from stakeholders such as residents and environmental groups. Several countries have regulated the private rental sector to improve affordability and tenure security, but it met strong opposition from investors. Some countries are now reconsidering their approach, which leads to even more uncertainty. The silver bullet to increase housing construction and improve affordability is not there, but hopefully our general overview of possible policies gives some avenues for action.

### 5.2.4. Case studies

The first part of the case studies explores vertical housing extensions as a way to make better use of the existing housing stock. Vertical extensions to dwellings (add-ons) are quite common in some countries. There is policy interest more scalable varieties, because it adds new dwellings to combat housing shortages. Also, new dwellings on top of other dwellings often provide financial means for sustainable retrofitting of the entire complex.

The second part of the case study explores a more fundamental topic: the relation between housing policies and the ageing European populations. What housing solutions are being developed for older households, and which can be regarded as good practices? Moreover, what exactly is the role of the government?

The third part of the case study encompasses a brief overview of a study by research institute Platform31 on landlady rentals (Wassenberg and van Bortel, 2025). Landlady rentals are relevant as many Western European households live in underoccupied dwellings and there are possibilities to let rooms to students or young adults. The point of departure was the situation in the Netherlands, where landlady rentals are only a marginal phenomenon, while there must be ample opportunities to rent out more rooms. The study found some relevant lessons in a selection of Western European countries.

# 5.3. CONTEXTUAL FACTORS

### 5.3.1. Tenure structure

Home ownership prevails throughout Europe, with only Germany and Switzerland having a home ownership rate below 50% (see Figure 1). The highest proportion of home ownership is found in Central, Eastern, and Southern Europe. In Central and Eastern Europe this originates from the transition from communism, when their large public rental sectors were transferred to sitting tenants. Hence many households in Eastern Europe now have an outright owned dwelling. As newly built dwellings are usually bought with a mortgage, the share of mortgaged dwellings is slowly increasing in these regions. Since the transition, public policies in Central and Eastern Europe have ignored public or social rent because it reminds them of the communist past. Next to transfers of public housing to sitting tenants, they often provided incentives for promoting owner occupation among lower income owners, ranging from fiscal incentives to outright subsidies and home savings schemes. There are variations within these three regions but overall, rental sectors are very small, while the non-profit housing sector (public, housing association, co-ops) is not more than 5% of the entire housing stock.

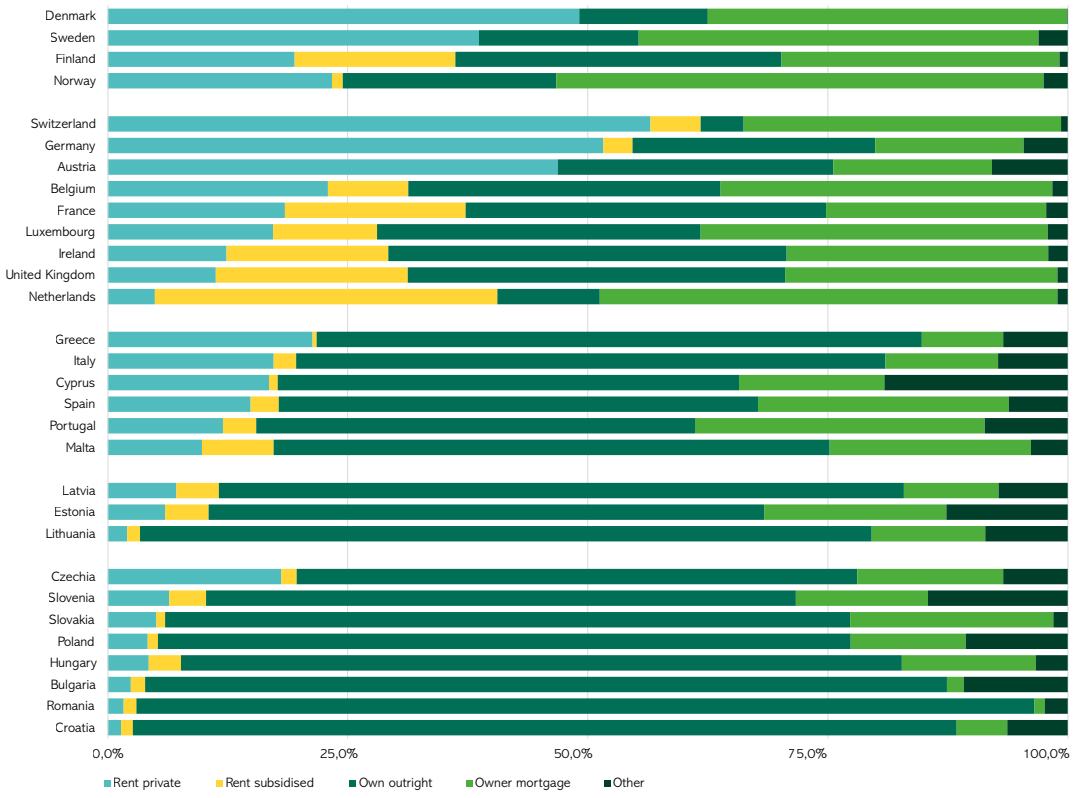
Within Western Europe, there is strong international variation in tenure distributions. The Netherlands, Austria, France, and the UK have a significant proportion of non-profit rental dwellings. Germany has a relatively small non-profit sector, but for decades the private sector was quite affordable due to a rent regulation, which also allowed for a reasonable return for private landlords. However, after strong pressure on the housing market in the past decade, rents have boomed. There have been attempts to curb these rents at the regional level, but this proved quite complicated as it met legal resistance from investors. Within Western Europe, Belgium and Ireland are outliers with a very small non-profit rental sector. Historically, their governments were much more in favour of owner occupation, but in the past decade, there has been more interest in providing non-profit housing for the lowest income groups.

Finally, the Scandinavian nations also have a substantial proportion of non-profit rental in their housing stock, with the exception of Norway. The latter developed a housing model with much state support for low-income home ownership.

It is quite evident that a high rate of home ownership does not always reflect high prosperity. The examples of Switzerland, Germany, and Austria show that other tenure patterns are possible in high-income countries. This also applies to the Scandinavian and Dutch contexts, with large public/non-profit rental sectors. The relation between general prosperity and home ownership may be the other way around: affluent countries have an adequate taxation base to build substantial public and social housing. Germany has a sizeable private rental stock, but this also received much support in the post-WWII decades.

However, within countries, there is a strong relation between home ownership and income levels. The big difference is that in, for example, Southern Europe public housing is only inhabited by the very poor, while in Scandinavia more people with an average income live in this sector. So, countries with a small non-profit, affordable rental sector often have significant numbers of lower incomes in the owner-occupied sector (see Dol et al., 2023).

*Figure 1: Tenure structure households in Europe, 2022 or latest year available*




*Source: OECD, 2023*
*Note: For Denmark, Sweden, and Austria no distinction is available between private and subsidised rent in the Eurostat statistics, but they have significant affordable public rental sectors.*

### 5.3.2. Changes in tenure on the longer run

Housing tenure structures do not change much in the short run because new construction only adds a relatively small number of dwellings.[2] However, in many countries, the private rental sector has expanded at the expense of owner occupation in the last decade. A main reason is less access to mortgages for young households and lower incomes after the global financial crisis of 2008. This opened up opportunities for private investors in search of more stable returns than in other equity markets. Historically low interest rates for mortgages accelerated the entry of small private investors into the housing market. At present, fewer young Europeans are owner-occupiers than a decade ago. The UK was among the first to see a decline on home ownership in young adults, but the phenomenon became visible on other countries as well (e.g. Lennartz et al., 2016). The term 'Generation Rent' was coined for those who missed out on home ownership. Others suggested an end to mass home ownership, at least in Western Europe (e.g. Arundel and Doling, 2017). As supply of non-profit (social) rent has also declined and eligibility for this sector was tightened, many now live in the private rental sector. Rents are high in this sector and still increasing because of mounting housing shortages. With such high rents, saving up for a down payment for an owner-occupied dwelling is also complicated. As a result, an increasing number of European young adults remain in the parental home.

There is no doubt about the existence of a housing crisis across Europe; young persons and those with lower incomes especially experience problems. Access to home ownership is virtually impossible for them, while the alternatives in the private rental sector are also unaffordable for many.

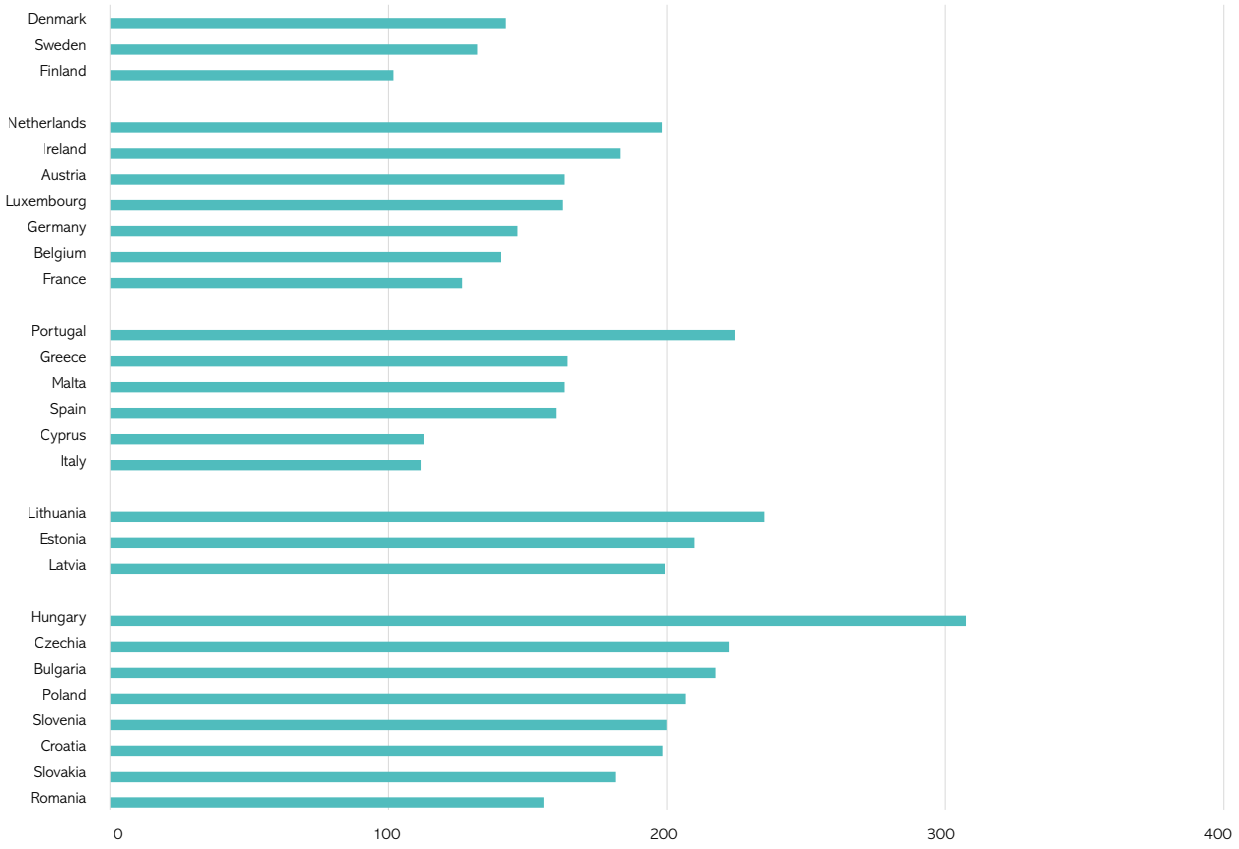
[2] See OECD affordable housing database HM1.3. We will not present this large table here.

### 5.3.3. House prices

House prices increased steadily throughout the EU. Figure 2 shows the index based on 2015, the year when house prices had bottomed out from the aftermath of the global financial crisis. There are marked differences between countries, but the general pattern is a strong rise in house prices, reflecting pressure on housing markets. While factors such as income growth and interest levels also play a role, it is quite evident that much is attributable to demand outstripping supply. Rising house prices also create an insider–outsider problem. Existing owners benefit from capital gains that can be used for their next step on the housing market, but tenants miss out on this opportunity.

There was some house price stabilisation in 2022 and 2023, when the American Federal Reserve and the European Central Bank countered the inflation of 2021 by increasing interest rates. This brought an end to the prolonged period of historically low mortgage interest rates. However, prices are on the rise again in 2024 and 2025, indicating housing shortages. As we will see later, the interest rate hike resulted in less housing construction output in those years.

*Figure 2: House price index 2024, 2015 = 100*

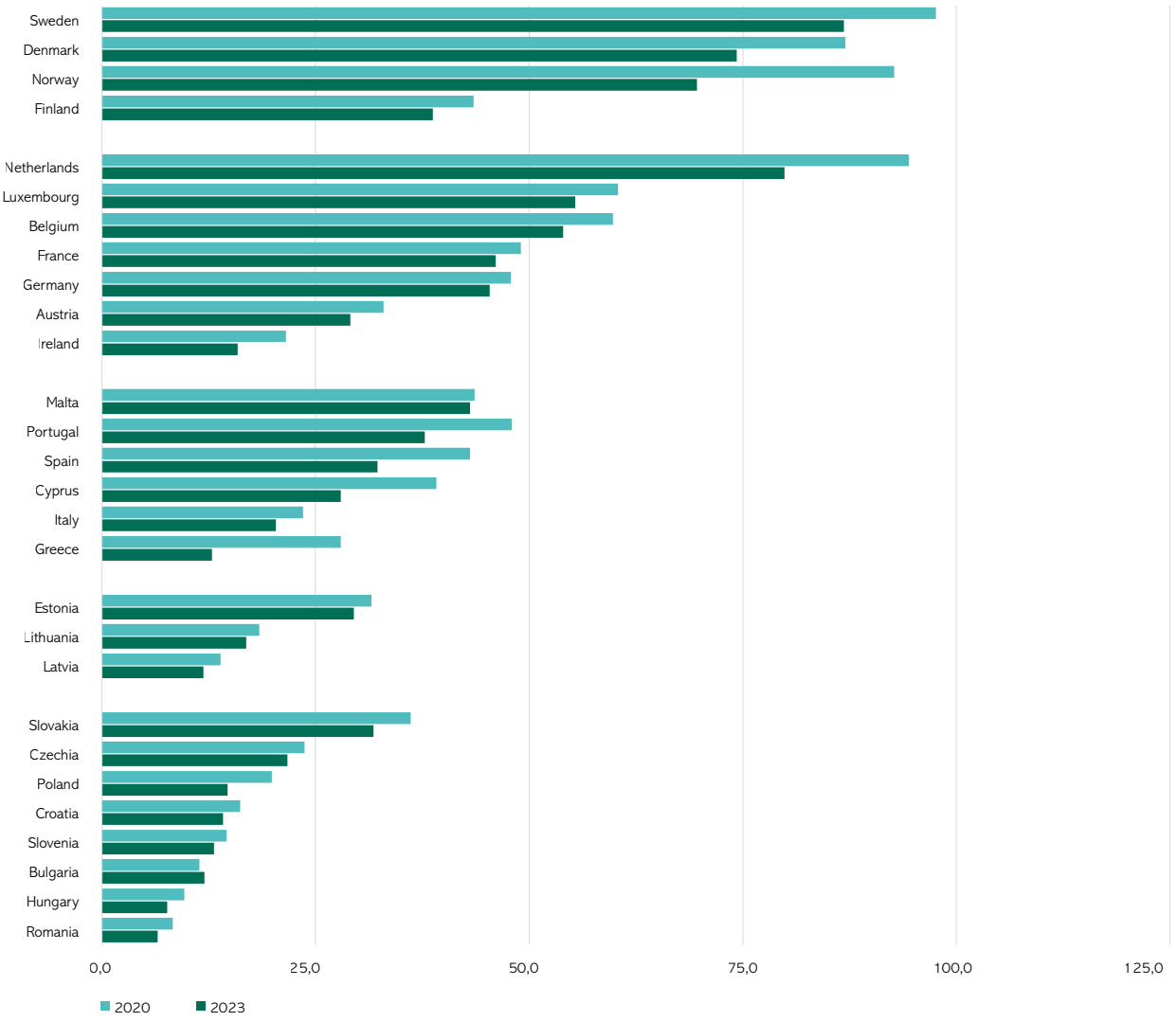



*Source: Eurostat*

International variations in levels of mortgage debt to GDP stem from historical legacies and specific policies (see the chapter in the 2022 edition). The transfer of public dwellings after Communism in Eastern Europe, practically a give-away, is still visible in a relatively small residential debt level. In several Scandinavian countries and the Netherlands, mortgage interest deduction gives an incentive to take out high loans.

It is quite remarkable that the mortgage debt to GDP has actually declined over the last years, because rapid house price increases are usually fuelled by debt (Figure 3). The explanation is that most countries experienced strong economic (GDP) growth. Furthermore, interest rates have increased since 2022, making it somewhat more attractive to use private assets to repay part of the mortgage rather than invest them on equity markets. This certainly applies to countries where floating mortgage rates are common. The volume of outstanding debt has risen in many countries, but it is countered by GDP growth.

*Figure 3: Mortgage debt to GDP (in %)*




*Source: European Mortgage Federation*

# 5.4. AFFORDABILITY

A good affordability indicator is the overburden. Eurostat – and the OECD – define overburden as 40% of disposable household income spent on housing cost. Next to rent or mortgage, it includes property taxation, maintenance and utilities (e.g. energy, water). In general, there are few European countries where many owner-occupiers face a housing cost overburden; there are two countries where more than 10% of owner-occupiers experience a housing cost overburden, but we see no strong regional patterns. For an explanation of outliers such as Sweden, Germany, Greece, and Bulgaria, more focused research is required.

It is evident that in all countries the private rental sector has the largest overburden rate. Tenants are often confronted with a system of rent increases that follows the market (demand–supply) and during the contemporary tight housing markets, this can lead to overburden. The non-profit sector shows much less overburden, because they often do not follow the market in rent setting.
We do warn against strong statements based on the table, because public rental sectors outside Western Europe and Scandinavia are decidedly small and therefore the data are based on quite small numbers in surveys. The general patterns are correct but the outcomes in these countries should be regarded as being *around* that number.[3]

*Table 1: Percentage of population living in a household experiencing housing cost overburden (total housing costs represent more than 40% of total disposable household income), by tenure, 2024*

| Country | Outright owners | Owners with mortgage | Private rent | Below market rent |
|---|---|---|---|---|
| Denmark | 6.0 | 5.5 | 28.7 | |
| Finland | 2.5 | 1.8 | 14.1 | 9.8 |
| Sweden | 14.0 | 4.7 | 17.9 | 0.0 |
| Norway | 7.0 | 14.5 | 26.2 | 9.5 |
| | | | | |
| Belgium | 2.3 | 1.1 | 24.1 | 7.8 |
| Germany | 6.8 | 14.5 | 13.8 | 8.8 |
| Ireland | 1.2 | 1.3 | 18.3 | 7.9 |
| France | 1.4 | 1.1 | 20.2 | 12.2 |
| Luxembourg | 1.2 | 4.5 | 20.0 | 10.5 |
| Netherlands | 2.5 | 1.0 | 43.9 | 14.3 |
| Austria | 1.9 | 2.1 | 14.6 | 4.9 |
| | | | | |
| Greece | 25.7 | 20.9 | 37.4 | 37.6 |
| Spain | 2.2 | 4.3 | 28.1 | 8.2 |
| Italy | 2.2 | 1.7 | 19.4 | 4.8 |
| Cyprus | 0.1 | 0.3 | 14.4 | 1.1 |
| Malta | 1.0 | 1.8 | 19.7 | 7.5 |
| Portugal | 2.0 | 3.8 | 30.3 | 3.6 |
| | | | | |
| Estonia | 5.6 | 6.6 | 30.8 | 11.6 |
| Latvia | 6.2 | 3.1 | 16.0 | 10.3 |
| Lithuania | 5.2 | 4.9 | 21.8 | 11.2 |
| | | | | |
| Bulgaria | 7.0 | 13.7 | 27.8 | 10.3 |
| Czechia | 3.9 | 4.0 | 30.6 | 7.5 |
| Croatia | 3.1 | 2.4 | 29.2 | 6.3 |
| Hungary | 6.5 | 10.1 | 40.6 | 10.5 |
| Poland | 4.4 | 5.0 | 15.1 | 7.0 |
| Romania | 4.0 | 0.2 | 28.3 | 11.1 |
| Slovenia | 2.6 | 3.5 | 16.5 | 3.5 |
| Slovakia | 5.9 | 3.8 | 29.1 | 12.3 |

*Source: Eurostat*

[3] Therefore, year-to-year changes are to be interpreted with caution, as small changes in may not be statistically significant.

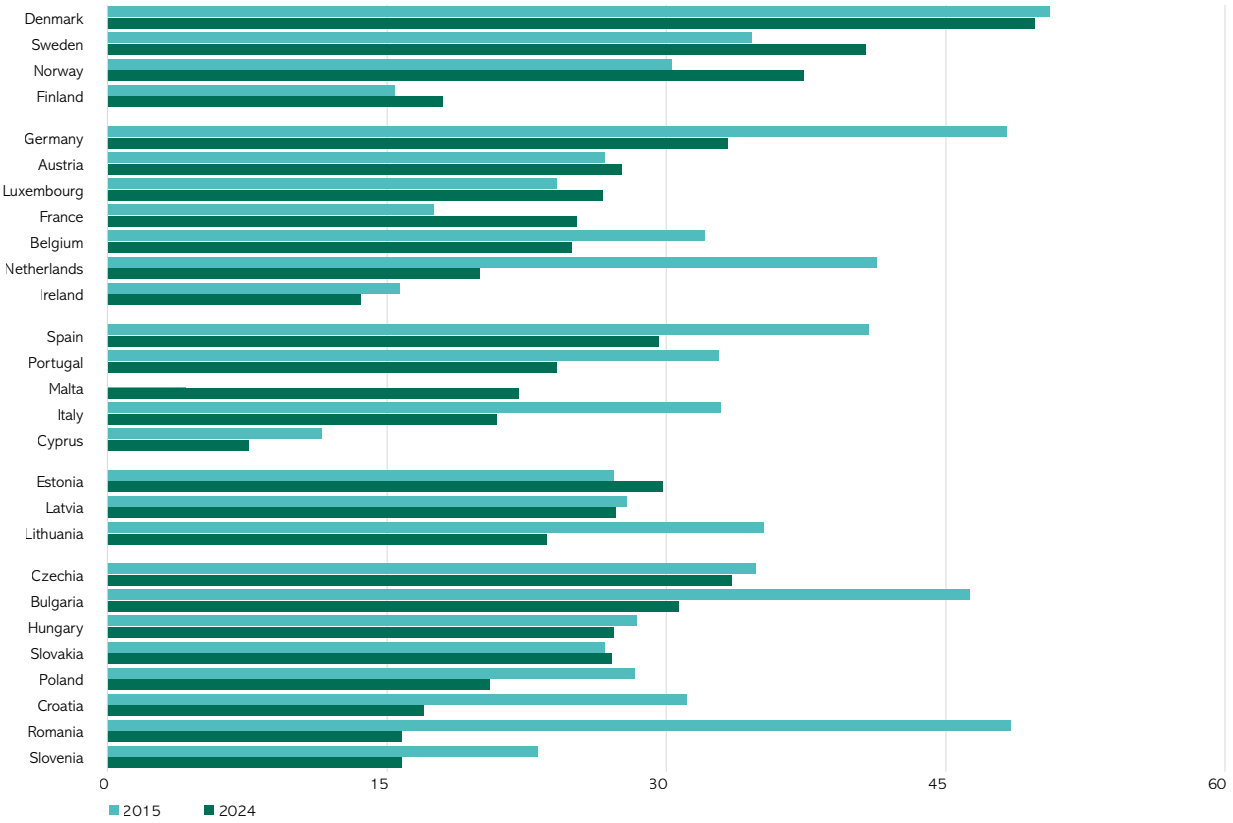
Housing cost overburden is a relative concept. For higher incomes it usually implies that there is sufficient income left to get by, but lower incomes may struggle to make ends meet, even when they spend much less than 40% of their income on housing costs. Therefore, we present in some more detail housing costs of lower incomes (Figure 4), with the development over the longer run. The year 2015 marked the start of the economic recovery after the global financial crisis. First of all, some caution applies to countries with small changes in time, as the data are based on surveys and are not always statistically significant (see also Footnote 3).

Backgrounds to change, or non-change, may also be found in social security policies. In Western Europe and Scandinavia, many unemployed receive quite generous replacement incomes in the first years of unemployment. In countries with less generous social security policies, overburden among lower incomes may rise quickly during a crisis and decline during economic recovery. Furthermore, the energy crisis of 2021–2023 may have had a greater impact in countries with cold winters, but there may be differences in government interventions to alleviate the problems.
The number of overburdened households in Scandinavia increased slightly. In Western Europe, the pattern varies more, with some countries showing marked declines while increases are also visible. Again, the exact reasons for the results are not clear. For example, the decline in the Netherlands may be caused by interventions in rent levels and support for energy costs, but this must also have been available in several other countries.

What is clear is that fewer lower income households in Southern Europe are now coping with an overburden, with the exception of Malta. These economies recuperated after the deep crisis of the early 2010s. After many households struggled, household income growth resulted in fewer problems. Furthermore, these countries may have had fewer increases in energy costs because of the milder climate. Economic recuperation also applies to several of the Eastern and Central European countries (Bulgaria, Romania, and Poland).

Declines in housing cost overburden suggest that there is no housing crisis in some countries, but the data encompass all lower incomes, including owners who have lived in their dwelling for a long time and – almost – repaid their mortgages. It is quite evident that entry into any housing – rental or owner-occupied – is extremely complicated. Unfortunately, we have no international data on recent movers. Also, note that some just cannot enter the housing market, so live with their parents.

*Figure 4: Percentage of lowest income quintile households with housing cost overburden*



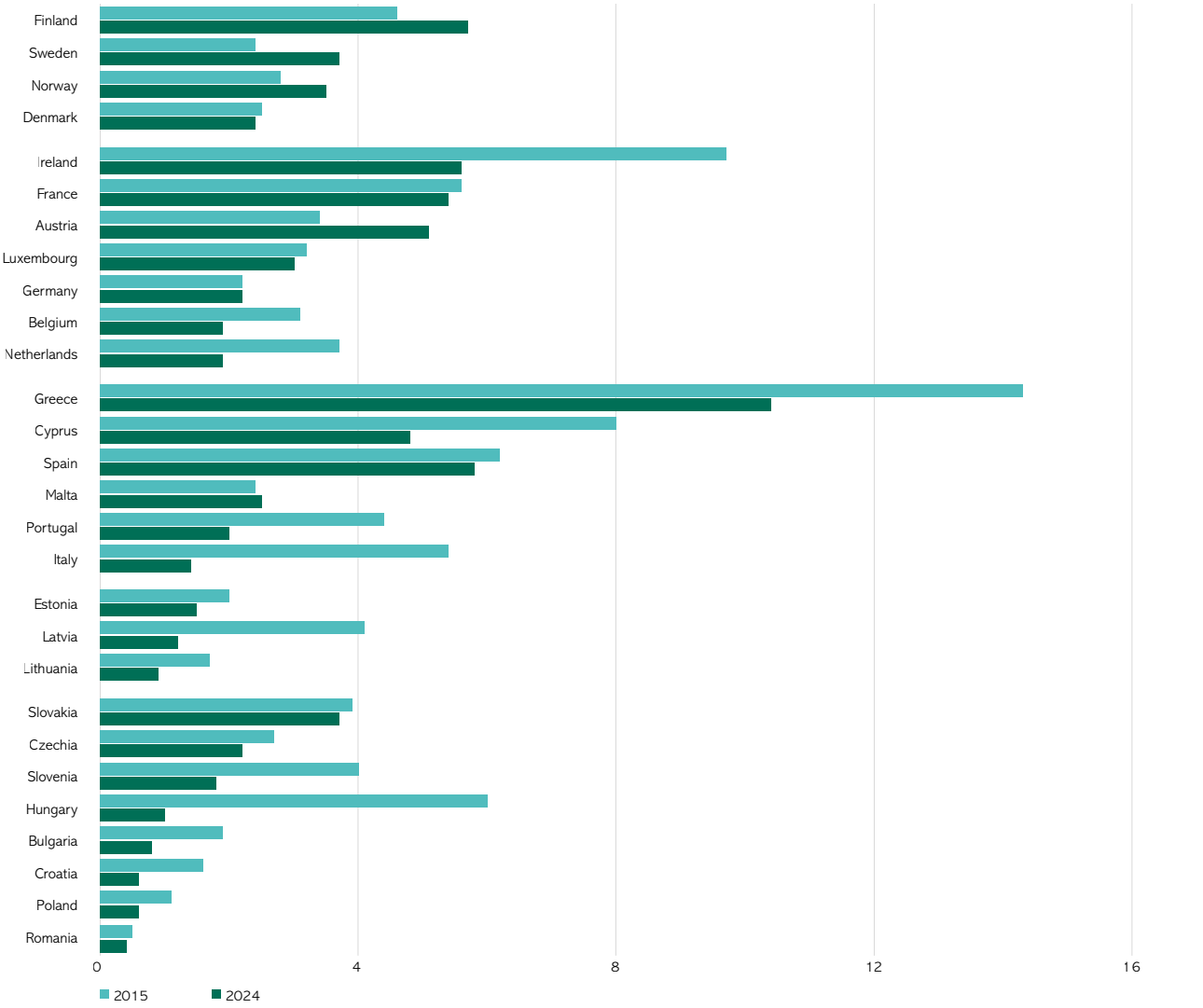

*Source: Eurostat*

As prices for owner-occupied and rental dwellings have increased, this should be reflected in a household's expenses on rent, mortgages, and utilities. However, such claims are not easily made with available international data from the EU-SILC database. The reason is that most existing homeowners have had the benefit of declining interest rates over a prolonged period of time. Only in 2022 and 2023 did interest rates increase, but many existing homeowners hedged this by means of fixed interest rates. Also note that in large parts of Europe, homeowners do not even have a mortgage (see Figure 1 again).

Another relevant indicator for difficulties with housing payment is households that report arrears on rent or mortgages (see Figure 5). With a few exceptions, Eastern European households report few arrears, which can be explained by high levels of outright home ownership. Unfortunately, no breakdown by tenure is available, which could also give some more insights into the situation with private tenants, who relatively often experience a housing cost overburden (see Table 1 again). Differences between countries need to be interpreted with some caution. In some countries, legal procedures allow for a very swift eviction or repossession. This can urge households to economise on their expenditure, while in a more relaxed system a delayed mortgage or rent payment can be a strategic decision.

Greece stands out for a high decrease in rent arrears, but it still has the largest proportion of households experiencing them. Apart from Denmark, the other Scandinavian countries show small increases in arrears, but it is not exactly clear what the backgrounds are. Spain, Ireland, Italy, and Cyprus show remarkable declines in arrears. These countries were severely affected by the global financial crisis, but they have made strong recoveries. Also note the declines in overburdened lower incomes in these Southern European countries (Figure 4).

*Figure 5: Self-reported housing payment arrears (in %)*




*Source: Eurostat*

### 5.4.1. Curbing spiralling rents with regulation?

Germany and Ireland are examples of countries where more rent regulation has been attempted to curb spiralling house prices (see Dol et al., 2023). It became evident that new regulation often leads to resistance of vested interests, while it is also difficult to enforce. Furthermore, there is often heated debate, with one side suggesting that rents are too high and something must be done to curb them, while the other side argues that new investment in rental housing will dwindle as a result of regulation. We see similar dilemmas in Spain, Portugal, and the Netherlands. The authorities and civil society call for 'acceptable' rent levels, but the opposition is strong, especially from investors. There is, however, more to this discussion (see Kholodilin, 2024). One effect of rent regulation is that many private investors sell their dwellings, creating opportunities for young first-time buyers. In fact, many of these sold dwellings are usually small and are well suited for first-time buyers. Sales of private rental dwellings may even make up for conversions to rent of owner-occupied dwellings in the past. During the extremely low interest rates of 2015–2021, many private investors bought dwellings as an alternative to saving, but this sometimes went at the expense of prospective first-time buyers.

Dwindling supply of private rental dwellings can also be countered by non-profit public housing programmes. This does not necessarily need to be executed by non-profit organisations: in post-WWII West Germany, private landlords received construction subsidies and in return had to cap their rents for a specified period. So, an exemption of rent controls for new construction or other special treatment might also help.

Finally, the heated media debates between landlords and the governments sometimes miss out on the ultimate purpose of regulation: decent rents are very important for younger people, who otherwise do not have any financial room to save up for a move to their first owner-occupied dwelling. (See rent overburden in the private rental sector in Table 1.) Although some research finds that below-market rents restrict residential mobility (Kholodilin, 2024), we would argue that this depends on the type of dwelling and location. Many young households in the public rental sector experience significant income increases and if they rent a small dwelling, they will move out when starting a family.

In this vein, some economists argue that high housing costs (rent or mortgage) restrict spending on products that generate more economic activity, such as cars and electronic devices. While new construction is labour intensive and generates much economic activity, many rentals are older dwellings and do not generate much new economic activity, apart from occasional maintenance and sustainable retrofitting.

#### 5.4.1.1. Recent experiences in the Netherlands and the Iberian Peninsula

In the Netherlands, new regulation of the private rental sector leads to sales by many small landlords. These dwellings give opportunities for first-time buyers, but it leaves those who are dependent on medium-quality private rent with few options. In addition, the Dutch government implemented higher property taxation for private landlords. Some municipalities have banned outright buy-to-let (with some exceptions still allowed, such as parents buying homes for their children) with the aim to decrease the competition for first-time buyers. Both additional taxation and regulation led to heated debates and politicians are now considering changes. However, several larger investors argue that wavering policy makes matters worse especially for international investors, who demand a more stable context.

In Portugal, a new rental law of 2024 curbs annual rent increases for the entire sector and improves tenure security, especially eviction rules. There is still ongoing debate about the effectiveness of the new law.[4] To add to the complexity, rapid governments changes may lead to renewed discussions and policy adaptations, which are often a motivation for investors to wait it out.

Spain also introduced legislation to curb rent increases. Annual rent increases must follow the Consumer Price Index. In principle, the landlord is free to set a price at a new tenancy, but in high pressure areas they can be asked to use the price of the previous contract. As a compensation, tax breaks are available for landlords who give priority to younger people. Similar to Spain, there are still concerns over the impact on the landlords and the overall housing market.

The above shows a discussion with one view focusing on housing as a fundamental right and the other view focusing on housing as a commodity on the free market. This brings us to another theme of this chapter: availability of housing, because more availability and distribution of housing to lower incomes can be one of the solutions to the problems.

[4] https://www.theportugalnews.com/news/2025-05-19/experts-disagree-on-rent-control-measures/97721

# 5.5. AVAILABILITY AND ACCESSIBILITY: A EUROPEAN HOUSING CRISIS

### 5.5.1. Housing shortages

Few European countries estimate quantitative housing shortages and if they do, there is strong variation between the methods applied. However, steep house price increases, more young adults living in the parental home, and reports of backlogs in housing production, are good indicators of shortages. The pan-European housing shortage also has a qualitative dimension. While those on middle and higher incomes usually find a dwelling of their choice, those on lower incomes, including housing market entrants (starters) experience problems. It confirms the European Commission's analysis that lack of affordable housing is the most pressing problem. Special examples are Portugal and Spain, who report that much of the new construction in coastal areas is sold to investors who rent them out as holiday homes, while others are also sold as second homes, partly to expats (see, e.g. European Mortgage Federation 2024).

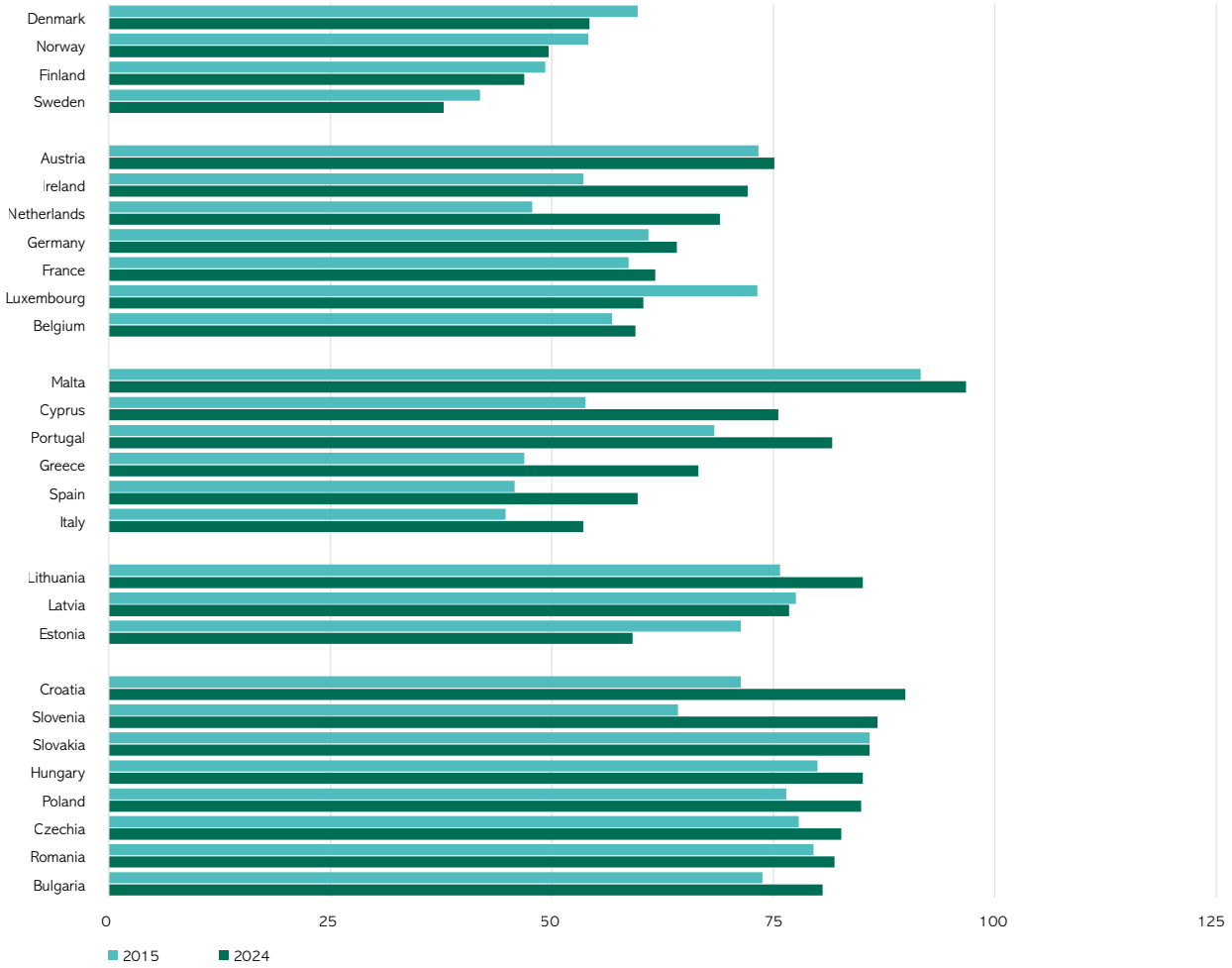
Whereas many median-income households were able to access owner occupancy around a decade ago, this has become much more difficult, especially in urban areas. Many turn to the private rental market, but prices in this sector have increased swiftly as well. Young adults, more often than in the past, decide to stay in their parent's home or cohabit with peers in cramped accommodation. It leads to delays of big life events such as marriage, parenthood, and finding a job in cities with high housing prices.

The percentage of young adults living in the parental home shows remarkable increases in all countries, but significant differences still exist between regions (see Dol et al., 2023). In Scandinavia, the age of leaving home is much lower than in Southern and Central Europe. Western Europe takes a middle position. The general data for young adults living in the parental home is not available any more on Eurostat, but there are new, equally relevant data on the employment status of young adults living in the parental home. It makes a difference when they are students or economically inactive, as opposed to having a full-time job, because the latter should, in principle, have access to the housing market. Again, we remind the reader that cultural factors can play a role in the timing of leaving the parental home.

Figure 6 shows details of young adults from 25–34 years living in the parental home who hold a permanent job. In other words, this is not the entire population, but only those who live in the parental home. Scandinavia shows an interesting pattern, distinct from the rest of Europe. Fewer of the young adults who live with their parents have a permanent contract, which might be an indication of improving access to housing for persons with a job.[5] This is a stark contrast to Western and Southern Europe where there was a marked increase in the proportion of young adults who live in the parental home and who have a permanent contract. This reveals much about deteriorating housing market opportunities. In Western Europe, the most spectacular increases are visible in Ireland and the Netherlands. In Southern Europe, Cyprus, Greece, and Spain show marked increases. In Eastern Europe there are also increases, but the only eye-catching increase is Slovenia. However, the magnitude of the numbers in Eastern Europe is remarkable; high proportions of young adults live in the parental home while many have a permanent job.

[5] A higher number of unemployed young adults may be another factor, but this contrasts with overall economic growth in Scandinavia.

*Figure 6: Proportion of persons ages 25–34 who live in the parental home and who have a permanent occupational contract*




*Source: Eurostat*

### 5.5.2. Overcrowding and under-occupancy

Overcrowding can be a manifestation of low housing quality, for example excessively small dwellings. Overcrowding can also be a manifestation of housing shortages, where people who would like to form separate households with their own accommodation are now cramped together. We are somewhat cautious with drawing conclusions from the overview of overcrowding, because several researchers warn that the experience of overcrowding may be context-related (e.g. Sunega and Lux, 2016). So, according to the Eurostat definition, overcrowding occurs more in Eastern Europe, but it may not be experienced as such by households, who are not severely overcrowded.

Eurostat has published a new statistic: under-occupancy, the reverse of overcrowding (see Figure 7). This statistic has drawn attention from housing market specialists and policymakers because it reveals something about qualitative housing shortages. Are these households possibly living in these dwellings involuntarily because there is insufficient alternative, smaller accommodation? In this respect, the same question may be posed as with overcrowding: do these people always experience themselves living in overly spacious accommodation?

Under-occupancy prevails mostly in Northern and Western Europe, while it is also significant in the smaller Southern European countries. In Northern and Western Europe, many baby boomers took advantage of rapid income growth during the 1970s and 1980s, combined with government stimuli, to gain access to relatively large owner-occupied dwellings. They raised their families in these dwellings, but they are now often empty-nesters, with children who left their parental home. For most of these households, there is often no real urge to leave, as they have repaid their mortgages and often have little cost for maintenance and property taxes.

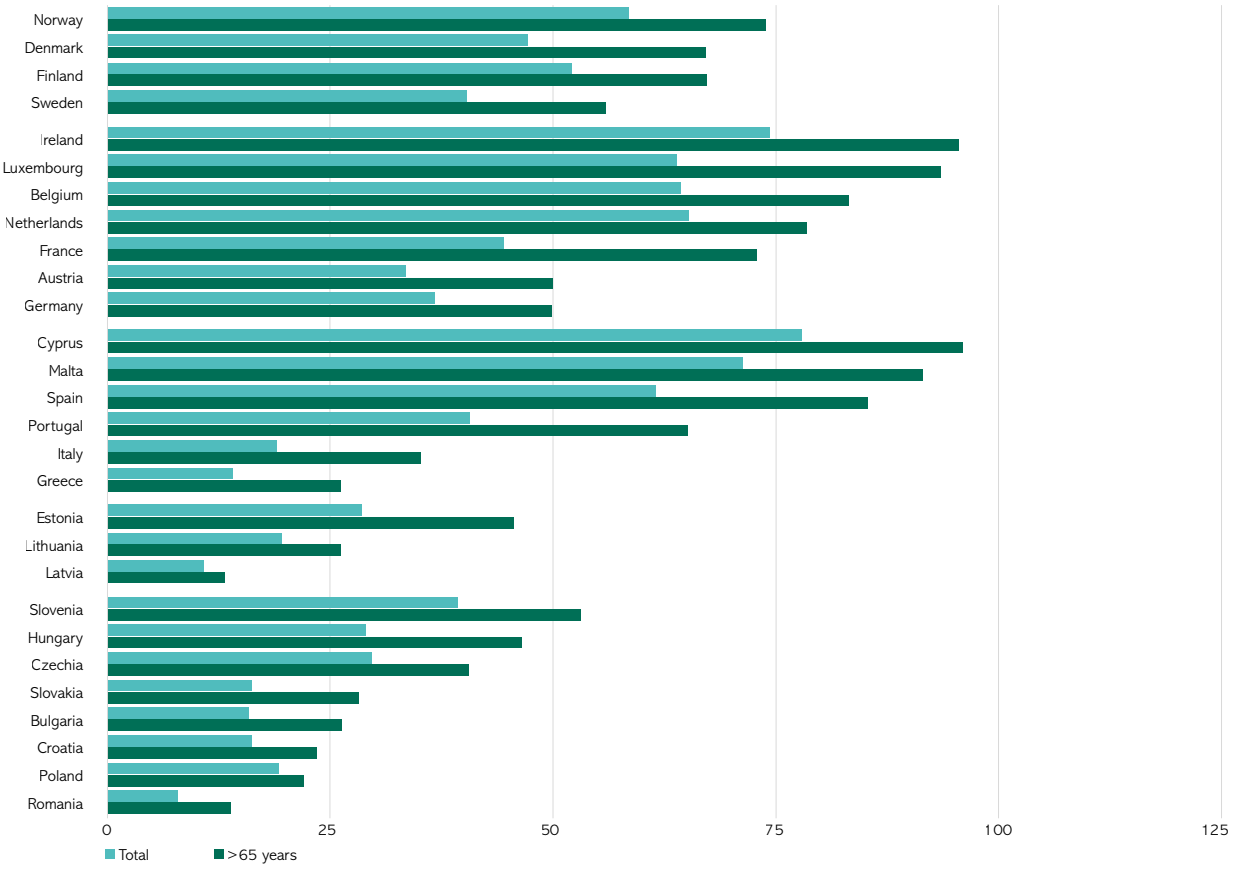
However, it has become evident that many, though not all, West European elderly households who live in a single-family dwelling do consider a move to a smaller dwelling. This would open opportunities for younger households who wish to start a family. We warn against technocratic policies that put pressure on the elderly to move out of their home, but there appears to be potential for better use of the housing stock in this regard. Many elderly persons mention a lack of suitable housing options that could serve as alternatives to their current home. This topic is further addressed in the case study on senior housing and co-housing.

**Box: better use of the housing stock by downsizing**

Under-occupancy exists in several West European countries, but we find few national policies to stimulate moves of the elderly to a smaller home. In the UK, a study by Barclays Bank brought under-occupancy to the attention, calling for more policies to facilitate the elderly in moving. In Denmark, philanthropic research institute Realdania found that many older householders are quite willing to move, but there is little policy to support supply of suitable housing by the market and/or the state: hence the surge in bottom-up senior housing solutions that we present in the case studies. Age Friendly Ireland launched the 'Guide to Rightsizing', mentioning assistance from several local authorities. In the Netherlands, several larger housing associations, often in coordination with municipalities, give the elderly preferential access to a new senior dwelling when they leave a large dwelling. This often also involves support in moving and some subsidies to cover moving costs. The central government, for the time being, shows little interest in boosting these initiatives, although it has called for more supply of senior housing.

So, while the possibilities of enhancing vacancy chains through downsizing are explicitly or implicitly recognised, there is little central government coordination. The housing system also plays a role as countries with a sizeable social housing stock have more possibilities to steer such processes. Tenants in an underoccupied home can be actively approached with a suitable (right size) new apartment, even giving them a preferred place on a waiting list. For private rent, such initiatives may be more complicated and only possible in those counties with larger landlords (institutional investors). Also, for owner-occupied dwellings such preferential treatment is difficult, although agreement might be made with the few developers who offer right-sized housing.

*Figure 7: Percentage of all persons and persons over 65 years living in an underoccupied dwelling, 2024*

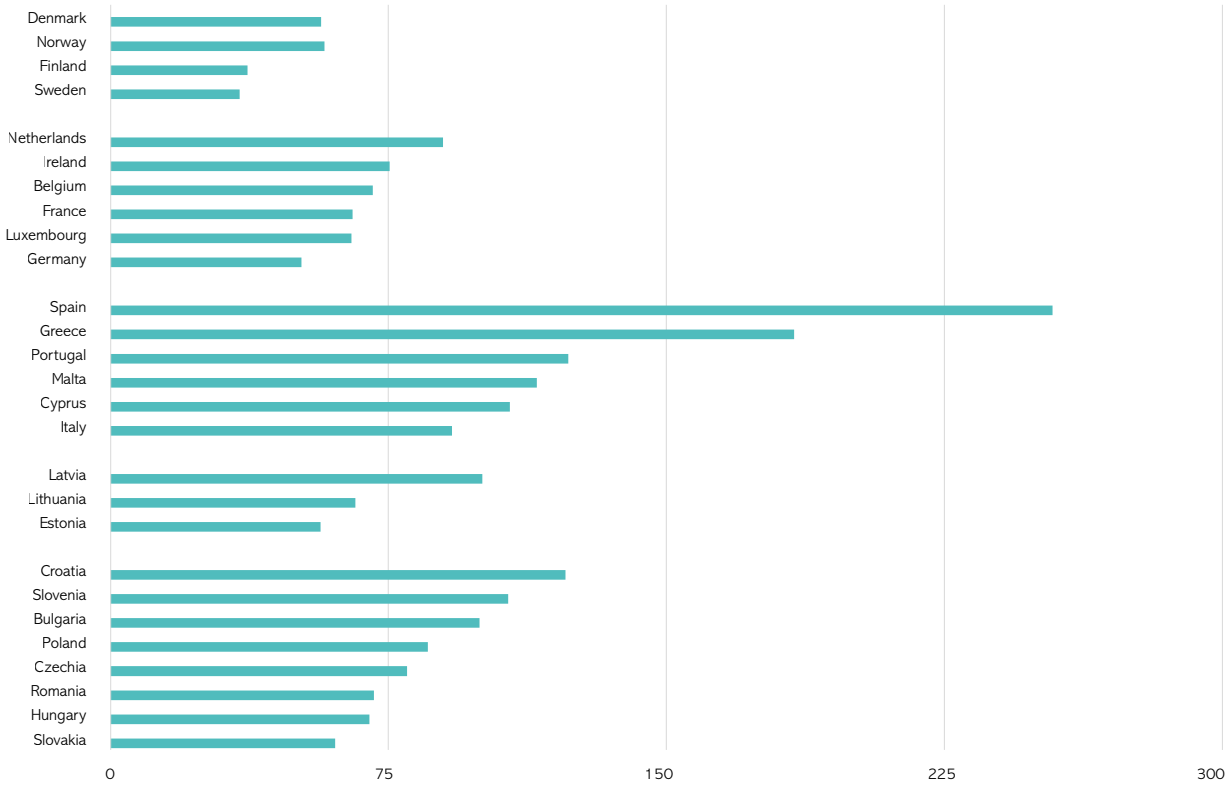



*Source: Eurostat*

### 5.5.3. Problems with new housing supply

Even though European countries experience a housing crisis with demand outstripping supply, recent data on residential building permits show declines after 2021. This somewhat contradictory situation was caused by an interest rate hike in 2022. After years of declining mortgage interest rates, in some countries under 1.0%, interest rates doubled or even tripled after 2021. Northern and Western Europe are most affected, while some Central and Eastern European countries show more stability. The situation in Southern Europe is quite remarkable, with a huge upswing in building permits after 2021. It can be partly explained by the immense backlog in Spain and Portugal after residential construction came to a virtual standstill during the global financial crisis and it is still far below pre-global financial crisis levels. Furthermore, much new construction is bought by foreign (non-resident) buyers who are drawn by the attractive climate (e.g. European Mortgage Federation, 2024). This has sparked serious concerns over availability of dwellings for local residents, especially those with lower incomes.
Unfortunately, the pan-European construction statistics from Eurostat (or OECD) do not provide categorisations by tenure or price levels. This could give a much better overview on construction of affordable housing. With the new EC interest in housing, such statistics may become available in due course.

*Figure 8: Residential building permits, 2024, index 2021 = 100*




*Source: Eurostat*

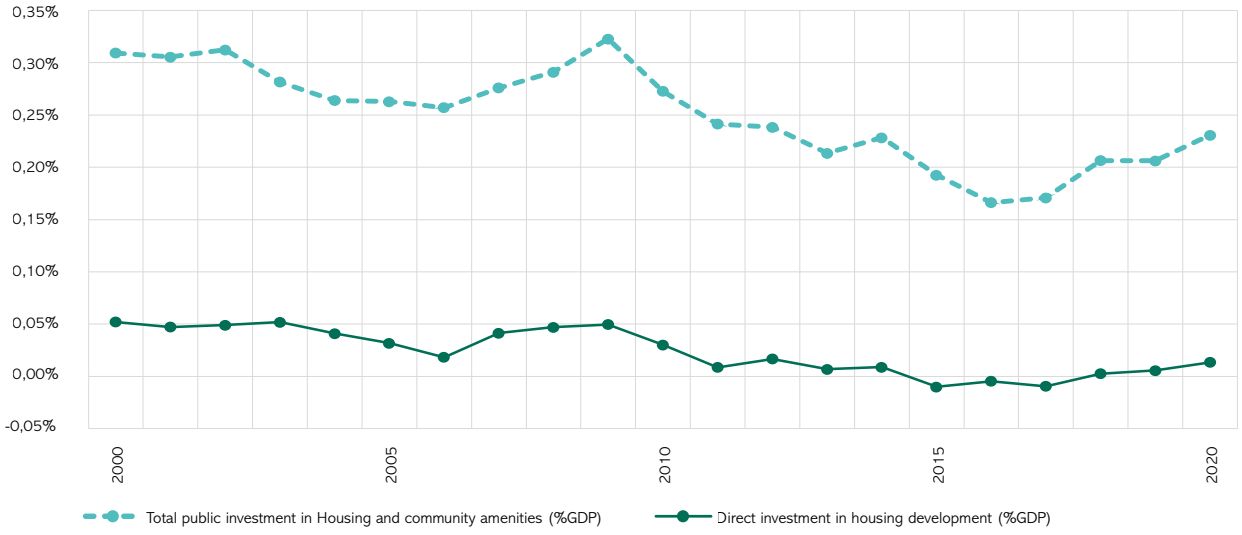
#### 5.5.3.1. Residential construction and cyclicality

Compared to 2021, the interest rates had more than doubled in 2023, especially in Western Europe. It dampened house price increases, which can be regarded as positive, but for the general housing market it introduced another problem: stagnation in housing production. Owners of existing dwellings can respond to rising interest rates by adjusting the asking price for their house. For project developers, this can be more complicated. Prior to the construction start, they have already estimated an asking price for the dwellings, based on the land purchase price and direct construction costs (materials and personnel). There will be some margin to reduce the final asking price somewhat, but in 2021 and 2022, prices of building materials still boomed. As a result, developers became very uncertain about starting new owner-occupied housing projects. Private investors in new rental dwellings also became more cautious, even though rents in the private sector reached record levels in most EU countries. The result was stagnation in construction, which led to an even larger backlog in housing construction. It must be emphasised that demand for owner-occupied dwellings stagnates under these circumstances, but this says little about general housing shortages. The situation seems to improve somewhat in 2024.

The academic literature shows that housing markets can also be vulnerable to the general economic cycle (e.g. Van der Heijden et al., 2011). Residential construction collapsed during the crisis years of 2008–2013 and the prolonged time it took to restore residential construction to pre-global financial crisis levels (e.g. Dol et al., 2023; European Mortgage Federation, 2024). In some cases, construction never fully recovered. Across Europe, it led to mounting housing shortages, because housing markets were already quite tight. The explanation for the cyclicality of the housing construction market is as follows: under favourable economic circumstances, developers often tend to focus on high-end dwellings, as they generate more profit. However, demand for such dwellings declines quickly during a crisis. The reason is that much of the customer base for high-end construction already has decent accommodation and they do not need to move. Furthermore, many already live in an owner-occupied dwelling, and they may have doubts about the saleability of that dwelling in the near future. New rental dwellings are often less sensitive to the cycle as there is no investment risk for the inhabitants.

So, the main reason for this housing market vulnerability is too much emphasis on expensive, owner-occupied housing. Many European governments and the EC now clamour for more **affordable rental housing**, but they sometimes overlook that it is also a method to counter the cyclicality of housing markets.

*Figure 9: Investment by public sector in housing development*




*Source: OECD, 2023*

### 5.5.4. Some general solutions

It is impossible to present a single solution to address the European housing crisis. If we had this silver bullet, there would be no housing crisis. However, it is possible to provide several main strategies, based on other studies and our own insights. Of course, some solutions are more relevant in specific national or regional contexts.

#### 5.5.4.1. Sub-solution 1: Increasing housing production

The OECD and other reports mention several regulatory aspects to increase housing production:

- relaxation of planning restrictions
- relaxation of building regulation
- reconsideration of multi-level regulation
- addressing Nimbyism.

The long duration of the planning process is also mentioned, often on locations in urban areas where planners need to cope with a multitude of interests. As inner city development is becoming more important, this creates longer planning processes than before.

There is no harm, even without a housing crisis, in reconsidering the value of regulation. A first step is to scan for cumulation of regulation at multiple governmental levels. It often happens that local governments set additional requirements to central government's regulation. Is this really necessary? Do we need additional building requirements? The answer may be positive but there is also a risk of ambitious local authorities implementing a surplus of regulation.

In our previous study we addressed the issue of planning restrictions and housing supply. We did not find strong correlations between the OECD planning restriction index and recovery time from building sectors after the global financial crisis (Dol et al., 2023). However, planning procedures themselves can be long, which makes recovery times long. This can also become an issue when multiple levels of government have cumulative regulations in place.

**NIMBY and BANANA**

Not In My Backyard (NIMBY) refers to people or interest groups who oppose new construction in their neighbourhood. Build Absolutely Not Anywhere Near Anything, BANANA is the more radical version.
The motivations for Nimbyism range from loss of nature, pressure on neighbourhood facilities (e.g. parking, health care) to fear of newcomers or blocking the view in the 'backyard'. Nimbyism becomes more frequent when there is a shift of construction to inner city areas, as there are more vested interests in these places. It can also be abused when legislative organisations are overburdened and people demand money to drop the objections. There are also examples where residents who oppose housing developments blackmail local politicians with future voting behaviour.
There is a myriad of reasons and types of developments that residents can protest against. This box focuses on NIMBYS against social housing, because this obstructs the important goal of affordable housing development throughout Europe.
In the case of new social housing, residents may react out of fear for having socially unstable, criminal neighbours, or a negative effect on their property value. This often happens in counties of Eastern and Southern Europe, where the social housing sector is small and accommodates the poorest households. In these countries, Nimbyism originates from fear of the unknown or loss of status (see e.g. McKinlay et al., 2024).
As one of the solutions for the housing crisis revolves around more supply of affordable housing by non-profit agencies, this potentially increases the number of NIMBY actions.

Responses to Nimbyism mentioned by the OECD and other studies are:

- A stronger role of central government in setting targets for a percentage of social housing (examples are France, NL, UK). Without additional policies this may not be the best way to muster neighbourhood support for these measures as it will feel like it is being imposed.
- Including residents in an early phase of the plan helps. This includes a call to solidarity to those who are willing to oppose. The need for social housing or more housing in general will need to be explained and fears need to be addressed.

Finally, recent research shows that people who are critical of new housing construction in their neighbourhood are not simply egotistic and stubbornly resistant to any change (e.g. McKinlay et al., 2024). They are often overwhelmed by a plan and believe they are being confronted with a fait accompli. In many cases residents have positive input and need to be heard by developers and local authorities. There is a good argument that democratic societies do need to protect their residents against overpowering financial and business interests.

### 5.5.4.2. Sub-solution 2: More affordable housing to counter cyclicality

There are a couple of obvious benefits from construction of higher end housing. First of all, it is more advantageous from a budgetary perspective as it does not require government subsidies. Secondly, in a context with a large social housing sector, construction of higher end housing can create *vacancy chains*, i.e. households with sufficient income will move from affordable housing into newly developed housing.

However, as indicated in the previous section, production of higher end housing will always decline during an economic downturn, leading to mounting housing shortages. In other words, population and household growth do not stop during a crisis, but housing production can stagnate. Furthermore, even in those countries with a relatively large affordable housing stock, a focus on higher end construction does not always lead to long vacancy chains in the existing housing stock.

Finally, most countries in Central, Eastern, and Southern Europe have a very small affordable social rental sector. Vacancy chains do not work here very much. As the EC indicates, more housing is needed for lower incomes and the young.

#### 5.5.4.3. Sub-solution 3: Efficient distribution of affordable housing

Simply by increasing residential construction, housing shortages will not always be alleviated for lower incomes and/or young persons.

- Affordable dwellings on offer by market parties, be they for sale or rent, may still be taken by those on middle and higher incomes. Without any distribution rules, a private landlord may prefer someone with a higher income.
- In some countries a significant proportion of new construction is bought as second residences or to let to tourists. Spain and Portugal especially struggle with this trend. The new regulation of March 2025 in Spain offers a larger tax break when the dwelling is rented out to young persons, while other owners of apartment complexes need to agree with holiday rentals.

Countries that already have a substantial social housing stock often explore whether they can use their stock more efficiently. From a distributional perspective, many suggest that households with a middle-income level living in social housing should move, but this is easier said than done when few alternatives are available. Also, a nation's ideological perspectives on tenure security may conflict with these ideas.
More efficient distribution of housing does not always apply to social housing. Especially in Western Europe, a substantial part of the housing stock is underoccupied. Many older empty-nesters occupy quite large homes, while they may be better off in special senior housing. More specific housing for seniors can be one of the solutions. We will return to this topic in the case studies.

#### 5.5.4.4. Sub-solution 4: Efficient construction methods

Modular construction in factories has great potential because it speeds up the construction process. Most of the components of the dwelling are prefabricated in a factory, so onsite building is not required.
It uses 2D plates of concrete or wood that can be clicked together or even standardised 3D modules. The 2D method is not entirely new, because during the 1970s it was much used in standardised apartment complexes. Today, wood is used much more than concrete because it is light, while it also encapsulates $CO_2$, while concrete production emits a considerable amount of $CO_2$. Wood is also used for click-together 3D modules.
In urban areas, modular construction also has benefits because the nuisance time towards the surroundings is much shorter and the required construction site is smaller. There is still an assumption that modular wood construction is only possible in low-rise, but there are many new developments that prove the contrary.

# 5.6. CASE STUDY: VERTICAL EXTENSIONS

**A vertical extension on a dwelling – or add-on – can create extra living space for the inhabitant but it can also create new apartments. We focus on the latter as it adds new dwellings to the housing stock. Furthermore, vertical add-ons stimulate more density, which corresponds with densification policies.**

In general, add-ons often meet legal restrictions because of:
- concerns over the structural integrity of the building;
- architectural design;
- cultural heritage;
- nuisance for residents during the construction process.

Of course, the structure of the dwelling must be able to carry the add-on. Therefore, light frames are used with wood, light steel, or aluminium. Such structures must be able to resist strong gusts of wind and therefore a maximum of two stories is often imposed. Sometimes, dwellings are already built with a future add-on in mind. This is quite often the case in the Global South, where self-building is common and households may just start out with a rather small property. We have, to the best of our knowledge, no information of such practices in Europe, probably with the exception of some places with a tradition of self-building. However, larger apartment complexes, built in the post-WWII era, often have a structure that is strong enough to add one or two floors.

Architectural rules often impede vertical extensions as authorities and residents are often fond of architectural unity in neighbourhoods and historical facades are protected against such interventions.

Furthermore, the construction process can cause nuisance and even require residents to temporarily leave the dwelling. This may be avoided by special new methods where factory-made units can be lifted on to the dwelling, but this is no solution for all complexes. In historical areas, a customised approach is often needed.

It appears as if several European countries are in a process of loosening the rules towards add-ons. Examples are the UK and the Netherlands, where protection of architectural values by special municipal boards were quite strict, while many residents would like to **expand** their dwellings. Especially in expensive housing markets, an add-on creates more space for residents at a lower price than moving to another dwelling. In other words, the construction cost of an add-on may not be more than 2,000 euro per square metre in North-Western Europe, while the square metre price of dwellings on the free market is well above this level. The reason for this difference is of course the land value. If people move, the land must also be purchased.

There is thus a business model for vertical add-ons in tight housing markets. The owner of an apartment complex can add a level of apartments and sell these. The surplus (profit) can be distributed between the apartment (or complex) owners. The profit can also be used address backlogs in maintenance and/or improving sustainability. This also creates possibilities for apartment complexes where individual owners who have limited financial means to retrofit. At the same time, add-ons have also sparked interest with landlords of larger complexes who can rent out new apartments and at the same time invest in more sustainability of the other dwellings. In sustainable retrofitting, the preferred building material is biobased. Wood and insulation (flax, hemp) encapsulate $CO_2$, while production of steel, brick, and concrete emit large quantities of $CO_2$.

Finally, but probably most important, is the issue of individual property rights of the residents in condominium complexes. It can become very problematic and time consuming to gain the required majority for the decision to build an add-on. In case the national apartment law includes a veto or an absolute majority, this can obstruct or even cancel all the good plans. With a single property owner (investor, housing association), this may be less complicated, but in countries with strong tenants' protection, this can also hinder the redevelopment. See also the box on NIMBY in the previous paragraph – in this case, 'not on my roof'.

### 5.6.1. Paris: Condominium expansions in historical areas

A good example of so-called *surélévation* of condominiums is found in the centre of Paris. A walk across Paris, real or via street view apps, shows that add-ons are quite common. They usually have similar architecture as the original dwelling, so to the untrained eye they often do not even look like add-ons.

In the Parisian practice, the owner (or apartment owners) can act as a developer and add an extra floor, either to rent out or to sell. They can also sell this right to a developer, who then sells (or rents out) the apartments. The experience in Paris shows that add-ons have been a historical practice, when residential buildings were owned by a single landlord (e.g. Den Butter, 2023). In around 1950 almost 70% of all dwelling complexes were owned by private landlords, but by 1985 much had been divided into condominiums. Until the 1950s, it was relatively easy for landlords to add an extra floor to the complex to rent out, and this was done quite often. After the 1950s, placement of add-ons became much more complicated because almost all apartment owners needed to agree. It led to a significant decline in the construction of add-ons while there was still ample room throughout Paris to realise them. French law required a majority of 75%, but the owner of the top apartment always carried the veto. An amendment to the property law (*Loi pour l'Accès au Logement et un Urbanisme Rénové* –ALUR) led to the final version in 2014. Only a two-thirds majority was required and the veto was changed into a pre-emptive right: owners of the top apartments now have the right to buy the new top apartment. However, it works best to aim for unanimity in the decision.

The French practice also shows that add-ons are used to finance sustainable retrofitting and addressing backlogs in maintenance. The Parisian authorities also promote this.

### 5.6.2. East Berlin, mass expansions in tenements

In the former German Democratic Republic, around 900,000 so-called *Plattenbau* (WBS70) dwellings were built during the 1970s , especially in East Berlin. The Plattenbau of the 1970s consists of prefabricated concrete parts that are clicked together. They are well suited to be expanded with at least two layers. In 2022 the first pilot by the HOWOGE housing association was presented with 50 dwellings on three additional levels. It has now been completed and over time, HOWOGE aims to add another 2,000 add-on dwellings to their stock. The existing apartments are more accessible as the renovation also includes a new lift. Existing apartments were also made more energy efficient, while the structure allows for a green roof top.

The Berlin example is the first one and serves as an inspiration for other East German cities with Plattenbau, such as Rostock. It also sparked interest in other areas with large-scale tenements from the 1970s including the Netherlands (Rotterdam region), that use the Plattenbau technique. Usually, the structural integrity of these complexes is solid enough to add two or three levels.

### 5.6.3. The Netherlands: from small extensions towards a larger scale

Until around 2010, Dutch legislation and municipal building codes were quite restrictive regarding dwelling extensions. The hesitance is related to a tradition of protecting uniform urban design in cities' neighbourhoods.
Around 2010, municipalities allowed more deviation from these codes. A good example in the Netherlands that allowed the addition of more vertical extensions is The Hague, a municipality that has large districts with dwellings from the 1930s with flat roofs. These neighbourhoods are much appreciated for their typical Hague School architecture.[6] Diversions from this architecture via random extensions would certainly lead to much unrest and 'not on my roof' actions.
So, with caution, the local authorities allowed expansion of owner-occupied top apartments in several of the 1930s areas. Gradually, in the 1930s areas apartments were rising with an additional floor: the so-called *optoppen*. In most cases it serves as an expansion of the top apartment and to add a new top apartment. Owners of the top apartment need to strike a deal with the other owners, and usually they reach a good agreement. As far as we know, there has been little structural research about the motivations of these owners and their experiences. Some anecdotal evidence from the neighbourhoods shows that many residents like the neighbourhood, but when their household expands (such as through childbirth), they usually leave for the suburbs. By adding another level, they create space for their expanding family. *Optoppen* in Den Haag and other cities gave much experience to architects, and builders are now actively providing standardised concepts that can be erected very quickly.
Housing associations with 1950s Plattenbau in Den Haag, as well as Rotterdam and Amsterdam, have more opportunities. Under Dutch law, 70% of the tenants need to agree.[7] They can focus on adding apartments, rather than expanding apartments. For larger complexes with individual owners, the requirement for the decision needs to be unanimous. The national government now also aims to stimulate *optoppen* for larger complexes, and former housing minister De Jonge proposed that the unanimity requirement should be abandoned (as in France). This proposal met much resistance, but it is under study again. For the time being, the main strategy remains unanimity, which can avoid individual residents holding grudges after the redevelopment.

[6] With a strong influence from Frank Lloyd Wright' s architecture and Art Deco.
[7] But in owner-occupied concominiums, the owners need to reach unanimity.

### 5.6.4. The UK, a new impetus for vertical extensions?

In 2020, an amendment was made to the Town and Country Order that allows the construction of up to two more levels on existing dwellings. The amendments release owners from applying for complicated planning permissions. In the past there was legislation that allows households to add extensions to facilitate their household's growth, but this new amendment goes somewhat further. The government's aim is to add new housing in a context where urban expansions are complex. A secondary goal is to promote sustainability and energy efficiency in combination with these add-ons.

There are a some exceptions:

- The property cannot be in a place of special interest (in a World Heritage site, for example).
- The property was built before 1st July 1948.
- The property had already been extended.
- The extension is visible from the street.
- The height exceeds 19 metres.

The expectations were high, with the government expecting around 9,000 add-ons to be permitted annually. However, only a few hundred have been permitted. Still, there is, according to a study by the University of Sheffield, great potential in the larger cities. For Sheffield itself, the potential is 175,000 additional homes. The dedicated website optoppen.org, has made inventories for the city of London's districts and concludes that around half a million new units could be added. This is in a context with some vast areas of pre-war housing stock, where add-ons may not always be easy.

### 5.6.5. Best practice advice for vertical extensions

#### 5.6.5.1. Focus on scalability

Every dwelling counts towards combatting housing shortages, but one piece of advice for governments is to focus on scale. The first step is an exploration of which type of neighbourhoods have the best potential for adding substantial numbers of dwellings. International examples of such neighbourhoods are 1960s and 1970s standardised neighbourhoods (such as Plattenbau in Germany and the Netherlands). Such neighbourhoods also need to have enough public space for extra car park spaces for new residents.

#### 5.6.5.2. Priority for rental complexes

Tenure is key. In rental complexes it is easier to initiate a project, because there is a single owner. In condominiums with a multitude of individual owners, it can be complicated to get unanimity. French legislation provided a breakthrough, but there is no guarantee that this will be possible in other contexts; proposals to erase 100% unanimity may meet with political resistance. We also stress that unanimity is usually granted with a good plan. It is better to negotiate a good plan with unanimity than to push through a project where opponents may have good reasons to object. Special agreements with owners/tenants of the top floor, such as in France, may also help.

#### 5.6.5.3. Standardisation and modularity

The key takeaway from the Dutch experience with *expansion* of top-floor apartments is that it has given a good testing ground for standardisation. Several local architects and builders now offer standardised products, including wood construction, with reasonable prices.

As such, standardisation of top-up units should be stimulated. Ideally, modular units built on factory locations are lifted on to the buildings, making the process swifter and causing less nuisance for the residents. Again, this is easier in areas with uniform housing architecture, but it will be more complicated in historical districts such as Paris.

The Dutch experience shows that in some cities, individual owners of top-floor apartments successfully expanded their dwelling. This does not add new dwellings, but it can lead to more variety in the local dwelling stock. Dutch municipalities were quite hesitant to allow this for a long time for several motives (architecture, conflicts between neighbours), but in practice it works quite well.

# 5.7. AGEING POPULATIONS AND SENIOR HOUSING SOLUTIONS

**The ageing population in European countries poses several challenges, not least in the field of housing. In this paragraph we discuss the rise of the need for novel senior housing solutions. First, we describe the context of the need for senior housing in the past and in the near future. Second, we discuss our case study of seven European cases and the lessons policymakers and others can learn from them. Third, we discuss the context of co-housing in three countries, since co-housing is often at the core of these new types of senior housing.**

### 5.7.1. A brief history of senior housing in different European regions

The first European old-age housing arrangements can be traced back to the Middle Ages in *Northern and Western Europe*. It was often charity-based for those who did not have relatives or other support systems. It did not just encompass old-age care homes but also living arrangements for older persons without relatives.[8] The evolution of welfare regimes during the three golden decades of welfare after World War II led to a broad supply of old-age care homes. However, budgetary pressures after the crisis of the 1980s led to a reconsideration of the welfare state and availability of old-age care homes. The focus shifted to independent living, and only *nursing* homes were provided to the frailest elderly suffering from chronic conditions, often in their final life stage. Across Northern and Western Europe, ageing at home became the dominant feature in government policies.

*Southern Europe* has a different history, with the emphasis on the extended family as the caregiver for elderly relatives. There is a tradition of extended families living in one dwelling, which fits within the so-called familial welfare regime (see e.g. Allen et al., 2004). The Church took care of people who could not rely on familial care (monasteries, orphanages, etc.). Societal attitudes are changing, however. Some people do not have children or strong familial ties, while others do not even wish to burden their relatives with care. More elderly are living on their own while there is also growing interest in special old-age homes (e.g. Etxezarreta et al., 2018). We will return to this further in the chapter.

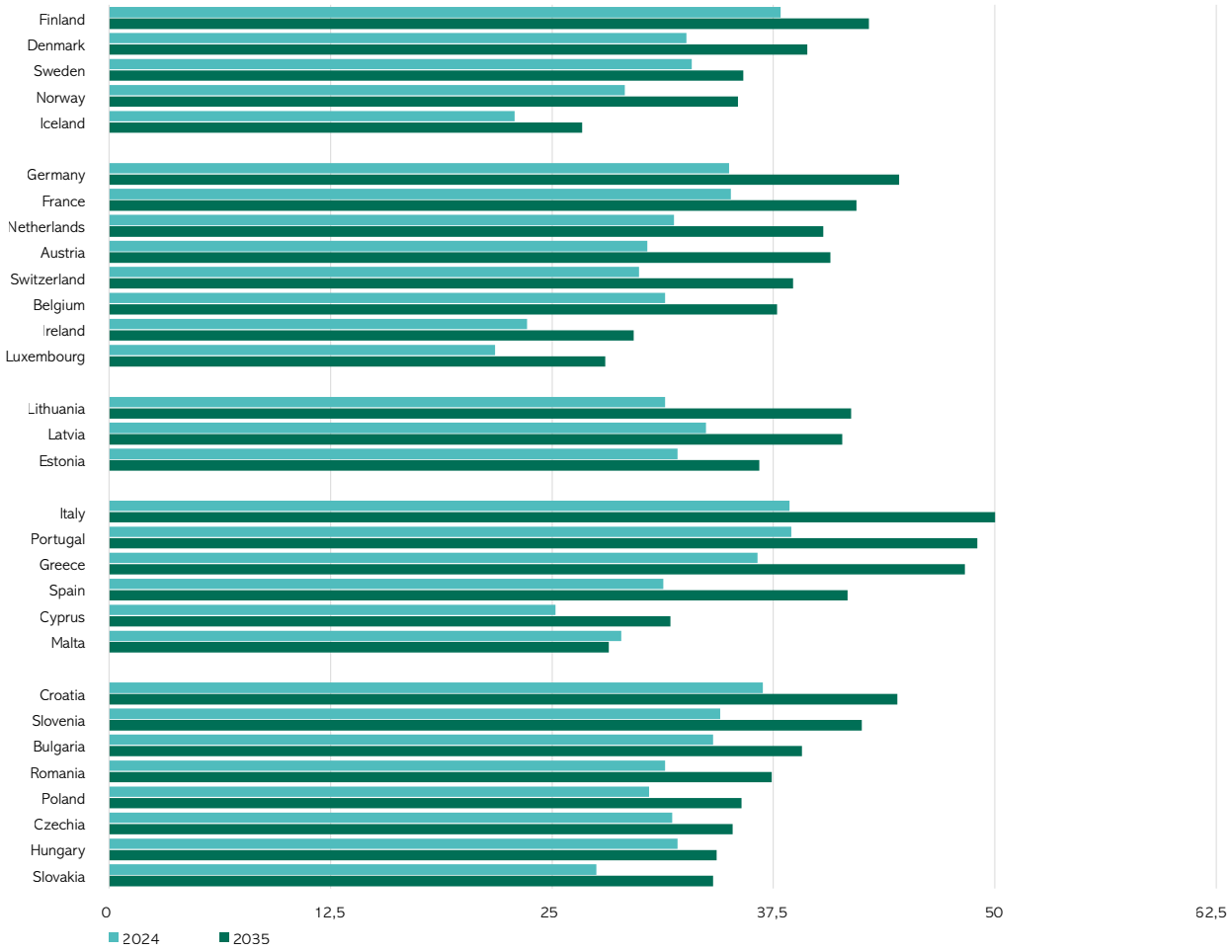
For *Eastern and Central Europe*, literature from the pre-communist era is quite scarce, but we cautiously deduct that in Eastern Europe (Romania, Bulgaria) familial ties were quite strong, following pre-industrial, rural patterns. Much old-age care would be arranged along family lines. Central Europe (Poland, Hungary, Czechia) seems to take a middle position. Communism certainly had an impact in providing state arrangements but, similar to tenure distributions, familial care played a role. At present, in both regions there is a lack of old-age housing, but we stress that this region now has similarities with Southern Europe: a system where familial care exists, but it is under pressure due to individualisation and looser family ties.

### 5.7.2. Contemporary problems: growing old-age dependency and senior loneliness

The European baby boom generation, born between 1945 until the early 1960s, is ageing quickly. In several countries the old-age dependency ratio is above 30, meaning there are 30 persons above 65 years to every 100 in the working ages (those from 15 to 65 years; see Figure 10). The old-age dependency ratio will only increase in the coming years.

[8] See for instance the Royal Chelsea Hospital for military retirees or Begijnhof in the Low Countries for women.

*Figure 10: Old-age dependency ratio*

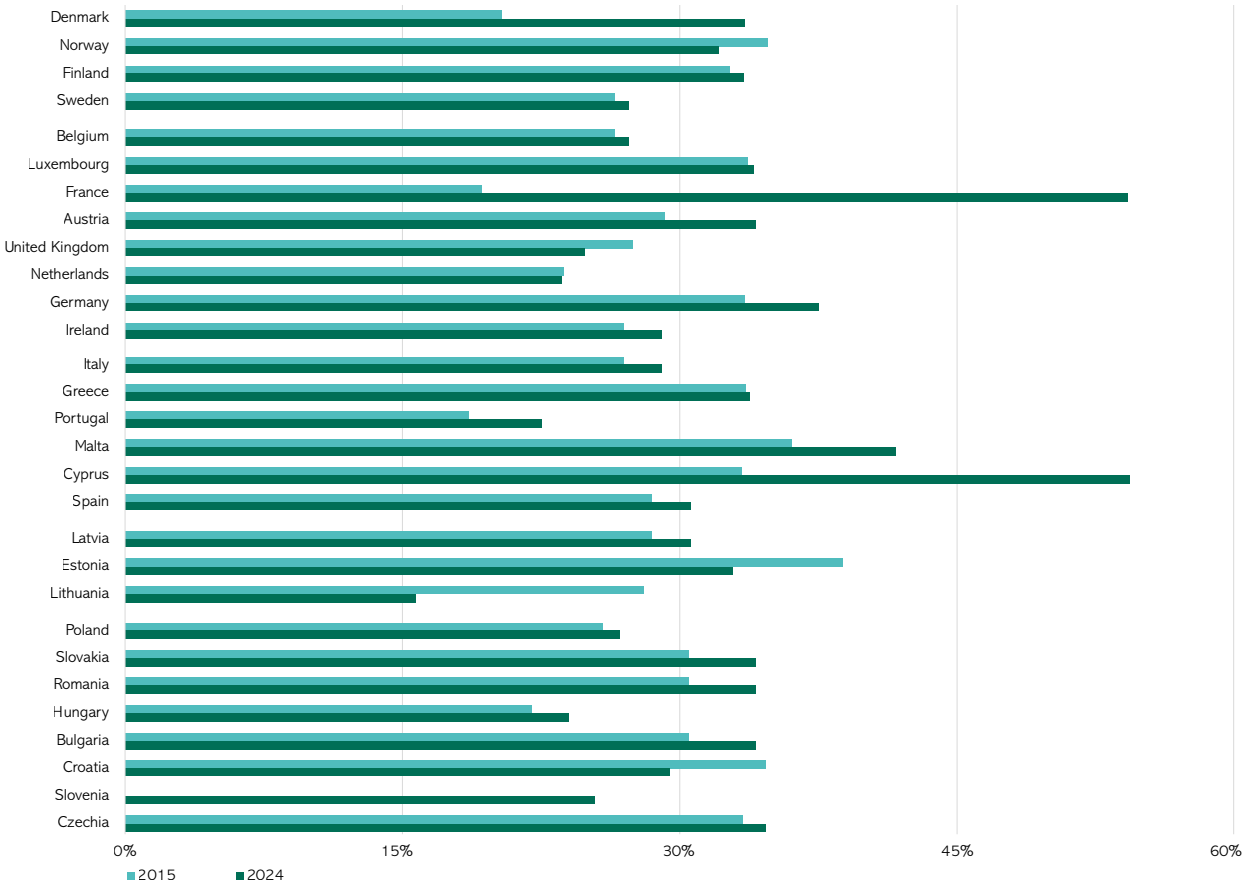



*Source: Eurostat*

This confronts policymakers with an enormous challenge. Providing sufficient care arrangements for the elderly will come at significant cost and organisation, while suitable housing solutions are another challenge. Special old-age homes with access from a relatively young age were already considered as a financial burden in many countries in the last decades. Policies shifted more towards ageing in place, with a mode of remaining in the current dwellings as long as possible with personal care at home, assistance with household tasks, and food services. This includes routine house calls for those with health issues, but who can otherwise live independently.

The previous is somewhat of an oversimplification, because in some European regions, for example in Southern Europe, many extended families still live in the same dwelling, with reciprocal arrangements between the generations. That said, in most European countries, seniors increasingly live alone (Figure 11). This poses an additional challenge: the Red Cross EU estimates that 20% to 34% of older people in Europe face loneliness and social isolation. This impacts quality of life, cognitive function, well-being, and independence, contributing to increased use of health and social care services.

*Figure 11: Percentage of single-person households among all householders above 65 years old*




*Source: Eurostat)*

Even if policies still aim to provide care housing from a relatively young age, the magnitude of the ageing baby boom generation would require immense investment. Furthermore, this 'boom' of the elderly will not last. Many who were born in the early 1950s will pass away within a decade. Even if we build enough care homes, many of them will become functionally redundant and will need to be refurbished for other purposes or even be demolished.

### 5.7.3. The need for senior housing solutions

As mentioned, ageing in place (at the home) is one strategy, and is in line with how many contemporary seniors want to live their lives. However, large parts of the existing building stock are currently not fit for seniors to lead healthy, active, and meaningful lives at home. This has sparked increasing interest in relocating to accommodation that is suitable for elderly: housing that caters to the needs of seniors through physical, care-related, social and/or technological services. These solutions come in different forms. They may focus primarily on architectural features (such as wall railings and lack of stairs), or on the provision of care in the direct vicinity. They may also provide types of communal living, together with peers or with younger age groups mixed in. Finally, technological innovations may be employed in the home (e.g. fall detection services, or interactive walls for connection with the caregiver).

The European Commission reported in 2016 that the market for senior housing solutions was still in a rather experimental phase (European Commission, 2016). The impression from the current study is that nine years after the Commission's report, this situation persists. Some of the cases under study are still considered as pioneers. However, our respondents report a 'rising consciousness' among both the private sector (investing in this type of housing) and public sector (providing information and/or funding).

It is good to note that various parties play a role in senior housing. First of all, the initiative to start a complex can come from different directions: seniors themselves ('bottom-up'), private investors, housing associations or co-operations, NGOs, and local government. Secondly, apart from the parties that develop or exploit the housing, healthcare and/or social organisations are usually involved as well. The former provide care in the home, while the latter provide other kind of services, including a community building for the inhabitants. Thirdly, complexes may focus on involving the local community (senior or otherwise), by opening up communal spaces for neighbourhood residents as well, or by motivating local volunteer potential. Volunteers may be relied upon to provide a sense of community, with a view on preventing loneliness among seniors.

**Under-occupancy of dwellings by older people**
Naturally, freedom of choice prevails and policies should never be designed to force the elderly to move as long as they are happy in their accommodation. However, it is evident that there is much under-occupancy of dwellings by older people, especially in Western Europe (see previous paragraph). Many West European baby boomers often live in large single-family dwellings. Again, it is not always clear whether this is their preferred situation, or they deem their accommodation as too large. Some studies suggest that many would simply like to stay, while a significant proportion would like to move to smaller accommodation with only one floor, making it easier to navigate. However, many studies also suggest few options for the elderly to live in old-age-friendly surroundings.

### 5.7.4. Case studies: the organisation of housing solutions for seniors

#### 5.7.4.1. Three pillars of good senior housing

Before we describe the case studies, it is relevant to clarify what is relevant in senior housing. Based on the cases, we identify three pillars:

- architecture-design and domotica (automation) suited to older residents,
- care arrangements,
- community.

*Architectural design* adapted to the needs of seniors is one of the basic elements of a senior housing complex. At the very least, this entails a design aimed at mobility and wheelchair accessibility. It may also involve more advanced technological features (domotica). We note that in the cases under study the use of domotica is minimal.[9] Also, since the community aspect is often emphasised, buildings may contain communal spaces. Taking all this in consideration, it is good to note that especially in intergenerational complexes, the aim may be not so much to design for seniors but to design for all age groups.[10]

*Care requirements* vary per individual. Many elderly persons can live independently and just need help with household tasks; others need some help with personal care, but for those with chronic ailments a *nursing home* with 24/7 care is required. Of course, the latter is usually at the final life stages.

The focus of the case studies is on independent living with access to care or help. One of the benefits of old-age institutions of the post-WWII era is that their scale allowed for flexibility in help and care. In other words, for smaller groups it is often complicated to hire care when a couple of residents reach a moment when they need some (or more) care. Large complexes have permanent staff and are more flexible in this. Small complexes often do not have internal staff and need to rely on professional help that is organised on the neighbourhood level, be it home visits by care workers, or help from volunteers or relatives.

*Community* is an increasingly important aspect of contemporary old-age housing. Individualisation and loosening of extended family ties imply that the elderly cannot rely on family for help and care. As indicated in the introduction, this is also becoming an issue in Southern Europe, with a tradition of family help.

As we will see, many of the contemporary self-organised old-age complexes will rely on the members for reciprocal help with small tasks, but these small communities will not provide professional care such as distributing medicine or assisting in bathing/showering.

#### 5.7.4.2. Case studies: the role of government

This paragraph presents a study of seven exemplary cases forwarded by the EIPA network in response to a call for cases. We performed a desk study and interviewed representatives of seven different organisations in five countries (Germany, France, the Netherlands, Portugal, and Switzerland) engaged in senior housing. The list includes representatives from government organisations (municipal and regional), the public housing sector, and NGOs involved in senior housing. We focus on concrete lessons on the organisation of senior housing, with special attention to the role the public sector can play.

[9] Sengers & Peine (2021) note that in their 53 cases, the emphasis is generally on social innovations rather than technological ones (despite the expectations concerning the latter, among some). The authors reason that this may be due to the lack of involvement of large companies and government coalitions.

[10] An example is the Lifetime Homes guideline from the UK, which aims at 'lifetime use' of housing, whether for families or seniors. One aspect of this guideline is an adaptable design that allows for flexible changes to the home in case residents' needs change.

The case studies make clear that, in this web of different parties, the government is usually involved in one way or another. This may be through encouragement of initiatives and provision of information, as well as regulation, the provision of land, and funding. Additionally, the local government can serve as a coordinator or facilitator for the cooperation between different types of parties. The box below describes the cases and the role of government support (or lack thereof).

**The role of government support in different cases**

1. **FORUM**, a German organisation that promotes communal living with a focus on seniors, has developed a way of working that is strongly focused on the local government. FORUM partners with municipalities to raise consciousness and activate local citizens, potential inhabitants, and potential volunteers. The aim is not only to create the right conditions for the construction of housing (such as land provision by the government) but also to create a product that meets the needs of local seniors, and to set up a strong support network of professional and volunteer workers who are willing to participate. The idea is that the local government has the best view of the 'three pillars' that underpin senior housing: housing, care, and community at the local level.

*Image: Participation meeting to collect local needs and wishes for the development of an 'age-friendly' neighbourhood in Vechta District, Germany, in 2017. The process was funded and supported by FORUM.*

2. The **tenant association SelbstBau e.G.** took the initiative for the renovation of **Sredzkistraße 44** in Germany into a multi-generational housing project. (In Germany, self-initiated co-housing projects are relatively common, as we will describe further in the next paragraph.) Thanks to federal funding from the Federal Ministry for Family Affairs, an exhibition centre with a barrier-free model apartment was included, to educate seniors and other stakeholders about the concept of senior co-housing.

*Image: The model home in Sredzkistraße 44. The complex was completed in 2017 and contains 11 rental apartments, with a mix in age groups and a focus on social interaction. Three apartments are especially designed and reserved for people with disabilities.*

3. **Woonzorg Nederland**, a Dutch housing association for senior housing, finds that government funding can break impasses when working with municipalities and care organisations. Woonzorg aims to build communal spaces in its senior complexes to alleviate problems of senior loneliness. However, while Woonzorg invests in these spaces, the financial benefit (reduced healthcare costs) is for the building's care provider. In the past, this situation has led to stalemates, with housing associations, care organisations, and the municipality waiting for one of the others to take the lead. The national SPUK-DOS subsidy (*specifieke uitkering domeinoverstijgend samenwerken*), introduced in 2023, helps break such impasses by providing a shared source of finance to municipality and care organisations. In this example, the point is not so much the amount of money the subsidy provides, but rather how its 'independence' solves (or eases) the asymmetry in investments and returns between parties. In the experience of Woonzorg, the removal of this issue has allowed municipalities to take a more active role as well.

*Image: Stadsveteraan 020 in Amsterdam, managed by Woonzorg, contains 114 social rent units completed in 2024. Apartments are 41 $m^2$ and up, and so-called 'Friends'-style studios are 23 $m^2$ with a communal living room. The target audience is 'vital seniors' 55 years and older interested in communal living (a show of motivation is required to move into the building). There are various shared facilities (garden, DIY room, cooking studio, culture space, art studio).*

4. In Portugal, the housing complex **Madre Maria Clara** has been developed and managed entirely by the **municipality of Oeiras**, citing a need for senior housing and a lack of alternatives. Since the model of the complex did not fit in existing funding schemes, gathering of funds involved negotiations with the national government in addition to a bank loan. After this initial construction phase, the project has received no support from the national government. The complex contains 60 low-rent apartments and is the largest municipal senior housing complex in Portugal. Due to the success of the project, the municipality of Oeiras is building two additional complexes, with funding from the EU under Portugal's Recovery and Resilience Plan.

*Image: Madre Maria Clara (completed 2009) contains 60 low-rent apartments with a social service office on the first floor. The complex is aimed at pensioners with housing problems and/or issues with social isolation. The complex also provides short-term accommodation to seniors, to relieve informal caregivers (such as family members) in situations where they are unable to provide care.*

5. The Swiss **canton of Neuchâtel** provides different types of support. Non-profit projects are eligible for loans at preferential rates. For-profit projects receive no financial support, but are offered aid and advice by the canton, as well as the organisation of open house days with media invitations. The cantonal support aims to encourage investors (70% of the senior housing needed by 2030 is expected to come from the private sector) and create a coherent communication strategy that attracts seniors as well as the attention of the media. Eligible projects can also receive a quality trademark from the cantonal healthcare service. Finally, the canton mediates in case of local opposition from residents against the projects. Canton Neuchâtel has supported around 30 projects since 2011.

*Image: Open house day in La Capitane in Fleurier, Neuchâtel, as televised on regional news. The complex contains 34 rental apartments between 50 and 75 $m^2$, aimed at seniors. It was completed in 2021.*

6. The Swiss **municipality of Lausanne and NGO Pro Senectute Vaud** have implemented the project Vieillir Chez Soi (Ageing in Place) from 2020 to 2024. The project is one of the pilots under the federal Projets-modèles pour un développement territorial durable (*Model projects for sustainable territorial development*). It involves the redevelopment of a building into senior housing, as well as aid for senior tenants in adaptation of their flats, activities to stimulate intergenerational neighbourhood interaction, and social and preventive services in senior complexes on location.

7. Since 2018, the Loi Élan[11] has been in effect in France. This legislation is relatively unique in Europe as it specifically mandates housing associations to adapt existing housing and construct new housing aimed at seniors. While many European countries have policies to encourage or facilitate senior housing, few impose such direct obligations on housing associations. According to **L'Union sociale pour l'habitat** (*The Social Union for Housing*) which represents the sector, the number of projects is dwindling however, as many are not economically viable. This is partly due to the extra costs associated with necessary equipment and social services in the complexes, and partly due to rising costs in general (labour, materials). The Loi Élan has however not been accompanied by substantial additional financial aid for construction or exploitation.

[11] Short for 'Loi portant évolution du logement, de l'aménagement et du numérique' (*Law on the evolution of housing, development, and digital technology*).

### 5.7.4.3. Case studies: lessons

**The case studies provide the following lessons on organising senior housing. These lessons are generally transferable between policy contexts.**

#### 1. Combining the three 'pillars' necessitates new networks and habits of cooperation

Several cases emphasise the need to properly combine the three 'pillars' of senior housing: a properly designed home, a model for provision of care and some kind of neighbourhood community support. This means different parties will be involved and that may be a challenge as parties may not be used to working together yet. As a result, to differing degrees, new organisational structures and habits of cooperation will have to be developed. The example of FORUM shows that the local government can play a key role in bringing parties together, while the example of Woonzorg shows that the right kind of public funding can remove certain hurdles in the cooperation (see box above).

#### 2. Organising the community aspect

The community aspect can take different forms. A simple variety is the self-organising community of residents, facilitated by a communal space. This requires inhabitants to act autonomously, but not all senior residents may be able or fit to undertake this task, especially as they get older and frailer. One solution to this is to create an intergenerational community, where the young socialise with the old. Another solution is to employ a professional who stimulates community building (such as the *bewonersconsulenten* at Woonzorg). Here, the emphasis is on stimulation, since the inhabitants themselves will have to sustain the community. A third option is to involve the neighbourhood, through volunteers or by opening up communal spaces for anyone e.g. in the form of a café. FORUM in Germany places emphasis on volunteers, activated through the local municipality. Woonzorg has positive experiences with opening up senior complexes for the public, for example in the form of classrooms in the building which enable the mingling of young and old.

#### 3. Involving the target audience

In case of a top-down project, there is a need to actively take into account the wishes of potential inhabitants. Professionals may underestimate the needs of seniors, as in the example of Oeiras (Portugal). After managing its first senior complex for a number of years, it was found that the needs of the eldest residents, in terms of housing and care, had been underestimated. For two upcoming complexes, the design and organisation of care have been changed accordingly.
Professionals may also have inaccurate assumptions about the needs of inhabitants. For example, Woonzorg (Netherlands) found that where professionals expect certain services to be desirable (gyms, libraries) this may not be the case ('there are gyms and libraries in town already'). The facilities that seniors actually desire may be unexpected (e.g. art studios). Hence, Woonzorg has gradually moved away from simply developing senior complexes based on their own insights, towards target audience research or involvement of residents in the concept development.

FORUM (Germany) operates from the viewpoint that although there are models to learn from, there is no 'one size fits all' solution. Because every project under FORUM is aimed at the local senior population, each project starts with a local needs analysis.
The municipality Lausanne and Pro Senectute Vaud utilise care-oriented visits to seniors to also gain information about their housing needs.

#### 4. Informing and reassuring stakeholders

In many contexts, the concept of senior co-housing is still relatively novel. The need for new structures and tools for cooperation has already been mentioned, but there is also a need to reassure various parties that the concept is sound in the first place. In our cases we find various examples of organisations investing time in this, whether it affects investors or the seniors themselves.
For example, the canton of Neuchâtel tries to encourage investors by providing them with advice and media attention, through the organisation of open house days and a coherent communication strategy (see box above). These activities, together with the option of a quality trademark, also aim to reassure seniors and their families of the concept. It should probably not be taken for granted that seniors are convinced of the qualities of senior housing concepts, simply by virtue of their age. The model home at Sredzkistraße 44 in Berlin is another example of a project that aims to normalise senior housing.
In another example, Pro Senectute (Switzerland) works to convince landlords that adapting their housing to senior living is also in their interest, as the demand for this housing will only increase as society ages. To their surprise, Pro Senectute has found that most property managers are then willing to finance the costs of adaptation themselves without any change to the rent.

Meanwhile, the French Union sociale pour l'habitat organises national competitions for exemplary projects. The aim is to inspire the social housing sector and provide guidance on strategy and financial options. All this serves to make the concept of senior housing itself, as well as the challenge of creating it, concrete within a local context.

### 5. The allocation of senior housing

A less frequently mentioned, but interesting topic is the allocation of housing. Woonzorg in the Netherlands finds that in a senior co-housing complex, a certain balance between healthy, active inhabitants and more vulnerable seniors is vital to ensure an active community. The organisation argues that without any control over who gets to move into the next vacant flat, there is a risk that a co-housing complex becomes a care/nursing home by another name. Similarly, Pro Senectute argues that adapted homes should ideally be allocated to the seniors who need them so the investment is worthwhile. However, housing law does not always allow such control over allocation.
Hence, policymakers may consider creating a degree of freedom in the allocation of senior housing.

### 5.7.5. Senior co-housing

In search of relevant contemporary housing solutions for the elderly, it is hard to miss the concept of collaborative housing: co-housing. In short, it encompasses a group of people who live in a neighbourhood on their own terms. They determine the type of housing and often also have something that binds them, hence the pillar of community mentioned earlier in this section. Age as the binding factor is relevant in the present study, but multigenerational co-housing can just be as relevant for older people who do not wish to live with only older peers.
Co-housing groups often came in response to government retrenchment from old-age housing facilities in combination with a lack of initiatives by project developers and commercial rental companies. In this context, a group could take things in their own hands and take the initiative for a co-housing group. Often this comes in the form of a self-managed housing cooperative.
Our own exploration of senior housing showed interesting examples and experiences in Denmark, Germany, and Spain. This often pertains to self-organised co-housing for elderly or multigenerational living. In Germany and Denmark, it has become a mature sector and the historical evolution towards this maturisation is quite well documented in the academic literature. Documentation is also available for Spain, where old-age co-housing is relatively new, but the sector is expanding rapidly. We did not receive recent successful case studies for Denmark and Spain from the EIPA network, but we consider it useful to provide a general description of the main findings for these countries as well as the context within which they operate. Also, the German case of co-housing is relevant to describe a beyond the case presented in the previous paragraph.

There are quite a few other countries in Europe where the concept of self-managed co-housing meets much enthusiasm, but there is no substantial number of projects to draw generic lessons from. Some are merely in the pioneering phase (see e.g. Czischke et al., 2023). Policymakers are becoming aware of the potential of these initiatives and try to find lessons that can help them to support such initiatives. What role can the public sector play in supporting these initiatives, because after all, this is a project on public sector performance? This could also help private investors to find examples to draw from, because they seem cautious to just start a complex project that includes the preferences of seniors.

#### 5.7.5.1. Germany

One important factor that helps in explaining a higher incidence of self-initiated co-housing in Germany is the West German housing provision culture. Buying a plot of land for building a home, or buying a dilapidated house and renovating, is a common route into home ownership (see van der Heijden et al., 2011). The institutional context has been aligned with this model. The municipality provides building plots to self-builders and it is mandatory to hire a listed architect or a building advisory service to guide the process. Because of this self-build culture, many people know from family and peers what this process is like. Given this background, it came as no surprise that urban redevelopment was often led by bottom-up building collectives and cooperatives (see examples by Kramer and Kuhn, 2009).
They can rely on municipalities for land and architects' expertise in the building process. Even so, the iconic projects in Freiburg and Tübingen on old French army bases in the early 1990s had a learning curve because a modus operandi with a group of self-builders was relatively new for architects. After this pioneering, Berlin and especially Hamburg became successful locations with housing cooperatives. The latter has had a special *Agentur fur Baugemeinschaften* for over forty years, which supports building collectives, while it also reserves public land for this purpose (see Dur, 2020). This special approach towards non-commercial building may be traced back to the strong socialist culture within the city. Some federal states such as the more rural and conservative Rheinland Pfalz had little experience until recently and their case studies show similar hurdles to the ones experienced earlier, elsewhere in Germany (see e.g. Spellerberg, 2016).

Another tradition in which Germany differs from some other countries is housing finance. It is quite common for home buyers to have substantial down payment, as much as 40% of total cost and at least 25% (e.g. Dol and Van der Heijden, 2013). This has been stimulated by government's support of home savings schemes ('bauspar' system). Such down payments can assist in buying the plot of land. As soon as the collective owns the land, banks are also quite willing to lend construction costs, because of the collateral. In countries where a collective does not have the funding for land acquisition, it may become more complicated, especially when it involves a cooperative, a special ownership form.

The tenure form of German co-housing is usually a cooperative. Participants are given a membership certificate from their down payment, and they pay a monthly rent to inhabit the dwelling (see e.g. Ecorys, 2021). German cooperatives can set their own rents and will usually not follow market rents.

Motives for co-housing are the flexibility to organise the local community, while it is also relatively affordable. It is a self-organised form of affordable housing in a context of a very small public and social rental sector.

#### 5.7.5.2. Denmark

Co-housing in Denmark is embedded in the 'formal' social housing sector, but it also includes many projects where a group takes the initiative to build co-housing according to their preferences. The ownership structure of the latter is usually a cooperative. Denmark has a substantial cooperative housing sector (*Andelsbolig*), but this is comparable to the condominium, where a person buys the right to live in one of the apartments. The Danish co-housing sector (*bofællesskaber*), where people live together as a community, is much smaller and the projects have different tenure forms (see Larsen, 2019). A significant part is regular ownership of houses (not apartments) with a shared communal garden and communal building. Another part is cooperative, where a household buys a share (Andel) into the cooperative to live in an apartment. The cooperative form grew in the 1980s. While in other countries the banking sector is reluctant to provide mortgages to individual members of a cooperative to buy a share, Danish legislation allows banks to isolate this share in case the mortgagee defaults. In other countries, a cooperative is often regarded as a rental business where mortgages are not possible on individual apartments within the complex. As such, a repossession is difficult, and banks become hesitant to lend.

From the late 1980s the number of senior co-housing projects grew quickly, from a few per year to around 35 annually in 2003 (see Realdania, 2020; Larsen, 2019). One reason was state support for newly constructed cooperatives. During the first decade of the 2000s the number of new initiatives was negligible. This stagnation is attributed to the discontinuation of state support for newly built cooperatives in 2004 (see Larsen, 2019). Another factor was the termination of the special government institution that supported new initiatives, *Boligtrivsel i Centrum* (Housing Satisfaction at the Centre).

According to Larsen (2019) there has been increasing interest in co-housing in the past decade, but it is often owner occupation rather than a cooperative. This also implies that new co-housing is often not driven by cost based affordability. Also, this is not driven by state support but rather by a selection of municipalities who regard co-housing as a good solution for senior or intergenerational living.

Motives for the revival of senior and intergenerational co-housing in Denmark reflect the aforementioned trends in reduced government involvement in housing for the elderly. Another major motivation is the possibility to organise the local community as well as avoiding loneliness (see Realdania, 2020).

#### 5.7.5.3. Spain

In Spain, building collectives or cooperatives were used to build affordable owner-occupied housing, but after the completion of the project, they were dissolved. The property rights of individual houses or apartments were transferred to the participants who inhabit the dwelling. This practice remained relatively small, compared to the dominant, speculative commercial construction sector, which builds houses and apartments for sale.
Self-managed co-housing has only sparked interest in the past 15 years (Ahedo et al., 2021). The first reason was a search for an alternative to commercial housing provision after the boom and bust of the Spanish development and banking industry. The second reason was an increasing interest by older Spaniards to organise their own collective housing, including reciprocal help. In Spanish culture, many older people live with their relatives, but many now see this as too burdensome on their relatives. Senior co-housing or intergenerational co-housing creates some more distance (e.g. Extezarreta et al., 2018). Since municipalities, legislators, and the finance sector had little experience with co-housing, and more specifically the cooperative form, the first initiatives were confronted with big hurdles.

First of all, was not easy for the pioneers to find suitable land. For municipalities it was easier to do the traditional business with commercial developers, rather than with a group of idealistic, but often non-professional initiators. Finance became an almost unsurmountable problem for intergenerational groups because banks have little experience with financing a cooperative, especially when it uses the Andel (share) model rather than rental. Solutions were found through non-profit foreign banks (Italian, German) who had more experience with financing such groups. For senior housing, finance is less of a problem, because most Spanish elderly have a home to sell to raise a down payment or collateral. Because there is not much tradition with cooperative co-housing, architects and construction companies also need to gain more experience in dealing with these types of groups.

# 5.8. CASE STUDY: LANDLADY RENTALS

**This text is based on a study on landlady rentals by Frank Wassenberg and Gerard van Bortel (2025) in a selection of European countries: Belgium, France, Germany, Ireland, and the UK.**
**Note that Belgium has three autonomous regions that organise their own housing policies.**

### 5.8.1. Objectives

The objectives for landlady rentals vary by country. There is a broad distinction between social objectives and housing policy objectives. France exemplifies the social objective with intergenerational cohabitation. This may include provision of some services to the older landlord. Every French senior over 60 has, in principle, the legal right to let a room to someone under 30. Belgian Wallonia and Brussels share the French objective. In Belgian Flanders and the Netherlands, the housing provision objective is paramount: landlady rentals create additional housing options for young adults.
The UK, Germany, and Ireland have a combination of both objectives. And finally, in all countries it gives an opportunity to older households to supplement their pension income.

### 5.8.2. Legislation

France legally allows seniors to rent a room to a younger person. No notification to the bank/mortgage lender is required; they have autonomy over their property. In Germany, Flanders, and the Netherlands, a rental permit is often required, and various regulations (conditions) apply to the property and the room to be rented. One obstacle in the Netherlands is that people with a mortgage must notify the bank about any plans to rent out rooms, and the bank usually refuses. (In the Netherlands, there are still quite a few seniors with mortgages.) The Netherlands is currently working on legislation that will eliminate the need for mortgage lender permission. In Great Britain, the bank does not need to be notified when letting one room. A permit is required for two or more rooms.
It is relevant how landlady rentals are encouraged fiscally (or otherwise). Great Britain, Ireland, and the Netherlands offer significant tax exemptions: £9,000, €14,000, and €6,342, respectively. France has a lower tax-free allowance, which depends on the room size.

### 5.8.3. Rental policies

The UK and Ireland distinguish between a 'regular' tenant and a lodger who rents a room. The latter has fewer rights. Lodgers' rents are free to be set and are arranged between the parties. The agreed rent cannot be contested with an appeal to normal rental legislation. Current leases can always be terminated. In other countries, rents are often regulated.
In France and Wallonia, where intergenerational cohabitation is a key aspect, service provision is central to rent setting. The more services the lodger provides to the landlord, the lower the rent. Although Germany has many lodgers under normal agreements, it is also possible to negotiate a reduction on the rent in return for chores or other help.

### 5.8.4. Intermediaries

In countries where intergenerational housing – old and young – is an important goal, intermediary organisations play a significant role in connecting lodgers to landlords, while they also offer support in practical and legal aspects. Many intermediary organisations originated from bottom-up initiatives, sometimes driven by ideological motives. France, the UK, and Ireland support intermediary organisations that connect landlords and tenants, sometimes continuing to provide support services during the tenancy. In France, this is done through legislation; in the UK and Ireland, these organisations appear to be primarily commercial.

### 5.8.5. Noteworthy aspects

Intergenerational living with help by the tenant in return for a lower rent may become highly relevant in ageing societies.
In some countries no mandatory notification to the bank is required, although a majority of older householders do not have a mortgage any more. However, banks may be more lenient if the contract can be terminated at the owners' discretion; often, strong local tenure rights are an obstacle.
A tax exemption can be a good incentive, especially for those who live off small pensions and/or benefits.

Those countries that aim to increase landlady rentals on shorter notice may also consider supporting intermediaries. In several countries, bottom-up and commercial organisations have settled, but often took a long time while some government oversight may also be required.

# 5.9. RESPONDENTS FOR CASE STUDIES ON SENIOR HOUSING

FORUM (DE)
Sredzkistraße 44 (DE)
Woonzorg Nederland (NL)
Municipality of Oeiras (PT)
Canton Neuchâtel (CZ)
Pro Senectute Vaud (CZ)
L'Union social d'habitat (FR)

# 5.10. REFERENCES

Ahedo, M., Hoekstra, J. S. C. M., & Extezarreta, A. (2021). Socially oriented cooperative housing as alternative to housing speculation: Public policies and societal dynamics in Denmark, the Netherlands and Spain. *Review of Social Economy,* 81(2023)(4), 622–643. DOI: 10.1080/00346764.2021.1917646

Allen, J., Barlow, J., Leal, J., Maloutas, T., & Padovani, A. (2004). *Housing and Welfare in Southern Europe.* Oxford, UK: Blackwell.

Arundel, R., & Doling, J. (2017). The end of mass homeownership? Changes in labour markets and housing tenure opportunities across Europe. *Journal of Housing and the Built Environment* 32(4), 649–672. DOI: 10.1007/s10901-017-9551-8

Czischke, D. K., Peute, M. H., & Dos Santos Vieira Brysch, S. L. (2023). *Together: Towards Collaborative Living.* Rotterdam: Nai010 Publishers.

Dol, K., Kranenborg, P., & ten Hove, S. (2023). Housing. In: Karwot, I, & Klika, C. (eds.). *Public Sector Performance Program 2022–2025. An International Benchmarking Study, Substudy 2022.* Maastricht: EIPA.

Dol, K., & van der Heijden, H. (2013). *Bouwsparen bij de buren. Ervaringen met bouwsparen in enkele West-Europese landen* [Saving for a house next door. Experiences with building savings in some Western European countries]. OTB Research Institute for the Built Environment, Delft University of Technology.

Den Butter (2023). *Optoppen van appartementen. Frankrijk als lichtend voorbeeld.* [Apartment Building. France as a Shining Example]. Ruimte en Wonen, October 2023. https://www.ruimteenwonen.nl/artikelen/optoppen-van-appartementen-frankrijk-als-lichtend-voorbeeld

Dur, S. (2020). The role of government in supporting co-housing accommodation models for older people in Germany: towards a research agenda. DOI: 10.13140/RG.2.2.17082.00963

Ecorys (2021). *Europees onderzoek naar Wooncoöperaties. Inzicht in de mogelijke bijdrage van wooncoöperaties voor de Nederlandse woningmarkt.* [European Research on Housing Cooperatives. Insight into the Potential Contribution of Housing Cooperatives to the Dutch Housing Market.] Rotterdam: Ecorys.

European Mortgage Federation (2024). *Hypostat 2024.* Brussels: EMF.

European Commission (2016). *Towards a European Reference Framework for Age-friendly Housing.* Brussels, Utrecht: European Commission, University of Utrecht.

Extezarreta, A., Merino, S., Cano, G., Dol, K., & Hoekstra J. (2018). The Emergence of Housing Cooperatives in Spain. In: Van Bortel, G., Gruis, V., Nieuwenhuijzen, J., & Pluijmers, B. (eds.). *Affordable Housing Governance and Finance: Innovations, Partnerships and Comparative Perspectives.* London: Routledge. DOI: 10.1201/9781315112350

Kholodin, K. A. (2024). Rent control effects through the lens of empirical research: An almost complete review of the literature. *Journal of Housing Economics*, 63(C), 101983. DOI 10.1016/j.jhe.2024.101983

Kramer, S., & Kuhn, G. (2009). *Städte und Baugemeinschaften* [Cities and Building Cooperatives]. Stuttgart and Zurich: Wüstenrotstiftung.

Larsen, H. G. (2019). Three phases of Danish cohousing: Tenure and the development of an alternative housing form. *Housing Studies*, 34(8), 1349–1371. DOI: 10.1080/02673037.2019.1569599

Lennartz, C., Arundel, R., & Ronald, R. (2016). Young people and homeownership in Europe through the global financial crisis. *Population, Space and Place* 22(8), 823–835. DOI: 10.1002/psp.1961

McKinlay, A., Baldwin, C., & Hamerlinck, J. D. (2024). Getting past NIMBY: New insights on participatory planning and protest. *Planning Practice & Research*, 40(1), 65–84. DOI: 10.1080/02697459.2024.2411800

OECD (2021). *Brick by Brick. Building Better Housing Policies*. Paris: OECD Publishing. https://www.oecd.org/en/publications/brick-by-brick_b453b043-en/full-report.html

OECD (2023). *Brick by Brick, Volume 2: Better Housing Policies in the Post-COVID-19 Era*. Paris: OECD Publishing. https://www.oecd.org/en/publications/brick-by-brick-volume-2_e91cb19d-en/full-report.html

Realdania (2020). *10 Examples of New Danish Cohousing Communities for Seniors*. Copenhagen: Realdania.

Red Cross EU (n.d.). *Fighting loneliness*. https://redcross.eu/projects/fighting-loneliness#:~:text=Although%20there%20are%20currently%20no,25%20European%20countries%20are%20affected

Sengers, F., & Peine, A. (2021). Innovation pathways for age-friendly homes in Europe. *International Journal of Environmental Research and Public Health*, 18(3), 1139. DOI: 10.3390/ijerph18031139

Spellerberg, A. (2016). Co-housing – a (lost) Utopia? In: Spellerberg, A., & Harnack, M. (eds.). *Urban Quality of Life at Risk*. University of Kaiserslautern & Frankfurt University of Applied Sciences.

Sunega, P., & Lux, M. (2016). Subjective perception versus objective indicators of overcrowding and housing affordability. *Journal of Housing and the Built Environment* 31(4), 695–717. DOI: 10.1007/s10901-016-9496-3

Van der Heijden, H., Dol, K., & Oxley, M. (2011). Western European housing systems and the impact of the international financial crisis. *Journal of Housing and the Built Environment* 26, 295–313. DOI: 10.1007/s10901-011-9230-0

Wassenberg, F., & van Bortel, G. (2025). *Smart measures for more 'landlady' rentals: lessons from abroad*. Den Haag, Netherlands: Platform31.

# 6. SOCIAL SAFETY

## Social Safety and Future Online Technologies: The Case Study of Online Safety Laws

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# 6.1. INTRODUCTION

**In 2022, we conducted a benchmarking study of the public sector performance in the area of social safety in 35 countries, including the 27 European Union Member States plus the UK, Norway, Iceland, Switzerland, Australia, New Zealand, Canada and the US (Pasculli, 2022). The study cross-analysed data from numerous international datasets on numerous social justice factors such as public expenditure on public safety, criminal justice staffing, arrests, prosecutions, conviction, crime rates, perceived effectiveness of and trust in law enforcement and criminal justice, perceptions of safety, quality of government, and the rule of law. A limitation of that study concerned online safety – a crucial component of social safety, given that online spaces and services play a significant role in our lives. Despite the analysis suggesting that online safety is a concern for European citizens, the data examined did not allow any meaningful assessment of the states' performances in online safety.**

Only 51% of the Europeans interviewed for the 2019 Eurobarometer felt "very well" or "well informed" about the risks of cybercrime, and only 21% of the respondents were aware of the existence of an official website or email address in their country where they can report a cybercrime or any other illegal online behaviour (e.g. cyberattack, online harassment or bullying) (European Union, 2019). This lack of information appears to be accompanied by a lack of data on online threats and states' responses to them. The United Nations Surveys of Crime Trends and Operations of Criminal Justice Systems (UN-CTS) and Eurostat data focus on rather traditional crimes, such as homicide, serious assault, sexual violence, kidnapping, robbery, burglary, theft, fraud, money laundering, and corruption. Some of these offences can now be enabled or facilitated by online technologies and environments, but these databases do not always allow a distinction between offline and online manifestations. On the few occasions when a distinction is available, data is incomplete. At the time of writing, the United Nations Office on Drugs and Crime (UNODC)'s data on cyber-related fraud is consistently available only from 2013 and only for nine states. Such data is unavailable for many states, including states that performed well in our social safety assessment, such as Denmark or the Netherlands, as well as other major players such as the United Kingdom, the United States of America, Canada, and Australia (UNODC, 2025). For other states, data is available for fewer years. Similarly, Eurostat data on "acts against computer systems" and child pornography – one of the most serious online threats – is available only from 2016 and data on either of these entries from some countries is missing or incomplete (Eurostat, 2025). Moreover, national data on social factors that could facilitate crime (e.g. unemployment, income inequality, widespread corruption, ineffectiveness of law enforcement) are unhelpful to assess the online safety performance of the state they refer to, as online threats are often transnational in nature. This means that an online activity causing harm in a certain country can be facilitated by social or environmental conditions present in a different country where perpetrators are based or located, which the former country might have no control over at all. Likewise, data on criminal justice and quality of government can only provide a limited understanding of the performance of a state concerning online safety. This is partly because the transnational nature of much online crime means that its policing, prosecution and punishment might fall within the jurisdiction of a different state than those where the crime was reported and recorded, and partly because online safety largely relies on a variety of measures, including technological ones, that are the responsibility of industry rather than the state. So, while assessing the performance of states in the area of online safety that has emerged as a priority from our previous study, the methods and datasets used in that study would not be very helpful. A different methodological approach is required, starting from different data sources that are more readily available but have not been properly compared and assessed yet.

A primary example of such data sources is online safety laws currently emerging in some of the jurisdictions examined in our previous study. Unlike traditional criminal law and justice, online safety laws seek to promote safety by requiring industry to adopt necessary measures to protect users of online spaces and services from any threats. Therefore, the analysis of their provisions enables a comprehensive understanding of the broad range of measures including technological, situational, and social measures, adopted by states to promote and protect online safety, beyond traditional law enforcement. This study will perform a comparative analysis and assessment of the online safety laws of three national jurisdictions (Australia, Canada and the United Kingdom) and the European Union with a view to offering a preliminary understanding and assessment of the performance of these jurisdictions in the area of online safety. The choice of these jurisdictions allows the capture of the main regulatory frameworks of most jurisdictions considered in our previous study, given that the relevant EU law – the Digital Services Act – is directly applicable in all the EU Member States. The US does not have a comprehensive online safety law yet.

The provisions of these online safety laws will be assessed against the findings of recent studies on threats to social safety enabled by online technologies to understand whether they are keeping up with emerging and future technological changes, as highlighted by literature.

Before we can explain in further detail our goals and methods, we need to define what we mean by "online safety". This evaluation will be based on a comparative legal analysis of relevant legal sources in each jurisdiction examined, supported by the analysis of any materials that can help their interpretation and enforcement, conducted against the findings of literature on recent and future evolutions of crime in online environments.

### 6.1.1. What is online safety?

In our previous study, we defined social safety as the existence of the necessary societal conditions for citizens to live their lives and enjoy their rights free from any harm caused or threatened by other individuals or groups (Pasculli, 2022). Online safety is the existence of the same conditions in relation to spaces and services available on the Internet or on other computer and telecommunication networks. Online safety is therefore the ability of citizens to use such spaces and services free from any threat of harm. This basic definition is reflected and further articulated by policy documents and legal sources in different countries. For instance, the Australian Online Safety Act 2021 (AU OSA) defines online safety as "the capacity of Australians to use social media services and electronic services in a safe manner" (s. 5). In the UK, online safety is defined with reference to four potential areas of risk online (the so-called four Cs of online safety). These area are: **a) content:** being exposed to illegal, inappropriate, or harmful content such as pornography, fake news, or racism; **b) contact:** being subjected to harmful online interaction with other users such as peer pressure, inappropriate advertising, or exploitative relationships; **c) conduct:** online behaviour that increases the likelihood of, or causes, harm such as making, sending, and receiving explicit images, or online bullying; **d) commerce:** risks related to commercial transactions online such as gambling, phishing and fraud (Department of Education, 2024).
As suggested by the UK definition, like social safety, online safety does not mean just absence of crime, but also from any other harm, including that caused by actions that might not be criminal or illegal. This is particularly important because online technologies are evolving so rapidly that they often outpace the ability of the law to regulate online spaces and activities, including by making some of these criminal or illegal.

Like social safety, online safety implies the duty and responsibility of the state to adopt any necessary interventions to ensure that the conditions for a safe use of online spaces and services are in place. Such interventions cannot be limited to the criminalisation and prosecution of harmful behaviours but include a broader set of interventions to protect, also preventively, citizens from online harm. This requires measures to identify, assess, and mitigate the risk of any online threats, as well as measures to address and minimise the impact of any harm that might have already occurred. As online spaces and services are largely dependent on the technologies that enable them, many of these measures must focus on such technologies. Since these technologies are mostly designed, developed, manufactured, commercialised, and controlled by private entities such as technology firms and other businesses, effective online safety requires a meaningful engagement and collaboration between the state and the private sector.

### 6.1.2. The goals and methods of this chapter

The objective of this chapter is to offer a comparative evaluation of the online safety laws in Australia, Canada, the UK, and the EU. Like our previous benchmarking study on social safety, our analysis will focus both on crime prevention and law enforcement, as two main pillars of social safety. Through a comparative analysis of data extracted from any relevant legal sources (i.e. legislation, government regulation and case law) and other sources (e.g. explanatory notes, expert commentaries, media releases), and a review of empirical evidence and theories from previous research, we will provide a preliminary assessment of the suitability of these laws to effectively address the recent and future developments of online crime and security threats. The goal of the chapter is to identify issues, trends, similarities, and differences between the online safety laws of the selected jurisdiction, as well as best regulatory practices that can help orient future research and policy initiatives.

### 6.1.3. Chapter outline

The next section will explain the methodology and limitations of this study. In the third section, we will explore the online dimension of social safety by looking at the most recent forms, means and consequences of online crime and security threats, and their enabling social and situational factors. In the fourth section, we will discuss the challenges of emerging and future online threats. The fifth section will present the findings of our analysis organised into themes and subthemes. The final section will provide a preliminary comparative assessment of the examined laws to help identify areas for improvement as well as good practices that can suggest directions for future research and inform future lawmaking.

# 6.2. METHODS

**This study seeks to explain and provide a preliminary and comparative assessment of the regulatory framework of situational (including technological), social, and law enforcement measures adopted by Australia, Canada, the UK, and the EU to promote and protect online safety, as defined in the previous section. To do so, we integrated different research methods – namely, doctrinal legal analysis and comparative legal analysis supported by thematic analysis.**

Doctrinal analysis is the study of what the law on a particular problem is in a given jurisdiction (Dobinson and Johns, 2017). This entails a descriptive and interpretative analysis of the provisions of relevant legal sources to understand how they address that problem. This method is the foundation of any legal research, as establishing what the law is, is a precondition for any assessment of such law for comparisons with the laws of different jurisdictions, as well as for empirical or socio-legal analysis of that law. Comparative legal research is the joint analysis of laws from different jurisdictions on a particular problem. The comparison of laws from different jurisdictions produces additional knowledge to that generated by their individual study, as it can reveal not similarities and differences between these laws, but also strengths and weaknesses of each of these laws as well as broader trends, patterns, or models that might not be identified otherwise. There are numerous comparative legal methods each focusing on different data sources and methods of analysis. The typical main data sources for comparative legal research are: **(a) legislation and regulation** (acts of parliament, secondary legislation and by-laws, etc.); **(b) case law**; **(c) legal scholarship and research**. The analysis of multiple sources is helpful to understand how the law actually works in the relevant jurisdictions also in relation to in local social and cultural variations. Thematic analysis is a structured yet flexible approach to identifying, analysing and reporting patterns or themes within a dataset (Ahmed et al., 2025; Braun and Clarke, 2012). Thematic analysis usually includes six steps: (1) familiarisation with data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes and (6) writing the report (Braun and Clarke, 2012). As it is not bound to any specific discipline or theoretical framework, thematic analysis is very versatile tool (Ahmed et al., 2025), which can be also usefully employed to make sense of legal sources.

### 6.2.1. Data collection and analysis

Given the chosen methods, data collection, and analysis – especially the development of themes – proceeded hand-in-hand in an iterative process. The more data we collected and examined, the more we were able to frame it into relevant themes and subthemes. As a first step, we conducted a doctrinal analysis of the online safety legislation of each selected jurisdiction, supported by a review of relevant literature and policy materials. This was necessary to determine what the law is in each country. The doctrinal analysis also enabled us to perform the first three steps of thematic analysis. Before approaching a full analysis of the relevant laws, we had to familiarise ourselves with them by scanning, reading, and rereading the legislation, as well as by accessing additional sources such as academic commentaries or studies, policy documents or media reports to understand the background to each legislation as well as to support our interpretation of it. We conducted some searches for possible case law, but as the acts examined here have entered into force only recently, there is only a handful of decisions. These focus on very specific interpretative questions concerning individual provisions that do not meaningfully contribute to this general comparative analysis (see Australia, eSafety Commissioner v X, 2025; in the UK, Wikimedia Foundation v Secretary of State, 2025; R. v Brimecombe, 2024). So, case law was consulted but excluded from the scope of our work. The lack of case law is one of the reasons of the significance of this study: as with any newly introduced laws, doctrinal and comparative analyses provide preliminary explanations and interpretations that can inform future judicial interpretations.
The familiarisation stage enabled us to identify some preliminary codes, because – as we will discuss later – all the laws examined follow regulatory models that are commonly used for security purposes in other domains such as financial regulation, and have been widely researched (e.g. Grabosky, 1992, 1994; Ayres and Braithwaite, 1992; Baldwin et al., 2013; Hodges, 2015). During the familiarisation stage, we easily recognised in all the examined laws familiar principles, concepts, practices, and patterns that we were able to use to interpret the relevant laws and generate initial codes. After this, we conducted a detailed provision-by-provision examination of the legislation. The analysis enabled us to refine the initial codes and gradually assemble them into broader preliminary themes and subthemes, which emerged as long as our analysis proceeded. The data generated through the doctrinal analysis of each online safety law was systematically collected into an extensive data extraction spreadsheet (one per jurisdiction), organised and framed within the preliminary codes, themes, and subthemes.

Once the doctrinal analysis was completed, we moved to the comparative analysis of the findings from our doctrinal research. This allowed us to complete the thematic analysis as the joint analysis of all the laws examined enabled us to identify new themes, review those developed earlier, and define and name them. Comparative analysis will also focus on primary legislation (online safety laws) and legal literature as the main data sources. The analysis of these sources has been deemed sufficient for the purposes of the study, as, in the absence of helpful case law, the legislation alone is exhaustive and precise enough to provide a comprehensive overview of the overall framework of online safety measure adopted in each jurisdiction. Literature and policy materials should provide rigorous and sufficient directions on the correct interpretation of such legislation. Secondary legal sources in this area (e.g. regulation by relevant government agencies) mostly specify principles and requirements set by primary legislation and, while this specification can be interesting, the detail provided is beyond the scope of this study. Moreover, the complexity and extent of secondary sources would make its analysis unfeasible within the practical constraints of this study.

### 6.2.2. Choice of jurisdictions

The choice of the jurisdictions examined in this study is justified by different scientific and practical reasons.
The objective of the broader project to which this chapter contributes is to compare the practice of 35 countries, 27 of which are the European Union's Member States. A comparative analysis of the online safety laws of 35 countries would be practically impossible within the scope of this study because of its scale and complexity, as well as language barriers. Moreover, mastering such analysis would require the collaboration of multiple researchers or experts from many of these jurisdictions. To overcome these challenges we decided, first and foremost, to examine the EU law, which informs and harmonises the law of each Member State. In particular, we will examine the EU Digital Services Act (EU DSA) which was introduced in 2022 to prevent illegal and harmful activities online and the spread of disinformation. As a regulation of the European Parliament and Council, the EU DSA is directly applicable in all Member States (Art. 288 of the Treaty on the Functioning of the European Union). This means that it is legally binding on individuals and organisations in each Member State without any the need for any domestic implementing legislation. In other words, the EU DSA is part of Member States' national law and, as such, it provides a minimum binding legal framework for online safety in each Member State, whatever their law in this area may be. However, such study is not a practical way to address legal principles and rules in force in multiple jurisdictions at the same time, but a precondition to fully understand an essential component of the online safety laws of each Member State. Of course, individual Member States may have adopted additional laws to complement the EU DSA, and these cannot be identified and examined only by the EU law. However, understanding such law can help future research on national laws.

As for the non-EU countries included in our previous study and in the broader benchmarking project, Norway and Iceland were excluded because of language barriers. Switzerland, New Zealand, and the United States of America were excluded as they do not have comprehensive pieces of online safety legislation, so they would not be comparable to the chosen jurisdictions. These are Australia, the UK, and Canada, for several reasons. First, all these jurisdictions have introduced (or, in the case of Canada, have attempted to introduce) comprehensive online safety acts comparable to the Digital Services Act. In Australia, the Online Safety Act 2021 (AU OSA) seeks to improve and promote online safety for Australians (s. 3), while the UK Online Safety Act 2023 (UK OSA) seeks to make the use of Internet services safer for individuals in the UK (s. 1(1)). Australia and the UK were among the first jurisdictions in the world to introduce comprehensive acts dedicated to online safety, so it will be particularly interesting to compare their approaches. Canada, on the other hand, is an interesting case in its own right, because the Online Harms Bill (OHB) – (C-63), introduced by the government in 2024 to promote the online safety of all persons in Canada (clause 9(a)) died with the dissolution of parliament in January 2025, while this study was being conducted[2]. However, the Canadian Government's commitment to addressing online harms remains (Government of Canada, 2025) and new draft legislation might be proposed in the future (Lau, 2025). Therefore, studying the dead bill it is important to understand what make it fail, the approach the government had taken and how that compares to what has been adopted by other jurisdictions. Our comparative findings might help Canada draft a more successful bill in the future, as well as inform other countries' legislative efforts in this space.
The choice of EU, the UK, Australia, and Canada is also convenient as it allows a comparison of both civil law and common law jurisdictions. Civil law jurisdictions derive from Roman law and later, legal systems of continental Europe, such as the French and German systems. These are usually characterised by written constitutions and extensive systems of codified legislation made by local parliamentary assemblies. Courts cannot make law in these jurisdictions but can only interpret and apply legislation to practical cases. As a result, codified legislation tends to be more prescriptive, general, and abstract, as it seeks to anticipate and regulate any possible cases before they take place.

[2] While we are aware of all this, throughout the paper we will occasionally refer to this Bill as "legislation" or "act" when discussed in conjunction with the other laws examined here, to avoid convoluted sentences. For instance, we might refer to the four pieces of legislation as "the acts examined here" instead of "the Australian, British and European acts and the Canadian bill".

Common law systems originate from ancient English law. These systems also recognise the primacy of parliamentary statutes over other sources of law. However, courts have more interpretative and creative freedom, to the extent that they can fill the gaps left by legislation by making law on a case-by-case basis through a system of binding precedents. The decision of a higher court on a particular case will be binding for lower courts called to decide similar cases. As a result, the law in these systems tends to be more flexible and problem-oriented (cf. Dainow, 1966–1967; Glenn, 2014). The EU is largely representative of civil law systems, as most Member States – except for Ireland – belong to this legal tradition. As a result, especially after Brexit, EU law is largely influenced by the civil law tradition. The UK is "the mother of all common law systems" (Darbyshire, 2007) and Australia is also an influential representative of the common law tradition. Canada has an interesting hybrid legal system that combines common and civil law imported by French and British explorers and colonists in the 17th and 18th centuries. However, only the province of Québec operates a civil law system, while the rest of Canada is based on common law (Government of Canada, 2021).

### 6.2.3. Limitations

This study has some limitations. We have already discussed the decision to limit our comparative analysis only to a few jurisdictions of all those examined in our previous study, as well as the decision not to extend our analysis to secondary legal sources such as ministerial regulations or regulatory instruments. As explained above, we do not consider these limitations to impact the validity and significance of our findings, but only their breadth. The findings of our study can help inform future research on the topic, including studies on the laws of other jurisdictions or investigations on the implementation and enforcement of such laws by online safety regulators.

This study does not include an empirical or a socio-legal analysis of the law – an attempt to investigate, also through the collection of empirical data (beyond legal sources), the practical operation of the law and its implications for society. While these analyses can be vital to contribute to the assessment of the examined laws, they should be conducted only after a clear doctrinal and comparative understanding of such laws has been developed. The purpose of this study is to provide that understanding so to lay the groundwork for future, also empirical, assessments.

# 6.3. THE ONLINE DIMENSION OF SOCIAL SAFETY AND NEW AND EMERGING CRIME AND SECURITY THREATS

**To perform a preliminary assessment of different online safety laws, it is essential to first adequately define the threat landscape that they seek to address. This includes examining not only familiar threats, but also – and especially – emerging and future threats that are bound to redefine such landscape and challenge existing countermeasures – any measure aimed at preventing, reducing or responding to such threats (for instance through prosecution and criminal justice). This is important, because online environments are constantly and rapidly evolving with technological advances that often outpace slow policymaking and lawmaking processes (Pease, 1997). An effective assessment of online safety laws must therefore include an evaluation of the ability of such laws to quickly adapt to ever-changing threats and the technologies that enabled them.**

Similar to our previous social safety study (Pasculli, 2022), we will outline here both the forms of manifestations, including the modalities of perpetrations, the means and the consequences of online threats, and their technological and situational enablers (what we previously called "proximate causes"), as discussed in the literature. We will focus here on specific characteristics of online crime that can help our assessment of the legal frameworks we are going to examine later. We will not reiterate here broader considerations about more general characteristics of increasingly globalising crime (e.g. transnationality and transversality) and so-called remote causes (i.e. socio-psychological and cultural factors) that also apply to online crime (Pasculli, 2020), as we have already illustrated those in our previous study.

### 6.3.1. Forms of manifestation

Online threats include not only criminal offences, but also harmful online behaviours that might not be criminalised or even prohibited by the law. It is important to consider these too, precisely because of the rapidly evolving nature of online threats. Research shows that the introduction of new products and services is likely to introduce new opportunities for crime. While criminals are quick to exploit them, societies take time to understand and address them. As a result, there is usually a delay between the introduction of new technologies and the development of appropriate countermeasures. During this delay, malicious actors are free to reap any possible benefit from any crime opportunities enabled by such technologies – a notion known as "crime harvests" (Pease, 1997). Criminalisation is a prime representation of this dynamic. It is rare for lawmakers to criminalise a behaviour before this ever took place. It is usually the experience of emerging harmful behaviours perceived by society as concerning and unacceptable that prompts lawmakers to introduce new criminal offences to deter their perpetration and enable their prosecution. An example is precisely the criminalisation of cybercrimes. It is only the experience of the harmful effects of computer misuses and the difficulty of prosecuting them using traditional offences that led both national and international lawmakers to develop new criminal offences, such as those defined by the UK Computer Misuse Act 1990, the Australian Cybercrime Act 2001, the Council of Europe's Convention on Cybercrime (Budapest Convention, 2001) or the recent United Nations Convention against Cybercrime (2024).

Apropos cybercrime, it is worth clarifying the distinction between online crime and cybercrime. Cybercrime can be defined as crime that either targets computer or other information and communication technologies (ICTs) or is somehow enabled or facilitated by these technologies (Pasculli, 2020). In this sense, cybercrime includes both offences that take place online, but also offline offences, such as, the unauthorised access of a computer through stolen credentials, the theft, manipulation or damage of software and data stored in a computer or the development of malicious software (e.g. viruses, ransomware). However, online crime is so prevalent that it is often used interchangeably with cybercrime. This is the case in the EU and in the UK, where cybercrime is plainly defined as criminal acts that take place online (Crown Prosecution Service, n.d.; European Commission, 2024).

As far as the forms of online threats go, these can manifest either as online versions of familiar offences that can be also committed offline (so-called cyber-enabled crime), or as offences that can only be committed online using ICTs – so-called cyber-dependent crime. The former includes many types of fraud, impersonation, sale of illegal goods, intellectual property offences, malicious and offensive communications, bullying and trolling, stalking, and harassment.

It also includes abusive and controlling behaviours, sharing personal information or images without consent, child grooming, child sexual exploitation and abuse, prohibited and indecent pictures of children, and extreme pornography or other obscene publications (cf. Crown Prosecution Service, 2018; Murphy, 2024; Voce and Morgan, 2024). The latter includes intrusions into computer networks, for instance through hacking, and the disruption or downgrading of online functionalities and spaces, for instance through malware or Denial of Service or Distributed Denial of Service attacks (cf. Crown Prosecution Service 2018). Furthermore, an underground online economy has emerged to satisfy the demand of illegal products and services, such as malware or stolen data, that malicious actors can use to perpetrate further cyber offences (Hyslip, 2020).

Some of these threats might sound familiar as they are increasingly often in the news and research about each of them is growing, if not quite well developed already (see, for example, Holt and Bosser, 2020). However, as ICTs keep evolving, the situations and the tools that enable or facilitate them also evolve, creating entirely new threats or unprecedented ways of perpetrating old ones. Because of their novelty, these threats are much less understood and researched. There is, however, an area of study – known as future crime research – that seeks precisely to anticipate future crime threats emerging from social and technological change with a view to identify and develop effective solutions to pre-empt them (Johnson et al., 2018). Future crime research uses various research methods (often combined) specially designed to investigate possible futures, often involving relevant stakeholders from policy and practice, and integrating the knowledge from different academic disciplines. In recent years, future crime research has made significant contributions to the understanding of the ongoing evolution of online crime.

An overarching theme emerging from the findings of this research is the increasing integration of virtual and physical realities driven not only by the increasingly pervasive use of online services to support people's daily activities especially after the COVID-19 pandemic (cf. Johnson and Nikolovska, 2022). It is also driven by convergence of various emerging technologies including, among others, artificial intelligence, the Internet of Things (IoT), robotics, virtual, augmented, and mixed realities devices. This integration is enabling hybrid forms of threats that combine cyber elements with physical ones. This development suggests that in the near future, online safety and physical safety might be increasingly intertwined. This is likely to change the nature of online threats as we know them. In traditional Internet environments such as websites, online blogs/fora or social media networks, online threats are largely *content-based*, as they mostly revolve around creating, uploading, posting, sharing, downloading unlawful or harmful media content such as text, pictures, and audio or video recordings. Examples of these familiar threats include sending a phishing message or sharing non-consensual intimate images or videos. The integration of physical and online environments will enable threats that consist of activities that do not involve media content as such but encompass more complex online behaviours and interactions such as impersonation, harassment, assault, or sexual offences. For instance, emerging immersive 3D online virtual environments, such as metaverse platforms and games, allow malicious actors to stalk victims by following or spying on them in similar ways to those in physical spaces. Connected devices that enable remote physical interactions, such as robots or haptic suits, may enable online-controlled assaults, also of a sexual nature. It becomes therefore increasingly clear that the focus of online safety cannot be limited to regulating online content, but needs to address also any other harmful, non-content-related online activities. We will illustrate some of the technologies that are behind this shift and some of the possible related threats in the following subsection.

### 6.3.2. Proximate causes: technological and situational enablers

Numerous technologies are reshaping online environments, products, and services and, with these, the online threat landscape.

#### 6.3.2.1. The metaverse(s)

Online crime is commonly understood as crime that takes place in the traditional two-dimensional, content-based environments of the Internet. Websites and webpages, email accounts, social media platforms, and the Dark Web enable the production, upload, and sharing of textual content (e.g. social media posts and blogs inciting hatred, violence or extremism, phishing emails, bullying messages) or audiovisual content (e.g. intimate pictures, illegal pornography, fraudulent advertising) that can facilitate illegal and harmful activities. However, a convergence of new technologies that blend virtual and physical realities is radically changing the nature of online spaces. These technologies allow users to provide and receive sensory inputs in virtual spaces anchored to real-world references, augment or manipulate physical reality with virtual elements, or manipulate it through online devices. Examples of these technologies include virtual and augmented reality headsets and controllers such as those by Meta Quest or Apple Vision, or haptic suits and gloves – wearable devices that allow players to get physical feedback from the online experience, including sensations such as touch, heat, cold, and pain.

The integration of these technologies enabled the development of highly immersive and convincing online environments, commonly known as the metaverse (or metaverses). Metaverse environments visually simulate permanent imaginary or actual physical spaces in which multiple users can interact simultaneously with each other. Interactions do not take place by exchanging text or uploading and sharing media content, but through usually three-dimensional virtual representation of themselves known as avatars. Avatars are not controlled by mouse and keyboard but by the sensory input provide by the user to wearable devices such as virtual reality goggles or haptic suits. Metaverse platforms are multipurpose as they can be used to satisfy different needs or interests, including shopping, entertainment, education and training, socialisation, work, and prototyping. Many metaverse worlds come with their own economy, which includes virtual currencies and assets such as virtual land or wearables for avatars, that users can trade and collect.
Unlike traditional Internet spaces, the metaverse fully incorporates users (Calleja, 2011), who, as a result, can be completely absorbed in it (Jian et al., 2022; Mella et al., 2023). Recent research suggests that these features will enable new crime threats or aggravate or reshape old ones (Gómez-Quintero et al., 2024). For instance, haptic technologies can be used to physically and even sexually attack a victim from metaverse platforms. Avatars can be used to conceal offenders' activities such as stalking. Social engineering schemes can be made more convincing by the immersive nature of the metaverse. For instance, malicious actors can create avatars that are identical to those of other people, including celebrities or law enforcement officers, for fraudulent purposes. These examples show that metaverse environments enable not only content-related threats, but also a broader set of harmful activities.

#### 6.3.2.2. Artificial intelligence

Artificial intelligence (AI) – an umbrella term covering numerous technologies seeking to reproduce complex human abilities (Caldwell et al., 2020) – is increasingly interlinked with online technologies in a number of ways.
Many online services use AI applications for various purposes, for instance to improve search functions, analyse user behaviours to offer targeted content and advertisement, or assist users through chatbots. Artificial intelligence applications, for example AI-powered chats and creative tools to generate different kinds of content such as Gemini, Co-Pilot, ChatGPT, and AI audio, video or image generators, are also available online and some are trained on online data. Research suggests that AI can be a tool for crime, a target of crime, or simply the context of a crime (Caldwell et al., 2020). As a tool for crime, AI can facilitate actions against targets in the physical world.
AI can help offenders predict victims' behaviour and identify their vulnerabilities; it can generate fake content tailored to specific victims, and it can perform tasks that human perpetrators are unable or unwilling to do. For instance, AI can make phishing attacks more successful by allowing scammers to generate more convincing messages tailored to specific victims using data collected online (Caldwell et al., 2020). AI-generated realistic but fake audio and video content (i.e. deepfake) can also be used for social engineering, for instance for the purposes of financial fraud (Milmo, 2024) or romance fraud (Cross, 2022). Malicious actors can also target AI systems to cause disruptions in the virtual or physical worlds. For instance, terrorists could attack AI systems supporting critical infrastructure (Caldwell et al., 2020) or criminals could attack face recognition systems used to prove identity to enable multiple individuals to use the same photographic ID (Robertson et al., 2017). AI can be the context of crime when offenders misrepresent its functionalities to victims, for instance, to sell fraudulent services (Caldwell et al., 2020).

#### 6.3.2.3. IoT, robotics and connected and autonomous vehicles (CAVs)

A clear instance of the convergence of physical and virtual worlds is provided by the increasing number of devices, including smart phones, televisions, kitchen appliances, and security cameras, that are Internet connected and can communicate and interact with each other (Maple, 2017) as well as with physical environments. These devices, collectively known as IoT, can also become targets of crime or tools for crime or both. For instance, malicious actors can attack IoT devices to intercept and steal users' personal data, profile users, gain access to physical environments and manipulate video recording stored in security cameras (Blythe and Johnson, 2021). More complex technologies, such as robots and CAVs, can combine online connectivity with numerous additional components, including AI, cameras, sensors, navigation and motor skills, enabling more sophisticated and more harmful threats (Oruma et al., 2022; Brown et al., 2025; Zheng and Pasculli, 2025). CAVs and robots equipped with cameras and sensors can be used for harassment, stalking, or controlling behaviour. The movement capabilities of these technologies can be exploited or manipulated by malicious actors, such as terrorists, to cause physical injury. Robots provided with AI-powered social interactive skills, such as sex robots, pet robots, or educational robots, can be used to facilitate social engineering schemes, also exploiting the trust or affection developed by human users towards them (Zheng and Pasculli, 2025). These examples also illustrate how these technologies can enable online threats that go well beyond the mere creation, uploading, or downloading of harmful content and encompass more complex activities that can produce harm in physical environments.

#### 6.3.2.4. The cyber-biological convergence

The last frontier of cyber-physical threats is represented by threats that exploit the intersection between ICTs, and biotechnologies or neurotechnologies with potentially devastating consequences (Dixon, 2021; Elgabry et al., 2020, 2022; Elgabry and Johnson, 2024). The digital infrastructure that supports engineered biology can provide new targets for malicious actors. For instance, medical datasets can be manipulated to corrupt medical diagnoses (Pauwels, 2020). At the same time, biological systems may offer new means to perpetrate cyber offences. For instance, biological malicious software (so-called bio malware) can be developed to insert computer malware into physical genetic material that, when sequenced, can compromise computer systems. All these threats can introduce new cyber biocrimes – crimes carried out by combined means of computers, Internet and biological/biochemical material (Elgabry et al., 2020).

### 6.3.3. Challenges to traditional safety policies and strategies in the online space

Online threats, especially emerging and future ones, pose considerable challenges to some of the traditional social safety policies and strategies (crime prevention and law enforcement) we examined in our previous study (Pasculli, 2022). Many of these challenges are enabled or exacerbated by the deterritorialised and virtual nature of online environments and by the anonymity granted by many online services and platforms.

As far as crime prevention is concerned, individual measures to prevent specific persons from engaging in criminal activities (e.g. developmental prevention, education, therapy) are not very practicable in the area of online safety as offenders and malicious actors are not easily identifiable before they commit an offence and, because of anonymity, often they are not identified even after committing an offence. Likewise, due to the deterritorialised and virtual nature of online spaces, traditional community-based measures such as neighbourhood watches or community policing and engagement are precluded. However, it is possible to adjust some of the principles that inform these measures to apply them to online communities. We will see that some of the techniques used by emerging online safety laws – such as content reporting and moderation – do follow some of these principles. Situational crime prevention and social prevention, however, remain applicable to online safety. As for situational prevention, it is possible to address situations that affect online technologies and online spaces in similar ways as it is possible to address situations that affect other instruments and physical environments related to offline crime (Newman and Clarke, 2003; Johnson, 2024). Social prevention can help ensuring online safety by focusing on supporting individuals in protecting themselves and preventing victimisation and to address at least some criminogenic social factors affecting domestic offenders or potential offenders (that is offenders based in the country that adopts the relevant social measures) (Pasculli, 2020). However, it might be difficult, if not impossible, to address the criminogenic social conditions affecting offenders, when these are not identifiable or are located in different countries.

The challenges posed by online safety to traditional policing, law enforcement, and criminal justice are even more glaring. Policing bodies cannot patrol online environments as they can patrol streets and neighbourhoods. The virtual and deterritorialised nature of online spaces makes it difficult to investigate offences and collect evidence. Moreover, the transnational dimensions of many online threats create jurisdictional uncertainty. Countries affected by the negative consequences of an online crime might lack the jurisdiction to prosecute the offenders, or multiple affected countries might contend jurisdiction. Finally, criminal law struggles to keep up with constantly evolving harmful behaviours enabled by rapid and unceasing technological changes.

As we mentioned in our previous chapter, some of these challenges are not unique to online threats but are common to many forms of globalised crime, especially enabled by social and technological change. Aware of these challenges, countries are moving towards more dynamic, comprehensive and collaborative solutions that rely on the mobilisation of private individuals and organisations and allow to integrate the most effective and diverse measures and techniques into complex policy and regulatory frameworks. These overarching strategies are known as "responsibilisation strategies". Responsibilisation strategies seek to encourage or oblige private organisations and individuals to adopt appropriate measures to prevent, reduce or respond to crime and security threats (Garland, 1996, 1997, 2001). A combination of dedicated legislation –written laws enacted by national parliaments or supranational legislative bodies – and regulation – rules, directives, and guidelines issued by government agencies or non-legislative bodies – often support these strategies. Often, legislation sets out overarching principles and objectives, while regulation specifies the rules that regulated entities must follow to fulfil those principles and objectives. This approach, known as "principle-based regulation", is supposed to make the law more flexible and adaptable to different circumstances and regulated entities, facilitate regulatory innovation, and improve the durability of legal frameworks in a rapidly changing environments; however, it also presents challenges and paradoxes (Black, 2008).

To responsibilise regulated entities, these legislative and regulatory frameworks usually adopt the following main techniques (Pasculli, 2021):

### Conduct regulation

Legislative and regulatory frameworks define what companies and individuals can and cannot, should, and should not do. This includes three main techniques: (a) prohibition and, if necessary, criminalisation of (primary) harmful conduct, such as fraud or harassment; (b) prescription of duties and specification of expectations related to the safety of certain environments or technologies; (c) imposition of civil, administrative, and/or criminal liabilities and penalties for the failure to comply with prescribed safety duties.

### Internal controls

The law requires industry bodies and business organisations to adopt measures to support compliance with the prescribed duties, such as dedicated roles or teams, codes of conduct, and internal complaint systems. The boundary between internal controls and conduct regulation is allegedly blurred as some safety duties might require regulated entities to monitor their staff, users, or customers to prevent, detect, report, and take action against any misconduct.

### External controls

To facilitate and enforce compliance with all the above duties, the law usually appoints specialised regulators. Such regulators usually have multiple functions: (a) issue regulation and guidance to further specify duties and expectations set by legislation and support regulating entities; (b) supervise and monitor compliance by regulated entities, also by encouraging voluntary compliance by issuing advice and recommendations; (c) enforce legal obligations by issuing notices, orders, penalties to non-compliant entities and, if necessary, initiate civil or criminal legal action. Compliance is therefore promoted through a sequence of enforcement measures responsive to the specific circumstances of each case. This is known as the "enforcement pyramid" or "responsive regulation" (Ayres and Braithwaite, 1992; Braithwaite, 2002). As a first step, persuasion, guidance, and advice are employed to encourage compliance. If these fail, notices and warnings can be issued to non-compliant entities. If these do not work either, administrative orders or penalties such as fines can be imposed. Civil and criminal litigation and incapacitating measures (e.g. suspension or revocation of licenses) are used only as a last resort.

### Victim responsibilisation and empowerment

Relevant legal frameworks also seek to stimulate victims to adopt responsible behaviours or to empower them against any safety threats by providing them with the necessary tools and frameworks to prevent or remedy victimisation, such as reporting mechanisms or complaint systems.

# 6.4. COMPARATIVE ANALYSIS OF AUSTRALIAN, CANADIAN, UK AND EU ONLINE SAFETY LAWS

**Even a superficial reading of the four online safety laws examined here suggests an important preliminary finding. They all share a similar architecture based on regulatory strategies and techniques commonly used in other sectors, such as financial regulation, to "responsibilise" the private sector. They all seek to achieve objectives related to online safety and, as we said, they all follow the same overarching regulatory approach, which gives them some common structural elements. These common structural elements are not unique to these laws or to online safety laws more broadly and can be observed in numerous other regulatory frameworks. However, beyond this common structure, differences between the various laws examined also reveal the existence rather diverse approaches to the same problems or solutions across the jurisdictions examined.**

### 6.4.1. The shared architecture of online safety laws: themes and subthemes

All these techniques, as well as the overarching paradigms of principle-based regulation, enforcement pyramid and responsive regulation, inform – to a different extent and with significant variations – the four online safety laws examined here, and together, they shape their shared architecture. First, all these laws regulate the conduct of various providers of online services by setting duties and expectations concerning the adoption of measure, including adequate internal controls such as reporting and complaint systems, to promote the safety of their users. Second, each of these laws appoints specialised regulators to monitor and enforce compliance with the duties they establish. These regulators and related agencies have the power to issue regulation or guidance to support compliance to further specify the principles set by legislation. This is the case, for instance, of the legislative instruments that the Australian Minister of Communications can issue to determine basic online expectations for regulated services, in addition to the core expectations set out by the AU OSA (ss. 45–46), or the codes of practice and further guidance that Ofcom, the UK's regulator for the communications services, must issue according to the UK OSA (ss. 41–50 and Sch. 4). Online safety regulators in all jurisdictions have powers to monitor and support compliance through responsive measures ranging from complaint systems (e.g. UK OSA, ss. 30–43) to civil or administrative penalties (e.g. Art. 52 and 74 EU DSA). With the exception of the EU Digital Safety Act, all the online safety laws examined here also include some criminal offence for the failure to comply with certain duties set by these laws (e.g. s. 205, AU OSA; ss. 69, 109–112, and 138, UK OSA; clauses 120–121 OHB). Finally, all the laws examined introduce mechanisms and tools to empower potential victims, such as clear terms of services including information on safety risks and mitigations (e.g. Art. 14, EU DSA; s. 10(5–9) and 27(5–9) UK OSA), technological features and other solutions to control content or block other users (e.g. s. 15(2) UK OSA; clause 58, CA OHB), and reporting and complaint systems (e.g. 46(1)(e–f) AU OSA; clauses 59, CA OHB).

However, there are substantial differences in the way each piece of legislation applies these regulatory techniques and instruments. First, each act seeks to regulate different online services and related entities. Second, each act regulates different types of online content or activities. Third, some acts impose on regulated entities extensive and specific legal duties (e.g. UK OSA), while others only set generic expectations (e.g. AU OSA). Fourth, there are major differences in the role, functions, and powers of online safety regulators, as well as in enforcement approaches. Finally, some acts (notably, the UK OSA and the CA OHB) also seek to regulate the conduct of users of online services by introducing new criminal offences concerning emerging online threats such as false or threatening communications, cyberflashing, encouraging or assisting serious harm (ss. 179, 181, 183, and 184 of the UK OSA, respectively), and offences motivated by hatred (clause 15 of the Consequential Amendments to the CA OHB).

Together, the analysis of these similarities and differences allowed us to identify the following themes, around which we will structure our analysis: (1) scope of application; (2) duties and expectations of online service providers; (3) regulators – functions, duties, and powers; (4) enforcement; (5) criminal offences; (6) user empowerment. Most of these themes include subthemes. We will extensively discuss both themes and subthemes in the following sections.

### 6.4.2. Scope of application

As we mentioned in the methods section, all the laws examined here share the common purpose of improving or promoting the safety of online services, while also ensuring the protection of individual rights and freedoms (cf. Art. 1(1) EU DSA; s. 3(a–b), AU OSA; s. 1(1) UK OSA; clause 9 CA OHB). However, a closer inspection of the scope of each of these acts in terms of regulated entities and content/activities as well as territorial applicability reveals that, despite some overlap, each of them focuses on different aspects of online safety.

The EU DSA has a quite broad subjective scope of application, as it regulates online "intermediary services" that enable – more or less directly – the storage, communication, and public dissemination of information. These include: (1) hosting services that store information provided by users; (2) online platforms, a type of hosting services that also disseminate information to the public at the request of users; (3) online search engines; (4) mere conduit services that facilitate the transmission in communication networks of information provided by users, or give access to such networks; (4) caching service, which involve the automatic, intermediate and temporary storage of information to make its transmission more efficient (Art. 3(g), (i) and (j)). The UK OSA regulates: (1) user-to-user services (s. 3(1)), which enable users to generate, upload or share content on the service; (2) search services (s.3(4)); (3) combined user-to-users and search services; and, to a limited extent, (4) services that publish certain pornographic content (ss. 2 and 79–80). The definition of user-to-user services is broad enough to encompass quite a wide range of services. The breadth of the services that the EU and the UK seek to regulate means that they can apply to very diverse organisation in terms of size, user base, and turnover. To account for such diversity, both acts establish different regimes for different categories of providers of online services and platforms (Art. 33, EU DSA; s. 94 and Sch. 11), whereby larger companies have more duties and responsibilities compared to smaller ones.

The AU OSA and the CA OHB have a narrower subjective scope of application, as they to social media services, albeit quite broadly defined. The AU OSA applies to social media services, defined as services that allow social interactions between end users (s. 13), electronic services that enable communication between end users such as instant messaging, SMS, MMS, chats and multiplayer games (s. 13A) and services that allow end users to access material using an Internet carriage service or services that use Internet carriage services to deliver material to persons with appropriate equipment for receiving it (s. 14). The CA OHB was designed to apply to social media services, defined as websites or applications with the purpose to facilitate "interprovincial or international online communication" among users by enabling them to access and share content (s. 2), including adult content services and live streaming services (s. 2(b)), and excluding private messaging and services that do not enable users to communicate content publicly (ss. 5–6). Moreover, the CA OHB would have applied only to services that reach a certain number of users (s. 2–3).

Even starker differences emerge when comparing the objective scope of application. The UK OSA appears to be the more comprehensive in this regard, as it explicitly applies to both content and activity. In particular, it focuses on illegal content (s. 59), illegal activity (s. 2(a)(i)), and content and activities (illegal or not) that are harmful to children (ss. 2(a)(ii) and 60–62). Content is broadly defined as "anything communicated by means of an Internet service" publicly or privately, including text, oral communications, photographs, videos, visual images, music and data (s. 236). Activities, on the other hand, are not defined at all and they are barely mentioned throughout the act, apart from fraudulent advertising, which is directly addressed by the act (ss. 58–59). This might depend on the fact that activities were not included in earlier drafts of the Online Safety Bill and were only introduced later, following criticisms raised during parliamentary debates (Hansard HL Deb., 2023). However, activities are implicitly and indirectly attracted within the scope of application of the act by the definition of illegal content as "content that amounts to an offence" (s. 59), which may imply activities such as the creation, publication, sale, distribution, use or misuse of such content, and by the requirement for the regulated service provider to mitigate the risk of their service being used to commit offences (ss. 10 and 27). The EU DSA follows a similar approach concerning content and activities. The act focuses mostly on illegal content, defined as information that is against the law of the EU or any Member State. However, content is considered not only in isolation, but also in relation to an activity, such as the sale of products or the provision of services (Art. 3(h)). The Preamble clarifies that in some cases, it is the relationship with an activity that renders content illegal (para. 12) and that providers of very large online platforms (VLOPs) and very large online search engines (VLOSEs) should also assess the risks of illegal activities (para. 80). Unlike the UK act, the EU DSA does not cover harmful (but not illegal) content.

Australia and Canada, on the other hand, only address a list of specific categories of harmful content, thus narrowing down the objective scope of application of their respective legislation. The AU OSA applies to cyber-bullying material targeted to an Australian child (s. 6), cyber-abuse material targeted at an Australian adult (ss. 7–8), material that promotes,

incites, instructs or depicts abhorrent violent conduct (s. 9), and materials classified by the Australian Classification Board as restricted to adults or for which classification was refused and cannot therefore be sold, hired, advertised or legally imported in Australia (ss. 106–107; Australian Government, n.d.). Relevant materials include text, data, speech, music, or sound, visual images (moving or otherwise), or any other form or combination of forms (s. 5). The CA OHB would have applied to: (a) intimate content communicated without consent; (b) content that sexually victimises a child or revictimises a survivor; (c) content that induces a child to harm themselves; (d) content used to bully a child; (e) content that foments hatred; (f) content that incites violence; (g) content that incites violent extremism or terrorism (clause 2(1)). An overall definition of content is not provided, but it can be inferred from clause 2 that each category concerns different forms of content, including written text, audio recordings, and visual representations.

As far as territorial application is concerned, all the acts follow a similar approach. They apply to regulated services and situations outside their respective jurisdictions, provided they have some connection with these jurisdictions. The AU OSA applies to content that targets or is accessible by Australian residents (e.g. ss. 6–8), is posted by Australian residents or is hosted in Australia by a hosting service (e.g. s. 33, s. 66 or s. 79). The EU DSA applies only to intermediary services established in the EU or with a "substantial connection" to the EU resulting from specific factual criteria such as having a significant number of users in one or more Member States or targeting activities towards one or more Member States (Art. 2(1) and 3(e)). The UK OSA applies also to regulated services provided from outside the UK (s. 204), provided that, alternatively, (a) they have a significant number of UK users; (b) UK users form one of the target markets for the service (or the only target market); (c) the service is capable of being used in the UK and there are reasonable grounds to believe that there is a material risk of significant harm to individuals in the UK presented by content on the service (s.4(5–6)). The CA OHB would have applied only to regulated services and content accessible in Canada (s. 2(1)).

### 6.4.3. Duties and expectations of online service providers

This theme is one for which some of the starkest differences between different jurisdictions can be observed. A first major distinction is between online safety laws that impose on online service providers mandatory legal duties to promote and improve the safety of their services, as is the case for the EU DSA, the UK OSA and the CA OHB, and laws – such as the AU OSA – that largely rely on voluntary compliance with a set of "online safety expectations". This is a difference with considerable practical implications, not only concerning the expected effectiveness of the two approaches, but also their efficiency and legitimacy. To be effective, mandatory compliance requires the investment of considerable resources in regulatory supervision and enforcement, while voluntary compliance requires more efforts in regulatory persuasion and collaboration to ensure that appropriate mechanisms are in place to support and incentivise spontaneous abidance to regulatory expectations (cf. Vozza, 2022). Moreover, compared to mandatory compliance, voluntary compliance may enhance the perceptions of legitimacy of the relevant regulation when it is produced or co-produced by regulated entities themselves rather than unilaterally imposed from state agencies (cf. Smith et al., 2024). Another distinction can be made between laws that apply blanket duties or expectations to regulated services of any size as is the case with the AU OSA and the CA OHB, and laws, such as the UK OSA and the EU DSA, that impose different duties based on the size of the company.

As for the content of the duties, we can identify some core categories (subthemes) of duties or expectations that are common to all the online safety laws examined here:

#### User information

All the considered laws require regulated services to make publicly available clear and accessible information about safety risks, any mitigations adopted, and complaint systems available. Most laws require this information to be included in the terms of service. This requirement is explicit in the EU DSA (Art. 14) and UK OSA (only for user-to-user services) (s. 10(5–9)) and only implicit in the AU OSA, whereby deficiencies in the service's terms of use can be considered by the eSafety Commissioner when issuing a notice for non-compliance with reporting obligations concerning basic online safety expectations (s 56(5)(d)). However, some of the laws considered also identify alternative ways for online services to provide such information. In particular, the UK OSA requires search services to do so in a "publicly available statement" (s. 27(5–9)), while the CA OHB requires regulated services to publish guidelines (clause 57). Some acts, such as the EU DSA and CA OHB, also require services to include information on restrictions to the use of the service (Art. 14(1), EU DSA) or standards of conduct applicable to users (clause 57(a), CA OHB).

### Risk assessment

All the acts, except for the AU OSA, require at least certain services to conduct and periodically review risk assessments concerning the possible presence and accessibility of illegal content on their services (Art. 34 EU DSA; ss. 9, 11, 26, and 28, UK OSA; clause 62 CA OHB). The UK OSA includes exhaustive provisions that describe the minimum requirements of the risk assessment, which vary depending on different types of content, activities, and services. Moreover, in the UK all regulated service providers have the duty to perform the risk assessment, regardless of their size (additional duties are established for larger providers). As a result, the scope of the risk assessment prescribed by the UK law is quite extensive. Significantly, it requires online service providers to also assess the level of risk of user-to-user services being used for the commission or facilitation of a priority offence (ss. 9(5)(c)).
These offences include terrorism offences (Sch. 5), child sexual exploitation and abuse (CSEA) (Sch. 6), and a rather broad selection of additional offences identified by the act. These include assisting suicide, threats to kill, some public order offences, harassment, stalking, and fear or provocation of violence, some drug-related crimes, weapon-related offences, assisting illegal immigration, human trafficking fraud, sexual exploitation and images, and some financial crimes among others (Sch. 7). This means that relevant service providers must assess not only content-related risks, but also the risks of any activities aimed at exploiting the services for any of these criminal purposes.
Given the breadth of the priority offences, risk assessments are likely to cover a wide range of diverse harmful activities, including activities that might not be criminal themselves but still contribute to the perpetration of one of the priority offences. The UK OSA also clarifies that the risk assessment must include an assessment of the nature and severity of the harm that can be suffered by users in relation to the risks identified. Separate provisions regulate the risk assessment concerning content that can be harmful for children (ss. 11 and 28). The scope of the risk assessment required by EU DSA is much narrower than in the UK, and the focus is slightly different. First, only VLOPs and VLOSEs are required to conduct a risk assessment (Art. 34). These entities must assess four categories of systemic risks – risks stemming from the "design or functioning" of online services and related systems. These include the risk of dissemination of illegal content through their services, the negative effects of a service for fundamental human rights and democratic and electoral processes, and the negative effects of a service on gender-based violence, public health, minors, and people's physical and mental well-being. Interestingly, the assessment of these negative effects might require companies to assess not just content-related risks but also risks stemming from various activities related to the regulated services. However, these are likely to be different from those covered by the UK risk assessment as they do not necessarily relate to the commission of criminal offences. The risk assessment required by the CA OHB is probably the narrowest in scope, as it focuses only on the risk that users of a service will be exposed to harmful content of the type listed by the bill (clause 62(1)(b)) and, given the subjective scope of application of the act, is mandatory only for social media services of a certain size. Also, the Canadian risk assessment is envisaged as part of the content of a broader digital safety plan, and this might induce companies to keep it short and simple to make space for other content.

### Safety measures

All the online safety laws here somehow require regulated services to adopt measures to ensure and promote the safety of their users. However, the extent of these duties varies considerably from jurisdiction to jurisdiction. The EU DSA (Art. 35) and the UK OSA (ss. 10, 27 and 29–30) set out rather open-ended binding obligations to adopt proportionate measures to effectively mitigate and manage the risks identified in the risk assessment. In both acts, such broad provisions are complemented by non-exhaustive lists of measures that can be adopted in this respect, if appropriate. These include, for instance, design of functionalities, features and algorithms, policies on terms of service, content moderation and take-down, and specific measures for the protection of children such as age restrictions. A limitation of the EU DSA is that only VLOPs and VLOSEs – and to a more limited extent, providers of online platforms that are not micro or small enterprises – are required to adopt these measures. The CA OHB includes a generic obligation for social media services to implement measures to mitigate the risk that users will be exposed to harmful content on the service (clause 56) but leaves the specification of such measures to government regulations – a typical example of principle-based regulation. The only exceptions are some provisions detailing duties to protect children through age-appropriate design features (clauses 64–66). The AU OSA does not impose any legal duty, but only some core safety expectations – taking reasonable steps to ensure that end users are able to use the service in a safe manner, minimise exposure to regulated material on the service and implement technological or other measures to prevent children's access to adult material (s. 46(1)).

### Reporting and complaint systems

All the laws examined include duties or expectations concerning the implementation of internal systems for users to report and make complaints about safety-related matters. The scope of these varies in each jurisdiction. Variations concern the entities that can use these services and the purpose of the complaint systems. In Australia and Canada,

reporting and complaint mechanisms are available to users of the regulated services (s. 46(e–f), AU OSA; clause 59, CA OHB). The basic online safety expectations set by the Australian Minister of Communications encourage regulated services to make the complaint mechanisms available to any Australian resident (s. 13(2) Online Safety (Basic Online Safety Expectations) Determination 2022), but this provision is not legally binding and can be changed by future ministerial regulation. On the other hand, in the UK they are available to any affected persons (ss. 20–21 and 31–32). In the EU, reporting mechanisms ("notices") are available to anyone (Art. 16), and complaint systems are restricted to users and those who have submitted a notice (Art. 20). As for the purposes of complaint systems, in Australia this is limited to complaints about regulated material or breaches of terms of service. On the other hand, in the EU, these systems are intended to address users' complaints against providers' decisions and action about illegal content (e.g. content removal, suspension, or termination of service or accounts). In the UK, complaints can be made not only about illegal content as in Australia and, as in the EU, actions taken by providers about it (e.g. content take-downs, warnings, suspensions, bans), but also about providers' non-compliance with statutory duties (ss. 21 and 32).

#### Transparency and accountability

All the laws examined include some duties for regulated services to submit periodic reports to the respective regulators about online safety issues and/or their compliance with legislative or statutory requirements. The purposes and content of reporting obligations vary. In Australia, reporting aims at promoting compliance by requiring regulated services to illustrate the measures taken to fulfil online safety duties and expectations (ss. 49–55, AU OSA). Moreover, in Australia there is no general statutory obligation to report. Instead, the AU OSA gives the regulator (eSafety Commissioner) the power to issue notices to require specific providers to prepare periodic reports (s. 49) or to determine, by legislative instrument, reporting duties for providers of specific classes of services (s. 52). In the EU, for most regulated services reporting obligations seek to promote transparency about the reports of illegal content and complaints received by regulated services, and the decisions and measures taken in response to these (s. 15). However, VLOPs and VLOEs have additional reporting obligations concerning the human resources dedicated to content moderation and their qualifications, expertise, and training, the results of the risk assessment and the mitigations taken, and the results of independent audits on compliance (s. 42). The CA OHB requires regulated services to submit and make publicly available a comprehensive digital services plan including comprehensive online safety information such as information about the results of risk assessments and any mitigations taken, and measures taken to protect children. It covers the volume and type of harmful content and how that was moderated, the number of flags of harmful content and action taken to address them. This includes users' concerns, findings and recommendations emerging from research conducted by or on behalf of the operator of a service on harmful content and other risks and an inventory of data used to provide this information (clause 62). In the UK, only providers of larger services, or smaller services that can still pose a threat are required to submit transparency reports including any information required by Ofcom through an annual notice (s. 77).

#### Researchers' access to data

With the exception of the AU OSA, all the other online safety laws examined include some mechanisms to require certain regulated services to give vetted or accredited researchers access to data and information for the purposes of research on online safety matters (Art. 40, EU DSA; s. 154A, UK OSA; clause 77, CA OHB).

Some of the online safety laws add further unique obligations. We can outline here only some of the most interesting and significant ones. Both the EU and UK legislation include a duty for regulated services to have due regard to some fundamental rights of the parties involved, with a particular focus on freedom of expression (Art. 14(4), EU DSA; ss. 22 and 33, UK OSA). Both acts also include duties for regulated services to report certain content or activities to law enforcement or judicial authorities. In the EU, this duty concerns suspicions of any criminal offence (Art. 18, EU DSA). In the UK, the duty is limited to CSEA content (s. 66, UK OSA). The UK OSA includes an explicit obligation to keep a written record of every risk assessment and any safety measures taken (s. 11 and 28), although some record-keeping seems to be an implied precondition for the fulfilment of reporting obligations set in other jurisdictions. Both the EU DSA and the CA OHB require regulated services to designate a point of contact (Art. 12, EU DSA) or "resource person" (clause 61, CA OHB) to facilitate communications with users and provide guidance and signposting. The EU and the UK also include duties to autonomously review (ss. 11 and 28, UK OSA) or undergo independent external audits (Art. 37, EU DSA) about compliance and take appropriate measures to improve it when necessary.

### 6.4.4. Regulators: Functions, duties, and powers

All the online safety laws examined in this study appoint special regulators to facilitate, monitor, and enforce compliance instead of traditional law enforcement and judicial authorities, which intervene only as a last resort. Most jurisdictions established new dedicated online safety regulators. Only the UK appointed the existing regulator for communication

services – Ofcom, established in 2003 (Communications Act, 2003). The governance and administrative structure of these bodies varies from one jurisdiction to another. The most complex institutional arrangements are, as expected, those set out by the EU DSA, which, because of its supranational nature, introduces a coordinated system of both national and European regulators. However, the administrative configuration of regulators is beyond the scope of this study. What is important to compare here are their functions, duties, and powers.

In Australia, the competent regulator is the eSafety Commissioner, appointed and directed by the Minister of Communications (ss. 167–170, AU OSA). In the UK, the competent regulator is the Office of Communications (Ofcom) (Part 7, UK OSA), previously established by the Communications Act 2003, under the supervision of the Secretary of State. According to the UK OSA, in the exercise of online safety functions, Ofcom is advised by a Content Board (also established by the Communications Act 2003), which advises Ofcom on content-related matters (s. 153, UK OSA), and a new Advisory Committee on Disinformation and Misinformation (s. 152). In Canada, the OHB proposed three coordinated bodies: the Digital Safety Commission, supported by the Digital Safety Office and the Digital Safety Ombudsperson. In the EU, the European Commission retains extensive regulatory powers and is supported by the newly established European Board for Digital Services (Art. 61, EU DSA), while Member States are required to appoint (new or existing) authorities to act as Digital Services Coordinators (Art. 49–51, EU DSA).

In all the jurisdictions, the appointed regulators share a common set of fundamental functions although their definition, as well as that of related duties and powers, can vary quite considerably. The main categories of shared functions are:

### Promotion of online safety

Apart from the EU DSA, all the other examined acts mention the promotion of online safety or the protection of citizens from online harms as the general function of their respective regulators summarising all the other functions (s. 27(1), AU OSA; s. 91, UK OSA amending s. 3 of the Communications Act 2003; clause 11 CA OHB). Moreover, some acts include more specific functions related to the promotion of certain societal conditions that can support online safety. For example, in Australia there is the collection, analysis, and dissemination of information on online safety, educational, promotional, and community awareness programmes, and financial grants and research about online safety (AU OSA, 27(1)(e–h)). The UK undertakes research into UK users' opinions and experience of regulated services (s. 154), and a strategy to promote media literacy as well as the development and use of technologies and systems to protect services and users (ss. 165–166, UK OSA).

### Supervise and support compliance

In all jurisdictions, a main function of online safety regulators is to supervise regulated entities and support them in complying with statutory duties. In all jurisdictions, this is achieved by issuing guidelines about the correct fulfilment of statutory duties. However, an important difference is that, in some instances, this is a power that regulators can exercise at their discretion, while in other instances, regulators have a statutory duty to issue such guidance. Australia, Canada, and the EU are examples of the former approach. In Australia, the issuing of guidelines is merely listed among the functions of the eSafety Commissioner, without further specification of related legal obligations (s. 27(1)(p–qb), AU OSA). The Digital Safety Commission proposed by the CA OHB (s. 26) "may" issue guidelines, codes of conduct, and other such documents for the purposes of the act. Similarly, the European Commission may issue guidelines on several issues, often in consultation or collaboration with the Board or the Digital Services Coordinators (Art. 22(8), 25(3), 28(4), 35(3), 39(3), EU DSA). A very different approach is adopted by the UK OSA, which obliges Ofcom to produce guidance on numerous statutory duties for regulated entities, including terms of service, risk assessments, safety measures and transparency reports (ss. 52–54, 65, 73, 76, 78, 82, 99, 127, 151, 171).

### Regulation, co-regulation and self-regulation

Beyond advice and guidance, most regulators in the jurisdictions considered have some sort of rulemaking powers; however, their nature and scope vary considerably from jurisdiction to jurisdiction. The UK and Canadian laws enable their online safety agencies to issue state-led regulation, whereby a public body issues rules that further specify the obligations set out by legislation (Hodges, 2015). In the UK, Ofcom has a duty to prepare and issue several codes of practice describing measures recommended for the purpose of compliance with several statutory duties (ss. 41–51, UK OSA). Failure to comply with the codes of practice does trigger any legal liability, but compliance with them is treated as compliance with relevant statutory duties (ss. 49–50). The CA OHB gives the Online Safety Commission the power to issue codes of conduct, but its exercise is merely discretionary, and the nature and content of such codes is not specified by the bill (clause 26). Australia and the EU mostly take a co-regulation approach, whereby industry bodies adopt their own rules of conduct, but with some intervention from government agencies (Hodges, 2015). In Australia, associations representative of certain sectors of the online industry must develop codes to regulate

the activities of online services (ss. 137–138, AU OSA). Codes are registered by the Commissioner in the Register of Industry Codes (ss. 140 and 149). The Commissioner may give directions to persons who contravene industry codes and failure to comply with such directions is met with a civil penalty (s. 143). The Commissioner may request industry bodies or associations to develop industry code and if they fail to do so may issue, by legislative instruments, industry standards to regulate that sector (s. 141 and 145). In the EU, the DSA requires the Commission and the Board to encourage and facilitate the drafting of voluntary codes of conduct by providers of relevant services on the proper application of the act, online advertising and access to online services for persons with disabilities (Art. 45–46), and ensure that they satisfy some minimum requirements stated by the DSA. Moreover, the Commission, in consultation with the Board, must support and promote the development and implementation of voluntary standards by relevant European and international standardisation bodies on several online safety measures (s. 44).

### Enforce compliance and handle complaints

A major common function of all regulators in the various jurisdictions is the enforcement of duties established by the respective legislation; in some instances, also through the resolution of complaints. This function entails the attribution of investigative powers, as well as powers to make requests, give warnings, and issue orders. We will discuss this function and related duties and powers extensively in the next section.

### Collaboration and coordination

All the online safety laws require the appointed regulators to collaborate, consult with and coordinate with other agencies and relevant stakeholders, including international governments and agencies (s. 27(1)(l) AU DSA; clause 11(f) CA OHB; ss. 114–116 UK OSA)). As expected, coordinating functions are prominent but also different in the EU, as the EU focuses more on the coordination between the Commission and the Board at EU level, and between these and the national Digital Safety Coordinators (see e.g. Art. 57, 59 63, 85, EU DSA). However, there are also occasions in which the DSA requires the Commission and/or the Board to collaborate with other stakeholders (e.g. Art. 45(2)).

### Reporting

Regulators have some reporting duties in all jurisdictions, but again the extent and purpose of these vary. Three main types of reporting can be identified.

a. Reports on regulators' activities: These are generally mandatory for most regulators. In the EU, Digital Services Coordinators must publish annual reports on their activities, including the number of complaints received and an overview of their follow-up (Art. 55). In Australia, the Commissioner must submit to the Minister, for presentation to the parliament, an annual report on the operations of the Commissioner during that year. The focus is mostly on the volume of enforcement activities – especially the number of notices and complaints (s. 183, AU OSA). In the UK, the Office of Communications Act 2002 requires Ofcom to submit to the Secretary of State an annual report on their proceedings and performance (s. 12, sch. 1). According to the CA OHB, both the Commission and the Ombudsperson must submit a report to the Minister on their activities, although the Minister may request information on other matters (clauses 130–132).

b. Reports on the activities of the regulated services: These are less common. The UK has the only online safety law that includes extensive and highly detailed duties for Ofcom to report on the regulated services' compliance with the act and on the effectiveness or impact of their actions concerning numerous matters. This encompasses the use of age assurance, news publisher content and journalistic content, transparency reports, reporting and complaints procedures, the use of app stores by children, and researcher access to information (157–162, UK OSA). Interestingly, in these reports Ofcom is required to also assess the effectiveness of relevant regulatory frameworks about these issues, imposing a virtuous routine of constant revision of industry and regulatory online safety rules, measures, and practices.

c. Reports on online safety risks: Both the UK and the EU require regulators to produce extensive reports on online safety risks. In the EU, the Board, in cooperation with the Commission, must publish comprehensive annual reports about the identification and assessment of the most prominent and recurrent systemic risks reported by providers of VLOPs and VLOSEs – or identified through other information sources, as well as best practices for these services to mitigate such risks (Art. 35). The UK OSA goes beyond this, and requires Ofcom to carry out their own risk assessments to identify and assess risks of harm presented by illegal and harmful content to individuals in the UK and prepare risk profiles of various online services. The findings need to be recorded in a register of risks and profiles (s. 98, UK OSA) and inform Ofcom's guidance about risk assessments (s. 99). Ofcom must also produce periodic reports on their reviews of the incidence of content harmful to children and the severity of harm resulting from it,

including advice on whether and how to make changes to relevant statutory provisions (s. 63). Like Ofcom's reports on the activities of the regulated entities, these reports are also an opportunity for Ofcom to review the effectiveness of regulatory frameworks and propose changes.

d. Public information and dissemination reports: These are less technical reports that regulators can publish to raise public awareness and information on online safety (s. 27(1)(i), AU OSA; s. 164, UK OSA). While some of the acts do not include specific provisions in this regard, this kind of reporting is part of the promotional function outlined under point (1) above, so it may be considered an implicit discretionary power of the regulators.

A final, but important note about online safety regulators concerns their funding. Only in Australia, the eSafety Commissioner is funded directly by the Government. In most jurisdictions, online safety regulators are funded through fees paid by regulated services (Art. 43, EU DSA; ss. 83–90, UK OSA; CA OHB, clause 139).

### 6.4.5. Enforcement

In all jurisdictions, regulators are usually responsible for enforcing compliance, through a system of investigatory powers and penalties for non-compliance by providers of regulated services with statutory duties or prohibitions. Despite some variations in the scope of the enforceable duties, the nature of the penalties, the related enforcement processes, the necessary regulatory powers, and judicial review mechanisms are quite similar across all jurisdictions.

#### Scope of enforceable duties

Enforceable duties include providers' duties to implement online safety measures and providers' (or users') duties to comply with regulators' powers. In Australia, the eSafety Commissioner can impose penalties for providers' failure to comply with industry codes and standards (ss. 143 and 146) and failure to take steps to prevent age-restricted users having accounts and for collecting or using prohibited information for this purpose (ss. 63D, 63DA, 63DB). It can also impose penalties for providers' or users' failure to comply with numerous Commissioner's orders and requests (in the form of notices, directions and determinations), such as reporting notices and determinations (ss. 49–50, 52–53, 56–57, 59–60), information notices (ss. 64G–64H), removal notices (ss 80, 88–91, 109–111, 114–116, 128–129), remedial directions and notices (ss. 83, 119–121, 154), blocking notices (ss. 99–103) and contravention of service provider rules set by the Commissioner (s. 153). The eSafety regulator can also apply a penalty on users that post intimate images without consent (s. 75). In the EU, the Commission is responsible for enforcing the duties of VLOEs and VLOSEs, including those needed to comply with investigatory proceedings (Art. 74, EU DSA), while Member States and the national Digital Services Coordinators are responsible for enforcing the duties of other regulated service providers (s. 51–52). In the UK, most online safety duties set by the act such as risk assessment, safety measures, terms of service (see full list under s. 131, UK OSA) or with certain Ofcom's decisions or notices (ss. 139–141 and sch. 3) are enforceable either as civil or criminal offences (see next point). Similarly, according to the CA OHB, any failure by operators of social media services to comply with the provisions of the bill and with orders and requests of the Digital Safety Commission or persons authorised, constitute both an administrative offence (clause 96) and a criminal offence (clause 120). This also applies to operators making false or misleading statements to the Commission or persons authorised, or otherwise obstructing them (see point below).

#### Enforcement processes and penalties

These need to be examined together, as the type of penalties and the enforcement processes are interconnected components of an overarching "enforcement pyramid" approach. Penalties and processes are similar across all jurisdictions.

**a. Warnings**: First, regulators usually issue warnings or provisional notices of contravention or otherwise inform relevant regulated entities about the violation and enable them to engage with the process. For instance, this may be achieved by making representations and resolving the matter through alternative means to penalties – for instance by entering into agreements and undertakings with the regulator to take steps to comply or remedy failure to comply (cf. eSafety Commissioner 2024; Art. 51(2)(b) EU DSA; s. 130, UK OSA, and Ofcom 2024; clauses 100 and 107–109, CA OHB).

**b. Interim measures:** Regulators in all jurisdictions have the power to take or request courts to take interim measures to stop non-compliance and avoid further harm (ss. 163–165, AU OSA; Art. 52(2)(e) and 70, EU DSA; s. 145 and 148, UK OSA; clauses 81(4) and 94, CA OHB).

**c. Monetary penalties:** If the matter is not resolved through alternative means and the regulators are satisfied that a violation has been committed, regulators usually issue a final contravention decision (ss. 163–165, AU OSA; Art. 51 and 73, EU DSA; s. 132, UK OSA; clause 104(2), CA OHB) and can impose fines on the non-compliant entities (s. 162, AU OSA; Art. 51(2)(c) and 74, EU DSA; s. 137, UK OSA; clause 96, CA OHB). In the EU and the UK, in case of ongoing violations regulators can also impose periodic or daily fines to compel regulated entities to comply (Art. 52(2)(d) and 76, EU DSA; s. 137, UK OSA).

**d. Compliance and remedial orders:** In addition, or in some jurisdictions, as an alternative to penalties, regulators can also order regulated services to take action to comply with certain requirements or remedy any failure to comply (Art. 52(2)(d), EU DSA; s. 132, UK OSA; s. 94, CA OHB). Actions to be taken include, among others, removing or blocking illegal or harmful content (ss. 63–73, 77–81, 87–93, 94–103, and 109–131, AU OSA) and using specific types of proactive technology to comply with certain requirements (s. 136, UK OSA).

**e. Criminal offences:** As we mentioned above, the UK OSA and the CA OHB define criminal offences for the violation of certain duties of regulated entities. In the UK, only the most serious failures to comply with Ofcom's investigative powers or other harmful behaviours concerning these powers are criminalised. These include failure to comply with an information notice, intentionally providing false information, suppressing, destroying or altering information, and constitute criminal offences under the OSA (ss. 69. 109–112, 138). As such, these offences are dealt with directly by the Crown Prosecution Service. As we saw, the CA OHB takes a different approach by establishing that offences related to the violation of statutory duties and regulatory powers can be prosecuted, alternatively, as an administrative offence enforced by the Commission (clause 96) or a criminal offence enforced by the Public Prosecution Service (clause 120). Proceedings in one way precludes proceedings in the other (clause 116).

**f. Restriction to services/business:** In most jurisdictions, regulators can impose or request a court to impose restrictions to the service or business of non-compliant entities. Restrictions include the temporary restriction of access to the service or the online interface of the provider (Art. 51(3), EU DSA, s. 146, UK OSA) and orders to cease to provide online services (ss. 156–159, AU OSA). It even includes orders to third parties to disrupt the activities of non-compliant providers, for instance by requiring providers of ancillary services to disrupt the business revenue of non-compliant providers (s. 144, UK OSA).

#### Investigatory powers

In all jurisdictions, regulators are provided with similar powers to investigate online services' violations. These include: (a) power to request information or documents; (b) power to request an appearance, hearings, interviews or explanations; (c) power to conduct inspections (ss. 193–205, AU OSA; Art. 51(1), EU DSA; ss. 100–103, 105–18, UK OSA; clauses 86–92 and 117–119 CA OHB). In addition, the UK and the EU allow regulators to rely on external experts to support their investigations. In the EU, national Digital Services Coordinators can appoint independent experts as "trusted flaggers" (only entities, not individuals) who can submit notices concerning illegal content that must be priorities by the Coordinators (Art. 21, EU DSA). In the UK, Ofcom may appoint (or ask a regulated entity to appoint) skilled persons to assist Ofcom in identifying a failure or possible failure to comply with a relevant requirement or understanding the nature and level of risk of such a failure and possible mitigations (s. 104, UK OSA).

#### Judicial review

Most jurisdictions provide some mechanism of judicial review of the regulators' decisions (s. 220, AU OSA; ss. 51(6) and 81, EU DSA; ss. 167–168, UK OSA) other than internal review mechanisms within the regulators (s. 220A, AU OSA).

### 6.4.6. Criminal offences

Other than the above-mentioned offences, the UK OSA and the CA OHB introduced several new offences concerning users' harmful online behaviours. In the UK, these include false or threatening communications, sending or showing flashing images electronically to cause harm, encouraging or assisting serious self-harm, sending or giving pictures or videos of a person's genitals, sharing or threatening to share intimate photographs or film (179, 181, 183–184, 186–188). In Canada, the OHB proposed to criminalise the perpetration of any statutory offence motivated by hatred based on race, national, or ethnic origin, language, colour, religion, sex, age, mental or physical disability, sexual orientation, or gender identity or expression (proposed new s. 320.1001 in the Criminal Code) and to increase penalties for four hate propaganda offences (ss. 318–319).

### 6.4.7. User empowerment

All the examined laws seek to somehow empower users against online safety threats through a variety of measures. We have already discussed before some of the measures commonly adopted by most jurisdictions for this purpose. These include awareness-raising, education and information initiatives by regulators, and requirements for regulated services to provide clear and accessible information on online safety and related measures in their terms of service. This includes establishing an easily accessible point of contact for users to express their concerns, adopt accessible mechanisms to report illegal or harmful content, and develop internal complaint systems. However, additional measures can be identified, and these vary quite considerably across jurisdictions.

#### Mandatory technological solutions

The EU and the UK explicitly require regulated services to adopt technological features to support users in protecting their safety. These features include the design and organisation of online ways in non-deceptive or manipulative ways (Art. 24, EU DSA), the adaptation of online interfaces to give users more information, parental control tools and tools to help minors signal abuse or obtain support (35(1)(i–j), EU DSA). There are features to increase user control over certain content, including by reducing the likelihood of encountering certain content, alerting the user about the presence of certain content, filtering out non-verified users and personalise the settings of such features (s. 15, UK OSA). The UK even requires larger providers of online services to conduct and regularly update dedicated assessments (additional to illegal content risk assessments) to identify and evaluate user safety needs and individuate appropriate measures. The UK OSA (s. 165) also requires Ofcom to take any steps to encourage the development and use of technologies and systems for supporting users of regulated services to protect themselves and others. This includes technologies and systems which provide further context to users about content they encounter, help users to identify content of democratic importance, signpost users to resources, tools, or information raising awareness about how to use regulated services to mitigate the harms.

#### Complaints to the regulator

In most jurisdictions, in addition to internal complaints to online service providers, users can also make complaints to the online safety regulators. The AU OSA has established several complaints schemes within the competence of the eSafety Commissioner, each concerning a different type of regulated material (cyber-bullying material targeted at Australian child, non-consensual sharing of intimate images, cyber-abuse material targeted at Australian adult, and restricted or prohibited content) (ss. 30–43, AU OSA). If the Commissioner decides to investigate the matter of a complaint, they can rely on the broad range of investigatory and enforcement powers illustrated above, including removal orders, and warning and infringement notices. These complaints schemes are a major component of the AU OSA. In the EU, users also have the right to lodge a complaint against providers of regulated services for violations of the EU DSA with the Digital Service Coordinator of the State where the complainant is located or established. The Digital Service Coordinator must assess it and, if necessary, transmit it to the Coordinator or any other competent authority of another state (Art. 53, EU DSA). According to the CA OHB, users can only make complaints to the Digital Safety Commissioner about content that sexually victimises a child or revictimises a survivor or intimate content communicated without consent (s. 81). In the UK, the OSA does not establish an individual complaint system to Ofcom. Instead, entities representing the interests of users of regulated services, or members of the public, can make super-complaints to Ofcom about any features of regulated services or conduct of their providers that cause significant harm or adverse impact (ss. 169–171, UK OSA).

#### Ombudsperson

An interesting idea is the establishment of an ombudsperson to support users of regulated services and advocate for the public interest in relation to online safety, as proposed by the CA OHB (clauses 29–38). The ombudsperson would have the power to gather information concerning online safety issues including harmful content, highlight issues related to online safety, including by making publicly available (non-personal) information, and direct users to helpful resources.

### 6.4.8. Periodic review of legal frameworks

In all jurisdictions, the relevant ministers – and in the EU, the Commission – must conduct a review of the operation of the respective online safety acts, their effectiveness and impact also on individual rights, and submit the report with the findings of the review to the respective parliamentary assemblies (s. 239A and 239B, AU OSA; Art. 91 EU DSA; s. 178, UK OSA; clause 142, CA OHB). The timing of this review varies from one jurisdiction to another. In Australia and the EU, the review must take place within three years from the entry into force of the relevant legislation (two years with respect to social media minimum age framework); in the UK, between two and five years; in Canada, no later than five years. In Europe and Canada, further reviews must take place periodically every five years after the first one.

# 6.5. AUSTRALIAN, CANADIAN, UK AND EU ONLINE SAFETY LAWS: A PRELIMINARY COMPARATIVE ASSESSMENT

**The analysis above produces several interesting findings concerning their ability to promote and protect online safety against old, emerging, and future threats.**

First, our comparative analysis revealed two rather distinctive approaches. The first approach is that adopted by the UK and the EU, and is defined by the following characteristics: (a) a very broad scope of subjective application, that tends to encompass most online services where there can be some interaction or exchanges of information and content between users; (b) an equally broad scope of objective application, encompassing not only illegal content, and to some extent harmful content, but also certain illegal activities; (c) a tendency to impose through legislation on regulated entities several binding and detailed obligations about online safety (including the adoption of technological solutions); (d) a regime that takes into account the different size of online service providers in terms of turnover and user numbers; (e) extensive and detailed protection for relevant human rights and freedoms (e.g. privacy and freedom of speech and expression); (f) extensive reporting duties imposed on regulators.
The second approach is that adopted by Australia and Canada and it is defined by the following characteristics: (a) subjective application limited to social media services and ancillary services; (b) objective application limited to certain types of harmful or illegal content identified by legislation; (c) a tendency to delegate the specification of online safety obligations to regulation; (d) a regime that applies to all regulated services regardless of their different size; (e) fewer provisions and procedures concerning human rights protections (in Australia, this was recently noted and criticised by the Australian Human Rights Commission, (2024)); (f) more agile reporting duties for regulators.

Both approaches adopt some form of "principle-based" regulation, although the EU and the UK tend to be more detailed and prescriptive concerning the duties of regulated services. Based on the findings of previous research on similar legal and regulatory frameworks (such as financial regulation), the approach taken by the EU and the UK appears more ambitious, innovative, and forward-looking, but possibly more resource-intensive and complex. However, good practices and promising elements can be found in any of the jurisdictions examined, as we are about to see.

### 6.5.1. Legislative complexity and precision

Before even focusing on the content of these acts, it is important to address their complexity as this can pose challenges to implementation as well as reform. All the laws considered are extremely complex and difficult to read even for lawyers, let alone providers or users of online services without any legal expertise. At the time of writing (August 2025), the AU OSA contains 262 sections and five endnotes for a total of 224 pages; the EU DSA includes 156 paragraphs in the Preamble and 93 articles, for a total of 102 pages; the UK OSA contains 242 sections and 17 schedules, with several additional sections each, for a total of 353 pages; the CA OHB contains 143 sections, plus numerous additional provisions concerning amendments to related acts, for a total of 104 pages.

The Australian act and the Canadian bill are probably the easier to navigate, while the EU and the UK acts appear more complex. The EU OSA in particular contains several procedural provisions, which are necessary to ensure that the laws of different countries are harmonised and address similar duties, rights, and processes in the same way. The UK OSA, on the other hand, is complicated by inconsistent law design to differentiate the duties of different regulated services. Sometimes, the same provision is repeated, with minor amendments, with reference to different services (e.g. ss. 9 and 26, or 10 and 27, and Chapters 2 and 3 more broadly). Other times, the same provision illustrates all the variations of the same duty applicable to different services (e.g. 77 or 121). However, the apparent accessibility of the Australian and Canadian laws could be deceiving, as one of the reasons for it is that these acts rely more extensively on delegated regulation. This means that while the online safety acts themselves might be shorter or easier to read, the rules adopted by regulators and ministers to further specify their provisions might be as complex and extensive as those in other jurisdictions. For instance, in Australia, to ensure compliance, regulated services will have to look at both the ministerial determinations of basic expectations (Online Safety (Basic Online

Safety Expectations) Determination 2022), which, in turn, are addressed by guidance from the eSafety Commissioner (eSafety Commissioner, 2025), as well as codes issued by industry bodies and standards issued by the Commissioner, potentially leading to fragmentation. Moreover, broad or vaguely worded laws can hinder compliance (cf. Black et al., 2007), for instance by leaving regulated entities confused about the exact nature and scope of their duties (cf. Zavoli and King, 2021) or by enabling rationalising processes and self-interested interpretations of the law ("but it's not illegal!") (cf. Pasculli, 2021).

It is worth mentioning that explanatory notes of some sorts are available for all the laws considered, not all of these are particularly helpful. In Australia and in Canada, explanatory memoranda were released when the respective online safety bills were introduced in parliament (The Parliament of the Commonwealth of Australia, 2021a, 2021b, 2021c; Government of Canada, 2024). However, these notes preceded the final enactment of the respective bills and, as a result, are outdated. Moreover, they focus more on synthesising the main provisions of the bills and explaining the respective government's considerations and processes that led to the proposal of the bill, rather than providing an explanation of the respective bills aimed at regulated services or their users. In the UK, the OSA (like any other statute) is accompanied by regularly updated explanatory notes (legislation.gov.uk, 2025). However, while these include some clarification on the background and aims of the act, they are not always helpful to interpret specific provisions as the commentary on these is often just a synthesis of the statutory sections, without further insights. In the EU, the long Preamble to the DSA offers an extensive explanation of the act. This is perhaps more helpful than the explanatory notes in other jurisdictions, as it contained a more detailed analysis of the Act.

### 6.5.2. Situational measures

Some important findings concern the duties and expectations of regulated services and their providers. A first general observation is that most online safety laws seek to somehow address both situational and social enablers of online threats – its proximate and remote causes, as explained in our previous study (Pasculli, 2022). Most acts tend to focus predominantly on situational measures, with social measures more in the background and usually focused on awareness-raising and information, except for the UK, as we will see in the next subsection. This is reasonable and understandable, as addressing situational and environmental factors, including technological features, that can facilitate crime has proved to be an effective and efficient strategy to prevent crime (cf. Bowers and Johnson, 2016; Weisburd et al., 2017) and is also recommended as an effective approach to identifying and preventing future crime (Johnson, 2024). On the other hand, social and cultural causes of crime might be much more problematic – first because they are difficult to demonstrate and controversial to identify; second, because even when they are successfully identified, addressing them is time-consuming and resource-intensive.

The clearest representation of the focus on situational measures is risk assessment and management (measures to mitigate such risks), which most examined laws identify as a fundamental tool to ensure online safety. Risk-based approaches enable regulated services to identify any feature (including technological ones) of their services and the respective online environments that may facilitate harmful conduct or content and take pre-emptive action to remove or address these (cf. O'Malley 1992, 2010). Among the jurisdictions examined, the UK OSA introduces the strongest risk assessment and management system. On the one hand, legislation defines with precision both the main requirements of the illegal content risk assessment that regulated services must conduct. On the other hand, it clearly defines the main requirements of the online safety measures that regulated services have the duty to adopt. Moreover, the OSA requires Ofcom to not only publish guidance to further specify these requirements, but also to carry out their own risk assessments and maintain an updated register of risks and risks profiles. The UK OSA also include specific risk assessment and management duties concerning children's online safety. As a result, the UK OSA, compared to online safety laws in other jurisdictions, includes many more detailed provisions on safety measures that regulated services are required to adopt to protect children from numerous forms of harm.

The EU also includes some detailed legislative specifications of the requirements of risk assessments and respective mitigations. However, under the EU DSA, only VLOPs and VLOSEs have the duty to conduct such risk assessments and to adopt mitigations. As the name suggests, VLOPs and VLOSEs only include a limited number of major service providers such as Ali Express, Amazon, Apple, Booking.com, Google, LinkedIn, Meta, Microsoft, Snap and TikTok (for a full list see European Commission 2025). This means that most online service providers are not obliged to conduct any risk assessment under the DSA and adopt the necessary mitigation measures. This is a major limitation, concerning that some online threats are likely to target or exploit emerging and under-regulated services. A more effective approach is that taken by the UK OSA, which requires all regulated services to conduct risk assessments and adopt the necessary mitigations, and includes additional duties for larger or specific services. An interesting feature of the EU DSA is the requirement for VLOPs and VLOSEs to establish a compliance function independent

from their operational functions and made of qualified and skilled compliance officers (Art. 41). The provision seeks to contribute to embed compliance and promote a culture of online safety within regulated services by directly affecting their governance structure.

The AU OSA is the only law among those examined that does not explicitly include risk assessment duties. Of course, risk assessment might be still required by industry codes or regulatory guidance, but such an important instrument should be prescribed by law for better clarity, consistency, and certainty. Moreover, as we saw above, the Australian act does not impose specific duties of care concerning the introduction of measures to mitigate online safety risks. Instead, it specifies some core voluntary expectations and delegates the specification of further voluntary expectations to ministerial regulations and the introduction of mandatory sectoral rules of conduct to industry codes further weakens the impact of the act and makes enforcement more problematic. In this framework, the enforcement function of the eSafety Commissioner is focused on chasing the many possible infractions reported by user complaints with respect to specific content. The Australian Human Rights Commission (2024) found this "whack-a-mole content moderation" problematic, especially given that, in today's digital age, any individual can produce virtually enormous amounts of content. According to the Commission, the introduction of a statutory duty of care, including both strong risk assessment and management obligations as well as transparency mechanisms, would be an important step to promote compliance and facilitate enforcement. The Commission also recommended additional regulatory measures to protect children.

The CA OHB includes a general statutory duty of care (the "duty to act responsibly" under s. 54), a duty to conduct a risk assessment and adopt mitigations indirectly derived from the duty to develop a "digital services plan" including information or risk assessment and mitigations, as well as some duties concerning specific measures. More specific guidance on these duties is delegated to regulations. As such, the bill displays some of the virtues of the UK and the EU acts but also some of the shortcomings of the Australian legislation – especially too broad and vague statutory definitions of important duties.

### 6.5.3. Social measures

As we mention above, the UK OSA stands out from the other acts examined because of its extensive focus on social measures, other than situational ones. This is especially done through Ofcom's function to promote media literacy, which we mentioned earlier. To elaborate, the statutory definition of this function includes several duties and requirements for Ofcom (s. 165(3) UK OSA). A first group of requirements concern awareness-raising. Ofcom must take effective steps and arrangements to heighten the public's awareness and understanding of ways in which they can protect themselves and others when using regulated services, in particular by helping them to (a) understand the nature and impact of harmful content and the harmful uses of regulated services (especially those disproportionately affecting particular groups, including women and girls); (b) reduce their and others' exposure to such content and uses; (c) use features, tools, apps to mitigate harms; (d) establish the reliability, accuracy and authenticity of content; (e) understand the nature and impact of disinformation and misinformation, and reduce their and others' exposure to it; (f) understand how their personal information may be protected. Relevant steps and arrangements include pursuing, commissioning, or encouraging activities and initiatives, as well as making arrangements for the carrying out of research. A second group of requirements concerns the encouragement of online safety technologies. Ofcom must take steps and make arrangements to encourage the development and use of technologies and systems for supporting users of regulated services to protect themselves and others, including technologies and systems which (a) provide further context to users about content they encounter; (b) help users to identify, and provide further context about, content of democratic importance present on regulated user-to-user services; (c) signpost users to resources, tools, or information raising awareness about how to use regulated services so as to mitigate online harms. Ofcom must also publish and revise from time to time a statement recommending ways in which others, including providers of regulated services, might develop, pursue, and evaluate activities or initiatives relevant to media literacy in relation to regulated services. Ofcom must develop a media literacy strategy to outline how it intends to exercise all these functions (s. 166). The UK OSA also acknowledges the importance of research to provide evidence for online safety initiatives. The act requires Ofcom to make arrangements for ascertaining the state of public opinion from time to time concerning providers of regulated services and their manner of operating their services, UK users' experiences of regulated services in relation to their use of such services and the handling of their complaints, and other related matters (s. 154(2)).

The legislative specification of such clear and precise regulatory duties, backed by the requirement to develop related strategies and statements that can be subject to the scrutiny of the public as well as other public bodies, can drive concrete action and give a clear message about the importance of these social initiatives.

### 6.5.4. Regulators old and new and their resourcing

As we saw above, most jurisdictions established new online safety regulators, as opposed to attributing online safety functions to existing regulators, as the UK did with Ofcom. Both approaches come with advantages and disadvantages. The introduction of new regulators can facilitate the specialisation of the regulator; however, considerable resources need to be invested in the establishment of the agency and the development of the necessary infrastructures. Moreover, there might be no suitable regulators available. Appointing existing regulators has the benefit of capitalising on the infrastructure, experience, and public trust already developed by such regulators. However, investment is still necessary to provide the regulator with the staff, resources and qualifications to face the increased workload and develop the special skills and expertise needed to effectively fulfil the new functions.

Apropos resources, we saw that while in Australia the eSafety Commissioner is funded by the government, in the other jurisdictions regulators are funded through fees paid by the regulated services. Both funding models present their own challenges. Government funding may increase the risk undue influence by politicians over the regulatory process (for instance, the government could "starve" the regulator of resources to constrain its operations). On the other hand, industry funding can facilitate regulatory capture by increasing regulators' sense of obligation towards the firms that fund their activities (Pagliari, 2012).

The implications of these alternative approaches should be better investigated to inform the design of future online safety frameworks in jurisdictions different than those examined here.

### 6.5.5. Future-proofing

As we discussed above, the nature of online threats is rapidly evolving. It is therefore imperative that legislative and regulatory frameworks to promote and protect online safety are future-proofed, as much as possible, against any emerging or future threats. All the laws examined in this study could be improved in this respect. Before we can examine these shortcomings, it is important to state very clearly that some emerging threats might be addressed by legislative or regulatory frameworks that are not in the scope of this study. For instance, some of AI-enabled threats – such as artificial intelligence laws – are addressed by the EU AI Act (Regulation (EU) 2024/1689), which applies a risk-based approach similar to that of the EU OSA to the development and distribution of AI products. However, unlike online safety laws, such additional laws are not common to all the jurisdictions examined. For instance, none of the other jurisdictions examined has yet introduced AI legislation (the closest to this is the Artificial Intelligence and Data Act proposed by Bill C-27 in Canada, which is still being discussed in parliament) (cf. White and Case, 2024). Moreover, while legislation and regulation are often focused only on certain technologies or sectors of industry, online threats operate in a continuum of activities, networks, and tools. This means that there can be gaps between legal frameworks addressing different issues. For instance, while the UK Automated Vehicles Act 2024 might help addressing some online threats, its main focus is on preventing accidents and injuries and setting a regime of liabilities for the operations of these vehicles. As a result, it is essential to assess whether and how online safety laws are able to address emerging threats that might not fall within the scope of related laws.

A first general observation concerns the timing of these laws. Online services and platforms have been available since decades. Google was introduced in 1998. Popular social media like Facebook were introduced in the early 2000s. Awareness of early online threats is as old as that (Brunton, 2013). Early domestic criminalisation of cybercrime dates back to the 1990s (the UK Computer Misuse Act was enacted in 1990) and the first international treaty on cybercrime – the Council of Europe's Convention on Cybercrime – was signed in 2001. Yet the first comprehensive online safety laws are just starting to emerge. The provisions of the EU DSA, the AU OSA, and the UK OSA came into force between 2023 and 2025. The CA OHB was first read in parliament in February 2024 and never passed into law. This confirms that the law is particularly slow to address the threats enabled by rapidly evolving technologies (Pease, 1997). It also confirms that the first legal response is usually to introduce new crimes and new punishments (Albrecht and Kilchling, 2002), while the development of legal and regulatory frameworks takes much longer. The problem with this delay is that there is a risk that by the time such frameworks are finally implemented, they are already outdated. To a variable degree, this is the problem of the online safety laws examined here.

These laws appear to have been conceived with a traditional notion of the Internet in mind. This is suggested, in particular, by the large focus on illegal or harmful "content" that is "present" or "accessible" or "searchable" on an online service. While these notions apply to traditional online environments such as Internet websites, social media webpages, online blogs, and fora, they fail to capture the more recent manifestations of online threats enabled by new technologies such as the metaverse or the IoT. Metaverse platforms fall within the definitions of online services or social media services provided by the online safety laws examined. However, the main way users interact in these

platforms is not by sharing content, but rather by engaging, often through avatars, in a range of activities that mirror physical interactions such as talking, walking, and exploring virtual spaces, shaking hands. These activities may include harmful ones such as impersonating, stalking, harassing, assaulting other users (Gómez-Quintero et al., 2024), none of which fits the definition of harmful or illegal content. Likewise, many interconnected devices such as commercial IoT appliances already in use in many households rely on online services as defined by online safety laws. And yet such laws fail to address the emerging cyber-physical threats enabled by such devices. One such threat is technology-facilitated violence and abuse – the use of digital and online technologies to facilitate controlling behaviours, stalking or monitoring, psychological and emotional abuse (including threats), sexual violence or harassment, bullying, or hate speech. These uses do not necessarily involve "online content" in the form of text, audio, or video materials, but rather complex harmful activities.

These shortcomings have been noted by lawmakers and policymakers. Following a report of the House of Representatives Select Committee on Social Media and Online Safety (2022), the Australian Government has recently acknowledged that some of these emerging threats are not explicitly addressed by the AU OSA. It has anticipated the review of the operations of the act of twelve months compared to the statutory timeline (Australian Government, 2024). A submission by the Australian Human Rights Commission (2024) recommended the development of regulatory frameworks to address technology-facilitated violence, and also to consider the threats enabled by neurotechnologies, which will be increasingly deployed in consumer settings and may also be integrated into online services such as games and social media.

In the UK, some of these issues emerged during the parliamentary debates about earlier versions of the Online Safety Bill. One of the criticisms was precisely that the focus on "content" would be insufficient to address harmful or illegal activities related to new online environments and devices. The word "activity" was eventually added to the introductory section of the Online Safety Act (s. 1), although the rest of the act still largely focuses on content and a definition of "activity" is missing. Nevertheless, as we noted before, the final wording of the provisions of the act that regulate providers' duties of care also refer – more or less explicitly and directly – to online activities related to illegal content or to the criminal misuse of online services. The same can be said about the EU OSA, which adopts a similar wording in defining illegal content in relation of activities that make it such. Given the importance that activities are likely to have in reshaping online threats and shaping new ones, it would be ideal for online safety acts to define and regulate harmful and illegal activities to the same extent as harmful and illegal content. However, the approach taken by the UK and the EU is preferable to more content-centred approaches like those reflected in the Australian and Canadian laws, as it still enables quite a broad range of activities to be covered by risk assessments and online safety measures by regulated services.

The design of the UK OSA also includes some very promising future-proofing mechanisms. Two main categories of mechanisms can be identified: (a) duties, powers or opportunities for the regulator (or the Secretary of State) to engage with external stakeholders and experts; (b) duties, powers or opportunities for the regulator (or the Secretary of State) to periodically review relevant regulatory frameworks. The former mechanisms facilitate the identification of emerging or future evolutions of online threats by drawing on the unique experience and specialised knowledge of stakeholders and experts (Pasculli, 2024). Examples of this from the UK OSA include Ofcom's duty to consult with persons who represent the interests of service providers and users (including children and victims of online harms), experts in equality issues and human rights, and persons with any relevant expertise when drafting codes of practice, guidance on transparency reports and guidance on duties concerning pornographic content (ss. 41(6), 78(2), 82(5)); the appointment of persons representing the interests of UK users or providers of regulated services, as well as experts in the prevention and handling of disinformation and misinformation online in the Advisory committee on disinformation and misinformation (s. 152(3)); and, the already mentioned Ofcom's duties to arrange research into UK users' opinions and experience of regulated services (s. 154). The latter mechanisms enable the detection of frameworks, provisions and measures that are or are likely to become outdated in light of emerging technologies and threats, or that are otherwise unable to address these effectively, as well as the identification of possible solutions, including legal and regulatory reform. Examples in the UK OSA include Ofcom's duty to carry out periodic reviews of the incidence on regulated services of content that is harmful to children (s. 63); Ofcom's duty to maintain an updated register of risk and risk profiles (s. 98); Ofcom's duty to include in their periodic reports (for instance, about age assurance, journalistic content, reporting and complaint procedures, use of app stores by children) an assessment of the impact or effectiveness of existing regulatory frameworks as well as recommendations on how to improve them (ss. 157, 158, 160, 161); the Secretary of State's duty to review the operations of the act (s. 178). Traditional post-legislative scrutiny mechanisms are not exactly future-proofing techniques strictly considered, as they usually take place only after the legislation came into force and has already produced its effects. However, the integration in the UK OSA of

multiple and recurring review points concerning different aspects of relevant regulatory frameworks effectively creates a system of ongoing reassessment and revision of the law. This is likely to enable the detection of outdated provisions much faster and more effectively than an isolated periodic and comprehensive post-legislative review. One limitation of the UK approach is that unlike in the EU DSA and the CA OHB, the review by the Secretary of State is not periodic. This entails some risks of obsolescence of the act and related regulatory frameworks, although these are somehow tempered by Ofcom's multiple review duties.

### 6.5.6. Unintended consequences and crime-proofing

It is well known that regulation can have unintended consequences (Grabosky, 1995), including criminogenic ones (Savona, 2006, 2017; Pasculli, 2017). Paradoxically, even regulation aimed at preventing or reducing crime (Morgan and Clarke, 2007), also by responsibilising relevant entities (Pasculli, 2021), can unintendedly enable or facilitate crime. Online safety laws are not exempt from such risks. In fact, some of the provisions of the online safety laws correspond to common indicators of legislative crime risks identified by previous research (Morgan and Clarke, 2007). Typically, the introduction of legal restrictions to commodities in high demand can create black markets. Likewise, the introduction of new law enforcement capabilities can displace crime to less controlled areas. The introduction of age restrictions and verifications systems for the access to certain content or platforms by online safety laws can inadvertently induce minors, as well as adult users that do not want to be identified, to look for less secure alternatives, also enabled by emerging technologies. These include, for instance, dangerous websites, the Dark Web, or problematic content created through deepfake technologies such as deepfake porn. Another typical indicator of legislative crime risk is the attribution of new discretionary powers to public officials and agencies (or their increase) which may enable abuse or misuse of such powers by the officials as well as bribery and other corrupt practices. There is also the risk, already observed in financial regulation, that the attribution of excessive discretion to regulators may weaken their enforcement powers, especially when resources are limited and there is a close contiguity with regulated entities (Pasculli, 2021). Online safety laws attribute considerable powers to regulators. Appropriate mitigations, such as a clear statutory definition of how regulators can and should exercise those powers as well as effective accountability mechanisms, are necessary to avert risks such as those described above. Once again, the UK OSA includes some good legislative practice in this respect, as it balances the attribution of broad powers to Ofcom with equally broad duties concerning their correct exercise as well as extensive reporting obligations that should minimise the risk of abuse or misuse.

The future-proofing techniques we mentioned in the previous subsection – engagement with experts and stakeholders, and periodic reviews of legal and regulatory frameworks – are also valid tools to proof online safety laws against any unintended and criminogenic consequences, as they enable the prompt detection of any crime risks and other side effects of the law in the same way as they do the detection of emerging crime threats. The mapping of such risks is a precondition for the development of adequate solutions, including (but not limited to) legal or regulatory reform and the development of anti-abuse frameworks. An example of such anti-abuse frameworks is provided by the measures established by the EU DSA against the risk that "trusted flaggers" abuse their role. As this role is remunerated there are risks of exploitation and conflicts of interests. Anti-abuse measures include requirements for trusted flaggers to demonstrate not only expertise and competence to be appointed, but also independence and the ability to submit notices diligently, accurately, and objectively, as well as the power for Digital Services Coordinators to investigate, suspend and revoke trusted flaggers who submitted a significant number of insufficiently precise, inaccurate or inadequately substantiated notices (Art. 22(6–7)).

### 6.5.7. User empowerment

Responsibilisation strategies do not only seek to delegate safety duties to companies and organisations, but also to encourage individuals to protect themselves against the risk of victimisation (Garland, 1996). This is a very important, but also delicate task, as it can easily backfire. In particular, if the attribution to potential victims of responsibilities to adopt adequate protective measures is not supported by the attribution of the rights, powers, and instruments required to do so effectively, then not only do victims remain vulnerable, but they could be blamed for their victimisation. For instance, "buyer beware" approaches that require consumers to read and understand complex contracts related to financial services and products or the functioning of such services and products need to be counterbalanced. This may be done by giving consumers easy and affordable access to legal services as well as providing them with equally accessible opportunities to gain the necessary financial literacy (Pasculli, 2021). Likewise, informing potential victims of crime threats or risks without providing them with access to technological or legal resources (including reporting and complaint systems, access to courts) might prevent them from using the relevant information to protect themselves effectively. This is an aspect of online safety laws that could be further improved.

Most examined laws require regulators or regulated services to adopt awareness-raising and education, and require the latter to adopt information initiatives and to include clear and accessible information on online safety and related measures in their terms of service. Only the EU and the UK include statutory obligations for regulated entities to adopt technological features to allow users to increase their control over illegal, harmful, or unwanted online content. On the other hand, most online safety laws introduce mechanisms for users to report relevant issues and lodge complaints either internally to the providers of regulated services, or externally (to the regulator) or both. However, these vary considerably from jurisdiction to jurisdiction. The EU DSA offers an interesting approach, as it allows not only internal mechanisms for any person or entities to report illegal content (Art. 16) and lodge complaints with service providers (Art. 20), but also mechanisms for users to lodge complaints with the Digital Services Coordinators about any infringement of the DSA (Art. 53). This includes, among others, failures to act upon an internal reports or complaints and failures to adopt the necessary safety measures. This is a significant legal instrument for users, as it enables them to have their case considered and decided by an external and impartial public agency and to report failures to comply with the online safety legal framework. This is something unique, as in the UK there is no mechanism for individual users to lodge complaints to Ofcom. The external complaint systems established in Australia and Canada only concern the presence of certain illegal or harmful content on online services, and not the broader compliance of regulated entities with their statutory or regulatory requirements.

Another interesting user empowerment mechanism is the ombudsperson proposed by the CA OHB to support users of regulated services and advocate for the public interest in relation to online safety (clauses 29–38). This seems an important instrument for users to be able to easily individuate and access the knowledge and instruments (both legal and technological) they need to be able to protect themselves from online threats. It can also prompt adequate responses and actions from providers of online services, regulators, and other relevant persons and agencies.

Finally, some interesting suggestions come from UK OSA. First, the UK OSA is the only online safety law among those examined that explicitly mentions "user empowerment" and gives it prominence by establishing explicit user empowerment duties for regulated entities in a set of dedicated sections (ss. 14–16). It also requires Ofcom to produce specific guidance to support regulated entities in complying with such duties (ss. 52–53). A highly innovative practice in this respect is the introduction of statutory "user empowerment assessments", albeit only for larger providers of online services (s. 14), which requires such providers to proactively and continuously reflect on their users' safety needs and develop appropriate countermeasures. Such an extensive formal and substantive legislative acknowledgement of the importance of user empowerment as a precondition for online safety is crucial. It not only ensures that individuals are provided with the instruments needed to address online threats, but also promotes a cultural shift around this issues that can drive the development of good practices beyond the minimum requirements of the law.

# 6.6. CONCLUSION

**The comparative thematic analysis of the online safety legislation of Australia, Canada, the EU and the UK shows that these acts share a similar architecture derived from increasingly widespread regulatory models to delegate crime control responsibilities to individuals and private organisations (so-called responsibilisation). Common structural elements, reflected in the main themes we identified, include: (1) a statutory definition of the subjective and objective scope of application (who and to what do the laws apply to?); (2) the statutory or regulatory definition of duties and expectations of online service providers; (3) the appointment of existing or new agencies as specialised regulators with the function to promote online safety and related duties and powers; (4) the statutory attribution of enforcement functions and powers to online safety regulators, while traditional law enforcement and courts intervene only as a last resort (so-called enforcement pyramid); (5) the introduction of new criminal offences to criminalise either harmful online activities or the failure of regulated entities to comply with online safety requirements or regulators' powers; (6) the statutory or regulatory requirement for regulated entities or regulator to adopt appropriate use empowerment measures. In addition, all the laws examined largely rely on situational prevention to promote and protect online safety.**

However, beyond some shared structural elements, different jurisdictions adopt rather different approaches. The UK and EU legislation seeks to regulate a broader range of online services and illegal content and activities. The focus on activities is particularly important as it allows non-content-based threats that are likely to be enabled by emerging and future online technologies to be addressed, such as metaverse-facilitated stalking, or IoT-facilitated abuse and violence. Moreover, despite delegating considerable rulemaking powers to the respective regulators, both acts are quite prescriptive about the duties of regulated entities as well as the way in which regulators' powers need to be exercised. On the other hand, Australian and Canadian legislation apply only to social media services and to selected types of illegal or harmful content. Moreover, these laws leave the specification of the regulated entities' duties to regulation and give a much broader discretion for regulators to exercise their powers.

Among all the jurisdictions considered, the UK shows a quite strong and innovative approach characterised by some promising features, including (a) detailed statutory online safety duties (duties of care) for providers of online services, including detailed risk assessment and management duties; (b) extensive duties for the regulator to develop social measures to promote online safety other than situational ones, including a detailed media literacy strategy, research on users' perceptions and experiences, and initiatives to promote the development of new technologies; (c) detailed statutory definition of the regulator's duties and powers, supported by extensive reporting obligations for the regulator, which enhance regulatory transparency and accountability; (d) statutory requirements for the regulator to engage with relevant stakeholders and experts which, combined with an extensive system of periodic reviews of relevant legislative and regulatory frameworks, facilitates the prompt detection of emerging online threats as well as unintended consequences (including criminogenic ones) of these frameworks and the development of appropriate countermeasures; (e) an explicit recognition of the importance of user empowerment through dedicated statutory duties.

Good practices can also be identified in other jurisdictions. In particular, the EU DSA stands out for a strong system of user complaints to the regulator, other than to online service providers, which afford users an extra layer of protection, as well as for anti-abuse mechanisms for trusted flaggers. The CA OHB, on the other hand, is particularly interesting for the proposal of an ombudsperson to support users and promote their online safety. The strength of the Australian act is to provide an extensive system of complaints to the regulator, although limited in scope. However, the AU OSA also suffers from major limitations, notably its reliance on voluntary ministerial regulation and industry regulation enforceable by the eSafety regulator. This means that legislation mostly refrains from setting any statutory duties for regulated entities, except for duties to comply with the regulator's powers, and the regulation of online safety measures and conduct of online services is either set by ministerial rules that are voluntary or delegated to industry.

These findings reveal significant implications for European jurisdictions covered by this benchmarking study (the 27 EU Member States, UK, Norway, Iceland, Switzerland). The UK and the EU share a quite similar approach, which appears to be more suited than the Australian and Canadian laws to address a broader set of emerging online threats enabled by new technologies. The overall similarities between the EU and the UK online safety frameworks suggest a certain degree of harmonisation or mutual influence between the respective laws despite the UK being no longer a Member State.

This harmonisation and influence, also observed in other regulatory areas such as data protection, is likely determined by historical and ongoing collaborative relationships, and contiguous political and economic interests, objectives, and values. In practice, this means that the UK and the EU are likely to look at (and hopefully dialogue with) each other to keep improving their respective online safety laws, also by taking stock of good practices and lessons learned in the other jurisdictions. These considerations can also apply to other non-EU jurisdictions such as Norway, Iceland, and Switzerland, suggesting that the UK-EU approach might broadly expand across all European jurisdictions. Moreover, it is important to explicitly clarify that while the EU DSA obliges Member States to adopt a minimum online safety framework, Member States are still free to spontaneously adopt more pervasive online safety laws to complement the requirements of the DSA. Some of the limitations of the EU DSA highlighted in the previous analysis can therefore be overcome at a national level through domestic legislation and regulation. A continuous dialogue and collaboration between EU Member States and non-Member States is fundamental to ensuring that the online safety laws in European jurisdictions are well harmonised and constantly updated and improved, based on the evidence and experience reported by each jurisdiction. All this, of course, is not meant to exclude or diminish in any way the importance of collaboration and dialogue beyond Europe. The fundamental premise of this study is that jurisdictions from anywhere in the world need to learn from each other. However, knowledge exchanges, collaborative projects, and comparative efforts are usually easier between states that are geographically, culturally, and socio-economically closer. Like this benchmarking study, the results of collaboration and dialogue between European jurisdictions can be the starting point to initiate a broader discussion around the world. A shared European approach to online safety could therefore inform the online safety laws of non-European jurisdictions (as well as the regulation of other relevant areas of technology such as AI or robotics in any jurisdiction).

The findings of this study can lay the groundwork for future research investigating specific aspects of these laws, such as legislative and regulatory practices deemed to be especially promising or problematic. Empirical and socio-legal research would be particularly welcome to develop an evidence base to assess the practical and societal implications of these laws. In the meantime, the findings of this study can be immediately helpful to inform policymaking and lawmaking. In particular, the overarching shared architecture of online safety laws we identified, as well as the analysis of its individual components, can inform the drafting of online safety laws in jurisdictions that still do not have any (this includes Canada, given that the bill we examined has not been passed into law). Moreover, the comparative analysis of differences, similarities, strengths and weaknesses we conducted here can help lawmakers in both the examined jurisdictions as well as in jurisdictions that do have some online safety law, to identify areas for improvement and law reform.

# 6.7. REFERENCES

## Legislation and case law

### Australia

Online Safety Act 2021 (Cth)
Online Safety (Basic Online Safety Expectations) Determination 2022
eSafety Commissioner v X Corp (2024) FCA 499

### Canada

Bill C-63. An act to enact the Online Harms Act, to amend the Criminal Code, the Canadian Human Rights Act and an act respecting the mandatory reporting of Internet child pornography by persons who provide an Internet service and to make consequential and related amendments to other acts (Online Harms Bill).
Bill C-27. An act to enact the Consumer Privacy Protection Act, the Personal Information and Data Protection Tribunal Act and the Artificial Intelligence and Data Act and to make consequential and related amendments to other acts (Artificial Intelligence and Data Act).

### EU

Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market for Digital Services and amending Directive 2000/31/EC (Digital Services Act). OJ L277, 27/10/2022, pp. 1–102.
Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act). OJ L, 2024/1689, 12/7/2024, ELI: http://data.europa.eu/eli/reg/2024/1689/oj

### UK

Automated Vehicles Act 2024
Communications Act 2003
Online Safety Act 2023
R. v Brimecombe (Daniel) (2024) EWCA Crim 1671
Wikimedia Foundation v Secretary of State for Science, Innovation and Technology (2025) EWHC 2086 (Admin)

## Literature

Ahmed, S. K., Mohammed, R. A., Nashwan, A. J., Ibrahim, R. H., Abdalla, A. Q., Ameen, B. M. M., & Khdhir, R. M. (2025). Using thematic analysis in qualitative research. *Journal of Medicine, Surgery, and Public Health, 6*:100198. DOI:10.1016/j.glmedi.2025.100198

Albrecht, H-J. & Kilchling, M. (2002). Crime risk assessment, legislation, and the prevention of serious crime: Comparative perspectives. European Journal of Crime Criminal Law & Criminal Justice, vol. 10, 23-38.

Australian Government, Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts: Australian Classification. (n.d.). *What are the ratings?* https://www.classification.gov.au/classification-ratings/what-are-ratings

Australian Government. (2024). *Statutory Review of the Online Safety Act 2021: Issues paper.* https://www.infrastructure.gov.au/sites/default/files/documents/online-safety-act-2021-review-issues-paper-26-april-2024.pdf

Australian Human Rights Commission. (2024). *Review of the Online Safety Act 2021*. https://humanrights.gov.au/sites/default/files/online_safety_act_2021_cth_submission_ahrc_0.pdf

Ayres, I. & Braithwaite, J. (1992). *Responsive Regulation: Transcending the Deregulation Debate*. Oxford: Oxford University Press.

Baldwin, R., Cave, M., & Lodge, M. (2013). *Understanding Regulation: Theory, Strategy and Practice.* Oxford: Oxford University Press.

Black, J. (2008). Forms and paradoxes of principles-based regulation. *Capital Markets Law Journal, 3*(4), 425–457. DOI:10.2139/ssrn.1267722

Black, J., Hopper, M., & Band, C. (2007). Making a success of principles-based regulation. *Law and Financial Markets Review, 1*(3), 191–206. DOI:10.1080/17521440.2007.11427879

Blythe, J. M. & Johnson, S. D. (2021). A systematic review of crime facilitated by the consumer Internet of Things. *Security Journal, 34*(5), 97–125. DOI:10.1057/s41284-019-00211-8

Bowers, K. J., & Johnson, S. D. J. (2016). Situational Prevention. In: Weisburd, D., Farrington, D. P., & Charlotte Gill, C. (eds.). *What Works in Crime Prevention and Rehabilitation: Lessons from Systematic Reviews.* New York: Springer.

Braithwaite J. (2002), *Restorative Justice & Responsive Regulation*, Oxford University Press (Restorative Justice & Responsive Regulation (Studies in Crime and Public Policy))

Braun, V., & Clarke, V. (2012). Thematic Analysis. Washington, DC: American Psychological Association.

Brown, A., Johnson, S. D., & Tuptuk, N. (2025). A scoping study: crime and connected and autonomous vehicles. *Crime Science 14*(1). DOI: 10.1186/s40163-025-00245-x

Brunton, F. (2013). Spam: A Shadow History of the Internet. Cambridge (MA), London, UK: MIT Press.

Caldwell, M., Andrews, J. T. A., Tanay, T., & Griffin, L. D. (2020). AI-enabled future crime. *Crime Science, 9*(14). DOI: 10.1186/s40163-020-00123-8

Calleja, G. (2011). *In-Game: From Immersion to Incorporation.* Cambridge, MA: MIT Press.

Cross, C. (2022). Using artificial intelligence (AI) and deepfakes to deceive victims: the need to rethink current romance fraud prevention messaging. *Crime Prevention and Community Safety, 24*(1), 1–12. DOI:10.1057/s41300-021-00134-w

Crown Prosecution Service (n.d.). *Cyber / online crime.* https://www.cps.gov.uk/crime-info/cyber-online-crime

Crown Prosecution Service. (2018). *Cybercrime – prosecution guidance.* https://www.cps.gov.uk/legal-guidance/cybercrime-prosecution-guidance

Dainow, J. (1966–1967). The Civil Law and the Common Law: Some Points of Comparison. *American Journal of Comparative Law, 15*(3), 419–435. DOI:10.2307/838275

Darbyshire, P. (2007). *Darbyshire on the English Legal System* (17th ed.). London: Sweet & Maxwell.

Dixon, T. (2021). The grey zone of cyber-biological security. *International Affairs, 97*(3), 685–702. DOI:10.1093/ia/iiab041

Dobinson, I., & Johns, F. (2017). Legal Research as Qualitative Research. In: McConville, M. & Chui W. H. (eds.). *Research Methods for Law.* Edinburgh: Edinburgh University Press.

Elgabry, M., & Johnson, S. D. (2024). Cyber-biological convergence: a systematic review and future outlook. *Frontiers in Bioengineering and Biotechnology, 12*, 1456354. DOI: 10.3389/fbioe.2024.1456354

Elgabry, M., Nesbeth, D., & Johnson, S. D. (2020). A systematic review of the criminogenic potential of synthetic biology and routes to future crime prevention. *Frontiers in Bioengineering and Biotechnology, 8*:571672. DOI:10.3389/fbioe.2020.571672

Elgabry, M., Nesbeth, D., & Johnson, S. D. (2022). The future of biotechnology crime: a parallel Delphi study with non-traditional experts. *Futures, 141*:102970. DOI:10.1016/j.futures.2022.102970

eSafety Commissioner. (2024). *Compliance and enforcement policy.* Australian Government. https://www.esafety.gov.au/sites/default/files/2024-10/Compliance-and-Enforcement-Policy-Oct2024.pdf

eSafety Commissioner. (2025). *Basic online safety expectations.* https://www.esafety.gov.au/industry/basic-online-safety-expectations

European Commission. (2024). *Cybercrime.* https://home-affairs.ec.europa.eu/policies/internal-security/cybercrime_en

European Commission. (2025). *Supervision of the designated very large online platforms and search engines under DSA.* https://digital-strategy.ec.europa.eu/en/policies/list-designated-vlops-and-vloses

European Union. (2019). *Europeans' attitudes towards internet security.* https://europa.eu/eurobarometer/surveys/detail/2207

Eurostat. (2025). *Police-recorded offences by offence category.* https://ec.europa.eu/eurostat/databrowser/view/crim_off_cat__custom_17145747/default/table?lang=en

Garland, D. (1996). The limits of the sovereign state: Strategies of crime control in contemporary society. *The British Journal of Criminology, 36*(4), 445–471. DOI: 10.1093/oxfordjournals.bjc.a014105

Garland, D. (1997). 'Governmentality' and the problem of crime: Foucault, criminology, sociology. *Theoretical Criminology, 1*(2), 173–214. DOI:10.1177/1362480697001002002

Garland, D. (2001). *The Culture of Control: Crime and Social Order in Contemporary Society.* Chicago: University of Chicago Press.

Glenn, H. P. (2014). *Legal traditions of the world: sustainable diversity in law* (5th ed.). Oxford: Oxford University Press.

Gómez-Quintero, J., Johnson, S. D., Borrion, H., & Lundrigan, S. (2024). A scoping study of crime facilitated by the metaverse. *Futures, 157*,103338. DOI: 10.1016/j.futures.2024.103338

Government of Canada. (2021). *Where our legal system comes from.* https://www.justice.gc.ca/eng/csj-sjc/just/03.html

Government of Canada. (2024). Bill C-63: *An Act to enact the Online Harms Act, to amend the Criminal Code, the Canadian Human Rights Act and an Act respecting the mandatory reporting of Internet child pornography by persons who provide an Internet service and to make consequential and related amendments to other Acts. Explanatory note.* https://www.justice.gc.ca/eng/csj-sjc/pl/charter-charte/c63.html

Government of Canada. (2025). *Proposed Bill to address online harms.* https://www.canada.ca/en/canadian-heritage/services/online-harms.html

Grabosky, P. N. (1992). Law enforcement and the citizen: non-governmental participants in crime prevention and control. *Policing and Society, 2*(4), 249–271. DOI: 10.1080/10439463.1992.9964647

Grabosky, P. N. (1994). Beyond the regulatory state. *Australian and New Zealand Journal of Criminology, 27*(2), 192–197. DOI: 10.1177/000486589402700

Grabosky, P. N. (1995). Counterproductive regulation. *International Journal of the Sociology of Law, 23*(4), 347–369. DOI: 10.1016/S0194-6595(05)80003-6

Hansard HL Deb. (25 May 2023). vol. 830. https://hansard.parliament.uk/lords/2023-05-25/

Hodges, C. (2015). *Law and Corporate Behaviour: Integrating Theories of Regulation, Enforcement, Compliance and Ethics.* Oxford: Hart. DOI:10.5040/9781474201124

House of Representatives Select Committee on Social Media and Online Safety (2022). *Social media and online safety.* https://www.aph.gov.au/Parliamentary_Business/Committees/House/Former_Committees/Social_Media_and_Online_Safety/SocialMediaandSafety/Report

Hyslip, T. S. (2020). Cybercrime-as-a-Service Operations. In: Holt, T. J., & Bossler, A. M. (eds.). *The Palgrave Handbook of International Cybercrime and Cyberdeviance.* Cham: Springer. DOI: 10.1007/978-3-319-78440-3_36

Jian, S., Chen, X., & Yan, J. (2022). From Online Games to 'Metaverse': The Expanding Impact of Virtual Reality in Daily Life. In: Rauterberg, M. (ed.). *Culture and Computing.* Cham: Springer.

Johnson, S. D. (2024). Identifying and preventing future forms of crimes using situational crime prevention. *Security Journal, 37*, 515–534. DOI: 10.1057/s41284-024-00441-5

Johnson, S. D., & Nikolovska, M. (2022). The effect of COVID-19 restrictions on routine activities and online crime. *Journal of Quantitative Criminology, 40*, 131–150. DOI: 10.1007/s10940-022-09564-7

Johnson, S. D., Ekblom, P., Laycock, G., Frith, M., Sombatruang, N., & Rosas-Valdez, E. (2018). *Future Crime.* In Routledge Handbook of Crime Science.

Lau, M. (2025). *Canada's online harms bill is dead (again): Three questions to consider for the next round.* TechPolicy Press. https://www.techpolicy.press/canadas-online-harms-bill-is-dead-again-three-questions-to-consider-for-the-next-round/

legislation.gov.uk. (2025). *Online Safety Act 2023.* Explanatory notes. https://www.legislation.gov.uk/ukpga/2023/50/notes/division/1/index.htm

Maple, C. (2017). Security and privacy in the Internet of Things. *Journal of Cyber Policy, 2*(2), 155–184. DOI: 10.1080/23738871.2017.1366536

Mella, J., Iacovides, I., & Cox, A. L. (2023). Gaming for Post-Work Recovery: The Role of Immersion. In: *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems, CHI '23.* New York: Association for Computing Machinery. DOI:10.1145/3544548.3581510

Milmo, D. (2024). UK engineering firm Arup falls victim to £20m deepfake scam. *The Guardian* (online). https://www.theguardian.com/technology/article/2024/may/17/uk-engineering-arup-deepfake-scam-hong-kong-ai-video

Morgan, R., & Clarke, R. V. (2007). Legislation and unintended consequences for crime. *European Journal on Criminal Policy and Research, 12*(3), 189–211. DOI:10.1007/s10610-006-9026-z

Murphy, C. (2024). Briefing: *Understanding cybercrime.* Brussels: European Parliamentary Research Service.

Newman, G. R., & Clarke, R. V. (2003). Situational Crime Prevention in the Information Society. In: Newman, G. R., & Clarke, R. V. (eds.). Superhighway Robbery. London: Willan.

O'Malley, P. (1992). Risk, power and crime prevention. *Economy and Society, 21*(3), 252–275. DOI: 10.1080/03085149200000013

O'Malley, P. (2010). *Crime and Risk.* London: Sage.

Ofcom. (2024). *Online safety enforcement guidance.* https://www.ofcom.org.uk/siteassets/resources/documents/online-safety/information-for-industry/illegal-harms/online-safety-enforcement-guidance.pdf

Oruma, S. O., Sánchez-Gordón, M., Colomo-Palacios, R., Gkioulos, V., & Hansen, J. K. (2022). *A Systematic Review on Social Robots in Public Spaces: Threat Landscape and Attack Surface.* Computers, 11(12), 181. https://doi.org/10.3390/computers11120181

Pagliari, S. (2012). How Can We Mitigate Capture in Financial Regulation? In: Pagliari, S. (ed.). *Making Good Financial Regulation: Towards a Policy Response to Regulatory Capture.* Guildford: Grosvenor House Publishing.

Pasculli, L. (2017). Corruptio Legis: Law as a Cause of Systemic Corruption: Comparative Perspectives and Remedies Also for the Post-Brexit Commonwealth. In: *Proceedings of 6th Annual International Conference on Law, Regulations and Public Policy (LRPP 2017), Singapore, 5–6 June 2017.* Singapore: GSTF.
Pasculli, L. (2020). The global causes of cybercrime and state responsibilities. Towards an integrated interdisciplinary theory. *Journal of Ethics and Legal Technologies, 2*(1), 48–74. DOI: 10.14658/pupj-JELT-2020-1-3

Pasculli, L. (2021). The responsibilization paradox: The legal route from deresponsibilization to systemic corruption in the Australian financial sector. *Policing, 15*(4), 2114–2132. DOI: 10.1093/police/paab068

Pasculli, L. (2022). Social Safety. In: European Institute of Public Administration (EIPA) (ed.) *Public Sector Performance Programme 2022–2025: An International Benchmarking Study. Sub-Study 2022.* Maastricht: EIPA.

Pasculli, L. (2024). Het recht toekomstbestendig maken. Een onderzoeksmanifest. (Future-proofing the law. A research manifesto.) *Justitiële verkenningen*, vol. 4, 101–106.

Pease, K. (1997). Crime Reduction. In: Maguire, M., Morgan, R., & Reiner, R. (eds.). *The Oxford Handbook of Criminology* (2nd ed). Oxford: Clarendon Press.

Pauwels, E. (2020). *What's needed to prevent cyberbiosecurity threats and protect vulnerable countries.* World Economic Forum. https://www.weforum.org/stories/2020/06/prevent-cyber-bio-security-threats-covid19-governance/

Robertson, D. J., Kramer, R. S. S., & Burton, A. M. (2017). Fraudulent ID using face morphs: Experiments on human and automatic recognition. *PLoS ONE, 12*(3), e0173319–12. DOI:10.1371/journal.pone.0173319

Savona, E. U. (2006). Double thematic issue on proofing EU legislation against crime. *European Journal on Criminal Policy and Research, 12*(3), 177–397. DOI:10.1007/s10610-007-9033-8

Savona, E. U. (2017). Proofing Legislation against Crime as Situational Measure. In: Leclerc, B., & Savona, E. U. (eds.). *Crime Prevention in the 21st Century. Insightful Approaches for Crime Prevention Initiatives.* Cham: Springer. DOI:10.1007/978-3-319-27793-6_16

Smith, M., Nolan, M., & Gaffey, J. (2024). Online safety and social media regulation in Australia: eSafety Commissioner v X Corp. *Griffith Law Review, 33*(1), 2–18. DOI: 10.1080/10383441.2024.2405760

The Parliament of the Commonwealth of Australia. (2021a). Online Safety Bill 2021. Explanatory Memorandum. https://classic.austlii.edu.au/au/legis/cth/bill_em/osb2021164/memo_0.html

The Parliament of the Commonwealth of Australia. (2021b). Online Safety Bill 2021. Addendum to the Explanatory Memorandum.

The Parliament of the Commonwealth of Australia. (2021c). Online Safety Bill 2021. Supplementary Explanatory Memorandum.

UNODC (2025). *Corruption and economic crime.* https://dataunodc.un.org/dp-crime-corruption-offences

Voce, I., & Morgan, A. (2024). *Cybercrime in Australia 2024.* Canberra: Australian Institute of Criminology. DOI: 10.52922/sr77918

Vozza, D. (2022). Exploring Voluntary and Mandatory Compliance Programmes in the Field of Anti-Corruption. In: Manacorda, S., Centonze, F. (eds.). *Corporate Compliance on a Global Scale.* Cham: Springer.

Weisburd, D., Farrington, D. P., & Gill, C. (2017). What works in crime prevention and rehabilitation: an assessment of systematic reviews. *Criminology and Public Policy, 16*(2), 415–449. DOI:10.1111/1745-9133.12298

White & Case. (2024). *AI Watch: Global regulatory tracker.*
https://www.whitecase.com/insight-our-thinking/ai-watch-global-regulatory-tracker

Zavoli, I., & King, C. (2021). The challenges of implementing anti-money laundering regulation: an empirical analysis. *Modern Law Review, 84*(4), 740–771. DOI: 10.1111/1468-2230.12628.

Zheng, S., & Pasculli, L. (2025). (Social robots and Anti-Social Behaviour: A Study of Future Crime Risks Enabled by Social Robots | Faculty of Engineering)

# 7. SOCIAL SECURITY, EMPLOYMENT, INCOME AND WEALTH

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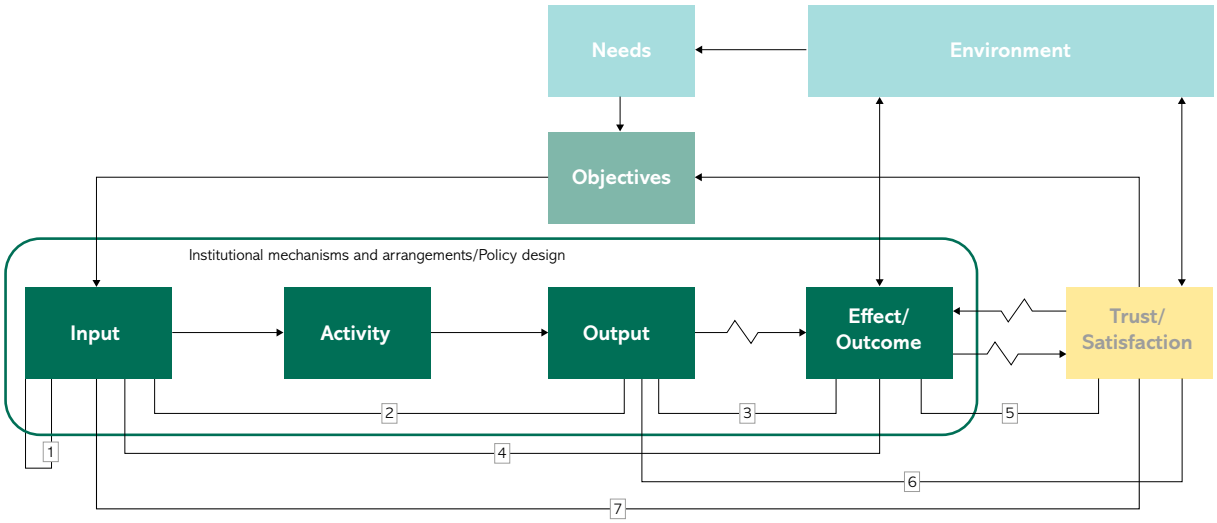
# 7.1. INTRODUCTION

**This chapter is an update of the previous study published in 2023[1]. It presents the latest available values of the indicators used in that study (Tables 1-28) and analyses the policies used by the most successful countries. Thus, the more extensive explanations and analysis given in the previous study will not be repeated, but the focus will be on the changes that happened in the different areas after 2020-21 (the last years for which data were available at the time). The new data will cover the deep economic and social crisis in the wake of the pandemic and the lockdowns. The subsequent new shock of the war in Ukraine and the sanctions it triggered cannot be covered completely, as data availability is limited after 2023.**

To roughly summarise the approach for the readers who are not familiar with the previous, 2023 study, an overview is presented. Again, the framework that has been used by the first study will be used (NISR/SCP; Putman et al. 2015).




This implies that the starting point is inputs (government policies) followed by the output, outcome and the trust/ satisfaction of the population. Following this structure, the specific inputs, outputs and outcomes relevant in the four areas of social security, employment, income and wealth are considered. These four areas are clustered into two, the first dealing with employment, income and wealth, the second with social security itself.
On the next page is an overview of the concepts and possible indicators.

[1] https://www.eipa.eu/wp-content/uploads/2024/02/M-20230327-EIPA-Benchmarking-Study-2023-Master_v4.pdf

| Economic policy | Direct provision |
|---|---|
| **Inputs** | |
| Fiscal and monetary policy | Social spending |
| Tax policy | Social policies |
| Labour market policy | |
| **Indicators** | |
| Government deficit (% of GDP) | Social spending (% of GDP), to finance income replacement in periods of: |
| Interest rate | • old age |
| Top income tax rate | • unemployment |
| VAT as % of total tax | • poverty |
| Minimum wage | • disability |
| Employment protection legislation (ELP) Score (OECD) | • sickness |
| | Other benefits (for children or housing) |
| **Outputs** | |
| Economic growth and its distribution | Social transfers received |
| **Indicators** | |
| Growth rate of GDP, which can be separated in: | Income replacement (in % of average or previous income) in periods of: |
| • Growth rate of productivity (GDP/h) | • old age |
| • Growth rate of hours worked | • unemployment |
| Market income distribution (Gini) | • poverty |
| Disposable income distribution (Gini) | • disability |
| Redistribution (Gini market income – Gini disposable income) | • sickness |
| Wage share | • Other transfers (child benefit, housing benefit) (in % of average income) |
| Wealth distribution | |
| **Outcomes** | |
| Employment | Protection against social risks such as poverty, old age, sickness, unemployment, disability |
| Income and wealth, and their distribution | |
| **Indicators** | |
| Unemployment rate (indicating job security) | Poverty rate |
| Employment rate | Percent of population receiving transfers |
| **Trust/Satisfaction** | |
| Trust in government, happiness, life expectancy | |
| **Indicators** | |
| Trust (level and change) | |
| Satisfaction with life/happiness (level and change) | |
| Life expectancy (level and change) | |

*GDP = gross domestic product

The 28 indicators mentioned above are presented twice in this chapter. Within the text, there are condensed tables covering selected years visualising (using colours, bars and arrows) rankings among countries. The country averages given in one of the two last columns refer to all years (mostly 2007-2022) and not to the selected years shown in the condensed tables. Where applicable[2] the complete tables with the full dataset for all available years can be found in the annex, allowing readers to look more closely at the development in specific countries. Data sources include, among others, World Development Indicators (WDI) – from the World Bank), the International Monetary Fund, the International Labour Organisation, and most importantly, the OECD and Eurostat. Unfortunately, OECD data do not cover five EU Member States (Bulgaria, Croatia, Cyprus, Malta and Romania) while Eurostat usually does not include data for countries that are not members of the EU.

In the third section, the policies of the most successful countries in the sample of 35 will be analysed. As the indicator for success, the unemployment rate in the area of employment, income and wealth, and the poverty rate in the area of social security, is used. Success means either continuous low levels of unemployment and poverty, or strong improvements (a decline in the respective rates). Having identified the most promising countries, possible causes of their success will be explored, focusing on public sector policies and institutions while keeping in mind other relevant factors such as external developments or structural changes in the economy and society not caused by public policies.

[2] In some cases, all available data are already presented in the text. These tables are not included in the annex.

# 7.2. EMPLOYMENT, INCOME AND WEALTH

**This chapter tries to evaluate the impact of government policies on the crucial economic features – employment, income and wealth – which largely determine the welfare of the population.**

### 7.2.1. Inputs: fiscal, monetary, tax and labour market policies

The most important policies to influence employment and growth are the budget deficit and the interest rate. As Tables 1 and 2 show, governments and central banks of most countries reacted to the financial crisis in 2008-09 with expansionary fiscal and monetary policies. After 2011, possibly driven by concerns about rising debt, many governments reduced their deficits, lowering the average borrowing requirement to 0.1% in 2018. The pandemic forced many governments to increase deficit spending as revenues declined, and affected industries such as tourism and travel needed support (Dauderstädt, 2021). Average deficits increased from just 0.1% of GDP in 2018, which indicates an almost balanced budget, to −6.7% in 2020. It is hardly surprising that typical tourist destinations such as Spain, Greece and Italy have run high deficits but more surprising are the high values for the UK and the USA.

The deficit decreased in the following two years but in 2023, the economic repercussions of the war in Ukraine led again to higher deficits as governments spent more on defence, and support for households and enterprises were hit by higher energy prices.

*Table 1: General government net lending or borrowing (percentage of GDP)*

| Region | Country | 2007 | 2010 | 2018 | 2020 | 2021 | 2022 | 2023 | Change 2007 - 2023 | Average 2007 - 2023 |
|---|---|---|---|---|---|---|---|---|---|---|
| Western Europe | Austria | -1,4 | -4,4 | 0,2 | -8 | -5,8 | -3,3 | -2,6 | -8,2 | -2,9 |
| Western Europe | Belgium | 0,1 | -4,1 | -0,9 | -9 | -5,4 | -3,6 | -4,4 | -8,1 | -3,5 |
| Western Europe | France | -3 | -7,2 | -2,3 | -8,9 | -6,6 | -4,7 | -5,5 | -6,6 | -4,9 |
| Western Europe | Germany | 0,2 | -4,4 | 1,9 | -4,4 | -3,2 | -2,1 | -2,6 | -6,3 | -1,1 |
| Western Europe | Ireland | 0,3 | -32,1 | 0,1 | -4,9 | -1,5 | 1,6 | 1,5 | -5 | -5,3 |
| Western Europe | Luxembourg | 4,4 | -0,3 | 3 | -3,4 | 0,5 | -0,4 | -1,3 | -6,4 | 0,6 |
| Western Europe | Netherlands | -0,3 | -5,3 | 1,5 | -3,6 | -2,2 | -0,1 | -0,4 | -5,1 | -1,8 |
| Western Europe | Switzerland | 1,6 | 0,4 | 1,3 | -3 | -0,3 | 1,2 | 0,2 | -4,3 | 0,2 |
| Western Europe | United Kingdom | -2,7 | -9,3 | -2,3 | -13,1 | -7,9 | -4,7 | -6 | -10,9 | -6,1 |
| Northern Europe | Denmark | 5,3 | -2,5 | 0,8 | 0,4 | 4,1 | 3,4 | 3,3 | -0,4 | 0,7 |
| Northern Europe | Finland | 5,1 | -2,5 | -0,9 | -5,6 | -2,9 | -0,5 | -2,7 | -4,7 | -1,5 |
| Northern Europe | Iceland | 5,6 | -6,7 | 1 | -8,9 | -8,5 | -4 | -2 | -9,9 | -2,8 |
| Northern Europe | Norway | 17 | 10,9 | 7,8 | -2,6 | 10,3 | 25,4 | 16,4 | -10,4 | 9,6 |
| Northern Europe | Sweden | 3,3 | -0,1 | 0,8 | -2,8 | 0 | 1,1 | -0,6 | -3,6 | -0,1 |
| Southern Europe | Cyprus | 3,2 | -4,7 | -3,6 | -5,7 | -1,8 | 2,7 | 3,1 | -2,1 | -1,7 |
| Southern Europe | Greece | -6,7 | -11,4 | 0,8 | -10,6 | -7,5 | -2,5 | -0,9 | -11,3 | -5,7 |
| Southern Europe | Italy | -1,3 | -4,2 | -2,2 | -9,4 | -8,9 | -8,1 | -7,2 | -7,1 | -4,3 |
| Southern Europe | Malta | -2,1 | -2,2 | 1,9 | -8,7 | -7 | -5,3 | -4,6 | -10,6 | -2,8 |
| Southern Europe | Portugal | -2,9 | -11,4 | -0,3 | -5,8 | -2,9 | -0,3 | 1,2 | -5,5 | -4,3 |
| Southern Europe | Spain | 1,9 | -9,5 | -2,6 | -10 | -6,7 | -4,6 | -3,5 | -7,4 | -6 |
| Central and Eastern Europe | Bulgaria | 3,1 | -3,8 | 0,1 | -2,9 | -2,8 | -0,8 | -3,1 | -3,1 | -1,1 |
| Central and Eastern Europe | Croatia | -2,3 | -6,5 | 0,3 | -7,2 | -2,5 | 0,1 | -0,8 | -7,5 | -3,5 |
| Central and Eastern Europe | Czech Republic | -0,6 | -4,1 | 0,9 | -5,6 | -5 | -3,1 | -3,8 | -6,5 | -2,4 |
| Central and Eastern Europe | Estonia | 2,6 | -0,5 | -1,1 | -5,3 | -2,4 | -1 | -3,5 | -4,2 | -1,4 |
| Central and Eastern Europe | Hungary | -5,1 | -4,4 | -2,1 | -7,6 | -7,2 | -6,2 | -6,7 | -5,5 | -4,1 |
| Central and Eastern Europe | Latvia | 0,6 | -6,4 | -0,7 | -3,7 | -5,5 | -3,7 | -3,5 | -3 | -2,5 |
| Central and Eastern Europe | Lithuania | -1 | -6,9 | 0,6 | -7,2 | -1 | -0,7 | -0,8 | -7,8 | -2,9 |
| Central and Eastern Europe | Poland | -1,9 | -7,5 | -0,3 | -6,9 | -1,8 | -3,4 | -5,1 | -6,7 | -3,8 |
| Central and Eastern Europe | Romania | -3 | -6,2 | -2,7 | -9,6 | -6,7 | -5,8 | -5,6 | -6,8 | -4,4 |
| Central and Eastern Europe | Slovak Republic | -2,1 | -7,5 | -1 | -5,4 | -5,2 | -1,6 | -4,8 | -4,3 | -3,6 |
| Central and Eastern Europe | Slovenia | -0,1 | -5,6 | 0,9 | -7,7 | -4,6 | -3 | -2,6 | -8,6 | -3,8 |
| Oceania | Australia | 1,5 | -5,1 | -1,3 | -8,7 | -6,4 | -2,2 | -0,9 | -7,5 | -3,2 |
| Northern America | Canada | 1,8 | -4,7 | 0,4 | -10,9 | -2,9 | 0,1 | -0,6 | -11,3 | -2,2 |
| Oceania | New Zealand | 3,6 | -5,5 | 1,3 | -4,3 | -3,2 | -3,5 | -3,3 | -5,6 | -1,4 |
| Northern America | United States | -2,9 | -11 | -5,3 | -13,9 | -11 | -3,9 | -7,1 | -8,6 | -7,1 |
| | Average | 0,6 | -5,6 | -0,1 | -6,7 | -3,8 | -1,4 | -2 | -6,6 | -2,6 |

*Source: IMF World Economic Outlook and author's calculation*
*Legend: Colours – green shows the highest, red the lowest values*

These expansionary fiscal measures were supported by a drastic reduction of interest rates, which declined from – on average – 6.4% in 2007 to 2.8% in 2010 [Tab. 2, last row]. The improvement of the fiscal situation after the crisis was made easier by the continuous low level of interest rates, which reduced the debt service burden of governments. On average, central policy rates remained well below 1% between 2015 and 2021. Only the return of inflation in 2022 led to a more contractionary monetary policy with interest rates that increased, on average, by 6 percentage points between 2021 and 2023 (see last column in Table 2). In 2024, central banks started to ease monetary policy again as the inflation subsided and recessions loomed.

*Table 2: Central bank policy rates (%; at September each year)*

| Region | Country | 2007 | 2010 | 2016 | 2021 | 2023 | 2024 | 2021 - 2023 |
|---|---|---|---|---|---|---|---|---|
| Euro area | | 4 | 1 | 0 | 0 | 4,5 | 3,5 | 4,5 |
| Western Europe | Switzerland | 2,75 | 0,375 | -0,75 | -0,75 | 1,75 | 1 | 2,5 |
| Western Europe | United Kingdom | 5,75 | 0,5 | 0,25 | 0,1 | 5,25 | 5 | 5,15 |
| Northern Europe | Denmark | 4,25 | 0,5 | -0,65 | -0,5 | 3,6 | 3,1 | 4,1 |
| Northern Europe | Iceland | 13,3 | 5,375 | 5,25 | 1,25 | 9,25 | 9,25 | 8 |
| Northern Europe | Norway | 5 | 2 | 0,5 | 0,25 | 4,25 | 4,5 | 4 |
| Northern Europe | Sweden | 3,75 | 0,75 | -0,5 | 0 | 4 | 3,5 | 4 |
| Central and Eastern Europe | Croatia | 11,21 | 0,87 | 0,52 | | | | 0 |
| Central and Eastern Europe | Czechia | 3,25 | 0,75 | 0,05 | 0,75 | 7 | 4,25 | 6,25 |
| Central and Eastern Europe | Hungary | 7,5 | 5,25 | 0,9 | 1,65 | 13 | 6,5 | 11,35 |
| Central and Eastern Europe | Poland | 4,75 | 3,5 | 1,5 | 0,1 | 6 | 5,75 | 5,9 |
| Central and Eastern Europe | Romania | 7 | 6,25 | 1,75 | 1,25 | 7 | 6,5 | 5,75 |
| Oceania | Australia | 6,5 | 4,5 | 1,5 | 0,1 | 4,1 | 4,35 | 4 |
| Northern America | Canada | 4,5 | 1 | 0,5 | 0,25 | 5 | 4,25 | 4,75 |
| Oceania | New Zealand | 8,25 | 3 | 2 | 0,25 | 5,5 | 5,25 | 5,25 |
| Northern America | United States | 4,75 | 0,125 | 0,375 | 0,125 | 5,375 | 4,875 | 5,25 |
| | Average | 6,41 | 2,81 | 1,01 | 0,56 | 6,62 | 5,22 | 6,06 |

*Source: The Bank for International Settlements and author's calculation*
*Legend: Colours – green shows the highest, red the lowest values*

Governments influence the distribution of income and wealth directly through transfer payments (social spending), which is dealt with in the next section, and through tax policies and labour market regulation. Taxes affect disposable income through their structure and rates. Taxes on goods and services (value added or sales taxes) are regressive as they hit poorer households more than richer ones. Taxes on income and wealth are usually progressive, apart from some countries that have flat rates (e.g. Hungary). The share of these two most important taxes varies between countries as Tables 3 and 4 show. The tables also show that the tax shares did not change much during the reported period (2007-2022). Standard deviation (last column, Tables 3 and 4) over the period remains below two percentage points for most countries. Exceptions were France that lowered the share of taxes on goods and services by 14 percentage points [Tab. 3] and Ireland that increased the share of income taxes by 18 percentage points while Spain lowered it by 12 percentage points [Tab 4].

*Table 3: Taxes on goods and services (percentage of total tax revenue)*

| Region | Country | 2007 | 2015 | 2022 | 2007 - 2022 Change | 2007 - 2022 Average | 2007 - 2022 Standard deviation |
|---|---|---|---|---|---|---|---|
| Western Europe | Austria | 36,3 | 36,3 | 36,1 | → | 37 | 0,7 |
| Western Europe | Belgium | 37,1 | 37,1 | 37 | → | 37,6 | 1,5 |
| Western Europe | France | 44,3 | 43,2 | 30,3 | ↓ | 41 | 4,5 |
| Western Europe | Germany | 52,9 | 51,3 | 46,8 | ↘ | 50,4 | 2,9 |
| Western Europe | Ireland | 37,8 | 31,1 | 30,1 | ↘ | 32,9 | 2,4 |
| Western Europe | Luxembourg | 44,8 | 37,2 | 37,5 | ↘ | 40,1 | 2,8 |
| Western Europe | Netherlands | 42,3 | 40,3 | 37,7 | ↘ | 40,7 | 1,1 |
| Western Europe | Switzerland | 53,9 | 49,3 | 47 | ↘ | 49,5 | 2,8 |
| Western Europe | United Kingdom | 32,2 | 35,6 | 32,2 | → | 33,4 | 2,1 |
| Northern Europe | Denmark | 39 | 36,1 | 34 | ↘ | 35,9 | 1,8 |
| Northern Europe | Finland | 54,5 | 60,4 | 57,6 | ↗ | 59,7 | 2,6 |
| Northern Europe | Iceland | 38,9 | 34,3 | 35,4 | ↘ | 33,9 | 3,7 |
| Northern Europe | Norway | 24,2 | 25,9 | 15,1 | ↘ | 24,1 | 3 |
| Northern Europe | Sweden | 39,4 | 42,2 | 41,5 | ↗ | 42,1 | 1 |
| Southern Europe | Cyprus | 42,5 | 44,5 | 42,7 | → | 44,3 | 1,5 |
| Southern Europe | Greece | 41,7 | 41,4 | 48,6 | ↘ | 43 | 2,4 |
| Southern Europe | Italy | 33,5 | 35,2 | 33,9 | → | 34,5 | 1,3 |
| Southern Europe | Malta | 37,6 | 33,1 | 31,9 | ↘ | 34,2 | 2,2 |
| Southern Europe | Portugal | 39,2 | 37,9 | 40,3 | ↗ | 38,7 | 1,8 |
| Southern Europe | Spain | 37,8 | 46,3 | 40,9 | ↗ | 43,3 | 3,5 |
| Central and Eastern Europe | Bulgaria | 54,6 | 54,7 | 47,3 | ↘ | 56,1 | 2,8 |
| Central and Eastern Europe | Croatia | 61 | 65,1 | 60,9 | → | 64,5 | 2,3 |
| Central and Eastern Europe | Czech Republic | 30,9 | 34,6 | 29,8 | ↘ | 33 | 1,9 |
| Central and Eastern Europe | Estonia | 41,5 | 41,4 | 39,4 | ↘ | 40,8 | 1,6 |
| Central and Eastern Europe | Hungary | 49,1 | 47,5 | 48,2 | ↘ | 48,3 | 2 |
| Central and Eastern Europe | Latvia | 60,8 | 60,4 | 65,7 | ↗ | 59,9 | 3,7 |
| Central and Eastern Europe | Lithuania | 45 | 48,5 | 43,9 | ↘ | 47,6 | 2,8 |
| Central and Eastern Europe | Poland | 56,1 | 55,2 | 54,5 | ↘ | 56,2 | 1,1 |
| Central and Eastern Europe | Romania | 45,6 | 49,5 | 44,1 | ↘ | 48,1 | 3,2 |
| Central and Eastern Europe | Slovak Republic | 50 | 41 | 46,6 | ↘ | 46,4 | 2,3 |
| Central and Eastern Europe | Slovenia | 48,2 | 51,8 | 49,9 | ↗ | 51,9 | 1,9 |
| Oceania | Australia | 23,2 | 21,3 | 17,8 | ↘ | 21,7 | 1,9 |
| Northern America | Canada | 18 | 17,1 | 17,7 | ↘ | 17,3 | 0,6 |
| Oceania | New Zealand | .. | .. | .. | ↗ | | |
| Northern America | United States | 3,8 | 4,5 | 2,7 | → | 4,2 | 0,6 |
| | Average | 41,1 | 40,9 | 39 | ↘ | 40,9 | 2,2 |

*Source: WDI and author's calculation; * US values are underestimating the true share because they probably exclude sales taxes that are levied by the states.*
*Legend: Colours – green shows the highest, red the lowest values for columns 1–3, 5; column 6 (standard deviation) red shows the highest (most volatile), green the lowest. Arrows (column 4) indicate change between 2007 and 2022: horizontal →: little change (<0.5); declining ↘: change between −0.5 and −9.9; rising ↗: change between 0.5 and 9.9; vertical ↓: maximum change (>10).*

*Table 4: Taxes on income, profits and capital gains (percentage of total tax revenue)*

| Region | Country | 2007 | 2015 | 2022 | 2007 - 2022 Change | 2007 - 2022 Average | 2007 - 2022 Standard deviation |
|---|---|---|---|---|---|---|---|
| Western Europe | Austria | 38,2 | 39,5 | 40,4 | ↗ | 38 | 1,3 |
| Western Europe | Belgium | 54,3 | 52,8 | 52,8 | ↘ | 52,1 | 1,8 |
| Western Europe | France | 30,8 | 32,6 | 39 | ↗ | 32,8 | 3,1 |
| Western Europe | Germany | 36,9 | 37,2 | 41,1 | ↗ | 37,5 | 2,9 |
| Western Europe | Ireland | 38,7 | 39 | 56,9 | ↑ | 42,2 | 7,3 |
| Western Europe | Luxembourg | 38,5 | 41,8 | 45,4 | ↗ | 42,1 | 2,4 |
| Western Europe | Netherlands | 39,8 | 41,3 | 47,9 | ↗ | 41,5 | 3,9 |
| Western Europe | Switzerland | 32,6 | 36,8 | 37,2 | ↗ | 36,4 | 2,8 |
| Western Europe | United Kingdom | 39,6 | 34,1 | 36,7 | ↘ | 35,6 | 2 |
| Northern Europe | Denmark | 42,2 | 45,5 | 45,6 | ↗ | 44,4 | 2,6 |
| Northern Europe | Finland | 33,5 | 24,2 | 28,1 | ↘ | 25,6 | 2,9 |
| Northern Europe | Iceland | 27,1 | 27,8 | 32,9 | ↗ | 27,2 | 3,9 |
| Northern Europe | Norway | 31,1 | 22,2 | 39,9 | ↗ | 27,9 | 5,6 |
| Northern Europe | Sweden | 19,7 | 17,7 | 18,1 | ↘ | 16,7 | 1,6 |
| Southern Europe | Cyprus | 34,8 | 29,9 | 34 | → | 32,7 | 1,7 |
| Southern Europe | Greece | 26,7 | 23,3 | 23,3 | ↘ | 24,5 | 1,7 |
| Southern Europe | Italy | 52,1 | 48,1 | 47 | ↘ | 48,6 | 1,8 |
| Southern Europe | Malta | 31,1 | 32 | 37,7 | ↗ | 33,2 | 2,3 |
| Southern Europe | Portugal | 28 | 32 | 32,9 | ↗ | 30,1 | 1,9 |
| Southern Europe | Spain | 48,4 | 32,6 | 36,3 | ↓ | 35,1 | 5,1 |
| Central and Eastern Europe | Bulgaria | 21,4 | 19,4 | 21 | → | 20,6 | 1,7 |
| Central and Eastern Europe | Croatia | 13,3 | 9 | 11,2 | ↘ | 10,1 | 2 |
| Central and Eastern Europe | Czech Republic | 21 | 17 | 17,5 | ↘ | 18 | 1,3 |
| Central and Eastern Europe | Estonia | 23,4 | 23,3 | 24,2 | ↗ | 22,5 | 1,6 |
| Central and Eastern Europe | Hungary | 29,3 | 20,2 | 20,9 | ↘ | 23,2 | 4,8 |
| Central and Eastern Europe | Latvia | 19,6 | 12,9 | 12,1 | ↘ | 12,9 | 3,8 |
| Central and Eastern Europe | Lithuania | 36,3 | 23,2 | 38,9 | ↗ | 28 | 7,1 |
| Central and Eastern Europe | Poland | 22,4 | 19 | 20,6 | ↘ | 20,1 | 1,3 |
| Central and Eastern Europe | Romania | 25 | 24,7 | 26 | ↗ | 24,6 | 1,8 |
| Central and Eastern Europe | Slovak Republic | 28,5 | 25,3 | 29,7 | ↗ | 27,5 | 2,6 |
| Central and Eastern Europe | Slovenia | 23,2 | 14,1 | 19,5 | ↘ | 17,1 | 3,1 |
| Oceania | Australia | 65,7 | 64,9 | 67,9 | ↗ | 64,8 | 1,4 |
| Northern America | Canada | 66 | 66,9 | 69,3 | ↗ | 67 | 1,5 |
| Oceania | New Zealand | .. | .. | .. | | | |
| Northern America | United States | 86,3 | 82,4 | 86,7 | → | 82,1 | 3,3 |
| | Average | 35,4 | 32,7 | 36,4 | ↗ | 33,6 | 1,5 |

*Source: WDI and author's calculation*
*Legend: Colours – green shows the highest, red the lowest values for columns 1–3, 5; column 6 (standard deviation) red highest (most volatile), green lowest. Arrows (column 4) indicate change between 2007 and 2022: horizontal: little change (<1); declining ↘: change between −1 and −9.9; rising ↗: change between 1 and 9.9; vertical ↑ maximum change (>10); vertical ↓: maximum change (<−10).*

Top income tax rates vary between 15% and over 50% [Tab 5], and these rates are applied to incomes above a certain threshold. The thresholds vary substantially, too. The highest, measured by a multiple of average wage, is applied in Austria (21.7), followed by France, Portugal and Spain (all above 10). The lowest thresholds (below 1) are in force in Hungary (0) and Estonia (0.3), but the rates are very low there (15% and 20%). Between 2007 and 2023, on average for all countries, top rates hardly changed while thresholds were doubled (already in 2014), thus lessening the burden to poorer households. Notable exceptions are Austria, which increased its top rate by 11.3 percentage points, Portugal by 11 and Iceland by 10.5.

*Table 5: Top statutory personal income tax rate and thresholds (in multiple of average wage and USD converted at purchasing power parity) for selected years*

| Region | Country | 2007 | | 2014 | | 2023 | | 2007-2023 | 2007-2023 |
|---|---|---|---|---|---|---|---|---|---|
| | | Top rate | Thres-hold* | Top rate | Thres-hold* | Top rate | Thres-hold* | Top rate change | Thres-hold change |
| Western Europe | Austria | 43,71 | 1,92 | 50 | 13,88 | 55 | 19,2 | ↑ | ↑ |
| Western Europe | Belgium | 53,7 | 1,04 | 53,75 | 1,59 | 52,88 | 1 | → | → |
| Western Europe | France | 45,78 | 2,81 | 54,5 | 15,05 | 55,37 | 13,6 | ↑ | ↑ |
| Western Europe | Germany | 47,48 | 6,34 | 47,48 | 5,66 | 47,48 | 4,8 | → | ↘ |
| Western Europe | Ireland | 43,5 | 2,44 | 48 | 0,76 | 48 | 1,2 | ↗ | ↘ |
| Western Europe | Luxembourg | 38,95 | 0,9 | 43,6 | 2,98 | 45,78 | 3 | ↗ | ↗ |
| Western Europe | Netherlands | 52 | 1,28 | 52 | 1,24 | 49,5 | 1,3 | ↘ | → |
| Western Europe | Switzerland | 42,06 | 3,16 | 41,67 | 3,46 | 41,5 | 2,9 | → | → |
| Western Europe | United Kingdom | 40 | 1,2 | 45 | 4,27 | 45 | 2,6 | ↗ | ↗ |
| Northern Europe | Denmark | 59 | 1,03 | 55,56 | 1,23 | 55,9 | 1,3 | ↘ | → |
| Northern Europe | Finland | 50,45 | 1,83 | 51,49 | 2,53 | 51,4 | 1,8 | → | → |
| Northern Europe | Iceland | 35,72 | 0 | 46,24 | 1,37 | 46,25 | 1,3 | ↑ | ↗ |
| Northern Europe | Norway | 40 | 1,54 | 39 | 1,59 | 39,5 | 2,1 | ↘ | → |
| Northern Europe | Sweden | 56,55 | 1,45 | 56,86 | 1,51 | 52,27 | 1,2 | ↘ | → |
| Southern Europe | Cyprus | | | | | 35 | | | |
| Southern Europe | Greece | 40 | 3,73 | 46 | 5,27 | 44 | 2 | ↗ | ↘ |
| Southern Europe | Italy | 44,9 | 3,23 | 47,84 | 9,89 | 47,23 | 1,7 | ↗ | ↘ |
| Southern Europe | Malta | | | | | 35 | | | |
| Southern Europe | Portugal | 42 | 4,43 | 56,5 | 16,22 | 53 | 11,8 | ↑ | ↗ |
| Southern Europe | Spain | 43 | 2,6 | 52 | 11,66 | 45 | 10,1 | ↗ | ↗ |
| Central and Eastern Europe | Bulgaria | | | | | 10+18 | | | |
| Central and Eastern Europe | Croatia | | | | | 35,4 | | | |
| Central and Eastern Europe | Czech Republic | 32 | 1,51 | 15 | 0 | 23 | 3,8 | ↓ | ↗ |
| Central and Eastern Europe | Estonia | 22 | 0,17 | 21 | 0,14 | 20 | 0,4 | ↘ | → |
| Central and Eastern Europe | Hungary | 36 | 0,79 | 16 | 0 | 15 | 0 | ↓ | → |
| Central and Eastern Europe | Latvia | 25 | 0,15 | 24 | 0,11 | 31 | 4,2 | ↗ | ↗ |
| Central and Eastern Europe | Lithuania | 27 | 0,18 | 15 | 0,24 | 32 | 4,3 | ↗ | ↗ |
| Central and Eastern Europe | Poland | 40 | 3,12 | 32 | 2,26 | 32 | 1,7 | ↘ | ↘ |
| Central and Eastern Europe | Romania | | | | | 10 | | | |
| Central and Eastern Europe | Slovak Republic | 19 | 0,44 | 25 | 3,77 | 25 | 2,8 | ↗ | ↗ |
| Central and Eastern Europe | Slovenia | 41 | 1,44 | 50 | 5,31 | 50 | 3,8 | ↑ | ↗ |
| Oceania | Australia | 46,5 | 2,63 | 46,5 | 2,27 | 47 | 1,8 | → | → |
| Northern America | Canada | 46,41 | 2,22 | 49,53 | 3,42 | 53,53 | 2,7 | ↗ | → |
| Oceania | New Zealand | 39 | 1,39 | 33 | 1,27 | 39 | 2,4 | → | ↗ |
| Northern America | United States | 41,4 | 8,44 | 46,25 | 8,22 | 43,5 | 8,8 | ↗ | → |
| | Average | 41,14 | 2,11 | 42,03 | 4,24 | 41,4 | 3,98 | | |

Note: * thresholds as multiple of average wage; thresholds refer to 2021.

*Legend: Colours – green shows the highest, red the lowest values*
*Changes: ↑: > 9; ↗:< 9 and > 1; →: < 1 and > −1; ↘: < −1 and > −9; ↓: < −9.*
*Source: OECD; for non-OECD countries*
*(Bulgaria: https://taxsummaries.pwc.com/bulgaria/individual/taxes-on-personal-income,*
*Croatia: https://www.porezna-uprava.hr/en/Pages/Taxes/Income-tax.aspx,*
*Cyprus: https://taxsummaries.pwc.com/cyprus/individual/taxes-on-personal-income,*
*Malta: https://cfr.gov.mt/en/inlandrevenue/personaltax/Pages/Tax-Rates.aspx,*
*Romania: Tax | ARICE - Invest Romania (gov.ro) (no data for threshold)).*

Another possible way for governments to influence employment and income is labour market policy. The average levels of minimum wages, measured in percentage of the median wage, vary from over 60% in France, Portugal,

Slovenia and New Zealand to about 30% in the USA, with the average of all countries over the whole period being approximately 48% [Tab. 6]. The EU's minimum wage directive (EU 2022-2041) does not oblige countries to adopt a specific minimum wage, but Article 5.4 declares that "Member States shall use indicative reference values to guide their assessment of adequacy of statutory minimum wages. To that end, they may use indicative reference values commonly used at international level such as 60% of the gross median wage and 50% of the gross average wage, and/or indicative reference values used at national level". As Table 6 shows, only France and in some years, Portugal and Slovenia, follow that recommendation (plus New Zealand, which is not a Member State of the EU). Changes reflect changes in the minimum wage as well as changes in median wage as rises of the median wage lead to lower minimum wages measured as a percentage of the median wage.

*Table 6: Minimum wages (as a percentage of median wage)*

| Region | Country | 2007 | 2010 | 2015 | 2021 | 2022 | 2023 | Average 2007 - 2023 | Change 2007 - 2023 |
|---|---|---|---|---|---|---|---|---|---|
| Western Europe | Austria | | | | | | | | |
| Western Europe | Belgium | 47,9 | 48,26 | 45,33 | 41,04 | 46,13 | 48,73 | 46,22 | → |
| Western Europe | France | 63,31 | 62,11 | 62,34 | 60,97 | 60,89 | 62,22 | 62,12 | ↘ |
| Western Europe | Germany | | | 48,17 | 44,75 | 48,1 | 51,7 | 47,54 | |
| Western Europe | Ireland | 42,73 | 45,34 | 39,23 | 47,18 | 46,66 | 48,32 | 44,41 | ↗ |
| Western Europe | Luxembourg | 54,16 | 55,41 | 54,48 | 54,85 | 54,39 | 56,74 | 54,79 | ↗ |
| Western Europe | Netherlands | 48,73 | 47,33 | 46,62 | 46,41 | 46,34 | 49,14 | 47,35 | → |
| Western Europe | Switzerland | | | | | | | | |
| Western Europe | United Kingdom | 46,64 | 46,14 | 48,69 | 56,97 | 57,93 | 59,61 | 51,24 | ↑ |
| Northern Europe | Denmark | | | | | | | | |
| Northern Europe | Finland | | | | | | | | |
| Northern Europe | Iceland | | | | | | | | |
| Northern Europe | Norway | | | | | | | | |
| Northern Europe | Sweden | | | | | | | | |
| Southern Europe | Cyprus | | | | | | | | |
| Southern Europe | Greece | 44,5 | 46,54 | 42,32 | 48,97 | 48,61 | 49,53 | 45,98 | ↗ |
| Southern Europe | Italy | | | | | | | | |
| Southern Europe | Malta | | 47,4 | 48 | 51 | 46,9 | 43,8 | 46,84 | ↘ |
| Southern Europe | Portugal | 47,69 | 52,78 | 56,37 | 65,77 | 67,41 | 68,16 | 57,59 | ↑ |
| Southern Europe | Spain | 39,22 | 37,74 | 37,07 | 48,46 | 48,79 | 52,2 | 41,91 | ↑ |
| Central and Eastern Europe | Bulgaria | | | | 53,74 | 51,64 | 49,56 | 54,49 | |
| Central and Eastern Europe | Croatia | | 45,39 | | 46,07 | 46,62 | 45 | 45,64 | |
| Central and Eastern Europe | Czech Republic | 40,75 | 37,68 | 38,78 | 43,22 | 43,29 | 43,78 | 40,06 | ↗ |
| Central and Eastern Europe | Estonia | 35,78 | 40,41 | 41,35 | 42,6 | 42,96 | 42,52 | 40,92 | ↗ |
| Central and Eastern Europe | Hungary | 46,74 | 47,42 | 52,5 | 45,53 | 47,73 | 48,16 | 49,6 | ↗ |
| Central and Eastern Europe | Latvia | 36,63 | 48,97 | 51,83 | 43,99 | 38,94 | 42,31 | 45,72 | ↗ |
| Central and Eastern Europe | Lithuania | 39,36 | 49,83 | 51,84 | 46,69 | 46,41 | 47,29 | 48,54 | ↗ |
| Central and Eastern Europe | Poland | 39,61 | 45,31 | 51,28 | 53,82 | 52,79 | 54,71 | 49,67 | ↑ |
| Central and Eastern Europe | Romania | 38,08 | 42,65 | 54,91 | 54,9 | 54,7 | 56,2 | 50,75 | ↑ |
| Central and Eastern Europe | Slovak Republic | 44,31 | 45,69 | 47,3 | 52,41 | 50,76 | 50,76 | 47,47 | ↗ |
| Central and Eastern Europe | Slovenia | 49,52 | 58,99 | 59,8 | 60,41 | 61,69 | 62,95 | 58,32 | ↑ |
| Oceania | Australia | 54,47 | 54,28 | 53,3 | 51,54 | 53,6 | 55,18 | 53,55 | → |
| Northern America | Canada | 39,64 | 42,83 | 44,43 | 48,93 | 49,06 | 49,61 | 45,58 | ↗ |
| Oceania | New Zealand | 57,35 | 58,8 | 60,06 | 67,61 | 67,42 | 66,54 | 61,45 | ↗ |
| Northern America | United States | 31,42 | 38,81 | 35,84 | 29,06 | 27,38 | 25,96 | 33,66 | ↘ |
| | Average | 42,59 | 46,93 | 49,48 | 49,06 | 48,81 | 49,35 | 48,9 | ↗ |

*Legend: Colours – green shows the highest, red the lowest values*
*Changes: ↑: > 10; ↗:< 9 and > 1; →: < 1 and > −1; ↘: <−1 and >−10.*
*Source: OECD and Eurostat for Malta and author's calculation; Scandinavian countries do not have statutory minimum wages. There are no data for Austria, Cyprus and Ireland. Changes and averages refer to available years between 2007 and 2023.*

Minimum wages, as a percentage of the average median wage [Tab. 6] increased in many countries, on average for all countries by 7.1 percentage points. The highest rises (from 2007-2021) were found in Portugal (+20.5), Romania (+18.1), Poland (+15.1), Slovenia (+13.4) and the UK (both +13). The minimum wage (relative to the median wage) declined in only two countries: France (−1.1) and the USA (−5.5). A rise or decline of the minimum wage as a percentage of the median wage does not necessarily imply an absolute rise or decline of the minimum wage. It may totally or partially be caused by respective inverse changes of the median wage. Thus, it is very likely that the decline in the two countries mentioned reflects a rise in the median wage that is not accompanied by an equal rise of the minimum wage.
The OECD evaluates labour market policies by calculating an index of employment protection legislation (EPL).

*Table 7: Strictness of EPL*

| Region | Country | 2007 | 2013 | 2019 | Average 2007 - 2019 | Change 2007 - 2019 |
|---|---|---|---|---|---|---|
| Western Europe | Austria | 2,56 | 2,56 | 2,56 | 2,56 | → |
| Western Europe | Belgium | 2,6 | 2,6 | 2,87 | 2,73 | ↑ |
| Western Europe | France | 2,83 | 2,68 | 2,72 | 2,7 | ↘ |
| Western Europe | Germany | 2,89 | 2,89 | 2,89 | 2,89 | → |
| Western Europe | Ireland | 1,79 | 1,88 | 1,88 | 1,84 | ↗ |
| Western Europe | Luxembourg | .. | 2,63 | 2,63 | 2,63 | → |
| Western Europe | Netherlands | 3,22 | 3,22 | 3,49 | 3,26 | ↑ |
| Western Europe | Switzerland | 2,06 | 2,06 | 2,06 | 2,06 | → |
| Western Europe | United Kingdom | 1,76 | 1,64 | 1,57 | 1,66 | ↘ |
| Northern Europe | Denmark | 1,87 | 1,92 | 1,92 | 1,9 | → |
| Northern Europe | Finland | 2,02 | 1,95 | 1,89 | 1,94 | ↘ |
| Northern Europe | Iceland | .. | 1,94 | 1,94 | 1,94 | → |
| Northern Europe | Norway | 2,38 | 2,38 | 2,38 | 2,38 | → |
| Northern Europe | Sweden | 2,6 | 2,6 | 2,6 | 2,6 | → |
| Southern Europe | Cyprus | | | | | |
| Southern Europe | Greece | 3,06 | 2,57 | 2,57 | 2,73 | ↓ |
| Southern Europe | Italy | 3,33 | 3,17 | 2,68 | 3,1 | ↓ |
| Southern Europe | Malta | | | | | |
| Southern Europe | Portugal | 3,98 | 2,96 | 2,78 | 3,16 | ↓ |
| Southern Europe | Spain | 2,65 | 2,26 | 2,32 | 2,43 | ↘ |
| Central and Eastern Europe | Bulgaria | | | | | |
| Central and Eastern Europe | Croatia | .. | .. | .. | 2,42 | → |
| Central and Eastern Europe | Czech Republic | 3,02 | 2,93 | 2,93 | 2,97 | → |
| Central and Eastern Europe | Estonia | .. | 2,11 | 2,11 | 2,17 | ↓ |
| Central and Eastern Europe | Hungary | 2,4 | 2,17 | 2,17 | 2,27 | ↘ |
| Central and Eastern Europe | Latvia | .. | 3,23 | 3,23 | 3,23 | → |
| Central and Eastern Europe | Lithuania | .. | .. | 2,34 | 2,58 | ↘ |
| Central and Eastern Europe | Poland | 2,48 | 2,48 | 2,48 | 2,48 | → |
| Central and Eastern Europe | Romania | | | | | |
| Central and Eastern Europe | Slovak Republic | 3,13 | 2,76 | 2,76 | 2,89 | ↘ |
| Central and Eastern Europe | Slovenia | .. | 2,9 | 2,52 | 2,72 | ↘ |
| Oceania | Australia | 1,65 | 2,01 | 2,01 | 1,93 | ↑ |
| Northern America | Canada | 1,31 | 1,31 | 1,31 | 1,31 | → |
| Oceania | New Zealand | 1,29 | 1,17 | 1,17 | 1,22 | ↘ |
| Northern America | United States | 0,67 | 0,67 | 0,67 | 0,67 | → |
| | Average | 2,4 | 2,33 | 2,32 | 2,36 | ↘ |

*Legend: Colours – green shows the highest, red the lowest values*
*Changes: ↑: >0.25; ↗:< 0.25 and > 0; →: 0; ↘: < 0 and > −0.25.*
*Source: OECD and author's calculation*

As Table 7 shows, EPL scores vary among countries, for different reasons. The lowest scores are to be found in liberal, mostly Anglo-Saxon economies and perhaps surprisingly, in some Scandinavian countries. There, a high degree of social security for the unemployed accompanies and permits low levels of EPL (the well-known "flexicurity"). Changes vary, too. EPL became slightly less strict between 2007 and 2019, although not by much (−0.08 on average for all countries). In Portugal, protection decreased the most (−1.2), followed by Italy (−0.65) and Greece (−0.49), probably because of pressure by the creditors (Troika).

### 7.2.2. Output: economic growth and its distribution

How did the economies of the 35 countries develop after 2007? Regarding economic growth, there were two deep recessions, one in 2009 caused by the financial market crisis, and one in 2020 due to the pandemic and the lockdowns (visible in the orange and red colours in Table 8). GDP per capita[3] fell, measured by the unweighted average of all 35 countries, by 5.2% in 2009 and by 4.6% in 2020. But this recession turned out to be V-shaped. In the two following years growth rates were much higher, adding up to about 10% on average for all countries. However, in 2023, the shocks of the Ukraine war and the accompanying sanctions led to a new recession, albeit much weaker than the one caused by the pandemic.

There are substantial differences between countries. In 2009, only Poland avoided a recession; in 2020, the exception was Ireland. Over the whole period, the worst performing country was Greece, hit by the so-called Euro crisis and the pandemic, which led to a massive decline in tourism. The best performers were Ireland, Malta and the countries of Central and Eastern Europe (CEE).

*Table 8: Annual GDP per capita growth (%)*

| Region | Country | 2007 | 2009 | 2015 | 2020 | 2021 | 2022 | 2023 | Average 2007 - 2023 |
|---|---|---|---|---|---|---|---|---|---|
| Western Europe | Austria | 3,39 | -4,02 | -0,11 | -7,02 | 3,78 | 3,81 | -1,81 | 0,49 |
| Western Europe | Belgium | 2,92 | -2,81 | 1,45 | -5,71 | 6,49 | 2,14 | 0,19 | 0,76 |
| Western Europe | France | 1,8 | -3,37 | 0,75 | -7,79 | 6,13 | 2,14 | 0,41 | 0,54 |
| Western Europe | Germany | 3,11 | -5,45 | 0,62 | -3,91 | 3,12 | 1,07 | -1,11 | 0,95 |
| Western Europe | Ireland | 2,31 | -6,05 | 23,3 | 5,53 | 14,03 | 7,43 | -5,69 | 3,78 |
| Western Europe | Luxembourg | 6,44 | -5,01 | -0,12 | -2,55 | 5,55 | -0,64 | -3,39 | 0,06 |
| Western Europe | Netherlands | 3,55 | -4,16 | 1,51 | -4,42 | 5,64 | 3,34 | -0,88 | 0,85 |
| Western Europe | Switzerland | 2,99 | -3,51 | 0,49 | -2,85 | 4,59 | 1,74 | -0,13 | 0,79 |
| Western Europe | United Kingdom | 1,82 | -5,33 | 1,41 | -10,69 | 8,76 | 3,17 | -0,71 | 0,5 |
| Northern Europe | Denmark | 0,46 | -5,41 | 1,62 | -2,71 | 6,38 | 1,93 | 1,14 | 0,78 |
| Northern Europe | Finland | 4,85 | -8,51 | 0,21 | -2,5 | 2,63 | 1,06 | -1,53 | 0,29 |
| Northern Europe | Iceland | 5,75 | -7,98 | 3,35 | -8,44 | 3,44 | 6,18 | 1 | 0,91 |
| Northern Europe | Norway | 1,85 | -3,17 | 0,85 | -1,86 | 3,35 | 2,08 | -0,62 | 0,33 |
| Northern Europe | Sweden | 2,68 | -5,15 | 3,39 | -2,87 | 5,51 | 1,97 | -0,67 | 0,91 |
| Southern Europe | Cyprus | 2,88 | -4,61 | 4,01 | -4,53 | 8,89 | 3,64 | 0,69 | 1 |
| Southern Europe | Greece | 3,01 | -4,55 | 0,46 | -9,12 | 9,71 | 7 | 2,66 | -0,54 |
| Southern Europe | Italy | 0,98 | -5,71 | 0,88 | -8,53 | 8,87 | 4,33 | 1,23 | 0,07 |
| Southern Europe | Malta | 4,41 | -1,88 | 7,02 | -10,17 | 11,82 | 5,52 | 1,39 | 3,22 |
| Southern Europe | Portugal | 2,31 | -3,21 | 2,21 | -8,4 | 5,08 | 6,34 | 1,14 | 0,87 |
| Southern Europe | Spain | 1,7 | -4,61 | 3,92 | -11,6 | 6,29 | 4,97 | 1,24 | 0,36 |
| Central and Eastern Europe | Bulgaria | 7,44 | -2,72 | 4,06 | -3,39 | 8,54 | 10,56 | 2,4 | 3,36 |
| Central and Eastern Europe | Croatia | 5,1 | -7,12 | 3,4 | -8,12 | 17,96 | 7,68 | 3,13 | 2,25 |
| Central and Eastern Europe | Czech Republic | 4,96 | -5,2 | 5,18 | -5,73 | 5,45 | 0,76 | -2,16 | 1,33 |
| Central and Eastern Europe | Estonia | 8,07 | -14,46 | 1,79 | -1,16 | 7,14 | -1,78 | -4,24 | 1,49 |
| Central and Eastern Europe | Hungary | 0,43 | -6,45 | 3,95 | -4,28 | 7,51 | 5,31 | -0,36 | 2 |
| Central and Eastern Europe | Latvia | 10,84 | -12,83 | 4,74 | -2,83 | 7,64 | 3,23 | -0,41 | 2,24 |
| Central and Eastern Europe | Lithuania | 12,44 | -13,89 | 2,99 | -0,05 | 6,06 | 1,33 | -1,73 | 3,35 |
| Central and Eastern Europe | Poland | 7,12 | 2,76 | 4,45 | -1,85 | 7,37 | 8,29 | 0,53 | 3,88 |
| Central and Eastern Europe | Romania | 8,83 | -4,73 | 3,65 | -3,15 | 6,5 | 4,52 | 2,1 | 3,61 |
| Central and Eastern Europe | Slovak Republic | 10,8 | -5,58 | 5,07 | -3,41 | 4,99 | 2,16 | 1,69 | 2,68 |
| Central and Eastern Europe | Slovenia | 6,38 | -8,38 | 2,13 | -4,88 | 7,94 | 2,27 | 1,16 | 1,47 |
| Oceania | Australia | 1,9 | -0,19 | 0,74 | -1,56 | 1,97 | 2,95 | 0,6 | 1,03 |
| Northern America | Canada | 1,06 | -4,02 | -0,11 | -6,06 | 4,71 | 1,96 | -1,85 | 0,4 |
| Oceania | New Zealand | 2,09 | -1,05 | 1,64 | -2,6 | 4,11 | 2,66 | -1,41 | 0,94 |
| Northern America | United States | 1,04 | -3,43 | 2,19 | -3,16 | 5,63 | 1,56 | 2,04 | 1,16 |
| | Average | 4,22 | -5,19 | 2,95 | -4,64 | 6,67 | 3,5 | -0,11 | 1,38 |

*Legend: Colours – green shows the highest, red the lowest values*
*Source: WDI and author's calculation*

[3] GDP/cap is used rather than GDP to control for changing population.

Seen from the supply side, GDP growth can be accounted by the growth of hours worked (Table 9) and hourly productivity (GDP/h; Table 10). The following equation shows the major components:
GDP/cap = GDP/h × hours worked/employed person × employment/workforce × workforce/active population × active population/total population, with the factor employment/workforce equal to 1 − unemployment rate, and the active population being the age group 15-65.

The last four factors together give the total number of hours worked in an economy as a result of the number of hours worked per employee, unemployment rate, the labour market participation and the demographic structure.

Productivity growth could also be considered as the core (and main cause) of GDP growth, which can be translated into higher output (GDP) or fewer working hours. Historically, productivity increased much faster than in recent decades and has been partially used to reduce working time, at least in most richer countries. In the period under consideration here (2008-2021) the growth of the total number of hours worked reflected GDP growth to some extent, to some extent demographic change, or to changing labour market participation. Seen as demand, GDP growth (when stronger than productivity growth) leads to higher labour input (more employment).

In 2009 and 2020, the drop of hours worked in many countries was caused by the respective crises [Tab. 9]. In Greece and Spain, the longer-lasting decline resulted from the Euro crisis (as mentioned previously). In some other countries in the Baltics and Eastern Europe, the decline was probably driven by emigration. Generally, without structural changes in the labour force participation and working time regime, population growth drives the growth of the total number hours worked in an economy. In 2019, the total number of hours worked for all countries was 5% higher than in 2007. This gain disappeared during the crisis. But already in 2022, that loss was compensated in most countries. Seen from the supply side, more hours worked produce a higher output (GDP). The latter view informs policies that want to promote growth by increasing labour input through, for instance, higher labour market participation of women or later retirement.

*Table 9: Growth of hours worked in the total economy (%)*

| Region | Country | 2009 | 2017 | 2020 | 2021 | 2022 | 2023 | Average 2007 - 2023 | Average 2007 - 2023 |
|---|---|---|---|---|---|---|---|---|---|
| Western Europe | Austria | 1,0% | 1,5% | -1,6% | 0,3% | 2,6% | 2,9% | 1,4% | 24,8% |
| Western Europe | Belgium | -3,1% | 1,0% | -8,7% | 4,7% | 2,5% | 0,9% | 0,3% | 5,0% |
| Western Europe | France | -1,4% | 1,8% | -8,3% | 7,9% | 4,4% | 1,2% | 0,9% | 15,3% |
| Western Europe | Germany | -4,5% | 1,8% | -4,7% | 1,1% | -0,5% | 1,0% | -0,5% | -8,7% |
| Western Europe | Ireland | -3,2% | 1,4% | -12,0% | 10,7% | 4,6% | 3,5% | 1,1% | 17,2% |
| Western Europe | Luxembourg | -0,8% | 1,8% | -1,4% | 1,3% | 2,4% | 2,2% | -0,1% | -1,5% |
| Western Europe | Netherlands | -1,1% | 4,3% | -6,3% | 7,8% | 4,1% | 1,7% | 1,2% | 19,6% |
| Western Europe | Switzerland | -2,4% | 1,7% | -7,7% | 3,1% | 4,6% | 0,3% | 0,5% | 7,0% |
| Western Europe | United Kingdom | -4,0% | 0,9% | -3,0% | 6,1% | 4,1% | 0,5% | 0,4% | 6,3% |
| Northern Europe | Denmark | -16,4% | 2,8% | -6,0% | 8,1% | 4,8% | 1,6% | 0,0% | -1,9% |
| Northern Europe | Finland | -3,8% | 0,7% | -2,4% | 2,0% | 2,6% | -0,5% | 0,2% | 2,9% |
| Northern Europe | Iceland | -1,9% | 0,2% | -7,8% | 8,3% | 4,5% | 1,0% | 0,6% | 9,9% |
| Northern Europe | Norway | -2,8% | 0,9% | -4,9% | 2,6% | 1,3% | 0,4% | 0,3% | 5,3% |
| Northern Europe | Sweden | -1,7% | -0,3% | -11,8% | 8,4% | 3,9% | 1,7% | -0,2% | -4,1% |
| Southern Europe | Cyprus | -3,7% | 1,2% | -5,0% | 3,1% | 2,1% | -1,1% | 0,6% | 9,0% |
| Southern Europe | Greece | -13,2% | 3,4% | -5,8% | 1,1% | 7,1% | 4,1% | 0,7% | 10,2% |
| Southern Europe | Italy | -11,0% | 4,2% | -9,7% | 6,6% | 8,6% | 3,8% | 0,9% | 13,2% |
| Southern Europe | Malta | -3,4% | 1,0% | -11,7% | 10,2% | 4,2% | 2,3% | 0,0% | -1,6% |
| Southern Europe | Portugal | -16,5% | -0,9% | -5,6% | -1,1% | 4,9% | -0,3% | -1,7% | -25,0% |
| Southern Europe | Spain | -11,0% | -2,9% | -5,7% | 2,8% | 5,3% | 2,5% | 0,0% | -2,0% |
| Central and Eastern Europe | Bulgaria | -3,0% | 2,8% | -4,0% | 7,2% | 2,8% | 2,5% | 2,3% | 42,3% |
| Central and Eastern Europe | Croatia | 0,3% | 4,3% | -5,0% | 3,0% | 3,9% | 4,2% | 3,1% | 62,3% |
| Central and Eastern Europe | Czech Republic | -1,4% | 2,4% | -4,0% | 3,3% | 3,9% | 1,1% | 0,9% | 15,3% |
| Central and Eastern Europe | Estonia | -2,8% | 4,7% | -0,8% | 0,6% | 3,6% | 3,0% | 1,7% | 30,4% |
| Central and Eastern Europe | Hungary | -1,9% | 0,4% | -2,2% | 2,3% | 3,9% | 0,8% | 1,0% | 17,7% |
| Central and Eastern Europe | Latvia | -0,4% | 0,2% | -0,8% | 6,0% | 3,1% | -0,5% | 0,7% | 12,2% |
| Central and Eastern Europe | Lithuania | -2,7% | 2,7% | -8,6% | 2,6% | 3,7% | 1,2% | -0,2% | -4,3% |
| Central and Eastern Europe | Poland | -4,7% | 1,1% | -4,6% | 4,6% | 0,3% | -0,9% | -0,7% | -11,4% |
| Central and Eastern Europe | Romania | -2,7% | 0,7% | -8,8% | 0,0% | 3,6% | 1,0% | 0,1% | 1,2% |
| Central and Eastern Europe | Slovak Republic | -1,3% | 1,0% | -5,0% | 5,3% | 4,0% | 1,6% | 0,6% | 9,6% |
| Central and Eastern Europe | Slovenia | -6,0% | 2,1% | -11,0% | 7,2% | 3,9% | 1,9% | -0,2% | -4,3% |
| Oceania | Australia | -3,0% | 1,7% | -3,2% | 2,6% | 2,3% | 1,2% | 0,9% | 15,8% |
| Northern America | Canada | -0,1% | -0,2% | -3,7% | 2,8% | 1,3% | 2,3% | 0,7% | 11,7% |
| Oceania | New Zealand | -2,9% | 1,1% | -10,5% | 6,8% | 4,0% | 0,1% | 0,7% | 11,3% |
| Northern America | United States | -5,8% | 1,2% | -6,8% | 4,6% | 3,2% | 1,5% | 0,6% | 9,0% |
| | Average | -4,1% | 1,5% | -6,0% | 4,4% | 3,6% | 1,4% | 0,5% | |

*Legend: Colours – green shows the highest, red the lowest values*
*Source: Eurostat + OECD and author's calculation*

The second driver of growth is labour productivity. Generally, as can be seen in Table 10, crises (2009, 2020 and 2023) harmed productivity growth in many countries as production and value added declined faster than labour input.[4] Here, some countries (e.g. most of CEE) showed above average productivity growth.

*Table 10: Growth of productivity (GDP/h) – %*

| Region | Country | 2007 | 2009 | 2015 | 2020 | 2021 | 2022 | 2023 | Average 2007 - 2023 |
|---|---|---|---|---|---|---|---|---|---|
| Western Europe | Austria | 2,6 | -0,7 | 1,4 | 2,3 | -0,5 | 2,3 | -1,7 | 0,7 |
| Western Europe | Belgium | 1,8 | -0,6 | 1,5 | 3,2 | -0,9 | -1,3 | 9,5 | 1,0 |
| Western Europe | France | -0,4 | -1,0 | 0,8 | 0,2 | -1,4 | -1,4 | 0,2 | 0,3 |
| Western Europe | Germany | 1,2 | -3,0 | 0,5 | 1,2 | 0,6 | 0,5 | -0,6 | 0,7 |
| Western Europe | Ireland | 2,6 | 6,6 | 20,9 | 18,2 | 8,3 | -0,2 | -7,1 | 4,0 |
| Western Europe | Luxembourg | 2,6 | -0,2 | -0,8 | 3,2 | 0,0 | -1,3 | -2,8 | -0,3 |
| Western Europe | Netherlands | 0,8 | -2,2 | 1,1 | 0,0 | 2,4 | 0,7 | -1,5 | 0,4 |
| Western Europe | Switzerland | 1,9 | -2,2 | -0,7 | 1,7 | 2,6 | 1,2 |  | 1,2 |
| Western Europe | United Kingdom | 1,5 | -2,5 | 1,6 | 1,9 | -0,7 | 0,7 | -0,4 | 0,4 |
| Northern Europe | Denmark | 0,3 | -1,0 | 1,1 | 1,7 | 1,3 | -2,1 | 1,5 | 0,9 |
| Northern Europe | Finland | 3,3 | -4,5 | 0,8 | 0,1 | 0,8 | -1,2 | -1,0 | 0,3 |
| Northern Europe | Iceland | 6,0 | 6,4 | 1,7 | -1,3 | 4,1 | 1,6 | 0,3 | 1,5 |
| Northern Europe | Norway | -1,8 | -0,1 | 1,3 | 0,9 | 1,6 | -0,9 | -0,3 | 0,1 |
| Northern Europe | Sweden | 0,1 | -1,3 | 2,8 | 1,1 | 3,1 | -1,5 | -1,1 | 0,5 |
| Southern Europe | Cyprus | -0,2 | 1,8 | 1,0 | 2,7 | 2,1 | 1,0 |  | 0,9 |
| Southern Europe | Greece | 2,6 | -2,6 | 3,6 | 3,1 | 0,0 | 1,2 | 0,4 | -0,8 |
| Southern Europe | Italy | -0,1 | -2,0 | 0,1 | 3,1 | -1,7 | -0,2 | -1,4 | 0,1 |
| Southern Europe | Malta | 1,7 | 7,2 | -4,2 | 10,0 | -1,1 | 1,3 |  | 2,2 |
| Southern Europe | Portugal | 1,6 | -0,4 | 0,0 | 1,1 | 1,3 | 6,1 | 1,6 | 1,2 |
| Southern Europe | Spain | 1,1 | 2,4 | 0,8 | -0,2 | -0,8 | 1,8 | 0,6 | 0,9 |
| Central and Eastern Europe | Bulgaria | 3,3 | 1,2 | 3,0 | 0,8 | 6,5 | 4,4 | 0,8 | 2,7 |
| Central and Eastern Europe | Croatia | 1,8 | -6,5 | 4,8 | -7,2 | 11,6 | 4,5 | 1,2 | 1,4 |
| Central and Eastern Europe | Czech Republic | 4,2 | -2,5 | 4,8 | 3,3 | 0,1 | -1,5 | -0,8 | 1,3 |
| Central and Eastern Europe | Estonia | 7,5 | 2,1 | -0,5 | 5,3 | -0,8 | -5,0 | -4,5 | 1,6 |
| Central and Eastern Europe | Hungary | 2,3 | -2,9 | 1,8 | 1,2 | 3,9 | 2,4 | -0,4 | 1,3 |
| Central and Eastern Europe | Latvia | 8,0 | 2,7 | 4,4 | 2,2 | 7,9 | 3,3 | 0,0 | 3,1 |
| Central and Eastern Europe | Lithuania | 7,1 | -4,4 | -0,8 | 6,0 | 3,4 | -2,7 | -2,8 | 2,4 |
| Central and Eastern Europe | Poland | 2,6 | 3,2 | 2,4 | -1,2 | 0,9 | 2,4 | 0,7 | 2,7 |
| Central and Eastern Europe | Romania | 5,5 | -0,9 | 4,9 | 1,0 | 1,1 | 3,8 | 3,1 | 3,6 |
| Central and Eastern Europe | Slovak Republic | 8,0 | -2,9 | 3,8 | 6,3 | 4,7 | -1,9 | 0,2 | 2,5 |
| Central and Eastern Europe | Slovenia | 4,3 | -6,3 | 0,6 | 0,8 | 2,8 | -1,4 | 0,0 | 1,1 |
| Oceania | Australia | 1,1 | -0,8 | 2,5 | 1,9 | 1,6 | -4,1 | -3,0 | 0,7 |
| Northern America | Canada | 0,0 | 0,3 | -0,2 | 7,9 | -4,9 | -0,8 | -1,7 | 0,6 |
| Oceania | New Zealand | 3,9 | 5,3 | 2,3 | 1,8 | 2,7 | -0,9 | -2,7 | 0,7 |
| Northern America | United States | 1,4 | 3,2 | 0,9 | 4,6 | 1,4 | -1,6 | 3,1 | 1,3 |
|  | Average | 2,6 | -0,3 | 2,0 | 2,5 | 1,8 | 0,3 | -0,3 | 1,2 |

*Legend: Colours – green shows the highest, red the lowest values*
*Source: OECD + Eurostat and author's calculation*

[4] The same process increases the wage share during sharp recessions as profits collapse and wages continue to be paid until later, when employers start firing workers they can no longer afford.

On average, the distribution of income did not dramatically change during the period under consideration (2007-2021). The income considered here is disposable income that results after accounting for taxes paid and social benefits received[5]. In many countries, inequality declined somewhat in the wake of the financial crisis but increased again later. On average for all countries, the Gini reached its maximum in 2013 and declined afterwards. In the pandemic, income support schemes often lowered inequality. Over the whole period, a notable decline of income inequality occurred in some countries such as Croatia, Poland, Latvia and Romania. The strongest rises of inequality could be observed in Bulgaria, Italy, Lithuania, Luxembourg, Malta and Sweden [Tab. 11].

*Table 11: Gini index*

| Region | Country | 2007 | 2013 | 2019 | 2020 | 2021 | Average 2007 - 2021 | Change 2007 - 2021 |
|---|---|---|---|---|---|---|---|---|
| Western Europe | Austria | 30,6 | 30,8 | 30,2 | 29,8 | 30,7 | 30,5 | → |
| Western Europe | Belgium | 29,2 | 27,7 | 27,2 | 26 | 26,6 | 27,7 | ↘ |
| Western Europe | France | 32,4 | 32,5 | 31,2 | 30,7 | 31,5 | 32,3 | → |
| Western Europe | Germany | 31,2 | 31,5 | 31,8 | 32,4 | 32,4 | 31,3 | ↗ |
| Western Europe | Ireland | 31,9 | 33,5 | 30,8 | 29,2 | 30,1 | 31,7 | ↘ |
| Western Europe | Luxembourg | 31,1 | 32 | 34,2 | 33,4 | 32,7 | 32,7 | ↗ |
| Western Europe | Netherlands | 29,6 | 28,1 | 29,2 | 26 | 25,7 | 28 | ↘ |
| Western Europe | Switzerland | 34,3 | 32,5 | 34 | 33,7 | 33,7 | 33 | → |
| Western Europe | United Kingdom | 34,4 | 32,7 | 32,8 | 32,6 | 32,4 | 33,4 | ↘ |
| Northern Europe | Denmark | 26,2 | 28,5 | 27,7 | 27,5 | 28,3 | 27,6 | ↗ |
| Northern Europe | Finland | 28,3 | 27,2 | 27,7 | 27,1 | 27,7 | 27,4 | → |
| Northern Europe | Iceland | 29,5 | 25,4 | 26,1 | 26,1 | 26,1 | 27,2 | ↓ |
| Northern Europe | Norway | 27,1 | 26,4 | 27,7 | 27,7 | 27,7 | 26,9 | → |
| Northern Europe | Sweden | 27,1 | 28,8 | 29,3 | 28,9 | 29,8 | 28,5 | ↗ |
| Southern Europe | Cyprus | 31,1 | 37 | 31,2 | 31,7 | 31,3 | 32,7 | → |
| Southern Europe | Greece | 34 | 36,1 | 33,1 | 33,6 | 32,9 | 34,4 | ↘ |
| Southern Europe | Italy | 32,9 | 34,9 | 34,6 | 35,2 | 34,8 | 34,8 | ↗ |
| Southern Europe | Malta | 29,2 | 28,8 | 31 | 31,4 | 31,4 | 29,6 | ↗ |
| Southern Europe | Portugal | 36,8 | 36,2 | 32,8 | 34,7 | 34,6 | 35,2 | ↘ |
| Southern Europe | Spain | 34,1 | 36,2 | 34,3 | 34,9 | 33,9 | 35,1 | → |
| Central and Eastern Europe | Bulgaria | 36,1 | 36,6 | 40,3 | 40,5 | 39 | 37,6 | ↗ |
| Central and Eastern Europe | Croatia | 32,6 | 32 | 28,9 | 29,5 | 28,9 | 31 | ↓ |
| Central and Eastern Europe | Czech Republic | 26 | 26,5 | 25,3 | 26,2 | 26,2 | 25,9 | → |
| Central and Eastern Europe | Estonia | 31,2 | 35,1 | 30,8 | 30,7 | 31,8 | 32 | → |
| Central and Eastern Europe | Hungary | 27,9 | 31,5 | 30 | 29,7 | 29,2 | 29,6 | ↗ |
| Central and Eastern Europe | Latvia | 37,5 | 35,5 | 34,5 | 35,7 | 34,3 | 35,4 | ↓ |
| Central and Eastern Europe | Lithuania | 34,8 | 35,3 | 35,3 | 36 | 36,7 | 35,9 | ↗ |
| Central and Eastern Europe | Poland | 34 | 33,1 | 28,8 | 28,5 | 28,5 | 31,7 | ↓ |
| Central and Eastern Europe | Romania | 37,5 | 36,9 | 34,8 | 34,6 | 33,9 | 35,7 | ↘ |
| Central and Eastern Europe | Slovak Republic | 24,7 | 28,1 | 23,2 | 24,2 | 24,1 | 25,6 | → |
| Central and Eastern Europe | Slovenia | 24,4 | 26,2 | 24,4 | 24 | 24,3 | 24,8 | → |
| Oceania | Australia | 35,4 | 34,4 | 34,3 | .. | .. | 34,5 | ↘ |
| Northern America | Canada | 33,8 | 33,8 | 31,7 | 31,7 | 31,7 | 33,1 | ↘ |
| Oceania | New Zealand | .. | .. | .. | .. | .. | | |
| Northern America | United States | 40,8 | 40,6 | 41,5 | 39,7 | 39,7 | 40,8 | ↘ |
| | Average | 31,7 | 32,1 | 31,2 | 31 | 31 | 31,6 | → |

Note: * the given value does not refer to the year of the column heading but to the year closest to it with available data.
** Change between 2007 and 2021 except for countries where other years, again closest to it with available data, had to be used.

*Legend: Colours – green shows the lowest, red the highest values*
*Changes: ↑: > 3; ↗:< 3 and > 1; →: >−1 and <1; ↘: < −3 and > −1; ↓: > −3.*
*Source: World DI and author's calculation*

[5] Table 26 below presents the Gini index of the distribution of market income, i.e. before taxes and benefits.

Income distribution can be considered between households or individuals (usually measured by the Gini or other indicators) or between capital and labour or profits and wages, usually called the functional distribution of income. The latter is measured by the wage share that indicates the percentage of value added going to the workers.
As Table 12 shows, the wage share varies from country to country between, on average between 2010 and 2023, 70% in Switzerland and 30% in Ireland, whose GDP is heavily distorted by the huge share of artificially boosted profits as multinational enterprises relocate their profits to this low-tax location. For all countries the average has been 55%. The level is relatively low in most CEE countries but also in the richest European countries (Ireland, Luxembourg and Norway). In these countries, foreign investors or, in the case of Norway, a domestic sovereign wealth fund, appropriate a larger share of GDP.

Looking at the development over the period under consideration, the average for all countries changed only slightly (a drop of 1.3 percentage points). But that stability masks a much bigger swing during the pandemic when the wage share increased by almost 2 percentage points as profits collapsed but wages remained relatively stable.
This crisis-driven surge collapsed in the following years and the wage share fell below its pre-crisis levels, possibly due to inflation.

But some countries experienced bigger changes: in Slovakia, Bulgaria and the Baltic countries, the wage share increased by more than 7 percentage points while in Ireland it decreased by 21 points; in Australia, Spain and Portugal it decreased by more than 5. The seemingly dramatic decline in Ireland is also caused by the strange composition of GDP with large parts of value added resulting from the artificial and deliberate transfers of profits to firms benefitting from low taxes in Ireland (see above).

*Table 12: Wage share (percentage of GDP)*

| Region | Country | 2010 | 2015 | 2019 | 2020 | 2021 | 2022 | 2023 | Average 2007 - 2023 | Change 2007 - 2023 |
|---|---|---|---|---|---|---|---|---|---|---|
| Western Europe | Austria | 58,5 | 58,9 | 59,2 | 59,6 | 59,6 | 59,9 | 60,9 | 59,3 | → |
| Western Europe | Belgium | 65,2 | 63,9 | 61,9 | 63,2 | 61,1 | 63,3 | 63,8 | 63,7 | ↘ |
| Western Europe | France | 63,3 | 62,1 | 59,3 | 61,1 | 59,8 | 61,1 | 60,5 | 61,4 | ↘ |
| Western Europe | Germany | 61,7 | 62,2 | 63,2 | 62,5 | 61,2 | 60,3 | 60,1 | 61,8 | ↘ |
| Western Europe | Ireland | 52,7 | 36,8 | 34,6 | 32,8 | 30,6 | 29,7 | 31,6 | 39,6 | ↓ |
| Western Europe | Luxembourg | 54,8 | 54,8 | 55,8 | 56,4 | 54,8 | 54,9 | 55,6 | 54,8 | → |
| Western Europe | Netherlands | 65,4 | 63,1 | 61,5 | 63,9 | 62,5 | 61,8 | 61,5 | 63,4 | ↘ |
| Western Europe | Switzerland | 66,3 | 68,6 | 68,8 | 69,1 | 70,5 | 70,4 | 70,4 | 68,6 | ↗ |
| Western Europe | United Kingdom | 59,3 | 56,4 | 57,4 | 60,3 | 59 | 58,1 | 58,1 | 57,8 | ↘ |
| Northern Europe | Denmark | 59,9 | 58,6 | 56,2 | 58,2 | 58 | 55,5 | 58,2 | 58,2 | ↘ |
| Northern Europe | Finland | 59,5 | 57,6 | 54,6 | 53,8 | 55,5 | 54,7 | 55,1 | 56,2 | ↘ |
| Northern Europe | Iceland | 57,4 | 61,4 | 61,3 | 62,4 | 62 | 61,4 | 62,3 | 61,5 | ↗ |
| Northern Europe | Norway | 49,1 | 52 | 52,9 | 53,8 | 46,5 | 37,7 | 45,4 | 49 | ↘ |
| Northern Europe | Sweden | 53,7 | 55,4 | 54,7 | 55,1 | 53,7 | 52,3 | 52,4 | 54,8 | ↘ |
| Southern Europe | Cyprus | 57,1 | 49,6 | 49,7 | 52 | 48,5 | 46,5 | 46,8 | 51,1 | ↓ |
| Southern Europe | Greece | 58,1 | 53,1 | 55,9 | 59,7 | 57 | 55,9 | 55,6 | 56,5 | ↘ |
| Southern Europe | Italy | 59,2 | 58 | 61,8 | 56,9 | 58 | 56,7 | 55,9 | 58,6 | ↘ |
| Southern Europe | Malta | 48,6 | 47,4 | 50,9 | 54,2 | 51,5 | 50,8 | 51,2 | 50,3 | ↗ |
| Southern Europe | Portugal | 62,2 | 54,5 | 55 | 59 | 57,8 | 56,3 | 56,7 | 57,2 | ↓ |
| Southern Europe | Spain | 64 | 59,4 | 57,3 | 62,5 | 59,1 | 57,3 | 57,3 | 59,3 | ↓ |
| Central and Eastern Europe | Bulgaria | 44,3 | 50,7 | 51,7 | 53,1 | 51,3 | 50,3 | 50 | 49,7 | ↑ |
| Central and Eastern Europe | Croatia | 61 | 58,3 | 57,8 | 61,5 | 56,4 | 55,8 | 56,8 | 57,8 | ↘ |
| Central and Eastern Europe | Czech Republic | 54,2 | 51,7 | 56,4 | 57,6 | 56,3 | 54,5 | 54,2 | 54,6 | ↘ |
| Central and Eastern Europe | Estonia | 52 | 56,5 | 58,3 | 59,7 | 56,4 | 55,8 | 58,1 | 55,3 | ↑ |
| Central and Eastern Europe | Hungary | 51,2 | 48,4 | 48,9 | 48,9 | 47,1 | 44,7 | 44,9 | 49 | ↘ |
| Central and Eastern Europe | Latvia | 49,3 | 51,7 | 57 | 59,1 | 57,3 | 56,1 | 60 | 52,9 | ↑ |
| Central and Eastern Europe | Lithuania | 45,8 | 47,7 | 52,7 | 54,4 | 52,5 | 51,7 | 54,3 | 48,8 | ↑ |
| Central and Eastern Europe | Poland | 48 | 46,6 | 49,3 | 50,2 | 47,3 | 46,4 | 46,7 | 47,7 | ↘ |
| Central and Eastern Europe | Romania | 44 | 40,3 | 43,9 | 47,2 | 41,4 | 39,4 | 40 | 42 | → |
| Central and Eastern Europe | Slovak Republic | 46,2 | 48,5 | 53,4 | 53,6 | 53,3 | 53,9 | 53,3 | 50,2 | ↑ |
| Central and Eastern Europe | Slovenia | 61,2 | 58,5 | 58 | 61,3 | 59,8 | 57 | 58,2 | 59 | ↘ |
| Oceania | Australia | 61,4 | 62,1 | 59,6 | 55,7 | 53 | 53,9 | 53,7 | 58,6 | ↘ |
| Northern America | Canada | 61,2 | 62,3 | 60,8 | 62,2 | 59,5 | 58,3 | 60,2 | 60,6 | → |
| Oceania | New Zealand | 51,2 | 49,5 | 52,1 | 54,1 | 54 | 52,6 | 53,3 | 51,6 | ↗ |
| Northern America | United States | 58,8 | 58,6 | 58,2 | 60 | 58,8 | 58,4 | 57,7 | 58,5 | → |
| | Average | 56,2 | 55 | 55,7 | 57 | 55,2 | 54,1 | 54,9 | 55,4 | |

*Legend: Colours – green shows the highest, red the lowest values*
*Changes: ↑: > 5; ↗:< 5 and > 1; →: >−1 and <1; ↘: < −5 and > −1; ↓: > −5.*
*Source: International Labour Organization (ILO) and author's calculation*

The distribution of wealth showed a pattern similar to the income distribution, without dramatic changes.

*Table 13: Wealth distribution (share of top ten, %)*

| Region | Country | 2007 (in %) | 2014 (in %) | 2022 (in %) | Change 2007 - 2022 |
|---|---|---|---|---|---|
| Western Europe | Austria | 61,30 | 60,40 | 61,60 | → |
| Western Europe | Belgium | 52,90 | 50,90 | 52,40 | → |
| Western Europe | France | 56,60 | 58,50 | 57,70 | ↗ |
| Western Europe | Germany | 60,10 | 58,70 | 57,60 | ↘ |
| Western Europe | Ireland | 70,00 | 72,20 | 66,20 | ↘ |
| Western Europe | Luxembourg | 61,80 | 64,80 | 58,60 | ↘ |
| Western Europe | Netherlands | 49,70 | 53,60 | 45,00 | ↘ |
| Western Europe | Switzerland | 59,40 | 61,60 | 62,80 | ↗ |
| Western Europe | United Kingdom | 54,40 | 57,80 | 57,00 | ↗ |
| Northern Europe | Denmark | 51,10 | 50,50 | 50,60 | → |
| Northern Europe | Finland | 55,90 | 54,80 | 55,60 | → |
| Northern Europe | Iceland | 59,60 | 55,70 | 56,70 | ↘ |
| Northern Europe | Norway | 51,40 | 48,40 | 52,20 | → |
| Northern Europe | Sweden | 60,00 | 59,20 | 58,90 | ↘ |
| Southern Europe | Cyprus | 54,60 | 56,60 | 65,90 | ↑ |
| Southern Europe | Greece | 49,40 | 59,40 | 60,40 | ↑ |
| Southern Europe | Italy | 55,00 | 58,50 | 56,20 | ↗ |
| Southern Europe | Malta | 44,20 | 46,60 | 54,00 | ↑ |
| Southern Europe | Portugal | 59,00 | 59,40 | 60,10 | ↗ |
| Southern Europe | Spain | 56,00 | 58,30 | 56,60 | ↗ |
| Central and Eastern Europe | Bulgaria | 56,30 | 57,10 | 59,10 | ↗ |
| Central and Eastern Europe | Croatia | 56,70 | 56,30 | 59,80 | ↗ |
| Central and Eastern Europe | Czech Republic | 56,20 | 57,30 | 58,50 | ↗ |
| Central and Eastern Europe | Estonia | 66,70 | 66,70 | 67,70 | → |
| Central and Eastern Europe | Hungary | 60,20 | 59,60 | 67,10 | ↑ |
| Central and Eastern Europe | Latvia | 65,60 | 65,30 | 60,70 | ↘ |
| Central and Eastern Europe | Lithuania | 57,00 | 58,20 | 62,30 | ↑ |
| Central and Eastern Europe | Poland | 61,50 | 61,60 | 61,80 | → |
| Central and Eastern Europe | Romania | 59,20 | 58,20 | 57,70 | ↘ |
| Central and Eastern Europe | Slovak Republic | 42,10 | 47,40 | 49,50 | ↑ |
| Central and Eastern Europe | Slovenia | 48,10 | 56,70 | 57,20 | ↑ |
| Oceania | Australia | 55,90 | 56,60 | 57,00 | ↗ |
| Northern America | Canada | 58,50 | 58,30 | 58,40 | → |
| Oceania | New Zealand | 55,80 | 56,50 | 56,60 | → |
| Northern America | United States | 68,40 | 72,90 | 70,70 | ↗ |
| | Average | 56,90 | 58,10 | 58,60 | ↗ |

*Legend: Colours – green shows the lowest, red the highest values*
*Changes: ↑: > 5; ↗:< 5 and > 1; →: >−1 and <1; ↘: < −5 and > −1; ↓: > −5.*
*Source: World Inequality Database (WID) and author's calculation*

On average for all countries, the financial crisis reduced the share of the richest 10% slightly in many countries, but the subsequent period of low interest rates led to a continuous rise of wealth inequality by about two percentage points. The rise of interest rates after 2022 has halted that rise, but a new decline did not yet register as data for later years were not yet available.

### 7.2.3. Outcome: employment, income and wealth

In this subsection, there is a closer look at those features of the economy that are relevant for the well-being of the population; notably employment, income and wealth. As already mentioned above, labour is a source of income (and often of other types of satisfaction) but also a burden that many people want to minimise. Thus, the real source of overall welfare is productivity growth [Tab. 8], which allows for higher output (and indirectly income and consumption) using the same or a lower amount of labour. The choice between higher output and more leisure time (or time spent on other activities such as care or voluntary work) is one primarily taken by individuals but also by societies in so far as they regulate working time, minimum vacations and retirement age.

Nonetheless, unemployment and a lack of job opportunities is a problem for the individuals affected and the economy and society as a whole. While unemployment insurance reduces the negative effects of losing a job to some extent, the optimal situation is a labour market that provides jobs for all people who want to work and earn an income this way. Thus, unemployment rates indicate a poor performance of the economy and, possibly, of the public policies that are supposed to avoid or reduce it.

Table 14 shows the unemployment rates for the countries and years under consideration here. As to be expected from the analysis in the previous subsection, unemployment increased sharply in 2009 and, to a lesser extent, in 2020. While almost all countries suffered from the two shocks of the financial crisis and the pandemic, there were substantial differences in the level of unemployment if the average over the whole period under consideration is taken. Again, Greece and Spain are the most affected countries with rates above 17%; the best performers are Norway, the Czech Republic and Switzerland.

In the pandemic, unemployment did not increase as strongly as in the financial crisis (10.1% vs 6.6%). This positive development was probably due the adoption of furlough policies by many countries (Dauderstädt, 2021a) that had learned the German lesson of 2009-2010. However, unemployment went up by one percentage point in 2020. Generally, most countries could quickly reduce those levels of unemployment afterwards (on average by 1.3 percentage points) to a level even lower than before the pandemic. The most successful countries in this regard were the USA, Canada, Greece and Spain, with the latter two starting from the highest levels of all countries in 2020 (above 15%).

*Table 14: Unemployment rate (%)*

| Region | Country | 2007 | 2013 | 2019 | 2020 | 2021 | 2022 | 2023 | Average | Change 2007 - 2023 | Change 2020 - 2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Western Europe | Austria | 4,9 | 5,4 | 4,6 | 5,2 | 6,5 | 5 | 5,2 | 5,2 | → | → |
| Western Europe | Belgium | 7,5 | 8,4 | 5,4 | 5,6 | 6,3 | 5,6 | 5,5 | 7,1 | ↘ | → |
| Western Europe | France | 8 | 9,9 | 8,4 | 8 | 7,9 | 7,3 | 7,3 | 8,9 | → | → |
| Western Europe | Germany | 8,7 | 5,2 | 3,1 | 3,9 | 3,6 | 3,1 | 3 | 5 | ↓ | → |
| Western Europe | Ireland | 5 | 13,7 | 5 | 5,6 | 6,2 | 4,5 | 4,3 | 8,9 | ↘ | ↘ |
| Western Europe | Luxembourg | 4,1 | 5,8 | 5,6 | 6,8 | 5,2 | 4,6 | 5,2 | 5,4 | ↗ | ↘ |
| Western Europe | Netherlands | 4,2 | 7,2 | 3,4 | 3,8 | 4,2 | 3,5 | 3,6 | 4,9 | → | → |
| Western Europe | Switzerland | 3,6 | 4,7 | 4,4 | 4,8 | 5,1 | 4,3 | 4,1 | 4,5 | → | → |
| Western Europe | United Kingdom | 5,3 | 7,5 | 3,7 | 4,5 | 4,8 | 3,7 | 4,1 | 5,6 | ↘ | → |
| Northern Europe | Denmark | 3,8 | 7,4 | 5 | 5,6 | 5 | 4,4 | 5,1 | 5,9 | ↗ | → |
| Northern Europe | Finland | 6,9 | 8,2 | 6,7 | 7,8 | 7,6 | 6,7 | 7,2 | 7,8 | → | → |
| Northern Europe | Iceland | 2,3 | 5,4 | 3,5 | 5,5 | 6 | 3,8 | 3,6 | 4,6 | ↗ | ↘ |
| Northern Europe | Norway | 2,5 | 3,4 | 3,7 | 4,4 | 4,4 | 3,2 | 3,6 | 3,6 | ↗ | → |
| Northern Europe | Sweden | 6,2 | 8,1 | 6,8 | 8,3 | 8,7 | 7,4 | 7,6 | 7,5 | ↗ | → |
| Southern Europe | Cyprus | 3,9 | 16,1 | 7,2 | 7,8 | 7,5 | 6,8 | 6 | 9,1 | ↗ | ↘ |
| Southern Europe | Greece | 8,4 | 27,7 | 17 | 15,9 | 14,7 | 12,4 | 11 | 17,4 | ↗ | ↘ |
| Southern Europe | Italy | 6,1 | 12,1 | 10 | 9,2 | 9,5 | 8,1 | 7,6 | 9,6 | ↗ | ↘ |
| Southern Europe | Malta | 6,5 | 6,1 | 3,6 | 4,4 | 3,4 | 2,9 | 3,1 | 5 | ↘ | ↘ |
| Southern Europe | Portugal | 8 | 16,2 | 6,5 | 6,8 | 6,6 | 6 | 6,5 | 9,7 | ↘ | → |
| Southern Europe | Spain | 8,2 | 26,1 | 14,1 | 15,5 | 14,8 | 12,9 | 12,1 | 17,5 | ↗ | ↘ |
| Central and Eastern Europe | Bulgaria | 6,9 | 12,9 | 4,2 | 5,1 | 5,3 | 4,3 | 4,3 | 7,6 | ↘ | → |
| Central and Eastern Europe | Croatia | 9,9 | 17,3 | 6,6 | 7,5 | 7,6 | 7 | 6,1 | 11 | ↘ | ↘ |
| Central and Eastern Europe | Czech Republic | 5,3 | 7 | 2 | 2,6 | 2,8 | 2,2 | 2,6 | 4,5 | → | → |
| Central and Eastern Europe | Estonia | 4,6 | 8,6 | 4,5 | 7 | 6,2 | 5,6 | 6,3 | 7,8 | ↗ | → |
| Central and Eastern Europe | Hungary | 7,4 | 10,2 | 3,4 | 4,3 | 4 | 3,6 | 4,1 | 6,8 | ↘ | → |
| Central and Eastern Europe | Latvia | 6,1 | 11,9 | 6,3 | 8,1 | 7,5 | 6,8 | 6,5 | 10,3 | → | ↘ |
| Central and Eastern Europe | Lithuania | 4,3 | 11,8 | 6,3 | 8,5 | 7,1 | 6 | 7 | 9,3 | ↗ | ↘ |
| Central and Eastern Europe | Poland | 9,6 | 10,3 | 3,3 | 3,2 | 3,4 | 2,9 | 2,9 | 6,6 | ↓ | → |
| Central and Eastern Europe | Romania | 6,4 | 7,1 | 3,9 | 5 | 5,6 | 5,6 | 5,6 | 6 | → | → |
| Central and Eastern Europe | Slovak Republic | 11,2 | 14,2 | 5,8 | 6,7 | 6,9 | 6,1 | 5,8 | 9,9 | ↓ | → |
| Central and Eastern Europe | Slovenia | 4,8 | 10,1 | 4,4 | 5 | 4,7 | 4 | 3,6 | 6,4 | ↘ | ↘ |
| Oceania | Australia | 4,4 | 5,7 | 5,2 | 6,5 | 5,1 | 3,7 | 3,7 | 5,2 | → | ↘ |
| Northern America | Canada | 6,2 | 7,1 | 5,7 | 9,7 | 7,5 | 5,3 | 5,4 | 6,9 | → | ↘ |
| Oceania | New Zealand | 3,7 | 5,8 | 4,1 | 4,6 | 3,8 | 3,3 | 3,7 | 5 | → | → |
| Northern America | United States | 4,6 | 7,4 | 3,7 | 8,1 | 5,3 | 3,7 | 3,6 | 6 | ↘ | ↘ |
| | Average | 6 | 10,1 | 5,6 | 6,6 | 6,3 | 5,3 | 5,3 | 7,5 | ↘ | ↘ |

*Legend: Colours – green shows the lowest, red the highest values*
*Changes: ↑: > 5; ↗:< 5 and > 1; →: > −1 and <1; ↘: > −1.*
*Source: WDI and author's calculation*

As explained above, paid work is not only a privilege but also a burden. People want to have and need time to be able to continue working and for other purposes, including care work. Time use analysis shows that paid work takes up a similar amount of time as unpaid work and leisure, with the bulk of time used for personal care (including activities such as sleep and eating). There are large differences between men and women, who do much more unpaid than paid work. Historically, the number of hours worked per employee has declined due to higher productivity. During the period between 2007 and 2023 a slow decline (on average for all countries) could be observed (see the last column in Table 15). The pandemic caused a stronger drop of, on average, by 87 hours, that is likely to be reversed later. Numbers substantially differ from country to country. In poorer countries (with lower productivity) employees tend to work more hours per year. In the sample, the average number for the whole period is highest in Malta and Greece with over 1900 hours and lowest in mostly rich countries such as Netherlands, Norway, Denmark and Germany with values below or just slightly higher than 1,400. These low values mostly reflect a larger share of

part-time workers. That share is extremely high in the Netherlands (more than 60% according to World Bank data) although the number of hours worked is not much lower than in most Scandinavian countries or Germany, where the share of part-time work employment is between 40% and 50%.

*Table 15: Number of hours worked per employee and year*

| Region | Country | 2007 | 2014 | 2020 | 2021 | 2022 | 2023 | Change 2007 - 2023 | Average 2007 - 2023 |
|---|---|---|---|---|---|---|---|---|---|
| Western Europe | Austria | 1606 | 1510 | 1400 | 1437 | 1435 | 1435 | -171 | 1509 |
| Western Europe | Belgium | 1594 | 1582 | 1446 | 1530 | 1535 | | -59 | 1566 |
| Western Europe | France | 1537 | 1518 | 1400 | 1475 | 1501 | 1500 | -37 | 1514 |
| Western Europe | Germany | 1454 | 1400 | 1316 | 1348 | 1347 | 1343 | -112 | 1392 |
| Western Europe | Ireland | 1745 | 1689 | 1620 | 1627 | 1657 | 1633 | -112 | 1683 |
| Western Europe | Luxembourg | 1581 | 1512 | 1408 | 1467 | 1459 | 1462 | -119 | 1505 |
| Western Europe | Netherlands | 1429 | 1434 | 1404 | 1412 | 1415 | 1413 | -16 | 1429 |
| Western Europe | Switzerland | 1669 | 1564 | 1499 | 1531 | 1529 | | -140 | 1581 |
| Western Europe | United Kingdom | 1541 | 1542 | 1364 | 1498 | 1531 | 1524 | -17 | 1518 |
| Northern Europe | Denmark | 1433 | 1414 | 1341 | 1390 | 1394 | 1380 | -53 | 1405 |
| Northern Europe | Finland | 1605 | 1559 | 1530 | 1528 | 1514 | 1499 | -106 | 1556 |
| Northern Europe | Iceland | 1554 | 1513 | 1464 | 1459 | 1459 | 1448 | -106 | 1511 |
| Northern Europe | Norway | 1438 | 1424 | 1410 | 1426 | 1425 | 1418 | -20 | 1426 |
| Northern Europe | Sweden | 1461 | 1464 | 1426 | 1447 | 1440 | 1437 | -24 | 1461 |
| Southern Europe | Cyprus | 1862 | 1815 | 1728 | 1789 | 1810 | | -52 | 1824 |
| Southern Europe | Greece | 2001 | 1949 | 1732 | 1854 | 1886 | 1897 | -104 | 1933 |
| Southern Europe | Italy | 1818 | 1716 | 1543 | 1686 | 1726 | 1734 | -84 | 1729 |
| Southern Europe | Malta | 2171 | 1945 | 1910 | 1914 | 1876 | 1835 | -336 | 2013 |
| Southern Europe | Portugal | 1755 | 1725 | 1611 | 1649 | 1635 | 1631 | -124 | 1710 |
| Southern Europe | Spain | 1701 | 1691 | 1558 | 1633 | 1652 | 1632 | -69 | 1680 |
| Central and Eastern Europe | Bulgaria | 1655 | 1644 | 1605 | 1619 | 1617 | 1618 | -37 | 1641 |
| Central and Eastern Europe | Croatia | 1930 | 1891 | 1834 | 1835 | 1837 | 1837 | -93 | 1875 |
| Central and Eastern Europe | Czech Republic | 1775 | 1774 | 1677 | 1722 | 1774 | 1766 | -9 | 1769 |
| Central and Eastern Europe | Estonia | 1903 | 1771 | 1637 | 1767 | 1770 | 1742 | -161 | 1770 |
| Central and Eastern Europe | Hungary | 1788 | 1749 | 1653 | 1682 | 1691 | 1679 | -109 | 1735 |
| Central and Eastern Europe | Latvia | 1794 | 1695 | 1577 | 1601 | 1553 | 1548 | -246 | 1663 |
| Central and Eastern Europe | Lithuania | 1707 | 1650 | 1595 | 1620 | 1624 | 1641 | -66 | 1664 |
| Central and Eastern Europe | Poland | 1855 | 1822 | 1769 | 1828 | 1815 | 1803 | -52 | 1818 |
| Central and Eastern Europe | Romania | 1840 | 1793 | 1756 | 1824 | 1827 | 1826 | -14 | 1811 |
| Central and Eastern Europe | Slovak Republic | 1791 | 1760 | 1572 | 1583 | 1622 | 1631 | -160 | 1723 |
| Central and Eastern Europe | Slovenia | 1655 | 1682 | 1532 | 1593 | 1610 | 1616 | -39 | 1638 |
| Oceania | Australia | 1709 | 1672 | 1613 | 1622 | 1628 | 1651 | -58 | 1663 |
| Northern America | Canada | 1745 | 1709 | 1653 | 1685 | 1686 | | -59 | 1705 |
| Oceania | New Zealand | 1774 | 1758 | 1739 | 1730 | 1748 | 1751 | -23 | 1753 |
| Northern America | United States | 1842 | 1829 | 1789 | 1813 | 1804 | 1799 | -43 | 1818 |
| | Average | 1706 | 1662 | 1575 | 1618 | 1624 | 1617 | -87 | 1657 |

Note: * figures refer to 2007-2022.

*Legend: Colours – green shows the lowest, red the highest values*

Source OECD author's calculation

Lower unemployment and more hours worked increase both GDP and thus income. Income is measured according to different concepts. Gross national income (GNI) differs from GDP as it includes income of citizens living and working abroad while it excludes value added in the country but earned by foreigners (often foreign investors). Other concepts are net national income, which subtracts depreciation from GNI, and disposable income which subtracts taxes and social security contributions and adds transfers received. Levels and growth rates of GDP and GNI are very similar for most countries.

*Table 16: Growth of GNI (%)*

| Region | Country | 2007 | 2009 | 2017 | 2020 | 2021 | 2022 | Average 2007 - 2022 |
|---|---|---|---|---|---|---|---|---|
| Western Europe | Austria | 2,8 | -4,2 | 0,0 | -5,4 | 3,9 | -0,1 | 0,3 |
| Western Europe | Belgium | 3,0 | -1,4 | 0,8 | -5,2 | 5,4 | -0,9 | 0,5 |
| Western Europe | France | 2,1 | -2,5 | 1,7 | -8,7 | 7,5 | 0,3 | 0,5 |
| Western Europe | Germany | 3,0 | -2,9 | 1,8 | -4,1 | 3,0 | -1,1 | 1,1 |
| Western Europe | Ireland | 0,3 | -8,6 | 4,8 | 2,4 | 9,6 | 3,2 | 3,2 |
| Western Europe | Luxembourg | 12,4 | -22,2 | 6,8 | 1,9 | 5,5 | -3,6 | 0,3 |
| Western Europe | Netherlands | 2,9 | -3,1 | 3,6 | -5,6 | 10,8 | -0,3 | 0,8 |
| Western Europe | Switzerland | -3,8 | 5,5 | -1,3 | -4,7 | 7,8 | 2,6 | 0,2 |
| Western Europe | United Kingdom | 1,2 | -4,0 | 2,8 | -12,2 | .. | .. | -0,1 |
| Northern Europe | Denmark | -0,5 | -5,8 | 2,0 | -0,8 | 7,8 | 3,2 | 1,3 |
| Northern Europe | Finland | 3,9 | -7,4 | 2,3 | -0,8 | 2,5 | -0,5 | 0,3 |
| Northern Europe | Iceland | .. | .. | .. | .. | .. | .. | |
| Northern Europe | Norway | 0,6 | -9,7 | 2,7 | -6,6 | 15,8 | 25,0 | 2,2 |
| Northern Europe | Sweden | 3,7 | -5,8 | 2,0 | -2,1 | 6,4 | 1,6 | 1,1 |
| Southern Europe | Cyprus | 1,9 | -3,3 | 5,8 | -6,1 | 6,7 | 5,1 | 0,9 |
| Southern Europe | Greece | 2,5 | -3,6 | 0,9 | -8,4 | 8,0 | 5,3 | -0,8 |
| Southern Europe | Italy | 1,0 | -3,6 | 1,7 | -7,3 | 7,5 | 0,7 | -0,1 |
| Southern Europe | Malta | 3,4 | -5,4 | 7,5 | -11,4 | 12,1 | 5,7 | 2,9 |
| Southern Europe | Portugal | 2,5 | -1,2 | 3,5 | -6,8 | 5,1 | 3,8 | 1,0 |
| Southern Europe | Spain | 1,4 | -2,7 | 2,4 | -11,0 | 6,6 | 2,1 | 0,2 |
| Central and Eastern Europe | Bulgaria | 2,3 | -1,3 | 4,4 | -4,1 | 7,9 | 11,4 | 3,3 |
| Central and Eastern Europe | Croatia | 5,4 | -7,5 | 6,1 | -6,0 | 15,7 | 7,9 | 2,4 |
| Central and Eastern Europe | Czech Republic | 5,4 | -5,0 | 5,1 | -3,9 | 6,4 | -2,5 | 1,5 |
| Central and Eastern Europe | Estonia | 8,6 | -11,4 | 5,3 | -0,7 | 8,7 | -2,1 | 2,8 |
| Central and Eastern Europe | Hungary | -0,7 | -3,7 | 2,5 | -2,5 | 4,0 | 0,5 | 1,9 |
| Central and Eastern Europe | Latvia | 14,3 | -5,6 | 4,4 | -0,3 | 4,5 | 4,2 | 2,9 |
| Central and Eastern Europe | Lithuania | 11,2 | -11,0 | 5,7 | 1,3 | 0,6 | -5,2 | 3,0 |
| Central and Eastern Europe | Poland | 6,2 | 1,7 | 4,7 | -1,5 | 6,6 | 9,1 | 4,0 |
| Central and Eastern Europe | Romania | 8,7 | -3,7 | 8,7 | -3,3 | 5,9 | 3,3 | 3,7 |
| Central and Eastern Europe | Slovak Republic | 9,8 | -5,2 | 3,1 | -2,3 | 2,0 | -0,6 | 1,9 |
| Central and Eastern Europe | Slovenia | 5,9 | -5,6 | 5,1 | -3,6 | 5,5 | -1,0 | 1,2 |
| Oceania | Australia | 2,7 | 1,9 | 3,1 | 0,0 | 5,5 | 2,6 | 1,7 |
| Northern America | Canada | 2,1 | -7,2 | 3,0 | -6,6 | 8,6 | 3,0 | 0,8 |
| Oceania | New Zealand | 4,9 | 2,6 | 2,7 | -1,5 | 3,0 | 0,8 | 1,8 |
| Northern America | United States | -0,2 | -2,4 | 2,0 | -3,5 | 6,0 | 1,9 | 1,2 |
| | Average | 3,9 | -4,6 | 3,5 | -4,2 | 6,7 | 2,6 | 1,5 |

*Legend: Colours – green show the highest, red the lowest values*
*Source: WDI and author's calculation*

As in Table 8, presenting GDP growth, Table 16 clearly indicates two major recessions when GNI dropped dramatically: by 4.6% in the financial crisis in 2009, and by 4.2% during the pandemic from 2020. After that second shock, recovery has been much faster. On average, GNI surged by 6.7% in 2021. Generally, for the whole period under investigation (2007-2022), growth has been strongest in many CEE countries and in Ireland whose GNI growth, however, has been weaker than its growth of GDP, as could be expected. Australia, New Zealand, Malta and Norway showed above average growth, too. Norway benefitted from the energy crisis after the Russian invasion and the subsequent sanctions, and achieved a stellar growth rate of 25% in 2022.

High income levels are closely correlated with high levels of wealth. On average for all countries, wealth per adult has grown by 40% since 2007 while income only increased by 18.6%. The growth of wealth suffered similar setbacks as the growth of GDP or GNI. After 2008 the average wealth declined and, in 2020, wealth growth was much weaker than in the years before. But both shocks were compensated by later growth. The best performing countries over the whole period were mostly rich ones such as Norway, Sweden, Germany, but also Poland, a surprising top performer, while among the worst performers the countries of the Eurozone's southern periphery are found again: Greece, Italy and Spain.

*Table 17: Growth of net wealth per adult (%)*

| Region | Country | 2008 | 2009 | 2015 | 2020 | 2021 | 2022 | Change 2008 - 2022 |
|---|---|---|---|---|---|---|---|---|
| Western Europe | Austria | 1,1% | -1,8% | 1,6% | 0,2% | 6,0% | 4,0% | 30,4% |
| Western Europe | Belgium | 0,6% | -1,8% | 2,0% | -1,5% | 4,1% | 1,3% | 16,0% |
| Western Europe | France | -4,1% | -4,8% | -1,6% | 3,7% | 5,8% | 2,5% | 14,9% |
| Western Europe | Germany | 2,7% | -0,5% | 6,3% | 3,7% | 6,4% | 4,2% | 89,3% |
| Western Europe | Ireland | -1,9% | -7,8% | -1,5% | -9,9% | 16,3% | 6,1% | 2,0% |
| Western Europe | Luxembourg | -9,9% | -1,5% | 10,7% | -2,5% | 4,8% | 0,8% | 66,0% |
| Western Europe | Netherlands | 4,4% | 0,7% | 2,4% | 5,4% | 14,6% | -3,5% | 42,3% |
| Western Europe | Switzerland | 0,3% | -1,8% | 4,8% | 5,2% | 4,8% | 2,2% | 56,6% |
| Western Europe | United Kingdom | -10,6% | -13,8% | 4,3% | 10,2% | 8,8% | -2,2% | 24,3% |
| Northern Europe | Denmark | -4,5% | -6,6% | 8,3% | 3,1% | 14,1% | -3,3% | 42,1% |
| Northern Europe | Finland | -2,3% | -2,6% | 0,5% | 2,0% | 4,2% | -0,2% | 16,5% |
| Northern Europe | Iceland | -23,2% | -17,9% | 8,0% | -7,5% | 0,8% | 7,0% | 3,1% |
| Northern Europe | Norway | 0,9% | 2,7% | 14,7% | 9,5% | -6,2% | -9,5% | 84,6% |
| Northern Europe | Sweden | 0,0% | 1,9% | 7,9% | 6,3% | 9,3% | -0,5% | 98,3% |
| Southern Europe | Cyprus | 1,1% | -5,1% | -11,6% | 2,4% | 7,1% | 8,6% | 10,6% |
| Southern Europe | Greece | -8,7% | -14,2% | -5,5% | -7,6% | 23,5% | 24,5% | -16,4% |
| Southern Europe | Italy | -1,8% | -2,2% | -2,3% | -0,9% | 2,2% | 1,6% | -15,3% |
| Southern Europe | Malta | 7,7% | -8,9% | 5,7% | -4,8% | 12,7% | 8,3% | 39,2% |
| Southern Europe | Portugal | -0,1% | -2,9% | 2,1% | -3,5% | 1,4% | 8,4% | 11,3% |
| Southern Europe | Spain | -0,9% | -8,9% | 2,5% | -2,8% | 0,5% | 1,0% | -16,1% |
| Central and Eastern Europe | Bulgaria | 10,8% | 3,2% | 1,0% | 0,2% | 10,5% | 9,8% | 75,1% |
| Central and Eastern Europe | Croatia | 1,6% | -7,1% | 6,3% | -0,7% | 19,0% | 14,2% | 76,0% |
| Central and Eastern Europe | Czech Republic | 4,5% | -2,0% | 2,9% | 3,1% | 0,8% | 2,2% | 33,1% |
| Central and Eastern Europe | Estonia | 0,4% | -8,9% | 3,7% | 2,0% | 8,9% | -0,9% | 60,5% |
| Central and Eastern Europe | Hungary | 1,9% | -3,8% | 7,9% | 0,3% | 7,8% | 4,4% | 73,3% |
| Central and Eastern Europe | Latvia | 1,5% | -5,3% | 5,7% | 2,0% | 8,3% | 5,9% | 52,4% |
| Central and Eastern Europe | Lithuania | 3,4% | -7,2% | 4,2% | 6,0% | 11,1% | 5,4% | 70,8% |
| Central and Eastern Europe | Poland | 4,6% | -0,8% | 6,1% | 2,3% | 12,2% | 6,2% | 106,5% |
| Central and Eastern Europe | Romania | 5,6% | -6,3% | 5,2% | -0,5% | 7,5% | 3,8% | 56,3% |
| Central and Eastern Europe | Slovak Republic | 13,6% | 2,2% | 2,8% | 2,2% | 4,6% | 1,6% | 53,5% |
| Central and Eastern Europe | Slovenia | 1,2% | -6,0% | -1,7% | -0,3% | 7,1% | -4,7% | 2,3% |
| Oceania | Australia | -2,5% | -7,9% | 6,4% | 1,6% | 11,2% | 1,3% | 27,3% |
| Northern America | Canada | -3,8% | 3,3% | 7,1% | 7,9% | 6,8% | -3,1% | 72,8% |
| Oceania | New Zealand | -3,9% | -1,8% | 7,5% | 6,7% | 2,8% | 1,4% | 37,9% |
| Northern America | United States | -9,1% | -7,4% | 6,1% | -3,5% | 7,8% | -0,1% | 7,2% |
| | Average | -0,6% | -4,4% | 3,7% | 1,1% | 7,6% | 3,1% | 40,1% |

*Legend: Colours – green shows the highest, red the lowest values*
Source WID and author's calculation

How did public policies influence these developments? The obvious candidate is monetary policy. As explained above, low interest rates, as they prevailed between 2012 and 2022, caused a rise of asset prices which explains the higher growth of wealth in comparison to GNI. Regarding fiscal and tax policies, an assessment becomes more difficult. Expansionary fiscal policies were usually adopted during crises or recessions when income and wealth were declining. Thus, simple correlations often suggest that they are harmful rather than helpful, but a less expansionary policy probably would have deepened the recessions. In most countries, neither tax policies (share of taxes on income and on goods and services; Tables 3 and 4) nor inequality changed much during the period under consideration.

### 7.2.4. Life expectancy, trust and satisfaction

As important as the economic features considered in the previous subsections are, they are only partially responsible for the well-being and happiness of people. Thus, three ultimate goals of public policy are considered – life expectancy, happiness or satisfaction and trust in government. In the previous study of 2023, outputs and outcomes were correlated with these three target indicators; in this study, just the latest available data is presented. The correlation exercise will be replaced by an in-depth analysis of the policies of the most successful countries.

Arguably, the most important indicator for the quality of human life is its duration (life expectancy)[6]. As Table 18 shows, between 2007 and 2022, life expectancy increased in all countries except the USA by, on average, two years. The highest increase by more than four years could be observed in the Baltic countries, albeit from a relatively low level (under 73 years in 2007); but Bulgaria and Romania, two countries with similarly low values in 2007, improved much less.

[6] The issue of health adjusted life years is neglected for the time being. Longer lives mean longer times with disease or disability (https://ourworldindata.org/grapher/years-lived-with-disability-vs-gdp-per-capita)

*Table 18: Life expectancy (in years)*

| Region | Country | 2007 | 2014 | 2020 | 2021 | 2022 | Change 2007 - 2022 | Average 2007 - 2022 |
|---|---|---|---|---|---|---|---|---|
| Western Europe | Austria | 80,2 | 81,5 | 81,2 | 81,2 | 81,1 | 0,9 | 81,1 |
| Western Europe | Belgium | 79,8 | 81,3 | 80,7 | 81,8 | 81,7 | 1,9 | 80,9 |
| Western Europe | France | 81,1 | 82,7 | 82,2 | 82,3 | 82,2 | 1,1 | 82,1 |
| Western Europe | Germany | 79,5 | 81,1 | 81 | 80,8 | 80,7 | 1,2 | 80,6 |
| Western Europe | Ireland | 79,6 | 81,3 | 82,6 | 82,4 | 83,1 | 3,4 | 81,4 |
| Western Europe | Luxembourg | 79,4 | 82,2 | 82,1 | 82,6 | 83 | 3,7 | 81,7 |
| Western Europe | Netherlands | 80,1 | 81,7 | 81,4 | 81,3 | 81,7 | 1,6 | 81,3 |
| Western Europe | Switzerland | 81,7 | 83,2 | 83 | 83,8 | 83,5 | 1,7 | 83 |
| Western Europe | United Kingdom | 79,4 | 81,3 | 80,4 | 80,7 | 82,1 | 2,6 | 80,8 |
| Northern Europe | Denmark | 78,2 | 80,7 | 81,6 | 81,4 | 81,3 | 3,1 | 80,3 |
| Northern Europe | Finland | 79,3 | 81,2 | 81,9 | 81,9 | 81,2 | 1,9 | 80,9 |
| Northern Europe | Iceland | 81,5 | 82,9 | 83,1 | 83,2 | 82,2 | 0,7 | 82,4 |
| Northern Europe | Norway | 80,4 | 82,1 | 83,2 | 83,2 | 82,6 | 2,2 | 82 |
| Northern Europe | Sweden | 80,9 | 82,3 | 82,4 | 83,1 | 83,1 | 2,2 | 82,1 |
| Southern Europe | Cyprus | 78,8 | 80,8 | 81,4 | 81,2 | 81,9 | 3,1 | 80,5 |
| Southern Europe | Greece | 79,4 | 81,4 | 81,3 | 80,1 | 80,6 | 1,2 | 80,8 |
| Southern Europe | Italy | 81,4 | 83,1 | 82,2 | 82,6 | 82,9 | 1,5 | 82,5 |
| Southern Europe | Malta | 79,8 | 82 | 82,3 | 82,5 | 82,7 | 2,9 | 81,6 |
| Southern Europe | Portugal | 78,3 | 81,1 | 81 | 81,4 | 81,6 | 3,3 | 80,5 |
| Southern Europe | Spain | 80,9 | 83,2 | 82,3 | 83,2 | 83,1 | 2,2 | 82,6 |
| Central and Eastern Europe | Bulgaria | 72,7 | 74,5 | 73,7 | 71,5 | 74,4 | 1,7 | 74 |
| Central and Eastern Europe | Croatia | 75,7 | 77,5 | 77,7 | 76,4 | 77,6 | 1,9 | 77,1 |
| Central and Eastern Europe | Czech Republic | 76,7 | 78,8 | 78,2 | 77,2 | 79 | 2,3 | 78,2 |
| Central and Eastern Europe | Estonia | 72,8 | 77 | 78,6 | 76,9 | 77,9 | 5,1 | 76,7 |
| Central and Eastern Europe | Hungary | 73,2 | 75,8 | 75,6 | 74,2 | 76 | 2,9 | 75,1 |
| Central and Eastern Europe | Latvia | 71 | 74,1 | 75,2 | 73 | 74,6 | 3,6 | 73,9 |
| Central and Eastern Europe | Lithuania | 70,9 | 74,5 | 75 | 74 | 75,8 | 4,9 | 74,1 |
| Central and Eastern Europe | Poland | 75,2 | 77,6 | 76,5 | 75,5 | 77,3 | 2,1 | 76,8 |
| Central and Eastern Europe | Romania | 72,6 | 74,9 | 74,3 | 72,8 | 75,3 | 2,7 | 74,3 |
| Central and Eastern Europe | Slovak Republic | 74,2 | 76,8 | 76,9 | 74,6 | 77,1 | 2,9 | 76,2 |
| Central and Eastern Europe | Slovenia | 78,6 | 81,1 | 80,5 | 80,7 | 81,3 | 2,7 | 80,3 |
| Oceania | Australia | 81,3 | 82,3 | 83,2 | 83,3 | 83,2 | 1,9 | 82,3 |
| Northern America | Canada | 80,5 | 81,8 | 81,7 | 81,6 | 81,3 | 0,8 | 81,5 |
| Oceania | New Zealand | 80,2 | 81,5 | 82,3 | 82,2 | 82,8 | 2,6 | 81,5 |
| Northern America | United States | 78 | 78,8 | 77 | 76,3 | 77,4 | -0,6 | 78,2 |
| | Average | 78,1 | 80,1 | 80,1 | 79,7 | 80,4 | 2,3 | 79,7 |

*Legend: Colours – green shows the highest, red the lowest values*
*Source: WDI and author's calculation*

A less objective but nonetheless relevant feature is the subjective evaluation of the quality of life by the citizens. Life satisfaction can be measured on a scale from 0 to 10, with 10 indicating fullest satisfaction. In 2023, the values in the countries of the sample range from 5.5 (Bulgaria) to 7.6 (Denmark). As the colours in Table 19 clearly show, the countries of Europe's southern and eastern periphery were the least happy ones. However, the largest rises of life satisfaction (above one point) between 2012 and 2023 occurred in CEE countries such as Bulgaria, Romania and the three Baltic countries. The largest declining values, though on a smaller scale (less than 0.6), could be observed in Canada, USA, Ireland and Spain.

*Table 19: Life satisfaction/happiness (selected years 2012, 2017, 2023)*

| Region | Country | 2012 | 2017 | 2023 | Average 2012 - 2023 | Change 2012 - 2023 |
|---|---|---|---|---|---|---|
| Western Europe | Austria | 7,23 | 7,01 | 7,1 | 7,11 | ↘ |
| Western Europe | Belgium | 7,11 | 6,89 | 6,86 | 6,95 | ↘ |
| Western Europe | France | 6,75 | 6,44 | 6,66 | 6,62 | → |
| Western Europe | Germany | 6,57 | 6,95 | 6,89 | 6,8 | ↗ |
| Western Europe | Ireland | 7,28 | 6,98 | 6,91 | 7,06 | ↘ |
| Western Europe | Luxembourg | 7,05 | 6,86 | 7,23 | 7,05 | ↗ |
| Western Europe | Netherlands | 7,51 | 7,38 | 7,4 | 7,43 | ↘ |
| Western Europe | Switzerland | 7,5 | 7,49 | 7,24 | 7,41 | ↘ |
| Western Europe | United Kingdom | 6,94 | 6,71 | 6,8 | 6,82 | ↘ |
| Northern Europe | Denmark | 7,86 | 7,52 | 7,59 | 7,65 | ↘ |
| Northern Europe | Finland | 7,58 | 7,47 | 7,8 | 7,62 | ↗ |
| Northern Europe | Iceland | 6,89 | 7,5 | 7,53 | 7,31 | ↗ |
| Northern Europe | Norway | 7,52 | 7,54 | 7,32 | 7,46 | ↘ |
| Northern Europe | Sweden | 7,38 | 7,28 | 7,4 | 7,35 | → |
| Southern Europe | Cyprus | 6,42 | 5,62 | 6,13 | 6,06 | ↘ |
| Southern Europe | Greece | 6,13 | 5,23 | 5,93 | 5,76 | ↘ |
| Southern Europe | Italy | 6,58 | 5,96 | 6,4 | 6,32 | ↘ |
| Southern Europe | Malta | 5,96 | 6,53 | 6,3 | 6,26 | ↗ |
| Southern Europe | Portugal | 5,33 | 5,2 | 5,97 | 5,5 | ↗ |
| Southern Europe | Spain | 6,76 | 6,4 | 6,44 | 6,53 | ↘ |
| Central and Eastern Europe | Bulgaria | 3,89 | 4,71 | 5,47 | 4,69 | ↑ |
| Central and Eastern Europe | Croatia | 5,62 | 5,29 | 6,13 | 5,68 | ↗ |
| Central and Eastern Europe | Czech Republic | 6,36 | 6,61 | 6,85 | 6,6 | ↗ |
| Central and Eastern Europe | Estonia | 5,33 | 5,61 | 6,46 | 5,8 | ↑ |
| Central and Eastern Europe | Hungary | 4,94 | 5,32 | 6,04 | 5,44 | ↑ |
| Central and Eastern Europe | Latvia | 4,76 | 5,85 | 6,21 | 5,61 | ↑ |
| Central and Eastern Europe | Lithuania | 5,59 | 5,9 | 6,76 | 6,08 | ↑ |
| Central and Eastern Europe | Poland | 5,8 | 5,97 | 6,26 | 6,01 | ↗ |
| Central and Eastern Europe | Romania | 5,18 | 5,82 | 6,59 | 5,86 | ↑ |
| Central and Eastern Europe | Slovak Republic | 5,66 | 6,1 | 6,47 | 6,07 | ↗ |
| Central and Eastern Europe | Slovenia | 5,92 | 5,76 | 6,65 | 6,11 | ↗ |
| Oceania | Australia | 7,34 | 7,28 | 7,09 | 7,24 | ↘ |
| Northern America | Canada | 7,5 | 7,32 | 6,96 | 7,26 | ↘ |
| Oceania | New Zealand | 7,37 | 7,31 | 7,12 | 7,27 | ↘ |
| Northern America | United States | 7,27 | 6,99 | 6,89 | 7,05 | ↘ |
| | Average | 6,48 | 6,48 | 6,74 | 6,57 | ↗ |

*Legend: Colours – green shows the highest, red the lowest values*
*Changes: ↑: > 1; ↗: < 1 and > 0.1; →: > −0.1 and < 0.1; ↘: > −0.1.*
*Source: World Happiness Report and author's calculation*

Finally, the development of trust in government which is a major outcome of government action is considered. Trust in government might be linked to life satisfaction discussed above, as people with higher life satisfaction tend to participate more actively in politics (Flavin and Keane, 2011). Trust levels vary strongly among countries [Tab. 20][7], with the average over the whole period ranging from 80.8% for Switzerland and 73.7% for Luxembourg, to 24.3% for Latvia and 24.5% for Greece. The change between 2006 and 2021 varies substantially, too. The USA and the UK experienced the strongest declines (by 15 and 10 percentage points, respectively) while trust in government has grown in Iceland by almost 40 percentage points and in Germany by 28.3. Generally, trust in government declined in many countries during the financial crisis and experienced a strong rise in 2020 when people felt protected by their governments during the pandemic.

*Table 20: Trust in government*

| Region | Country | 2006 | 2013 | 2020 | 2021 | 2022 | 2023 | Average 2006 - 2023 | Change 2006 - 2023 |
|---|---|---|---|---|---|---|---|---|---|
| Western Europe | Austria | 54,7 | 42,8 | 62,7 | 62,7 | 47,1 | 47,1 | 47,7 | ↘ |
| Western Europe | Belgium | 64,5 | 48,8 | 39,3 | 39,3 | 54,1 | 54,1 | 47,1 | ↓ |
| Western Europe | France | 37,3 | 43,3 | 43,1 | 43,1 | 44,1 | 44,1 | 40,6 | ↗ |
| Western Europe | Germany | 35,4 | 51,9 | 63,7 | 63,7 | 59,6 | 59,6 | 55,6 | ↑ |
| Western Europe | Ireland | 66,8 | 40,6 | 61,3 | 61,3 | 62,9 | 62,9 | 52,2 | ↘ |
| Western Europe | Luxembourg | | 79,5 | | | 80,8 | 80,8 | 77,6 | ↘ |
| Western Europe | Netherlands | 57,7 | 60,9 | 68,6 | 68,6 | 47,2 | 47,2 | 60,5 | ↓ |
| Western Europe | Switzerland | 69,1 | | 84,7 | 84,7 | 82,4 | 82,4 | 80,9 | ↑ |
| Western Europe | United Kingdom | 44,4 | 43,4 | 37,6 | 37,6 | 33,9 | 33,9 | 41,3 | ↓ |
| Northern Europe | Denmark | 65,9 | 48,4 | 69 | 69 | 59,9 | 59,9 | 58,9 | ↘ |
| Northern Europe | Finland | 80,7 | 54,8 | 77,4 | 77,4 | 75,8 | 75,8 | 62,2 | ↘ |
| Northern Europe | Iceland | | 40,8 | 64,2 | 64,2 | 48,6 | 48,6 | 46,1 | ↑ |
| Northern Europe | Norway | 72,8 | | 80,5 | 80,5 | 61,2 | 61,2 | 67,8 | ↓ |
| Northern Europe | Sweden | 53,7 | 64,6 | 65,5 | 65,5 | 58,5 | 58,5 | 58,8 | ↗ |
| Southern Europe | Cyprus | | | | | | | | |
| Southern Europe | Greece | 46,8 | 15,7 | 40,3 | 40,3 | 32,2 | 32,2 | 28,5 | ↓ |
| Southern Europe | Italy | 30,7 | 24,3 | 36,8 | 36,8 | 42,6 | 42,6 | 31,6 | ↑ |
| Southern Europe | Malta | | | | | | | | |
| Southern Europe | Portugal | 56,7 | 23,1 | 62,1 | 62,1 | 51,8 | 51,8 | 40 | ↘ |
| Southern Europe | Spain | 56,5 | 29 | 38 | 38 | 38,8 | 38,8 | 36,1 | ↓ |
| Central and Eastern Europe | Bulgaria | | | | | | | | |
| Central and Eastern Europe | Croatia | | | | | | | | |
| Central and Eastern Europe | Czech Republic | 31,2 | 22,1 | 32,5 | 32,5 | 37,4 | 37,4 | 35,6 | ↗ |
| Central and Eastern Europe | Estonia | 50,6 | 34,9 | 55,8 | 55,8 | 53,3 | 53,3 | 44 | ↗ |
| Central and Eastern Europe | Hungary | 32,7 | 32,6 | 45,1 | 45,1 | 41 | 41 | 37,2 | ↗ |
| Central and Eastern Europe | Latvia | 31,9 | 19,4 | 32,7 | 32,7 | 31,8 | 31,8 | 26,5 | → |
| Central and Eastern Europe | Lithuania | 26 | 25,4 | 47,3 | 47,3 | 41,1 | 41,1 | 32,3 | ↑ |
| Central and Eastern Europe | Poland | 14,7 | 26,9 | 27,8 | 27,8 | 38,3 | 38,3 | 34,7 | ↑ |
| Central and Eastern Europe | Romania | | | | | | | | |
| Central and Eastern Europe | Slovak Republic | 17,5 | 35,1 | 26,8 | 26,8 | 22 | 22 | 31,6 | ↗ |
| Central and Eastern Europe | Slovenia | 52,1 | 20,1 | 40,1 | 40,1 | 46,1 | 46,1 | 30,5 | ↘ |
| Oceania | Australia | 55,1 | 48,3 | 48,5 | 48,5 | 51,9 | 51,9 | 51,1 | ↘ |
| Northern America | Canada | 55 | 54 | 60,8 | 60,8 | 51,1 | 51,1 | 57,8 | ↘ |
| Oceania | New Zealand | 61,9 | 62,2 | 64,1 | 64,1 | 52,1 | 52,1 | 61,7 | ↘ |
| Northern America | United States | 48,1 | 34,4 | 43,7 | 43,7 | 30,9 | 30,9 | 37,6 | ↓ |
| | Average | 48,9 | 40,3 | 52,4 | 52,4 | 49,3 | 49,3 | 47,1 | |

*Legend: Colours – green shows the highest, red the lowest values*
*Changes: ↑: >10; ↗:< 10 and > 0.1; →: > −0.1 and < 0.1; ↘: > −0.1 and > −10. ↓ < −10.*
*Source: OECD https://data.oecd.org/gga/trust-in-government.htm and author's calculation*

[7] There are no data available on the five EU countries that are not members of OECD (Bulgaria, Croatia, Cyprus, Malta and Romania).

# 7.3. SOCIAL SECURITY

**Social Security will be understood here as the protection from risks such as old age, sickness, disability and unemployment that prevent people from earning an adequate market income. Such protection can be provided by the state, public institutions such as social insurance, private institutions such as private insurance companies whose use might be mandated by law or completely private means such as savings. It can also be in the form of housing ownership or life insurance. In this study, the focus will be on government activities providing social security.**

### 7.3.1. Inputs: government social spending and policies

The level and structure of social protection substantially varies from country to country. In some countries, risks are covered by the state, while the same risks in other countries are left to the private sector. Thus, social spending can be defined and delimited in various ways. Table 21 presents the total public expenditure for social protection as a percentage of GDP. Social spending includes benefits and expenditure for old age, survivors, incapacity related, family, active labour market programmes, unemployment and housing as far as they are provided from public sources. They include cash benefits and benefits in kind; mandatory and voluntary private spending are not included in Table 21. Mandatory and voluntary private spending play an important role in the Netherlands, Switzerland and the USA where they amount to more than 10% of GDP [Tab. 21mpv, (Annex)].

In this definition, on average between 2009 and 2022, social spending makes up between low values of about 15% for Romania and high values of over 30% in France or Denmark with the average over all countries being 21.6%. Generally, expenditures as a share of GDP increased during the financial crisis (2009), declined afterwards and jumped significantly during the pandemic in 2020 by about three percentage points (average of all 35 countries). These two rises in the share are caused by a combination of rising nominal social expenditures (by, on average, more than 10%) and the shrinking GDP in the denominator. After the pandemic, in 2022, the reverse trend is visible: the share of social spending fell back again by more than two percentage points, on average for all countries. The decline in Ireland is overwhelmingly due to the rise of GDP [Tab. 6] as the share of social spending in total government spending increased over the same period [Tab. 22].

*Table 21: Social spending as a percentage of GDP*

| Region | Country | 2007 | 2014 | 2020 | 2021 | 2022 | Change 2007 - 2022 | Average 2007 - 2022 |
|---|---|---|---|---|---|---|---|---|
| Western Europe | Austria | 25,5 | 28,3 | 31,1 | 31,1 | 29,4 | ↗ | 28,1 |
| Western Europe | Belgium | 24,3 | 28,4 | 32,3 | 29,7 | 29 | ↗ | 28,2 |
| Western Europe | France | 28,2 | 32 | 34,9 | 32,7 | 31,6 | → | 31,3 |
| Western Europe | Germany | 24,2 | 24,8 | 27,9 | 27,6 | 26,7 | → | 25,6 |
| Western Europe | Ireland | 16,7 | 20,1 | 15,7 | 14,2 | 12,8 | ↓ | 17,9 |
| Western Europe | Luxembourg | 19,9 | 20,8 | 23,9 | 21,6 | 21,9 | → | 21,2 |
| Western Europe | Netherlands | 15,7 | 17,9 | 18,9 | 18,7 | 17,6 | → | 17,3 |
| Western Europe | Switzerland | 14,4 | 15,6 | 19,3 | 18 | 17 | ↗ | 16 |
| Western Europe | United Kingdom | 19,6 | 21,7 | 22,5 | 22,1 | | → | 21,5 |
| Northern Europe | Denmark | 25,9 | 30 | 29,3 | 28,3 | 26,2 | ↘ | 28,8 |
| Northern Europe | Finland | 22,9 | 30,2 | 31 | 30,3 | 29 | ↗ | 28,5 |
| Northern Europe | Iceland | 15,8 | 17,5 | 23 | 22,3 | 20,8 | ↗ | 18,3 |
| Northern Europe | Norway | 19,6 | 22,8 | 28,2 | 24,4 | 20,7 | ↑ | 23,1 |
| Northern Europe | Sweden | 25,3 | 26,6 | 25,9 | 24,9 | 23,7 | ↘ | 25,8 |
| Southern Europe | Cyprus | | 20,1 | 24,1 | 21,6 | 19,8 | → | 20 |
| Southern Europe | Greece | 20,1 | 25,5 | 27,9 | 26,1 | 24,1 | → | 25 |
| Southern Europe | Italy | 24 | 28,1 | 32,6 | 30,7 | 30,1 | ↑ | 27,8 |
| Southern Europe | Malta | | 17,8 | 19,8 | 16,5 | 14,2 | ↓ | 17,1 |
| Southern Europe | Portugal | 21,3 | 25 | 25,1 | 24,8 | 24,6 | → | 23,7 |
| Southern Europe | Spain | 20,9 | 25,4 | 31,2 | 29,5 | 28,1 | ↗ | 25,4 |
| Central and Eastern Europe | Bulgaria | | 18,4 | 18,7 | 18,8 | 18,6 | ↗ | 17,4 |
| Central and Eastern Europe | Croatia | | 21,5 | 24,1 | 22,4 | 20,9 | → | 21,5 |
| Central and Eastern Europe | Czech Republic | 17,4 | 20,1 | 22,6 | 22,5 | 22 | ↗ | 19,8 |
| Central and Eastern Europe | Estonia | 12,4 | 16 | 19,8 | 18,4 | 17,2 | ↘ | 17 |
| Central and Eastern Europe | Hungary | 22,4 | 21,3 | 18,5 | 18,1 | 17,2 | ↓ | 20,6 |
| Central and Eastern Europe | Latvia | 11 | 15,4 | 18,5 | 19,8 | 19,7 | ↗ | 16,4 |
| Central and Eastern Europe | Lithuania | 14,8 | 15,5 | 21,1 | 18,7 | 19,8 | ↘ | 17,3 |
| Central and Eastern Europe | Poland | 19,5 | 20,3 | 23,2 | 22,6 | 22,7 | ↗ | 20,9 |
| Central and Eastern Europe | Romania | | 14,7 | 17,7 | 16,6 | 16,5 | → | 15,6 |
| Central and Eastern Europe | Slovak Republic | 14,9 | 17,7 | 19,8 | 19,6 | 19,1 | ↗ | 17,5 |
| Central and Eastern Europe | Slovenia | 19,8 | 23,1 | 24,5 | 23,7 | 22,8 | → | 22,5 |
| Oceania | Australia | 15,9 | 17,8 | .. | | | ↗ | 17,4 |
| Northern America | Canada | 16,3 | 16,9 | 24,9 | | | ↑ | 18 |
| Oceania | New Zealand | 20,7 | 21,1 | 22 | 20,8 | | ↘ | 21,5 |
| Northern America | United States | 15,7 | 18,4 | 23,9 | 22,7 | | ↗ | 18,8 |
| | Average | 19,5 | 21,6 | 24,2 | 23 | 22,1 | → | 21,6 |

Note: *for some countries (New Zealand, UK, USA), figures refer to 2020, for Australia 2019, Canada 2020.

*Legend: Colours – green shows the highest, red the lowest values*
*Changes: ↑: > 5; ↗: < 5 and > 1; →: > −1 and < 1; ↘: > −1.*
*Source: OECD (https://stats.oecd.org/Index.aspx?DataSetCode=SOCX_AGG) + Eurostat (for Bulgaria, Croatia, Cyprus, Malta, Romania, this is only 2009-2020. The Eurostat values are systematically higher – by about 2% – than the OECD values as they include administrative costs) and author's calculation.*

Looking at the share of social spending as percentage of total government spending, a similar picture emerges [Tab. 22], although with certain differences. As total public spending runs at an average level of about 40% of GDP in the selected countries, albeit with large differences, an average share of 35% of all government spending (see the last row in Table 22) leads to a share of GDP of about 14% which is clearly lower than the shares shown in Table 21.

On average for all countries, there is a rise of this share during the recession in the wake of the financial crisis after 2009. Starting in 2017, the share is declining again. Surprisingly, in 2020, the pandemic has substantially increased the share but in two countries – the USA (by 5.6 percentage points) and Canada (by 4.9). This might be due to a general increase of public spending, in particular on health services, during the pandemic.

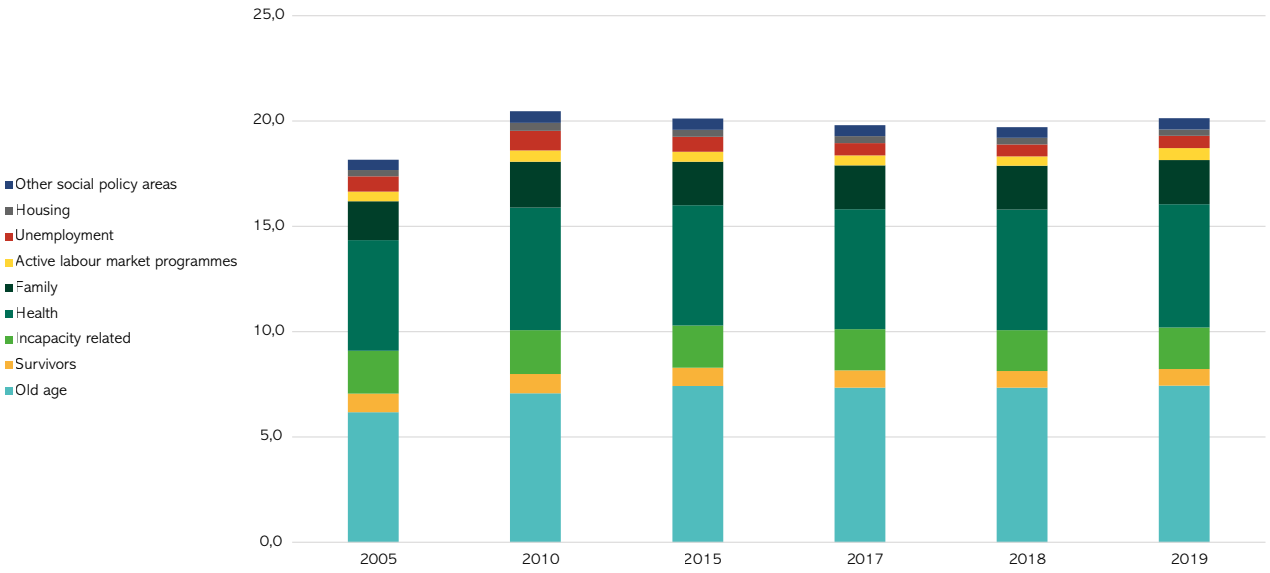
*Table 22: Social spending as percentage of total government spending*

| Region | Country | 2007 | 2014 | 2020 | Average 2007 - 2020 |
|---|---|---|---|---|---|
| Western Europe | Austria | 39,46 | 40,96 | 40,14 | 40,77 |
| Western Europe | Belgium | 34,62 | 35,54 | 38,4 | 35,85 |
| Western Europe | France | 41,23 | 42,83 | 44,23 | 42,46 |
| Western Europe | Germany | 43,59 | 42,5 | 42,96 | 42,95 |
| Western Europe | Ireland | 35,92 | 36,15 | 37,41 | 35,49 |
| Western Europe | Luxembourg | 40,31 | 43,16 | 43,86 | 42,19 |
| Western Europe | Netherlands | 34,07 | 37,17 | 36,13 | 36,44 |
| Western Europe | Switzerland | 39,31 | 39,6 | 43,36 | 39,5 |
| Western Europe | United Kingdom | 34,78 | 37,43 | 31,94 | 35,99 |
| Northern Europe | Denmark | 43,28 | 43,46 | 41,86 | 43,27 |
| Northern Europe | Finland | 40,98 | 44,05 | 44,64 | 43,47 |
| Northern Europe | Iceland | 18,05 | 21,37 | 27,32 | 21,84 |
| Northern Europe | Norway | 37,03 | 39,36 | 38,12 | 38,87 |
| Northern Europe | Sweden | 40,6 | 40,51 | 37,77 | 40,04 |
| Southern Europe | Cyprus | 26,58 | 28,1 | 30,19 | 30,26 |
| Southern Europe | Greece | 33,41 | 40,18 | 37,73 | 37,45 |
| Southern Europe | Italy | 37,2 | 41,53 | 44,11 | 40,9 |
| Southern Europe | Malta | 32,55 | 31,54 | 26,18 | 31,17 |
| Southern Europe | Portugal | 33,69 | 36,77 | 38,19 | 37,03 |
| Southern Europe | Spain | 33,23 | 39,76 | 42,72 | 38,73 |
| Central and Eastern Europe | Bulgaria | 26,84 | 30,84 | 31,42 | 32,96 |
| Central and Eastern Europe | Croatia | 29,48 | 31,38 | 28,75 | 30,6 |
| Central and Eastern Europe | Czech Republic | 29,9 | 31,48 | 30,5 | 30,93 |
| Central and Eastern Europe | Estonia | 26,76 | 30,45 | 32,78 | 31,5 |
| Central and Eastern Europe | Hungary | 34,5 | 30,58 | 26,39 | 31,71 |
| Central and Eastern Europe | Latvia | 22,91 | 29,41 | 31,3 | 29,35 |
| Central and Eastern Europe | Lithuania | 32,63 | 36,19 | 37,99 | 36,25 |
| Central and Eastern Europe | Poland | 36,36 | 37,56 | 37,31 | 37,39 |
| Central and Eastern Europe | Romania | 26,78 | 32,23 | 32,72 | 32,37 |
| Central and Eastern Europe | Slovak Republic | 35,63 | 34,6 | 35,7 | 35,09 |
| Central and Eastern Europe | Slovenia | 37,37 | 36,88 | 36,44 | 37,41 |
| Oceania | Australia | 28,12 | 27,52 | 26,1 | 27,32 |
| Northern America | Canada | 28,16 | 29,15 | 34,79 | 29,64 |
| Oceania | New Zealand | | 30,32 | 26,77 | 30,54 |
| Northern America | United States | 17,93 | 20,38 | 25,45 | 20,41 |
| | Average | 33,49 | 35,17 | 35,48 | 35,11 |

*Legend: Colours – green shows the highest values, red the lowest*
*Source: https://datafinder.qog.gu.se/variable/gfs_sp and author's calculation*

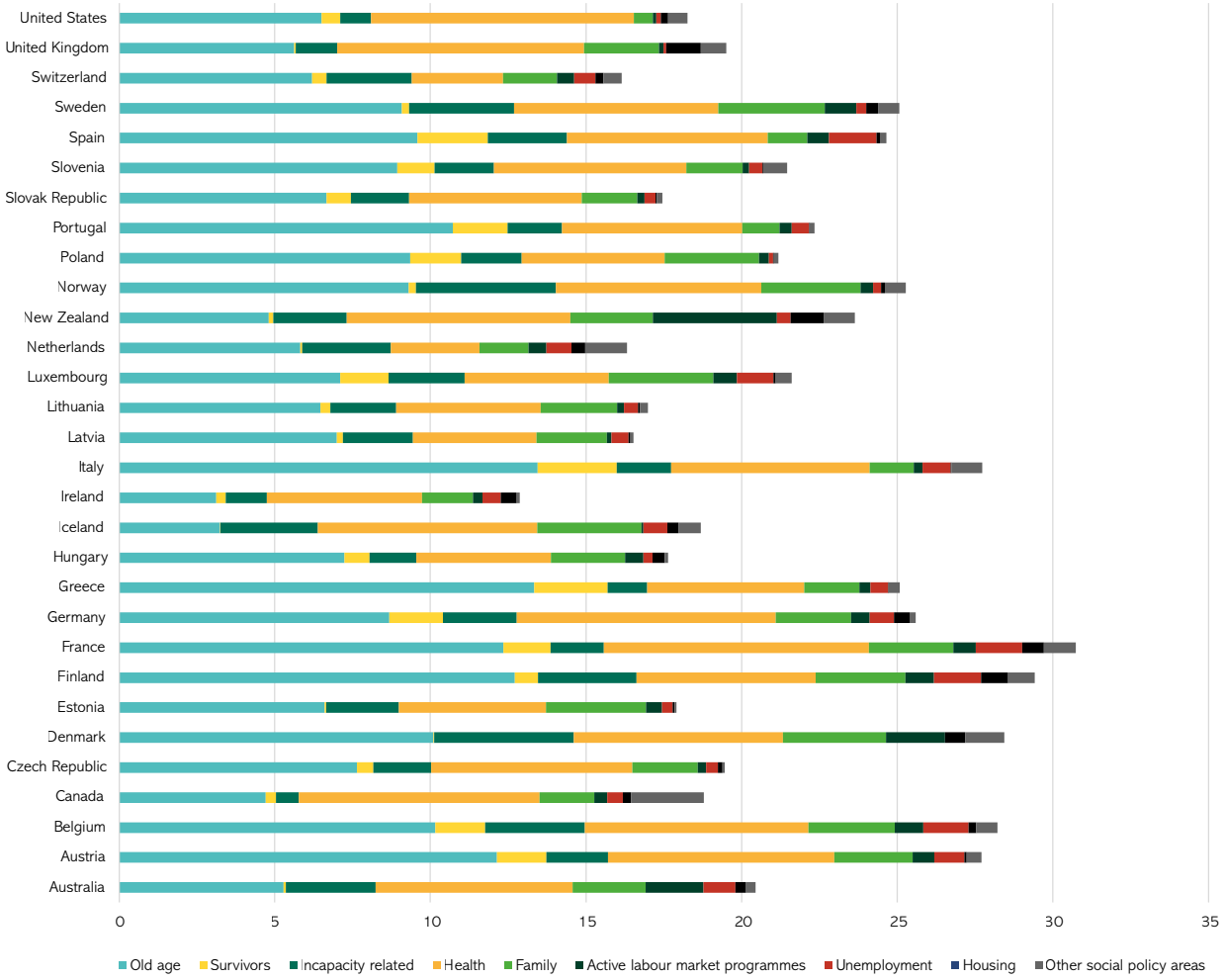
The composition of social spending did not change much after 2005. Spending on old age and survivors made up the bulk of social spending (around 40%) and its share increased by two percentage points, with health being the second most important branch with about 29%, a share that hardly changed. Incapacity and unemployment-related spending declined by 1.5 and 1.2 percentage points respectively, this being the relatively largest reductions of shares in total social spending, probably due to declining levels of unemployment since 2013 [Tab. 14].

*Table 23: Changing structure of social spending (percentage of GDP)*




*Source: OECD*

*Figure 1: Social spending by type (in percent of GDP) in 2019*




*Source: OECD*

The composition of social expenditure (in 2019) varies from country to country [Fig. 1], but, as a rule, it is similar to the OECD average (Table 23). Spending on old age (40.9% of all social spending in the OECD) and, to a somewhat lesser extent, health (29.1%) are the two biggest items. Greece spends the highest share (62.6%) on old age and survivors. Other countries with shares above 50% are Italy (57%), Portugal (55.9%) and Poland (51.2%). Iceland has the smallest share (17.9%) followed by New Zealand, Australia, Canada and Ireland (all less than 27%). Regarding health, the relatively biggest spenders are the USA, Canada and the UK (all above 40%) while Finland, the Netherlands and Switzerland spend less than 20%. In the other branches of social spending, there are also peculiarities and national or regional specific patterns; spending on families, which in the OECD average makes up over 10% of total spending, is much lower in the southern periphery of the EU with values of less than 6% in Spain, Italy and Portugal, and 7% in Greece. Spending on unemployment benefits (1.7% in the OECD average) is relatively high in Spain (6.2%), followed by Luxembourg, Finland, Austria and Australia with shares above 5%. The UK and the USA are the most frugal in this respect, spending less than 1%. Australia and New Zealand spend more than 9% on active labour market programmes while the OECD average is 2.8%.

### 7.3.2. Output: transfers received by beneficiaries

The amounts of transfers received from public social expenditure correspond to the amounts spent (minus administrative costs; see Table 28), basically equalising input and output; thus, the focus will be on other indicators such as replacement rates and coverage.

Table 24 provides an overview about the replacement levels that show which percentage of the former income pensioners can expect to receive. The pensions presented here include all mandatory pension schemes for private-sector workers, regardless of whether they are public or private. The pensions depend on the former income and

relatively decline the more the higher-than-average former earnings are. The size of the decline is an indicator of the progressive character of the respective pension system. The most progressive countries (see first data column in Table 24) are Denmark, Czech Republic, Ireland and New Zealand; the least progressive are – surprisingly – Sweden and Cyprus, where high earners have higher replacement rates than poorer people and the two countries that have flat replacement rates over all income groups: Finland and Romania. Women are treated worse than men in Hungary, Australia, Poland and Romania.

*Table 24: Pension entitlements; gross pension replacement rate (different income levels; multiples of mean earnings) – %*

| | | Progress | | Men | | | Women | |
|---|---|---|---|---|---|---|---|---|
| Region | Country | 0.5-2 | 0.5 of ME | 1 of ME | 2 of ME | 0.5 of ME | 1 of ME | 2 of ME |
| Western Europe | Austria | 18,3 | 74,1 | 74,1 | 55,9 | 74,1 | 74,1 | 55,9 |
| Western Europe | Belgium | 36,3 | 67,7 | 43,5 | 31,4 | 67,7 | 43,5 | 31,4 |
| Western Europe | France | 8,4 | 57,7 | 57,6 | 49,4 | 57,7 | 57,6 | 49,4 |
| Western Europe | Germany | 14,1 | 47,8 | 43,9 | 33,7 | 47,8 | 43,9 | 33,7 |
| Western Europe | Ireland | 39,3 | 52,4 | 26,2 | 13,1 | 52,4 | 26,2 | 13,1 |
| Western Europe | Luxembourg | 17,9 | 86,7 | 74,8 | 68,8 | 86,7 | 74,8 | 68,8 |
| Western Europe | Netherlands | 18,9 | 87,3 | 74,7 | 68,4 | 87,3 | 74,7 | 68,4 |
| Western Europe | Switzerland | 31,9 | 52,2 | 39,9 | 20,3 | 52,2 | 39,9 | 20,3 |
| Western Europe | United Kingdom | 33,5 | 61,8 | 41,9 | 28,3 | 61,8 | 41,9 | 28,3 |
| Northern Europe | Denmark | 63,5 | 116,6 | 73,1 | 53,1 | 116,6 | 73,1 | 53,1 |
| Northern Europe | Finland | 0 | 58,4 | 58,4 | 58,4 | 58,4 | 58,4 | 58,4 |
| Northern Europe | Iceland | 22,5 | 65,6 | 43,1 | 43,1 | 65,6 | 43,1 | 43,1 |
| Northern Europe | Norway | 32,1 | 60,3 | 44,5 | 28,2 | 60,3 | 44,5 | 28,2 |
| Northern Europe | Sweden | -14,1 | 62,3 | 62,3 | 76,4 | 62,3 | 62,3 | 76,4 |
| Southern Europe | Cyprus | -11,5 | 56,7 | 64,3 | 68,2 | 56,7 | 64,3 | 68,2 |
| Southern Europe | Greece | 20,1 | 94,2 | 80,8 | 74,1 | 94,2 | 80,8 | 74,1 |
| Southern Europe | Italy | 0 | 76,1 | 76,1 | 76,1 | 76,1 | 76,1 | 76,1 |
| Southern Europe | Malta | 7 | 60,3 | 58,2 | 53,3 | 60,3 | 58,2 | 53,3 |
| Southern Europe | Portugal | 4,5 | 75,7 | 73,9 | 71,3 | 75,7 | 73,9 | 71,3 |
| Southern Europe | Spain | 30,9 | 80,4 | 80,4 | 49,6 | 80,4 | 80,4 | 49,6 |
| Central and Eastern Europe | Bulgaria | 14,2 | 59,1 | 58,3 | 44,9 | 59,1 | 58,3 | 44,9 |
| Central and Eastern Europe | Croatia | 19,9 | 62,9 | 43 | 43 | 62,9 | 43 | 43 |
| Central and Eastern Europe | Czech Republic | 46 | 78,1 | 47,4 | 32,1 | 78,1 | 47,4 | 32,1 |
| Central and Eastern Europe | Estonia | 30,8 | 48,6 | 28,1 | 17,8 | 48,6 | 28,1 | 17,8 |
| Central and Eastern Europe | Hungary | 3,6 | 54,9 | 52,4 | 51,2 | 51,5 | 49 | 47,8 |
| Central and Eastern Europe | Latvia | 15,3 | 55 | 39,8 | 39,8 | 55 | 39,8 | 39,8 |
| Central and Eastern Europe | Lithuania | 16 | 28,9 | 18,2 | 12,9 | 28,9 | 18,2 | 12,9 |
| Central and Eastern Europe | Poland | 1,6 | 30,3 | 29,3 | 28,7 | 29,8 | 22,9 | 22,3 |
| Central and Eastern Europe | Romania | 0 | 43,5 | 43,5 | 43,5 | 41 | 41 | 41 |
| Central and Eastern Europe | Slovak Republic | 17,6 | 65,9 | 54,9 | 48,3 | 65,9 | 54,9 | 48,3 |
| Central and Eastern Europe | Slovenia | 20,8 | 62,1 | 42,1 | 41,3 | 62,1 | 42,1 | 41,3 |
| Oceania | Australia | 38,5 | 64,5 | 26 | 26 | 62,3 | 23,8 | 23,8 |
| Northern America | Canada | 27,6 | 46 | 36,8 | 18,4 | 46 | 36,8 | 18,4 |
| Oceania | New Zealand | 43,1 | 62,9 | 39,7 | 19,8 | 62,9 | 39,7 | 19,8 |
| Northern America | United States | 21,7 | 49,4 | 39,1 | 27,8 | 49,4 | 39,1 | 27,8 |
| | Average | | 63 | 51,2 | 43,3 | 62,8 | 50,7 | 42,9 |

*Legend: Colours – green shows the highest, red the lowest values*
*Source: OECD, 2023f*

Table 25 gives an overview over the level of protection against various risks. On average for all countries, the levels are relatively high (about 90%) except for the unemployed where the average value reaches only 60% and to a lesser extent, for the poor, the vulnerable and people suffering from work injury. Nonetheless, some countries score much worse (see last column in Table 25 that gives the average for all risks with data), particularly Cyprus. The top performers are Germany, France and Austria. Generally, people in the two European peripheries in the south and east are less protected than those in the west and north. However, the protection levels shown in Table 25 represent just the percentage of people covered and not the level of protection. Thus, for instance, a 100% coverage might be accompanied by a low level of actual benefits. Some values given by ILO are surprising. The coverage of unemployed varies enormously between countries that have rather similar welfare state arrangements (Germany 100 vs Netherlands 56.7 or Finland 100 vs Sweden 59.6). In some countries with high levels of self-employment such as Greece, Romania or Poland the low level of protection given in Table 25 might result from that structural condition as self-employed people mostly lack unemployment insurance.

*Table 25: Levels of protection against different risks (percentage of individuals covered)*

| Region | Country | Disability | Child/ family | Pensions | One protect | Unemploy-ment | Poor | Vulnerable | Work injury | Maternity | Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Western Europe | Austria | 100 | 100 | 100 | 100 | 99 | 100 | 100 | 100 | 89,9 | 98,8 |
| Western Europe | Belgium | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 79 | 64,8 | 93,8 |
| Western Europe | France | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 90,2 | 100 | 98,9 |
| Western Europe | Germany | 100 | 100 | 100 | 99,4 | 100 | 100 | 100 | 100 | 91,1 | 98,9 |
| Western Europe | Ireland | 100 | 100 | 95,8 | 81,9 | 100 | 100 | 100 | 82,8 | 67,8 | 92 |
| Western Europe | Luxembourg | 100 | 100 | 100 | 99,9 | 57,4 | 73,1 | 100 | 100 | 100 | 92,3 |
| Western Europe | Netherlands | 100 | 100 | 100 | 86,7 | 56,7 | 100 | 100 | 100 | 100 | 93,7 |
| Western Europe | Switzerland | 92,7 | 100 | 99,3 | 100 | 55,4 | 100 | 100 | 80,1 | 100 | 91,9 |
| Western Europe | United Kingdom | 100 | 100 | 100 | 100 | 94,1 | 100 | 100 | 81,5 | 100 | 97,3 |
| Northern Europe | Denmark | 100 | 100 | 100 | 78,9 | 95,6 | 100 | 100 | 87,7 | 100 | 95,8 |
| Northern Europe | Finland | 100 | 100 | 100 | 97 | 100 | 100 | 100 | 80,4 | 100 | 97,5 |
| Northern Europe | Iceland | 100 | 74,7 | 82,4 | 89 | | | | 94 | 100 | 90 |
| Northern Europe | Norway | 100 | 100 | 100 | 100 | 43,3 | 100 | 96,6 | 96,3 | 100 | 92,9 |
| Northern Europe | Sweden | 100 | 100 | 100 | 78,1 | 59,6 | 100 | 100 | 88,6 | 100 | 91,8 |
| Southern Europe | Cyprus | 18,6 | 100 | 92,7 | 98,8 | 21,6 | | 74,5 | 77,7 | 82,3 | 70,8 |
| Southern Europe | Greece | 100 | 48,9 | 99,2 | 100 | 22,3 | 49,5 | 41,6 | 76,4 | 100 | 70,9 |
| Southern Europe | Italy | 100 | 100 | 100 | 100 | 51,5 | 71,8 | 53,8 | 100 | 100 | 86,3 |
| Southern Europe | Malta | 64,1 | 66,7 | 82,9 | 100 | 61,6 | 77,8 | 48,7 | 99,5 | 71 | 74,7 |
| Southern Europe | Portugal | 100 | 91,5 | 96,7 | 84,2 | 62,3 | 89,1 | 100 | 100 | 100 | 91,5 |
| Southern Europe | Spain | 100 | 55,3 | 88,9 | 97 | 57,2 | 100 | 38,9 | 81,9 | 100 | 79,9 |
| Central and Eastern Europe | Bulgaria | 100 | 61 | 93 | 82,8 | 39,4 | 32,7 | 37,7 | 85,1 | 100 | 70,2 |
| Central and Eastern Europe | Croatia | 100 | 45,7 | 93,2 | 81,4 | 19,3 | 6,8 | 35,9 | 89,5 | 100 | 63,5 |
| Central and Eastern Europe | Czech Republic | 100 | 41,6 | 100 | 85,8 | 56,6 | 66,3 | 22,4 | 65,8 | 100 | 70,9 |
| Central and Eastern Europe | Estonia | 100 | 100 | 100 | 100 | 44 | 100 | 100 | 79,5 | 100 | 91,5 |
| Central and Eastern Europe | Hungary | 100 | 100 | 99 | 84,6 | 21,4 | 100 | 69,6 | 96 | 100 | 85,6 |
| Central and Eastern Europe | Latvia | 100 | 100 | 100 | 88,8 | 46,1 | 100 | 100 | 82,1 | 100 | 90,8 |
| Central and Eastern Europe | Lithuania | 100 | 100 | 100 | 99,4 | 88,2 | 40,5 | 100 | 90,7 | 92,7 | 90,2 |
| Central and Eastern Europe | Poland | 100 | 100 | 82,9 | 99,3 | 31,2 | 100 | 53,5 | 85,5 | 95,5 | 83,1 |
| Central and Eastern Europe | Romania | 100 | 100 | 98,9 | 100 | 9,9 | 100 | 51,7 | 67,2 | 41 | 74,3 |
| Central and Eastern Europe | Slovak Republic | 100 | 100 | 100 | 79,8 | 19,8 | 100 | 77,2 | 75,2 | 100 | 83,6 |
| Central and Eastern Europe | Slovenia | 100 | 100 | 100 | 93,1 | 39,1 | 100 | 88,4 | 93,2 | 100 | 90,4 |
| Oceania | Australia | 100 | 100 | 74,4 | 94 | 100 | 69,6 | 93,6 | 79,9 | 93 | 89,4 |
| Northern America | Canada | 69,4 | 100 | 100 | 95,6 | 47,4 | 100 | 100 | 83,6 | 96,9 | 88,1 |
| Oceania | New Zealand | 98,9 | 79,9 | 100 | 100 | 100 | 86,7 | 100 | 100 | 100 | 96,2 |
| Northern America | United States | 100 | 82,4 | 100 | 93,6 | 50,5 | 64,5 | 87,6 | 87,2 | | 83,2 |
| | Average | 95,5 | 89,9 | 96,6 | 93,4 | 60,3 | 85,7 | 81,5 | 87,3 | 93,7 | 87,1 |

Note: Most data is from 2022 or the latest year available (there is a huge variety; a detailed indication would make the table unreadable).

*Legend: Colours – green shows the highest, red the lowest values*
*Source: ILO and author's calculation*

### 7.3.3. Outcome: poverty, levels of protection

In the end, social policies including tax policies and labour market regulation should prevent poverty and correct unfavourable market outcomes. How far this correction goes can be assessed by comparing the income distribution before and after taxes and transfers. The respective indicators are the Gini index of market income (Table 26) and the Gini index of disposable income (Table 11). On average for all countries, the Gini of market income did not change much between 2007 and 2021. Notable changes occurred in some countries with the biggest rises in Bulgaria, Finland, Lithuania, Spain and Switzerland and notably declining values in Estonia, Hungary, Poland and Romania (see the first column in Table 26).

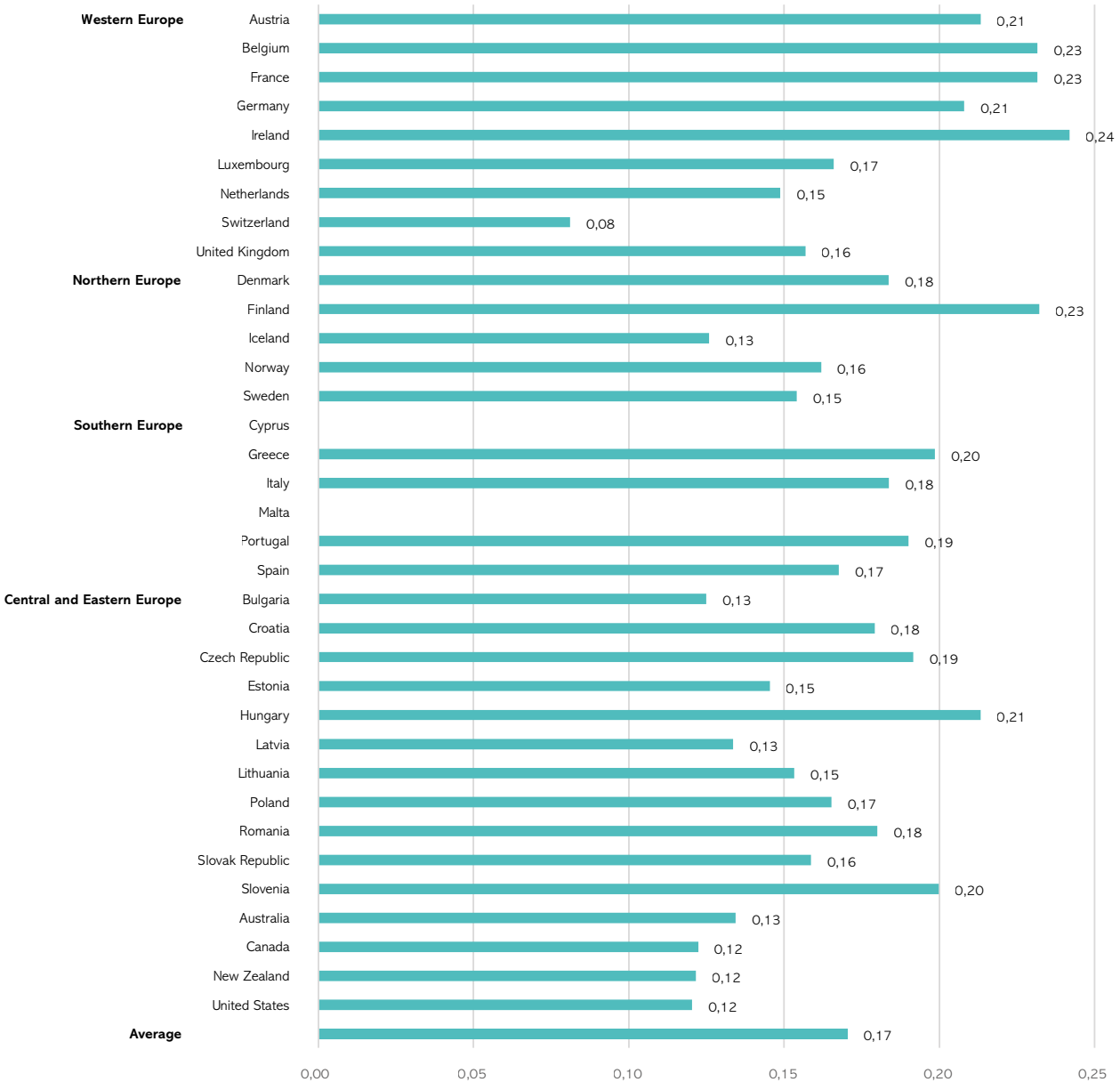
*Table 26: Distribution of market income (Gini coefficient)*

| Region | Country | Change 2007 - 2021 | 2007 | 2013 | 2019 | 2020 | 2021 | Average 2007 - 2021 |
|---|---|---|---|---|---|---|---|---|
| Western Europe | Austria | → | 0,49 | 0,5 | 0,49 | 0,49 | 0,49 | 0,49 |
| Western Europe | Belgium | → | | | 0,49 | 0,49 | 0,48 | 0,49 |
| Western Europe | France | → | | | | 0,52 | 0,53 | 0,52 |
| Western Europe | Germany | → | | 0,51 | 0,5 | 0,5 | | 0,5 |
| Western Europe | Ireland | → | 0,51 | 0,57 | 0,5 | 0,51 | 0,51 | 0,54 |
| Western Europe | Luxembourg | ↘ | | | 0,49 | 0,44 | 0,44 | 0,47 |
| Western Europe | Netherlands | → | | 0,44 | 0,46 | 0,45 | 0,45 | 0,45 |
| Western Europe | Switzerland | ↑ | 0,37 | 0,39 | 0,4 | 0,41 | | 0,38 |
| Western Europe | United Kingdom | ↘ | 0,52 | 0,53 | 0,51 | 0,51 | 0,51 | 0,52 |
| Northern Europe | Denmark | → | | 0,44 | 0,45 | | | 0,44 |
| Northern Europe | Finland | ↑ | 0,48 | 0,5 | 0,51 | 0,52 | 0,52 | 0,5 |
| Northern Europe | Iceland | → | 0,38 | 0,38 | | | | 0,39 |
| Northern Europe | Norway | ↗ | | 0,41 | 0,43 | 0,44 | 0,46 | 0,42 |
| Northern Europe | Sweden | → | | 0,42 | 0,43 | 0,43 | 0,44 | 0,43 |
| Southern Europe | Cyprus | | | | | | | |
| Southern Europe | Greece | → | 0,5 | 0,55 | 0,52 | 0,51 | 0,5 | 0,53 |
| Southern Europe | Italy | ↑ | 0,49 | 0,51 | 0,51 | 0,53 | 0,53 | 0,51 |
| Southern Europe | Malta | | | | | | | |
| Southern Europe | Portugal | → | 0,52 | 0,55 | 0,51 | 0,52 | 0,51 | 0,52 |
| Southern Europe | Spain | ↑ | 0,45 | 0,52 | 0,49 | 0,52 | 0,5 | 0,5 |
| Central and Eastern Europe | Bulgaria | ↗ | 0,49 | 0,49 | 0,52 | 0,52 | 0,51 | 0,49 |
| Central and Eastern Europe | Croatia | ↘ | | 0,48 | 0,45 | 0,46 | 0,46 | 0,48 |
| Central and Eastern Europe | Czech Republic | → | 0,45 | 0,46 | 0,43 | 0,45 | 0,44 | 0,45 |
| Central and Eastern Europe | Estonia | ↓ | | 0,51 | 0,47 | 0,47 | 0,47 | 0,47 |
| Central and Eastern Europe | Hungary | ↓ | 0,51 | 0,52 | 0,46 | 0,44 | 0,44 | 0,49 |
| Central and Eastern Europe | Latvia | → | 0,47 | 0,5 | 0,47 | 0,48 | 0,47 | 0,49 |
| Central and Eastern Europe | Lithuania | ↑ | 0,47 | 0,51 | 0,5 | 0,5 | 0,51 | 0,51 |
| Central and Eastern Europe | Poland | ↓ | 0,48 | 0,46 | 0,44 | 0,43 | 0,43 | 0,46 |
| Central and Eastern Europe | Romania | ↓ | 0,54 | 0,54 | 0,51 | 0,51 | 0,49 | 0,52 |
| Central and Eastern Europe | Slovak Republic | ↘ | 0,42 | 0,43 | 0,38 | 0,4 | 0,38 | 0,4 |
| Central and Eastern Europe | Slovenia | → | 0,42 | 0,46 | 0,44 | 0,44 | 0,44 | 0,45 |
| Oceania | Australia | → | | | | 0,44 | | 0,46 |
| Northern America | Canada | → | 0,43 | 0,43 | 0,42 | 0,44 | 0,44 | 0,43 |
| Oceania | New Zealand | → | | | 0,45 | 0,45 | | 0,45 |
| Northern America | United States | → | | 0,51 | 0,51 | 0,52 | 0,52 | 0,51 |
| | Average | → | 0,47 | 0,48 | 0,47 | 0,48 | 0,48 | 0,48 |

*Legend: Colours – green shows the lowest, red the highest values*
*Change: ↑ ≥ 0.03, ↗ < 0.03, → no change, ↘ < 0.03, ↓ ≥ 0.03.*
*Source: OECD and author's calculation*

Given the relative stability of the income distribution of both disposable and market income over the period considered (and due to the lack of data for several years in many countries), the average (2007-2021, as far as available) the Gini of market and disposable income is compared. The difference indicates how strongly government policies redistributed income through tax, social and regulatory policies. As Figure 2 shows, Switzerland redistributes little while Ireland reduces the Gini of market income by 0.24 (almost halving the market Gini value). Other countries that are redistributing relatively strongly (more than 0.2) include Belgium, Finland, Hungary, France, Austria and Germany.

*Figure 2: Redistribution effort (difference of Gini coefficients of market and disposable income on average between 2007 and 2021)*




*Source: OECD and author's calculations*

Reducing poverty is one of the most important goals of economic and social policy and lies within the main subject of this chapter, namely social security. Poverty rates [Tab. 27] vary substantially between countries at an average rate of around 16%. They are lowest (below 10%) in the Czech Republic and Iceland. The worst performers are the USA, New Zealand, Bulgaria, Latvia and Romania with rates above 22%.
Looking at the changes over time, the record (on average for all countries), is mixed as the rate increases until 2017 and decreases slowly afterwards (see last row in Table 27). Two short periods of declining poverty occurred in 2010 and after 2018, especially after 2022, during the two crises when governments responded with compensatory policies. Between 2007 and 2023, poverty increased strongly in Luxembourg, Sweden and Hungary (by more than 5 percentage points). The strongest reductions were achieved in Ireland (−5.2), Poland and Romania. During the pandemic, Belgium performed best as it reduced the poverty rate by more than 4 percentage points. The worst performing countries were France and the Slovak Republic with rates rising by more than two percentage points.

*Table 27: Poverty rate (income less than 60% of median disposable income) – %*

| Region | Country | 2007 | 2014 | 2021 | 2022 | 2023 | Average | Change 2007 - 2023 | Change 2018 - 2023 |
|---|---|---|---|---|---|---|---|---|---|
| Western Europe | Austria | 12 | 14,1 | 14,7 | 14,8 | 14,9 | 14,2 | 2,9 | 0,6 |
| Western Europe | Belgium | 15,2 | 15,5 | 12,7 | 13,2 | 12,3 | 14,7 | -2,9 | -4,1 |
| Western Europe | France | 13,1 | 13,3 | 14,3 | 15,6 | 15,4 | 13,8 | 2,3 | 2 |
| Western Europe | Germany | 15,2 | 16,7 | 16 | 14,8 | 14,4 | 15,7 | -0,8 | -1,6 |
| Western Europe | Ireland | 17,2 | 16,8 | 12,8 | 13,4 | 12 | 15 | -5,2 | -2,9 |
| Western Europe | Luxembourg | 13,5 | 16,4 | 18,1 | 17,3 | 18,8 | 15,9 | 5,3 | 2,1 |
| Western Europe | Netherlands | 10,2 | 11,6 | 14,4 | 14,5 | 13 | 12 | 2,8 | -0,3 |
| Western Europe | Switzerland | 15 | 13,8 | 14,7 | 15,8 | 16,5 | 15,3 | 1,5 | 1,9 |
| Western Europe | United Kingdom | 18,6 | 16,8 | : | : | : | 17,1 | 0 | |
| Northern Europe | Denmark | 11,7 | 12,1 | 12,3 | 12,4 | 11,8 | 12,3 | 0,1 | -0,9 |
| Northern Europe | Finland | 13 | 12,8 | 10,8 | 12,7 | 12,2 | 12,5 | -0,8 | 0,2 |
| Northern Europe | Iceland | 10,1 | 7,9 | : | : | : | 9,3 | -0,8 | |
| Northern Europe | Norway | 11,9 | 10,9 | 12,6 | 12,2 | 11,5 | 11,7 | -0,4 | -1,4 |
| Northern Europe | Sweden | 10,5 | 15,6 | 15,7 | 16 | 16,1 | 15,4 | 5,6 | -0,3 |
| Southern Europe | Cyprus | 15,5 | 14,4 | 13,8 | 13,9 | 13,9 | 15,1 | -1,6 | -1,5 |
| Southern Europe | Greece | 20,3 | 22,1 | 19,6 | 18,8 | 18,9 | 20,2 | -1,4 | 0,4 |
| Southern Europe | Italy | 19,5 | 19,4 | 20,1 | 20,1 | 18,9 | 19,6 | -0,6 | -1,4 |
| Southern Europe | Malta | 15,1 | 15,8 | 16,9 | 16,7 | 16,6 | 16,1 | 1,5 | -0,2 |
| Southern Europe | Portugal | 18,1 | 19,5 | 18,4 | 16,4 | 17 | 18 | -1,1 | -0,3 |
| Southern Europe | Spain | 19,7 | 22,2 | 21,7 | 20,4 | 20,2 | 20,9 | 0,5 | -1,3 |
| Central and Eastern Europe | Bulgaria | 22 | 21,8 | 22,1 | 22,9 | 20,6 | 22 | -1,4 | -1,4 |
| Central and Eastern Europe | Croatia | : | 19,4 | 19,2 | 18 | 19,3 | 19,5 | -1,3 | 0 |
| Central and Eastern Europe | Czech Republic | 9,6 | 9,7 | 8,6 | 10,2 | 9,8 | 9,4 | 0,2 | 0,2 |
| Central and Eastern Europe | Estonia | 19,4 | 21,8 | 20,6 | 22,8 | 22,5 | 20,3 | 3,1 | 0,6 |
| Central and Eastern Europe | Hungary | 12,3 | 15 | 12,6 | 12,1 | 13,1 | 13,3 | 0,8 | 0,3 |
| Central and Eastern Europe | Latvia | 21,2 | 21,2 | 23,4 | 22,5 | 22,5 | 22,1 | 1,3 | -0,8 |
| Central and Eastern Europe | Lithuania | 19,1 | 19,1 | 20 | 20,9 | 20,6 | 20,7 | 1,5 | -2,3 |
| Central and Eastern Europe | Poland | 17,3 | 17 | 14,8 | 13,7 | 14 | 16,2 | -3,3 | -0,8 |
| Central and Eastern Europe | Romania | 24,6 | 25,1 | 22,5 | 21,2 | 21,1 | 23,2 | -3,5 | -2,4 |
| Central and Eastern Europe | Slovak Republic | 10,6 | 12,6 | 12,3 | 13,7 | 14,3 | 12,3 | 3,7 | 2,1 |
| Central and Eastern Europe | Slovenia | 11,5 | 14,5 | 11,7 | 12,1 | 12,7 | 12,9 | 1,2 | -0,6 |
| Oceania | Australia | | 20,5 | | | | 20,4 | | |
| Northern America | Canada | 19,5 | 19,3 | 17,1 | | | 19,3 | -2,4 | -1,4 |
| Oceania | New Zealand | 21,9 | 22,6 | | | | 22 | -1,2 | -0,5 |
| Northern America | United States | | 24,2 | 22,7 | 24,6 | | 24,2 | 0,4 | -0,2 |
| | Average | 15,8 | 16,9 | 16,4 | 16,5 | 16 | 16,6 | 0,2 | -0,5 |

*Legend: Colours – green shows the lowest, red the highest values*
*Source: OECD, except Cyprus and Malta (Eurostat)*

How efficiently did the countries implement social policy? To answer that question, the administrative costs are compared with the total expenditure; Table 28 gives an overview. The share of administrative costs is, on average, below 3% and has declined since 2007. The least efficient countries (considering the whole period) are the Netherlands and Switzerland, whose high share might reflect low levels of total social spending [Tab. 21] rather than high administrative costs; the most efficient ones are Iceland and the UK. Most countries improved their performance, above all the Netherlands, Greece and Finland. In several others, the share of administrative costs increased, notably in Switzerland.

*Table 28: Share of administrative costs in social spending (%)*

| Region | Country | 2013 | 2020 | 2021 | 2022 | Average 2013 - 2022 | Change 2013 - 2022 |
|---|---|---|---|---|---|---|---|
| Western Europe | Austria | 2,00% | 1,70% | 1,60% | 1,70% | 1,80% | ↘ |
| Western Europe | Belgium | 3,00% | 3,50% | 3,60% | 3,60% | 3,40% | ↗ |
| Western Europe | France | 4,10% | 4,20% | 3,40% | 3,20% | 3,80% | ↘ |
| Western Europe | Germany | 3,90% | 3,70% | 3,60% | 3,70% | 3,70% | ↘ |
| Western Europe | Ireland | 3,80% | 3,80% | 3,40% | 3,60% | 3,90% | → |
| Western Europe | Luxembourg | 1,50% | 1,30% | 1,30% | 1,20% | 1,40% | ↘ |
| Western Europe | Netherlands | 6,40% | 5,00% | 4,70% | 5,20% | 5,50% | ↓ |
| Western Europe | Switzerland | 5,20% | 5,40% | 6,00% | 6,90% | 5,80% | ↑ |
| Western Europe | United Kingdom | 1,10% | | | | 0,80% | ↓ |
| Northern Europe | Denmark | 4,30% | 4,10% | 4,10% | 4,30% | 4,20% | → |
| Northern Europe | Finland | 2,60% | 1,60% | 1,70% | 1,60% | 1,80% | ↓ |
| Northern Europe | Iceland | 0,90% | 0,70% | 0,90% | 1,20% | 0,80% | ↗ |
| Northern Europe | Norway | 2,00% | 1,70% | 1,70% | 1,60% | 1,80% | ↘ |
| Northern Europe | Sweden | 1,90% | 1,90% | 1,70% | 1,80% | 1,90% | → |
| Southern Europe | Cyprus | 1,10% | 1,00% | 0,90% | 0,90% | 1,10% | ↘ |
| Southern Europe | Greece | 2,10% | 0,90% | 0,80% | 0,90% | 1,10% | ↓ |
| Southern Europe | Italy | 2,30% | 1,90% | 2,00% | 2,00% | 2,10% | ↘ |
| Southern Europe | Malta | 1,00% | 0,80% | 0,90% | 0,90% | 1,00% | → |
| Southern Europe | Portugal | 1,50% | 1,50% | 1,50% | 1,50% | 1,50% | → |
| Southern Europe | Spain | 1,90% | 1,50% | 1,60% | 1,80% | 1,70% | → |
| Central and Eastern Europe | Bulgaria | 2,00% | 2,20% | 2,20% | 2,20% | 2,10% | ↗ |
| Central and Eastern Europe | Croatia | 1,90% | 1,60% | 1,50% | 1,50% | 1,60% | ↘ |
| Central and Eastern Europe | Czech Republic | 2,90% | 2,80% | 2,90% | 2,90% | 2,90% | → |
| Central and Eastern Europe | Estonia | 1,20% | 1,70% | 1,90% | 2,00% | 1,50% | ↗ |
| Central and Eastern Europe | Hungary | 1,20% | 1,90% | 1,90% | 1,90% | 1,60% | ↗ |
| Central and Eastern Europe | Latvia | 1,70% | 1,40% | 1,30% | 1,40% | 1,40% | ↘ |
| Central and Eastern Europe | Lithuania | 2,80% | 2,10% | 2,30% | 2,10% | 2,50% | ↘ |
| Central and Eastern Europe | Poland | 2,20% | 1,70% | 1,60% | 1,70% | 2,00% | ↘ |
| Central and Eastern Europe | Romania | 2,10% | 4,20% | 1,90% | 1,60% | 2,10% | ↘ |
| Central and Eastern Europe | Slovak Republic | 2,60% | 2,30% | 1,90% | 1,90% | 2,40% | ↘ |
| Central and Eastern Europe | Slovenia | 1,50% | 1,20% | 1,20% | 1,20% | 1,40% | ↘ |
| Oceania | Australia | | | | | | |
| Northern America | Canada | | | | | | |
| Oceania | New Zealand | | | | | | |
| Northern America | United States | | | | | | |
| | Average | 2,40% | 2,30% | 2,20% | 2,30% | 2,30% | ↘ |

*Legend: Colours – green shows the lowest, red the highest values.*
*Changes: ↑: >1; ↗:< 1 and > 0.1; →: > −0.1 and < 0.1; ↘: > −0.1.*
*Source: Eurostat and author's calculations*

However, a low share of administrative costs may not be the best indicator for efficiency. For instance, better targeting of benefits and means-testing require more administrative effort. The previous 2023 study analyses these aspects in more depth. It also compared the performance of all countries using different indicators and composite scores. The present study follows a different approach and analyses the policies of the most successful countries (see next chapter).

# 7.4. MAIN FINDINGS OF THE UPDATE

This update of the 28 indicators of the first study (Dauderstädt, 2024) added about two more years of data to the former version, thus fully covering the pandemic though but partially the next crisis triggered by the Ukraine war. The biggest general changes neglecting the sometimes significant differences between countries are summarised here.

Regarding the inputs (government policies) the biggest changes occurred in fiscal and monetary policy. Fiscal policy reacted with higher debt-financed spending to the deep recession caused by the pandemic in 2020 and, to a lesser degree, in 2021. Monetary policy kept interest rates low until 2022, when inflation exploded in the wake of the war (and huge government spending). Central banks reacted by rising interest rates rapidly by, on average, 5 percentage points between 2021 and 2023. Social spending strongly increased during the pandemic by about three percentage points of GDP in 2020 and declined slowly afterwards. Most other policies did not change much.

Regarding outputs and outcomes, the strongest effect of the pandemic has been the deep, but V-shaped recession in 2020. In 2023 a second, but weaker recession followed. Unemployment remained low until 2023. The distribution of income and wealth did not change substantially, with income inequality declining slightly and wealth inequality slightly rising. But poverty rates declined during the pandemic due to many income support programmes.

What about the three final goals? Life expectancy that had declined in 2021 recovered in 2022. Happiness increased in 2023. But trust in government that had increased strongly by three points in 2020 and 2021 fell again in 2022 thus returning to the lower pre-pandemic levels.

# 7.5. THE POLICIES OF SUCCESSFUL COUNTRIES

First, success must be defined so that successful countries can be identified, and their policies analysed. Success with respect to the three final goals or outcomes considered in this study – life expectancy, happiness/satisfaction and trust in government – should not be selected as indicators as these outcomes depend on too many inputs (government policies), which are not subject of this chapter such as health policy, education and security, let alone other non-policy factors.
Thus, the focus will be on the outputs that contribute strongly to these outcomes and that are more directly influenced by government policies. If the two main areas of this study – "Employment, income and wealth" and social security' – are considered, the definition of success and its causes presents some challenges. The two areas will be dealt with separately.

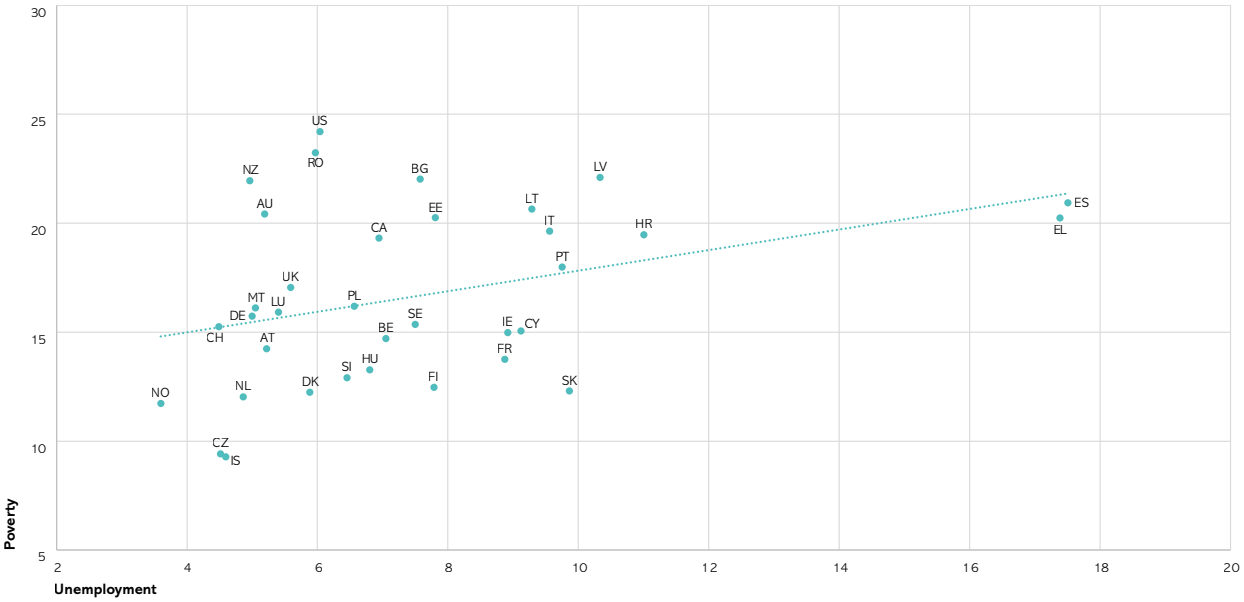
In the first area, the natural candidate for success is the growth rate as growth is correlated with employment (higher employment increases GDP), which is another prime candidate for success. A less obvious candidate is productivity growth, which links GDP and employment. But its effects are ambiguous; on the one hand, GDP can grow while unemployment goes up if productivity increases faster than GDP (demand). On the other hand, high productivity growth offers the opportunity to decrease hours worked per person employed while maintaining or increasing output and thus welfare (as far as it depends on the consumption of goods and services). More generally, growth of GDP neglects negative external effects such as climate change. Achieving higher growth, though mostly desired, might be a dubious success with substantial long-term costs.

The curious case of Ireland: in the period under consideration in the 2023 study, Ireland was the best performing country regarding growth, which was caused by productivity growth while unemployment increased. But that productivity growth has been the result, as explained in that study, of predatory tax and dubious accounting policies. Other successful countries regarding growth have been the countries of CEE. The main driver again has been productivity growth with unemployment also not falling strongly. In their cases, productivity benefitted from the catch-up growth adopting technologies and management practices from richer market economies, to a large extent through direct investment from these countries.

Given these ambiguities, this study should focus on unemployment and its reduction as the key metric for success. Some policies affecting it might partially lie outside the scope of the study, for instance education, but mostly the relevant policy inputs are policies promoting growth and labour market policies. Having chosen unemployment (the rate as a percentage of the population ready to be employed) as the indicator to measure success, the precise metric must be chosen. Looking at Table 14, the two appropriate metrics (average and change over the period 2007-2023) deliver different results. Considering the average, Norway, the Czech Republic, Iceland and Switzerland are the top performers; regarding change, Germany, Slovakia and Poland are the most successful countries.

In the area of social security, the two obvious candidates to measure success are the reduction of inequality and poverty. The development of both indicators (Gini and poverty rate) is usually correlated but is not necessarily linked (inequality can decline while the poverty rate does not). The poverty rate, or rather its low level or decline, is a more appropriate indicator of successful social policy. More specific indicators such as coverage of specific risks by social protection policies suffer from weak comparability due to low data quality. Again, a specific metric needs to be chosen – either the level or change of poverty. Looking at Table 27, the two appropriate metrics (average and change over the period 2007-2023) deliver different results. Considering the average, Iceland, Czech Republic, Norway and the Netherlands are the top performers; regarding change, Ireland, Poland and Romania are the most successful countries.
Unemployment and poverty are correlated to some extent [Fig. 3]. As employment provides income it reduces poverty, but only when wages and working time are sufficiently high; the unemployed are likely to be poor if they do not receive a relatively generous unemployment benefit or social assistance. The best performing countries regarding the long-term average of both indicators are to be found in the left bottom of the scatter plot in Figure 3: Czech Republic, Norway, Iceland and the Netherlands.

Figure 3: Unemployment and Poverty (average 2007-2023)




*Source: Tables 14 and 27*

Both unemployment and poverty are to be seen in the context of the labour force participation rate, which acquires additional relevance in the context of ageing societies. Labour force shortages are likely to constrain further growth and welfare. High participation rates can lead to higher growth (more hours worked) and lower poverty, as more people earn wage income. The number of hours worked in an economy depends on four variables: number of hours worked per employed person (Table 15), unemployment rate (Table 14), labour force participation rate (Table 29) and the demography (share of people aged 15-64 in the total population), which is hard to influence by public policies. Table 29 gives an overview about labour force participation in the set of countries.

*Table 29: Labour force participation rate (percentage of total population aged 15-65; modelled ILO estimate)*

| Region | Country | 2007 | 2011 | 2021 | 2022 | 2023 | Average 2007 - 2023 | Change 2007 - 2023 |
|---|---|---|---|---|---|---|---|---|
| Western Europe | Austria | 59,8 | 60,4 | 61,2 | 61,5 | 61,7 | 60,8 | 1,9 |
| Western Europe | Belgium | 53,6 | 53,2 | 54,5 | 55,1 | 54,9 | 53,9 | 1,3 |
| Western Europe | France | 56 | 56 | 55,9 | 56,2 | 56,3 | 55,9 | 0,3 |
| Western Europe | Germany | 59,2 | 60,1 | 60,6 | 61,3 | 61,6 | 60,5 | 2,5 |
| Western Europe | Ireland | 66,6 | 62 | 63,3 | 64,8 | 65 | 63 | -1,6 |
| Western Europe | Luxembourg | 55,9 | 57,6 | 61,9 | 61,6 | 62,4 | 59,4 | 6,6 |
| Western Europe | Netherlands | 64,5 | 64,5 | 64,9 | 65,4 | 66,1 | 64,8 | 1,5 |
| Western Europe | Switzerland | 67,6 | 67,5 | 67,4 | 66,6 | 66,4 | 67,7 | -1,3 |
| Western Europe | United Kingdom | 62,5 | 62,3 | 62,2 | 62,2 | 62,3 | 62,6 | -0,2 |
| Northern Europe | Denmark | 65,7 | 63,1 | 62,5 | 63,4 | 63,6 | 62,8 | -2,1 |
| Northern Europe | Finland | 61,2 | 59,9 | 59,7 | 60,4 | 60,6 | 59,7 | -0,6 |
| Northern Europe | Iceland | 77,2 | 74,2 | 73,4 | 74,3 | 74,4 | 75,5 | -2,8 |
| Northern Europe | Norway | 66,4 | 65,2 | 66 | 65,6 | 65,2 | 65,2 | -1,2 |
| Northern Europe | Sweden | 63,7 | 63,7 | 65,8 | 66,2 | 66,9 | 64,8 | 3,2 |
| Southern Europe | Cyprus | 64,4 | 63,8 | 63,8 | 65,1 | 65,3 | 63,5 | 0,9 |
| Southern Europe | Greece | 52,6 | 52,1 | 50,3 | 51,8 | 51,9 | 51,6 | -0,7 |
| Southern Europe | Italy | 48,8 | 48,1 | 48,6 | 49,1 | 49,8 | 49 | 1 |
| Southern Europe | Malta | 49 | 50,6 | 62,7 | 63,9 | 65,3 | 56 | 16,3 |
| Southern Europe | Portugal | 62,2 | 60,5 | 57,8 | 58,6 | 59,2 | 59,6 | -3 |
| Southern Europe | Spain | 58,3 | 59,3 | 57,4 | 57,5 | 57,6 | 58,3 | -0,7 |
| Central and Eastern Europe | Bulgaria | 52,6 | 52,5 | 55,3 | 56,6 | 56,1 | 54,4 | 3,5 |
| Central and Eastern Europe | Croatia | 52,9 | 51,8 | 51,8 | 52,3 | 52,6 | 52 | -0,3 |
| Central and Eastern Europe | Czech Republic | 58,8 | 58,3 | 59,8 | 59,9 | 60,1 | 59,4 | 1,3 |
| Central and Eastern Europe | Estonia | 60,3 | 61,2 | 63,2 | 65,1 | 65,8 | 62,3 | 5,4 |
| Central and Eastern Europe | Hungary | 50,5 | 50,6 | 59,3 | 60,4 | 61 | 54,4 | 10,5 |
| Central and Eastern Europe | Latvia | 60,3 | 58,5 | 60,2 | 61,1 | 61,4 | 60,4 | 1,2 |
| Central and Eastern Europe | Lithuania | 55,1 | 57,2 | 61,8 | 62,1 | 62,2 | 59,2 | 7,1 |
| Central and Eastern Europe | Poland | 54 | 56,2 | 58 | 58,6 | 58,9 | 56,7 | 4,9 |
| Central and Eastern Europe | Romania | 54,8 | 54,1 | 51,1 | 51,8 | 51,6 | 54,1 | -3,1 |
| Central and Eastern Europe | Slovak Republic | 58,9 | 58,8 | 60,5 | 61,5 | 61,7 | 59,7 | 2,8 |
| Central and Eastern Europe | Slovenia | 59,7 | 58 | 58,5 | 58,9 | 58,5 | 58,3 | -1,2 |
| Oceania | Australia | 65,2 | 65,4 | 65,9 | 66,1 | 66,4 | 65,4 | 1,2 |
| Northern America | Canada | 67,4 | 66,7 | 65,1 | 65 | 65,2 | 66 | -2,3 |
| Oceania | New Zealand | 68,4 | 68,3 | 70,8 | 71,3 | 72,1 | 69,5 | 3,7 |
| Northern America | United States | 64,7 | 63 | 61,2 | 61,5 | 61,9 | 62,6 | -2,9 |
| | Average | 60 | 59,6 | 60,6 | 61,2 | 61,5 | 60,3 | 1,5 |

*Source: WDI*
*Legend: Colours – green shows the highest, red the lowest values*

The highest participation rates are to be found in the Nordic, some Western European and other countries. The biggest improvements have been achieved in Central and Eastern Europe, Malta and Luxembourg.

Considering all these aspects, six counties were selected that offer different combinations of success regarding unemployment and poverty, while showing very different participation rates (see the last column in Table 30). These are the four top performers regarding average level as shown in Figure 3, and two top performers regarding change – Poland and Germany. Therefore, the six selected countries are the two Nordic countries Iceland and Norway, the two Western European countries Germany and the Netherlands, and the two Central European countries Czech Republic and Poland.

*Table 30: Unemployment, poverty and labour force participation in selected countries*

| | Unemployment | | Poverty | | Participation |
|---|---|---|---|---|---|
| Country | Average* | Change* | Average* | Change* | Average* |
| *Average 35 countries* | 7.5% | −0.6% | 16.6% | 0.2 | 60.3% |
| Czech Republic | 4.5% | −2.7% | 9.4% | 0.2 | 59.4% |
| Iceland | 4.6% | +1.3% | 9.3% | −0.8 | 75.5% |
| Norway | 3.6% | +1.1% | 11.7% | −0.4 | 65.2% |
| Netherlands | 4.9% | −0.6% | 12% | 2.8 | 64.8% |
| Germany | 5.0% | −5.6% | 15.7% | −0.8 | 60.5% |
| Poland | 6.6% | −6.7% | 16.2% | −3.3 | 56.7% |

*Source: Tables 14, 27 and 29. * 2007–2022 (or latest year available)*

For each country, the general economic and social conditions that affect the development of unemployment and poverty must be considered first, such as demography or external economic circumstances. Only after considering these factors, can the role of government policies and institutional arrangements be reliably identified. Thus, for each of the six countries, the general situation is analysed before specific policies that are likely to influence the development of unemployment and poverty are examined. The analysis will start by looking at the policies that were listed as inputs in the quantitative approach above (Tables 1-7 and 21-25) and continue to look at more specific policies and institutional arrangements.

Some general reflections regarding the two targets (unemployment and poverty – see also Figure 3) and the possible ways to influence them might be useful. Employment is a possible way to reduce poverty as a job pays wages. But wages can be very low causing the phenomenon known as "working poor". Strong unions and labour market regulations such as minimum wages might prevent that outcome. Economists of the traditional neo-classic school see the labour market in the same way as other markets for goods and services. With the right price, the market clears and unemployment disappears. In this view, statutory minimum wages, for instance, prevent the market from functioning and cause unemployment; in a free labour market, all unemployment is supposed to be voluntary. Keynesian economists argue that it is overall demand that determines the rate of unemployment. Demand depends largely on wages that are spent on consumption. In this view, lowering wages might worsen a recession and cause unemployment. Beyond that general balance or imbalance of the labour market there is frictional or structural unemployment when supply and demand of labour cannot be matched by the price mechanism because of skill mismatches or regional concentrations.

A similar debate can be observed regarding poverty. For some economists, welfare benefits keep people from assuming responsibility for their fate. The debates about employment and poverty are linked as any income support or social protection system (such as pensions, unemployment insurance, and sickness and disability benefits) provides incentives not to work. Others stress the positive effects of stabilising incomes and thus demand, or enabling people to maintain or develop their productive capacities. The latter view argues in favour of a social investment welfare state (European Commission, Directorate-General for Employment, Social Affairs and Inclusion, 2023; Hemerijck, 2023). The correlation presented in Figure 3 shows that higher social protection indicated by low levels of poverty are not likely to lead to higher unemployment. Below, how the two systems of labour market and social policy interact in different countries will be explored.

### 7.5.1. Czech Republic

To analyse the labour market, the supply and demand side is considered (based on OECD, 2023a). On the supply side, the Czech labour market faces several constraints as the Czech population is growing very slowly and ageing. The participation rate is relatively low [Tab. 29; Tab. 30], especially for women after childbirth. Net immigration has been weak up to 2022, when there was a large influx of Ukrainian refugees. The quality of the labour force is high due a large share of people who completed at least upper secondary education (93% vs 76% OECD average; Bittorf, 2017) and good Programme for International Student Assessment (PISA) scores. The rate of temporary employment is much lower than the EU average (Pavlovaite, 2018). Due to old customs from communist times, many people are self-employed on a part-time basis. The number of officially licensed businesses increased from less than a million in 1992 to almost 3 million in 1999 (Vecerník, 2001).

On the demand side, the Czech economy benefits from a deep integration in the European and global economy (exports and imports are around 70% of GDP) and a relatively high share of manufacturing. Economic growth has been better than the average of the set of countries. In the two crises of 2009 (financial market crisis) and 2020 (pandemic), the economy suffered from deep recessions, but recovered quickly afterwards. In a small open economy, demand depends more on exports than in large, relatively closed economies (e.g. the USA) where domestic demand is more important. Thus wages, which form a large part of the domestic demand, must be carefully managed to maintain international competitiveness without harming the internal demand. After the fall of communism in 1989, the Czech Republic had reformed its industrial relations, setting up new trade unions and employers associations. The tripartite system of collective arrangements provided for moderate wages and stable employment. Low wages probably supported the price competitiveness of the Czech industry and thus stabilised export demand.

Which policies contributed the low unemployment rate in the Czech Republic? On the demand side, during both recessions, the state reacted with massive support measures and ran budget deficits of about 5% of GDP in 2009-10 and 2020-21 [Tab 1], thus preventing high unemployment. The Czech central bank supported these expansionary fiscal policies by lowering interest rates [Tab. 2]. A relatively low level of minimum wages [Tab. 6] might have contributed to the wage competitiveness. Employment protection is rather high [Tab. 7] and might have forced Czech employers to adapt to problems of weakening demand or rising costs by investing in productivity-enhancing measures rather than by firing workers.

Surprisingly, spending on active labour market policies is just about the OECD average and that on training is relatively low in the Czech Republic (OECD, 2023a, p. 103). However, AMLP spending had increased substantially in the early 2000s (from 14% of total spending on employment policies in 1997 to 37% in 2006; Vecerník 2007, p. 227) Measured in the percentage of GDP per capita, expenditure on training programmes for the unemployed is the second lowest in the OECD (only Mexico spends less). In the late 1990s, the Ministry of Labour and Social Affairs elaborated National Plans for Employment encompassing:

1. "support for the employability of human resources
   (increasing skills and motivation for job searching instead of claiming welfare);
2. support for businesses and employers
   (improved conditions for SMEs and revitalisation of several large firms, fair competition and attraction of investors);
3. flexibility of the labour market
   (flexible organisation of work, motivation of employers to enhance skills of employees);
4. removing all discrimination
   (by age and gender, creating conditions for affirmative action in favour of disfavoured categories)".
   (Vecerník 2007, p. 227).

The Czech Republic maintains relatively low labour taxation compared to other European countries, which encourages hiring by employers. In 2023, the tax wedge for families was 23.5 compared to an OECD average of 25.7 (OECD, 2024a) while for single workers without children it is higher than the OECD average (OECD, 2023a p. 33). In particular, low wage earners (67% of average wage) with children face a very low tax wedge.

The Czech Republic not only has an outstanding record of low unemployment but also one of little poverty with the lowest poverty rate within the set of countries (except perhaps Iceland; see Table 27). Some of the more general features of the Czech economy are relevant to explain the low poverty rates, too. The legacy of an egalitarian socialist system, solid growth, a successful education system, a large share of self-employment and a consensual wage-setting system, all contribute to a more equal distribution of income, even before taxes and social benefits. The Gini of market income [Tab. 26] is lower than the average of all countries under investigation in this study, although not the lowest.

As the poverty rate is defined in relation to the disposable income, it mostly depends on the tax and social policies that transform the market income into disposable income. The Gini of the distribution of disposable income in the Czech Republic is also among the lowest in the set of countries with only the Slovak Republic and Slovenia showing better results [Tab. 11]. But the size of the redistribution [Fig. 2] is not outstanding. This corresponds to the fact that the Czech tax system is not very progressive (OECD, 2023a, p. 34). Social security contributions and taxes on goods and services make up the lion's share of government revenue (78%; OECD, 2024). Property taxes are very low (OECD, 2023a, p. 37).

As the tax system cannot explain the low poverty, there needs to be a closer at the social policy. The pension system has a strong impact on poverty; the old-age poverty rate is very low (OECD, 2023a, p. 39). While most pension systems have a strong relationship between contributions paid and pensions received, the Czech system is biased towards the low-earners providing a basic pension plus a limited earnings-based pension. Thus, the net replacement rates are much higher for the poorer recipients. The difference between the replacement rate for people with half the average incomes and those with double the average incomes is the second highest in the set of countries [Tab. 24]. Another redistributive aspect of Czech social policy is income testing regarding some benefits (Ministry of Labour and Social Affairs of the Czech Republic 2009, p. 27). For instance, families are only eligible for child benefits or some special allowances below a certain income level. This targeting of certain types of social spending requires more administrative effort, visible in the respective share which is higher than average in the Czech Republic [Tab. 28]. Other benefits that are not income-tested consist of fixed lump-sum payments that reduce poverty, too. The fixed amounts add a higher percentage to lower incomes thus reducing the relative inequality of income though not absolute income gaps.

### 7.5.2. Poland

Currently, Poland has not only a relatively low rate of unemployment, but also showed the strongest improvement among the set of countries [Tab. 14]. Rates were above 10% about ten years ago and declined to levels around 3% after 2019. Looking again at the supply and demand side of the labour market, the following picture emerges. On the supply side, Poland changed from a country where people emigrated from to an immigration country after 2018 with an additional strong influx of Ukrainian refugees after 2022. It is also an ageing society whose active population (aged 15-64) is shrinking. The labour force participation rate is low but slowly increasing. The quality of labour is comparatively low as the proportion of people with high skill level is one of the lowest in the OECD (OECD, 2023b, p. 88). But PISA levels are above OECD average. On the demand side, economic growth has been very strong – the highest on average among the set of countries. The booming economy has absorbed more and more of the labour supply as the number of hours worked increased, although slower than GDP thanks to outstanding productivity growth. Temporary employment has been a very important source of new employment (Lewandowski and Magda, 2023).

Which policies contributed to the low and falling unemployment rate in Poland? On the supply side, Poland did little except adopting a strong anti-immigration stance that it eased only later vis-à-vis Ukraine. On the demand side, Poland has adopted an expansionary fiscal policy with a budget deficit of 3.8% on average compared to 2.6% of all countries [Tab. 1]. During the Covid crisis, it reacted with a strong fiscal stimulus. Its monetary policy was also characterised by low interest rates after 2014, but the central bank reacted to the onset of inflation in 2022 more rapidly and with higher rates than the European Central Bank. But growth only started to slow down in 2023. Poland also continuously increased its minimum wage [Tab. 6] thus stabilising domestic demand. In 2009 and 2013, Poland reformed the retirement age by limiting opportunities to earlier retirement and gradually increasing the statutory retirement age, but that reform was reversed in 2017. This led to a very low unemployment rate for the age group 55-64 (Lewandowski and Magda, 2023). Its EPL has been relatively strong, but only slightly above the average of all countries [Tab. 7]. The conditions for receiving unemployment benefit are relatively strict (see https://www.gov.pl/web/your-europe/unemployment-benefit). Poland spends very little (as a share of GDP) on training for the unemployed (OECD, 2023b, p. 92), possibly because of the low level of unemployment.

Regarding poverty, Poland is not a top performer. Its average poverty rate is only marginally lower than the average of all 35 countries. However, since 2018 it has improved and become better than that average. Thus, its rate of poverty reduction over the last ten years is quite impressive. The high growth and low unemployment of the Polish economy are likely to explain a large part of that success. Inequality in Poland has been low and declining with respect to the market income and disposable income. The drop in the Gini of the disposable income has been particularly strong (much stronger than for the market income) and the highest among the countries.

Which government policies are likely to have contributed to that success? Certainly, the continuous rise of the minimum wage has reduced the number of working poor. Tax policies are not likely to be responsible as income taxes are relatively low and the share of the – more regressive – taxes on goods and services is of average size (about 40%, similar to the average of the country group). In October 2015, the PiS party won the elections and started to change Poland's social policy substantially in favour of families by introducing a generous child benefit of zł500 per month for each child (and cancelling the former pension reform that intended to raise the retirement age). With zł6000 per year, that child benefit amounted to almost 10% of the average disposable family income and correspondingly much more for larger families (OECD, 2020). For a single parent and single earner at part-time work, the family benefit in Poland was the highest in the EU with more than 35% of the average wage (European Commission Directorate-General for Employment, Social Affairs and Inclusion, 2023, p. 40).

### 7.5.3. Norway

The Nordic countries excel in most rankings regarding welfare combining modern economies with a generous welfare state. Norway has the lowest average unemployment rate among the 35 countries (but slightly increasing) and a very low and declining poverty rate. It is also the third richest country in the sample (after Luxembourg and Ireland) in terms of GDP per person. In terms of GNI per person it is even the richest as large parts of the GDP of Luxembourg and Ireland are appropriated by foreigners.

Looking at the supply and demand side of the labour market in Norway, the supply side is considered first. Norway has received a continuous strong influx of migrants; labour force participation has been declining until 2020, but has risen since. The participation of women is much higher than in most OECD countries. The population is ageing, albeit at a slower rate than in most other European countries (OECD, 2024b, p. 10). The population is well educated with 48.1% having completed a tertiary education against OECD average of 40.7% (OECD, 2024b, p. 7). But PISA scores have declined and are now below the OECD average (OECD, 2024b, p. 11). On the demand side, growth has not been very strong (Table 16), particularly not per person (Table 8) as population has grown due to immigration. During both global crises (2009 and 2020), Norway had deep recessions.

Given these adverse conditions, the labour market performance is impressive. Which policies did Norway adopt? On the macroeconomic side, Norway monetary and fiscal policy has not been very expansionary. Interest rate came down in 2010 and touched almost zero in 2021 before being increased again to fight the inflation after 2022 (Table 2). Norway's fiscal policy is exceptional as the budget is almost always in surplus due to high oil and gas revenues. But the size of the surplus changes and has been in the single digit region for several years after 2013 and even showed a deficit once in 2021 (Table 1). The government employs about 30% of the workforce compared to an OECD average of about 17% (OECD, 2024b, p. 75). The level of employment protection is about average (Table 7), wages are compressed but downward flexible in real terms (Nielsen, 2020). This might be due to a strong cooperation between government, trade unions and employers that manages wage development and related labour market outcomes, including negative ones such as high rates of absenteeism and disability (Nielsen, 2020). Norway spends ten times as much on disability benefits than on unemployment benefits or active labour market policies (Martin, 2015, p. 16). In 2023, 10.6% of the population (18-67 years old) received disability benefits. If these – or a certain share of them – are added to the number of unemployed, Norway's labour market looks much weaker. In many other countries, many of these people might be registered as unemployed. In terms of lessons to be learned, shifting people that are hardly employable into disability is an easy, although probably costly, way to improve the unemployment figures.

Regarding poverty, Norway performs well but not outstandingly so. The most remarkable success is the decline of the poverty rate since 2018 (Table 27). Norway has a strong egalitarian distribution of market income with the third lowest Gini among the 35 countries (Table 26) to start with. In 2016, 94% of households in Norway had a positive income from capital (Ranaldi, 2025, p. 20), although its redistribution effort is slightly above average [Fig. 2]. Thus, the resulting distribution of disposable income is the most equal of the 35 countries except the above-mentioned three CEE countries (Slovenia, Czech Republic and Slovak Republic).

Which government policies contributed to these outcomes? The labour market policies are likely to have contributed to that relatively equal distribution of market income by compressing wages. Its tax system has relatively low and declining rates for goods and services where taxes have a regressive effect [Tab. 3], while taxes on income and profits are higher and rising [Tab. 4]. Knol, van Berkel, Schoemaker, van Vuuren (2024, p. 44) note that "all taxable income is taxed at the same flat rate, except for labour income, which is taxed progressively. Norway also has no tax credits, and only tax deductions on local income taxes".

Due to its oil and gas revenue, Norway's government has tremendous capacity to distribute money; it spends more than 60% of GDP (OECD, 2024b, p. 66). Given this exceptional fiscal space, it is not surprising that Norway's social spending is above average in terms of percentage of GDP (Table 21) and of all government spending (Table 22). With the average disability benefit or pension being about 66% of the average wage, most recipients of social benefits do not belong to the population at risk of poverty when a threshold of 60% is applied. Sickness and disability are very generous and the number of recipients very high (OECD, 2024b, p. 96 ff).

### 7.5.4. Iceland

Iceland is a very small (380,000 inhabitants) and rich country, and thus more comparable to a larger city such as Utrecht than to a medium-sized country. Iceland's labour market performance is better than average but weaker than the three countries discussed above. On the supply side, Iceland has experienced strong immigration and a still dynamic demography with more young and fewer old people than the OECD average. Its labour force participation rate is the highest among the set of countries [Tab. 29]. Its PISA scores are just about the OECD average, probably due to skill deficits among migrants (OECD, 2023c, p. 8). On the demand side, the average growth of the economy during the observation period (2007-2022) has been relatively weak due to the two severe recessions. The financial crisis in 2008 hit Iceland very hard as its banking system almost completely collapsed. The pandemic affected the tourism-heavy economy severely, too. But since 2022, its growth has been strong. Given these challenges, Iceland's unemployment record looks rather good (Ólafsdóttir 2020).

Iceland's government reacted decisively during both crises. It run large budget deficits to stabilise demand (and the banking system in 2008). Its monetary policy during the first crisis was more restrictive than in most other countries, with relatively high interest rates. But these must be seen in the light of still much higher double-digit rates before 2009. The banking crisis determined the Central Bank's policy more than other considerations. During the pandemic, monetary policy was free from these constraints and clearly expansionary. But the subsequent inflation led to a more restrictive policy, with interest rates rising above 8%.

Iceland's labour market policy is rather restrictive and corporatist. Trade union membership is high and collective wage agreements cover 90% of all jobs. From a neo-classical point of view, such arrangements distort the market and slow down job creation (OECD, 2023c, p. 22ff). Active labour market policies are helpful, in particular for immigrants whose integration into the labour market is essential (OECD, 2023c, p. 89 ff.). The following paragraphs describe newly adopted policies and institutional arrangements (OECD, 2023c, p. 90).

"The counselling services have recently been reformed, and they are now organised according to the length of unemployment, with a view to limiting long-term joblessness. All jobseekers need to answer a screening list when they have been unemployed for two months. Frontline interviews are set up for those who are deemed to need little support. If more support is needed, jobseekers are interviewed by a career counsellor. Every jobseeker who has been continuously unemployed for 12 months will be given an assessment interview, a job search plan and individualised support with more help to find a job, reskilling or rehabilitation. The counselling services provided are the same for all jobseekers in Iceland, regardless of the area where they live.

A variety of courses are also provided to help jobseekers develop their skills and abilities. These include self-empowerment courses, career development, Icelandic courses and certified study paths in collaboration with lifelong learning centres and special projects for young jobseekers.

To help immigrants in a more effective way, an immigration counselling office was set up in February 2021. The ultimate purpose is to reach more immigrants and provide them with a contact point on integration, including acquiring information regarding labour market opportunities. As a further welcome step, a 2023 law has merged the Multicultural and Information Centre, offering assistance and counselling, with the Directorate of Labour."

Iceland's performance fighting poverty has been impressive. It even beats the Czech Republic in the long-term average, by just 0.1 percentage point. That success is less surprising given the fact that its distribution of market income is the most equal within the group of 35 countries [Tab. 26]. Similar to Norway, 95% of the households had a positive income from capital in 2016 (Ranaldi, 2025, p. 20). Therefore, its redistribution effort is modest [Fig. 2], but still sufficient to achieve a relatively equal distribution of the disposable income that is much better than the average of the 35 countries [Tab. 11]. What kind of policies did Iceland use to achieve these impressive results?

Iceland's tax system is rather regressive with taxes on goods and services more important than those on average for the 35 countries [see Tab. 3] and those on income less so (see Tab. 4). Social spending is modest, too. Its share in total government spending is the second lowest in the set of countries after the notoriously frugal United States [Tab. 22] and still below average as a share of GDP [Tab. 21]. Iceland is, together with the Netherlands, an outlier from the trend line that correlates social spending and poverty negatively (high-spending countries are likely to have lower poverty rates) as it combines low spending with low poverty (see Dauderstädt, 2024, p. 227). Iceland uses income testing for many social benefits which might explain the low amounts of spending without neglecting the 'real' poor households (Eydal and Gislason, 2014, p. 118). Means-testing child benefits leads to a high marginal tax rate for low-income earners that could discourage them from working more (OECD, 2019, p. 111 ff) When social policies are relatively weak, the major cause of the low poverty is likely to be the equal distribution of market income. Which government policies are relevant in this regard?

Primarily, it is labour market policy and institutions that have fostered wage compression and solid wage growth (OECD, 2023c, p. 4). As mentioned above, collective wage agreements cover most jobs and provide a de facto minimum wage (OECD, 2023c, p. 22-23). Tripartite (unions, employers, government) consensual wage policies make sure that wages do not grow too fast as this would imperil international competitiveness and possibly cause inflation. At the same time, wages will not fall behind productivity growth, ensuring a balanced distribution of the value created as the high and stable wage share indicates [Tab. 12]. Wage growth across industries is less different than productivity growth. Iceland has high barriers to entry which limit competition (OECD, 2023c, p. 47 ff.). On the one hand, such a situation is likely to cause inflation or at least prevent prices from falling when productivity increases. On the other hand, it protects the earnings of enterprises which allow high and stable wages.

### 7.5.5. Germany

Germany's record according to the metric used [Tab 30] is mixed. The levels of both unemployment and poverty are just slightly better than average [ Tab. 14; Tab. 27], but the change rates since 2007 are remarkable, especially regarding unemployment. Looking at the German labour market, the supply side is driven by two adverse trends; on the one hand, strong immigration and a slow, but steady rise of the participation rate [Tab. 29] has increased the supply of workers. On the other hand, demography has led to a wave of retirements. In the end, the number of people in the working age increased by about three million between 2007 and 2022. Quality-wise, Germany's PISA records are slightly above the OECD average and its tertiary education attainment is significantly lower (OECD, 2023d, p. 8). On the demand side, Germany suffered from two severe recessions in 2009 and 2020. Its overall economic growth has been weaker than the average of the 35 countries, but between the two recessions it has been relatively strong (OECD, 2018a), driven by high net exports and improving domestic demand. It is also important to see that after 1995, Germany suffered from an economic malaise earning the title of the "sick man of Europe" with unemployment rates above 10%. Given these ramifications, the role of government policies is of high relevance.

Germany's macroeconomic policy reacted to the two recessions with strong anticyclical measures combining fiscal deficits [Tab. 1] with declining or low interest rates [Tab. 2]. In between 2011 and 2020, monetary policy continued to be expansionary with interest rates close to zero while Germany's fiscal policy became very frugal due the debt brake it adopted in 2009 after the high expenditures during the financial market crisis. Fiscal austerity and low interest rates contributed to the export boom as neither the German state nor its enterprises (let alone its private households) accumulated net debt – in other words, Germany exported its unemployment to some extent. This export boom and the overall development of the labour market were also the result of certain labour market policies and institutional arrangements. Many observers claim that the labour market reforms ("Hartz reforms") of the "Agenda 2010" that were adopted in 2003 and the pension reforms of 2007 (a gradual rise of the retirement age to 67) are the main cause for the subsequent success. The measures of the Agenda 2010 focused on the labour market as unemployment had become very high (over 10%) after the mismanaged unification of Germany. It merged the social welfare with the second unemployment benefit (*Arbeitslosenhilfe*) that the unemployed were switched to after the first year during which they received an untested benefit (*Arbeitslosengeld*). The new benefit was means-tested and required more effort by the unemployed to find a job with fewer exceptions of intolerability. Grace periods without sanctions were abolished and personal assets above a low threshold would be deducted from entitlements.

Unemployment rates declined from a maximum of 11.7% in 2005 almost continuously to 5% in 2019. However, it is doubtful how much the Hartz reforms contributed to that success. The reforms probably accelerated the decline of unit labour costs by creating a previously unknown large low-wage sector in the German labour market. The number of hours worked in the German economy stagnated or declined while the unemployment rate fell as well-paid, full-time jobs were replaced by poorly paid part-time jobs (Dauderstädt and Dederke, 2012).

But this wage trend had already started in the 1990s when unions and employers responded in a typically German corporatist fashion to the economic problems (Dustmann et al., 2014). In any case, low wage costs might explain Germany's export boom to a lesser degree than a global (especially Chinese) surge of demand for luxury cars and investment goods.

During the 2009 crisis, the German labour market performance was exceptionally good because many enterprises used short-time work or furlough (*Kurzarbeit*) rather than firing workers. Two systems complemented each other – a public subsidy covering the difference between the full-time wage and the reduced one – and a corporatist scheme of working time accounts on an enterprise level, where workers accumulated wage claims during phases with high demand and lots of overtime hours that could be paid out during recessions. In the pandemic, that policy kept unemployment in Germany at a low level again [Tab. 14]. The public part of this highly successful German policy has been adopted by many other countries during the recession caused by the pandemic in 2020 (Dauderstädt, 2021; 2022). To sum up, three factors contributed to Germany's declining unemployment: a strong export boom supported by internal devaluation (wage restraint and declining unit labour costs), corporatist arrangements between employers and unions on both the sector and enterprise levels and the reforms of the Agenda 2010.

The flip side of that development has been the rising poverty. The small decline of the poverty rate between 2007 and 2023 (Table 30) is a recent phenomenon. Most of the time, Germany's poverty rate has been between 15% and 17%, and not much better than the average of the set of countries [Tab. 27]. In 2005 it was 14.7% and thus only slightly higher than in 2023 and it continued to rise afterwards. Germany's distribution of income worsened after 2000 with the Gini index increasing from about 29 to about 32 in 2018-2020. The wage share declined from 65% in 2000 to below 60% in 2005 and recovered somewhat [Tab. 12] during the recession of 2009. The labour market reforms described are largely responsible for that development. Only in 2015 did the poverty rate start to decline from a maximum of 16.7%. Which policies contributed the improvement after 2015?

Most likely, one of the most important policies is the introduction of a legal minimum wage in 2015 against strong opposition by employers that were backed up by conservative economists, who wrongly forecasted massive job losses and a large rise of unemployment. During the pandemic and again during the energy crisis in the wake of the Ukraine war, the government temporarily lowered the VAT rates and provided special subsidies for affected people (Dauderstädt, 2021). In 2022, the SPD-led government changed several important features of the Agenda 2010 reforms that had been introduced in 2005 by an also SPD-led government as the party wanted to correct the bad image that it acquired with the Hartz reforms. The new social assistance (*Bürgergeld*) stipulated more money, fewer sanctions and more protection for personal assets (*Schonvermögen*) up to a threshold of €40,000 per person. Knol, van Berkel, Schoemaker, van Vuuren summarise and praise the current German welfare system: "Germany's minimum income benefits are characterised by the automatic inclusion of housing and child supplements in social assistance. Therefore, social assistance recipients do not have to apply for housing and child benefits separately. Furthermore, eligibility requirements are less stringent during the first year of social assistance receipt. The German tax system also differentiates between household types through different tax classes. This ensures that, for example, single parents face lower tax rates." (Knol, van Berkel, Schoemaker, van Vuuren, 2024, p. 35). A mix of labour market policies, a redesign of social assistance and emergency aid during the twin-crises of the pandemic and Ukraine war led to a fall of the poverty rate by two percentage points since 2015, which is better than the change of 0.8 points presented in Table 30.

### 7.5.6. Netherlands

The Netherlands are in the middle range among the six successful countries regarding the level of unemployment, poverty and labour force participation. While its unemployment rate declined slightly between 2007 and 2023, its poverty rate increased by 2.8 percentage points. The Dutch labour market has been relatively tight most of the time with the average level of unemployment being among the five best performing countries of the set of 35 [Tab. 14]. Looking at the supply side, the Netherlands received many migrants who now make up about 13% of the population (up from 11% ten years ago). Labour force participation, mainly of women, increased [Tab. 29] while demography has reduced the labour supply (Klinker and ter Weel, 2024). Average working time per employee is relatively low [Tab. 15] as part-time work is very prominent (Gielen and Schils, 2024); self-employment strongly increased after 2005 (OECD, 2018b, p. 74 ff.). The quality of the labour force is high – tertiary educational attainment and PISA scores are above the OECD average (OECD, 2023e, p. 7). On the demand side, growth of GDP and total hours worked was solid, despite two deep recessions in 2009 and 2020 [Tab. 7; Tab. 8].

Macroeconomic policies supported demand and thus employment. During both recessions, the Netherlands benefitted from the European Central Bank's low interest rates [Tab. 2] and adopted expansionary fiscal policies [Tab. 1]. The Netherlands have the highest level of employment protection in the set of countries [Tab. 7] and apparently, it has maintained high levels of employment although many economists (and the OECD when it introduced that indicator) thought it would prevent employers from hiring people and thus reduce employment. The same is true for the wage policy where minimum wages have been relatively stable, but increased substantially after 2019 (Klinker and ter Weel, 2024, p. 2). During the pandemic, the state covered 85% of wage costs in affected industries if employers retained jobs and paid full wages (OECD, 2021, p. 18). Generally, most observers see a very tight labour market in the Netherlands and suggest measures to increase the supply via more training, better childcare, more immigration and better education (OECD, 2023e, p. 11).

The picture regarding poverty reduction is less impressive with average levels and a rise between 2007 and 2023. But that rise hides a more complex evolution [Tab 27]; in the early 2000s the poverty rate was very low (about 10%) but started to rise continuously after 2014, reaching a maximum of 14.5% in 2022. In 2023, the poverty rate fell to 13%, a substantial reduction. The Dutch distribution of market income is relatively egalitarian (better than the average of the set of countries). Around 89% of the households have a positive capital income (Ranaldi, 2025, p. 20). Tax and social policies make a redistributive effort that is slightly weaker than the average [Fig. 2] leading, however, to a distribution of disposable income that is also better than average, despite worsening until 2019 and improving after 2019. The relevant policies are examined below.

Dutch tax policy is balanced with the regressive taxes on goods and services providing about 40% of revenue, the same as taxes on income and profits [Tab. 3; Tab. 4]. Top tax rates are high but decreased [Tab. 5], benefitting the rich. Social spending as a share of government spending is average [Tab. 22] including a very high share of administrative costs [Tab. 28] but as a share of GDP it is very low [Tab. 21]. The positive side of the high administrative effort is the high efficiency of social spending according to some studies (see Dauderstädt, 2024, p. 230; Knol, van Berkel, Schoemaker, van Vuuren, 2024, p. 55). The Netherlands is, together with Iceland, an outlier from the trend line that correlates social spending and poverty negatively (high-spending countries are likely to have lower poverty rates) as it combines low spending with low poverty (see Dauderstädt, 2024, p. 227). The major cause for that is the pension system as it is based on three pillars of which only one is tax-financed. It thus requires just about 12% of government spending compared to 18%, the OECD average (OECD, 2023f, p. 211). As the pensions received from the two private pillars count as market income, the distribution of market income looks better than in countries with dominant pay-as-you-go systems. The other cause of the relatively equal distribution of market income is the labour market policy. As mentioned above, employment protection is strong and minimum wages led to wage compression (Klinker and ter Weel, 2024). Due to the efficient pension system, old-age poverty is low (OECD, 2021, p. 50).

The recent decline of the poverty rate and inequality of disposable income is probably due to exceptional measures during the pandemic and the energy crisis in the wake of the Ukraine war. The support package during the pandemic included income support for self-employed and other measures to fight poverty (OECD, 2021, p. 18). In the wake of the Ukraine war and the subsequent energy crisis, the Netherlands adopted another package of measures to help households hit by the cost-of-living crisis, one policy being "a one-off energy allowance of €1,300 for people with an income around the social assistance level" (OECD, 2023f, p. 18). Minimum wages, basic pensions and unemployment benefits were all increased by 10.15% and taxes reduced (OECD, 2023f, p. 18). During both crises, the Netherlands benefitted from a good fiscal position (low government debt) that allowed substantial additional spending.

### 7.5.7. Conclusions

To sum up, the policies of the six countries are analysed regarding the two indicators of success – unemployment and poverty – first separately. Finally, the possible trade-offs and interdependence of both goals are considered.

Regarding unemployment, all the countries used monetary and fiscal policies to stabilise and strengthen demand and employment during recessions. Labour market policies accompanied these macroeconomic measures. During the pandemic, many countries subsidised furlough thus stabilising employment throughout the crisis (following the example of Germany that used this policy successfully during the financial crisis of 2009). In the political and academic debate, some labour market policies, in particular EPL, minimum wages and strong unions are judged differently by two opposite schools of thought. The market-liberal view sees these features as detrimental and leading to a loss of jobs or, at least, as a barrier to more employment because employers fear higher wages and less control over working conditions. The opposite view expects a more stable demand and employment, and a smoother management of adjustment in times of crisis. The evidence from the six countries tends to support the second view, as most of these successful countries have used some of these features. The possible exception is Germany that reduced high unemployment through labour market reforms that weakened social protection. But even that case is more ambiguous on closer inspection. Strong unions and collective agreements strongly contributed to control unit labour costs. In 2015, when Germany introduced a statutory minimum wage for the first time, unemployment did not increase as many market-liberal critics had expected.

The rate of poverty depends on the distribution of disposable income, which results from the distribution of market income and its redistribution through taxes and social spending. Market incomes stem from capital (such as profits or rents) or labour (wages). A more widespread distribution of wealth reduces inequality when, for instance, more people own their housing or have savings for their retirement as in the Dutch pension system. More employment means more wage income, depending on the working time and wage level. Minimum wages and strong unions can reduce the number of working poor, but redistribution remains crucial to poverty reduction in most cases, although with less effect than desired (see Dauderstädt, 2024, p. 227; Figure 17). One possible cause is that tax policies have relatively little effect; in the best case, the poor pay less or no income taxes. But most government revenue comes from VAT and social security contributions. Both sources are not progressive and have flat rates that favour the rich who do not consume as much and save more, and often pay social insurance premiums only up to a certain income threshold and not at all on capital income (profits, rents). That leaves social expenditure and income support. As the correlation analysis in the last study (Dauderstädt, 2024, p. 227; Figure 16) shows, higher social spending reduces the rate of poverty, but only weakly. Social protection often aims at maintaining previous market income levels rather than avoiding poverty, and it is not means-tested. The six successful countries target their social spending better or distribute fix amounts that are relatively more valuable to poor households.

Employment and social policies interact in difficult ways. Plenty of decent, well-paid jobs are the best way to reduce poverty and provide the money to fund social protection, but easy access to social assistance can be a disincentive for work. When social protection is financed out of social security contributions paid by employees and employers it increases non-wage labour costs, discouraging employment. Often, political and public views of that dilemma suffer problematic swings. In times of a booming economy with full employment more generous social protection that is often desirable seems feasible, while in a recession, procyclical cuts in social spending (austerity policies) are often considered as necessary or unavoidable. But trying to create jobs by lowering wages can increase poverty and lead to a doom loop of falling demand and employment.

# 7.6. REFERENCES

Bittorf, M. (2017). Labour Market in the Czech Republic Sets Standards. *KfW Research Economics in Brief, 147.* https://www.kfw.de/PDF/Download-Center/Konzernthemen/Research/PDF-Dokumente-Volkswirtschaft-Kompakt/One-Pager–2017-EN/VK-No.–147-September–2017-Labour-market-Czech-Republic.pdf

Dauderstädt, M. und Dederke, J. (2012). Reformen und Wachstum. Die deutsche Agenda 2010 als Vorbild für Europa? [Reforms and growth. The German Agenda 2010 as a role model for Europe?]*Wiso direkt* (https://library.fes.de/pdf-files/wiso/09197.pdf

Dauderstädt, M. (2021). Wirtschaftsprogramme gegen die Pandemie-Krise – Deutschland im internationalen Vergleich, [Economic policies against the Covid crisis – Germany in international comparison] *Wirtschaftsdienst* 5/2021 https://www.wirtschaftsdienst.eu/inhalt/jahr/2021/heft/5/beitrag/wirtschaftsprogramme-gegen-die-pandemiekrise-deutschland-im-internationalen-vergleich.html

Dauderstädt, M. (2022). We are Not (at) All in the Same Boat: Covid–19 Winners and Losers. In: Vanhercke B., & Spasova S. (eds.). *Social Policy in the European Union: State of Play 2021 Re-emerging Social Ambitions as the EU Recovers from the Pandemic.* Brussels: European Trade Union Institute (ETUI) and European Social Observatory (OSE). https://www.etui.org/sites/default/files/2022–01/22%20Social%20policy%20in%20the%20European%20Union.%20State%20of%20play%202021.%20Social%20ambitions%20EU%20pandemic_2022_0.pdf

Dauderstädt, M. (2024). Social Security, Employment, Income and Wealth. In: *EIPA (2024) Public Sector Performance Programme 2022–2025. An International Benchmarking Study. Sub-Study 2023, pp. 176–271.* https://www.eipa.eu/wp-content/uploads/2024/02/M–20230327-EIPA-Benchmarking-Study–2023-Master_v4.pdf

Dustmann, C., Fitzenberger B., Schönberg U., & Spitz-Oener, A. (2014). *From Sick Man of Europe to Economic Superstar: Germany's Resurgent Economy.* CDP No 06/14. London: Centre for Research and Analysis of Immigration. https://cream-migration.org/publ_uploads/CDP_06_14.pdf

European Commission. (2022). *2022 Country Report – Czechia*, SWD(2022) 605 final. https://vlada.gov.cz/assets/evropske-zalezitosti/aktualne/2022-european-semester-country-report-czechia_en_2.pdf

European Commission. (2023). *2023 Country Report – Czechia*. Institutional Paper 227 SWD (2023) 603. https://economy-finance.ec.europa.eu/system/files/2023-06/ip227_en.pdf

European Commission: Directorate-General for Employment, Social Affairs and Inclusion (2023). *The Future of Social Protection and of the Welfare State in the EU*. Luxembourg: Publications Office of the European Union. https://data.europa.eu/doi/10.2767/35425

Eydal, G. B., & Gislason, I. V. (2014). Family Policies: The Case of Iceland. In: Robila, M. (ed.). *Handbook of Family Policies Across the Globe.* New York: Springer Science+Business Media. https://www.researchgate.net/profile/Ingolfur-Gislason–2/publication/302932208_Family_policies_The_case_of_Iceland/links/5e8d823292851c2f52887c1f/Family-policies-The-case-of-Iceland.pdf

Gielen, A. C., & Schils, T. (2024). Non-Standard Employment Patterns in the Netherlands. *IZA Policy Paper No 77*. https://www.iza.org/publications/pp/77/non-standard-employment-patterns-in-the-netherlands

Government of the Czech Republic (2022). *Policy Statement of the Government*. https://vlada.gov.cz/en/jednani-vlady/policy-statement/policy-statement-of-the-government–193762/#social_and_family_policy

Hemerijck, A. C (2023). Towards a European Union of Social Investment Welfare States. *Intereconomics*, 58(5), 233–239. doi:10.2478/ie-2023-0049

Klinker, I., & ter Weel, B. (2024). Wages and Employment in the Netherlands, *2017–2023. IZA DP No 17049*. https://docs.iza.org/dp17049.pdf

Van Vuuren D., van Berkel K., Knol, J., & Schoenmaker F., (2024). *International Best Practices in Social Security Systems.* EIPA Public Sector Performance Programme 2022–2025. International Benchmarking Study. Sub-study 2024. https://www.eipa.eu/wp-content/uploads/2024/06/2024–1621_Eipa_Benchmarking-Study_2024_SEO_Final-WEB–1.pdf

Lewandowski, P. and Magda, I. 2023. The Labour Market in Poland, 2000–2021, *IZA World of Labour* 426. doi: 10.15185/izawol.426.v2

Martin, J. P. (2015). Activation and Active Labour Market Policies in OECD Countries: Stylised Facts and Evidence on Their Effectiveness. *IZA Journal of Labour Policy*, 4(4). doi 10.1186/s40173–015–0032-y

Ministry of Labour and Social Affairs of the Czech Republic (2009). *Social Security System in the Czech Republic*. https://www.mpsv.cz/documents/625317/625839/ssz_cr_aj.pdf/f82ccee4–1171–77f3-ffd5-b6b3e45e04ee

Nielsen, O. A. (2020). The Labor Market in Norway, 2000–2018. *IZA World of Labour* 424,v2. https://wol.iza.org/uploads/articles/542/pdfs/the-labour-market-in-norway.pdf

OECD (2018a). *OECD Economic Surveys: Germany 2018*. Paris: OECD Publishing. http://dx.doi.org/10.1787/eco_surveys-deu–2018-en

OECD (2018b). *OECD Economic Surveys: Netherlands 2018*. Paris: OECD Publishing. https://doi.org/10.1787/eco_surveys-nld–2018-en

OECD (2019). *OECD Economic Surveys: Iceland 2019*. Paris: OECD Publishing. https://doi.org/10.1787/c362e536-en

OECD (2020). *OECD Economic Surveys: Poland 2020*. Paris: OECD Publishing. https://doi.org/10.1787/0e32d909-en

OECD (2021). *OECD Economic Surveys: Netherlands 2021*. Paris: OECD Publishing. https://doi.org/10.1787/dd476bd3-en

OECD (2023a). *OECD Economic Surveys: Czech Republic 2023*. Paris: OECD Publishing. https://doi.org/10.1787/e392e937-en

OECD (2023b). *OECD Economic Surveys: Poland 2023*. Paris: OECD Publishing. https://doi.org/10.1787/0e32d909-en

OECD (2023c). *OECD Economic Surveys: Iceland 2023*. Paris: OECD Publishing. https://doi.org/10.1787/b3880f1a-en

OECD (2023d). *OECD Economic Surveys: Germany 2023*. Paris: OECD Publishing. https://doi.org/10.1787/9642a3f5-en

OECD (2023e). *OECD Economic Surveys: Netherlands 2023*. Paris: OECD Publishing. https://doi.org/10.1787/dbda2baf-en

OECD (2023f). *Pensions at a Glance 2023: OECD and G20 Indicators*. Paris: OECD Publishing. https://doi.org/10.1787/678055dd-en

OECD (2024a). *Taxing wages. Paris: OECD Publishing*. https://www.oecd.org/content/dam/oecd/en/topics/policy-issues/tax-policy/taxing-wages-brochure.pdf

OECD (2024b). *OECD Economic Surveys: Norway 2024*. Paris: OECD Publishing. https://doi.org/10.1787/cb13475f-en

Ólafsdóttir, K. (2020). The Labour Market in Iceland, 2000–2018. *IZA World of Labour*. Bonn: Institute of Labour Economics (IZA) https://wol.iza.org/articles/the-labor-market-in-iceland/long

Pavlovaite, I. (2018). *Social and Employment Policies in the Czech Republic*. European Parliament, Policy Department for Economic, Scientific and Quality of Life Policies. https://www.europarl.europa.eu/RegData/etudes/STUD/2018/618993/IPOL_STU(2018)618993_EN.pdf

Putman, L. et al. (2015) Social Security, in: Goderis, B. (ed.) *Public Sector achievement in 36 countries. A comparative assessment of inputs, outputs and outcomes*. The Netherlands Institute of Social Research, The Hague, p.221-254

Ranaldi, M. (2025). Global Distributions of Capital and Labor Incomes: Capitalization of the Global Middle Class. *World Development* 188, 106849 https://www.sciencedirect.com/science/article/pii/S0305750X2400319X

Vecerník, J. (2001). Labour Market Flexibility and Employment Security: Czech Republic, *ILO Employment Paper* 2001/27. https://www.ilo.org/publications/labour-market-flexibility-and-employment-security-czech-republic

Vecerník, J. (2007). The Czech Labour Market: Historical, Structural and Policy Perspectives. *Prague Economic Papers* 3. https://pep.vse.cz/pdfs/pep/2007/03/02.pdf

# 7.7. ANNEX

*Table 1: General government net lending or borrowing (percentage of GDP)*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | Estimates Start After |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 1,5 | -1,1 | -4,6 | -5,1 | -4,5 | -3,5 | -2,8 | -2,9 | -2,8 | -2,4 | -1,7 | -1,3 | -4,4 | -8,7 | -6,4 | -2,2 | -0,9 | -1,7 | 2022 |
| Austria | -1,4 | -1,5 | -5,3 | -4,4 | -2,6 | -2,2 | -2,0 | -2,7 | -1,0 | -1,5 | -0,8 | 0,2 | 0,6 | -8,0 | -5,8 | -3,3 | -2,6 | -3,4 | 2023 |
| Belgium | 0,1 | -1,1 | -5,4 | -4,1 | -4,3 | -4,3 | -3,1 | -3,1 | -2,4 | -2,4 | -0,7 | -0,9 | -2,0 | -9,0 | -5,4 | -3,6 | -4,4 | -4,7 | 2023 |
| Bulgaria | 3,1 | 2,7 | -0,9 | -3,8 | -1,8 | -0,4 | -1,8 | -3,7 | -2,8 | 1,5 | 0,8 | 0,1 | -1,0 | -2,9 | -2,8 | -0,8 | -3,1 | -2,9 | 2023 |
| Canada | 1,8 | 0,2 | -3,9 | -4,7 | -3,3 | -2,5 | -1,5 | 0,2 | -0,1 | -0,5 | -0,1 | 0,4 | 0,0 | -10,9 | -2,9 | 0,1 | -0,6 | -2,0 | 2023 |
| Croatia | -2,3 | -2,3 | -7,2 | -6,5 | -7,5 | -5,5 | -5,5 | -5,2 | -3,5 | -1,0 | 0,9 | 0,3 | 2,3 | -7,2 | -2,5 | 0,1 | -0,8 | -2,5 | 2023 |
| Cyprus | 3,2 | 0,9 | -5,4 | -4,7 | -5,7 | -5,6 | -5,2 | -0,2 | 0,1 | 0,3 | 1,9 | -3,6 | 1,3 | -5,7 | -1,8 | 2,7 | 3,1 | 3,1 | 2023 |
| Czech Republic | -0,6 | -2,0 | -5,4 | -4,1 | -2,7 | -3,9 | -1,3 | -2,1 | -0,6 | 0,7 | 1,5 | 0,9 | 0,3 | -5,6 | -5,0 | -3,1 | -3,8 | -2,9 | 2023 |
| Denmark | 5,3 | 3,5 | -2,7 | -2,5 | -1,8 | -3,2 | -0,9 | 1,4 | -0,9 | 0,3 | 1,7 | 0,8 | 4,3 | 0,4 | 4,1 | 3,4 | 3,3 | 1,8 | 2022 |
| Estonia | 2,6 | -2,9 | -2,9 | -0,5 | 0,5 | -0,7 | -0,3 | 0,3 | -0,4 | -0,9 | -1,0 | -1,1 | 0,1 | -5,3 | -2,4 | -1,0 | -3,5 | -3,0 | 2023 |
| Finland | 5,1 | 4,2 | -2,5 | -2,5 | -1,0 | -2,2 | -2,5 | -3,0 | -2,4 | -1,7 | -0,7 | -0,9 | -1,0 | -5,6 | -2,9 | -0,5 | -2,7 | -3,7 | 2023 |
| France | -3,0 | -3,5 | -7,4 | -7,2 | -5,3 | -5,2 | -4,9 | -4,6 | -3,9 | -3,8 | -3,4 | -2,3 | -2,4 | -8,9 | -6,6 | -4,7 | -5,5 | -6,0 | 2023 |
| Germany | 0,2 | -0,3 | -3,2 | -4,4 | -0,8 | -0,1 | 0,1 | 0,7 | 0,9 | 1,1 | 1,3 | 1,9 | 1,3 | -4,4 | -3,2 | -2,1 | -2,6 | -2,0 | 2023 |
| Greece | -6,7 | -10,2 | -15,2 | -11,4 | -10,5 | -6,8 | -4,0 | -4,3 | -3,0 | 0,3 | 1,1 | 0,8 | -0,1 | -10,6 | -7,5 | -2,5 | -0,9 | -1,0 | 2023 |
| Hungary | -5,1 | -3,8 | -4,8 | -4,4 | -5,2 | -2,3 | -2,6 | -2,8 | -2,0 | -1,8 | -2,5 | -2,1 | -2,0 | -7,6 | -7,2 | -6,2 | -6,7 | -5,0 | 2023 |
| Iceland | 5,6 | -12,1 | -8,6 | -6,7 | -6,5 | -2,6 | -1,2 | 0,3 | -0,4 | 12,5 | 1,0 | 1,0 | -1,6 | -8,9 | -8,5 | -4,0 | -2,0 | -3,1 | 2023 |
| Ireland | 0,3 | -7,0 | -13,9 | -32,1 | -13,5 | -8,4 | -6,3 | -3,5 | -2,0 | -0,8 | -0,3 | 0,1 | 0,4 | -4,9 | -1,5 | 1,6 | 1,5 | 3,8 | 2023 |
| Italy | -1,3 | -2,6 | -5,1 | -4,2 | -3,5 | -3,0 | -2,9 | -2,8 | -2,5 | -2,4 | -2,5 | -2,2 | -1,5 | -9,4 | -8,9 | -8,1 | -7,2 | -4,0 | 2023 |
| Latvia | 0,6 | -3,1 | -6,9 | -6,4 | -3,3 | 0,2 | -0,6 | -1,7 | -1,5 | -0,5 | -0,8 | -0,7 | -0,4 | -3,7 | -5,5 | -3,7 | -3,5 | -3,4 | 2023 |
| Lithuania | -1,0 | -3,3 | -9,3 | -6,9 | -8,9 | -3,1 | -2,6 | -0,7 | -0,2 | 0,3 | 0,5 | 0,6 | 0,3 | -7,2 | -1,0 | -0,7 | -0,8 | -1,6 | 2023 |
| Luxembourg | 4,4 | 3,4 | -0,2 | -0,3 | 0,7 | 0,5 | 0,8 | 1,3 | 1,3 | 1,9 | 1,4 | 3,0 | 2,2 | -3,4 | 0,5 | -0,4 | -1,3 | -1,3 | 2023 |
| Malta | -2,1 | -4,1 | -3,1 | -2,2 | -3,0 | -3,3 | -2,2 | -1,5 | -0,8 | 1,1 | 3,1 | 1,9 | 0,7 | -8,7 | -7,0 | -5,3 | -4,6 | -4,0 | 2023 |
| Netherlands | -0,3 | 0,0 | -5,1 | -5,3 | -4,4 | -3,8 | -2,9 | -2,2 | -1,8 | 0,2 | 1,3 | 1,5 | 1,8 | -3,6 | -2,2 | -0,1 | -0,4 | -1,6 | 2023 |
| New Zealand | 3,6 | 1,5 | -1,8 | -5,5 | -5,0 | -2,2 | -1,3 | -0,3 | 0,4 | 1,0 | 1,4 | 1,3 | -2,5 | -4,3 | -3,2 | -3,5 | -3,3 | -3,8 | 2023 |
| Norway | 17,0 | 18,5 | 10,2 | 10,9 | 13,3 | 13,7 | 10,6 | 8,6 | 6,0 | 4,0 | 5,0 | 7,8 | 6,5 | -2,6 | 10,3 | 25,4 | 16,4 | 12,0 | 2023 |
| Poland | -1,9 | -3,6 | -7,3 | -7,5 | -5,0 | -3,8 | -4,3 | -3,7 | -2,6 | -2,4 | -1,5 | -0,3 | -0,7 | -6,9 | -1,8 | -3,4 | -5,1 | -5,7 | 2023 |
| Portugal | -2,9 | -3,7 | -9,9 | -11,4 | -7,7 | -6,2 | -5,1 | -7,3 | -4,3 | -1,9 | -3,0 | -0,3 | 0,1 | -5,8 | -2,9 | -0,3 | 1,2 | 0,2 | 2023 |
| Romania | -3,0 | -4,6 | -6,9 | -6,2 | -4,1 | -2,4 | -2,4 | -2,0 | -1,3 | -2,5 | -2,9 | -2,7 | -4,6 | -9,6 | -6,7 | -5,8 | -5,6 | -7,8 | 2023 |
| Slovak Republic | -2,1 | -2,5 | -8,1 | -7,5 | -4,3 | -4,4 | -2,9 | -3,1 | -2,7 | -2,6 | -1,0 | -1,0 | -1,2 | -5,4 | -5,2 | -1,6 | -4,8 | -5,9 | 2023 |
| Slovenia | -0,1 | -1,4 | -5,9 | -5,6 | -6,7 | -4,2 | -11,2 | -4,5 | -2,8 | -2,0 | 0,1 | 0,9 | 0,7 | -7,7 | -4,6 | -3,0 | -2,6 | -2,6 | 2023 |
| Spain | 1,9 | -4,6 | -11,2 | -9,5 | -9,7 | -11,5 | -7,5 | -6,1 | -5,3 | -4,3 | -3,1 | -2,6 | -3,0 | -10,0 | -6,7 | -4,6 | -3,5 | -3,0 | 2023 |
| Sweden | 3,3 | 1,9 | -0,9 | -0,1 | -0,4 | -1,1 | -1,5 | -1,6 | 0,0 | 1,0 | 1,4 | 0,8 | 0,5 | -2,8 | 0,0 | 1,1 | -0,6 | -1,2 | 2022 |
| Switzerland | 1,6 | 1,9 | 0,5 | 0,4 | 0,7 | 0,2 | -0,4 | -0,2 | 0,5 | 0,2 | 1,1 | 1,3 | 1,3 | -3,0 | -0,3 | 1,2 | 0,2 | 0,6 | 2023 |
| United Kingdom | -2,7 | -5,2 | -10,1 | -9,3 | -7,4 | -7,5 | -5,4 | -5,6 | -4,6 | -3,3 | -2,5 | -2,3 | -2,5 | -13,1 | -7,9 | -4,7 | -6,0 | -4,3 | 2023 |
| United States | -2,9 | -6,6 | -13,2 | -11,0 | -9,7 | -8,1 | -4,6 | -4,0 | -3,5 | -4,4 | -4,8 | -5,3 | -5,8 | -13,9 | -11,0 | -3,9 | -7,1 | -7,6 | 2023 |
| Average | 0,6 | -1,6 | -5,5 | -5,6 | -4,1 | -3,1 | -2,6 | -2,1 | -1,5 | -0,5 | -0,2 | -0,1 | -0,3 | -6,7 | -3,8 | -1,4 | -2,0 | -2,3 | |

*Source: IMF World Economic Outlook and author's calculation*

*Table 2: Central bank policy rates (% at September each year )*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2021-23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 6,50 | 7,00 | 3,00 | 4,50 | 4,75 | 3,50 | 2,50 | 2,50 | 2,00 | 1,50 | 1,50 | 1,50 | 1,00 | 0,25 | 0,10 | 2,35 | 4,10 | 4,35 | 4,00 |
| Canada | 4,50 | 3,00 | 0,25 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 0,50 | 0,50 | 1,00 | 1,50 | 1,75 | 0,25 | 0,25 | 3,25 | 5,00 | 4,25 | 4,75 |
| Croatia | 11,21 | 9,84 | 6,83 | 0,87 | 1,25 | 0,54 | 0,56 | 0,39 | 0,81 | 0,52 | 0,50 | | | | | | | | 0,00 |
| Czech Republic | 3,25 | 3,50 | 1,25 | 0,75 | 0,75 | 0,50 | 0,05 | 0,05 | 0,05 | 0,05 | 0,25 | 1,50 | 2,00 | 0,25 | 0,75 | 7,00 | 7,00 | 4,25 | 6,25 |
| Denmark | 4,25 | 4,60 | 1,00 | 0,50 | 1,00 | -0,20 | -0,10 | -0,05 | -0,75 | -0,65 | -0,65 | -0,65 | -0,75 | -0,60 | -0,50 | 0,65 | 3,60 | 3,10 | 4,10 |
| Euro area | 4,00 | 4,25 | 1,00 | 1,00 | 1,50 | 0,75 | 0,50 | 0,05 | 0,05 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 1,25 | 4,50 | 3,50 | 4,50 |
| Hungary | 7,50 | 8,50 | 7,50 | 5,25 | 6,00 | 6,50 | 3,60 | 2,10 | 1,35 | 0,90 | 0,90 | 0,90 | 0,90 | 0,60 | 1,65 | 13,00 | 13,00 | 6,50 | 11,35 |
| Iceland | 13,30 | 15,50 | 9,50 | 5,38 | 3,88 | 5,13 | 5,38 | 5,25 | 5,50 | 5,25 | 4,50 | 4,25 | 3,50 | 1,00 | 1,25 | 5,50 | 9,25 | 9,25 | 8,00 |
| New Zealand | 8,25 | 7,50 | 2,50 | 3,00 | 2,50 | 2,50 | 2,50 | 3,50 | 2,75 | 2,00 | 1,75 | 1,75 | 1,00 | 0,25 | 0,25 | 3,00 | 5,50 | 5,25 | 5,25 |
| Norway | 5,00 | 5,75 | 1,25 | 2,00 | 2,25 | 1,50 | 1,50 | 1,50 | 0,75 | 0,50 | 0,50 | 0,75 | 1,50 | 0,00 | 0,25 | 2,25 | 4,25 | 4,50 | 4,00 |
| Poland | 4,75 | 6,00 | 3,50 | 3,50 | 4,50 | 4,75 | 2,50 | 2,50 | 1,50 | 1,50 | 1,50 | 1,50 | 1,50 | 0,10 | 0,10 | 6,75 | 6,00 | 5,75 | 5,90 |
| Romania | 7,00 | 10,25 | 8,00 | 6,25 | 6,25 | 5,25 | 4,50 | 3,25 | 1,75 | 1,75 | 1,75 | 2,50 | 2,50 | 1,50 | 1,25 | 5,50 | 7,00 | 6,50 | 5,75 |
| Sweden | 3,75 | 4,75 | 0,25 | 0,75 | 2,00 | 1,25 | 1,00 | 0,25 | -0,35 | -0,50 | -0,50 | -0,50 | -0,25 | 0,00 | 0,00 | 1,75 | 4,00 | 3,50 | 4,00 |
| Switzerland | 2,75 | 2,75 | 0,38 | 0,38 | 0,13 | 0,13 | 0,13 | 0,13 | -0,75 | -0,75 | -0,75 | -0,75 | -0,75 | -0,75 | -0,75 | 0,50 | 1,75 | 1,00 | 2,50 |
| United Kingdom | 5,75 | 5,00 | 0,50 | 0,50 | 0,50 | 0,50 | 0,50 | 0,50 | 0,50 | 0,25 | 0,25 | 0,75 | 0,75 | 0,10 | 0,10 | 2,25 | 5,25 | 5,00 | 5,15 |
| United States | 4,75 | 2,00 | 0,13 | 0,13 | 0,13 | 0,13 | 0,13 | 0,13 | 0,13 | 0,38 | 1,13 | 2,13 | 1,88 | 0,13 | 0,13 | 3,13 | 5,38 | 4,88 | 5,25 |
| Average | 6,03 | 6,26 | 2,93 | 2,23 | 2,40 | 2,11 | 1,64 | 1,44 | 0,99 | 0,82 | 0,85 | 1,14 | 1,10 | 0,21 | 0,32 | 3,88 | 5,71 | 4,77 | 5,38 |

*Source: Bank for International Settlements and author's calculation*

*Table 3: Taxes on goods and services (percentage of total tax revenue)*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 23,2 | 22,6 | 22,7 | 24,4 | 24,0 | 22,2 | 23,0 | 23,5 | 21,3 | 21,7 | 21,1 | 20,5 | 19,5 | 19,3 | 20,0 | 17,8 |
| Austria | 36,3 | 35,8 | 37,0 | 37,5 | 37,4 | 37,5 | 36,8 | 36,7 | 36,3 | 37,5 | 38,0 | 37,3 | 37,2 | 37,6 | 36,4 | 36,1 |
| Belgium | 37,1 | 35,8 | 37,9 | 37,5 | 36,5 | 36,7 | 35,5 | 35,1 | 37,1 | 39,8 | 38,6 | 37,8 | 39,6 | 39,5 | 39,4 | 37,0 |
| Bulgaria | 54,6 | 56,1 | 54,5 | 55,7 | 57,9 | 57,6 | 57,2 | 56,9 | 54,7 | 59,9 | 58,2 | 55,6 | 55,8 | 58,9 | 56,2 | 47,3 |
| Canada | 18,0 | 16,5 | 18,0 | 18,8 | 17,7 | 17,4 | 17,2 | 17,2 | 17,1 | 17,2 | 17,3 | 16,6 | 17,1 | 16,6 | 16,7 | 17,7 |
| Croatia | 61,0 | 61,8 | 64,6 | 67,4 | 65,1 | 67,4 | 67,5 | 64,1 | 65,1 | 64,7 | 64,9 | 67,8 | 64,9 | 62,8 | 62,0 | 60,9 |
| Cyprus | 42,5 | 44,7 | 44,6 | 44,0 | 43,1 | 44,8 | 42,8 | 43,4 | 44,5 | 47,0 | 45,9 | 46,1 | 46,3 | 44,2 | 41,8 | 42,7 |
| Czech Republic | 30,9 | 30,5 | 32,3 | 32,7 | 34,1 | 35,3 | 36,0 | 34,3 | 34,6 | 34,7 | 34,5 | 32,8 | 32,6 | 31,4 | 31,1 | 29,8 |
| Denmark | 39,0 | 37,4 | 37,6 | 36,8 | 36,4 | 36,4 | 35,9 | 33,5 | 36,1 | 37,0 | 36,2 | 37,3 | 34,1 | 34,9 | 32,2 | 34,0 |
| Estonia | 41,5 | 37,6 | 38,8 | 40,0 | 41,3 | 41,7 | 40,7 | 41,6 | 41,4 | 43,5 | 42,5 | 41,7 | 42,1 | 39,3 | 39,4 | 39,4 |
| Finland | 54,5 | 52,8 | 59,2 | 60,1 | 60,3 | 61,1 | 61,5 | 61,5 | 60,4 | 61,6 | 60,6 | 61,0 | 60,6 | 62,1 | 59,8 | 57,6 |
| France | 44,3 | 43,4 | 45,1 | 41,6 | 42,7 | 42,0 | 41,5 | 41,6 | 43,2 | 43,5 | 43,7 | 45,2 | 39,3 | 37,8 | 31,0 | 30,3 |
| Germany | 52,9 | 51,8 | 53,8 | 54,1 | 53,4 | 52,7 | 52,4 | 51,5 | 51,3 | 49,4 | 49,5 | 48,0 | 47,5 | 45,2 | 46,9 | 46,8 |
| Greece | 41,7 | 41,5 | 40,9 | 43,0 | 41,7 | 40,6 | 39,1 | 41,9 | 41,4 | 42,8 | 44,9 | 45,2 | 46,2 | 43,6 | 44,5 | 48,6 |
| Hungary | 49,1 | 44,6 | 46,0 | 50,5 | 53,0 | 50,7 | 48,6 | 48,1 | 47,5 | 48,6 | 46,8 | 48,1 | 47,1 | 46,8 | 48,3 | 48,2 |
| Iceland | 38,9 | 30,2 | 31,0 | 34,2 | 33,2 | 33,4 | 33,2 | 31,7 | 34,3 | 23,7 | 35,8 | 35,5 | 36,1 | 37,7 | 38,8 | 35,4 |
| Ireland | 37,8 | 35,9 | 33,1 | 32,7 | 30,3 | 30,0 | 30,9 | 31,6 | 31,1 | 31,3 | 36,3 | 34,8 | 35,0 | 32,3 | 32,6 | 30,1 |
| Italy | 33,5 | 32,3 | 31,4 | 34,0 | 34,9 | 34,8 | 34,4 | 35,5 | 35,2 | 35,3 | 35,7 | 36,2 | 35,9 | 33,7 | 35,0 | 33,9 |
| Latvia | 60,8 | 55,5 | 54,9 | 53,9 | 55,4 | 56,4 | 58,9 | 59,5 | 60,4 | 62,2 | 62,4 | 62,4 | 64,8 | 62,4 | 62,1 | 65,7 |
| Lithuania | 45,0 | 44,6 | 48,2 | 48,5 | 49,6 | 47,9 | 47,7 | 46,7 | 48,5 | 50,6 | 53,0 | 52,0 | 44,6 | 45,5 | 45,2 | 43,9 |
| Luxembourg | 44,8 | 42,4 | 41,5 | 41,3 | 42,3 | 42,7 | 42,5 | 43,8 | 37,2 | 37,5 | 38,6 | 36,9 | 37,0 | 37,3 | 38,2 | 37,5 |
| Malta | 37,6 | 37,0 | 36,2 | 36,8 | 36,2 | 34,9 | 34,1 | 34,6 | 33,1 | 33,6 | 32,7 | 33,4 | 33,0 | 31,0 | 30,4 | 31,9 |
| Netherlands | 42,3 | 41,0 | 40,5 | 40,3 | 40,2 | 40,3 | 39,7 | 40,2 | 40,3 | 42,1 | 40,5 | 41,1 | 41,3 | 42,0 | 41,2 | 37,7 |
| New Zealand | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Norway | 24,2 | 21,3 | 24,5 | 24,9 | 23,2 | 22,8 | 24,1 | 24,6 | 25,9 | 27,4 | 26,9 | 25,2 | 25,1 | 27,8 | 22,5 | 15,1 |
| Poland | 56,1 | 57,0 | 54,8 | 56,6 | 56,4 | 54,5 | 55,8 | 55,6 | 55,2 | 57,7 | 57,8 | 57,6 | 56,9 | 56,3 | 55,7 | 54,5 |
| Portugal | 39,2 | 38,3 | 35,4 | 38,9 | 38,8 | 38,4 | 34,9 | 36,6 | 37,9 | 39,6 | 40,5 | 40,7 | 41,1 | 39,3 | 39,3 | 40,3 |
| Romania | 45,6 | 45,3 | 45,0 | 47,6 | 54,1 | 53,8 | 53,5 | 49,9 | 49,5 | 47,6 | 45,9 | 47,0 | 47,5 | 46,8 | 46,8 | 44,1 |
| Slovak Republic | 50,0 | 48,8 | 44,7 | 46,3 | 46,0 | 44,9 | 44,2 | 44,0 | 41,0 | 46,1 | 49,0 | 48,0 | 48,7 | 48,0 | 46,5 | 46,6 |
| Slovenia | 48,2 | 48,6 | 51,7 | 53,2 | 53,1 | 53,2 | 54,3 | 53,8 | 51,8 | 54,0 | 53,2 | 51,7 | 52,4 | 50,6 | 49,9 | 49,9 |
| Spain | 37,8 | 39,7 | 38,6 | 42,7 | 40,0 | 39,6 | 43,3 | 44,3 | 46,3 | 47,4 | 48,2 | 46,4 | 46,8 | 46,4 | 44,6 | 40,9 |
| Sweden | 39,4 | 41,4 | 43,1 | 43,1 | 42,9 | 43,3 | 42,8 | 42,9 | 42,2 | 42,2 | 41,8 | 42,1 | 41,7 | 42,5 | 41,4 | 41,5 |
| Switzerland | 53,9 | 49,9 | 51,0 | 51,6 | 52,2 | 52,5 | 51,5 | 52,1 | 49,3 | 49,2 | 47,3 | 46,7 | 45,5 | 48,3 | 44,3 | 47,0 |
| United Kingdom | 32,2 | 30,1 | 30,9 | 28,5 | 34,8 | 34,5 | 34,7 | 35,8 | 35,6 | 35,2 | 34,7 | 34,7 | 35,0 | 33,2 | 32,7 | 32,2 |
| United States | 3,8 | 3,9 | 5,2 | 4,5 | 4,5 | 4,6 | 4,3 | 4,6 | 4,5 | 4,4 | 3,7 | 4,9 | 4,2 | 3,7 | 3,1 | 2,7 |
| Average | 41,1 | 39,9 | 40,4 | 41,3 | 41,5 | 41,4 | 41,2 | 41,1 | 40,9 | 41,6 | 42,0 | 41,7 | 41,2 | 40,7 | 39,9 | 39,0 |

*Source: WDI and author's calculation;*
**US values are underestimating the true share because they probably exclude sales taxes that are levied by the states*

*Table 4: Taxes on income, profits and capital gains (percentage of total tax revenue)*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 65,7 | 66,3 | 65,0 | 61,3 | 63,3 | 65,5 | 64,2 | 63,7 | 64,9 | 64,2 | 64,1 | 65,2 | 65,9 | 64,5 | 64,5 | 67,9 |
| Austria | 38,2 | 39,3 | 35,6 | 36,4 | 36,5 | 37,0 | 37,7 | 38,5 | 39,5 | 36,8 | 37,8 | 38,5 | 38,9 | 37,5 | 38,8 | 40,4 |
| Belgium | 54,3 | 55,2 | 52,3 | 52,2 | 52,9 | 52,8 | 53,8 | 54,2 | 52,8 | 49,2 | 50,9 | 50,5 | 49,4 | 50,1 | 50,7 | 52,8 |
| Bulgaria | 21,4 | 19,2 | 19,3 | 18,9 | 19,3 | 18,6 | 18,7 | 20,0 | 19,4 | 21,6 | 22,2 | 21,8 | 21,2 | 22,7 | 24,3 | 21,0 |
| Canada | 66,0 | 67,1 | 65,8 | 64,8 | 65,9 | 65,5 | 65,7 | 66,7 | 66,9 | 67,3 | 67,4 | 68,0 | 67,9 | 70,4 | 67,9 | 69,3 |
| Croatia | 13,3 | 12,8 | 13,6 | 12,0 | 11,3 | 9,3 | 9,4 | 7,9 | 9,0 | 10,0 | 9,8 | 8,2 | 8,1 | 8,1 | 7,5 | 11,2 |
| Cyprus | 34,8 | 34,1 | 33,0 | 31,9 | 35,1 | 34,0 | 33,1 | 30,0 | 29,9 | 30,6 | 31,7 | 31,3 | 32,0 | 34,4 | 33,2 | 34,0 |
| Czech Republic | 21,0 | 19,4 | 17,8 | 16,9 | 16,8 | 16,8 | 16,7 | 17,6 | 17,0 | 17,9 | 18,5 | 19,1 | 19,3 | 19,5 | 16,9 | 17,5 |
| Denmark | 42,2 | 41,8 | 42,2 | 41,5 | 40,6 | 42,1 | 43,5 | 48,3 | 45,5 | 44,9 | 45,3 | 43,1 | 47,7 | 46,8 | 48,9 | 45,6 |
| Estonia | 23,4 | 24,9 | 20,3 | 19,9 | 20,0 | 20,6 | 22,5 | 23,0 | 23,3 | 22,8 | 22,1 | 22,9 | 22,2 | 23,1 | 25,2 | 24,2 |
| Finland | 33,5 | 31,3 | 24,7 | 23,8 | 24,8 | 23,8 | 23,6 | 24,2 | 24,2 | 24,5 | 25,1 | 24,9 | 24,9 | 22,5 | 25,7 | 28,1 |
| France | 30,8 | 32,5 | 27,6 | 27,5 | 30,5 | 32,4 | 33,6 | 32,9 | 32,6 | 31,8 | 32,5 | 32,2 | 36,2 | 36,5 | 36,6 | 39,0 |
| Germany | 36,9 | 37,0 | 33,8 | 32,8 | 33,2 | 34,9 | 36,1 | 36,1 | 37,2 | 38,9 | 39,9 | 40,4 | 40,4 | 41,3 | 40,3 | 41,1 |
| Greece | 26,7 | 26,4 | 28,3 | 24,7 | 23,0 | 24,9 | 21,3 | 24,9 | 23,3 | 24,2 | 25,0 | 25,9 | 23,7 | 23,3 | 23,6 | 23,3 |
| Hungary | 29,3 | 34,7 | 31,7 | 26,1 | 21,9 | 21,2 | 19,8 | 20,2 | 20,2 | 23,0 | 22,3 | 20,9 | 20,6 | 20,5 | 18,0 | 20,9 |
| Iceland | 27,1 | 24,7 | 23,4 | 24,5 | 23,7 | 23,2 | 25,1 | 27,5 | 27,8 | 19,8 | 30,4 | 29,5 | 30,9 | 33,2 | 31,1 | 32,9 |
| Ireland | 38,7 | 37,1 | 36,5 | 35,9 | 35,5 | 36,7 | 36,4 | 36,2 | 39,0 | 39,4 | 46,2 | 48,0 | 48,5 | 52,0 | 53,0 | 56,9 |
| Italy | 52,1 | 52,9 | 49,0 | 49,6 | 48,8 | 49,0 | 49,3 | 48,0 | 48,1 | 46,8 | 47,0 | 46,5 | 47,2 | 49,3 | 46,9 | 47,0 |
| Latvia | 19,6 | 22,4 | 12,9 | 10,4 | 11,4 | 12,9 | 13,2 | 12,7 | 12,9 | 14,1 | 14,4 | 10,1 | 6,9 | 9,0 | 10,8 | 12,1 |
| Lithuania | 36,3 | 36,7 | 25,7 | 19,6 | 19,2 | 21,4 | 22,1 | 21,6 | 23,2 | 25,1 | 25,1 | 25,9 | 34,9 | 34,5 | 37,3 | 38,9 |
| Luxembourg | 38,5 | 40,3 | 39,9 | 40,8 | 40,1 | 40,4 | 40,7 | 39,9 | 41,8 | 42,1 | 43,0 | 45,5 | 45,1 | 45,0 | 44,8 | 45,4 |
| Malta | 31,1 | 30,7 | 32,3 | 30,2 | 30,5 | 31,9 | 33,3 | 32,2 | 32,0 | 34,1 | 34,1 | 33,2 | 35,3 | 34,9 | 37,2 | 37,7 |
| Netherlands | 39,8 | 37,9 | 38,8 | 39,2 | 38,4 | 37,2 | 35,9 | 37,9 | 41,3 | 42,1 | 45,0 | 44,6 | 46,0 | 46,0 | 46,1 | 47,9 |
| New Zealand | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Norway | 31,1 | 32,6 | 29,1 | 31,2 | 32,8 | 31,9 | 29,2 | 25,7 | 22,2 | 20,7 | 21,9 | 24,2 | 23,4 | 19,2 | 30,7 | 39,9 |
| Poland | 22,4 | 22,7 | 20,8 | 18,5 | 18,4 | 19,6 | 19,1 | 18,9 | 19,0 | 19,5 | 19,6 | 20,4 | 21,0 | 20,8 | 21,1 | 20,6 |
| Portugal | 28,0 | 28,6 | 27,6 | 27,4 | 29,6 | 27,4 | 32,9 | 32,1 | 32,0 | 30,6 | 30,7 | 31,0 | 30,4 | 31,2 | 29,0 | 32,9 |
| Romania | 25,0 | 26,1 | 26,5 | 23,2 | 25,0 | 23,7 | 24,5 | 24,6 | 24,7 | 27,2 | 27,6 | 22,3 | 22,2 | 21,7 | 22,8 | 26,0 |
| Slovak Republic | 28,5 | 31,1 | 24,5 | 24,8 | 23,2 | 24,2 | 24,8 | 26,1 | 25,3 | 29,0 | 29,9 | 29,7 | 29,3 | 28,8 | 30,6 | 29,7 |
| Slovenia | 23,2 | 21,7 | 18,3 | 16,6 | 16,0 | 14,0 | 11,8 | 12,8 | 14,1 | 16,0 | 16,5 | 17,9 | 17,9 | 17,6 | 20,2 | 19,5 |
| Spain | 48,4 | 43,2 | 40,3 | 36,5 | 32,0 | 26,6 | 32,7 | 33,3 | 32,6 | 32,7 | 33,1 | 34,3 | 33,0 | 32,3 | 34,7 | 36,3 |
| Sweden | 19,7 | 15,6 | 14,5 | 16,4 | 15,7 | 13,9 | 14,4 | 15,8 | 17,7 | 17,5 | 18,1 | 17,4 | 17,3 | 16,7 | 18,7 | 18,1 |
| Switzerland | 32,6 | 35,5 | 34,6 | 33,9 | 33,9 | 33,9 | 34,6 | 34,5 | 36,8 | 37,0 | 39,4 | 39,5 | 41,4 | 36,9 | 41,4 | 37,2 |
| United Kingdom | 39,6 | 37,8 | 38,5 | 32,4 | 36,7 | 34,4 | 33,9 | 34,1 | 34,1 | 34,7 | 34,6 | 34,5 | 34,0 | 35,6 | 37,3 | 36,7 |
| United States | 86,3 | 84,9 | 78,3 | 78,5 | 81,0 | 81,7 | 78,1 | 80,8 | 82,4 | 83,2 | 75,2 | 82,3 | 83,7 | 85,0 | 85,5 | 86,7 |
| Average | 35,4 | 35,4 | 33,0 | 31,8 | 32,0 | 31,9 | 32,1 | 32,4 | 32,7 | 32,9 | 33,7 | 33,8 | 34,3 | 34,4 | 35,3 | 36,4 |

*Source: WDI and author's calculation*

*Table 5: Top statutory personal income tax rate and thresholds (in multiple of average wage and USD converted at purchasing power parity) for selected years*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 46,5 | 46,5 | 46,5 | 46,5 | 46,5 | 47,5 | 46,5 | 46,5 | 49,0 | 49,0 | 49,0 | 47,0 | 47,0 | 47,0 | 47,0 | 47,0 | 47,0 |
| Austria | 43,7 | 43,7 | 43,7 | 43,7 | 43,7 | 43,7 | 50,0 | 50,0 | 50,0 | 55,0 | 55,0 | 55,0 | 55,0 | 55,0 | 55,0 | 55,0 | 55,0 |
| Belgium | 53,7 | 53,7 | 53,7 | 53,7 | 53,7 | 53,7 | 53,7 | 53,8 | 53,8 | 53,3 | 52,9 | 52,9 | 52,9 | 52,9 | 52,9 | 47,6 | 52,9 |
| Canada | 46,4 | 46,4 | 46,4 | 46,4 | 46,4 | 48,0 | 49,5 | 49,5 | 49,5 | 53,5 | 53,5 | 53,5 | 53,5 | 53,5 | 53,5 | 53,5 | 53,5 |
| Czech Republic | 32,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 23,0 | 23,0 | 23,0 |
| Denmark | 59,0 | 62,3 | 62,1 | 55,4 | 55,4 | 55,4 | 55,6 | 55,6 | 55,8 | 55,8 | 55,8 | 55,9 | 55,9 | 55,9 | 55,9 | 55,9 | 55,9 |
| Estonia | 22,0 | 21,0 | 21,0 | 21,0 | 21,0 | 21,0 | 21,0 | 21,0 | 20,0 | 20,0 | 20,0 | 20,0 | 20,0 | 20,0 | 20,0 | 20,0 | 20,0 |
| Finland | 50,5 | 50,1 | 49,1 | 49,0 | 49,2 | 49,0 | 51,1 | 51,5 | 51,6 | 51,6 | 51,4 | 51,1 | 51,1 | 51,2 | 51,3 | 51,3 | 51,4 |
| France | 45,8 | 45,8 | 45,8 | 46,7 | 50,5 | 54,4 | 54,5 | 54,5 | 54,5 | 54,5 | 54,5 | 55,4 | 55,4 | 55,4 | 55,4 | 55,4 | 55,4 |
| Germany | 47,5 | 47,5 | 47,5 | 47,5 | 47,5 | 47,5 | 47,5 | 47,5 | 47,5 | 47,5 | 47,5 | 47,5 | 47,5 | 47,5 | 47,5 | 47,5 | 47,5 |
| Greece | 40,0 | 40,0 | 40,0 | 45,0 | 49,0 | 49,0 | 46,0 | 46,0 | 50,0 | 55,0 | 55,0 | 55,0 | 55,0 | 54,0 | 44,0 | 44,0 | 44,0 |
| Hungary | 36,0 | 36,0 | 36,0 | 32,0 | 16,0 | 16,0 | 16,0 | 16,0 | 16,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 |
| Iceland | 35,7 | 35,7 | 41,2 | 46,1 | 46,2 | 46,2 | 46,2 | 46,2 | 46,2 | 46,2 | 46,2 | 46,2 | 46,2 | 46,2 | 46,3 | 46,3 | 46,3 |
| Ireland | 43,5 | 43,5 | 50,2 | 52,0 | 48,0 | 48,0 | 48,0 | 48,0 | 48,0 | 48,0 | 48,0 | 48,0 | 48,0 | 48,0 | 48,0 | 48,0 | 48,0 |
| Italy | 44,9 | 44,9 | 44,9 | 45,2 | 47,3 | 47,3 | 47,3 | 47,8 | 48,8 | 48,8 | 47,2 | 47,2 | 47,2 | 47,2 | 47,2 | 47,2 | 47,2 |
| Latvia | 25,0 | 25,0 | 23,0 | 26,0 | 25,0 | 25,0 | 24,0 | 24,0 | 23,0 | 23,0 | 23,0 | 35,3 | 31,6 | 31,6 | 31,2 | 31,2 | 31,2 |
| Lithuania | 27,0 | 24,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 27,0 | 32,0 | 32,0 | 32,0 | 32,0 |
| Luxembourg | 39,0 | 39,0 | 39,0 | 39,0 | 41,3 | 41,3 | 43,6 | 43,6 | 43,6 | 43,6 | 45,8 | 45,8 | 45,8 | 45,8 | 45,8 | 45,8 | 45,8 |
| Netherlands | 52,0 | 52,0 | 52,0 | 52,0 | 52,0 | 52,0 | 52,0 | 52,0 | 52,0 | 52,0 | 52,0 | 52,0 | 51,8 | 49,5 | 49,5 | 49,5 | 49,5 |
| New Zealand | 39,0 | 39,0 | 38,0 | 35,5 | 33,0 | 33,0 | 33,0 | 33,0 | 33,0 | 33,0 | 33,0 | 33,0 | 33,0 | 33,0 | 39,0 | 39,0 | 39,0 |
| Norway | 40,0 | 40,0 | 40,0 | 40,0 | 40,0 | 40,0 | 40,0 | 39,0 | 39,0 | 38,7 | 38,5 | 38,4 | 38,2 | 38,2 | 38,2 | 39,4 | 39,5 |
| Poland | 40,0 | 40,0 | 32,0 | 32,0 | 32,0 | 32,0 | 32,0 | 32,0 | 32,0 | 32,0 | 32,0 | 32,0 | 32,0 | 32,0 | 32,0 | 32,0 | 32,0 |
| Portugal | 42,0 | 42,0 | 42,0 | 45,9 | 50,0 | 49,0 | 56,5 | 56,5 | 56,5 | 56,5 | 56,2 | 53,0 | 53,0 | 53,0 | 53,0 | 53,0 | 53,0 |
| Slovak Republic | 19,0 | 19,0 | 19,0 | 19,0 | 19,0 | 19,0 | 25,0 | 25,0 | 25,0 | 25,0 | 25,0 | 25,0 | 25,0 | 25,0 | 25,0 | 25,0 | 25,0 |
| Slovenia | 41,0 | 41,0 | 41,0 | 41,0 | 41,0 | 41,0 | 50,0 | 50,0 | 50,0 | 50,0 | 50,0 | 50,0 | 50,0 | 50,0 | 50,0 | 45,0 | 50,0 |
| Spain | 43,0 | 43,0 | 43,0 | 43,0 | 45,0 | 52,0 | 52,0 | 52,0 | 45,0 | 45,0 | 43,5 | 43,5 | 43,5 | 43,5 | 45,5 | 45,0 | 45,0 |
| Sweden | 56,6 | 56,4 | 56,5 | 56,6 | 56,6 | 56,6 | 56,7 | 56,9 | 57,0 | 57,1 | 57,1 | 57,1 | 57,2 | 52,3 | 52,3 | 52,2 | 52,2 |
| Switzerland | 42,1 | 41,7 | 41,7 | 41,7 | 41,7 | 41,7 | 41,7 | 41,7 | 41,7 | 41,7 | 41,7 | 41,7 | 41,7 | 41,7 | 41,7 | 41,5 | 41,5 |
| United Kingdom | 40,0 | 40,0 | 40,0 | 50,0 | 50,0 | 50,0 | 45,0 | 45,0 | 45,0 | 45,0 | 45,0 | 45,0 | 45,0 | 45,0 | 45,0 | 45,0 | 45,0 |
| United States | 41,4 | 41,9 | 41,9 | 41,9 | 41,9 | 41,8 | 46,3 | 46,3 | 46,3 | 46,3 | 46,3 | 43,7 | 43,7 | 43,7 | 43,7 | 43,7 | 43,5 |
| Average | 41,1 | 40,5 | 40,2 | 40,8 | 40,6 | 41,0 | 42,0 | 42,0 | 42,0 | 42,4 | 42,3 | 42,5 | 42,8 | 42,7 | 42,9 | 42,5 | 42,9 |

*Source: OECD*

*Table 6: Minimum wages (as a percentage of median wage)*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | | | | | | | | | | | | | | | | | |
| Belgium | 47,9 | 48,0 | 49,4 | 48,3 | 48,6 | 48,3 | 49,4 | 47,3 | 45,3 | 45,7 | 45,3 | 42,7 | 42,0 | 41,6 | 41,0 | 46,1 | 48,7 |
| France | 63,3 | 63,0 | 62,8 | 62,1 | 62,0 | 63,1 | 62,8 | 62,6 | 62,3 | 62,0 | 61,8 | 61,6 | 61,5 | 61,2 | 61,0 | 60,9 | 62,2 |
| Germany | | | | | | | | | 48,2 | 47,1 | 48,6 | 46,4 | 46,7 | 46,2 | 44,8 | 48,1 | 51,7 |
| Italy | | | | | | | | | | | | | | | | | |
| Luxembourg | 54,2 | 53,4 | 54,2 | 55,4 | 55,9 | 55,5 | 54,8 | 55,0 | 54,5 | 54,1 | 54,4 | 54,7 | 55,5 | 53,9 | 54,9 | 54,4 | 56,7 |
| Netherlands | 48,7 | 48,8 | 49,0 | 47,3 | 47,0 | 47,0 | 46,6 | 46,9 | 46,6 | 47,0 | 47,3 | 47,1 | 47,2 | 46,6 | 46,4 | 46,3 | 49,1 |
| Switzerland | | | | | | | | | | | | | | | | | |
| United Kingdom | 46,6 | 46,1 | 46,1 | 46,1 | 46,9 | 47,4 | 47,1 | 47,9 | 48,7 | 52,7 | 53,6 | 54,5 | 55,1 | 57,6 | 57,0 | 57,9 | 59,6 |
| Denmark | | | | | | | | | | | | | | | | | |
| Finland | | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | | |
| Norway | | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | | |
| Cyprus | | | | | | | | | | | | | | | | | |
| Greece | 44,5 | 46,2 | 46,3 | 46,5 | 48,6 | 41,1 | 43,3 | 42,1 | 42,3 | 43,9 | 43,3 | 45,5 | 50,2 | 50,8 | 49,0 | 48,6 | 49,5 |
| Ireland | 42,7 | 42,1 | 37,6 | 45,3 | 44,4 | 45,3 | 44,7 | 40,5 | 39,2 | 42,4 | 42,2 | 49,7 | 48,8 | 47,8 | 47,2 | 46,7 | 48,3 |
| Malta | | 50,6 | 47,2 | 47,4 | 47,8 | 46,7 | 47,5 | 46,9 | 48,0 | 47,8 | 45,1 | 43,7 | 45,7 | 43,3 | 51,0 | 46,9 | 43,8 |
| Portugal | 47,7 | 48,6 | 49,9 | 52,8 | 52,7 | 52,2 | 52,3 | 54,9 | 56,4 | 58,6 | 60,2 | 63,3 | 63,3 | 65,0 | 65,8 | 67,4 | 68,2 |
| Spain | 39,2 | 39,2 | 39,1 | 37,7 | 38,2 | 38,0 | 37,9 | 37,0 | 37,1 | 37,7 | 40,0 | 41,0 | 49,5 | 51,5 | 48,5 | 48,8 | 52,2 |
| Bulgaria | | | | | | | | 55,5 | | | | 57,3 | 57,5 | 56,2 | 53,7 | 51,6 | 49,6 |
| Croatia | | | | 45,4 | | | | 44,5 | | | | 45,6 | 46,2 | 45,8 | 46,1 | 46,6 | 45,0 |
| Czech Republic | 40,7 | 38,3 | 38,3 | 37,7 | 37,1 | 36,4 | 36,9 | 37,2 | 38,8 | 39,6 | 41,0 | 41,8 | 42,9 | 44,0 | 43,2 | 43,3 | 43,8 |
| Estonia | 35,8 | 37,8 | 39,8 | 40,4 | 38,2 | 37,7 | 38,8 | 39,9 | 41,4 | 42,4 | 43,5 | 43,1 | 43,3 | 45,5 | 42,6 | 43,0 | 42,5 |
| Hungary | 46,7 | 46,0 | 46,7 | 47,4 | 49,5 | 53,9 | 53,9 | 53,6 | 52,5 | 51,2 | 52,1 | 50,6 | 49,4 | 48,4 | 45,5 | 47,7 | 48,2 |
| Latvia | 36,6 | 40,5 | 47,4 | 49,0 | 50,7 | 48,8 | 46,7 | 49,2 | 51,8 | 50,7 | 48,3 | 46,7 | 43,9 | 41,8 | 44,0 | 38,9 | 42,3 |
| Lithuania | 39,4 | 40,6 | 42,5 | 49,8 | 48,4 | 48,3 | 55,8 | 51,2 | 51,8 | 55,8 | 53,6 | 49,7 | 49,2 | 48,8 | 46,7 | 46,4 | 47,3 |
| Poland | 39,6 | 42,7 | 45,9 | 45,3 | 45,2 | 48,2 | 49,6 | 51,0 | 51,3 | 52,7 | 54,0 | 51,3 | 51,1 | 55,3 | 53,8 | 52,8 | 54,7 |
| Romania | 38,1 | 40,7 | 43,5 | 42,6 | 45,5 | 45,3 | 47,7 | 51,4 | 54,9 | 55,7 | 59,7 | 58,4 | 56,6 | 57,0 | 54,9 | 54,7 | 56,2 |
| Slovak Republic | 44,3 | 42,8 | 45,4 | 45,7 | 45,7 | 45,1 | 45,5 | 45,1 | 47,3 | 47,7 | 48,0 | 49,3 | 49,4 | 51,8 | 52,4 | 50,8 | 50,8 |
| Slovenia | 49,5 | 49,4 | 49,6 | 59,0 | 60,6 | 62,0 | 63,8 | 60,0 | 59,8 | 58,7 | 58,2 | 58,2 | 58,7 | 58,8 | 60,4 | 61,7 | 63,0 |
| Australia | 54,5 | 52,2 | 54,4 | 54,3 | 53,6 | 52,7 | 54,0 | 53,1 | 53,3 | 53,8 | 54,2 | 53,6 | 53,8 | 52,6 | 51,5 | 53,6 | 55,2 |
| Canada | 39,6 | 41,4 | 41,9 | 42,8 | 43,9 | 44,0 | 43,9 | 44,0 | 44,4 | 44,2 | 45,5 | 51,4 | 51,2 | 48,9 | 48,9 | 49,1 | 49,6 |
| New Zealand | 57,4 | 59,1 | 59,1 | 58,8 | 58,8 | 59,5 | 59,1 | 59,9 | 60,1 | 60,5 | 60,4 | 61,4 | 64,4 | 64,7 | 67,6 | 67,4 | 66,5 |
| United States | 31,4 | 34,1 | 37,1 | 38,8 | 38,3 | 37,7 | 37,4 | 36,7 | 35,8 | 34,9 | 33,7 | 32,7 | 31,6 | 29,5 | 29,1 | 27,4 | 26,0 |

*Source: OECD and Eurostat and author's calculation*

*Table 7: Strictness of EPL*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 1,65 | 1,65 | 1,65 | 2,01 | 2,01 | 2,01 | 2,01 | 2,01 | 2,01 | 2,01 | 2,01 | 2,01 | 2,01 | 1,93 |
| Austria | 2,56 | 2,56 | 2,56 | 2,56 | 2,56 | 2,56 | 2,56 | 2,56 | 2,56 | 2,56 | 2,56 | 2,56 | 2,56 | 2,56 |
| Belgium | 2,60 | 2,60 | 2,60 | 2,73 | 2,73 | 2,60 | 2,60 | 2,63 | 2,87 | 2,87 | 2,87 | 2,87 | 2,87 | 2,73 |
| Canada | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 | 1,31 |
| Croatia | .. | .. | .. | .. | .. | .. | .. | .. | 2,42 | .. | .. | .. | .. | 2,42 |
| Czech Republic | 3,02 | 3,02 | 3,02 | 3,02 | 3,02 | 2,93 | 2,93 | 2,93 | 2,93 | 2,93 | 2,93 | 2,93 | 2,93 | 2,97 |
| Denmark | 1,87 | 1,87 | 1,87 | 1,87 | 1,92 | 1,92 | 1,92 | 1,92 | 1,92 | 1,92 | 1,92 | 1,92 | 1,92 | 1,90 |
| Estonia | .. | 2,46 | 2,46 | 2,11 | 2,11 | 2,11 | 2,11 | 2,11 | 2,11 | 2,11 | 2,11 | 2,11 | 2,11 | 2,17 |
| Finland | 2,02 | 1,95 | 1,95 | 1,95 | 1,95 | 1,95 | 1,95 | 1,95 | 1,95 | 1,95 | 1,89 | 1,89 | 1,89 | 1,94 |
| France | 2,83 | 2,74 | 2,68 | 2,68 | 2,68 | 2,68 | 2,68 | 2,68 | 2,68 | 2,68 | 2,68 | 2,72 | 2,72 | 2,70 |
| Germany | 2,89 | 2,89 | 2,89 | 2,89 | 2,89 | 2,89 | 2,89 | 2,89 | 2,89 | 2,89 | 2,89 | 2,89 | 2,89 | 2,89 |
| Greece | 3,06 | 3,06 | 3,06 | 3,06 | 2,61 | 2,61 | 2,57 | 2,57 | 2,57 | 2,57 | 2,57 | 2,57 | 2,57 | 2,73 |
| Hungary | 2,40 | 2,40 | 2,40 | 2,40 | 2,40 | 2,40 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,17 | 2,27 |
| Iceland | .. | .. | .. | .. | .. | .. | 1,94 | 1,94 | 1,94 | 1,94 | 1,94 | 1,94 | 1,94 | 1,94 |
| Ireland | 1,79 | 1,79 | 1,79 | 1,79 | 1,79 | 1,88 | 1,88 | 1,88 | 1,88 | 1,88 | 1,88 | 1,88 | 1,88 | 1,84 |
| Italy | 3,33 | 3,33 | 3,33 | 3,33 | 3,33 | 3,33 | 3,17 | 3,17 | 3,17 | 2,84 | 2,62 | 2,62 | 2,68 | 3,10 |
| Latvia | .. | .. | .. | .. | .. | 3,23 | 3,23 | 3,23 | 3,23 | 3,23 | 3,23 | 3,23 | 3,23 | 3,23 |
| Lithuania | .. | .. | .. | .. | .. | .. | .. | 2,70 | 2,70 | 2,70 | 2,70 | 2,34 | 2,34 | 2,58 |
| Luxembourg | .. | 2,63 | 2,63 | 2,63 | 2,63 | 2,63 | 2,63 | 2,63 | 2,63 | 2,63 | 2,63 | 2,63 | 2,63 | 2,63 |
| Netherlands | 3,22 | 3,22 | 3,17 | 3,17 | 3,17 | 3,17 | 3,22 | 3,22 | 3,22 | 3,37 | 3,37 | 3,37 | 3,49 | 3,26 |
| New Zealand | 1,29 | 1,29 | 1,29 | 1,29 | 1,29 | 1,17 | 1,17 | 1,17 | 1,17 | 1,17 | 1,17 | 1,17 | 1,17 | 1,22 |
| Norway | 2,38 | 2,38 | 2,38 | 2,38 | 2,38 | 2,38 | 2,38 | 2,38 | 2,38 | 2,38 | 2,38 | 2,38 | 2,38 | 2,38 |
| Poland | 2,48 | 2,48 | 2,48 | 2,48 | 2,48 | 2,48 | 2,48 | 2,48 | 2,48 | 2,48 | 2,48 | 2,48 | 2,48 | 2,48 |
| Portugal | 3,98 | 3,69 | 3,69 | 3,49 | 3,49 | 3,08 | 2,96 | 2,78 | 2,78 | 2,78 | 2,78 | 2,78 | 2,78 | 3,16 |
| Slovak Republic | 3,13 | 3,13 | 3,13 | 3,13 | 3,13 | 2,66 | 2,76 | 2,76 | 2,76 | 2,76 | 2,76 | 2,76 | 2,76 | 2,89 |
| Slovenia | .. | 2,93 | 2,93 | 2,93 | 2,90 | 2,90 | 2,90 | 2,52 | 2,52 | 2,52 | 2,52 | 2,52 | 2,52 | 2,72 |
| Spain | 2,65 | 2,65 | 2,65 | 2,65 | 2,55 | 2,55 | 2,26 | 2,26 | 2,26 | 2,26 | 2,26 | 2,26 | 2,32 | 2,43 |
| Sweden | 2,60 | 2,60 | 2,60 | 2,60 | 2,60 | 2,60 | 2,60 | 2,60 | 2,60 | 2,60 | 2,60 | 2,60 | 2,60 | 2,60 |
| Switzerland | 2,06 | 2,06 | 2,06 | 2,06 | 2,06 | 2,06 | 2,06 | 2,06 | 2,06 | 2,06 | 2,06 | 2,06 | 2,06 | 2,06 |
| United Kingdom | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,76 | 1,64 | 1,57 | 1,57 | 1,57 | 1,57 | 1,57 | 1,57 | 1,66 |
| United States | 0,67 | 0,67 | 0,67 | 0,67 | 0,67 | 0,67 | 0,67 | 0,67 | 0,67 | 0,67 | 0,67 | 0,67 | 0,67 | 0,67 |

*Source: OECD and author's calculation*

*Table 8: Annual GDP per capita growth (%)*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 1,90 | 1,53 | -0,19 | 0,65 | 1,00 | 2,12 | 0,86 | 1,09 | 0,74 | 1,19 | 0,65 | 1,38 | 0,68 | -1,56 | 1,97 | 2,95 | 0,60 | 1,03 |
| Austria | 3,39 | 1,14 | -4,02 | 1,59 | 2,58 | 0,22 | -0,56 | -0,12 | -0,11 | 0,89 | 1,55 | 1,93 | 1,00 | -7,02 | 3,78 | 3,81 | -1,81 | 0,49 |
| Belgium | 2,92 | -0,34 | -2,81 | 1,93 | 0,38 | 0,12 | -0,01 | 1,13 | 1,45 | 0,76 | 1,23 | 1,33 | 1,69 | -5,71 | 6,49 | 2,14 | 0,19 | 0,76 |
| Bulgaria | 7,44 | 6,88 | -2,72 | 2,23 | 2,75 | 1,33 | 0,02 | 1,52 | 4,06 | 3,75 | 3,50 | 3,44 | 4,77 | -3,39 | 8,54 | 10,56 | 2,40 | 3,36 |
| Canada | 1,06 | -0,09 | -4,02 | 1,95 | 2,14 | 0,66 | 1,25 | 1,85 | -0,11 | -0,10 | 1,81 | 1,28 | 0,43 | -6,06 | 4,71 | 1,96 | -1,85 | 0,40 |
| Croatia | 5,10 | 2,03 | -7,12 | -1,00 | 0,29 | -2,00 | -0,03 | 0,07 | 3,40 | 4,38 | 4,61 | 3,91 | 4,02 | -8,12 | 17,96 | 7,68 | 3,13 | 2,25 |
| Cyprus | 2,88 | 1,08 | -4,61 | -0,36 | -2,11 | -4,91 | -6,37 | -0,69 | 4,01 | 6,09 | 4,75 | 4,37 | 4,12 | -4,53 | 8,89 | 3,64 | 0,69 | 1,00 |
| Czech Republic | 4,96 | 1,84 | -5,20 | 2,14 | 1,55 | -0,92 | -0,08 | 2,15 | 5,18 | 2,34 | 4,89 | 2,88 | 2,62 | -5,73 | 5,45 | 0,76 | -2,16 | 1,33 |
| Denmark | 0,46 | -1,09 | -5,41 | 1,42 | 0,92 | -0,15 | 0,51 | 1,11 | 1,62 | 2,44 | 2,16 | 1,49 | 1,13 | -2,71 | 6,38 | 1,93 | 1,14 | 0,78 |
| Estonia | 8,07 | -4,88 | -14,46 | 2,68 | 7,59 | 3,60 | 1,82 | 3,28 | 1,79 | 3,13 | 5,66 | 3,42 | 3,65 | -1,16 | 7,14 | -1,78 | -4,24 | 1,49 |
| Finland | 4,85 | 0,32 | -8,51 | 2,71 | 2,07 | -1,87 | -1,36 | -0,78 | 0,21 | 2,52 | 2,95 | 1,01 | 1,11 | -2,50 | 2,63 | 1,06 | -1,53 | 0,29 |
| France | 1,80 | -0,30 | -3,37 | 1,45 | 1,70 | -0,17 | 0,06 | 0,48 | 0,75 | 0,83 | 1,99 | 1,50 | 1,50 | -7,79 | 6,13 | 2,14 | 0,41 | 0,54 |
| Germany | 3,11 | 1,15 | -5,45 | 4,34 | 5,87 | 0,23 | 0,16 | 1,78 | 0,62 | 1,41 | 2,30 | 0,68 | 0,85 | -3,91 | 3,12 | 1,07 | -1,11 | 0,95 |
| Greece | 3,01 | -0,60 | -4,55 | -5,60 | -10,02 | -6,58 | -1,81 | 1,15 | 0,46 | -0,07 | 1,29 | 1,87 | 1,99 | -9,12 | 9,71 | 7,00 | 2,66 | -0,54 |
| Hungary | 0,43 | 1,18 | -6,45 | 1,30 | 2,16 | -0,74 | 2,08 | 4,51 | 3,95 | 2,50 | 4,55 | 5,50 | 4,91 | -4,28 | 7,51 | 5,31 | -0,36 | 2,00 |
| Iceland | 5,75 | 0,33 | -7,98 | -2,69 | 1,54 | 0,53 | 3,57 | 0,56 | 3,35 | 4,84 | 1,78 | 2,12 | -0,35 | -8,44 | 3,44 | 6,18 | 1,00 | 0,91 |
| Ireland | 2,31 | -6,41 | -6,05 | 1,13 | 0,84 | -0,55 | 0,64 | 8,04 | 23,30 | 0,62 | 8,13 | 7,13 | 3,87 | 5,53 | 14,03 | 7,43 | -5,69 | 3,78 |
| Italy | 0,98 | -1,62 | -5,71 | 1,40 | 0,53 | -3,24 | -2,97 | -0,92 | 0,88 | 1,47 | 1,82 | 1,12 | 1,65 | -8,53 | 8,87 | 4,33 | 1,23 | 0,07 |
| Latvia | 10,84 | -2,23 | -12,83 | -2,45 | 4,46 | 8,38 | 3,11 | 2,87 | 4,74 | 3,31 | 4,23 | 4,80 | 1,29 | -2,83 | 7,64 | 3,23 | -0,41 | 2,24 |
| Lithuania | 12,44 | 3,68 | -13,89 | 3,81 | 8,46 | 5,25 | 4,60 | 4,43 | 2,99 | 3,83 | 5,75 | 4,99 | 4,94 | -0,05 | 6,06 | 1,33 | -1,73 | 3,35 |
| Luxembourg | 6,44 | -2,07 | -5,01 | 1,88 | -1,18 | -0,76 | 0,81 | 0,23 | -0,12 | 2,74 | -1,12 | -0,71 | 0,92 | -2,55 | 5,55 | -0,64 | -3,39 | 0,06 |
| Malta | 4,41 | 3,15 | -1,88 | 5,03 | 0,04 | 3,19 | 4,00 | 5,51 | 7,02 | 1,04 | 7,87 | 3,73 | 2,99 | -10,17 | 11,82 | 5,52 | 1,39 | 3,22 |
| Netherlands | 3,55 | 1,77 | -4,16 | 0,82 | 1,08 | -1,40 | -0,42 | 1,06 | 1,51 | 1,65 | 2,30 | 1,76 | 1,29 | -4,42 | 5,64 | 3,34 | -0,88 | 0,85 |
| New Zealand | 2,09 | -2,07 | -1,05 | 0,32 | 1,46 | 1,73 | 1,97 | 2,05 | 1,64 | 1,44 | 1,26 | 1,66 | 0,75 | -2,60 | 4,11 | 2,66 | -1,41 | 0,94 |
| Norway | 1,85 | -0,76 | -3,17 | -0,46 | -0,20 | 1,38 | -0,20 | 0,90 | 0,85 | 0,28 | 1,64 | 0,17 | 0,44 | -1,86 | 3,35 | 2,08 | -0,62 | 0,33 |
| Poland | 7,12 | 4,19 | 2,76 | 3,23 | 4,99 | 1,55 | 0,92 | 3,91 | 4,45 | 3,00 | 5,13 | 5,95 | 4,48 | -1,85 | 7,37 | 8,29 | 0,53 | 3,88 |
| Portugal | 2,31 | 0,17 | -3,21 | 1,69 | -1,55 | -3,67 | -0,38 | 1,34 | 2,21 | 2,34 | 3,76 | 3,01 | 2,66 | -8,40 | 5,08 | 6,34 | 1,14 | 0,87 |
| Romania | 8,83 | 11,14 | -4,73 | -3,33 | 5,03 | 2,38 | 0,64 | 4,51 | 3,65 | 3,45 | 8,82 | 6,65 | 4,40 | -3,15 | 6,50 | 4,52 | 2,10 | 3,61 |
| Slovakia | 10,80 | 5,48 | -5,58 | 6,62 | 2,54 | 1,15 | 0,52 | 2,60 | 5,07 | 1,81 | 2,78 | 3,89 | 2,37 | -3,41 | 4,99 | 2,16 | 1,69 | 2,68 |
| Slovenia | 6,38 | 3,35 | -8,38 | 0,90 | 0,65 | -2,84 | -1,16 | 2,67 | 2,13 | 3,12 | 4,75 | 4,08 | 2,80 | -4,88 | 7,94 | 2,27 | 1,16 | 1,47 |
| Spain | 1,70 | -0,71 | -4,61 | -0,30 | -1,17 | -3,02 | -1,08 | 1,70 | 3,92 | 2,95 | 2,73 | 1,84 | 1,25 | -11,60 | 6,29 | 4,97 | 1,24 | 0,36 |
| Sweden | 2,68 | -1,22 | -5,15 | 5,05 | 2,42 | -1,32 | 0,33 | 1,64 | 3,39 | 0,80 | 1,20 | 0,77 | 0,96 | -2,87 | 5,51 | 1,97 | -0,67 | 0,91 |
| Switzerland | 2,99 | 1,51 | -3,51 | 2,17 | 0,69 | 0,11 | 0,63 | 1,11 | 0,49 | 0,96 | 0,42 | 2,11 | 0,42 | -2,85 | 4,59 | 1,74 | -0,13 | 0,79 |
| United Kingdom | 1,82 | -1,01 | -5,33 | 1,44 | 0,36 | 0,81 | 1,11 | 2,44 | 1,41 | 1,15 | 1,96 | 0,79 | 1,07 | -10,69 | 8,76 | 3,17 | -0,71 | 0,50 |
| United States | 1,04 | -0,83 | -3,43 | 1,85 | 0,83 | 1,54 | 1,41 | 1,77 | 2,19 | 1,08 | 1,81 | 2,43 | 2,00 | -3,16 | 5,63 | 1,56 | 2,04 | 1,16 |
| Average | 4,22 | 0,73 | -5,19 | 1,30 | 1,45 | 0,06 | 0,42 | 1,91 | 2,95 | 2,11 | 3,17 | 2,69 | 2,13 | -4,64 | 6,67 | 3,50 | -0,11 | 1,38 |

*Source: WDI and author's calculation*

*Table 9: Growth of hours worked in the total economy (%)*

| Country | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Average | Change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 3,1% | 1,0% | 0,0% | 2,7% | 1,3% | 0,7% | 0,6% | 0,8% | 1,8% | 1,5% | 2,6% | 2,2% | -1,6% | 0,3% | 2,6% | 2,9% | 1,4% | 24,8% |
| Austria | 1,5% | -3,1% | 0,3% | 1,9% | -0,4% | -0,6% | 0,3% | -0,4% | 2,1% | 1,0% | 1,9% | 1,6% | -8,7% | 4,7% | 2,5% | 0,9% | 0,3% | 5,0% |
| Belgium | 1,1% | -1,4% | 1,3% | 2,4% | 0,2% | -0,4% | 0,1% | 0,5% | 1,2% | 1,8% | 1,6% | 1,4% | -8,3% | 7,9% | 4,4% | 1,2% | 0,9% | 15,3% |
| Bulgaria | 4,8% | -4,5% | -4,0% | -2,3% | -2,5% | -0,4% | 0,3% | 0,4% | 0,4% | 1,8% | 0,0% | 0,4% | -4,7% | 1,1% | -0,5% | 1,0% | -0,5% | -8,7% |
| Canada | 1,2% | -3,2% | 2,0% | 1,4% | 1,8% | 0,9% | 0,0% | 0,9% | 0,3% | 1,4% | 2,6% | 1,4% | -12,0% | 10,7% | 4,6% | 3,5% | 1,1% | 17,2% |
| Croatia | 2,1% | -0,8% | -3,1% | -4,1% | -4,4% | -3,6% | 1,7% | -2,2% | 0,7% | 1,8% | 1,9% | 4,6% | -1,4% | 1,3% | 2,4% | 2,2% | -0,1% | -1,5% |
| Cyprus | 3,8% | -1,1% | 0,5% | 0,4% | -3,7% | -7,4% | -1,7% | 2,1% | 5,5% | 4,3% | 4,6% | 4,6% | -6,3% | 7,8% | 4,1% | 1,7% | 1,2% | 19,6% |
| Czech Republic | 3,0% | -2,4% | 0,1% | 0,1% | -1,2% | -0,4% | 1,1% | 0,2% | 2,9% | 1,7% | 1,8% | 0,3% | -7,7% | 3,1% | 4,6% | 0,3% | 0,5% | 7,0% |
| Denmark | 1,0% | -4,0% | -2,0% | 1,0% | -1,7% | 0,1% | 0,0% | 0,9% | 2,0% | 0,9% | -0,2% | 0,7% | -3,0% | 6,1% | 4,1% | 0,5% | 0,4% | 6,3% |
| Estonia | -1,7% | -16,4% | -2,7% | 9,1% | -0,1% | 0,2% | 0,4% | 2,4% | 0,5% | 2,8% | -2,6% | 0,5% | -6,0% | 8,1% | 4,8% | 1,6% | 0,0% | -1,9% |
| Finland | 2,0% | -3,8% | -0,3% | 1,1% | 0,2% | -1,2% | -0,6% | -0,2% | 0,4% | 0,7% | 2,3% | 0,8% | -2,4% | 2,0% | 2,6% | -0,5% | 0,2% | 2,9% |
| France | 0,9% | -1,9% | 0,6% | 1,2% | 0,0% | -0,8% | 0,0% | 0,3% | 0,8% | 0,2% | 1,4% | 1,4% | -7,8% | 8,3% | 4,5% | 1,0% | 0,6% | 9,9% |
| Germany | 0,9% | -2,8% | 1,8% | 1,3% | -0,2% | 0,0% | 1,2% | 1,0% | 0,9% | 0,9% | 0,8% | 0,4% | -4,9% | 2,6% | 1,3% | 0,4% | 0,3% | 5,3% |
| Greece | 1,1% | -1,7% | -4,6% | -3,3% | -2,0% | -0,2% | 1,1% | -3,7% | 3,8% | -0,3% | 5,3% | -0,1% | -11,8% | 8,4% | 3,9% | 1,7% | -0,2% | -4,1% |
| Hungary | -1,6% | -3,7% | -0,2% | -0,8% | 0,0% | 1,0% | 5,5% | 2,1% | 4,6% | 1,2% | 1,3% | 0,7% | -5,0% | 3,1% | 2,1% | -1,1% | 0,6% | 9,0% |
| Iceland | 0,9% | -13,2% | -1,8% | 1,8% | 0,9% | 2,4% | 1,7% | 2,7% | 5,1% | 3,4% | 2,3% | -1,2% | -5,8% | 1,1% | 7,1% | 4,1% | 0,7% | 10,2% |
| Ireland | -2,9% | -11,0% | -4,2% | -1,8% | -0,7% | 3,8% | 3,3% | 3,1% | 5,1% | 4,2% | 3,7% | 3,0% | -9,7% | 6,6% | 8,6% | 3,8% | 0,9% | 13,2% |
| Italy | -0,4% | -3,4% | -0,5% | 0,0% | -2,5% | -2,6% | -0,1% | 0,7% | 1,6% | 1,0% | 0,9% | 0,0% | -11,7% | 10,2% | 4,2% | 2,3% | 0,0% | -1,6% |
| Latvia | -3,2% | -16,5% | -7,5% | 2,4% | 0,5% | 2,0% | -0,8% | -0,5% | -0,3% | -0,9% | 2,2% | -1,9% | -5,6% | -1,1% | 4,9% | -0,3% | -1,7% | -25,0% |
| Lithuania | 0,2% | -11,0% | -3,8% | -0,8% | 1,8% | 0,5% | 1,6% | 2,8% | 3,6% | -2,9% | 1,8% | 0,7% | -5,7% | 2,8% | 5,3% | 2,5% | 0,0% | -2,0% |
| Luxembourg | 4,8% | -3,0% | 2,0% | 2,9% | 2,0% | 1,3% | 2,9% | 3,1% | 2,9% | 2,8% | 2,9% | 3,1% | -4,0% | 7,2% | 2,8% | 2,5% | 2,3% | 42,3% |
| Malta | 3,2% | 0,3% | -0,8% | -0,3% | 1,2% | 2,8% | 3,0% | 3,2% | 8,7% | 4,3% | 8,6% | 9,9% | -5,0% | 3,0% | 3,9% | 4,2% | 3,1% | 62,3% |
| Netherlands | 1,6% | -1,4% | -0,7% | 0,9% | -0,9% | -0,9% | 0,7% | 1,0% | 2,4% | 2,4% | 2,7% | 2,6% | -4,0% | 3,3% | 3,9% | 1,1% | 0,9% | 15,3% |
| New Zealand | -0,3% | -2,8% | 1,7% | 0,8% | -1,5% | 3,8% | 3,9% | 2,2% | 3,1% | 4,7% | 2,3% | 2,6% | -0,8% | 0,6% | 3,6% | 3,0% | 1,7% | 30,4% |
| Norway | 3,5% | -1,9% | 0,3% | 1,8% | 1,8% | 0,4% | 1,2% | 0,6% | 0,5% | 0,4% | 1,6% | 1,5% | -2,2% | 2,3% | 3,9% | 0,8% | 1,0% | 17,7% |
| Poland | 3,4% | -0,4% | -2,9% | 0,3% | -0,1% | -0,3% | 2,1% | 1,9% | 0,9% | 0,2% | -0,8% | -0,3% | -0,8% | 6,0% | 3,1% | -0,5% | 0,7% | 12,2% |
| Portugal | -0,3% | -2,7% | -1,3% | -3,1% | -5,0% | -2,3% | 1,8% | 1,8% | 2,0% | 2,7% | 2,9% | 1,2% | -8,6% | 2,6% | 3,7% | 1,2% | -0,2% | -4,3% |
| Romania | -1,6% | -4,7% | -1,9% | -1,9% | -0,6% | -1,2% | 0,0% | -1,6% | 0,2% | 1,1% | 0,2% | 1,0% | -4,6% | 4,6% | 0,3% | -0,9% | -0,7% | -11,4% |
| Slovakia | 3,3% | -2,7% | -0,1% | 1,1% | -0,2% | -1,7% | 0,7% | 1,7% | 1,6% | 0,7% | 1,4% | 0,3% | -8,8% | 0,0% | 3,6% | 1,0% | 0,1% | 1,2% |
| Slovenia | 3,7% | -1,3% | -2,0% | -2,7% | -2,1% | -0,1% | 1,6% | 1,6% | -0,3% | 1,0% | 2,0% | 2,3% | -5,0% | 5,3% | 4,0% | 1,6% | 0,6% | 9,6% |
| Spain | 0,6% | -6,0% | -2,3% | -2,3% | -4,8% | -2,8% | 1,1% | 3,0% | 2,6% | 2,1% | 2,5% | 1,4% | -11,0% | 7,2% | 3,9% | 1,9% | -0,2% | -4,3% |
| Sweden | 1,3% | -3,0% | 2,4% | 2,4% | -0,1% | 0,4% | 1,5% | 1,6% | 2,7% | 1,7% | 1,6% | -0,3% | -3,2% | 2,6% | 2,3% | 1,2% | 0,9% | 15,8% |
| Switzerland | 1,8% | -0,1% | -2,1% | 2,4% | 0,8% | -0,1% | 1,4% | 2,3% | 1,4% | -0,2% | 0,5% | 0,6% | -3,7% | 2,8% | 1,3% | 2,3% | 0,7% | 11,7% |
| United Kingdom | 0,5% | -2,9% | 0,5% | 0,3% | 2,1% | 1,9% | 2,8% | 1,5% | 1,4% | 1,1% | 0,8% | 1,4% | -10,5% | 6,8% | 4,0% | 0,1% | 0,7% | 11,3% |
| United States | -1,2% | -5,8% | 0,1% | 1,5% | 1,9% | 1,3% | 2,0% | 2,1% | 1,2% | 1,2% | 1,9% | 0,8% | -6,8% | 4,6% | 3,2% | 1,5% | 0,6% | 9,0% |
| Average | 1,2% | -4,1% | -1,0% | 0,5% | -0,5% | -0,1% | 1,2% | 1,1% | 2,1% | 1,5% | 1,9% | 1,4% | -6,0% | 4,4% | 3,6% | 1,4% | 0,5% | |

*Source: Eurostat + OECD and author's calculation*

*Table 10: Growth of productivity (GDP/h) – %*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Average 2007-2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 1,1 | 3,5 | -0,8 | 1,6 | 1,2 | 2,4 | 1,7 | 0,5 | 2,5 | -0,2 | 1,2 | -0,1 | 1,4 | 1,9 | 1,6 | -4,1 | -3,0 | 0,7 |
| Austria | 2,6 | 0,0 | -0,7 | 1,5 | 1,0 | 1,1 | 0,7 | 0,4 | 1,4 | -0,1 | 1,2 | 0,5 | -0,2 | 2,3 | -0,5 | 2,3 | -1,7 | 0,7 |
| Belgium | 1,8 | -0,6 | -0,6 | 1,5 | -0,7 | 0,5 | 0,9 | 1,4 | 1,5 | 0,1 | -0,2 | 0,2 | 0,8 | 3,2 | -0,9 | -1,3 | 9,5 | 1,0 |
| Bulgaria | 3,3 | 1,3 | 1,2 | 5,7 | 4,5 | 3,3 | -0,1 | 0,6 | 3,0 | 2,6 | 1,0 | 2,7 | 3,6 | 0,8 | 6,5 | 4,4 | 0,8 | 2,7 |
| Canada | 0,0 | -0,2 | 0,3 | 1,1 | 1,7 | 0,0 | 1,4 | 2,9 | -0,2 | 0,7 | 1,6 | 0,1 | 0,5 | 7,9 | -4,9 | -0,8 | -1,7 | 0,6 |
| Croatia | 1,8 | -0,1 | -6,5 | 2,0 | 4,2 | 2,2 | 3,4 | -2,0 | 4,8 | 3,0 | 1,5 | 1,1 | -1,1 | -7,2 | 11,6 | 4,5 | 1,2 | 1,4 |
| Cyprus | -0,2 | -1,0 | 1,8 | 0,0 | 0,2 | 0,9 | 0,0 | 1,3 | 1,0 | 1,3 | 1,1 | 0,7 | 2,1 | 2,7 | 2,1 | 1,0 | | 0,9 |
| Czech Republic | 4,2 | -0,4 | -2,5 | 2,7 | 1,9 | 0,4 | 0,3 | 1,1 | 4,8 | 0,2 | 3,6 | 1,2 | 3,7 | 3,3 | 0,1 | -1,5 | -0,8 | 1,3 |
| Denmark | 0,3 | -1,5 | -1,0 | 3,6 | 0,4 | 1,7 | 1,2 | 1,5 | 1,1 | 1,0 | 2,1 | 2,0 | 0,9 | 1,7 | 1,3 | -2,1 | 1,5 | 0,9 |
| Estonia | 7,5 | -3,5 | 2,1 | 5,4 | -1,6 | 3,3 | 1,3 | 2,6 | -0,5 | 2,6 | 3,0 | 6,5 | 3,5 | 5,3 | -0,8 | -5,0 | -4,5 | 1,6 |
| Finland | 3,3 | -1,2 | -4,5 | 3,5 | 1,4 | -1,6 | 0,4 | 0,1 | 0,8 | 2,4 | 2,5 | -1,2 | 0,4 | 0,1 | 0,8 | -1,2 | -1,0 | 0,3 |
| France | -0,4 | -0,6 | -1,0 | 1,4 | 1,3 | 0,2 | 1,6 | 1,0 | 0,8 | -0,1 | 1,9 | 0,1 | 0,5 | 0,2 | -1,4 | -1,4 | 0,2 | 0,3 |
| Germany | 1,2 | 0,0 | -3,0 | 2,3 | 2,6 | 0,6 | 0,5 | 1,0 | 0,5 | 1,4 | 1,8 | 0,2 | 0,7 | 1,2 | 0,6 | 0,5 | -0,6 | 0,7 |
| Greece | 2,6 | -1,4 | -2,6 | -0,9 | -7,0 | -5,2 | -2,3 | -0,6 | 3,6 | -4,2 | 1,4 | -3,5 | 1,9 | 3,1 | 0,0 | 1,2 | 0,4 | -0,8 |
| Hungary | 2,3 | 3,1 | -2,9 | 1,5 | 2,6 | -2,0 | 0,7 | -0,8 | 1,8 | -2,2 | 2,6 | 3,8 | 4,2 | 1,2 | 3,9 | 2,4 | -0,4 | 1,3 |
| Iceland | 6,0 | -2,9 | 6,4 | -1,0 | 0,1 | 0,1 | 2,1 | 0,0 | 1,7 | 1,1 | 0,8 | 2,6 | 3,1 | -1,3 | 4,1 | 1,6 | 0,3 | 1,5 |
| Ireland | 2,6 | -1,6 | 6,6 | 6,2 | 3,5 | 0,4 | -1,6 | 5,8 | 20,9 | -3,8 | 5,3 | 3,6 | 1,8 | 18,2 | 8,3 | -0,2 | -7,1 | 4,0 |
| Italy | -0,1 | -0,6 | -2,0 | 2,3 | 0,7 | -0,5 | 0,8 | 0,1 | 0,1 | -0,3 | 0,6 | 0,0 | 0,5 | 3,1 | -1,7 | -0,2 | -1,4 | 0,1 |
| Latvia | 8,0 | 0,0 | 2,7 | 3,3 | 0,2 | 6,4 | 0,1 | 2,7 | 4,4 | 2,6 | 4,2 | 1,8 | 2,5 | 2,2 | 7,9 | 3,3 | 0,0 | 3,1 |
| Lithuania | 7,1 | 2,5 | -4,4 | 5,7 | 6,9 | 2,0 | 3,1 | 1,9 | -0,8 | -1,0 | 7,4 | 2,2 | 4,0 | 6,0 | 3,4 | -2,7 | -2,8 | 2,4 |
| Luxembourg | 2,6 | -4,8 | -0,2 | 1,7 | -1,8 | -0,4 | 1,8 | -0,2 | -0,8 | 2,0 | -1,5 | -1,7 | -0,2 | 3,2 | 0,0 | -1,3 | -2,8 | -0,3 |
| Malta | 1,7 | -1,5 | 7,2 | 1,3 | 3,3 | 2,7 | 4,4 | 5,6 | -4,2 | 8,6 | -1,1 | -4,8 | 1,7 | 10,0 | -1,1 | 1,3 | | 2,2 |
| Netherlands | 0,8 | 0,8 | -2,2 | 2,1 | 1,1 | -0,3 | 0,6 | 1,2 | 1,1 | 0,2 | 0,2 | -0,4 | -0,1 | 0,0 | 2,4 | 0,7 | -1,5 | 0,4 |
| New Zealand | 3,9 | -3,3 | 5,3 | -0,9 | 1,9 | 3,7 | -2,1 | -0,1 | 2,3 | -0,9 | 0,1 | 2,0 | -0,7 | 1,8 | 2,7 | -0,9 | -2,7 | 0,7 |
| Norway | -1,8 | -3,0 | -0,1 | 0,5 | -0,7 | 0,9 | 0,6 | 0,8 | 1,3 | 0,6 | 2,1 | -0,8 | -0,4 | 0,9 | 1,6 | -0,9 | -0,3 | 0,1 |
| Poland | 2,6 | 0,8 | 3,2 | 6,0 | 4,7 | 1,7 | 1,2 | 1,7 | 2,4 | 2,0 | 4,8 | 6,8 | 4,7 | -1,2 | 0,9 | 2,4 | 0,7 | 2,7 |
| Portugal | 1,6 | 0,6 | -0,4 | 3,0 | 1,5 | 1,0 | 1,4 | -1,0 | 0,0 | 0,1 | 0,8 | -0,1 | 1,5 | 1,1 | 1,3 | 6,1 | 1,6 | 1,2 |
| Romania | 5,5 | 11,1 | -0,9 | -2,0 | 6,5 | 2,6 | 1,4 | 4,1 | 4,9 | 2,7 | 7,0 | 5,9 | 2,8 | 1,0 | 1,1 | 3,8 | 3,1 | 3,6 |
| Slovakia | 8,0 | 2,1 | -2,9 | 7,1 | 1,4 | 1,6 | 2,4 | 1,6 | 3,8 | 0,4 | 1,8 | 3,0 | 2,1 | 6,3 | 4,7 | -1,9 | 0,2 | 2,5 |
| Slovenia | 4,3 | -0,1 | -6,3 | 3,4 | 3,6 | -0,6 | -1,0 | 1,1 | 0,6 | 3,5 | 3,8 | 2,4 | 1,1 | 0,8 | 2,8 | -1,4 | 0,0 | 1,1 |
| Spain | 1,1 | 0,3 | 2,4 | 2,5 | 1,5 | 1,9 | 1,5 | 0,3 | 0,8 | 0,5 | 0,9 | -0,2 | 0,6 | -0,2 | -0,8 | 1,8 | 0,6 | 0,9 |
| Sweden | 0,1 | -2,1 | -1,3 | 3,2 | 0,8 | -0,3 | 0,7 | 0,8 | 2,8 | -0,5 | 0,1 | 0,3 | 2,7 | 1,1 | 3,1 | -1,5 | -1,1 | 0,5 |
| Switzerland | 1,9 | 1,0 | -2,2 | 5,5 | -0,6 | 0,4 | 1,8 | 1,0 | -0,7 | 0,6 | 1,6 | 2,3 | 0,6 | 1,7 | 2,6 | 1,2 | | 1,2 |
| United Kingdom | 1,5 | 0,0 | -2,5 | 2,6 | 0,1 | -0,6 | 0,5 | 0,2 | 1,6 | -0,6 | 2,0 | 0,2 | 0,5 | 1,9 | -0,7 | 0,7 | -0,4 | 0,4 |
| United States | 1,4 | 1,3 | 3,2 | 2,6 | 0,1 | 0,4 | 0,7 | 0,6 | 0,9 | 0,4 | 1,1 | 1,3 | 1,4 | 4,6 | 1,4 | -1,6 | 3,1 | 1,3 |
| Average | 2,6 | -0,1 | -0,3 | 2,5 | 1,4 | 0,9 | 0,9 | 1,1 | 2,0 | 0,8 | 2,0 | 1,2 | 1,5 | 2,5 | 1,8 | 0,3 | -0,3 | 1,2 |

*Source: OECD + Eurostat and author's calculation*

*Table 11: Gini index*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | .. | 35,4 | .. | 34,7 | .. | .. | .. | 34,4 | .. | 33,7 | .. | 34,3 | .. | .. | .. | 34,5 | -1,1 |
| Austria | 30,6 | 30,4 | 31,5 | 30,3 | 30,8 | 30,5 | 30,8 | 30,5 | 30,5 | 30,8 | 29,7 | 30,8 | 30,2 | 29,8 | 30,7 | 30,5 | 0,1 |
| Belgium | 29,2 | 28,4 | 28,6 | 28,4 | 28,1 | 27,5 | 27,7 | 28,1 | 27,7 | 27,6 | 27,4 | 27,2 | 27,2 | 26 | 26,6 | 27,7 | -2,6 |
| Bulgaria | 36,1 | 33,6 | 33,8 | 35,7 | 34,3 | 36 | 36,6 | 37,4 | 38,6 | 40,6 | 40,4 | 41,3 | 40,3 | 40,5 | 39 | 37,6 | 2,9 |
| Canada | 33,8 | 33,9 | 34 | 33,6 | 32,7 | 33,5 | 33,8 | 33,2 | 33,7 | 32,7 | 33,3 | 32,5 | 31,7 | 31,7 | 31,7 | 33,1 | -2,1 |
| Croatia | .. | .. | 32,6 | 32,4 | 32,3 | 32,5 | 32 | 32,1 | 31,1 | 30,9 | 30,4 | 29,7 | 28,9 | 29,5 | 28,9 | 31,0 | -3,7 |
| Cyprus | 31,1 | 31,7 | 32,1 | 31,5 | 32,6 | 34,3 | 37 | 35,6 | 34 | 32,9 | 31,4 | 32,7 | 31,2 | 31,7 | 31,3 | 32,7 | 0,2 |
| Czech Republic | 26 | 26,3 | 26,2 | 26,6 | 26,4 | 26,1 | 26,5 | 25,9 | 25,9 | 25,4 | 24,9 | 25 | 25,3 | 26,2 | 26,2 | 25,9 | 0,2 |
| Denmark | 26,2 | 25,2 | 26,7 | 27,2 | 27,3 | 27,8 | 28,5 | 28,4 | 28,2 | 28,2 | 28,7 | 28,2 | 27,7 | 27,5 | 28,3 | 27,6 | 2,1 |
| Estonia | 31,2 | 31,9 | 31,4 | 32 | 32,5 | 32,9 | 35,1 | 34,6 | 32,7 | 31,2 | 30,4 | 30,3 | 30,8 | 30,7 | 31,8 | 32,0 | 0,6 |
| Finland | 28,3 | 27,8 | 27,5 | 27,7 | 27,6 | 27,1 | 27,2 | 26,8 | 27,1 | 27,1 | 27,4 | 27,3 | 27,7 | 27,1 | 27,7 | 27,4 | -0,6 |
| France | 32,4 | 33 | 32,7 | 33,7 | 33,3 | 33,1 | 32,5 | 32,3 | 32,7 | 31,9 | 31,6 | 32,4 | 31,2 | 30,7 | 31,5 | 32,3 | -0,9 |
| Germany | 31,2 | 30,8 | 30,5 | 30,2 | 30,6 | 31,1 | 31,5 | 30,8 | 31,7 | 31,4 | 31,3 | 31,9 | 31,8 | 32,4 | 32,4 | 31,3 | 1,2 |
| Greece | 34 | 33,6 | 33,6 | 34,1 | 34,8 | 36,3 | 36,1 | 35,8 | 36 | 35 | 34,4 | 32,9 | 33,1 | 33,6 | 32,9 | 34,4 | -1,1 |
| Hungary | 27,9 | 27,5 | 27 | 29,4 | 29,2 | 30,8 | 31,5 | 30,9 | 30,4 | 30,3 | 30,6 | 29,6 | 30 | 29,7 | 29,2 | 29,6 | 1,3 |
| Iceland | 29,5 | 31,8 | 28,7 | 26,2 | 26,8 | 26,8 | 25,4 | 27,8 | 26,8 | 27,2 | 26,1 | 26,1 | 26,1 | 26,1 | 26,1 | 27,2 | -3,4 |
| Ireland | 31,9 | 30,9 | 32,7 | 32,3 | 32,9 | 33,2 | 33,5 | 31,9 | 31,8 | 32,8 | 31,4 | 30,6 | 30,8 | 29,2 | 30,1 | 31,7 | -1,8 |
| Italy | 32,9 | 33,8 | 33,8 | 34,7 | 35,1 | 35,2 | 34,9 | 34,7 | 35,4 | 35,2 | 35,9 | 35,2 | 34,6 | 35,2 | 34,8 | 34,8 | 1,9 |
| Latvia | 37,5 | 37,2 | 35,9 | 35 | 35,8 | 35,2 | 35,5 | 35,1 | 34,2 | 34,3 | 35,6 | 35,1 | 34,5 | 35,7 | 34,3 | 35,4 | -3,2 |
| Lithuania | 34,8 | 35,7 | 37,2 | 33,6 | 32,5 | 35,1 | 35,3 | 37,7 | 37,4 | 38,4 | 37,3 | 35,7 | 35,3 | 36 | 36,7 | 35,9 | 1,9 |
| Luxembourg | 31,1 | 32,6 | 31,2 | 30,5 | 32,1 | 34,3 | 32 | 31,2 | 32,9 | 31,7 | 34,5 | 35,4 | 34,2 | 33,4 | 32,7 | 32,7 | 1,6 |
| Malta | 29,2 | 29 | 30,2 | 29 | 29,1 | 29,4 | 28,8 | 29 | 29,4 | 29,1 | 29,2 | 28,7 | 31 | 31,4 | 31,4 | 29,6 | 2,2 |
| Netherlands | 29,6 | 29,3 | 27,9 | 27,8 | 27,8 | 27,6 | 28,1 | 28,6 | 28,2 | 28,2 | 28,5 | 28,1 | 29,2 | 26 | 25,7 | 28,0 | -3,9 |
| New Zealand | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | |
| Norway | 27,1 | 27 | 26,2 | 25,7 | 25,3 | 25,7 | 26,4 | 26,8 | 27,5 | 28,5 | 27 | 27,6 | 27,7 | 27,7 | 27,7 | 26,9 | 0,6 |
| Poland | 34 | 33,5 | 33,4 | 33,2 | 33,2 | 33 | 33,1 | 32,8 | 31,8 | 31,2 | 29,7 | 30,2 | 28,8 | 28,5 | 28,5 | 31,7 | -5,5 |
| Portugal | 36,8 | 36,6 | 34,9 | 35,8 | 36,3 | 36 | 36,2 | 35,6 | 35,5 | 35,2 | 33,8 | 33,5 | 32,8 | 34,7 | 34,6 | 35,2 | -2,2 |
| Romania | 37,5 | 36,4 | 35,6 | 35,5 | 35,9 | 36,5 | 36,9 | 36 | 35,9 | 34,4 | 36 | 35,8 | 34,8 | 34,6 | 33,9 | 35,7 | -3,6 |
| Slovakia | 24,7 | 26 | 27,2 | 27,3 | 26,5 | 26,1 | 28,1 | 26,1 | 26,5 | 25,2 | 23,2 | 25 | 23,2 | 24,2 | 24,1 | 25,6 | -0,6 |
| Slovenia | 24,4 | 23,7 | 24,8 | 24,9 | 24,9 | 25,6 | 26,2 | 25,7 | 25,4 | 24,8 | 24,2 | 24,6 | 24,4 | 24 | 24,3 | 24,8 | -0,1 |
| Spain | 34,1 | 34,2 | 34,9 | 35,2 | 35,7 | 35,4 | 36,2 | 36,1 | 36,2 | 35,8 | 34,7 | 34,7 | 34,3 | 34,9 | 33,9 | 35,1 | -0,2 |
| Sweden | 27,1 | 28,1 | 27,3 | 27,7 | 27,6 | 27,6 | 28,8 | 28,4 | 29,2 | 29,6 | 28,8 | 30 | 29,3 | 28,9 | 29,8 | 28,5 | 2,7 |
| Switzerland | 34,3 | 33,8 | 32,9 | 32,6 | 31,7 | 31,6 | 32,5 | 32,5 | 32,3 | 33 | 32,7 | 33,1 | 34 | 33,7 | 33,7 | 33,0 | -0,6 |
| United Kingdom | 34,4 | 35,4 | 35,1 | 33,7 | 33,2 | 33,1 | 32,7 | 33,1 | 33,3 | 33,1 | 32,6 | 33,7 | 32,8 | 32,6 | 32,4 | 33,4 | -2 |
| United States | 40,8 | 40,8 | 40,6 | 40 | 40,9 | 40,9 | 40,6 | 41,5 | 41,2 | 41,1 | 41,2 | 41,4 | 41,5 | 39,7 | 39,7 | 40,8 | -1,1 |
| Average | 31,6 | 31,7 | 31,5 | 31,4 | 31,4 | 31,8 | 32,1 | 32,0 | 31,9 | 31,7 | 31,3 | 31,5 | 31,1 | 31,0 | 31,0 | 31,6 | -0,6 |

*Source: WDI and author's calculation*

*Table 12: Wage share (percentage of GDP)*

| Country | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Average | Change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 61,40 | 61,40 | 61,01 | 60,35 | 61,35 | 62,10 | 59,34 | 59,17 | 58,42 | 59,61 | 55,73 | 53,02 | 53,91 | 53,75 | 58,61 | -7,66 |
| Austria | 58,54 | 57,44 | 57,95 | 57,94 | 60,74 | 58,93 | 61,03 | 60,17 | 58,31 | 59,24 | 59,65 | 59,56 | 59,90 | 60,86 | 59,30 | 2,32 |
| Belgium | 65,18 | 65,69 | 66,35 | 67,32 | 64,71 | 63,85 | 62,53 | 61,61 | 61,55 | 61,86 | 63,21 | 61,06 | 63,31 | 63,77 | 63,71 | -1,41 |
| Bulgaria | 44,28 | 42,52 | 45,64 | 50,02 | 50,59 | 50,65 | 51,35 | 53,01 | 51,98 | 51,73 | 53,14 | 51,29 | 50,30 | 49,97 | 49,75 | 5,69 |
| Canada | 61,18 | 60,14 | 60,99 | 61,13 | 60,19 | 62,26 | 61,05 | 60,02 | 60,58 | 60,83 | 62,16 | 59,51 | 58,28 | 60,15 | 60,60 | -1,03 |
| Croatia | 60,98 | 59,85 | 59,29 | 58,40 | 56,56 | 58,31 | 55,98 | 54,83 | 57,38 | 57,82 | 61,52 | 56,37 | 55,76 | 56,77 | 57,84 | -4,21 |
| Cyprus | 57,14 | 57,52 | 56,14 | 53,98 | 51,98 | 49,57 | 48,09 | 48,44 | 49,16 | 49,74 | 51,97 | 48,50 | 46,48 | 46,84 | 51,11 | -10,30 |
| Czech Republic | 54,24 | 53,44 | 54,93 | 53,92 | 53,35 | 51,66 | 52,57 | 54,82 | 56,32 | 56,43 | 57,64 | 56,31 | 54,51 | 54,16 | 54,59 | -0,08 |
| Denmark | 59,94 | 60,84 | 59,80 | 59,30 | 58,75 | 58,57 | 58,01 | 56,69 | 56,46 | 56,19 | 58,20 | 57,97 | 55,53 | 58,17 | 58,17 | -1,77 |
| Estonia | 52,02 | 50,74 | 51,34 | 52,46 | 54,10 | 56,48 | 54,59 | 56,73 | 56,99 | 58,34 | 59,70 | 56,37 | 55,81 | 58,07 | 55,27 | 6,05 |
| Finland | 59,53 | 58,66 | 58,48 | 58,14 | 57,15 | 57,61 | 55,81 | 53,94 | 54,22 | 54,57 | 53,77 | 55,48 | 54,73 | 55,13 | 56,23 | -4,40 |
| France | 63,33 | 63,00 | 62,27 | 61,61 | 63,38 | 62,10 | 61,80 | 59,82 | 60,12 | 59,30 | 61,09 | 59,78 | 61,14 | 60,50 | 61,37 | -2,83 |
| Germany | 61,70 | 61,15 | 62,06 | 62,22 | 61,92 | 62,15 | 61,66 | 61,92 | 62,60 | 63,22 | 62,53 | 61,17 | 60,32 | 60,14 | 61,77 | -1,56 |
| Greece | 58,05 | 59,71 | 59,25 | 56,19 | 55,97 | 53,05 | 54,38 | 54,29 | 56,44 | 55,88 | 59,65 | 57,03 | 55,89 | 55,60 | 56,53 | -2,45 |
| Hungary | 51,18 | 50,73 | 51,87 | 50,58 | 49,61 | 48,42 | 49,52 | 49,43 | 49,60 | 48,89 | 48,92 | 47,13 | 44,66 | 44,88 | 48,96 | -6,31 |
| Iceland | 57,35 | 60,60 | 62,36 | 63,37 | 63,54 | 61,36 | 60,87 | 61,11 | 61,06 | 61,30 | 62,39 | 62,04 | 61,36 | 62,30 | 61,50 | 4,95 |
| Ireland | 52,69 | 50,08 | 49,19 | 49,11 | 46,94 | 36,81 | 38,01 | 36,37 | 35,32 | 34,55 | 32,77 | 30,62 | 29,69 | 31,62 | 39,56 | -21,07 |
| Italy | 59,15 | 57,72 | 57,79 | 57,89 | 57,35 | 58,04 | 60,05 | 61,51 | 61,69 | 61,84 | 56,88 | 58,04 | 56,75 | 55,93 | 58,62 | -3,22 |
| Latvia | 49,31 | 44,70 | 45,28 | 47,95 | 49,29 | 51,66 | 52,99 | 54,40 | 54,96 | 56,95 | 59,06 | 57,34 | 56,10 | 60,01 | 52,86 | 10,70 |
| Lithuania | 45,77 | 43,89 | 42,97 | 44,63 | 44,22 | 47,66 | 47,81 | 50,26 | 50,86 | 52,73 | 54,44 | 52,55 | 51,65 | 54,30 | 48,84 | 8,53 |
| Luxembourg | 54,84 | 53,47 | 55,19 | 54,19 | 53,28 | 54,75 | 53,41 | 55,02 | 55,66 | 55,82 | 56,36 | 54,78 | 54,92 | 55,57 | 54,80 | 0,73 |
| Malta | 48,60 | 50,92 | 50,74 | 51,06 | 49,06 | 47,44 | 49,51 | 48,66 | 49,60 | 50,87 | 54,23 | 51,53 | 50,83 | 51,22 | 50,30 | 2,62 |
| Netherlands | 65,35 | 65,41 | 64,76 | 65,18 | 65,51 | 63,10 | 63,65 | 62,24 | 61,42 | 61,47 | 63,95 | 62,50 | 61,81 | 61,52 | 63,42 | -3,83 |
| New Zealand | 51,17 | 50,87 | 51,58 | 49,45 | 49,64 | 49,46 | 51,36 | 51,40 | 51,62 | 52,11 | 54,07 | 54,04 | 52,57 | 53,26 | 51,61 | 2,09 |
| Norway | 49,10 | 46,89 | 46,74 | 48,65 | 50,28 | 51,99 | 53,78 | 51,73 | 50,19 | 52,94 | 53,79 | 46,53 | 37,67 | 45,37 | 48,97 | -3,73 |
| Poland | 47,97 | 46,47 | 47,10 | 46,82 | 47,28 | 46,61 | 48,85 | 47,59 | 49,06 | 49,28 | 50,15 | 47,28 | 46,45 | 46,69 | 47,69 | -1,28 |
| Portugal | 62,24 | 59,87 | 59,63 | 59,20 | 56,73 | 54,47 | 53,87 | 55,06 | 54,72 | 55,03 | 59,02 | 57,79 | 56,29 | 56,74 | 57,19 | -5,50 |
| Romania | 43,96 | 40,12 | 40,31 | 39,65 | 39,92 | 40,33 | 44,12 | 43,56 | 44,24 | 43,87 | 47,15 | 41,42 | 39,37 | 39,97 | 42,00 | -3,99 |
| Slovakia | 46,15 | 46,73 | 45,06 | 48,08 | 48,41 | 48,50 | 49,97 | 51,10 | 51,93 | 53,42 | 53,59 | 53,31 | 53,93 | 53,30 | 50,25 | 7,15 |
| Slovenia | 61,21 | 58,78 | 59,37 | 60,27 | 59,34 | 58,48 | 58,97 | 57,30 | 57,43 | 58,04 | 61,32 | 59,84 | 56,98 | 58,18 | 58,97 | -3,03 |
| Spain | 64,04 | 62,60 | 61,46 | 59,00 | 58,33 | 59,35 | 58,16 | 56,79 | 56,79 | 57,29 | 62,48 | 59,09 | 57,26 | 57,30 | 59,28 | -6,74 |
| Sweden | 53,68 | 53,53 | 57,34 | 57,96 | 56,77 | 55,35 | 55,24 | 54,48 | 54,73 | 54,74 | 55,13 | 53,66 | 52,27 | 52,35 | 54,80 | -1,33 |
| Switzerland | 66,26 | 66,57 | 67,91 | 68,72 | 68,64 | 68,58 | 68,38 | 68,89 | 67,78 | 68,81 | 69,13 | 70,51 | 70,40 | 70,41 | 68,64 | 4,15 |
| United Kingdom | 59,34 | 58,18 | 57,60 | 57,67 | 57,49 | 56,43 | 56,58 | 56,78 | 56,48 | 57,43 | 60,27 | 59,05 | 58,13 | 58,10 | 57,82 | -1,24 |
| United States | 58,76 | 58,67 | 58,52 | 58,02 | 58,14 | 58,59 | 58,44 | 58,41 | 58,26 | 58,15 | 59,96 | 58,78 | 58,35 | 57,73 | 58,48 | -1,03 |
| Average | 56,16 | 55,40 | 55,66 | 55,73 | 55,44 | 54,99 | 55,19 | 55,07 | 55,26 | 55,72 | 57,00 | 55,18 | 54,09 | 54,87 | 55,41 | -1,29 |

*Source: ILO and author's calculation*

*Table 13: Wealth distribution (share of top ten, %)*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2007-2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 55,9% | 55,8% | 55,9% | 55,9% | 55,9% | 56,3% | 56,6% | 56,6% | 56,4% | 56,2% | 56,6% | 56,7% | 56,7% | 56,5% | 57,1% | 57,0% | 1,1% |
| Austria | 61,3% | 61,5% | 61,1% | 61,3% | 60,9% | 60,8% | 60,6% | 60,4% | 60,7% | 60,7% | 61,2% | 61,4% | 61,4% | 61,3% | 61,9% | 61,6% | 0,3% |
| Belgium | 52,9% | 52,7% | 52,4% | 52,7% | 52,3% | 51,1% | 50,5% | 50,9% | 51,7% | 51,8% | 52,1% | 52,1% | 52,2% | 52,1% | 52,2% | 52,4% | -0,6% |
| Bulgaria | 56,3% | 56,2% | 56,6% | 56,6% | 56,6% | 57,0% | 56,8% | 57,1% | 57,4% | 57,9% | 58,6% | 58,7% | 58,7% | 58,7% | 58,7% | 59,1% | 2,7% |
| Canada | 58,5% | 58,3% | 57,6% | 58,0% | 58,1% | 57,9% | 58,1% | 58,3% | 58,4% | 57,8% | 58,2% | 58,2% | 58,2% | 58,0% | 58,3% | 58,4% | 0,0% |
| Croatia | 56,7% | 56,6% | 56,3% | 56,1% | 56,3% | 56,3% | 56,4% | 56,3% | 56,1% | 56,2% | 51,2% | 56,0% | 56,0% | 56,0% | 56,0% | 59,8% | 3,1% |
| Cyprus | 54,6% | 55,0% | 54,6% | 54,8% | 55,2% | 55,6% | 56,0% | 56,6% | 60,5% | 63,8% | 66,5% | 66,5% | 66,5% | 66,4% | 66,4% | 65,9% | 11,3% |
| Czech Republic | 56,2% | 56,7% | 56,1% | 56,5% | 56,6% | 56,6% | 56,9% | 57,3% | 56,9% | 57,0% | 57,4% | 57,8% | 57,9% | 57,9% | 58,5% | 58,5% | 2,3% |
| Denmark | 51,1% | 49,0% | 50,9% | 51,1% | 50,1% | 49,4% | 50,0% | 50,5% | 50,2% | 50,3% | 50,5% | 50,4% | 50,1% | 50,2% | 50,7% | 50,6% | -0,5% |
| Estonia | 66,7% | 66,5% | 65,8% | 66,1% | 66,4% | 66,6% | 66,6% | 66,7% | 65,6% | 65,3% | 66,0% | 66,5% | 66,4% | 66,4% | 66,4% | 67,7% | 1,0% |
| Finland | 55,9% | 53,7% | 53,9% | 55,2% | 54,6% | 54,2% | 54,8% | 54,8% | 55,0% | 55,4% | 55,9% | 55,9% | 55,8% | 55,8% | 56,1% | 55,6% | -0,3% |
| France | 56,6% | 56,1% | 56,6% | 58,3% | 57,6% | 57,1% | 57,8% | 58,5% | 58,7% | 58,5% | 58,6% | 58,9% | 58,9% | 58,8% | 59,3% | 57,7% | 1,1% |
| Germany | 60,1% | 60,5% | 59,7% | 59,1% | 58,8% | 58,2% | 58,3% | 58,7% | 58,7% | 58,8% | 58,7% | 59,1% | 58,7% | 58,5% | 58,9% | 57,6% | -2,4% |
| Greece | 49,4% | 49,3% | 48,3% | 50,5% | 51,8% | 54,4% | 58,0% | 59,4% | 59,1% | 58,5% | 60,0% | 60,4% | 60,4% | 60,1% | 60,7% | 60,4% | 11,0% |
| Hungary | 60,2% | 60,0% | 59,7% | 59,8% | 59,7% | 59,4% | 59,7% | 59,6% | 61,9% | 64,8% | 67,2% | 67,3% | 67,3% | 67,3% | 67,3% | 67,1% | 6,9% |
| Iceland | 59,6% | 58,9% | 56,1% | 55,6% | 55,6% | 55,6% | 55,7% | 55,7% | 56,1% | 56,2% | 56,1% | 56,1% | 56,1% | 56,1% | 56,7% | 56,7% | -2,9% |
| Ireland | 70,0% | 69,6% | 69,2% | 69,6% | 69,8% | 69,7% | 69,9% | 72,2% | 71,3% | 69,0% | 68,1% | 66,3% | 66,3% | 65,9% | 66,0% | 66,2% | -3,8% |
| Italy | 55,0% | 54,6% | 55,7% | 57,4% | 58,1% | 59,5% | 58,4% | 58,5% | 56,6% | 56,1% | 56,2% | 56,2% | 56,2% | 56,2% | 56,2% | 56,2% | 1,2% |
| Latvia | 65,6% | 65,4% | 65,5% | 65,1% | 65,7% | 65,5% | 65,5% | 65,3% | 64,3% | 62,5% | 61,0% | 60,5% | 60,6% | 60,6% | 60,6% | 60,7% | -4,9% |
| Lithuania | 57,0% | 57,1% | 57,1% | 56,5% | 56,5% | 57,2% | 57,2% | 58,2% | 57,4% | 57,1% | 57,3% | 55,5% | 57,4% | 57,4% | 57,4% | 62,3% | 5,2% |
| Luxembourg | 61,8% | 61,6% | 60,5% | 61,2% | 62,3% | 63,7% | 64,1% | 64,8% | 63,3% | 61,6% | 60,9% | 59,3% | 59,3% | 59,3% | 59,3% | 58,6% | -3,3% |
| Malta | 44,2% | 44,2% | 44,4% | 44,2% | 44,5% | 45,2% | 45,6% | 46,6% | 48,3% | 51,1% | 53,8% | 53,8% | 53,8% | 53,8% | 53,8% | 54,0% | 9,8% |
| Netherlands | 49,7% | 48,9% | 48,8% | 50,7% | 50,5% | 51,3% | 54,5% | 53,6% | 52,0% | 50,8% | 52,3% | 49,4% | 47,7% | 47,7% | 47,9% | 45,0% | -4,7% |
| New Zealand | 55,8% | 56,0% | 56,0% | 56,2% | 56,5% | 56,9% | 56,4% | 56,5% | 56,5% | 56,4% | 56,6% | 56,7% | 56,6% | 56,7% | 56,6% | 56,6% | 0,8% |
| Norway | 51,4% | 51,6% | 50,9% | 51,2% | 50,5% | 48,8% | 49,1% | 48,4% | 49,1% | 49,2% | 50,1% | 51,1% | 52,3% | 52,2% | 52,2% | 52,2% | 0,8% |
| Poland | 61,5% | 61,7% | 61,0% | 61,1% | 61,3% | 61,2% | 61,3% | 61,6% | 62,1% | 61,6% | 61,6% | 61,7% | 61,6% | 61,6% | 61,8% | 61,8% | 0,2% |
| Portugal | 59,0% | 59,0% | 58,7% | 58,7% | 59,3% | 59,4% | 59,6% | 59,4% | 59,4% | 59,7% | 60,9% | 60,5% | 60,6% | 60,6% | 60,7% | 60,1% | 1,1% |
| Romania | 59,2% | 59,3% | 59,1% | 58,0% | 57,8% | 58,1% | 57,8% | 58,2% | 58,2% | 57,4% | 57,4% | 57,5% | 57,5% | 57,5% | 57,7% | 57,7% | -1,5% |
| Slovakia | 42,1% | 42,1% | 42,0% | 42,1% | 42,6% | 44,2% | 46,0% | 47,4% | 48,5% | 48,6% | 49,2% | 49,4% | 49,7% | 49,7% | 49,7% | 49,5% | 7,4% |
| Slovenia | 48,1% | 48,1% | 48,0% | 48,0% | 50,3% | 52,9% | 55,0% | 56,7% | 56,6% | 57,0% | 57,2% | 57,2% | 57,2% | 57,2% | 57,2% | 57,2% | 9,1% |
| Spain | 56,0% | 54,4% | 55,9% | 55,7% | 56,1% | 56,7% | 56,8% | 58,3% | 57,5% | 57,5% | 57,6% | 57,6% | 57,5% | 57,4% | 57,6% | 56,6% | 0,6% |
| Sweden | 60,0% | 59,8% | 58,6% | 59,4% | 58,9% | 58,8% | 59,1% | 59,2% | 59,3% | 59,1% | 59,1% | 59,0% | 59,0% | 58,2% | 58,9% | 58,9% | -1,2% |
| Switzerland | 59,4% | 59,0% | 59,1% | 59,4% | 59,6% | 60,0% | 60,8% | 61,6% | 62,1% | 62,3% | 62,7% | 62,8% | 62,5% | 62,3% | 62,7% | 62,8% | 3,4% |
| United Kingdom | 54,4% | 53,8% | 54,4% | 54,6% | 55,8% | 55,7% | 56,7% | 57,8% | 56,7% | 57,1% | 57,5% | 57,1% | 57,0% | 57,0% | 57,1% | 57,0% | 2,5% |
| USA | 68,4% | 69,4% | 69,7% | 70,9% | 71,7% | 72,6% | 72,9% | 72,9% | 72,7% | 72,2% | 70,8% | 70,7% | 70,7% | 70,7% | 70,7% | 70,7% | 2,3% |
| Average | 56,9% | 56,6% | 56,5% | 56,8% | 57,0% | 57,3% | 57,7% | 58,1% | 58,1% | 58,1% | 58,4% | 58,4% | 58,4% | 58,3% | 58,6% | 58,6% | 1,7% |

*Source: WID and author's calculation*

*Table 14: Unemployment rate (%)*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Average | Change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 4,4 | 4,2 | 5,6 | 5,2 | 5,1 | 5,2 | 5,7 | 6,1 | 6,1 | 5,7 | 5,6 | 5,3 | 5,2 | 6,5 | 5,1 | 3,7 | 3,7 | 5,2 | -0,7 |
| Austria | 4,9 | 4,2 | 5,4 | 4,9 | 4,6 | 4,9 | 5,4 | 5,7 | 5,8 | 6,1 | 5,6 | 4,9 | 4,6 | 5,2 | 6,5 | 5,0 | 5,2 | 5,2 | 0,3 |
| Belgium | 7,5 | 7,0 | 7,9 | 8,3 | 7,1 | 7,5 | 8,4 | 8,5 | 8,5 | 7,8 | 7,1 | 5,9 | 5,4 | 5,6 | 6,3 | 5,6 | 5,5 | 7,1 | -2,0 |
| Bulgaria | 6,9 | 5,6 | 6,8 | 10,3 | 11,3 | 12,3 | 12,9 | 11,4 | 9,1 | 7,6 | 6,2 | 5,2 | 4,2 | 5,1 | 5,3 | 4,3 | 4,3 | 7,6 | -2,6 |
| Canada | 6,2 | 6,3 | 8,5 | 8,2 | 7,6 | 7,4 | 7,1 | 7,0 | 6,9 | 7,0 | 6,4 | 5,8 | 5,7 | 9,7 | 7,5 | 5,3 | 5,4 | 6,9 | -0,8 |
| Croatia | 9,9 | 8,5 | 9,2 | 11,6 | 13,7 | 15,9 | 17,3 | 17,3 | 16,2 | 13,1 | 11,2 | 8,4 | 6,6 | 7,5 | 7,6 | 7,0 | 6,1 | 11,0 | -3,8 |
| Cyprus | 3,9 | 3,8 | 5,6 | 6,4 | 7,9 | 12,1 | 16,1 | 16,3 | 15,0 | 13,0 | 11,2 | 8,5 | 7,2 | 7,8 | 7,5 | 6,8 | 6,0 | 9,1 | 2,0 |
| Czech Republic | 5,3 | 4,4 | 6,7 | 7,3 | 6,7 | 7,0 | 7,0 | 6,1 | 5,0 | 4,0 | 2,9 | 2,2 | 2,0 | 2,6 | 2,8 | 2,2 | 2,6 | 4,5 | -2,7 |
| Denmark | 3,8 | 3,7 | 6,4 | 7,7 | 7,8 | 7,8 | 7,4 | 6,9 | 6,3 | 6,0 | 5,8 | 5,1 | 5,0 | 5,6 | 5,0 | 4,4 | 5,1 | 5,9 | 1,3 |
| Estonia | 4,6 | 5,5 | 13,5 | 16,7 | 12,3 | 10,0 | 8,6 | 7,4 | 6,4 | 6,9 | 5,8 | 5,4 | 4,5 | 7,0 | 6,2 | 5,6 | 6,3 | 7,8 | 1,8 |
| Finland | 6,9 | 6,4 | 8,3 | 8,4 | 7,8 | 7,7 | 8,2 | 8,7 | 9,4 | 8,8 | 8,6 | 7,4 | 6,7 | 7,8 | 7,6 | 6,7 | 7,2 | 7,8 | 0,3 |
| France | 8,0 | 7,4 | 9,1 | 9,3 | 9,2 | 9,8 | 9,9 | 10,3 | 10,4 | 10,1 | 9,4 | 9,0 | 8,4 | 8,0 | 7,9 | 7,3 | 7,3 | 8,9 | -0,7 |
| Germany | 8,7 | 7,5 | 7,7 | 7,0 | 5,8 | 5,4 | 5,2 | 5,0 | 4,6 | 4,1 | 3,7 | 3,4 | 3,1 | 3,9 | 3,6 | 3,1 | 3,0 | 5,0 | -5,6 |
| Greece | 8,4 | 7,7 | 9,5 | 12,7 | 18,0 | 24,7 | 27,7 | 26,7 | 25,0 | 23,5 | 21,4 | 19,2 | 17,0 | 15,9 | 14,7 | 12,4 | 11,0 | 17,4 | 2,6 |
| Hungary | 7,4 | 7,8 | 10,0 | 11,2 | 11,0 | 11,0 | 10,2 | 7,7 | 6,8 | 5,1 | 4,2 | 3,7 | 3,4 | 4,3 | 4,0 | 3,6 | 4,1 | 6,8 | -3,3 |
| Iceland | 2,3 | 2,9 | 7,2 | 7,6 | 7,0 | 6,0 | 5,4 | 4,9 | 4,0 | 3,0 | 2,7 | 2,7 | 3,5 | 5,5 | 6,0 | 3,8 | 3,6 | 4,6 | 1,3 |
| Ireland | 5,0 | 6,8 | 12,6 | 14,5 | 15,4 | 15,5 | 13,7 | 11,9 | 9,9 | 8,4 | 6,7 | 5,7 | 5,0 | 5,6 | 6,2 | 4,5 | 4,3 | 8,9 | -0,6 |
| Italy | 6,1 | 6,7 | 7,7 | 8,4 | 8,4 | 10,7 | 12,1 | 12,7 | 11,9 | 11,7 | 11,2 | 10,6 | 10,0 | 9,2 | 9,5 | 8,1 | 7,6 | 9,6 | 1,5 |
| Latvia | 6,1 | 7,7 | 17,5 | 19,5 | 16,2 | 15,0 | 11,9 | 10,8 | 9,9 | 9,6 | 8,7 | 7,4 | 6,3 | 8,1 | 7,5 | 6,8 | 6,5 | 10,3 | 0,5 |
| Lithuania | 4,3 | 5,8 | 13,8 | 17,8 | 15,4 | 13,4 | 11,8 | 10,7 | 9,1 | 7,9 | 7,1 | 6,1 | 6,3 | 8,5 | 7,1 | 6,0 | 7,0 | 9,3 | 2,7 |
| Luxembourg | 4,1 | 5,1 | 5,1 | 4,4 | 4,9 | 5,1 | 5,8 | 5,9 | 6,7 | 6,3 | 5,5 | 5,6 | 5,6 | 6,8 | 5,2 | 4,6 | 5,2 | 5,4 | 1,1 |
| Malta | 6,5 | 6,0 | 6,9 | 6,9 | 6,4 | 6,2 | 6,1 | 5,7 | 5,4 | 4,7 | 4,0 | 3,7 | 3,6 | 4,4 | 3,4 | 2,9 | 3,1 | 5,0 | -3,3 |
| Netherlands | 4,2 | 3,7 | 4,3 | 5,0 | 5,0 | 5,8 | 7,2 | 7,4 | 6,9 | 6,0 | 4,8 | 3,8 | 3,4 | 3,8 | 4,2 | 3,5 | 3,6 | 4,9 | -0,6 |
| New Zealand | 3,7 | 4,2 | 6,1 | 6,6 | 6,5 | 6,9 | 5,8 | 5,4 | 5,4 | 5,1 | 4,7 | 4,3 | 4,1 | 4,6 | 3,8 | 3,3 | 3,7 | 5,0 | 0,1 |
| Norway | 2,5 | 2,6 | 3,1 | 3,5 | 3,2 | 3,1 | 3,4 | 3,5 | 4,3 | 4,7 | 4,2 | 3,8 | 3,7 | 4,4 | 4,4 | 3,2 | 3,6 | 3,6 | 1,1 |
| Poland | 9,6 | 7,1 | 8,2 | 9,6 | 9,6 | 10,1 | 10,3 | 9,0 | 7,5 | 6,2 | 4,9 | 3,8 | 3,3 | 3,2 | 3,4 | 2,9 | 2,9 | 6,6 | -6,7 |
| Portugal | 8,0 | 7,6 | 9,4 | 10,8 | 12,7 | 15,5 | 16,2 | 13,9 | 12,4 | 11,1 | 8,9 | 7,0 | 6,5 | 6,8 | 6,6 | 6,0 | 6,5 | 9,7 | -1,5 |
| Romania | 6,4 | 5,8 | 6,9 | 7,0 | 7,2 | 6,8 | 7,1 | 6,8 | 6,8 | 5,9 | 4,9 | 4,2 | 3,9 | 5,0 | 5,6 | 5,6 | 5,6 | 6,0 | -0,8 |
| Slovakia | 11,2 | 9,5 | 12,0 | 14,4 | 13,6 | 14,0 | 14,2 | 11,5 | 11,5 | 9,7 | 8,1 | 6,5 | 5,8 | 6,7 | 6,9 | 6,1 | 5,8 | 9,9 | -5,3 |
| Slovenia | 4,8 | 4,4 | 5,9 | 7,2 | 8,2 | 8,9 | 10,1 | 9,7 | 9,0 | 8,0 | 6,6 | 5,1 | 4,4 | 5,0 | 4,7 | 4,0 | 3,6 | 6,4 | -1,2 |
| Spain | 8,2 | 11,3 | 17,9 | 19,9 | 21,4 | 24,8 | 26,1 | 24,4 | 22,1 | 19,6 | 17,2 | 15,3 | 14,1 | 15,5 | 14,8 | 12,9 | 12,1 | 17,5 | 3,9 |
| Sweden | 6,2 | 6,2 | 8,4 | 8,6 | 7,8 | 8,0 | 8,1 | 8,0 | 7,4 | 7,0 | 6,7 | 6,4 | 6,8 | 8,3 | 8,7 | 7,4 | 7,6 | 7,5 | 1,4 |
| Switzerland | 3,6 | 3,4 | 4,1 | 4,8 | 4,4 | 4,5 | 4,7 | 4,8 | 4,8 | 4,9 | 4,8 | 4,7 | 4,4 | 4,8 | 5,1 | 4,3 | 4,1 | 4,5 | 0,4 |
| United Kingdom | 5,3 | 5,6 | 7,5 | 7,8 | 8,0 | 7,9 | 7,5 | 6,1 | 5,3 | 4,8 | 4,3 | 4,0 | 3,7 | 4,5 | 4,8 | 3,7 | 4,1 | 5,6 | -1,2 |
| United States | 4,6 | 5,8 | 9,3 | 9,6 | 8,9 | 8,1 | 7,4 | 6,2 | 5,3 | 4,9 | 4,4 | 3,9 | 3,7 | 8,1 | 5,3 | 3,7 | 3,6 | 6,0 | -1,0 |
| Average | 6,0 | 5,9 | 8,4 | 9,4 | 9,3 | 9,9 | 10,1 | 9,4 | 8,8 | 7,9 | 7,0 | 6,1 | 5,6 | 6,6 | 6,3 | 5,3 | 5,3 | 7,5 | -0,6 |

*Source: WDI and author's calculation*

*Table 15: Number of hours worked per employee and year*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 1.709 | 1.709 | 1.681 | 1.687 | 1.689 | 1.681 | 1.680 | 1.672 | 1.670 | 1.660 | 1.662 | 1.654 | 1.651 | 1.613 | 1.622 | 1.628 | 1.651 | -3,4% |
| Austria | 1.606 | 1.599 | 1.558 | 1.552 | 1.557 | 1.535 | 1.520 | 1.510 | 1.495 | 1.507 | 1.498 | 1.502 | 1.510 | 1.400 | 1.437 | 1.435 | 1.435 | -10,6% |
| Belgium | 1.594 | 1.582 | 1.563 | 1.574 | 1.590 | 1.587 | 1.586 | 1.582 | 1.575 | 1.574 | 1.578 | 1.580 | 1.577 | 1.446 | 1.530 | 1.535 | | -3,7% |
| Bulgaria | 1.655 | 1.694 | 1.646 | 1.645 | 1.644 | 1.644 | 1.645 | 1.644 | 1.644 | 1.644 | 1.643 | 1.645 | 1.645 | 1.605 | 1.619 | 1.617 | 1.618 | -2,2% |
| Canada | 1.745 | 1.742 | 1.710 | 1.715 | 1.711 | 1.721 | 1.714 | 1.709 | 1.710 | 1.701 | 1.689 | 1.702 | 1.691 | 1.653 | 1.685 | 1.686 | | -3,4% |
| Croatia | 1.930 | 1.931 | 1.928 | 1.942 | 1.939 | 1.923 | 1.908 | 1.891 | 1.827 | 1.834 | 1.824 | 1.811 | 1.838 | 1.834 | 1.835 | 1.837 | 1.837 | -4,8% |
| Cyprus | 1.862 | 1.868 | 1.847 | 1.845 | 1.847 | 1.845 | 1.810 | 1.815 | 1.824 | 1.840 | 1.821 | 1.809 | 1.823 | 1.728 | 1.789 | 1.810 | | -2,8% |
| Czech Republic | 1.775 | 1.790 | 1.779 | 1.799 | 1.805 | 1.776 | 1.764 | 1.774 | 1.751 | 1.774 | 1.776 | 1.785 | 1.786 | 1.677 | 1.722 | 1.774 | 1.766 | -0,5% |
| Denmark | 1.433 | 1.430 | 1.417 | 1.422 | 1.437 | 1.423 | 1.426 | 1.414 | 1.407 | 1.412 | 1.404 | 1.381 | 1.371 | 1.341 | 1.390 | 1.394 | 1.380 | -3,7% |
| Estonia | 1.903 | 1.874 | 1.745 | 1.785 | 1.827 | 1.796 | 1.777 | 1.771 | 1.763 | 1.767 | 1.768 | 1.707 | 1.694 | 1.637 | 1.767 | 1.770 | 1.742 | -8,5% |
| Finland | 1.605 | 1.601 | 1.581 | 1.586 | 1.578 | 1.568 | 1.560 | 1.559 | 1.556 | 1.555 | 1.549 | 1.547 | 1.537 | 1.530 | 1.528 | 1.514 | 1.499 | -6,6% |
| France | 1.537 | 1.543 | 1.531 | 1.540 | 1.546 | 1.541 | 1.526 | 1.518 | 1.519 | 1.522 | 1.508 | 1.514 | 1.518 | 1.400 | 1.475 | 1.501 | 1.500 | -2,4% |
| Germany | 1.454 | 1.447 | 1.405 | 1.426 | 1.427 | 1.408 | 1.397 | 1.400 | 1.401 | 1.396 | 1.389 | 1.381 | 1.373 | 1.316 | 1.348 | 1.347 | 1.343 | -7,7% |
| Greece | 2.001 | 1.997 | 1.973 | 1.931 | 1.950 | 1.990 | 1.997 | 1.949 | 1.935 | 1.943 | 1.947 | 1.961 | 1.918 | 1.732 | 1.854 | 1.886 | 1.897 | -5,2% |
| Hungary | 1.788 | 1.791 | 1.758 | 1.759 | 1.747 | 1.744 | 1.740 | 1.749 | 1.743 | 1.755 | 1.751 | 1.737 | 1.729 | 1.653 | 1.682 | 1.691 | 1.679 | -6,1% |
| Iceland | 1.554 | 1.625 | 1.536 | 1.528 | 1.538 | 1.523 | 1.524 | 1.513 | 1.511 | 1.520 | 1.507 | 1.496 | 1.480 | 1.464 | 1.459 | 1.459 | 1.448 | -6,8% |
| Ireland | 1.745 | 1.711 | 1.661 | 1.666 | 1.668 | 1.663 | 1.677 | 1.689 | 1.682 | 1.704 | 1.727 | 1.742 | 1.742 | 1.620 | 1.627 | 1.657 | 1.633 | -6,4% |
| Italy | 1.818 | 1.807 | 1.775 | 1.777 | 1.773 | 1.734 | 1.719 | 1.716 | 1.717 | 1.722 | 1.719 | 1.719 | 1.710 | 1.543 | 1.686 | 1.726 | 1.734 | -4,6% |
| Latvia | 1.794 | 1.751 | 1.707 | 1.692 | 1.707 | 1.692 | 1.686 | 1.695 | 1.663 | 1.664 | 1.650 | 1.661 | 1.631 | 1.577 | 1.601 | 1.553 | 1.548 | -13,7% |
| Lithuania | 1.707 | 1.732 | 1.670 | 1.697 | 1.674 | 1.672 | 1.657 | 1.650 | 1.673 | 1.694 | 1.657 | 1.664 | 1.665 | 1.595 | 1.620 | 1.624 | 1.641 | -3,9% |
| Luxembourg | 1.581 | 1.581 | 1.518 | 1.521 | 1.520 | 1.514 | 1.506 | 1.512 | 1.519 | 1.518 | 1.508 | 1.499 | 1.493 | 1.408 | 1.467 | 1.459 | 1.462 | -7,5% |
| Malta | 2.171 | 2.184 | 2.190 | 2.136 | 2.069 | 2.037 | 2.004 | 1.945 | 1.934 | 2.012 | 1.944 | 1.994 | 2.067 | 1.910 | 1.914 | 1.876 | 1.835 | -15,5% |
| Netherlands | 1.429 | 1.429 | 1.420 | 1.427 | 1.425 | 1.419 | 1.427 | 1.434 | 1.437 | 1.446 | 1.450 | 1.449 | 1.451 | 1.404 | 1.412 | 1.415 | 1.413 | -1,1% |
| New Zealand | 1.774 | 1.761 | 1.740 | 1.755 | 1.746 | 1.734 | 1.756 | 1.758 | 1.753 | 1.754 | 1.756 | 1.759 | 1.783 | 1.739 | 1.730 | 1.748 | 1.751 | -1,3% |
| Norway | 1.438 | 1.443 | 1.422 | 1.430 | 1.435 | 1.431 | 1.421 | 1.424 | 1.427 | 1.430 | 1.419 | 1.419 | 1.419 | 1.410 | 1.426 | 1.425 | 1.418 | -1,4% |
| Poland | 1.855 | 1.848 | 1.834 | 1.829 | 1.824 | 1.820 | 1.816 | 1.822 | 1.829 | 1.831 | 1.812 | 1.787 | 1.783 | 1.769 | 1.828 | 1.815 | 1.803 | -2,8% |
| Portugal | 1.755 | 1.743 | 1.743 | 1.746 | 1.724 | 1.708 | 1.718 | 1.725 | 1.732 | 1.737 | 1.727 | 1.738 | 1.744 | 1.611 | 1.649 | 1.635 | 1.631 | -7,1% |
| Romania | 1.840 | 1.835 | 1.815 | 1.841 | 1.849 | 1.812 | 1.806 | 1.793 | 1.786 | 1.809 | 1.786 | 1.787 | 1.803 | 1.756 | 1.824 | 1.827 | 1.826 | -0,8% |
| Slovakia | 1.791 | 1.793 | 1.780 | 1.805 | 1.793 | 1.789 | 1.772 | 1.760 | 1.754 | 1.740 | 1.714 | 1.704 | 1.692 | 1.572 | 1.583 | 1.622 | 1.631 | -8,9% |
| Slovenia | 1.655 | 1.673 | 1.679 | 1.680 | 1.663 | 1.644 | 1.662 | 1.682 | 1.687 | 1.652 | 1.622 | 1.603 | 1.601 | 1.532 | 1.593 | 1.610 | 1.616 | -2,4% |
| Spain | 1.701 | 1.710 | 1.716 | 1.706 | 1.711 | 1.697 | 1.690 | 1.691 | 1.694 | 1.702 | 1.692 | 1.698 | 1.678 | 1.558 | 1.633 | 1.652 | 1.632 | -4,1% |
| Sweden | 1.461 | 1.471 | 1.457 | 1.483 | 1.484 | 1.471 | 1.463 | 1.464 | 1.465 | 1.478 | 1.466 | 1.465 | 1.453 | 1.426 | 1.447 | 1.440 | 1.437 | -1,6% |
| Switzerland | 1.669 | 1.660 | 1.651 | 1.611 | 1.608 | 1.593 | 1.573 | 1.564 | 1.577 | 1.577 | 1.559 | 1.551 | 1.549 | 1.499 | 1.531 | 1.529 | | -8,4% |
| United Kingdom | 1.541 | 1.525 | 1.516 | 1.507 | 1.515 | 1.531 | 1.533 | 1.542 | 1.525 | 1.541 | 1.536 | 1.536 | 1.537 | 1.364 | 1.498 | 1.531 | 1.524 | -1,1% |
| United States | 1.842 | 1.829 | 1.799 | 1.810 | 1.819 | 1.826 | 1.824 | 1.829 | 1.830 | 1.822 | 1.820 | 1.826 | 1.817 | 1.789 | 1.813 | 1.804 | 1.799 | -2,3% |
| Average | 1.706 | 1.706 | 1.679 | 1.682 | 1.681 | 1.671 | 1.665 | 1.662 | 1.658 | 1.664 | 1.654 | 1.652 | 1.650 | 1.575 | 1.618 | 1.624 | 1.617 | -5,2% |

*Source: OECD and author's calculation*

*Table 16: Growth of GNI (%)*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | 2,8 | 1,5 | -4,2 | 1,5 | 1,1 | -0,4 | -0,5 | 0,2 | -0,5 | 2,3 | 0,0 | 1,7 | 1,3 | -5,4 | 3,9 | -0,1 | .. | 0,3 |
| Belgium | 3,0 | -1,4 | -1,4 | 0,4 | -2,1 | 2,3 | 0,4 | 1,0 | 1,5 | 1,0 | 0,8 | 0,7 | 2,4 | -5,2 | 5,4 | -0,9 | .. | 0,5 |
| France | 2,1 | -0,3 | -2,5 | 1,1 | 1,3 | -0,7 | 0,5 | 0,8 | 1,7 | 1,1 | 1,7 | 1,2 | 1,6 | -8,7 | 7,5 | 0,3 | .. | 0,5 |
| Germany | 3,0 | 0,0 | -2,9 | 3,3 | 5,4 | 0,0 | 0,4 | 1,9 | 1,8 | 2,2 | 1,8 | 1,2 | 1,4 | -4,1 | 3,0 | -1,1 | 0,7 | 1,1 |
| Ireland | 0,3 | -6,4 | -8,6 | 1,0 | -1,6 | -0,4 | 5,7 | 7,2 | 19,6 | 6,1 | 4,8 | 3,5 | 4,4 | 2,4 | 9,6 | 3,2 | .. | 3,2 |
| Luxembourg | 12,4 | -6,5 | -22,2 | 11,8 | 1,6 | 10,9 | -5,1 | 3,1 | -11,1 | 3,8 | 6,8 | -0,4 | -4,4 | 1,9 | 5,5 | -3,6 | .. | 0,3 |
| Netherlands | 2,9 | -2,0 | -3,1 | 3,0 | 1,0 | -2,0 | 0,0 | 0,4 | 2,2 | 0,3 | 3,6 | 2,4 | -0,2 | -5,6 | 10,8 | -0,3 | .. | 0,8 |
| Switzerland | -3,8 | -5,9 | 5,5 | 6,5 | -3,5 | 1,4 | -0,4 | -0,9 | 2,0 | -2,0 | -1,3 | -0,3 | 0,6 | -4,7 | 7,8 | 2,6 | .. | 0,2 |
| United Kingdom | 1,2 | -2,1 | -4,0 | 2,7 | 0,4 | -0,2 | 0,7 | 3,1 | 1,8 | 1,0 | 2,8 | 0,5 | 2,6 | -12,2 | .. | .. | .. | -0,1 |
| Denmark | -0,5 | 0,5 | -5,8 | 3,6 | 0,5 | 0,3 | 1,9 | 2,2 | 1,3 | 1,4 | 2,0 | 1,7 | 1,2 | -0,8 | 7,8 | 3,2 | .. | 1,3 |
| Finland | 3,9 | -0,9 | -7,4 | 2,2 | 0,4 | -2,2 | -1,0 | 0,3 | 1,4 | 1,9 | 2,3 | 1,6 | 1,0 | -0,8 | 2,5 | -0,5 | -2,3 | 0,3 |
| Iceland | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Norway | 0,6 | 4,6 | -9,7 | 2,4 | 3,3 | 2,1 | -0,2 | 0,6 | -3,0 | -3,0 | 2,7 | 3,9 | -3,7 | -6,6 | 15,8 | 25,0 | .. | 2,2 |
| Sweden | 3,7 | -0,9 | -5,8 | 5,2 | 1,3 | -1,2 | 0,2 | 1,6 | 2,4 | 0,6 | 2,0 | 0,5 | 2,2 | -2,1 | 6,4 | 1,6 | .. | 1,1 |
| Cyprus | 1,9 | 6,3 | -3,3 | -1,5 | 1,9 | -8,0 | -6,9 | -2,1 | 6,2 | 2,5 | 5,8 | 3,7 | 2,2 | -6,1 | 6,7 | 5,1 | -2,3 | 0,9 |
| Greece | 2,5 | -1,3 | -3,6 | -5,0 | -11,0 | -3,7 | -2,1 | 2,4 | 1,3 | -0,1 | 0,9 | 0,4 | 2,0 | -8,4 | 8,0 | 5,3 | .. | -0,8 |
| Italy | 1,0 | -3,2 | -3,6 | 0,2 | -0,3 | -3,5 | -2,6 | -0,1 | 0,8 | 3,3 | 1,7 | 1,5 | 1,6 | -7,3 | 7,5 | 0,7 | 2,9 | -0,1 |
| Malta | 3,4 | 6,7 | -5,4 | 5,1 | 2,9 | 0,8 | 3,7 | 5,2 | 6,5 | -3,6 | 7,5 | 4,5 | 3,2 | -11,4 | 12,1 | 5,7 | 2,6 | 2,9 |
| Portugal | 2,5 | -1,3 | -1,2 | 1,2 | -0,8 | -4,2 | 1,4 | 1,1 | 2,9 | 3,3 | 3,5 | 2,7 | 2,9 | -6,8 | 5,1 | 3,8 | 3,0 | 1,0 |
| Spain | 1,4 | -1,5 | -2,7 | -0,6 | -2,5 | -2,3 | -0,6 | 1,7 | 4,4 | 3,3 | 2,4 | 1,7 | 1,2 | -11,0 | 6,6 | 2,1 | .. | 0,2 |
| Bulgaria | 2,3 | 9,7 | -1,3 | 3,4 | 1,6 | 3,2 | -0,9 | 2,9 | 1,7 | 3,7 | 4,4 | 2,3 | 5,2 | -4,1 | 7,9 | 11,4 | 2,3 | 3,3 |
| Croatia | 5,4 | 1,0 | -7,5 | -0,7 | 0,5 | -2,1 | 1,5 | 0,5 | 5,5 | 2,0 | 6,1 | 3,7 | 4,3 | -6,0 | 15,7 | 7,9 | 3,0 | 2,4 |
| Czech Republic | 5,4 | 1,2 | -5,0 | 0,2 | -0,1 | 0,5 | 0,8 | 2,9 | 5,4 | 3,0 | 5,1 | 2,9 | 2,2 | -3,9 | 6,4 | -2,5 | .. | 1,5 |
| Estonia | 8,6 | -1,5 | -11,4 | -0,1 | 8,9 | 4,9 | 4,7 | 4,0 | 2,7 | 4,0 | 5,3 | 4,6 | 4,3 | -0,7 | 8,7 | -2,1 | .. | 2,8 |
| Hungary | -0,7 | 1,5 | -3,7 | 0,9 | 0,9 | -0,9 | 3,8 | 3,2 | 4,1 | 5,1 | 2,5 | 4,7 | 6,5 | -2,5 | 4,0 | 0,5 | .. | 1,9 |
| Latvia | 14,3 | -0,9 | -5,6 | -7,9 | 5,1 | 5,8 | 4,0 | 2,7 | 4,5 | 5,6 | 4,4 | 4,6 | 2,0 | -0,3 | 4,5 | 4,2 | .. | 2,9 |
| Lithuania | 11,2 | 6,5 | -11,0 | 1,1 | 5,2 | 4,3 | 5,3 | 6,1 | 2,4 | 5,1 | 5,7 | 4,4 | 5,1 | 1,3 | 0,6 | -5,2 | .. | 3,0 |
| Poland | 6,2 | 5,6 | 1,7 | 3,0 | 4,8 | 1,3 | 1,1 | 3,7 | 4,5 | 2,8 | 4,7 | 6,0 | 4,5 | -1,5 | 6,6 | 9,1 | 0,2 | 4,0 |
| Romania | 8,7 | 12,4 | -3,7 | -3,2 | 5,0 | 1,9 | 0,8 | 5,7 | 3,0 | 3,1 | 8,7 | 6,2 | 4,9 | -3,3 | 5,9 | 3,3 | 2,4 | 3,7 |
| Slovakia | 9,8 | 5,2 | -5,2 | 4,3 | 0,0 | 1,9 | 0,9 | 2,1 | 3,4 | 1,2 | 3,1 | 3,5 | 1,3 | -2,3 | 2,0 | -0,6 | 0,9 | 1,9 |
| Slovenia | 5,9 | 2,2 | -5,6 | -1,2 | -0,3 | -3,8 | -0,5 | 3,9 | 0,8 | 4,1 | 5,1 | 4,4 | 3,0 | -3,6 | 5,5 | -1,0 | .. | 1,2 |
| Australia | 2,7 | 3,1 | 1,9 | -0,6 | 4,9 | 3,3 | -0,7 | 0,2 | -1,0 | -1,3 | 3,1 | 1,4 | 1,7 | 0,0 | 5,5 | 2,6 | 0,0 | 1,7 |
| Canada | 2,1 | 1,4 | -7,2 | 3,3 | 3,2 | 0,3 | 1,7 | 1,3 | -2,3 | -0,2 | 3,0 | 1,0 | 0,6 | -6,6 | 8,6 | 3,0 | -4,0 | 0,8 |
| New Zealand | 4,9 | -3,0 | 2,6 | 1,1 | 2,8 | 1,1 | 4,7 | 1,8 | 2,2 | 2,3 | 2,7 | 1,5 | 2,6 | -1,5 | 3,0 | 0,8 | .. | 1,8 |
| United States | -0,2 | -2,6 | -2,4 | 2,8 | 1,3 | 2,4 | 0,9 | 2,6 | 2,5 | 0,6 | 2,0 | 2,4 | 2,2 | -3,5 | 6,0 | 1,9 | .. | 1,2 |
| Average | 3,9 | 0,8 | -4,6 | 1,5 | 1,3 | 0,4 | 0,7 | 2,2 | 2,4 | 2,0 | 3,5 | 2,5 | 2,2 | -4,2 | 6,7 | 2,6 | | 1,5 |

*Source: WDI and author's calculation*

*Table 17: Growth of net wealth per adult (%)*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | | -2,5% | -7,9% | 9,2% | -5,8% | -3,7% | 4,8% | 7,2% | 6,4% | -0,6% | 5,8% | 0,4% | -0,9% | 1,6% | 11,2% | 1,3% |
| Austria | | 1,1% | -1,8% | 3,0% | 0,8% | -0,6% | 1,7% | 1,2% | 1,6% | 1,5% | 2,7% | 3,1% | 2,5% | 0,2% | 6,0% | 4,0% |
| Belgium | | 0,6% | -1,8% | 3,4% | 0,0% | -1,1% | 1,1% | 0,4% | 2,0% | 2,3% | 1,4% | 0,4% | 2,5% | -1,5% | 4,1% | 1,3% |
| Bulgaria | | 10,8% | 3,2% | 3,2% | -1,1% | 3,9% | 3,3% | 2,4% | 1,0% | 3,5% | 1,5% | 1,3% | 4,5% | 0,2% | 10,5% | 9,8% |
| Canada | | -3,8% | 3,3% | 5,2% | 1,7% | 3,0% | 5,8% | 6,0% | 7,1% | 5,9% | 5,0% | 1,6% | 4,3% | 7,9% | 6,8% | -3,1% |
| Croatia | | 1,6% | -7,1% | -0,1% | 0,5% | -1,5% | 2,5% | 1,7% | 6,3% | 4,4% | 7,9% | 6,4% | 5,4% | -0,7% | 19,0% | 14,2% |
| Cyprus | | 1,1% | -5,1% | -3,9% | -7,6% | -13,5% | -3,2% | -9,9% | -11,6% | 28,4% | 4,4% | 12,5% | 8,5% | 2,4% | 7,1% | 8,6% |
| Czech Republic | | 4,5% | -2,0% | 1,4% | 2,8% | -0,8% | 0,1% | -0,6% | 2,9% | 5,3% | 5,1% | 2,6% | 2,0% | 3,1% | 0,8% | 2,2% |
| Denmark | | -4,5% | -6,6% | -1,7% | -1,9% | -2,9% | 3,6% | 3,6% | 8,3% | 3,3% | 10,4% | 7,7% | 4,9% | 3,1% | 14,1% | -3,3% |
| Estonia | | 0,4% | -8,9% | -1,4% | 6,3% | 5,6% | 6,8% | 4,6% | 3,7% | 4,5% | 6,8% | 5,7% | 5,4% | 2,0% | 8,9% | -0,9% |
| Finland | | -2,3% | -2,6% | 3,8% | -1,2% | -1,5% | 3,1% | 2,1% | 0,5% | 1,4% | 2,2% | 0,7% | 3,5% | 2,0% | 4,2% | -0,2% |
| France | | -4,1% | -4,8% | 3,1% | 1,7% | -1,7% | -0,8% | -1,8% | -1,6% | 2,2% | 3,9% | 2,2% | 4,3% | 3,7% | 5,8% | 2,5% |
| Germany | | 2,7% | -0,5% | 1,6% | 1,0% | 2,6% | 5,0% | 5,0% | 6,3% | 6,8% | 7,2% | 6,6% | 6,8% | 3,7% | 6,4% | 4,2% |
| Greece | | -8,7% | -14,2% | -14,4% | -8,4% | -5,8% | -9,4% | 3,3% | -5,5% | -2,5% | 7,3% | 3,1% | 6,4% | -7,6% | 23,5% | 24,5% |
| Hungary | | 1,9% | -3,8% | 0,4% | 0,2% | -4,7% | 3,9% | 5,7% | 7,9% | 9,8% | 5,9% | 8,8% | 8,9% | 0,3% | 7,8% | 4,4% |
| Iceland | | -23,2% | -17,9% | -2,0% | 4,9% | 5,5% | 11,7% | 0,5% | 8,0% | 9,4% | 5,8% | 6,5% | 1,2% | -7,5% | 0,8% | 7,0% |
| Ireland | | -1,9% | -7,8% | -10,6% | -17,5% | -14,2% | 3,1% | 6,7% | -1,5% | 11,3% | 9,0% | 7,3% | 13,6% | -9,9% | 16,3% | 6,1% |
| Italy | | -1,8% | -2,2% | -0,8% | -0,8% | -1,5% | -2,8% | -3,1% | -2,3% | -1,9% | -0,3% | -1,3% | -0,4% | -0,9% | 2,2% | 1,6% |
| Latvia | | 1,5% | -5,3% | -14,6% | 2,6% | 8,1% | 6,0% | 3,2% | 5,7% | 6,5% | 6,0% | 5,5% | 3,7% | 2,0% | 8,3% | 5,9% |
| Lithuania | | 3,4% | -7,2% | -7,9% | 0,1% | 3,1% | 6,3% | 6,5% | 4,2% | 6,6% | 5,9% | 6,3% | 6,6% | 6,0% | 11,1% | 5,4% |
| Luxembourg | | -9,9% | -1,5% | 9,1% | -7,3% | -21,5% | 8,0% | -17,1% | 10,7% | 18,1% | 13,1% | 4,9% | 64,6% | -2,5% | 4,8% | 0,8% |
| Malta | | 7,7% | -8,9% | 2,9% | -3,1% | -18,0% | 13,1% | -11,6% | 5,7% | 9,0% | 11,7% | 12,7% | 3,1% | -4,8% | 12,7% | 8,3% |
| Netherlands | | 4,4% | 0,7% | -1,3% | 0,7% | -2,3% | -1,8% | -2,7% | 2,4% | 8,3% | 2,4% | 3,4% | 6,5% | 5,4% | 14,6% | -3,5% |
| New Zealand | | -3,9% | -1,8% | -1,5% | -1,7% | 0,5% | 2,5% | 3,0% | 7,5% | 7,5% | 4,0% | 17,7% | -9,5% | 6,7% | 2,8% | 1,4% |
| Norway | | 0,9% | 2,7% | 5,6% | 3,7% | 2,3% | 9,2% | 10,9% | 14,7% | 8,1% | 2,8% | -3,3% | 14,5% | 9,5% | -6,2% | -9,5% |
| Poland | | 4,6% | -0,8% | 2,3% | 2,9% | 1,3% | 3,4% | 4,3% | 6,1% | 7,5% | 7,5% | 8,1% | 7,2% | 2,3% | 12,2% | 6,2% |
| Portugal | | -0,1% | -2,9% | -0,1% | -0,7% | -6,0% | -2,8% | 1,7% | 2,1% | 2,0% | 3,4% | 4,2% | 4,6% | -3,5% | 1,4% | 8,4% |
| Romania | | 5,6% | -6,3% | -7,0% | 0,9% | 1,6% | 0,9% | 6,2% | 5,2% | 5,6% | 10,0% | 7,2% | 6,2% | -0,5% | 7,5% | 3,8% |
| Slovakia | | 13,6% | 2,2% | 2,1% | -0,6% | 0,6% | 0,2% | 0,6% | 2,8% | 4,1% | 2,7% | 3,9% | 3,7% | 2,2% | 4,6% | 1,6% |
| Slovenia | | 1,2% | -6,0% | 0,3% | -1,5% | -3,6% | -2,6% | 0,3% | -1,7% | 2,0% | 4,0% | 4,6% | 4,1% | -0,3% | 7,1% | -4,7% |
| Spain | | -0,9% | -8,9% | -0,1% | -2,3% | -7,6% | -4,1% | -0,8% | 2,5% | 4,2% | 1,0% | 1,1% | 0,8% | -2,8% | 0,5% | 1,0% |
| Sweden | | 0,0% | 1,9% | 6,7% | 1,7% | 0,8% | 6,0% | 8,7% | 7,9% | 6,7% | 6,2% | 2,0% | 6,9% | 6,3% | 9,3% | -0,5% |
| Switzerland | | 0,3% | -1,8% | 2,4% | 3,0% | 3,2% | 6,1% | 2,7% | 4,8% | 1,8% | 7,3% | 3,1% | 0,7% | 5,2% | 4,8% | 2,2% |
| USA | | -10,6% | -13,8% | -2,1% | -0,4% | 0,5% | 8,3% | 7,1% | 4,3% | 2,2% | 6,8% | 1,9% | 4,3% | 10,2% | 8,8% | -2,2% |
| United Kingdom | | -9,1% | -7,4% | 4,7% | -1,0% | -1,1% | 1,5% | 3,1% | 6,1% | 3,5% | 3,8% | -0,8% | 1,1% | -3,5% | 7,8% | -0,1% |
| Average | | -0,6% | -4,4% | 0,0% | -0,8% | -2,0% | 2,9% | 1,7% | 3,7% | 5,7% | 5,4% | 4,5% | 6,1% | 1,1% | 7,6% | 3,1% |

*Source: WID and author's calculation*

*Table 18: Life expectancy (in years)*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Average | Change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 81,3 | 81,4 | 81,5 | 81,7 | 81,9 | 82,0 | 82,1 | 82,3 | 82,4 | 82,4 | 82,5 | 82,7 | 82,9 | 83,2 | 83,3 | 83,2 | 82,3 | 1,9 |
| Austria | 80,2 | 80,4 | 80,3 | 80,6 | 81,0 | 80,9 | 81,1 | 81,5 | 81,2 | 81,6 | 81,6 | 81,7 | 81,9 | 81,2 | 81,2 | 81,1 | 81,1 | 0,9 |
| Belgium | 79,8 | 79,7 | 80,0 | 80,2 | 80,6 | 80,4 | 80,6 | 81,3 | 81,0 | 81,4 | 81,5 | 81,6 | 82,0 | 80,7 | 81,8 | 81,7 | 80,9 | 1,9 |
| Bulgaria | 72,7 | 73,0 | 73,4 | 73,5 | 74,2 | 74,3 | 74,9 | 74,5 | 74,6 | 74,8 | 74,8 | 75,0 | 75,1 | 73,7 | 71,5 | 74,4 | 74,0 | 1,7 |
| Canada | 80,5 | 80,7 | 81,1 | 81,3 | 81,5 | 81,7 | 81,7 | 81,8 | 81,8 | 81,9 | 81,8 | 81,8 | 82,2 | 81,7 | 81,6 | 81,3 | 81,5 | 0,8 |
| Croatia | 75,7 | 75,9 | 76,2 | 76,5 | 76,8 | 76,9 | 77,1 | 77,5 | 77,3 | 78,0 | 77,8 | 78,1 | 78,4 | 77,7 | 76,4 | 77,6 | 77,1 | 1,9 |
| Cyprus | 78,8 | 79,0 | 79,4 | 79,7 | 80,0 | 80,1 | 80,4 | 80,8 | 81,0 | 81,1 | 81,3 | 81,4 | 81,4 | 81,4 | 81,2 | 81,9 | 80,5 | 3,1 |
| Czech Republic | 76,7 | 77,0 | 77,1 | 77,4 | 77,9 | 78,1 | 78,2 | 78,8 | 78,6 | 79,0 | 79,0 | 79,0 | 79,2 | 78,2 | 77,2 | 79,0 | 78,2 | 2,3 |
| Denmark | 78,2 | 78,4 | 78,6 | 79,1 | 79,8 | 80,1 | 80,3 | 80,7 | 80,7 | 80,9 | 81,1 | 81,0 | 81,5 | 81,6 | 81,4 | 81,3 | 80,3 | 3,1 |
| Estonia | 72,8 | 73,8 | 74,8 | 75,4 | 76,2 | 76,3 | 77,1 | 77,0 | 77,6 | 77,6 | 78,1 | 78,2 | 78,6 | 78,6 | 76,9 | 77,9 | 76,7 | 5,1 |
| Finland | 79,3 | 79,6 | 79,7 | 79,9 | 80,5 | 80,6 | 81,0 | 81,2 | 81,5 | 81,4 | 81,6 | 81,7 | 82,0 | 81,9 | 81,9 | 81,2 | 80,9 | 1,9 |
| France | 81,1 | 81,2 | 81,4 | 81,7 | 82,1 | 82,0 | 82,2 | 82,7 | 82,3 | 82,6 | 82,6 | 82,7 | 82,8 | 82,2 | 82,3 | 82,2 | 82,1 | 1,1 |
| Germany | 79,5 | 79,7 | 79,8 | 80,0 | 80,4 | 80,5 | 80,5 | 81,1 | 80,6 | 81,0 | 81,0 | 80,9 | 81,3 | 81,0 | 80,8 | 80,7 | 80,6 | 1,2 |
| Greece | 79,4 | 79,9 | 80,2 | 80,4 | 80,7 | 80,6 | 81,3 | 81,4 | 81,0 | 81,4 | 81,3 | 81,8 | 81,6 | 81,3 | 80,1 | 80,6 | 80,8 | 1,2 |
| Hungary | 73,2 | 73,7 | 73,9 | 74,2 | 74,9 | 75,1 | 75,6 | 75,8 | 75,6 | 76,1 | 75,8 | 76,1 | 76,3 | 75,6 | 74,2 | 76,0 | 75,1 | 2,9 |
| Iceland | 81,5 | 81,6 | 81,8 | 81,9 | 82,4 | 82,9 | 82,1 | 82,9 | 82,5 | 82,2 | 82,7 | 82,9 | 83,2 | 83,1 | 83,2 | 82,2 | 82,4 | 0,7 |
| Ireland | 79,6 | 80,1 | 80,2 | 80,7 | 80,7 | 80,8 | 80,9 | 81,3 | 81,5 | 81,7 | 82,2 | 82,2 | 82,7 | 82,6 | 82,4 | 83,1 | 81,4 | 3,4 |
| Italy | 81,4 | 81,5 | 81,6 | 82,0 | 82,2 | 82,2 | 82,7 | 83,1 | 82,5 | 83,2 | 82,9 | 83,3 | 83,5 | 82,2 | 82,6 | 82,9 | 82,5 | 1,5 |
| Latvia | 71,0 | 72,4 | 73,1 | 73,5 | 73,6 | 73,8 | 74,0 | 74,1 | 74,5 | 74,6 | 74,6 | 74,8 | 75,4 | 75,2 | 73,0 | 74,6 | 73,9 | 3,6 |
| Lithuania | 70,9 | 71,8 | 72,9 | 73,3 | 73,6 | 73,9 | 73,9 | 74,5 | 74,3 | 74,7 | 75,5 | 75,7 | 76,3 | 75,0 | 74,0 | 75,8 | 74,1 | 4,9 |
| Luxembourg | 79,4 | 80,5 | 80,6 | 80,6 | 81,0 | 81,4 | 81,8 | 82,2 | 82,3 | 82,7 | 82,1 | 82,3 | 82,6 | 82,1 | 82,6 | 83,0 | 81,7 | 3,7 |
| Malta | 79,8 | 79,6 | 80,2 | 81,4 | 80,7 | 80,7 | 81,7 | 82,0 | 81,9 | 82,5 | 82,3 | 82,4 | 82,9 | 82,3 | 82,5 | 82,7 | 81,6 | 2,9 |
| Netherlands | 80,1 | 80,3 | 80,5 | 80,7 | 81,2 | 81,1 | 81,3 | 81,7 | 81,5 | 81,6 | 81,8 | 81,8 | 82,1 | 81,4 | 81,3 | 81,7 | 81,3 | 1,6 |
| Norway | 80,4 | 80,6 | 80,8 | 81,0 | 81,3 | 81,5 | 81,8 | 82,1 | 82,3 | 82,4 | 82,6 | 82,8 | 83,0 | 83,2 | 83,2 | 82,6 | 82,0 | 2,2 |
| Poland | 75,2 | 75,5 | 75,7 | 76,2 | 76,7 | 76,7 | 77,0 | 77,6 | 77,5 | 77,9 | 77,8 | 77,6 | 77,9 | 76,5 | 75,5 | 77,3 | 76,8 | 2,1 |
| Portugal | 78,3 | 78,5 | 78,7 | 79,0 | 80,5 | 80,4 | 80,7 | 81,1 | 81,1 | 81,1 | 81,4 | 81,3 | 81,7 | 81,0 | 81,4 | 81,6 | 80,5 | 3,3 |
| Romania | 72,6 | 72,6 | 73,3 | 73,5 | 74,4 | 74,4 | 75,1 | 74,9 | 74,9 | 75,2 | 75,2 | 75,4 | 75,6 | 74,3 | 72,8 | 75,3 | 74,3 | 2,7 |
| Slovakia | 74,2 | 74,7 | 74,9 | 75,1 | 76,0 | 76,1 | 76,4 | 76,8 | 76,6 | 77,2 | 77,2 | 77,3 | 77,7 | 76,9 | 74,6 | 77,1 | 76,2 | 2,9 |
| Slovenia | 78,6 | 78,8 | 79,0 | 79,4 | 80,0 | 80,1 | 80,3 | 81,1 | 80,8 | 81,2 | 81,0 | 81,4 | 81,5 | 80,5 | 80,7 | 81,3 | 80,3 | 2,7 |
| Spain | 80,9 | 81,2 | 81,5 | 81,6 | 82,5 | 82,4 | 83,1 | 83,2 | 82,8 | 83,3 | 83,3 | 83,4 | 83,8 | 82,3 | 83,2 | 83,1 | 82,6 | 2,2 |
| Sweden | 80,9 | 81,1 | 81,4 | 81,5 | 81,8 | 81,7 | 82,0 | 82,3 | 82,2 | 82,3 | 82,4 | 82,6 | 83,1 | 82,4 | 83,1 | 83,1 | 82,1 | 2,2 |
| Switzerland | 81,7 | 82,0 | 82,0 | 82,2 | 82,7 | 82,7 | 82,8 | 83,2 | 82,9 | 83,6 | 83,6 | 83,8 | 83,9 | 83,0 | 83,8 | 83,5 | 83,0 | 1,7 |
| United Kingdom | 79,4 | 79,6 | 80,1 | 80,4 | 81,0 | 80,9 | 81,0 | 81,3 | 81,0 | 81,2 | 81,3 | 81,3 | 81,4 | 80,4 | 80,7 | 82,1 | 80,8 | 2,6 |
| United States | 78,0 | 78,0 | 78,4 | 78,5 | 78,6 | 78,7 | 78,7 | 78,8 | 78,7 | 78,5 | 78,5 | 78,6 | 78,8 | 77,0 | 76,3 | 77,4 | 78,2 | -0,6 |
| New Zealand | 80,2 | 80,4 | 80,7 | 80,9 | 81,2 | 81,4 | 81,4 | 81,5 | 81,6 | 81,7 | 81,9 | 81,7 | 82,1 | 82,3 | 82,2 | 82,8 | 81,5 | 2,6 |
| Average | 78,1 | 78,4 | 78,7 | 79,0 | 79,4 | 79,5 | 79,8 | 80,1 | 80,0 | 80,3 | 80,3 | 80,5 | 80,8 | 80,1 | 79,7 | 80,4 | 79,7 | 2,3 |

*Source: WDI and author's calculation*

*Table 19: Life satisfaction/happiness (selected years 2012, 2017, 2023)*

| Country | 2012 | 2017 | 2023 | Average | Change |
|---|---|---|---|---|---|
| Australia | 7,345 | 7,284 | 7,095 | 7,241 | -0,250 |
| Austria | 7,227 | 7,006 | 7,097 | 7,110 | -0,130 |
| Belgium | 7,113 | 6,891 | 6,859 | 6,954 | -0,254 |
| Bulgaria | 3,889 | 4,714 | 5,466 | 4,690 | 1,577 |
| Canada | 7,499 | 7,316 | 6,961 | 7,259 | -0,538 |
| Croatia | 5,623 | 5,293 | 6,125 | 5,680 | 0,502 |
| Cyprus | 6,416 | 5,621 | 6,130 | 6,056 | -0,286 |
| Czech Republic | 6,360 | 6,609 | 6,845 | 6,605 | 0,486 |
| Denmark | 7,856 | 7,522 | 7,586 | 7,655 | -0,269 |
| Estonia | 5,330 | 5,611 | 6,455 | 5,799 | 1,125 |
| Finland | 7,579 | 7,469 | 7,804 | 7,617 | 0,225 |
| France | 6,746 | 6,442 | 6,661 | 6,617 | -0,085 |
| Germany | 6,572 | 6,951 | 6,892 | 6,805 | 0,320 |
| Greece | 6,133 | 5,227 | 5,931 | 5,764 | -0,202 |
| Hungary | 4,943 | 5,324 | 6,041 | 5,436 | 1,098 |
| Iceland | 6,888 | 7,504 | 7,530 | 7,307 | 0,641 |
| Ireland | 7,284 | 6,977 | 6,911 | 7,057 | -0,374 |
| Italy | 6,578 | 5,964 | 6,405 | 6,316 | -0,174 |
| Latvia | 4,762 | 5,850 | 6,213 | 5,608 | 1,451 |
| Lithuania | 5,588 | 5,902 | 6,763 | 6,084 | 1,175 |
| Luxembourg | 7,051 | 6,863 | 7,228 | 7,047 | 0,177 |
| Malta | 5,960 | 6,527 | 6,300 | 6,262 | 0,340 |
| Netherlands | 7,512 | 7,377 | 7,403 | 7,431 | -0,109 |
| New Zealand | 7,372 | 7,314 | 7,123 | 7,270 | -0,250 |
| Norway | 7,524 | 7,537 | 7,315 | 7,459 | -0,209 |
| Poland | 5,803 | 5,973 | 6,260 | 6,012 | 0,457 |
| Portugal | 5,327 | 5,195 | 5,968 | 5,497 | 0,641 |
| Romania | 5,178 | 5,825 | 6,589 | 5,864 | 1,411 |
| Slovakia | 5,657 | 6,098 | 6,469 | 6,074 | 0,812 |
| Slovenia | 5,922 | 5,758 | 6,650 | 6,110 | 0,728 |
| Spain | 6,761 | 6,403 | 6,436 | 6,533 | -0,325 |
| Sweden | 7,379 | 7,284 | 7,395 | 7,353 | 0,016 |
| Switzerland | 7,499 | 7,494 | 7,240 | 7,411 | -0,259 |
| United Kingdom | 6,936 | 6,714 | 6,796 | 6,815 | -0,141 |
| United States | 7,270 | 6,993 | 6,894 | 7,052 | -0,377 |
| Average | 6,482 | 6,481 | 6,738 | 6,567 | 0,256 |

*Source: World Happiness Report and author's calculation*

*Table 20: Trust in government*

| Country | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Average 2007-2023 | change 2006-2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 55,1 | 55,1 | 64,9 | | 64,9 | 48,3 | 48,3 | 48,3 | 48,2 | 48,2 | 48,2 | 47,6 | 47,6 | 47,6 | 48,5 | 48,5 | 51,9 | 51,9 | 51,1 | -3,2 |
| Austria | 54,7 | | 45,0 | 45,0 | 45,0 | 42,8 | 42,8 | 42,8 | 44,1 | 44,1 | 44,1 | 49,2 | 49,2 | 49,2 | 62,7 | 62,7 | 47,1 | 47,1 | 47,7 | -7,6 |
| Belgium | 64,5 | 64,5 | 45,8 | | 45,8 | 48,8 | 48,8 | 48,8 | 45,6 | 45,6 | 45,6 | 42,3 | 42,3 | 42,3 | 39,3 | 39,3 | 54,1 | 54,1 | 47,1 | -10,4 |
| Canada | 55,0 | 55,0 | 59,5 | 59,5 | 59,5 | 54,0 | 54,0 | 54,0 | 60,2 | 60,2 | 60,2 | 61,0 | 61,0 | 61,0 | 60,8 | 60,8 | 51,1 | 51,1 | 57,8 | -3,9 |
| Czech Republic | 31,2 | 31,2 | | 37,1 | 37,1 | 22,1 | 22,1 | 22,1 | 44,6 | 44,6 | 44,6 | 44,4 | 44,4 | | 32,5 | 32,5 | 37,4 | 37,4 | 35,6 | 6,2 |
| Denmark | 65,9 | 65,9 | 64,6 | 64,6 | 64,6 | 48,4 | 48,4 | 48,4 | 51,2 | 51,2 | 51,2 | 61,8 | 61,8 | 61,8 | 69,0 | 69,0 | 59,9 | 59,9 | 58,9 | -6,0 |
| Estonia | 50,6 | 50,6 | 31,8 | 31,8 | | 34,9 | 34,9 | 34,9 | 40,1 | 40,1 | 40,1 | 48,7 | 48,7 | 48,7 | 55,8 | 55,8 | 53,3 | 53,3 | 44,0 | 2,7 |
| Finland | 80,7 | | 61,3 | | 61,3 | 54,8 | 54,8 | 54,8 | 52,3 | 52,3 | 52,3 | 60,9 | 60,9 | 60,9 | 77,4 | 77,4 | 75,8 | 75,8 | 62,2 | -4,8 |
| France | 37,3 | 37,3 | 47,1 | 47,1 | 47,1 | 43,3 | 43,3 | 43,3 | 29,9 | 29,9 | 29,9 | 39,0 | 39,0 | 39,0 | 43,1 | 43,1 | 44,1 | 44,1 | 40,6 | 6,7 |
| Germany | 35,4 | 35,4 | 47,6 | 47,6 | 47,6 | 51,9 | 51,9 | 51,9 | 60,7 | 60,7 | 60,7 | 60,9 | 60,9 | 60,9 | 63,7 | 63,7 | 59,6 | 59,6 | 55,6 | 24,2 |
| Greece | 46,8 | 46,8 | | 29,8 | 29,8 | 15,7 | 15,7 | 15,7 | 27,1 | 27,1 | 27,1 | 25,2 | 25,2 | 25,2 | 40,3 | 40,3 | 32,2 | 32,2 | 28,5 | -14,7 |
| Hungary | 32,7 | 32,7 | 24,8 | | 24,8 | 32,6 | 32,6 | 32,6 | 34,4 | 34,4 | 34,4 | 46,8 | 46,8 | 46,8 | 45,1 | 45,1 | 41,0 | 41,0 | 37,2 | 8,3 |
| Iceland | | | 25,9 | | | | 40,8 | 40,8 | | 40,9 | 40,9 | 46,0 | | 46,0 | 64,2 | 64,2 | 48,6 | 48,6 | 46,1 | 22,7 |
| Ireland | 66,8 | | 38,6 | 38,6 | 38,6 | 40,6 | 40,6 | 40,6 | 55,1 | 55,1 | 55,1 | 61,3 | 61,3 | 61,3 | 61,3 | 61,3 | 62,9 | 62,9 | 52,2 | -3,9 |
| Italy | 30,7 | 30,7 | 42,1 | 42,1 | 42,1 | 24,3 | 24,3 | 24,3 | 27,2 | 27,2 | 27,2 | 22,5 | 22,5 | 22,5 | 36,8 | 36,8 | 42,6 | 42,6 | 31,6 | 11,8 |
| Latvia | 31,9 | 31,9 | 16,3 | 16,3 | | 19,4 | 19,4 | 19,4 | 31,4 | 31,4 | 31,4 | 26,3 | 26,3 | 26,3 | 32,7 | 32,7 | 31,8 | 31,8 | 26,5 | -0,1 |
| Lithuania | 26,0 | 26,0 | 14,6 | 14,6 | 14,6 | 25,4 | 25,4 | 25,4 | 35,7 | 35,7 | 35,7 | 39,8 | 39,8 | 39,8 | 47,3 | 47,3 | 41,1 | 41,1 | 32,3 | 15,1 |
| Luxembourg | | | 82,4 | | 82,4 | 79,5 | 79,5 | 79,5 | 69,8 | 69,8 | 69,8 | 78,0 | 78,0 | 78,0 | | | 80,8 | 80,8 | 77,6 | -1,6 |
| Netherlands | 57,7 | 57,7 | 65,5 | | 65,5 | 60,9 | 60,9 | 60,9 | 56,5 | 56,5 | 56,5 | 65,1 | 65,1 | 65,1 | 68,6 | 68,6 | 47,2 | 47,2 | 60,5 | -10,5 |
| New Zealand | 61,9 | 61,9 | 58,7 | | 58,7 | 62,2 | 62,2 | 62,2 | 62,6 | 62,6 | 62,6 | 67,0 | 67,0 | 67,0 | 64,1 | 64,1 | 52,1 | 52,1 | 61,7 | -9,8 |
| Norway | 72,8 | | 57,8 | | | | 71,1 | | 66,7 | 66,7 | 66,7 | 66,8 | 66,8 | 66,8 | 80,5 | 80,5 | 61,2 | 61,2 | 67,8 | -11,6 |
| Poland | 14,7 | 14,7 | 36,5 | 36,5 | 36,5 | 26,9 | 26,9 | 26,9 | 31,2 | 31,2 | 31,2 | 52,9 | 52,9 | 52,9 | 27,8 | 27,8 | 38,3 | 38,3 | 34,7 | 23,6 |
| Portugal | 56,7 | | 34,6 | 34,6 | 34,6 | 23,1 | 23,1 | 23,1 | 28,5 | 28,5 | 28,5 | 51,3 | 51,3 | 51,3 | 62,1 | 62,1 | 51,8 | 51,8 | 40,0 | -4,9 |
| Slovakia | 17,5 | | | | 35,0 | 35,1 | 35,1 | 35,1 | 36,2 | 36,2 | 36,2 | 32,1 | 32,1 | 32,1 | 26,8 | 26,8 | 22,0 | 22,0 | 31,6 | 4,5 |
| Slovenia | 52,1 | | | 36,5 | 36,5 | 20,1 | 20,1 | 20,1 | 21,3 | 21,3 | 21,3 | 29,4 | 29,4 | 29,4 | 40,1 | 40,1 | 46,1 | 46,1 | 30,5 | -6,0 |
| Spain | 56,5 | 56,5 | 47,3 | 47,3 | 47,3 | 29,0 | 29,0 | 29,0 | 26,5 | 26,5 | 26,5 | 31,5 | 31,5 | 31,5 | 38,0 | 38,0 | 38,8 | 38,8 | 36,1 | -17,7 |
| Sweden | 53,7 | 53,7 | 60,6 | 60,6 | 60,6 | 64,6 | 64,6 | 64,6 | 53,4 | 53,4 | 53,4 | 53,8 | 53,8 | 53,8 | 65,5 | 65,5 | 58,5 | 58,5 | 58,8 | 4,8 |
| Switzerland | 69,1 | | | 63,2 | | | 82,2 | | 79,6 | 79,6 | 79,6 | 84,3 | 84,3 | 84,3 | 84,7 | 84,7 | 82,4 | 82,4 | 80,9 | 13,3 |
| United Kingdom | 44,4 | 44,4 | 43,2 | 43,2 | 43,2 | 43,4 | 43,4 | 43,4 | 43,8 | 43,8 | 43,8 | 40,9 | 40,9 | 40,9 | 37,6 | 37,6 | 33,9 | 33,9 | 41,3 | -10,6 |
| United States | 48,1 | 48,1 | 43,9 | 43,9 | 43,9 | 34,4 | 34,4 | 34,4 | 33,5 | 33,5 | 33,5 | 35,8 | 35,8 | 35,8 | 43,7 | 43,7 | 30,9 | 30,9 | 37,6 | -17,1 |
| Average | 48,9 | 45,0 | 46,4 | 42,0 | 46,7 | 40,2 | 42,7 | 40,3 | 44,7 | 44,6 | 44,6 | 49,1 | 49,2 | 49,2 | 52,4 | 52,4 | 49,3 | 49,3 | 47,1 | 0,0 |

*Source: OECD: https://data.oecd.org/gga/trust-in-government.htm*
*(Yellow highlighted values are taken from next available year to calculate change 2006–23)*

*Table 21: Social spending as a percentage of GDP*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2009-2022 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | 25,5 | 25,9 | 28,0 | 28,1 | 27,2 | 27,6 | 28,0 | 28,3 | 28,3 | 28,2 | 27,8 | 27,6 | 27,7 | 31,1 | 31,1 | 29,4 | 1,4 | 28,1 |
| Belgium | 24,3 | 25,7 | 28,0 | 27,7 | 28,1 | 28,0 | 28,3 | 28,4 | 29,1 | 28,4 | 28,3 | 28,4 | 28,2 | 32,3 | 29,7 | 29,0 | 1,0 | 28,2 |
| France | 28,2 | 28,5 | 30,9 | 31,0 | 30,7 | 31,2 | 31,7 | 32,0 | 31,8 | 31,9 | 31,4 | 31,0 | 30,7 | 34,9 | 32,7 | 31,6 | 0,7 | 31,3 |
| Germany | 24,2 | 24,4 | 26,8 | 26,1 | 24,8 | 24,7 | 24,8 | 24,8 | 25,1 | 25,3 | 25,2 | 25,3 | 25,6 | 27,9 | 27,6 | 26,7 | -0,1 | 25,6 |
| Ireland | 16,7 | 20,0 | 23,9 | 24,1 | 23,3 | 23,0 | 21,8 | 20,1 | 15,2 | 15,1 | 14,2 | 13,5 | 12,9 | 15,7 | 14,2 | 12,8 | -11,1 | 17,9 |
| Luxembourg | 19,9 | 20,8 | 22,5 | 21,7 | 20,6 | 20,7 | 20,9 | 20,8 | 20,5 | 20,3 | 20,7 | 21,0 | 21,6 | 23,9 | 21,6 | 21,9 | -0,7 | 21,2 |
| Netherlands | 15,7 | 15,5 | 17,1 | 17,5 | 17,5 | 17,9 | 18,1 | 17,9 | 17,6 | 17,5 | 16,6 | 16,3 | 16,3 | 18,9 | 18,7 | 17,6 | 0,5 | 17,3 |
| Switzerland | 14,4 | 14,0 | 15,6 | 15,2 | 15,2 | 15,4 | 15,7 | 15,6 | 16,1 | 16,2 | 16,4 | 16,0 | 16,1 | 19,3 | 18,0 | 17,0 | 1,5 | 16,0 |
| United Kingdom | 19,6 | 20,8 | 22,9 | 23,1 | 22,9 | 23,0 | 22,2 | 21,7 | 21,3 | 20,6 | 20,2 | 19,7 | 19,5 | 22,5 | 22,1 |  | -0,8 | 21,5 |
| Denmark | 25,9 | 26,3 | 29,3 | 29,9 | 30,0 | 30,2 | 30,0 | 30,0 | 30,0 | 29,4 | 29,0 | 28,5 | 28,4 | 29,3 | 28,3 | 26,2 | -3,1 | 28,8 |
| Finland | 22,9 | 23,4 | 26,9 | 27,4 | 27,1 | 28,3 | 29,4 | 30,2 | 30,5 | 30,4 | 29,6 | 29,4 | 29,4 | 31,0 | 30,3 | 29,0 | 2,1 | 28,5 |
| Iceland | 15,8 | 16,2 | 18,5 | 17,7 | 18,1 | 17,8 | 17,3 | 17,5 | 16,6 | 16,5 | 17,5 | 17,8 | 18,7 | 23,0 | 22,3 | 20,8 | 2,3 | 18,3 |
| Norway | 19,6 | 19,3 | 22,5 | 22,1 | 21,6 | 21,5 | 21,9 | 22,8 | 24,7 | 25,9 | 25,1 | 24,2 | 25,3 | 28,2 | 24,4 | 20,7 | -1,8 | 23,1 |
| Sweden | 25,3 | 25,4 | 27,2 | 25,8 | 25,3 | 26,3 | 26,9 | 26,6 | 26,1 | 26,5 | 25,9 | 25,6 | 25,1 | 25,9 | 24,9 | 23,7 | -3,5 | 25,8 |
| Cyprus |  |  | 19,1 | 18,6 | 20,1 | 20,9 | 22,9 | 20,1 | 20,0 | 19,4 | 18,3 | 17,7 | 18,0 | 24,1 | 21,6 | 19,8 | 0,7 | 20,0 |
| Greece | 20,1 | 21,6 | 23,9 | 25,0 | 26,5 | 27,4 | 25,4 | 25,5 | 25,7 | 26,0 | 25,2 | 25,0 | 25,1 | 27,9 | 26,1 | 24,1 | 0,2 | 25,0 |
| Italy | 24,0 | 24,9 | 27,0 | 26,9 | 26,5 | 27,3 | 27,9 | 28,1 | 28,3 | 27,9 | 27,7 | 27,5 | 27,7 | 32,6 | 30,7 | 30,1 | 3,1 | 27,8 |
| Malta |  |  | 19,3 | 18,9 | 18,8 | 18,7 | 18,3 | 17,8 | 16,4 | 16,4 | 15,3 | 14,8 | 14,6 | 19,8 | 16,5 | 14,2 | -5,1 | 17,1 |
| Portugal | 21,3 | 21,8 | 24,1 | 24,3 | 24,2 | 24,3 | 25,4 | 25,0 | 23,9 | 23,5 | 22,7 | 22,5 | 22,3 | 25,1 | 24,8 | 24,6 | 0,5 | 23,7 |
| Spain | 20,9 | 22,3 | 25,6 | 24,9 | 25,5 | 25,6 | 25,7 | 25,4 | 24,7 | 24,2 | 23,9 | 24,0 | 24,6 | 31,2 | 29,5 | 28,1 | 2,5 | 25,4 |
| Bulgaria |  |  | 16,1 | 17,0 | 16,4 | 16,5 | 17,6 | 18,4 | 17,6 | 17,3 | 16,8 | 16,8 | 16,5 | 18,7 | 18,8 | 18,6 | 2,5 | 17,4 |
| Croatia |  |  | 20,8 | 21,0 | 20,7 | 21,3 | 21,0 | 21,5 | 21,5 | 21,5 | 21,2 | 21,3 | 21,2 | 24,1 | 22,4 | 20,9 | 0,1 | 21,5 |
| Czech Republic | 17,4 | 17,7 | 19,9 | 19,5 | 19,6 | 19,9 | 20,7 | 20,1 | 19,3 | 18,9 | 18,9 | 19,1 | 19,5 | 22,6 | 22,5 | 22,0 | 2,1 | 19,8 |
| Estonia | 12,4 | 15,1 | 19,4 | 18,1 | 16,2 | 15,8 | 15,7 | 16,0 | 17,3 | 17,5 | 17,0 | 17,5 | 17,9 | 19,8 | 18,4 | 17,2 | -2,2 | 17,0 |
| Hungary | 22,4 | 22,6 | 23,2 | 22,8 | 22,2 | 22,5 | 22,2 | 21,3 | 20,3 | 20,2 | 19,4 | 18,6 | 17,6 | 18,5 | 18,1 | 17,2 | -6,0 | 20,6 |
| Latvia | 11,0 | 12,9 | 17,9 | 19,1 | 16,9 | 15,3 | 15,5 | 15,4 | 15,7 | 16,0 | 15,8 | 16,1 | 16,5 | 18,5 | 19,8 | 19,7 | 1,8 | 16,4 |
| Lithuania | 14,8 | 16,6 | 21,8 | 19,4 | 17,4 | 16,3 | 15,3 | 15,5 | 15,8 | 15,6 | 15,3 | 16,4 | 17,0 | 21,1 | 18,7 | 19,8 | -2,0 | 17,3 |
| Poland | 19,5 | 20,2 | 21,3 | 20,7 | 19,6 | 19,9 | 20,6 | 20,3 | 20,2 | 21,2 | 20,8 | 20,5 | 21,2 | 23,2 | 22,6 | 22,7 | 1,4 | 20,9 |
| Romania |  |  | 16,2 | 17,1 | 15,8 | 14,7 | 15,0 | 14,7 | 14,6 | 14,9 | 14,9 | 14,9 | 15,2 | 17,7 | 16,6 | 16,5 | 0,3 | 15,6 |
| Slovakia | 14,9 | 14,9 | 17,8 | 17,4 | 17,1 | 17,3 | 17,7 | 17,7 | 17,2 | 17,6 | 17,5 | 17,2 | 17,5 | 19,8 | 19,6 | 19,1 | 1,3 | 17,5 |
| Slovenia | 19,8 | 19,9 | 22,4 | 23,4 | 23,4 | 23,5 | 23,8 | 23,1 | 22,7 | 22,2 | 21,5 | 21,3 | 21,5 | 24,5 | 23,7 | 22,8 | 0,4 | 22,5 |
| Australia | 15,9 | 17,1 | 16,9 | 16,6 | 17,0 | 17,3 | 17,3 | 17,8 | 18,2 | 17,5 | 17,1 | 16,6 | 20,5 | .. |  |  | 3,6 | 17,4 |
| Canada | 16,3 | 16,4 | 18,1 | 17,6 | 17,1 | 17,2 | 17,0 | 16,9 | 17,9 | 18,3 | 18,0 | 18,0 | 18,8 | 24,9 |  |  | 6,8 | 18,0 |
| New Zealand | 20,7 | 22,6 | 23,6 | 23,4 | 22,9 | 22,8 | 21,3 | 21,1 | 20,0 | 19,7 | 18,7 | 19,5 | 23,6 | 22,0 | 20,8 |  | -2,7 | 21,5 |
| United States | 15,7 | 16,2 | 18,3 | 19,0 | 18,7 | 18,5 | 18,4 | 18,4 | 18,5 | 18,7 | 18,5 | 18,2 | 18,3 | 23,9 | 22,7 |  | 4,4 | 18,8 |
| Average | 19,5 | 20,3 | 22,1 | 21,9 | 21,6 | 21,7 | 21,8 | 21,6 | 21,4 | 21,3 | 20,9 | 20,8 | 21,2 | 24,2 | 23,0 | 22,1 | 0,1 | 21,6 |

*Source: OECD + Eurostat (for Bulgaria, Croatia, Cyprus, Malta, Romania; only 2009–2020; the Eurostat values are systematically higher, by about 2%, than the OECD values as they include administrative costs) and author's calculation*
* Except yellow highlighted values where the last available year was used

*Table 21(mpv): Mandatory and private voluntary social spending (% of GDP)*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 5.2 | 4.4 | 4.3 | 4.3 | 4.6 | 4.8 | 5.4 | 6.0 | 6.2 | 6.4 | 6.1 | 5.9 | 5.1 |
| Austria | 2.0 | 2.1 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.3 | 2.3 |
| Belgium | 2.1 | 2.1 | 2.2 | 1.9 | 2.0 | 2.0 | 1.9 | 1.8 | 1.9 | 1.9 | 1.9 | 1.9 | 1.8 |
| Canada | 5.3 | 4.9 | 5.0 | 5.3 | 5.2 | 5.4 | 5.6 | 5.7 | 6.2 | 6.2 | 7.1 | 7.1 | 7.1 |
| Czech Republic | 0.5 | 0.6 | 0.8 | 0.8 | 0.8 | 1.0 | 0.7 | 0.8 | 0.8 | 0.8 | 0.7 | 0.7 | 0.7 |
| Denmark | 4.5 | 4.1 | 5.1 | 4.7 | 4.5 | 4.4 | 5.1 | 5.2 | 4.7 | 4.0 | 4.0 | 3.8 | 3.8 |
| Estonia | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Finland | 1.3 | 1.3 | 1.5 | 1.4 | 1.5 | 1.5 | 1.5 | 1.5 | 1.6 | 1.5 | 1.4 | 1.2 | 1.2 |
| France | 3.2 | 3.2 | 3.4 | 3.4 | 3.5 | 3.5 | 3.6 | 3.6 | 3.6 | 3.6 | 3.6 | 3.6 | 3.5 |
| Germany | 2.9 | 3.2 | 3.4 | 3.4 | 3.4 | 3.5 | 3.6 | 3.5 | 3.6 | 3.6 | 3.6 | 3.7 | 3.7 |
| Greece | 0.8 | 0.9 | 0.9 | 1.1 | 1.2 | 1.1 | 1.2 | 1.1 | 1.0 | 1.0 | 1.0 | 1.0 | 1.1 |
| Hungary | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 |
| Iceland | 5.0 | 5.0 | 5.7 | 5.4 | 5.6 | 5.9 | 6.0 | 6.3 | 6.3 | 6.4 | 6.8 | 6.9 | 7.0 |
| Ireland | 2.2 | 2.3 | 2.8 | 2.8 | 3.0 | 3.2 | 3.3 | 2.9 | 2.3 | 2.2 | 2.2 | 2.0 | 1.9 |
| Italy | 1.7 | 1.7 | 1.7 | 1.8 | 1.8 | 1.9 | 1.9 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| Latvia | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 |
| Lithuania | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 | 0.6 |
| Luxembourg | 0.6 | 0.5 | 1.1 | 1.1 | 1.1 | 1.0 | 1.1 | 1.0 | 1.0 | 1.0 | 1.0 | 1.1 | 1.1 |
| Netherlands | 11.4 | 11.6 | 12.6 | 12.8 | 13.1 | 13.1 | 13.1 | 13.1 | 13.3 | 13.3 | 13.5 | 13.2 | 13.1 |
| New Zealand | 0.5 | 0.5 | 0.6 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| Norway | 2.0 | 1.9 | 2.3 | 2.0 | 2.2 | 2.1 | 2.2 | 2.4 | 2.5 | 2.7 | 2.6 | 2.5 | 2.6 |
| Poland | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 | 0.6 | 0.5 | 0.8 |
| Portugal | 2.5 | 2.5 | 2.5 | 2.2 | 2.3 | 2.3 | 2.3 | 2.3 | 2.6 | 2.3 | 2.5 | 2.3 | 2.2 |
| Slovak Republic | 1.2 | 1.3 | 1.3 | 1.4 | 1.1 | 1.2 | 1.1 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Slovenia | 1.1 | 1.1 | 1.2 | 1.2 | 1.2 | 1.4 | 1.4 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| Spain | 0.6 | 0.5 | 0.5 | 1.2 | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.3 | 1.3 | 1.3 |
| Sweden | 2.7 | 3.0 | 3.3 | 3.2 | 3.5 | 3.7 | 3.8 | 3.8 | 3.8 | 3.8 | 3.8 | 3.7 | 3.6 |
| Switzerland | 9.6 | 9.6 | 10.2 | 10.1 | 10.1 | 10.2 | 10.5 | 10.6 | 11.0 | 11.2 | 11.4 | 11.2 | 11.6 |
| United Kingdom | 5.2 | 5.4 | 5.9 | 6.2 | 6.3 | 6.4 | 6.2 | 6.1 | 6.1 | 5.8 | 6.3 | 6.3 | 6.3 |
| United States | 10.6 | 10.4 | 10.4 | 11.1 | 11.2 | 11.4 | 11.5 | 11.6 | 11.8 | 11.9 | 12.2 | 12.3 | 12.4 |

*Source: OECD*

*Table 22: Social spending as percentage of total government spending*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 28,12 | 27,73 | 30,54 | 26,18 | 26,30 | 26,63 | 27,20 | 27,52 | 28,09 | 28,03 | 27,20 | 26,47 | 26,43 | 26,10 | 27,32 |
| Austria | 39,46 | 39,30 | 39,33 | 40,56 | 40,71 | 40,86 | 41,28 | 40,96 | 41,50 | 41,98 | 41,82 | 41,42 | 41,52 | 40,14 | 40,77 |
| Belgium | 34,62 | 34,50 | 35,16 | 35,01 | 34,54 | 34,64 | 35,71 | 35,54 | 36,08 | 36,53 | 37,11 | 36,91 | 37,16 | 38,40 | 35,85 |
| Bulgaria | 26,84 | 28,75 | 32,78 | 35,60 | 36,08 | 35,90 | 35,72 | 30,84 | 32,17 | 35,46 | 35,24 | 32,37 | 32,25 | 31,42 | 32,96 |
| Canada | | 28,16 | 28,82 | 28,38 | 28,27 | 28,49 | 28,78 | 29,15 | 29,78 | 30,33 | 30,28 | 30,19 | 29,84 | 34,79 | 29,64 |
| Croatia | 29,48 | 29,30 | 30,66 | 30,94 | 31,23 | 31,05 | 30,79 | 31,38 | 32,01 | 30,48 | 31,33 | 30,81 | 30,22 | 28,75 | 30,60 |
| Cyprus | 26,58 | 26,63 | 27,42 | 29,05 | 29,94 | 30,86 | 31,54 | 28,10 | 33,39 | 35,37 | 34,61 | 28,63 | 31,34 | 30,19 | 30,26 |
| Czech Republic | 29,90 | 29,92 | 30,22 | 30,97 | 31,33 | 30,68 | 32,50 | 31,48 | 30,79 | 31,99 | 31,66 | 30,52 | 30,52 | 30,50 | 30,93 |
| Denmark | 43,28 | 42,84 | 42,93 | 43,82 | 43,76 | 42,41 | 43,93 | 43,46 | 43,07 | 43,62 | 43,97 | 43,26 | 43,53 | 41,86 | 43,27 |
| Estonia | 26,76 | 28,55 | 32,71 | 34,23 | 32,71 | 30,62 | 30,28 | 30,45 | 31,55 | 32,51 | 32,11 | 32,57 | 33,16 | 32,78 | 31,50 |
| Finland | 40,98 | 40,40 | 41,71 | 41,94 | 41,90 | 42,59 | 43,32 | 44,05 | 44,75 | 45,81 | 45,79 | 45,50 | 45,18 | 44,64 | 43,47 |
| France | 41,23 | 41,02 | 41,49 | 41,63 | 42,11 | 42,32 | 42,74 | 42,83 | 42,87 | 43,12 | 42,79 | 42,96 | 43,04 | 44,23 | 42,46 |
| Germany | 43,59 | 42,57 | 42,99 | 41,74 | 41,80 | 42,17 | 42,34 | 42,50 | 43,33 | 44,05 | 44,06 | 43,51 | 43,65 | 42,96 | 42,95 |
| Greece | 33,41 | 33,55 | 34,47 | 35,84 | 37,37 | 37,64 | 31,35 | 40,18 | 37,74 | 41,47 | 41,30 | 40,87 | 41,41 | 37,73 | 37,45 |
| Hungary | 34,50 | 35,67 | 35,76 | 35,32 | 34,39 | 33,78 | 32,78 | 30,58 | 28,94 | 30,36 | 29,34 | 28,38 | 27,77 | 26,39 | 31,71 |
| Iceland | 18,05 | 13,94 | 19,99 | 21,25 | 21,34 | 21,52 | 21,33 | 21,37 | 20,92 | 28,28 | 22,30 | 23,07 | 25,09 | 27,32 | 21,84 |
| Ireland | 35,92 | 36,42 | 37,78 | 26,95 | 33,83 | 37,13 | 36,97 | 36,15 | 35,14 | 35,48 | 36,18 | 35,32 | 36,22 | 37,41 | 35,49 |
| Italy | 37,20 | 37,59 | 38,60 | 39,44 | 39,74 | 40,04 | 41,03 | 41,53 | 42,28 | 42,54 | 42,43 | 42,68 | 43,43 | 44,11 | 40,90 |
| Latvia | 22,91 | 23,52 | 30,77 | 30,67 | 29,66 | 29,28 | 30,03 | 29,41 | 30,52 | 31,64 | 30,23 | 29,56 | 31,45 | 31,30 | 29,35 |
| Lithuania | 32,63 | 33,94 | 39,63 | 37,51 | 32,99 | 36,76 | 35,13 | 36,19 | 34,87 | 35,83 | 36,98 | 38,50 | 38,60 | 37,99 | 36,25 |
| Luxembourg | 40,31 | 40,99 | 41,50 | 40,94 | 41,22 | 41,39 | 42,99 | 43,16 | 43,35 | 42,91 | 42,88 | 42,59 | 42,63 | 43,86 | 42,19 |
| Malta | 32,55 | 31,22 | 33,79 | 33,12 | 32,54 | 32,40 | 32,55 | 31,54 | 29,98 | 31,38 | 31,15 | 29,22 | 28,76 | 26,18 | 31,17 |
| Netherlands (the) | 34,07 | 34,20 | 34,45 | 35,02 | 35,86 | 36,25 | 36,89 | 37,17 | 37,70 | 38,56 | 38,46 | 37,70 | 37,73 | 36,13 | 36,44 |
| New Zealand | | | 31,22 | 30,95 | 37,20 | 30,59 | 30,08 | 30,32 | 30,53 | 30,15 | 30,22 | 29,16 | 29,30 | 26,77 | 30,54 |
| Norway | 37,03 | 37,48 | 38,35 | 38,86 | 39,33 | 39,86 | 39,73 | 39,36 | 39,63 | 39,84 | 39,44 | 38,94 | 38,25 | 38,12 | 38,87 |
| Poland | 36,36 | 35,11 | 35,79 | 35,56 | 35,21 | 36,29 | 37,52 | 37,56 | 37,69 | 40,42 | 39,80 | 38,97 | 39,93 | 37,31 | 37,39 |
| Portugal | 33,69 | 33,82 | 34,39 | 33,47 | 35,87 | 37,80 | 38,96 | 36,77 | 38,37 | 40,29 | 37,93 | 39,17 | 39,74 | 38,19 | 37,03 |
| Romania | 26,78 | 29,16 | 33,23 | 34,74 | 32,81 | 33,12 | 32,54 | 32,23 | 31,72 | 33,30 | 34,77 | 33,33 | 32,66 | 32,72 | 32,37 |
| Slovakia | 35,63 | 33,61 | 33,94 | 35,57 | 35,09 | 36,06 | 35,80 | 34,60 | 32,11 | 34,98 | 36,82 | 36,10 | 35,23 | 35,70 | 35,09 |
| Slovenia | 37,37 | 36,59 | 37,26 | 38,30 | 38,51 | 39,49 | 32,39 | 36,88 | 37,53 | 38,20 | 38,65 | 38,12 | 37,98 | 36,44 | 37,41 |
| Spain | 33,23 | 33,87 | 35,54 | 37,00 | 37,41 | 37,18 | 40,25 | 39,76 | 40,40 | 40,66 | 41,10 | 41,16 | 41,99 | 42,72 | 38,73 |
| Sweden | 40,60 | 39,81 | 40,86 | 40,30 | 39,44 | 40,05 | 40,61 | 40,51 | 40,80 | 41,36 | 40,60 | 39,26 | 38,65 | 37,77 | 40,04 |
| Switzerland | 39,31 | 38,51 | 38,42 | 38,98 | 38,85 | 38,65 | 39,95 | 39,60 | 39,42 | 39,68 | 39,54 | 39,43 | 39,30 | 43,36 | 39,50 |
| United Kingdom of Great Britain and Northern Ireland (the) | 34,78 | 33,42 | 35,36 | 35,41 | 36,20 | 37,10 | 37,59 | 37,43 | 37,85 | 37,53 | 36,58 | 36,53 | 36,08 | 31,94 | 35,99 |
| United States of America (the) | 17,93 | 19,41 | 19,99 | 20,86 | 20,50 | 20,28 | 20,64 | 20,38 | 20,54 | 20,18 | 20,01 | 19,77 | 19,82 | 25,45 | 20,41 |
| Average | 33,49 | 33,28 | 34,80 | 34,75 | 35,03 | 35,20 | 35,23 | 35,17 | 35,36 | 36,41 | 36,13 | 35,51 | 35,71 | 35,48 | 35,11 |

*Source: https://datafinder.qog.gu.se/variable/gfs_sp and author's calculation*

*Table 23: Changing structure of social spending (percentage of GDP)*

| Source | | | | Public | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Type of Expenditure | | | | Total | | | | | | | | |
| Type of Programme | | | | Total | | | | | | | | |
| Measure | | | | In percentage of Gross Domestic Product | | | | | | | | |
| Year | | | | 1980 | 1990 | 2000 | 2005 | 2010 | 2015 | 2017 | 2018 | 2019 |
| **Country** | **Branch** | **Unit** | | | | | | | | | | |
| OECD - Total | Old age | | Old age | 4,9 | 5,6 | 6,1 | 6,2 | 7,1 | 7,4 | 7,3 | 7,3 | 7,4 |
| | Survivors | | Survivors | 0,9 | 0,8 | 0,9 | 0,9 | 0,9 | 0,9 | 0,8 | 0,8 | 0,8 |
| | Old age and Survivors | | Old age and Survivors | 5,8 | 6,5 | 7,0 | 7,1 | 8,0 | 8,3 | 8,2 | 8,1 | 8,2 |
| | Incapacity related | | Incapacity related | 2,0 | 2,1 | 2,0 | 2,0 | 2,1 | 2,0 | 2,0 | 1,9 | 2,0 |
| | Health | | Health | 4,1 | 4,3 | 4,8 | 5,2 | 5,8 | 5,7 | 5,7 | 5,7 | 5,8 |
| | Family | | Family | 1,5 | 1,6 | 1,8 | 1,8 | 2,2 | 2,1 | 2,1 | 2,1 | 2,1 |
| | Active labour market programmes | | Active labour market programmes | 0,2 | 0,4 | 0,5 | 0,5 | 0,5 | 0,5 | 0,5 | 0,4 | 0,6 |
| | Unemployment | | Unemployment | 0,6 | 0,9 | 0,7 | 0,7 | 0,9 | 0,7 | 0,6 | 0,6 | 0,6 |
| | Housing | | Housing | 0,2 | 0,3 | 0,3 | 0,3 | 0,4 | 0,3 | 0,3 | 0,3 | 0,3 |
| | Other social policy areas | | Other social policy areas | 0,4 | 0,4 | 0,4 | 0,5 | 0,6 | 0,5 | 0,5 | 0,5 | 0,5 |
| | **Total** | | **Total** | **14,4** | **16,4** | **17,3** | **18,1** | **20,4** | **20,1** | **19,8** | **19,7** | **20,1** |

*Source: OECD*

*Table 24: Gross pension replacement rate (different income levels) in % (Year of labor market entry 2020)*

| | Individual earnings, multiple of mean for men (women where different) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Country | Pension age | | 0,5 | | 1,0 | | 2,0 | |
| Austria | 65 | | 74,1 | | 74,1 | | 55,9 | |
| Belgium | 67 | | 67,7 | | 43,5 | | 31,4 | |
| France | 65 | | 57,7 | | 57,6 | | 49,4 | |
| Germany | 67 | | 47,8 | | 43,9 | | 33,7 | |
| Ireland | 66 | | 52,4 | | 26,2 | | 13,1 | |
| Luxembourg | 62 | | 86,7 | | 74,8 | | 68,8 | |
| Netherlands | 70 | | 87,3 | | 74,7 | | 68,4 | |
| Switzerland | 65 | | 52,2 | | 39,9 | | 20,3 | |
| United Kingdom | 67 | | 61,8 | | 41,9 | | 28,3 | |
| Denmark | 74 | | 116,6 | | 73,1 | | 53,1 | |
| Finland | 69 | | 58,4 | | 58,4 | | 58,4 | |
| Iceland | 67 | | 65,6 | | 43,1 | | 43,1 | |
| Norway | 67 | | 60,3 | | 44,5 | | 28,2 | |
| Sweden | 70 | | 62,3 | | 62,3 | | 76,4 | |
| Cyprus | 70 | | 56,7 | | 64,3 | | 68,2 | |
| Greece | 66 | | 94,2 | | 80,8 | | 74,1 | |
| Italy | 71 | | 76,1 | | 76,1 | | 76,1 | |
| Malta | 65 | | 60,3 | | 58,2 | | 53,3 | |
| Portugal | 68 | | 75,7 | | 73,9 | | 71,3 | |
| Spain | 65 | | 80,4 | | 80,4 | | 49,6 | |
| Bulgaria | 65 | | 59,1 | | 58,3 | | 44,9 | |
| Croatia | 65 | | 62,9 | | 43,0 | | 43,0 | |
| Czech Republic | 65 | | 78,1 | | 47,4 | | 32,1 | |
| Estonia | 71 | | 48,6 | | 28,1 | | 17,8 | |
| Hungary | 65 | *(62)* | 54,9 | *(51.5)* | 52,4 | *(49)* | 51,2 | *(47.8)* |
| Latvia | 65 | | 55,0 | | 39,8 | | 39,8 | |
| Lithuania | 65 | | 28,9 | | 18,2 | | 12,9 | |
| Poland | 65 | *(60)* | 30,3 | *(29.8)* | 29,3 | *(22.9)* | 28,7 | *(22.3)* |
| Romania | 65 | *(63)* | 43,5 | *(41)* | 43,5 | *(41)* | 43,5 | *(41)* |
| Slovakia | 69 | | 65,9 | | 54,9 | | 48,3 | |
| Slovenia | 62 | | 62,1 | | 42,1 | | 41,3 | |
| Australia | 67 | | 64,5 | *(62.3)* | 26,0 | *(23.8)* | 26,0 | *(23.8)* |
| Canada | 65 | | 46,0 | | 36,8 | | 18,4 | |
| New Zealand | 65 | | 62,9 | | 39,7 | | 19,8 | |
| United States | 67 | | 49,4 | | 39,1 | | 27,8 | |
| Average | 67 | | 63,0 | | 51,2 | | 43,3 | |

*OECD Pensions at a glance 2023*

*Table 25: Levels of protection against different risks (percentage of individuals covered)*

| Country | Year | Child/ family | Year | work injury | Year | mater- nity | Year | pen- sions | Year | disa- bility | Year | vulne- rable | Year | unem- ploy- ment | Year | one protect | Year | poor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 2022 | 100 | 2021 | 79,9 | 2022 | 93 | 2022 | 74,4 | 2022 | 100 | 2022 | 93,6 | 2022 | 100 | 2022 | 94 | 2022 | 69,6 |
| Austria | 2021 | 100 | 2021 | 100 | 2022 | 89,9 | 2022 | 100 | 2022 | 100 | 2021 | 100 | 2021 | 99 | 2022 | 100 | 2021 | 100 |
| Belgium | 2022 | 100 | 2022 | 79 | 2021 | 64,8 | 2022 | 100 | 2022 | 100 | 2022 | 100 | 2022 | 100 | 2022 | 100 | 2016 | 100 |
| Bulgaria | 2022 | 61 | 2022 | 85,1 | 2022 | 100 | 2022 | 93 | 2022 | 100 | 2022 | 37,7 | 2022 | 39,4 | 2022 | 82,8 | 2022 | 32,7 |
| Canada | 2021 | 100 | 2022 | 83,6 | 2023 | 96,9 | 2022 | 100 | 2022 | 69,4 | 2021 | 100 | 2022 | 47,4 | 2022 | 95,6 | 2021 | 100 |
| Croatia | 2022 | 45,7 | 2022 | 89,5 | 2021 | 100 | 2022 | 93,2 | 2021 | 100 | 2022 | 35,9 | 2022 | 19,3 | 2022 | 81,4 | 2021 | 6,8 |
| Cyprus | 2022 | 100 | 2022 | 77,7 | 2022 | 82,3 | 2022 | 92,7 | 2022 | 18,6 | 2022 | 74,5 | 2022 | 21,6 | 2022 | 98,8 | | |
| Czech Republic | 2023 | 41,6 | 2021 | 65,8 | 2022 | 100 | 2021 | 100 | 2022 | 100 | 2023 | 22,4 | 2021 | 56,6 | 2015 | 85,8 | 2021 | 66,3 |
| Denmark | 2022 | 100 | 2022 | 87,7 | 2022 | 100 | 2021 | 100 | 2022 | 100 | 2023 | 100 | 2022 | 95,6 | 2023 | 78,9 | 2016 | 100 |
| Estonia | 2022 | 100 | 2022 | 79,5 | 2022 | 100 | 2022 | 100 | 2022 | 100 | 2022 | 100 | 2022 | 44 | 2023 | 100 | 2022 | 100 |
| Finland | 2022 | 100 | 2021 | 80,4 | 2021 | 100 | 2022 | 100 | 2022 | 100 | 2022 | 100 | 2021 | 100 | 2022 | 97 | 2022 | 100 |
| France | 2021 | 100 | 2022 | 90,2 | 2021 | 100 | 2021 | 100 | 2021 | 100 | 2021 | 100 | 2021 | 100 | 2022 | 100 | 2021 | 100 |
| Germany | 2022 | 100 | 2022 | 100 | 2021 | 91,1 | 2022 | 100 | 2022 | 100 | 2022 | 100 | 2022 | 100 | 2021 | 99,4 | 2022 | 100 |
| Greece | 2023 | 48,9 | 2020 | 76,4 | 2023 | 100 | 2020 | 99,2 | 2019 | 100 | 2023 | 41,6 | 2023 | 22,3 | 2022 | 100 | 2023 | 49,5 |
| Hungary | 2022 | 100 | 2020 | 96 | 2021 | 100 | 2021 | 99 | 2021 | 100 | 2022 | 69,6 | 2022 | 21,4 | 2023 | 84,6 | 2022 | 100 |
| Iceland | 2023 | 74,7 | 2021 | 94 | 2022 | 100 | 2021 | 82,4 | 2021 | 100 | | | | | 2022 | 89 | | |
| Ireland | 2022 | 100 | 2022 | 82,8 | 2022 | 67,8 | 2022 | 95,8 | 2022 | 100 | 2022 | 100 | 2022 | 100 | 2023 | 81,9 | 2016 | 100 |
| Italy | 2022 | 100 | 2022 | 100 | 2022 | 100 | 2022 | 100 | 2022 | 100 | 2022 | 53,8 | 2022 | 51,5 | 2022 | 100 | 2022 | 71,8 |
| Latvia | 2022 | 100 | 2021 | 82,1 | 2022 | 100 | 2022 | 100 | 2022 | 100 | 2022 | 100 | 2022 | 46,1 | 2022 | 88,8 | 2022 | 100 |
| Lithuania | 2022 | 100 | 2022 | 90,7 | 2022 | 92,7 | 2022 | 100 | 2022 | 100 | 2022 | 100 | 2022 | 88,2 | 2022 | 99,4 | 2022 | 40,5 |
| Luxembourg | 2021 | 100 | 2021 | 100 | 2021 | 100 | 2021 | 100 | 2021 | 100 | 2021 | 100 | 2022 | 57,4 | 2022 | 99,9 | 2021 | 73,1 |
| Malta | 2021 | 66,7 | 2021 | 99,5 | 2021 | 71 | 2021 | 82,9 | 2021 | 64,1 | 2021 | 48,7 | 2021 | 61,6 | 2021 | 100 | 2021 | 77,8 |
| Netherlands | 2022 | 100 | 2021 | 100 | 2022 | 100 | 2022 | 100 | 2022 | 100 | 2022 | 100 | 2022 | 56,7 | 2021 | 86,7 | 2016 | 100 |
| New Zealand | 2023 | 79,9 | 2023 | 100 | 2023 | 100 | 2023 | 100 | 2023 | 98,9 | 2023 | 100 | 2023 | 100 | 2022 | 100 | 2023 | 86,7 |
| Norway | 2023 | 100 | 2022 | 96,3 | 2022 | 100 | 2023 | 100 | 2023 | 100 | 2023 | 96,6 | 2022 | 43,3 | 2023 | 100 | 2016 | 100 |
| Poland | 2021 | 100 | 2022 | 85,5 | 2021 | 95,5 | 2022 | 82,9 | 2022 | 100 | 2021 | 53,5 | 2020 | 31,2 | 2023 | 99,3 | 2021 | 100 |
| Portugal | 2022 | 91,5 | 2021 | 100 | 2022 | 100 | 2021 | 96,7 | 2022 | 100 | 2022 | 100 | 2022 | 62,3 | 2023 | 84,2 | 2022 | 89,1 |
| Romania | 2022 | 100 | 2022 | 67,2 | 2022 | 41 | 2022 | 98,9 | 2022 | 100 | 2022 | 51,7 | 2022 | 9,9 | 2022 | 100 | 2016 | 100 |
| Slovakia | 2022 | 100 | 2021 | 75,2 | 2022 | 100 | 2021 | 100 | 2021 | 100 | 2022 | 77,2 | 2022 | 19,8 | 2022 | 79,8 | 2022 | 100 |
| Slovenia | 2021 | 100 | 2022 | 93,2 | 2021 | 100 | 2022 | 100 | 2021 | 100 | 2021 | 88,4 | 2021 | 39,1 | 2022 | 93,1 | 2016 | 100 |
| Spain | 2022 | 55,3 | 2022 | 81,9 | 2022 | 100 | 2022 | 88,9 | 2022 | 100 | 2022 | 38,9 | 2022 | 57,2 | 2022 | 97 | 2016 | 100 |
| Sweden | 2021 | 100 | 2022 | 88,6 | 2021 | 100 | 2020 | 100 | 2021 | 100 | 2021 | 100 | 2022 | 59,6 | 2022 | 78,1 | 2016 | 100 |
| Switzerland | 2021 | 100 | 2021 | 80,1 | 2021 | 100 | 2021 | 99,3 | 2021 | 92,7 | 2021 | 100 | 2021 | 55,4 | 2022 | 100 | 2021 | 100 |
| United Kingdom of Great Britain and Northern Ireland | 2022 | 100 | 2022 | 81,5 | 2022 | 100 | 2023 | 100 | 2023 | 100 | 2023 | 100 | 2022 | 94,1 | 2021 | 100 | 2023 | 100 |
| United States of America | 2023 | 82,4 | 2023 | 87,2 | | | 2023 | 100 | 2023 | 100 | 2023 | 87,6 | 2021 | 50,5 | 2023 | 93,6 | 2016 | 64,5 |

*Source: ILO and author's calculation*

*Table 26: Distribution of market income (Gini coefficient)*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | | | | | | 0,46 | | 0,48 | | 0,47 | | 0,45 | | 0,44 | | |
| Austria | 0,49 | 0,49 | 0,50 | 0,50 | 0,49 | 0,49 | 0,50 | 0,49 | 0,49 | 0,50 | 0,49 | 0,49 | 0,49 | 0,49 | 0,49 | 0,01 |
| Belgium | | | | | | | | | | | | 0,49 | 0,49 | 0,49 | 0,48 | |
| Bulgaria | 0,49 | 0,45 | 0,45 | 0,45 | 0,46 | 0,47 | 0,49 | 0,49 | 0,52 | 0,53 | 0,53 | 0,53 | 0,52 | 0,52 | 0,51 | 0,03 |
| Canada | 0,43 | 0,43 | 0,44 | 0,44 | 0,43 | 0,43 | 0,43 | 0,43 | 0,43 | 0,43 | 0,44 | 0,43 | 0,42 | 0,44 | 0,44 | 0,00 |
| Croatia | | | 0,49 | 0,49 | 0,49 | 0,49 | 0,48 | 0,49 | 0,48 | 0,48 | 0,47 | 0,47 | 0,45 | 0,46 | 0,46 | -0,03 |
| Cyprus | | | | | | | | | | | | | | | | |
| Czech Republic | 0,45 | 0,44 | 0,45 | 0,45 | 0,46 | 0,45 | 0,46 | 0,46 | 0,46 | 0,45 | 0,44 | 0,43 | 0,43 | 0,45 | 0,44 | -0,01 |
| Denmark | | | | | 0,43 | 0,44 | 0,44 | 0,44 | 0,45 | 0,45 | 0,45 | 0,44 | 0,45 | | | 0,01 |
| Estonia | | | | | | | 0,51 | 0,49 | 0,47 | 0,46 | 0,45 | 0,44 | 0,47 | 0,47 | 0,47 | -0,04 |
| Finland | 0,48 | 0,47 | 0,48 | 0,49 | 0,49 | 0,49 | 0,50 | 0,50 | 0,51 | 0,51 | 0,51 | 0,51 | 0,51 | 0,52 | 0,52 | 0,04 |
| France | | | | | | | | | | | | | | 0,52 | 0,53 | 0,01 |
| Germany | | 0,49 | | | 0,51 | 0,50 | 0,51 | 0,50 | 0,50 | 0,51 | 0,50 | 0,49 | 0,50 | 0,50 | | 0,00 |
| Greece | 0,50 | 0,50 | 0,50 | 0,52 | 0,55 | 0,56 | 0,55 | 0,56 | 0,55 | 0,54 | 0,53 | 0,52 | 0,52 | 0,51 | 0,50 | 0,00 |
| Hungary | 0,51 | 0,50 | 0,50 | 0,51 | 0,51 | 0,51 | 0,52 | 0,49 | 0,49 | 0,48 | 0,48 | 0,46 | 0,46 | 0,44 | 0,44 | -0,07 |
| Iceland | 0,38 | 0,39 | 0,38 | 0,40 | 0,40 | 0,40 | 0,38 | 0,39 | 0,39 | 0,38 | 0,37 | | | | | -0,01 |
| Ireland | 0,51 | 0,54 | 0,58 | 0,58 | 0,57 | 0,58 | 0,57 | 0,55 | 0,55 | 0,54 | 0,54 | 0,52 | 0,50 | 0,51 | 0,51 | 0,00 |
| Italy | 0,49 | 0,49 | 0,49 | 0,51 | 0,51 | 0,51 | 0,51 | 0,51 | 0,52 | 0,52 | 0,52 | 0,51 | 0,51 | 0,53 | 0,53 | 0,04 |
| Latvia | 0,47 | 0,48 | 0,50 | 0,52 | 0,51 | 0,50 | 0,50 | 0,48 | 0,48 | 0,47 | 0,48 | 0,48 | 0,47 | 0,48 | 0,47 | 0,00 |
| Lithuania | 0,47 | 0,50 | 0,53 | 0,53 | 0,51 | 0,53 | 0,51 | 0,53 | 0,51 | 0,51 | 0,51 | 0,50 | 0,50 | 0,50 | 0,51 | 0,05 |
| Luxembourg | | | | | | | | | 0,47 | 0,48 | 0,50 | 0,49 | 0,49 | 0,44 | 0,44 | -0,03 |
| Malta | | | | | | | | | | | | | | | | 0,00 |
| Netherlands | | | | | 0,43 | 0,43 | 0,44 | 0,46 | 0,46 | 0,45 | 0,45 | 0,45 | 0,46 | 0,45 | 0,45 | 0,02 |
| New Zealand | | | | | | | | | | | | 0,45 | 0,45 | 0,45 | | 0,00 |
| Norway | | 0,40 | 0,40 | 0,41 | 0,41 | 0,41 | 0,41 | 0,42 | 0,43 | 0,43 | 0,43 | 0,43 | 0,43 | 0,44 | 0,46 | 0,06 |
| Poland | 0,48 | 0,47 | 0,46 | 0,47 | 0,46 | 0,46 | 0,46 | 0,46 | 0,45 | 0,46 | 0,45 | 0,45 | 0,44 | 0,43 | 0,43 | -0,06 |
| Portugal | 0,52 | 0,52 | 0,51 | 0,52 | 0,53 | 0,53 | 0,55 | 0,54 | 0,54 | 0,53 | 0,52 | 0,51 | 0,51 | 0,52 | 0,51 | -0,01 |
| Romania | 0,54 | 0,53 | 0,51 | 0,54 | 0,54 | 0,54 | 0,54 | 0,54 | 0,54 | 0,52 | 0,52 | 0,52 | 0,51 | 0,51 | 0,49 | -0,05 |
| Slovakia | 0,42 | 0,41 | 0,43 | 0,43 | 0,42 | 0,41 | 0,43 | 0,40 | 0,40 | 0,40 | 0,38 | 0,39 | 0,38 | 0,40 | 0,38 | -0,03 |
| Slovenia | 0,42 | 0,42 | 0,44 | 0,45 | 0,45 | 0,46 | 0,46 | 0,46 | 0,46 | 0,45 | 0,45 | 0,44 | 0,44 | 0,44 | 0,44 | 0,01 |
| Spain | 0,45 | 0,46 | 0,49 | 0,51 | 0,51 | 0,51 | 0,52 | 0,52 | 0,52 | 0,52 | 0,51 | 0,51 | 0,49 | 0,52 | 0,50 | 0,05 |
| Sweden | | | | | | | 0,42 | 0,43 | 0,43 | 0,43 | 0,43 | 0,43 | 0,43 | 0,43 | 0,44 | 0,02 |
| Switzerland | 0,37 | 0,37 | 0,37 | 0,37 | 0,37 | 0,37 | 0,39 | 0,38 | 0,39 | 0,39 | 0,39 | 0,40 | 0,40 | 0,41 | | 0,04 |
| United Kingdom | 0,52 | 0,52 | 0,54 | 0,52 | 0,52 | 0,52 | 0,53 | 0,52 | 0,52 | 0,51 | 0,51 | 0,51 | 0,51 | 0,51 | 0,51 | -0,01 |
| United States | | | | | | | 0,51 | 0,51 | 0,51 | 0,51 | 0,51 | 0,51 | 0,51 | 0,52 | 0,52 | 0,00 |

*Source: OECD and author's calculation*

*Table 27: Poverty rate (income less than 60% of median income) – %*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Average | 2007-2023 | 2018-2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | | | | | | 20,9 | | 20,5 | | 19,9 | | 20,4 | | 20,4 | | | | 20,4 | | |
| Austria | 12,0 | 15,2 | 14,5 | 14,7 | 14,5 | 14,4 | 14,4 | 14,1 | 13,9 | 14,1 | 14,4 | 14,3 | 13,3 | 13,9 | 14,7 | 14,8 | 14,9 | 14,2 | 2,9 | 0,6 |
| Belgium | 15,2 | 14,7 | 14,6 | 14,6 | 15,3 | 15,3 | 15,1 | 15,5 | 14,9 | 15,5 | 15,9 | 16,4 | 14,8 | 14,1 | 12,7 | 13,2 | 12,3 | 14,7 | -2,9 | -4,1 |
| Bulgaria | 22,0 | 21,4 | 21,8 | 20,7 | 22,2 | 21,2 | 21,0 | 21,8 | 22,0 | 22,9 | 23,4 | 22,0 | 22,6 | 23,8 | 22,1 | 22,9 | 20,6 | 22,0 | -1,4 | -1,4 |
| Canada | 19,5 | 20,0 | 20,2 | 20,4 | 20,2 | 20,5 | 20,6 | 19,3 | 21,0 | 19,6 | 19,0 | 18,5 | 18,5 | 15,5 | 17,1 | | | 19,3 | -2,4 | -1,4 |
| Croatia | : | : | : | 20,6 | 20,9 | 20,4 | 19,5 | 19,4 | 20,0 | 19,5 | 20,0 | 19,3 | 18,3 | 18,3 | 19,2 | 18,0 | 19,3 | 19,5 | -1,3 | 0,0 |
| Cyprus | 15,5 | 15,9 | 15,8 | 15,6 | 14,8 | 14,7 | 15,3 | 14,4 | 16,2 | 16,1 | 15,7 | 15,4 | 14,7 | 14,3 | 13,8 | 13,9 | 13,9 | 15,1 | -1,6 | -1,5 |
| Czech Republic | 9,6 | 9,0 | 8,6 | 9,0 | 9,8 | 9,6 | 8,6 | 9,7 | 9,7 | 9,7 | 9,1 | 9,6 | 10,1 | 9,5 | 8,6 | 10,2 | 9,8 | 9,4 | 0,2 | 0,2 |
| Denmark | 11,7 | 11,8 | 13,1 | 13,3 | 12,1 | 12,0 | 11,9 | 12,1 | 12,2 | 11,9 | 12,4 | 12,7 | 12,5 | 12,1 | 12,3 | 12,4 | 11,8 | 12,3 | 0,1 | -0,9 |
| Estonia | 19,4 | 19,5 | 19,7 | 15,8 | 17,5 | 17,5 | 18,6 | 21,8 | 21,6 | 21,7 | 21,0 | 21,9 | 21,7 | 20,7 | 20,6 | 22,8 | 22,5 | 20,3 | 3,1 | 0,6 |
| Finland | 13,0 | 13,6 | 13,8 | 13,1 | 13,7 | 13,2 | 11,8 | 12,8 | 12,4 | 11,6 | 11,5 | 12,0 | 11,6 | 12,2 | 10,8 | 12,7 | 12,2 | 12,5 | -0,8 | 0,2 |
| France | 13,1 | 12,5 | 12,9 | 13,3 | 14,0 | 14,1 | 13,7 | 13,3 | 13,6 | 13,6 | 13,2 | 13,4 | 13,6 | 14,2 | 14,3 | 15,6 | 15,4 | 13,8 | 2,3 | 2,0 |
| Germany | 15,2 | 15,2 | 15,5 | 15,6 | 15,8 | 16,1 | 16,1 | 16,7 | 16,7 | 16,5 | 16,1 | 16,0 | 14,8 | 16,1 | 16,0 | 14,8 | 14,4 | 15,7 | -0,8 | -1,6 |
| Greece | 20,3 | 20,1 | 19,7 | 20,1 | 21,4 | 23,1 | 23,1 | 22,1 | 21,4 | 21,2 | 20,2 | 18,5 | 17,9 | 17,7 | 19,6 | 18,8 | 18,9 | 20,2 | -1,4 | 0,4 |
| Hungary | 12,3 | 12,4 | 12,4 | 12,3 | 14,1 | 14,3 | 15,0 | 15,0 | 14,9 | 14,5 | 13,4 | 12,8 | 12,3 | 12,3 | 12,6 | 12,1 | 13,1 | 13,3 | 0,8 | 0,3 |
| Iceland | 10,1 | 10,1 | 10,2 | 9,8 | 9,2 | 7,9 | 9,3 | 7,9 | 9,2 | 8,8 | 10,1 | 8,8 | 9,3 | : | : | : | : | 9,3 | -0,8 | |
| Ireland | 17,2 | 15,5 | 15,0 | 15,2 | 15,2 | 16,3 | 15,7 | 16,8 | 16,2 | 16,8 | 15,6 | 14,9 | 13,4 | 12,8 | 12,8 | 13,4 | 12,0 | 15,0 | -5,2 | -2,9 |
| Italy | 19,5 | 18,9 | 18,4 | 18,7 | 19,8 | 19,5 | 19,3 | 19,4 | 19,9 | 20,6 | 20,3 | 20,3 | 20,1 | 20,0 | 20,1 | 20,1 | 18,9 | 19,6 | -0,6 | -1,4 |
| Latvia | 21,2 | 25,9 | 26,4 | 20,9 | 19,0 | 19,2 | 19,4 | 21,2 | 22,5 | 21,8 | 22,1 | 23,3 | 22,9 | 21,6 | 23,4 | 22,5 | 22,5 | 22,1 | 1,3 | -0,8 |
| Lithuania | 19,1 | 20,9 | 20,3 | 20,5 | 19,2 | 18,6 | 20,6 | 19,1 | 22,2 | 21,9 | 22,9 | 22,9 | 20,6 | 20,9 | 20,0 | 20,9 | 20,6 | 20,7 | 1,5 | -2,3 |
| Luxembourg | 13,5 | 13,4 | 14,9 | 14,5 | 13,6 | 15,1 | 15,9 | 16,4 | 15,3 | 15,8 | 16,4 | 16,7 | 17,5 | 17,4 | 18,1 | 17,3 | 18,8 | 15,9 | 5,3 | 2,1 |
| Malta | 15,1 | 15,3 | 14,9 | 15,5 | 15,6 | 15,1 | 15,8 | 15,8 | 16,6 | 16,5 | 16,7 | 16,8 | 17,1 | 16,9 | 16,9 | 16,7 | 16,6 | 16,1 | 1,5 | -0,2 |
| Netherlands | 10,2 | 10,5 | 11,1 | 10,3 | 11,0 | 10,1 | 10,4 | 11,6 | 11,6 | 12,7 | 13,2 | 13,3 | 13,2 | 13,4 | 14,4 | 14,5 | 13,0 | 12,0 | 2,8 | -0,3 |
| New Zealand | 21,9 | 21,5 | 21,8 | 22,3 | 22,4 | 22,4 | 21,9 | 22,6 | 21,2 | 23,0 | 23,2 | 21,2 | 21,3 | 20,7 | | | | 22,0 | -1,2 | -0,5 |
| Norway | 11,9 | 11,4 | 11,7 | 11,2 | 10,5 | 10,0 | 10,9 | 10,9 | 11,9 | 12,2 | 12,3 | 12,9 | 12,7 | 12,7 | 12,6 | 12,2 | 11,5 | 11,7 | -0,4 | -1,4 |
| Poland | 17,3 | 16,9 | 17,1 | 17,6 | 17,7 | 17,1 | 17,3 | 17,0 | 17,6 | 17,3 | 15,0 | 14,8 | 15,4 | 14,8 | 14,8 | 13,7 | 14,0 | 16,2 | -3,3 | -0,8 |
| Portugal | 18,1 | 18,5 | 17,9 | 17,9 | 18,0 | 17,9 | 18,7 | 19,5 | 19,5 | 19,0 | 18,3 | 17,3 | 17,2 | 16,2 | 18,4 | 16,4 | 17,0 | 18,0 | -1,1 | -0,3 |
| Romania | 24,6 | 23,6 | 22,1 | 21,6 | 22,3 | 22,9 | 23,0 | 25,1 | 25,4 | 25,3 | 23,6 | 23,5 | 23,8 | 23,4 | 22,5 | 21,2 | 21,1 | 23,2 | -3,5 | -2,4 |
| Slovakia | 10,6 | 10,9 | 11,0 | 12,0 | 13,0 | 13,2 | 12,8 | 12,6 | 12,3 | 12,7 | 12,4 | 12,2 | 11,9 | 11,4 | 12,3 | 13,7 | 14,3 | 12,3 | 3,7 | 2,1 |
| Slovenia | 11,5 | 12,3 | 11,3 | 12,7 | 13,6 | 13,5 | 14,5 | 14,5 | 14,3 | 13,9 | 13,3 | 13,3 | 12,0 | 12,4 | 11,7 | 12,1 | 12,7 | 12,9 | 1,2 | -0,6 |
| Spain | 19,7 | 19,8 | 20,4 | 20,7 | 20,6 | 20,8 | 20,4 | 22,2 | 22,1 | 22,3 | 21,6 | 21,5 | 20,7 | 21,0 | 21,7 | 20,4 | 20,2 | 20,9 | 0,5 | -1,3 |
| Sweden | 10,5 | 13,5 | 14,4 | 14,8 | 15,4 | 15,2 | 16,0 | 15,6 | 16,3 | 16,2 | 15,8 | 16,4 | 17,1 | 16,1 | 15,7 | 16,0 | 16,1 | 15,4 | 5,6 | -0,3 |
| Switzerland | 15,0 | 15,7 | 15,6 | 15,0 | 15,0 | 15,9 | 14,5 | 13,8 | 15,6 | 14,7 | 15,5 | 14,6 | 16,0 | 15,5 | 14,7 | 15,8 | 16,5 | 15,3 | 1,5 | 1,9 |
| United Kingdom | 18,6 | 18,7 | 17,3 | 17,1 | 16,2 | 16,0 | 15,9 | 16,8 | 16,6 | 15,9 | 17,0 | 18,6 | : | : | : | : | : | 17,1 | 0,0 | |
| United States | | | | | | | 24,2 | 24,2 | 23,6 | 24,5 | 25,0 | 24,8 | 25,0 | 23,4 | 22,7 | 24,6 | | 24,2 | 0,4 | -0,2 |
| Average | 15,8 | 16,1 | 16,1 | 16,0 | 16,2 | 16,3 | 16,5 | 16,9 | 17,1 | 17,1 | 16,9 | 16,9 | 16,5 | 16,5 | 16,4 | 16,5 | 16,0 | 16,6 | 0,2 | -0,5 |

*Source: Eurostat except Australia, Canada, New Zealand and USA (taken from OECD, https://data.oecd.org/inequality/poverty-rate.htm) and author's calculation; values are substantially lower according to OECD than to Eurostat, probably due to different income concepts used.*

*Table 28: Share of administrative costs in social spending (%)*

| Country | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Average | Change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | 2,0% | 1,9% | 1,9% | 1,8% | 1,9% | 1,8% | 1,8% | 1,7% | 1,6% | 1,7% | 1,8% | -0,3% |
| Belgium | 3,0% | 3,0% | 2,9% | 3,7% | 3,7% | 3,6% | 3,7% | 3,5% | 3,6% | 3,6% | 3,4% | 0,6% |
| France | 4,1% | 4,1% | 4,1% | 3,8% | 3,8% | 3,9% | 3,7% | 4,2% | 3,4% | 3,2% | 3,8% | -0,8% |
| Germany | 3,9% | 3,9% | 3,8% | 3,7% | 3,7% | 3,8% | 3,7% | 3,7% | 3,6% | 3,7% | 3,7% | -0,2% |
| Ireland | 3,8% | 3,9% | 4,2% | 4,1% | 4,1% | 4,0% | 4,1% | 3,8% | 3,4% | 3,6% | 3,9% | -0,1% |
| Luxembourg | 1,5% | 1,4% | 1,4% | 1,5% | 1,5% | 1,4% | 1,3% | 1,3% | 1,3% | 1,2% | 1,4% | -0,3% |
| Netherlands | 6,4% | 6,7% | 6,2% | 5,2% | 5,0% | 5,4% | 5,6% | 5,0% | 4,7% | 5,2% | 5,5% | -1,2% |
| Switzerland | 5,2% | 5,5% | 5,7% | 5,7% | 5,7% | 5,8% | 5,6% | 5,4% | 6,0% | 6,9% | 5,8% | 1,7% |
| United Kingdom | 1,1% | 0,9% | 0,8% | 0,8% | 0,7% | 0,7% | | | | | 0,8% | -1,1% |
| Denmark | 4,3% | 4,0% | 4,2% | 4,3% | 4,2% | 4,4% | 4,3% | 4,1% | 4,1% | 4,3% | 4,2% | 0,0% |
| Finland | 2,6% | 2,5% | 1,7% | 1,7% | 1,7% | 1,7% | 1,7% | 1,6% | 1,7% | 1,6% | 1,8% | -1,0% |
| Iceland | 0,9% | 0,8% | 0,8% | 0,6% | 0,7% | 0,8% | 0,7% | 0,7% | 0,9% | 1,2% | 0,8% | 0,2% |
| Norway | 2,0% | 1,9% | 1,8% | 1,8% | 1,8% | 1,7% | 1,7% | 1,7% | 1,7% | 1,6% | 1,8% | -0,4% |
| Sweden | 1,9% | 1,9% | 2,0% | 1,9% | 2,0% | 2,0% | 1,9% | 1,9% | 1,7% | 1,8% | 1,9% | -0,1% |
| Cyprus | 1,1% | 1,1% | 1,2% | 1,3% | 1,3% | 1,2% | 1,2% | 1,0% | 0,9% | 0,9% | 1,1% | -0,2% |
| Greece | 2,1% | 1,6% | 1,1% | 1,0% | 0,9% | 0,9% | 0,9% | 0,9% | 0,8% | 0,9% | 1,1% | -1,2% |
| Italy | 2,3% | 2,2% | 2,2% | 2,2% | 2,1% | 2,1% | 2,0% | 1,9% | 2,0% | 2,0% | 2,1% | -0,3% |
| Malta | 1,0% | 1,0% | 1,0% | 1,1% | 1,0% | 1,0% | 1,0% | 0,8% | 0,9% | 0,9% | 1,0% | -0,1% |
| Portugal | 1,5% | 1,5% | 1,4% | 1,4% | 1,3% | 1,4% | 1,6% | 1,5% | 1,5% | 1,5% | 1,5% | 0,1% |
| Spain | 1,9% | 1,8% | 1,8% | 1,7% | 1,7% | 1,7% | 1,6% | 1,5% | 1,6% | 1,8% | 1,7% | -0,1% |
| Bulgaria | 2,0% | 1,9% | 1,9% | 2,0% | 1,9% | 2,2% | 2,2% | 2,2% | 2,2% | 2,2% | 2,1% | 0,2% |
| Croatia | 1,9% | 1,7% | 1,6% | 1,5% | 1,5% | 1,6% | 1,6% | 1,6% | 1,5% | 1,5% | 1,6% | -0,3% |
| Czech Republic | 2,9% | 2,9% | 2,9% | 2,9% | 2,9% | 3,0% | 2,9% | 2,8% | 2,9% | 2,9% | 2,9% | 0,0% |
| Estonia | 1,2% | 1,2% | 1,2% | 1,3% | 1,6% | 1,5% | 1,4% | 1,7% | 1,9% | 2,0% | 1,5% | 0,8% |
| Hungary | 1,2% | 1,3% | 1,5% | 1,5% | 1,5% | 1,5% | 1,6% | 1,9% | 1,9% | 1,9% | 1,6% | 0,7% |
| Latvia | 1,7% | 1,4% | 1,4% | 1,4% | 1,4% | 1,5% | 1,4% | 1,4% | 1,3% | 1,4% | 1,4% | -0,3% |
| Lithuania | 2,8% | 2,8% | 3,0% | 3,0% | 2,7% | 2,4% | 2,2% | 2,1% | 2,3% | 2,1% | 2,5% | -0,8% |
| Poland | 2,2% | 2,2% | 2,1% | 1,9% | 2,3% | 2,1% | 1,7% | 1,7% | 1,6% | 1,7% | 2,0% | -0,4% |
| Romania | 2,1% | 2,1% | 2,2% | 1,5% | 1,9% | 1,8% | 1,9% | 4,2% | 1,9% | 1,6% | 2,1% | -0,5% |
| Slovakia | 2,6% | 2,6% | 2,4% | 2,5% | 2,5% | 2,5% | 2,6% | 2,3% | 1,9% | 1,9% | 2,4% | -0,6% |
| Slovenia | 1,5% | 1,6% | 1,5% | 1,5% | 1,5% | 1,4% | 1,5% | 1,2% | 1,2% | 1,2% | 1,4% | -0,3% |
| Australia | | | | | | | | | | | | |
| Canada | | | | | | | | | | | | |
| New Zealand | | | | | | | | | | | | |
| Unites States | | | | | | | | | | | | |
| Average | 2,4% | 2,4% | 2,3% | 2,3% | 2,3% | 2,3% | 2,3% | 2,3% | 2,2% | 2,3% | 2,3% | -0,2% |

*Source: Eurostat and author's calculations*

*Table 29: Labour force participation rate (percentage of total population aged 15–64; modelled ILO estimate)*

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | average | change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia | 65,2 | 65,5 | 65,5 | 65,4 | 65,4 | 65,2 | 65,0 | 64,7 | 65,0 | 64,9 | 65,2 | 65,6 | 66,0 | 65,0 | 65,9 | 66,1 | 66,4 | 65,4 | 1,2 |
| Austria | 59,8 | 60,1 | 60,4 | 60,3 | 60,4 | 60,7 | 60,8 | 60,6 | 60,6 | 61,1 | 61,1 | 61,3 | 61,3 | 60,8 | 61,2 | 61,5 | 61,7 | 60,8 | 1,9 |
| Belgium | 53,6 | 53,7 | 53,5 | 54,1 | 53,2 | 53,3 | 53,6 | 53,5 | 53,3 | 53,1 | 53,8 | 54,2 | 54,4 | 53,8 | 54,5 | 55,1 | 54,9 | 53,9 | 1,3 |
| Bulgaria | 52,6 | 53,8 | 53,0 | 53,4 | 52,5 | 53,1 | 53,9 | 54,1 | 54,1 | 53,3 | 55,4 | 55,3 | 56,6 | 55,6 | 55,3 | 56,6 | 56,1 | 54,4 | 3,5 |
| Canada | 67,4 | 67,6 | 67,1 | 66,9 | 66,7 | 66,5 | 66,5 | 66,0 | 65,8 | 65,7 | 65,8 | 65,4 | 65,7 | 64,0 | 65,1 | 65,0 | 65,2 | 66,0 | -2,3 |
| Croatia | 52,9 | 53,1 | 53,1 | 52,6 | 51,8 | 51,4 | 50,8 | 52,4 | 52,7 | 51,3 | 51,6 | 51,2 | 51,1 | 51,0 | 51,8 | 52,3 | 52,6 | 52,0 | -0,3 |
| Cyprus | 64,4 | 64,3 | 63,9 | 64,3 | 63,8 | 63,7 | 63,5 | 63,9 | 62,4 | 61,3 | 61,7 | 62,5 | 63,0 | 62,8 | 63,8 | 65,1 | 65,3 | 63,5 | 0,9 |
| Czech Republic | 58,8 | 58,5 | 58,7 | 58,4 | 58,3 | 58,6 | 59,3 | 59,3 | 59,4 | 59,9 | 60,2 | 60,6 | 60,4 | 59,8 | 59,8 | 59,9 | 60,1 | 59,4 | 1,3 |
| Denmark | 65,7 | 65,1 | 64,4 | 63,5 | 63,1 | 62,3 | 61,4 | 61,3 | 61,3 | 61,7 | 61,7 | 61,8 | 62,4 | 62,0 | 62,5 | 63,4 | 63,6 | 62,8 | -2,1 |
| Estonia | 60,3 | 61,0 | 60,6 | 60,4 | 61,2 | 61,2 | 61,2 | 61,0 | 62,0 | 62,6 | 63,5 | 63,7 | 63,4 | 63,4 | 63,2 | 65,1 | 65,8 | 62,3 | 5,4 |
| Finland | 61,2 | 61,4 | 60,4 | 59,8 | 59,9 | 59,7 | 59,1 | 58,9 | 58,9 | 58,6 | 58,8 | 59,4 | 59,4 | 59,0 | 59,7 | 60,4 | 60,6 | 59,7 | -0,6 |
| France | 56,0 | 56,1 | 56,3 | 56,3 | 56,0 | 56,3 | 56,4 | 56,1 | 56,1 | 55,9 | 55,6 | 55,6 | 55,3 | 54,5 | 55,9 | 56,2 | 56,3 | 55,9 | 0,3 |
| Germany | 59,2 | 59,2 | 59,4 | 59,4 | 60,1 | 60,1 | 60,4 | 60,4 | 60,2 | 61,0 | 61,2 | 61,3 | 61,9 | 60,7 | 60,6 | 61,3 | 61,6 | 60,5 | 2,5 |
| Greece | 52,6 | 52,6 | 52,9 | 52,9 | 52,1 | 51,9 | 51,7 | 51,4 | 51,4 | 51,3 | 51,2 | 50,9 | 51,0 | 50,1 | 50,3 | 51,8 | 51,9 | 51,6 | -0,7 |
| Hungary | 50,5 | 50,1 | 50,0 | 50,4 | 50,6 | 51,4 | 51,9 | 53,4 | 54,5 | 55,4 | 56,0 | 56,5 | 56,9 | 56,7 | 59,3 | 60,4 | 61,0 | 54,4 | 10,5 |
| Iceland | 77,2 | 76,5 | 74,9 | 74,9 | 74,2 | 74,3 | 75,1 | 76,3 | 77,2 | 78,0 | 77,2 | 76,1 | 75,5 | 73,5 | 73,4 | 74,3 | 74,4 | 75,5 | -2,8 |
| Ireland | 66,6 | 65,9 | 64,1 | 62,6 | 62,0 | 61,6 | 62,0 | 61,8 | 61,8 | 62,2 | 62,0 | 62,2 | 62,3 | 61,1 | 63,3 | 64,8 | 65,0 | 63,0 | -1,6 |
| Italy | 48,8 | 49,1 | 48,5 | 48,2 | 48,1 | 49,1 | 48,8 | 49,1 | 49,0 | 49,5 | 49,8 | 49,9 | 49,9 | 48,5 | 48,6 | 49,1 | 49,8 | 49,0 | 1,0 |
| Latvia | 60,3 | 61,6 | 60,1 | 58,9 | 58,5 | 59,7 | 59,4 | 59,3 | 60,1 | 60,4 | 60,8 | 61,4 | 61,2 | 61,7 | 60,2 | 61,1 | 61,4 | 60,4 | 1,2 |
| Lithuania | 55,1 | 55,4 | 56,1 | 56,3 | 57,2 | 57,6 | 57,9 | 58,8 | 59,0 | 60,3 | 60,6 | 61,5 | 61,9 | 62,3 | 61,8 | 62,1 | 62,2 | 59,2 | 7,1 |
| Luxembourg | 55,9 | 56,0 | 58,2 | 57,7 | 57,6 | 58,8 | 59,4 | 60,1 | 60,0 | 58,9 | 59,3 | 59,9 | 60,7 | 60,8 | 61,9 | 61,6 | 62,4 | 59,4 | 6,6 |
| Malta | 49,0 | 49,0 | 49,0 | 49,7 | 50,6 | 52,0 | 53,7 | 54,9 | 55,4 | 56,6 | 57,7 | 59,7 | 60,8 | 61,6 | 62,7 | 63,9 | 65,3 | 56,0 | 16,3 |
| Netherlands | 64,5 | 65,3 | 65,4 | 64,8 | 64,5 | 65,0 | 65,0 | 64,4 | 64,4 | 64,1 | 64,0 | 64,3 | 64,8 | 64,6 | 64,9 | 65,4 | 66,1 | 64,8 | 1,5 |
| New Zealand | 68,4 | 68,4 | 68,2 | 68,0 | 68,3 | 68,0 | 67,8 | 68,7 | 68,8 | 70,0 | 70,9 | 70,9 | 70,5 | 70,2 | 70,8 | 71,3 | 72,1 | 69,5 | 3,7 |
| Norway | 66,4 | 67,5 | 66,4 | 65,6 | 65,2 | 65,3 | 65,0 | 64,8 | 64,9 | 64,4 | 63,6 | 63,9 | 64,0 | 63,6 | 66,0 | 65,6 | 65,2 | 65,2 | -1,2 |
| Poland | 54,0 | 54,5 | 55,2 | 56,0 | 56,2 | 56,5 | 56,6 | 56,9 | 56,8 | 56,9 | 57,2 | 57,1 | 57,0 | 56,9 | 58,0 | 58,6 | 58,9 | 56,7 | 4,9 |
| Portugal | 62,2 | 62,0 | 61,4 | 61,2 | 60,5 | 60,1 | 59,3 | 58,8 | 58,6 | 58,5 | 58,9 | 59,1 | 59,3 | 58,0 | 57,8 | 58,6 | 59,2 | 59,6 | -3,0 |
| Romania | 54,8 | 54,5 | 54,4 | 54,9 | 54,1 | 54,6 | 54,5 | 54,9 | 54,5 | 53,7 | 54,9 | 55,0 | 55,1 | 55,1 | 51,1 | 51,8 | 51,6 | 54,1 | -3,1 |
| Slovakia | 58,9 | 59,3 | 58,9 | 59,0 | 58,8 | 59,2 | 59,3 | 59,7 | 59,7 | 60,1 | 60,0 | 59,8 | 59,7 | 59,0 | 60,5 | 61,5 | 61,7 | 59,7 | 2,8 |
| Slovenia | 59,7 | 59,5 | 59,5 | 59,2 | 58,0 | 57,6 | 57,3 | 57,7 | 57,3 | 56,6 | 58,4 | 58,8 | 58,1 | 57,8 | 58,5 | 58,9 | 58,5 | 58,3 | -1,2 |
| Spain | 58,3 | 59,1 | 59,2 | 59,3 | 59,3 | 59,4 | 59,0 | 58,6 | 58,5 | 58,2 | 57,8 | 57,6 | 57,5 | 56,3 | 57,4 | 57,5 | 57,6 | 58,3 | -0,7 |
| Sweden | 63,7 | 63,9 | 63,4 | 63,3 | 63,7 | 63,8 | 64,3 | 64,4 | 64,6 | 64,8 | 65,3 | 65,5 | 65,7 | 65,4 | 65,8 | 66,2 | 66,9 | 64,8 | 3,2 |
| Switzerland | 67,6 | 68,2 | 68,2 | 67,0 | 67,5 | 67,5 | 67,5 | 67,9 | 68,2 | 68,6 | 68,4 | 68,5 | 68,2 | 67,9 | 67,4 | 66,6 | 66,4 | 67,7 | -1,3 |
| United Kingdom | 62,5 | 62,8 | 62,6 | 62,4 | 62,3 | 62,5 | 62,6 | 62,7 | 62,7 | 62,9 | 62,9 | 63,1 | 63,2 | 62,8 | 62,2 | 62,2 | 62,3 | 62,6 | -0,2 |
| United States | 64,7 | 64,7 | 64,1 | 63,5 | 63,0 | 62,8 | 62,4 | 62,2 | 62,1 | 62,2 | 62,3 | 62,4 | 62,6 | 61,3 | 61,2 | 61,5 | 61,9 | 62,6 | -2,9 |
| Average | 60,0 | 60,1 | 59,9 | 59,7 | 59,6 | 59,7 | 59,8 | 60,0 | 60,0 | 60,1 | 60,4 | 60,6 | 60,8 | 60,2 | 60,6 | 61,2 | 61,5 | 60,3 | 1,5 |

*Source: WDI and author's calculations*

# 8. ENVIRONMENTAL PROTECTION AND CLIMATE CHANGE

## Environmental Protection and Climate Change: an Update

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# 8.1. INTRODUCTION

**The theme of environmental protection, which dates back to the 1970s, has in recent decades been integrated into the later and much broader agenda of sustainable development. This latter concept entails, as famously stated in the UN's Brundtland Report *Our Common Future*, "a development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987). Sustainable development was later specified in terms of safeguarding four kinds of capital: economic, natural, social, and human capital (Joint UNECE/ Eurostat/OECD Task Force, 2013).The focus here is on natural capital only, and hence on environmental protection, i.e. on activities aimed at the prevention, reduction, and elimination of pollution or any other degradation of the environment. Three issues are at the fore in protecting natural capital: climate change, depletion of natural resources, and environmental protection.**

In the last ten years, governments and organisations have been paying increasing attention to the environmental protection and climate change actions, thanks also to the pressure coming from citizens and civil society at large. They integrated environmental policies in their political agendas and set this as a top priority for the future. On 12 December 2015, 196 countries adopted the Paris Agreement, a legally binding international treaty on climate change, which goal is to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels. The Paris Agreement is a landmark in the multilateral climate change process because, for the first time, a binding agreement brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects (United Nations Framework Convention on Climate Change, 2015).

### 8.1.1. Objectives of the chapter

The chapter updates and deepens the analysis in the area of environmental protection and climate change presented in the original edition, incorporating the most recent data to track longitudinal trends over the past two years. It builds on the framework and findings of the previous edition to highlight key developments, progress, and remaining challenges. In addition to updating the figures where applicable, this update specifically tracks how the trends and best practices as originally presented in the previous edition have evolved in response to shifting policy priorities, technological advances, and emerging environmental challenges. The chapter maintains its original focus on cross-country performance comparisons across the themes of government spending, air quality, water resources, waste management, energy resources, biodiversity, and citizens' perceptions, covering 35 countries (the 27 EU Member States plus the United Kingdom, Norway, Iceland, Switzerland, Australia, New Zealand, Canada, and the United States).

### 8.1.2. Data and methodology

A broad range of indicators can be grouped under the umbrella notion of environmental protection, ranging from sustainability and climate change to indicators that are more related to citizens' immediate residential environments. The indicators for environmental protection chosen in this chapter focus on air quality, water resources, waste management, energy, biodiversity and landscapes, as well as citizens' perception of climate change and environmental policy. Single indicators measure characteristics of separate elements of the conceptual framework, and ratio indicators measure the relationship of elements (Van Dooren et al., 2015). The distinction between single and ratio indicators corresponds with the grouping of research objects. Single indicators measure performance based on isolated concepts whereas ratio indicators measure performance of related concepts. The specificity of outputs and outcomes depends on the theme and section addressed in this report, and the connection between input, output, and outcome is discussed per section (performance analysis of a particular issue).

The study in this chapter adopts two main data collection methods: qualitative (e.g. document analysis and literature review) and quantitative (e.g. descriptive statistics and two-way correlations). The first method was useful for gathering the data underlying input, output, and outcome indicators, while the second one underlines the performance analysis.

To ensure the integrity and comparability of our metrics, we followed the original chapter's data checking process: each data source was revisited, metadata and collection dates were verified, and methodologies (single vs. ratio indicators; input–output–outcome linkages) were aligned with the framework set out in the prior edition. Any gaps or inconsistencies were flagged and resolved before proceeding to the analytical updates.

### 8.1.3. Outline

The update of the chapter first provides an overview of the inputs used by the countries for environmental protection purposes, by focusing on environmental protection expenditure, environmental policy stringency index, and environmental transfers. In the subsequent sections, it reflects on countries' performance on the themes of air quality, water resources, waste management, energy, biodiversity and landscapes, as well as citizens' perception of climate change and environmental policy. The chapter ends with conclusions and reflections on best-performing countries per investigated theme, synthesising key findings – updated figures, longitudinal trends, and the evolution of best practices. In addition, throughout the chapter, grey boxes highlight selected country examples that illustrate particularly strong performance, innovative practices, or instructive contrasts. They provide a closer look at national experiences that help explain the broader statistical patterns presented in the figures and tables.

# 8.2. INPUTS

**In line with the theoretical framework, input refers to monetary and non-monetary resources, essential for carrying out activities which result in certain outcomes. In this section, we present data on input indicators essential for managing the environmental protection and climate change policy domain.**

### 8.2.1. Environmental protection expenditure

The first indicator is the general government total expenditure measured as the share of total GDP spent on environmental protection (including per different themes) in 34 countries (no data available for United States) compared with each other. General government expenditure on environmental protection can be divided into expenditure on waste management, wastewater management, pollution abatement, protection of biodiversity and landscape, R&D environmental protection, and environmental protection. Figure 1 presents the updated 2023 data, showing how expenditure patterns have shifted compared to 2021 data presented in the original report.

In 2023, the average environmental protection expenditure in the European Union remained at 0.8% of GDP, unchanged from 2021. However, behind this stability lies a reallocation among themes and notable shifts at the country level. Waste management continued to receive the largest share of funds, holding steady at 0.4% of GDP. Wastewater management remained at 0.1%, while spending on pollution abatement also stayed flat at 0.1%. Similarly, expenditure on biodiversity and landscape protection and environmental R&D both remained low, at or just below 0.1% of GDP. Spending classified under environmental protection not elsewhere classified (n.e.c.) also held at 0.1% across the EU.

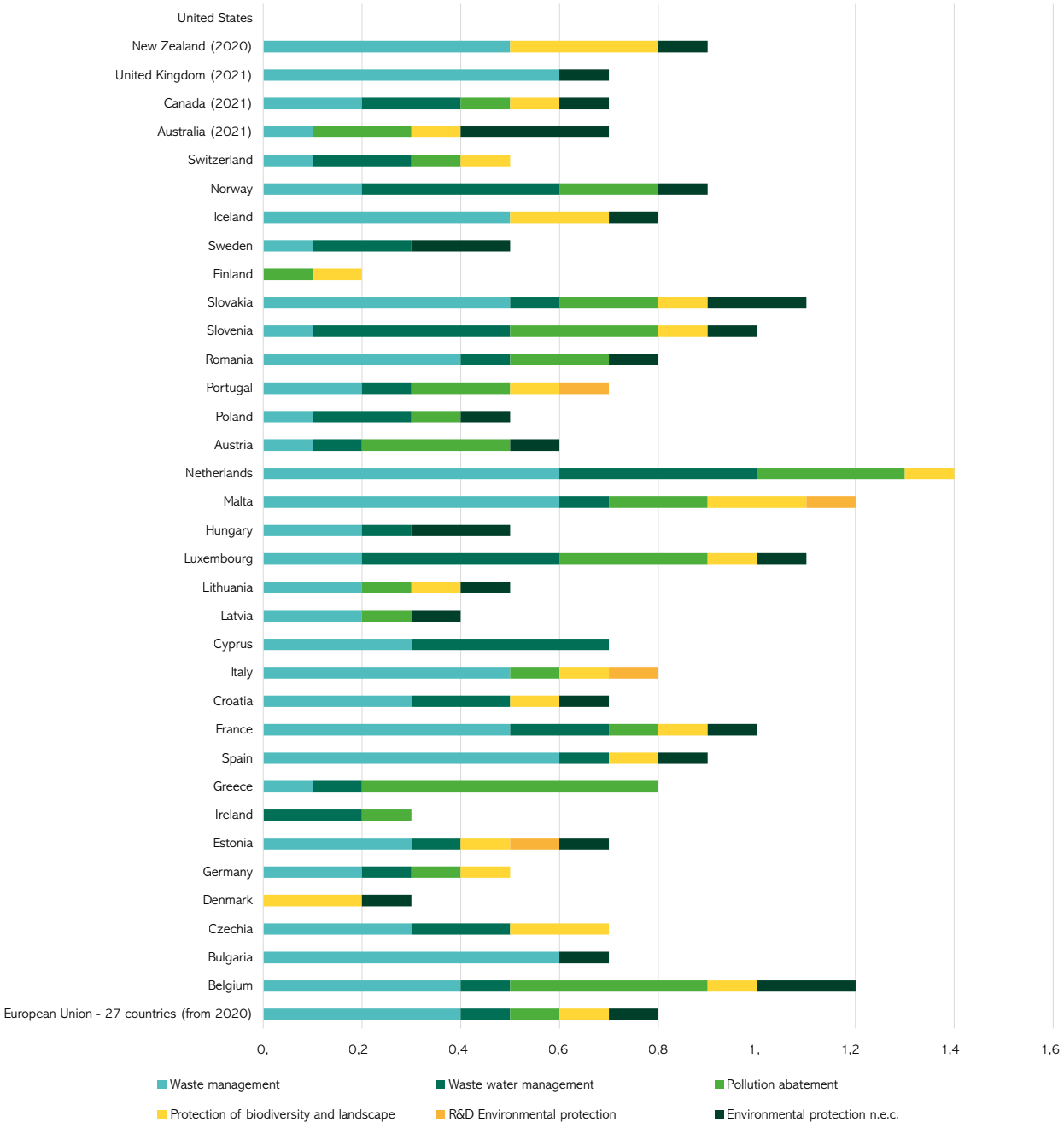
Expenditure remained uneven across countries, ranging from below 0.3% (Finland, Ireland) to above 1.2% (Netherlands, Belgium, Malta). The Netherlands recorded the highest overall expenditure on environmental protection in 2023, spending 1.4% of GDP, consistent with 2021. It maintained high levels in both waste management (0.6%) and wastewater management (0.4%), and continued to invest in pollution abatement (0.3%) and biodiversity protection (0.1%). This consistent performance positions the Netherlands as a clear leader in environmental spending within the EU. Belgium maintained a high expenditure level (~1.2% of GDP), although its pollution abatement spending decreased from 0.6% in 2021 to 0.4% in 2023 and spending on environmental protection n.e.c. increased from 0.1% to 0.2%, indicating some rebalancing of priorities. Malta increased its expenditure from 1.2% in 2021 to 1.4% in 2023, allocating more to R&D and pollution abatement. Cyprus recorded notable increases in wastewater management, contributing to overall growth in environmental protection spending (Eurostat, 2023a).

Austria, Portugal, and Greece showed more balanced profiles across all six categories, with moderate increases in biodiversity and R&D. Finland, Ireland, and New Zealand (2020 data) continued to report the lowest spending levels, with environmental protection below 0.4% of GDP. Sweden and Norway had stable expenditure with no major changes in thematic focus.

Across the EU, waste management remained the largest area of government environmental protection expenditure in both years, increasing slightly from 0.40% of GDP in 2021 to approximately 0.42% in 2023. Wastewater management followed with a moderate rise from 0.20% to around 0.23%, although not uniformly across countries – Czech Republic, for instance, did not increase its wastewater expenditure. Pollution abatement saw a more notable increase, rising from 0.10% to about 0.12%, reflecting expanded tax-subsidy schemes for renewable energy in countries such as Belgium and Greece. Spending on the protection of biodiversity and landscape, and R&D for environmental protection, remained modest but showed slight increases, each reaching just above 0.10% of GDP in 2023. Expenditure classified as environmental protection (n.e.c.) also grew slightly, now representing approximately 0.12% of GDP across the EU.

Although the overall structure of environmental expenditure across the EU remained largely unchanged, the internal reallocation of resources in several countries reveals nuanced policy adjustments. The persistent underfunding of environmental R&D across most countries, combined with flat averages in core areas such as biodiversity, suggests that increased ambition in climate and environmental goals has yet to translate into broader financial scaling.

*Figure 1: Total general government expenditure on environmental protection, 2023 (percentage of GDP)*

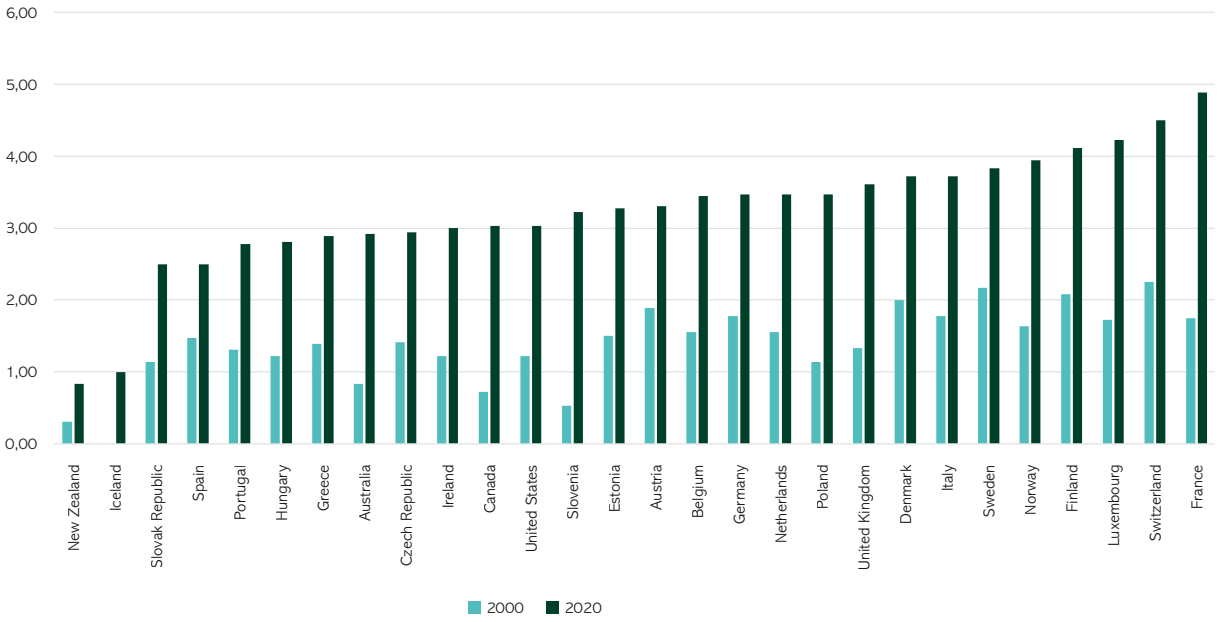



*Source: Eurostat and International Monetary Fund climate data*

### 8.2.2. Environmental Policy Stringency Index

The OECD Environmental Policy Stringency Index (EPS) is a country-specific and internationally-comparable measure of the stringency of environmental policy. Stringency is defined as the degree to which environmental policies put an explicit or implicit price on polluting or environmentally harmful behaviour (OECD, 2016). The substantial increase in the EPS on average across the OECD over the past decades shows wide heterogeneity across countries. Figure 2 shows countries according to their EPS in 2000 (blue bars) and 2020 (orange bars). All countries increased their environmental policy stringency between 2000 and 2020. In 2020, the countries with the most stringent environmental policies were France, Switzerland, Luxembourg, and Finland (Figure 2).

*Figure 2: Environmental Policy Stringency Index in 2000 and 2020*



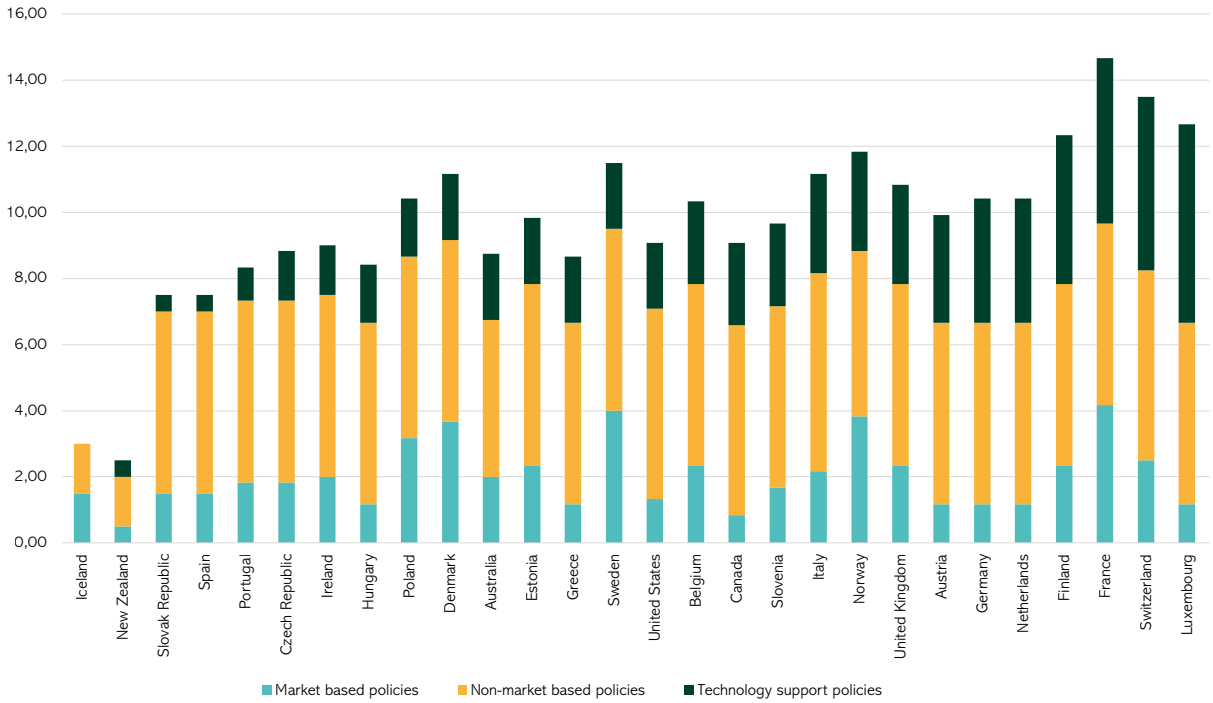

*Source: OECD*

Some countries strengthened their environmental policies more than others. Looking at the changes in absolute values of the EPS score, France (+3.2) and Slovenia (+ 2.8) increased their policy stringency the most (between 2000 and 2020). While the environmental policy stringency in some countries increased significantly, several countries (e.g. Hungary, Slovak Republic) also started from a low basis, so that their policy stringency remains at a relatively low level.

In addition, the EPS index consists of three equally-weighted subindices, which respectively group market-based (e.g. taxes, permits, and certificates), non-market-based (e.g. performance standards), and technology support policies. While the stringency of environmental policies has on average increased substantially over the past three decades across OECD countries, the rate of increase in the EPS has slowed down over the past decade. The stringency of non-market-based policy instruments has increased the most in absolute terms, followed by technology support policies and market-based policies. The initiation of emissions trading schemes across several countries since the early 2000s has contributed to the increase in the stringency of market-based policies. Nevertheless, the scope for greater pricing of emissions remains significant in the majority of countries (Kruse et al., 2022).

Over the past ten years, the level of technology support policies has weakened, raising concerns that incentives to innovate in clean technologies may be declining. While the declining trend may partly capture a shift towards more efficient technology support policies, the huge need for innovation and investment in green technologies requires further increase in technology support policies (Kruse et al., 2022). Figure 3 shows that in most countries in 2020 the EPS score of non-market-based environmental policies is highest, followed by technology support policies and market-based policies.

*Figure 3: Environmental Policy Stringency by sub-indicator across countries in 2020*




*Source: OECD*
*Note: The graph shows the contribution of the policy components to the EPS across countries for 2020*

### 8.2.3. Environmental transfers

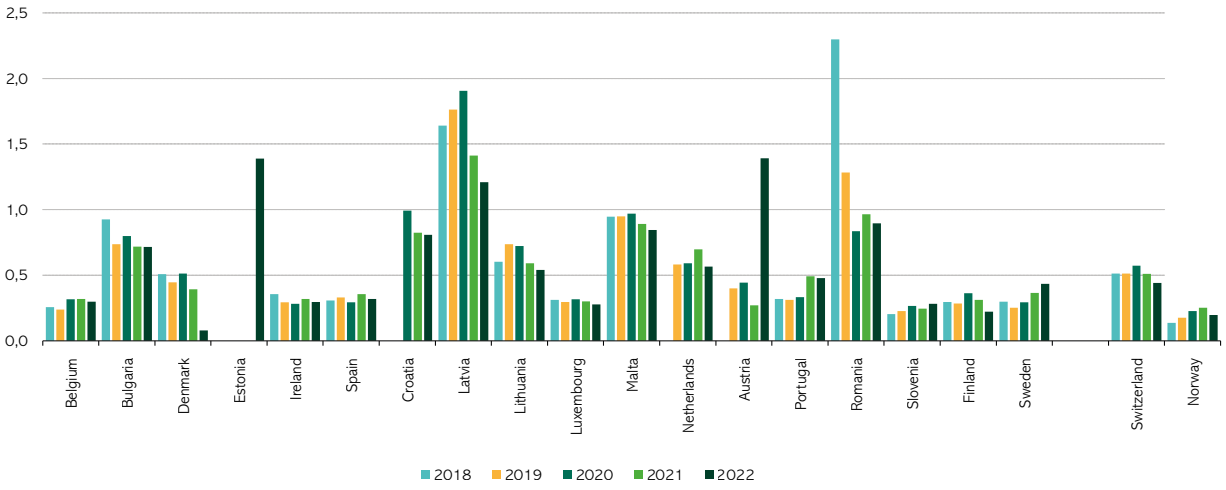
In this chapter, environmental transfers are understood as payments whose purpose is to protect the environment or manage natural resources, such as support for cleaner energy technologies, maintenance of nature reserves, or research on environmental issues. These transfers include subsidies and similar payments received by corporations, households, or public authorities and are financed by national governments or international sources, including EU funds.

Across the period 2018–2022, the share of environmental transfers in the reporting European countries ranges roughly between 0.1% and 2.9% of GDP, with most clustering between 0.2% and 1%. Figure 4 shows substantial variation in both levels and trajectories over time.

Some countries consistently allocate higher shares relative to GDP. Romania stands out with a peak of 2.9% in 2018, followed by declines to around 1% in 2020–2021 and further down to 0.9% in 2022. Lithuania reports values between 0.6% and 1%, while Latvia, Austria, and Malta also show values near or above 0.8% in several years. By contrast, Luxembourg, Ireland, Portugal, and Norway remain at the lower end of the range, with values around 0.1% to 0.4% throughout the period. Switzerland remains relatively stable at around 0.4% to 0.6%.

Trends vary across countries. Some, such as Bulgaria, Croatia, Austria, and Slovenia show gradual increases over time while others, such as Romania, Lithuania, and Estonia, exhibit declines after peak years. In several countries (e.g. Belgium, Denmark, Netherlands, Finland, and Sweden), environmental transfers remain comparatively stable with only small year-to-year fluctuations. These patterns reflect not only national policy choices but also the timing and scale of EU-funded programmes, particularly those linked to renewable energy investments, wastewater treatment, and biodiversity protection.

*Figure 4: Total environmental transfers received by the national economy as percentage of GDP (%), years 2018–2022*




*Source: Eurostat*

Where data is available on the breakdown by funding source, notable differences appear. In countries such as Denmark, Ireland, Spain, Malta, and Sweden, more than 80% of the environmental transfers originate from general government, while the rest comes from international inflows (including EU funds). In Bulgaria, Lithuania, Portugal, and Romania, by contrast, international sources contribute a larger share than the domestic government – ranging from slightly over half in Portugal to around 80% in Bulgaria. According to Eurostat, this reflects the fact that some Member States rely more heavily on EU cohesion funding and recovery instruments to finance environmental infrastructure and climate-related measures (Eurostat, 2023b).

### 8.2.4. Key insights and policy outlook

**Key points are:**

- Public expenditure on environmental protection remained broadly stable at around 0.8% of GDP, with significant variation across countries from below 0.3% (Finland, Ireland) to above 1.2% (Netherlands, Belgium, Malta).
- Modest reallocations within budgets towards pollution abatement and wastewater management signal incremental policy adjustments rather than large-scale financial scaling.
- Environmental policy stringency in 2020 was high across OECD and EU countries; France, Switzerland, Luxembourg, Finland, and the Netherlands showed the most stringent frameworks.
- While financial efforts have levelled off, regulatory ambition remains strong, reflecting a shift from expanding budgets to strengthening policy frameworks.
- Environmental transfers remained between 0.2%–1% of GDP for most countries and continue to depend heavily on EU funding cycles, especially in Central and Eastern Europe.
- Future progress will require aligning stable domestic financing with sustained regulatory and innovation incentives, to close the gap between policy ambition and available resources.

### 8.2.5. Outputs and outcomes

In line with the conceptual framework, we define output as anything that comes out of a system being the result of input processing (European Institute of Public Administration, 2022). Output might be used immediately or be readily available for use by citizens in the future. Outcome, on the other hand, goes beyond output, i.e. the societal, economic, and political results relevant for the environmental policy area.

# 8.3. AIR QUALITY

Air pollutants are emitted by a large range of economic activities (and from some natural sources). They can affect air quality far away from the source, and local effects also depend on local conditions. Overall, air pollution is the single largest environmental health risk in Europe and beyond. Considerable progress has been made in recent years in improving urban air quality, but issues remain. Although emissions of air pollutants have declined, almost 20% of the EU's urban population live in areas with concentrations of air pollutants above at least one EU air quality standard (European Environment Agency, 2020). Exposure to fine particulate matter is responsible for around 400,000 premature deaths in Europe every year, and Central and Eastern European countries are disproportionately affected. Overall, the emissions of most main air pollutants decreased in Europe between 2005 and 2020. This decrease did not happen at the same pace in all countries and regions, and not in all sectors.

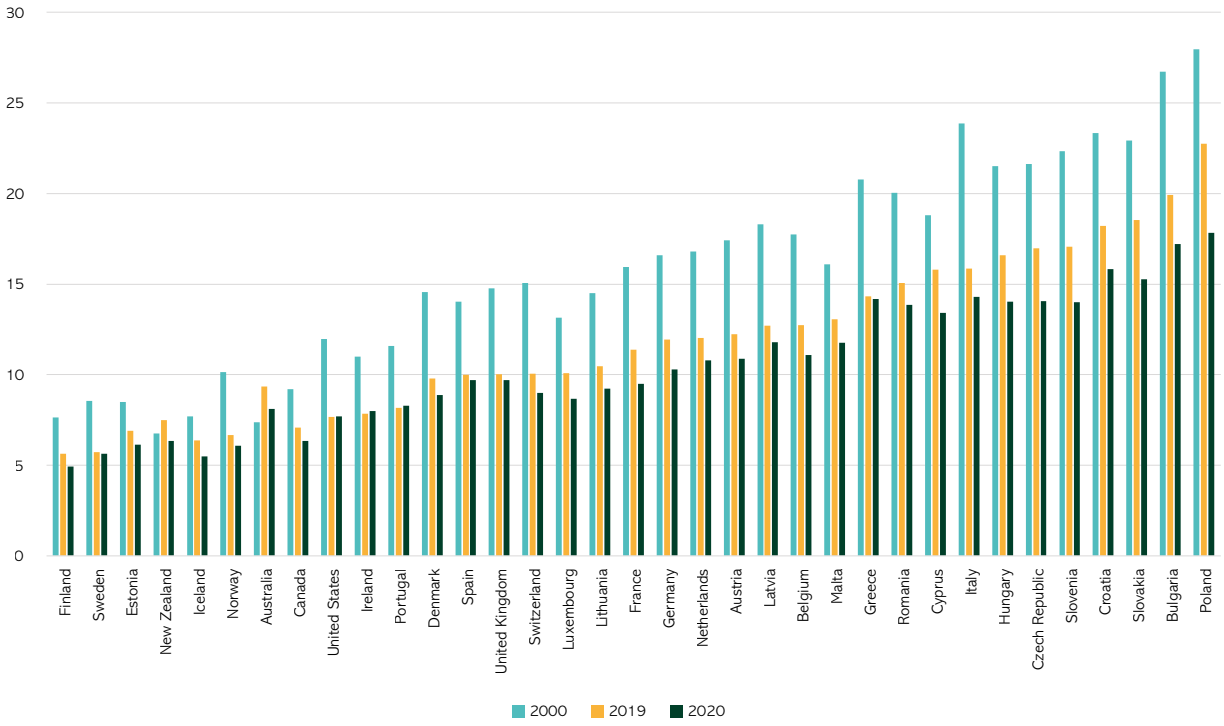
### 8.3.1. Exposure to PM2.5 fine particles and other trends in air pollutants emissions

Fine particulate matter (PM2.5) is the air pollutant that poses the greatest risk to health globally, affecting more people than any other pollutant. Chronic exposure to PM2.5 considerably increases the risk of respiratory and cardiovascular diseases in particular. Data refers to population exposure of more than 10 micrograms/$m^3$ and are expressed as annual averages.

From 2000 to 2019, emissions of particulate matter with a diameter of 2.5 microns (µm) or less (PM2.5) have decreased in the reporting countries (Figure 5), due to optimised combustion processes, a decline of coal in the energy mix, and lower emissions from transport and agriculture (European Environment Agency, 2020). A decrease of PM2.5 emissions was observed in all EU countries, as well as the United Kingdom, Norway, Iceland, Switzerland, Australia, New Zealand, Canada, and the United States (Figure 5). The 2020 data confirms that this downward trend continued, with most countries showing further reductions. However, some countries had historically high exposure levels. Notably, Poland – which in 2019 still exceeded the EU exposure concentration obligation of 20 µg/$m^3$ with an average of 22.8 µg/$m^3$ – achieved a significant improvement in 2020, lowering its average exposure to 17.8 µg/$m^3$. This marked an important milestone, as the country finally met the EU obligation set for 2015. Overall, the primary source of particulate matter PM2.5 in 2020 was the energy consumption in the residential, commercial, and institutional sector responsible for 58% of emissions (European Environment Agency, 2020). The manufacturing and extractive industry, and the road transport sector were also significant sources of the pollutant.

Furthermore, ammonia ($NH_3$) had the lowest reduction in emissions of only 8% from 2005 to 2020. Ammonia is an important precursor gas that contributes to the formation of secondary particulate matter. Also, emissions of methane ($CH_4$) declined by only 17%. $CH_4$ is a potent greenhouse gas that drives climate change and is also an ozone ($O_3$) precursor. The main source of both $NH_3$ and $CH_4$ emissions is the agriculture sector (European Environment Agency, 2020). By contrast, emissions of sulphur dioxide ($SO_2$) fell significantly from 2005 to 2020, with a decrease of 79%. This was mainly due to the reduced use of coal over the that period of time. Major reductions were also seen for nitrogen oxides ($NO_X$), black carbon (BC), carbon monoxide (CO), and non-methane volatile organic compounds, with declines of 48%, 46%, 42%, and 31%, respectively (European Environment Agency, 2020).

*Figure 5: Exposure to PM2.5 fine particles in 2000, 2019, and 2020 (micrograms per cubic metre)*



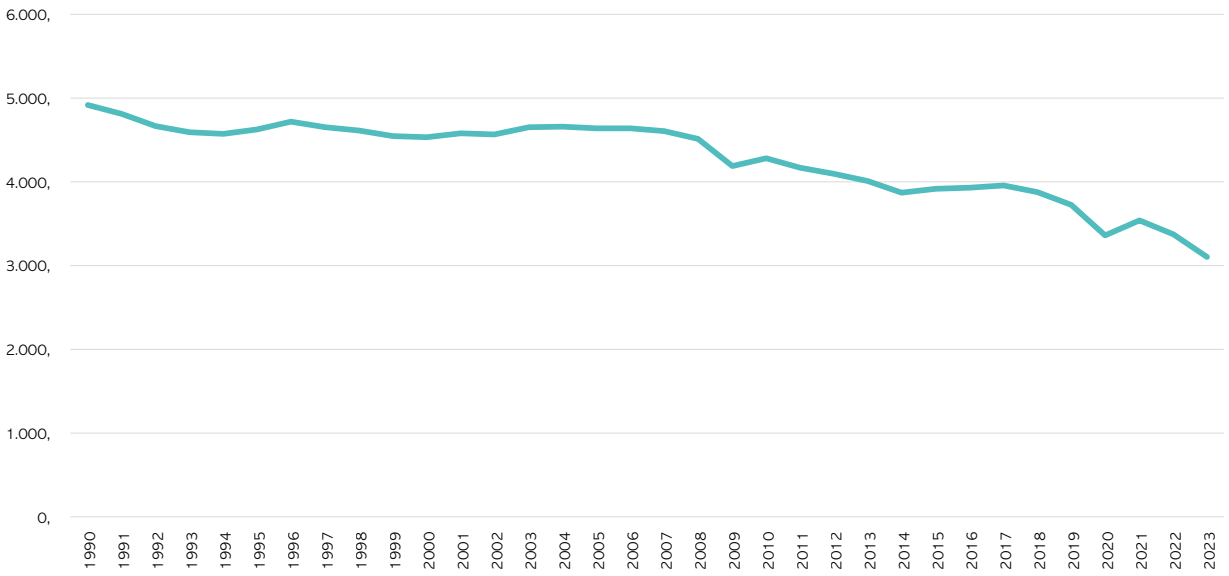

*Source: OECD*
*Notes: The bars show population exposure to more than 10 micrograms/$m^3$ of PM2.5 fine particles in reporting countries and are expressed as annual averages for 2000, 2019, and 2020. The horizontal red line represents the exposure concentration obligation for the EU-28, set at 20 µg/$m^3$, to be achieved by 2015.*

### 8.3.2. Greenhouse gas (GHG) emissions

Climate change poses a significant threat to sustainable development. Extensive research has led the scientific community to reach a consensus that human activities, particularly the emission of greenhouse gas (GHG), are the primary cause of the Earth's rising average temperatures over the past 250 years (IPCC, 2014). These GHG emissions are primarily generated through the burning of fossil fuels in power plants, vehicles, and residential heating, while agricultural practices and waste decomposition in landfills also contribute to GHG emissions. Extensive reduction of GHG emissions is at the core of policies aimed at preventing climate change due to global warming. The EU has formulated the ambitious targets to achieve a 55% $CO_2$ emission reduction by 2030 and reach climate neutrality by 2050. Both targets are underpinned by the European Climate Law. This presents a considerable challenge for national governments, often referred to the need for an energy transition towards renewable energy.

The net GHG emissions indicator measures total national emissions, including carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), and the so-called F-gases (hydrofluorocarbons, perfluorocarbons, nitrogen trifluoride (NF3), and sulphur hexafluoride (SF6)) from all sectors of the GHG emission inventories (including international aviation and indirect $CO_2$). In the EU, GHG emissions experienced a steady decline from 2010 to 2014, followed by a slight increase between 2015 and 2017. However, emissions dropped again during 2018 to 2020. Notably, in 2020, emissions saw a significant decrease of over 10% compared to 2019, marking the sharpest drop since 1990. The large drop was strongly related to the COVID-19 pandemic, but the magnitude of this effect is uncertain in comparison with the role of climate policies. EU GHG emissions in 2020 were more than 1,500 million tonnes of $CO_2$ equivalent lower than in 1990, resulting in a reduction of 32% compared to 1990 levels (Figure 6). This surpassed the EU's reduction target of 20% by 2020. However, the latest data for 2021 showed GHG emissions almost reaching pre-pandemic 2019 levels after a temporary reduction during the COVID lockdown. In the EU, total GHG emissions increased by 6.5% in 2021. However, this increase is about half of the reduction that took place between 2019 and 2020 (−10.8%). Consequently, the EU-27 emissions fell by 5% between 2021 and 2019, continuing a downward trend. The new target for 2030 is a 55% reduction in GHG emissions compared to 1990 levels.

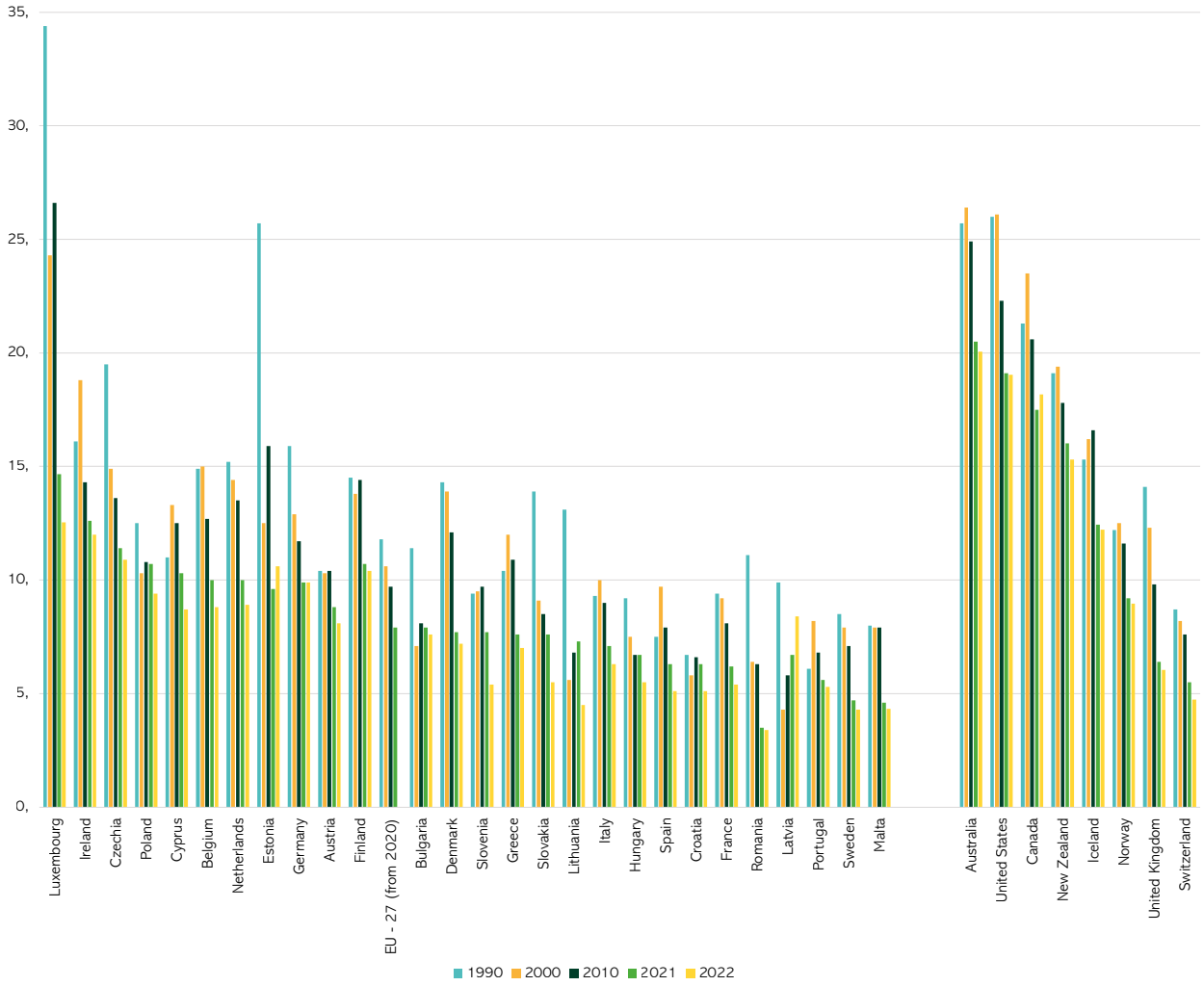
*Figure 6: Greenhouse gas emissions (including international aviation, excluding land use, land use change, and forestry (LULUCF)), trend, EU-27, 1990–2023, million tonnes*




*Source: Eurostat*

GHG emissions have declined substantially since 1990 in most EU countries. As of 2022, 25 EU Member States had reduced their emissions below 1990 levels. The most significant reductions – over 50% – were achieved by Estonia, Latvia, Lithuania, and Romania, reflecting long-term structural and energy transitions. Czech Republic, Germany, Ireland, and Luxembourg still had relatively high GHG emissions per capita (Figure 7). In 2022, Sweden recorded one of the lowest levels of GHG (second to Malta) per capita (4.3 tonnes) in the EU. This is explained by Sweden's reliance on clean energy sources, including hydro, wind, and nuclear power; renewable sources contributed to roughly two-thirds of electricity generation (Statista, 2025). In turn, in 2021 Luxembourg recorded the highest per capita GHG emissions level in the EU at 17.6 tonnes, mainly due to the transport sector, which accounts for nearly half of the country's total emissions. In 2022, Luxembourg again had the highest per capita emissions, but the level dropped significantly to 12.5 tonnes of $CO_2$ equivalent per person. This represents a notable year-on-year decline and continues a longer-term downward trend from 34.4 tonnes in 1990. The persistently high values remain partly due to the country's transport sector. The latter accounts for roughly half of all emissions, and the high values are partly explained by the fact that Luxembourg is a main transit country (European Parliament, 2021).

*Figure 7: Net greenhouse gas emissions in tonnes per capita (excluding LULUCF and including international aviation)*




*Source: Eurostat and OECD*

Among the non-EU countries, Australia, Canada, New Zealand, and the United States also produced high GHG emissions per capita according to the data from 2022. However, as shown in Figure 7, the GHG emissions declined considerably in most of the reporting countries between 1990 and 2022. Overall, the total GHG emissions excluding LULUCF and including international aviation declined by 1.2 billion tonnes of carbon dioxide equivalent ($CO_2e$) between 1990 and 2020. This represents a reduction of 22% in the past 27 years.

### Country-specific progress in total greenhouse gas emissions without LULUCF

For the following countries, progress has been reported (European Environment Agency, 2025):

**Sweden**
In 2022, total GHG emissions (excluding land use, land use change, and forestry) in Sweden amounted to 44.4 Mt of carbon dioxide equivalent. The emissions show a downward trend, although there are some annual fluctuations in a few sectors that affect the total emissions. Total emissions decreased by 38% between 1990 and 2023. This is largely due to decreased emissions from the residential and commercial/institutional sectors, resulting from the replacement of the combustion of fossil fuels for heating with the use of district heating and electricity, including heat pumps. Emissions in the manufacturing and construction industries have decreased due to a reduction in the use of fossil fuels, mainly as a result of a shift to biofuels and electricity. Moreover, electricity and heat production are increasingly based on renewable energy. In recent years, emissions in the transport sector have decreased, mainly due to the use of more energy-efficient cars and the increased use of biofuel. Total emissions in 2030 are projected to be below the 2023 level, mainly due to reduced emissions from the industry and transport sectors.

**Romania**
Romania's contribution to GHG emissions accounts for only 0.3% globally, and for less than 3% of the total emissions of the EU, registering a decrease of 3.3% for 2016–2020. With a reduction in total GHG emissions of 59.5% in 2023 compared with the base year of 1990 (Figure 7), Romania has already reached (and exceeded) the EU's GHG reduction target of 55% by 2030. In Romania, 183 cities and municipalities are signatories of the EU Covenant of mayors for climate and energy.

**Netherlands**
In the Netherlands, GHG emissions decreased from 223 Mt to 153 Mt of carbon dioxide equivalent between 1990 and 2022, a decrease of 31%. This was in line with the average EU decrease in this period. Between 2022 and 2023, there was a further decrease to just under 143 Mt. This was caused by a lower level of electricity production, and a lower level of natural gas consumption in the built environment due to high prices, and a mild winter. Meanwhile, maintenance works at a major steel producer caused a 1.4 Mt emission reduction.

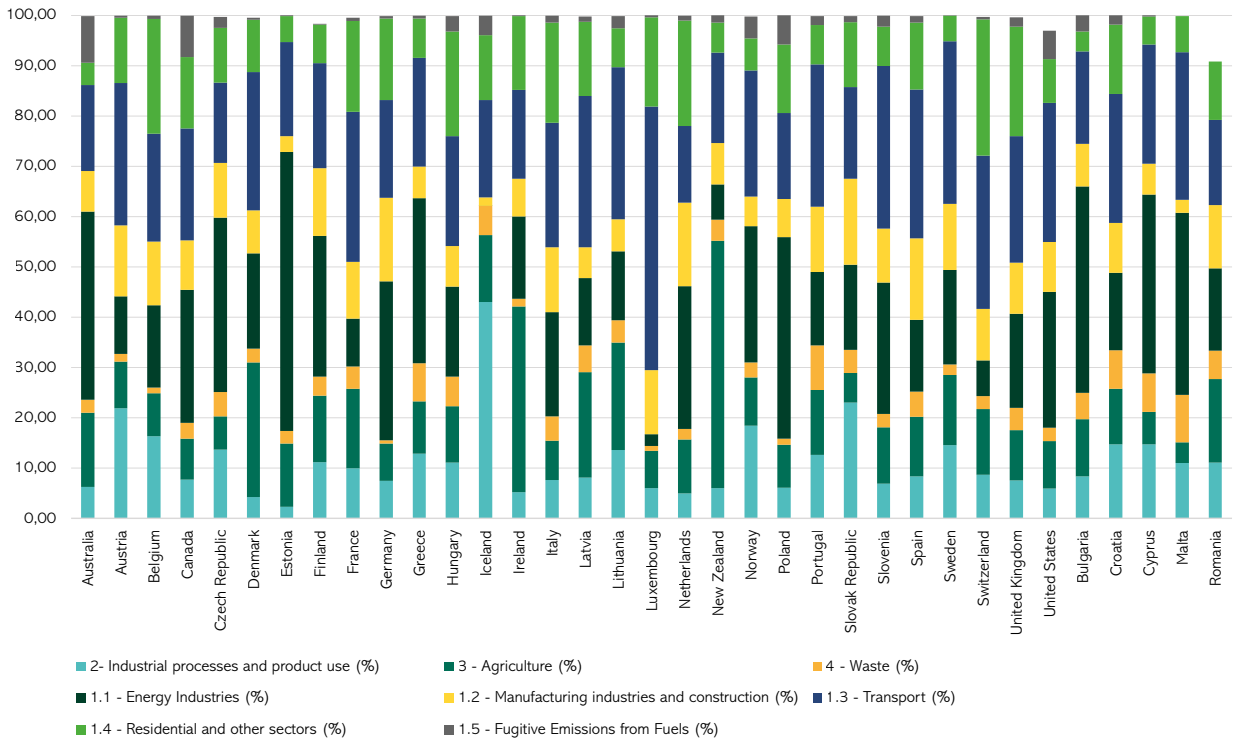
The national target for the reduction of greenhouse gases for 2030 is included in the 2023 Climate Act. The national target is a 55% reduction in 2030 compared with 1990. With the current set of established and proposed policies, the Netherlands is on track for a reduction of between 44% and 52% in 2030 compared with 1990. There is a possibility of achieving the target if additional policies ensure a further 16 Mt emission reduction by 2030.

**Lithuania**
Lithuania has made remarkable progress in reducing GHG emissions, achieving a 62.4% decrease between 1990 and 2023, outpacing the EU average and demonstrating the country's commitment to climate goals. The transport sector is the largest contributor of emissions in Lithuania, accounting for 34%. Since 1990, emissions from transport have been rising due to increased vehicle use and reliance on fossil fuels, presenting a challenge for sustainable mobility. The energy sector contributes 29% of emissions, primarily from fossil fuel combustion. However, Lithuania is rapidly transitioning towards renewable energy sources, including wind, solar, and bioenergy, aiming for 55% of gross final energy consumption to come from renewables by 2030. Agriculture contributes 21% of emissions, with methane from livestock and nitrous oxide from fertilisers being the main sources. Industrial processes and waste management make up the remaining shares. At 6.2 t $CO_2$eq/capita in 2023, Lithuania's emissions remain well below the EU average, reflecting its ongoing progress in sustainability.

### 8.3.3. GHG emissions by source

One of the key contributors to the GHG emissions in 2021 was the energy industry, followed by transport, manufacturing industries, agriculture, industrial processes, and waste (Figure 8). At the same time, the sources of GHG emissions by the reporting countries varied considerably. These differences are, in part, due to different economic structures and different mixes of renewable and non-renewable energy sources. In Australia in 2021, the supply of electricity topped the GHG emissions with 33%. The oil and gas sector was the largest source of GHG emissions in Canada, accounting for 28% of total national emissions. In Luxembourg, Slovenia, Sweden, and Switzerland, emissions from transport account for more than 30% of total emissions. The United Kingdom and United States also reported the highest share of GHG emissions in transport, with 26% and 28% respectively. In New Zealand and Ireland, agriculture counted towards the total national emissions with over 30%. According to the data for 2021, the main sources of GHG emissions in the Netherlands were the energy sector (28%), followed by residential (20.93%), manufacturing industries and construction (16.65%), and transport (15.25%).

*Figure 8: GHG emissions in 2021 by source (%)*




*Source: OECD*

### 8.3.4. Key insights and policy outlook

**Key points are:**

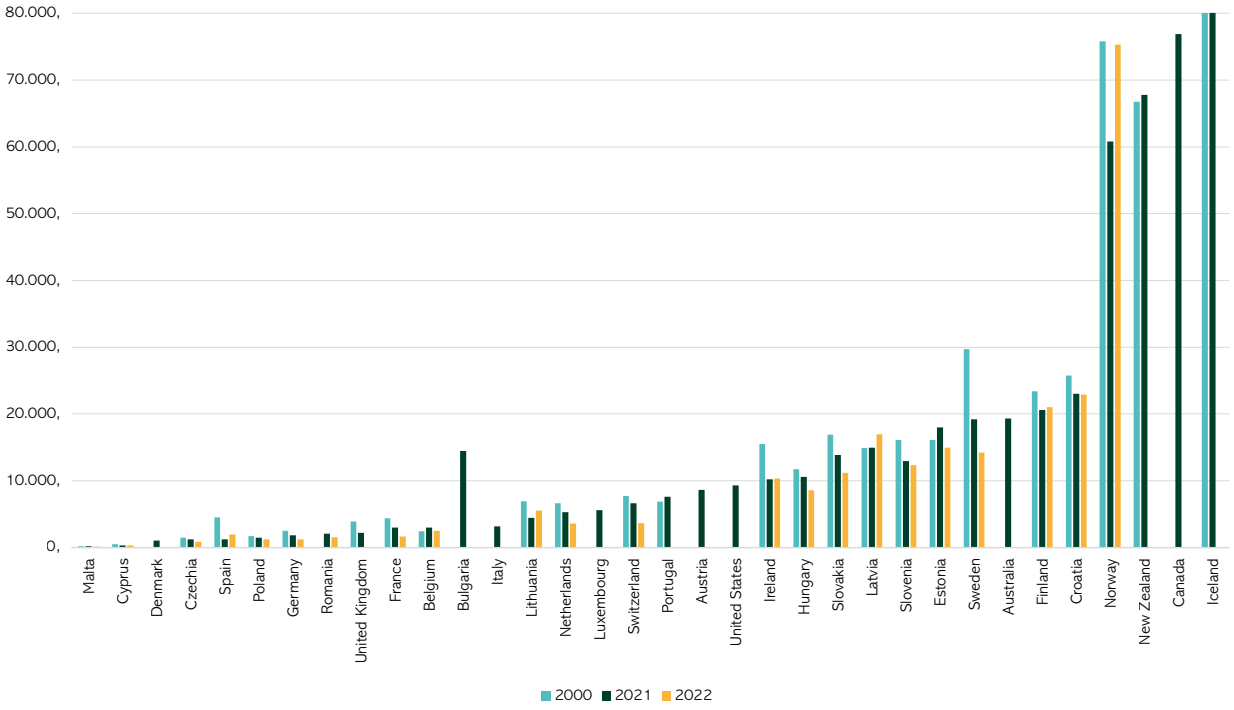
- Emissions of PM2.5, $SO_2$, and $NO_x$ continued to decline, leading to steady improvements in urban air quality across Europe.
- All examined countries recorded a decrease in PM2.5 emissions, reflecting progress in cleaner combustion and transport technologies.
- GHG emissions also declined considerably between 1990 and 2022, driven by energy efficiency gains, cleaner energy sources, and reduced coal use.
- The largest emission reductions came from the energy and industry sectors, while transport and agriculture remain slower to decarbonise.
- Continued emissions reductions will depend on accelerating renewable deployment, electrification, and low-carbon industrial processes to sustain progress towards the 2030 targets.

# 8.4. WATER RESOURCES

### 8.4.1. Renewable water resources

Renewable water resources (internal and external) include average annual flow of rivers and recharge of aquifers generated from endogenous precipitation, and those water resources that are not generated in the country, such as inflows from upstream countries (groundwater and surface water), and part of the water of border lakes and/or rivers. Renewable water resources are expressed in flows calculated as the sum of internal flow (which is precipitation minus actual evapotranspiration) and external inflow. Therefore, freshwater availability in a country is primarily determined by climate conditions and transboundary water flows (external inflow), while for total amounts, the size of the country matters. A number of countries receive a significant proportion of their renewable freshwater resources as external inflow. Among the EU Member States, Hungary and the Netherlands had the highest dependency on transboundary water resources, as the long-term average of external inflow accounted for 94.3% and 88.8% of their total renewable freshwater resources, respectively. On the other hand, some countries (e.g. Malta, Cyprus, Spain, Denmark, Iceland) have no or only small external inflow of water.

*Figure 9: Renewable freshwater resources (cubic metres per inhabitant)*




*Source: Eurostat*

Freshwater resources per inhabitant are considered an important indicator for measuring the sustainability of water resources. According to the data from 2022, when broken down by population, most countries' water resources range between 1,000 and 20,000 m³ per inhabitant, but in water-rich countries an inhabitant's share can be as high as around 22,888 m³ (Croatia) or 75,290 m³ (Norway) (Figure 9). According to the World Water Development Report of the United Nations, a country experiences "water stress" when its annual water resources are below 1,700 m³ per inhabitant (UN, 2023). Among EU Member States, this was the case in Cyprus, Czech Republic, Poland, Romania, and Malta in 2000. Romania recovered its water resources to 2,058 m³ per inhabitant in 2021; however, it dropped below the water stress threshold in 2022, reaching 1,520 m³, which places it once again among the countries considered to be experiencing water stress. At the same time, Spain had experienced a significant drop, from 4,531 m³ per inhabitant in 2000 to 1,242 m³ in 2021, placing it below the water stress threshold. However, in 2022, Spain's per capita water availability rebounded to 1,937 m³, moving it back above the critical threshold of 1,700 m³. Iceland is the top country by renewable water resources per inhabitant in the world (not shown in Figure 9). As of 2021, renewable water resources per inhabitant in Iceland was 456,351 m³. Renewable water resources of the Netherlands have been stable in the last two decades at around 6,000 m³ per inhabitant.

### 8.4.2. Water abstraction

Water storage and abstraction places considerable pressure on the environment. While the water used is less than the amount abstracted because some water is returned to the environment, water scarcity still occurs in parts of Europe, both in the summer and in the winter (European Environment Agency, 2020). The underlying causes of water scarcity, expressed by the water exploitation index, differ. In Western Europe it is primarily linked to cooling water needed for energy production and industry, while in Southern Europe, water scarcity is linked to agriculture.

There are considerable differences in the amounts of water abstracted within EU countries, in part reflecting the size of each country and the resources available, but also abstraction methods, climate, and the industrial and agricultural practices of each country. Overall, Europe's water abstraction of 243,000 million cubic metres can be split between four main sectors: household water use (14%); industry and mining (18%); cooling water for electricity production (28%); and agriculture (40%). However, geographically there are considerable differences in the sectors using more water. In Western Europe public water supply, cooling water, and mining are responsible for the majority of water abstraction, whereas in Southern Europe agriculture uses the largest share (European Environment Agency, 2020). As shown in Table 1, between 2000 and 2021 the total volume of freshwater abstracted rose the fastest in Denmark (+34.5%). This is likely linked to improved water accounting, infrastructure expansion, or shifts in industrial or agricultural abstraction. In contrast, the largest decreases were reported by Lithuania (−91.1%), due to a reduction in cooling water needs in electricity production), Slovakia (−66.3%), Belgium (−46.8%), and Estonia (−42.3%). Latvia and Greece also reported notable reductions of −41.4% and −40.3%, respectively. These reductions are typically associated with structural changes in water use sectors, particularly a decline in water demand for electricity production due to modernisation or reduced coal dependency.

Table 1 also shows the considerable differences between EU Member States regarding the ratio between abstractions from groundwater and surface water resources. Among the EU Member States, surface water abstraction accounted for around eight times the volume of water abstracted from groundwater resources in Romania (2020 data) and Bulgaria (2019 data), and approximately six times in the Netherlands (2019 data). On the other hand, the volume of water abstracted from groundwater resources was around 13 times as high as the volume of surface water abstraction in Malta (2020 data) and 3.6 times in Denmark (2020 data) (Eurostat, 2023c).

*Table 1: Total water abstraction (million cubic metres), 2000, 2020, and 2021*

| | 2000 | 2020 | 2021 | 2000 | 2020 |
|---|---|---|---|---|---|
| | Fresh surface water | | | Fresh groundwater | |
| Belgium | 6,840.38 | : | 3,639.67 | 664.69 | 633.59 |
| Bulgaria | 5,337.53 | 4,515.49 | 4,754.92 | 794.72 | 561.39 |
| Czechia | 1,363.20 | 1,011.00 | 986.40 | 554.80 | 354.90 |
| Denmark | 17.00 | 212.46 | 244.38 | 709.10 | 763.97 |
| Estonia | 1,216.30 | 626.44 | 760.51 | 254.60 | 221.59 |
| Greece | 6,471.00 | 3,898.70 | 3,863.60 | 3,453.40 | 6,223.38 |
| Spain | 30,572.30 | 23,618.60 | | 5,965.30 | 5,827.30 |
| France | 26,456.11 | 19,034.28 | 19,137.65 | 6,259.34 | 5,885.07 |
| Croatia | 255.07 | 254.24 | 264.37 | 430.40 | 403.89 |
| Cyprus | 49.50 | 96.40 | 99.60 | 146.00 | 135.00 |
| Latvia | 168.47 | 97.08 | 98.76 | 117.21 | 84.13 |
| Lithuania | 2,111.38 | 239.75 | 188.71 | 189.92 | 161.43 |
| Luxembourg | : | 24.48 | 23.72 | : | 23.26 |
| Hungary | : | 3,521.00 | 4,218.12 | 740.00 | 624.35 |
| Malta | 2.62 | 2.96 | 2.96 | 36.85 | 38.25 |
| Netherlands | : | 7,135.00 | 6,955.90 | : | 1,171.00 |
| Poland | 9,150.60 | 6,667.86 | 7,253.95 | 2,843.20 | 2,497.72 |
| Romania | 6,860.00 | 6,593.00 | 7,050.00 | 1,107.00 | 796.00 |
| Slovenia | : | 817.99 | 741.04 | : | 183.90 |
| Slovakia | 723.10 | 240.90 | 243.80 | 448.40 | 334.50 |
| Finland | : | : | | 284.70 | : |
| Sweden | 2,053.00 | 2,089.00 | | 635.00 | 395.00 |

*Source: Eurostat 2025. Note: Special value: not available.*

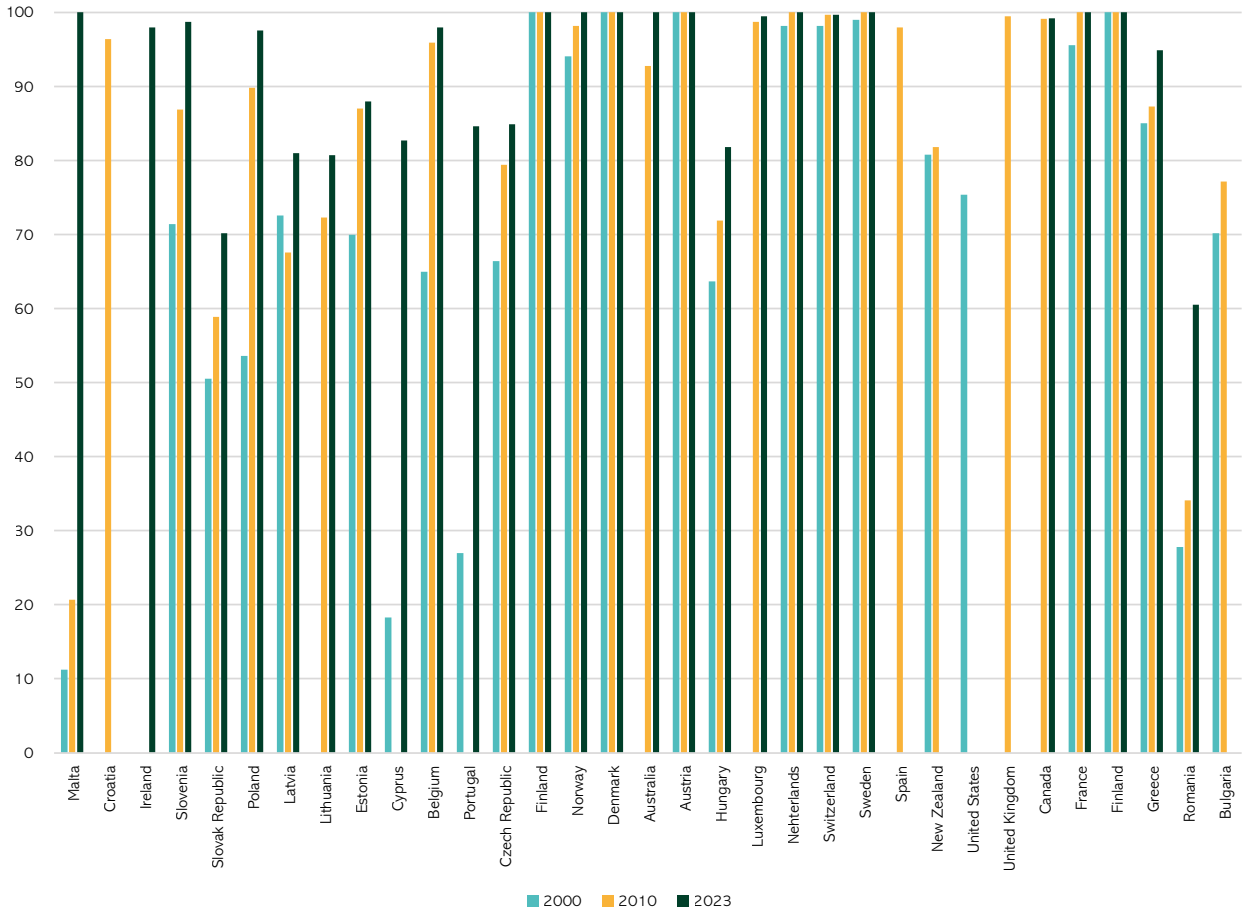
### 8.4.3. Wastewater treatment

Overall, there is a clear trend towards a higher proportion of the population being connected to wastewater treatment over time. Figure 10 shows the share of the population connected to at least secondary wastewater treatment plants in 2000, 2010, and 2023. Secondary treatment is generally considered sufficient to ensure an acceptable level of environmental protection, except in environmentally sensitive areas.

Between 2000 and 2023, most countries experienced substantial increases in connection rates. By 2023, more than 80% of the population was connected to wastewater treatment facilities in the majority of EU Member States, as well as in Switzerland, the United Kingdom, New Zealand, Canada, Australia, Norway, and Iceland. In several countries – including the Netherlands, Luxembourg, Denmark, Germany, Austria, Sweden, Switzerland, and the United Kingdom – coverage reached or remained at full connection (close to or at 100%). At the lower end of the spectrum, a small group of countries still lags behind in 2023. Romania, Bulgaria, and Croatia show comparatively lower levels of connection, and Malta, despite steady progress, continues to rank among the countries with the lowest coverage compared with other EU Member States. Greece and Cyprus remain in the mid-range but below the levels achieved by Western and Northern European countries.

Several countries achieved particularly large improvements over the two-decade period. Portugal and Cyprus, for example, rose from below 30% in 2000 to above 80% by 2023, reflecting accelerated investments in wastewater infrastructure. Similarly, Eastern and Central European countries such as Poland, Latvia, Lithuania, the Slovak Republic, and Slovenia show significant increases between 2000 and 2010, followed by continued expansion through 2023. Countries that allocate a comparatively high share of GDP to wastewater management (0.4%) – including Norway and Slovenia – tend to display the highest connection rates, approaching full coverage. The Netherlands and Luxembourg, both at 100% in 2023, also report the highest ratios of GDP spent on wastewater management (0.4%). Cyprus, which similarly invests around 0.4% of its GDP in wastewater management, nevertheless remains slightly below the best-performing group, indicating that spending there is still focused on closing the historical infrastructure gaps.

*Figure 10: Share of the population (%) connected to a wastewater treatment plant (2000, 2010, 2022)*




*Source: Eurostat and OECD*

The residual of wastewater treatment is sewage sludge. While the amount of sludge generated per inhabitant depends on number of factors and therefore is not constant, the composition of this sludge (both rich in nutrients as well as often loaded with high concentration of pollutants such as heavy metals) has led countries to seek different pathways for its disposal. Typically, four different types of disposal make up a considerable share of the total volume of sewage sludge treated (2020 data): more than 80% of the total was used as fertiliser for agricultural use in two EU Member States – Spain (87%, 2018 data) and Ireland (89%) (EEA, 2020). A different way of making use of the nutrients in the sludge is composting; this was prevalent with more than 50% in Finland (2019), Hungary (2019), and Cyprus (2018). Alternative forms of sewage disposal may be used to reduce or eliminate the spread of pollutants on agricultural or gardening land; these include incineration and landfill. As there are more and more environmental concerns about the latter, incineration is increasingly the method of choice: while the Netherlands (96%), Belgium (75%, provisional data), Germany (74%, 2019 data), Austria (52%), Greece (37%, 2019), and Luxembourg (34%, estimated) reported incineration as their principal form of treatment for disposal, discharge into controlled landfills was practised as the principal type of treatment only in Malta and Romania (European Environment Agency, 2020).

### 8.4.4. Key insights and policy outlook

**Key points are:**

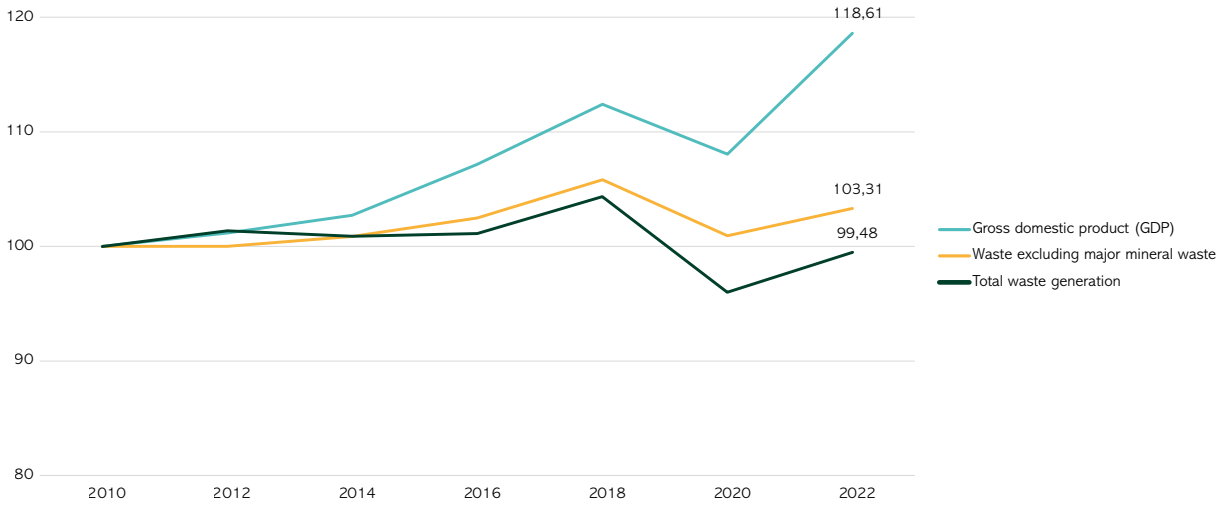
- Freshwater availability remains uneven across Europe, with southern countries such as Cyprus, Malta, and Romania facing persistent water stress.
- Water abstraction has declined in most countries since 2000, mainly due to improved efficiency and reduced demand from the energy sector.
- Agriculture and electricity cooling remain the largest water users, together accounting for more than two-thirds of total abstraction.
- Wastewater treatment coverage continued to expand, exceeding 80% in most EU countries, though progress remains slower in Romania, Bulgaria, and Malta.
- Sludge management practices vary widely across Europe, reflecting differences in national policies and priorities for reuse, incineration, or disposal.

# 8.5. WASTE MANAGEMENT

## 8.5.1. Waste generation

Between 2010 and 2022, total waste generation per capita in the European Union remained relatively stable, declining marginally from 5.2 tonnes per capita in 2010 to 5.0 tonnes per capita in 2022. A notable decrease of approximately 8% was observed between 2018 and 2020, primarily due to the COVID-19 pandemic and related economic slowdown. However, this trend reversed between 2020 and 2022, with an increase of 4% (174 kg/capita), which reflects a partial recovery in economic activity. Behind the overall stable figures on total waste generation, significant shifts occurred in the composition of waste streams. Sorting residues nearly doubled over the period, indicating increased efforts in the collection of recyclables. Meanwhile, waste from construction and demolition activities, including excavated soils and mineral waste, rose by more than 100 kg per capita. The overall stability in total waste generation can largely be attributed to a substantial decline in other types of mineral waste, which fell by approximately 400 kg per capita due to reduced mining activity in Europe. According to Eurostat, data on the generation of waste includes hazardous and non-hazardous waste from all economic sectors, households, and waste treatment, but it excludes most mineral waste. The latter mainly results from construction, demolition, and mining activities, and varies substantially in importance across EU countries.

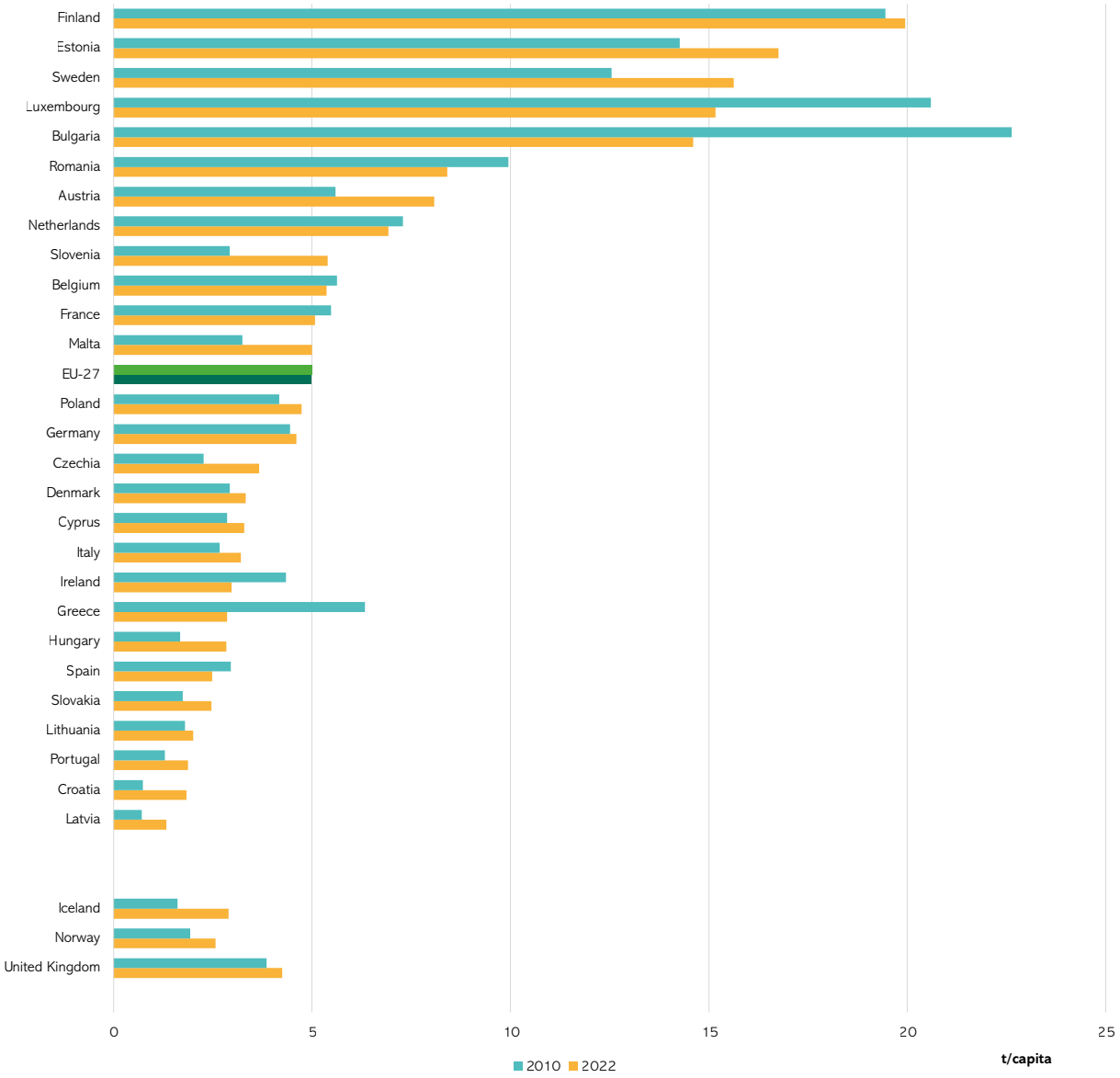
*Figure 11: Waste generation per capita in the EU-27, 2010–2022*




*Source: Eurostat*

Economic growth remains a primary driver of total waste generation. The GDP increased by nearly 19% per capita across the EU between 2010 and 2022 (Figure 11). While total waste generation did not rise proportionally, it continued to broadly follow GDP trends, including the contraction in 2020 and subsequent rebound. Historically, waste generation has closely mirrored GDP growth, which has been positive since 2020. In 2022, EU Member States generated an average of 5 tonnes of waste per capita. However, this figure conceals considerable variation between countries: per capita waste generation ranged from less than 1.35 tonnes in Latvia (below 2020 levels) to approximately 20 tonnes in Finland (below 2020 levels). A total of 12 Member States exceeded the EU average in 2022. Country-level trends over the 2010–2022 period also show variation: 18 Member States reported increases in per capita waste generation, while others observed reductions (Figure 12). Notably, Greece recorded the largest relative decrease, from 6.3 tonnes per capita in 2010 to 2.9 tonnes in 2022 (over 2020 levels), while Croatia experienced the largest relative increase, rising from 0.7 to 1.8 tonnes per capita over the same period (over 2020 levels).

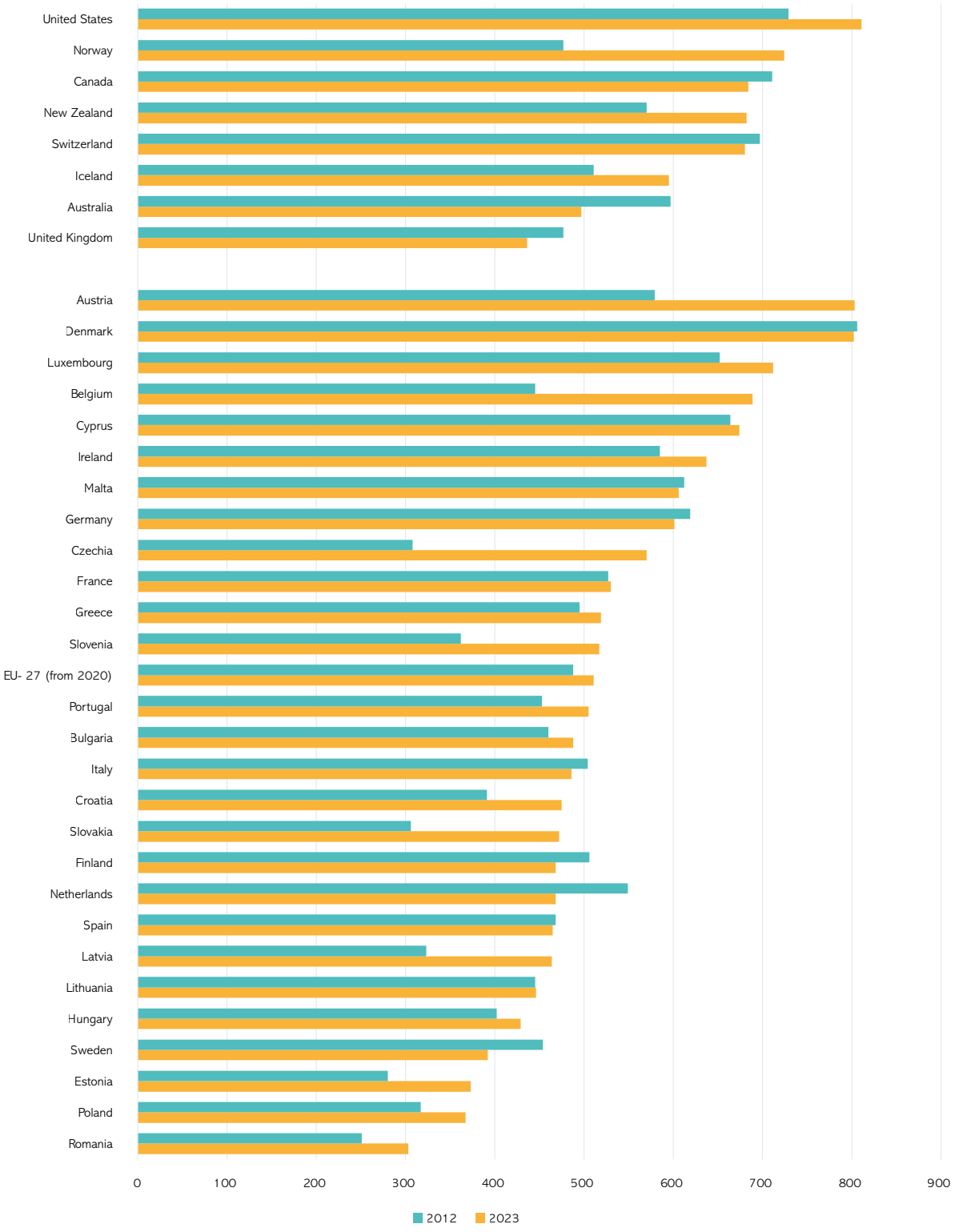
*Figure 12: Waste generation per capita in the EU-27, 2010–2020. United Kingdom (2018) and Iceland (2020) figures*




*Source: Eurostat*

Concerning municipal waste, a clear shift is observed in waste management practices, through a continued decline in landfilling and a gradual transition to alternative treatment methods. Although municipal waste represents only approximately 10% of total waste generated, it holds substantial political and public attention due to its mixed composition, diverse sources, and strong connection to consumption behaviour.

*Figure 13: Municipal waste generated in kilograms per capita by country 2023 and 2012*




*Source: Eurostat and OECD*

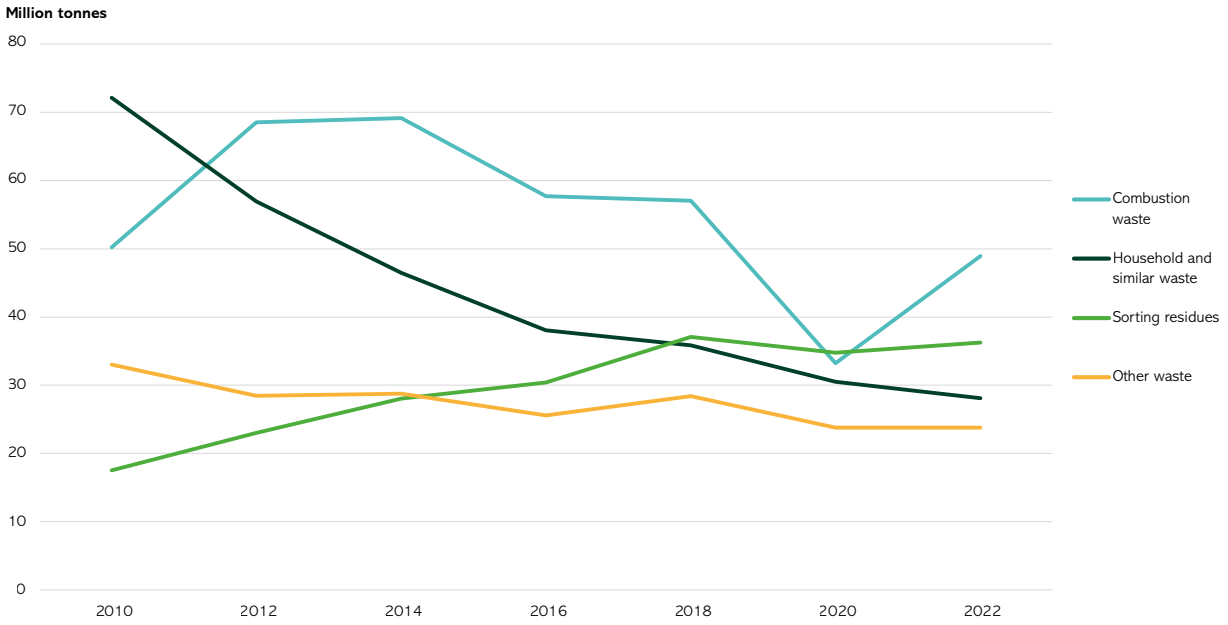
Municipal waste generation varied significantly across Member States, with recorded values ranging from 303 kg per capita in Romania (2022) to 803 kg per capita in Austria (2022). These differences are influenced by a combination of factors, including varying levels of economic development, consumption patterns, and national practices for the collection and classification of waste. Notably, some countries include waste from commerce, trade, and public administration within municipal waste figures, while others restrict the definition more narrowly to household sources. Figure 13 ranks countries by municipal waste generated per capita in 2023, in comparison with 2012 data. The analysis includes EU Member States, as well as Iceland, Switzerland, Norway, the United Kingdom, Australia, Canada, New Zealand, and the United States. The data highlights the diversity of waste generation trends and highlights the importance of context-specific policy responses to support waste reduction and circular economy goals. Despite the overall stability in total waste generation and some signs of decoupling from economic growth, the latest data suggests that this decoupling is not yet complete. Given that economic growth continues to be a strong underlying factor for waste volumes, a significant reduction in total waste generation by 2030 (EU's key objective) remains uncertain under current conditions.

### 8.5.2. Diversion of waste from landfill

The EU's waste management framework is grounded in the waste hierarchy, which prioritises waste prevention, followed by preparation for reuse, recycling, and other forms of recovery. Landfilling is the least preferred option, used only when no better alternatives exist. This approach supports the EU's broader ambition of transitioning to a circular economy, where waste generation is substantially reduced, and residual waste is repurposed as a resource. A central objective of EU waste policy is to significantly reduce the volumes of landfilled waste. Between 2010 and 2022, the EU achieved a decline in its overall landfill rate, from 23% to 17% (slight increase from 16% in 2020). In absolute terms, this corresponds to a 21% reduction in the volume of landfilled waste, from 173 million tonnes in 2010 to 137 million tonnes in 2022. Nevertheless, total waste generation continued to rise during the same period and, as such, it represents a main challenge for long-term landfill reduction targets.

Important progress was made in diverting specific waste streams from landfill. For example, the landfilling of household and similar waste (mixed municipal waste, market waste, bulky items, and similar waste from small businesses and institutions) declined by 61% (44 million tonnes) between 2010 and 2022 (Figure 14). Combustion waste, such as flue gas treatment residues and ash from incineration, decreased by 3% (1.3 million tonnes), while other waste decreased by 28% (9.2 million tonnes). However, the volume of sorting residues sent to landfill more than doubled (+107%), increasing by 18.7 million tonnes. This reflects the growth of the waste sorting sector, as well as the diversion of recyclable and recoverable materials from mixed waste streams, finally indicating a positive trend towards enhanced material recovery, albeit with operational challenges for managing secondary waste.

*Figure 14: Amounts and share of landfilled waste by type of waste category, EU-27*

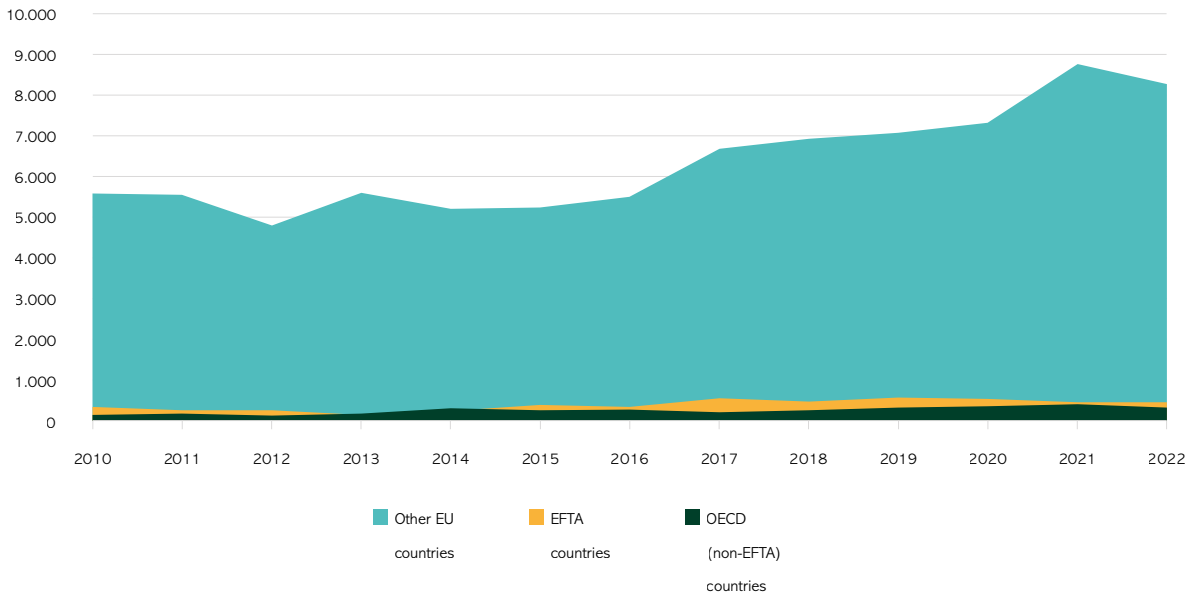



*Source: Eurostat*

The primary waste categories landfilled in 2022 include: *household and similar waste* (including municipal and commercial sources), *sorting residues* (primarily from treatment and recycling operations), *combustion waste* (incineration ash and flue gas residues), and *other waste* (chemical, medical, recyclable, equipment, biological, mixed, and sludge materials). Landfilling also presents environmental risks, including potential contamination of groundwater and surface water, even when modern technical mitigation measures, such as base sealing, are in place. This adds to the urgency of accelerating the shift away from landfill towards more sustainable waste treatment and resource recovery methods.

An important category concerns hazardous waste, which is harmful to humans and the environment. Hazardous waste refers to materials that pose significant risks to human health or the environment. The classification of hazardous waste within the EU is specified in Annex III of the Waste Framework Directive (Directive 2008/98/EC). This includes properties such as explosiveness, flammability, oxidising potential, toxicity, irritancy, corrosiveness, infectiousness, and reactivity, such as the release of toxic gases upon contact with water, air, or acids. Hazardous waste may cause cancer, congenital malformations, genetic defects, or hypersensitisation reactions. Between 2010 and 2022, the volume of hazardous waste exported from EU Member States increased significantly, rising from 6.1 million tonnes to 9.0 million tonnes. An important increase took place in 2016–2017, when exports rose by 22%, from 6.1 to 7.4 million tonnes (Figure 15). However, in 2022, a decline of 6% was recorded compared to 2021 levels. In 2022, the largest quantities of hazardous waste exports originated from France (2.4 million tonnes), Italy (1.4 million tonnes), Germany (1.0 million tonnes), and the Netherlands (1.0 million tonnes). The increase in hazardous waste exports reflects both the growing generation of such waste and the complexity of managing it within national borders, particularly in light of strict environmental regulations and limited specialised treatment capacity in some Member States. Continued monitoring and coordination are essential to ensure that the transboundary movement of hazardous waste follows EU legislation and international agreements, while reducing environmental and health impacts.

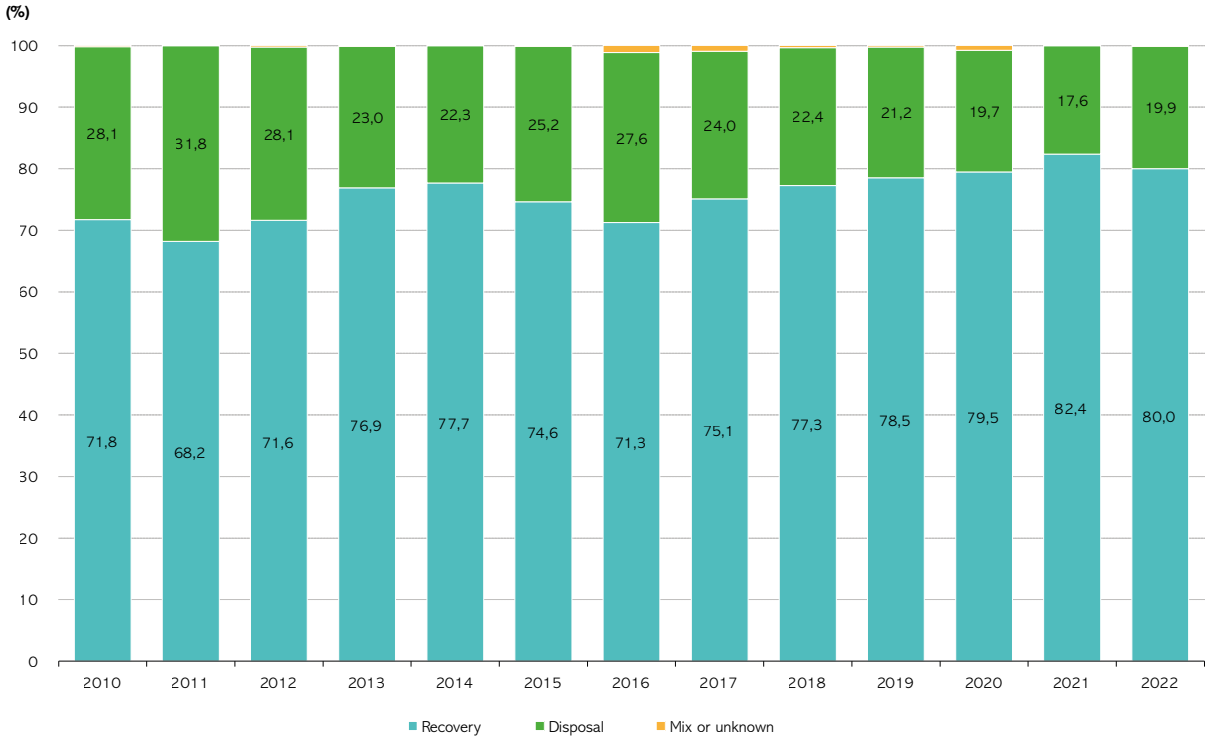
*Figure 15: Destinations of hazardous waste exported by EU countries, 2010–2022*




*Source: Eurostat*

A total of 8.3 million tonnes of hazardous waste was transferred between EU Member States in 2022, roughly 91% of the EU's total hazardous waste exports (Figure 15). The exports to countries in the European Free Trade Association (EFTA), primarily Switzerland and Norway, amounted to 457,000 tonnes in 2022 (5.1%). In addition, hazardous waste exports to other countries within the Organisation for Economic Co-operation and Development (OECD), excluding EU and EFTA members, amounted to 313,000 tonnes in 2022 (3.5%). The principal destinations within this category were the United Kingdom, which received 35.1% of these exports, and Turkey, which received 64.4%.

*Figure 16: Treatment of hazardous waste exported by EU countries, 2010–2022*

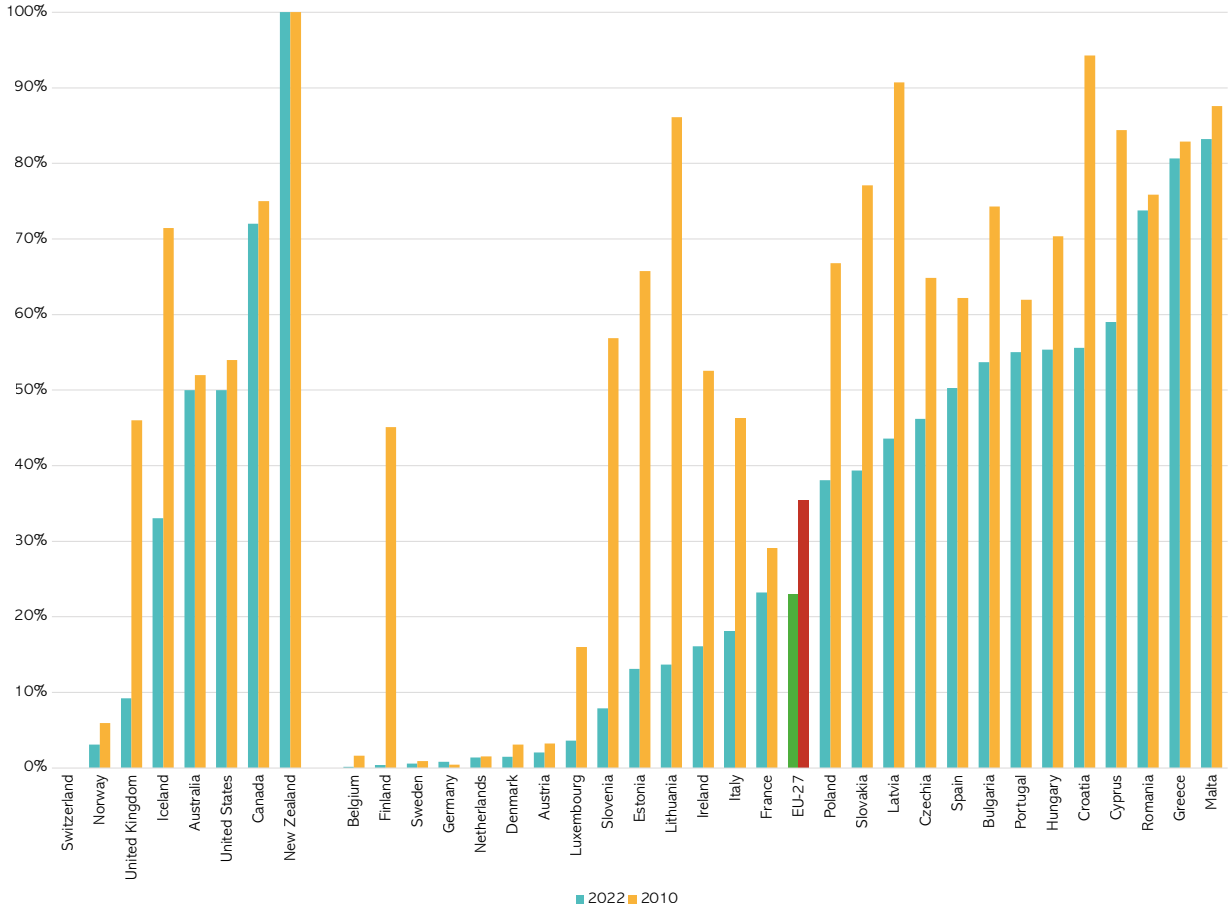



*Source: Eurostat*

In 2022, EU Member States exported approximately 1.8 million tonnes of hazardous waste for disposal in receiving countries, marking a slight increase from 1.7 million tonnes in 2021. In contrast, exports of hazardous waste for recovery purposes have shown a longer-term upward trend, rising from 4.3 million tonnes in 2010 to 7.2 million tonnes in 2022 (7.9 million tonnes in 2021). As illustrated in Figure 16, the hazardous waste exported for recovery has generally increased over time, rising from 71.8% of total shipments in 2010 to a peak of 82.4% in 2021. In 2022, the recovery share decreased slightly to 80.0%. Correspondingly, the share of hazardous waste exported for disposal has declined, falling from 28.1% in 2010 to 19.9% in 2022. During 2010–2022, the distribution of hazardous waste exports between recovery and disposal has fluctuated. The share recovered ranged between 68.2% and 82.4%, while the share sent for disposal varied from 17.6% to 31.8%. Notably, the volume of hazardous waste treated outside the EU remained limited in 2022 (below 10%).

The broader category of municipal waste exhibits significant variation in landfill rates across countries. Between 2010 and 2022, nearly all countries made progress in reducing their reliance on landfill. Exceptions include Germany, Sweden, and the Netherlands, which already landfilled only minimal quantities of municipal waste. The most notable reductions over 40% were recorded in Lithuania, Estonia, Slovenia, Latvia, and Finland. However, progress was limited in several other countries (Figure 17). Policy instruments that have demonstrated effectiveness in reducing municipal waste landfilling include landfill bans, landfill taxes, and economic or regulatory incentives promoting recycling and the development of recycling infrastructure. Under the EU Landfill Directive, Member States should reduce municipal waste landfilling to 10% of total municipal waste generated by 2035.

*Figure 17: Municipal waste landfill rates (%) by country 2010–2020*



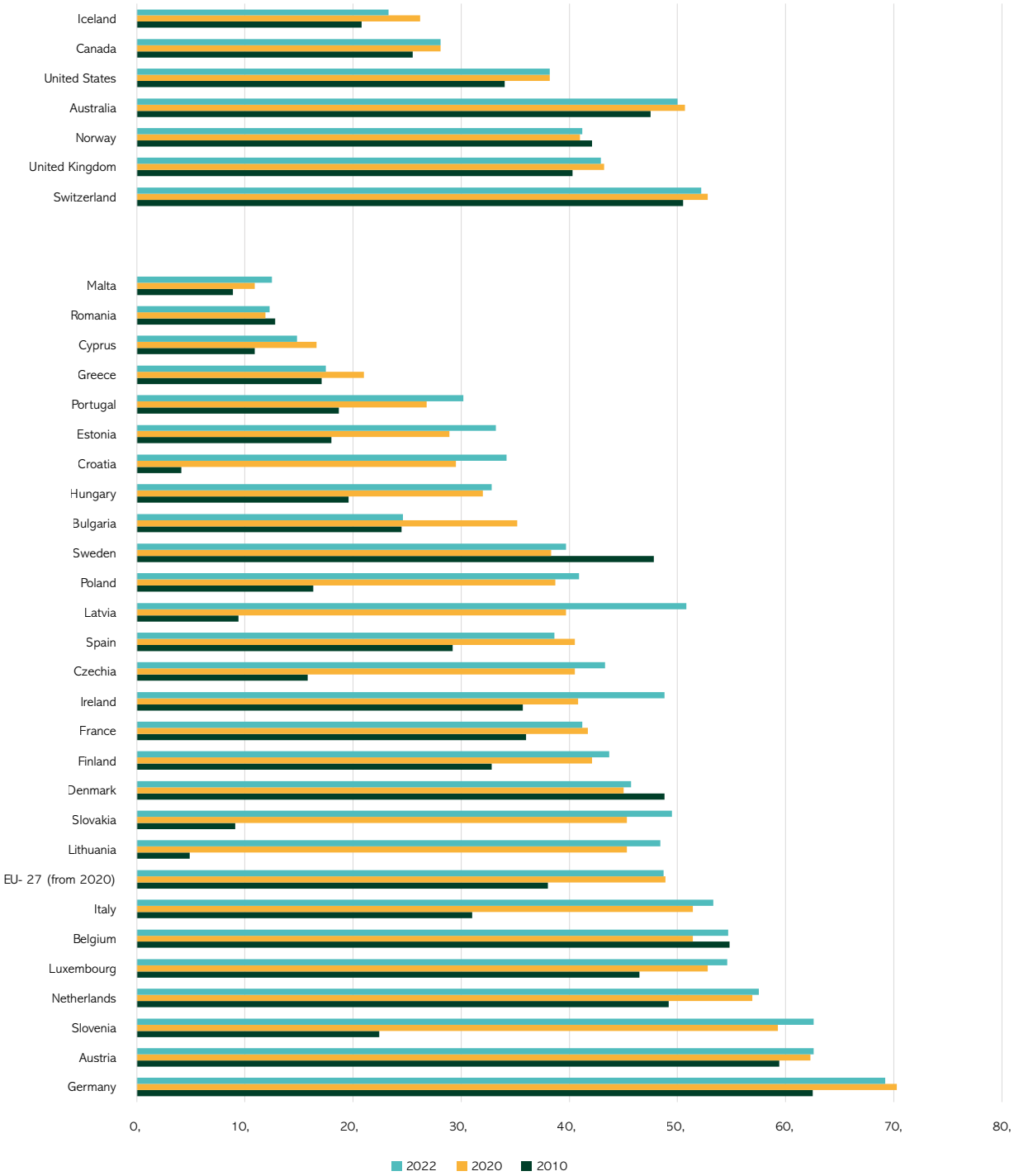

*Source: Eurostat and OECD*

As of 2022, nine EU Member States and two non-EU countries had already reached this benchmark. These include Belgium, Finland, Sweden, Germany, the Netherlands, Denmark, Austria, Luxembourg, and Slovenia, as well as Switzerland and Norway. Many of these countries rely significantly on incineration for municipal waste treatment, which has contributed to lower landfill rates. The most recent trends in waste generation, excluding major mineral waste, show an increase that hampers efforts to further reduce landfill dependency. While progress has been made, continued increases in waste volumes may undermine the effectiveness of current waste management strategies and hinder the ability to meet future landfill reduction targets. Achieving further reductions in landfilling will require sustained efforts to curb overall waste generation, expand recycling infrastructure, and improve the quality and efficiency of waste sorting systems.

### 8.5.3. Waste recycling

The EU has made considerable progress in increasing waste recycling rates over recent decades, largely driven by binding targets established under EU waste legislation. This progress has supported broader objectives to treat waste as resource, reduce environmental pressures from raw material extraction, and advance the transition to a circular economy. However, in recent years progress has slowed and, in some cases, even reversed. In 2022, the overall recycling rate for total waste (excluding major mineral waste) was lower than a decade earlier. Disposal through landfill and incineration continued to dominate as the primary treatment routes for the majority of waste. The rising demand for primary materials continues to challenge the EU's material self-sufficiency and puts additional pressure on ecosystems. Recycling remains the only mainstream waste treatment method that directly conserves resources by avoiding the destruction of recoverable materials. The use of recycled inputs in manufacturing helps offset the impacts of raw material extraction and processing, making it a main pillar of sustainability and long-term economic resilience.

*Figure 18: Municipal waste recycling rates (%) by country*




*Source: Eurostat and OECD*

In 2022, the EU's overall recycling rate stood at 44%. Among specific waste streams, packaging waste had the highest recycling rate (65%), followed by municipal waste (49%) and e-waste (32%). These waste categories are particularly significant, both in volume and in their potential to recover critical raw materials. While these figures reflect some progress towards circularity, they also indicate that substantial portions of waste still end up in landfill or incineration. Despite the adoption of over 30 legally binding recycling targets for the period 2015–2030, overall recycling performance has stagnated in recent years. Notably, recycling rates across all three key waste streams have stagnated, and the overall rate has declined since 2018, remaining below the 50% threshold. This trend stresses the urgent need to reinforce the policy ambition that has historically driven EU waste management. Without renewed efforts, there is a risk of backsliding on circular economy objectives.

In 2022, municipal recycling rates ranged from 69% in Germany to just 12% in Romania (Figure 18). Among the non-European countries, Australia recorded the highest recycling rate of 50% (2019), followed by the United States with 38% (2018), and Canada with 28% (2018). Germany, Austria, Slovenia, the Netherlands, Belgium, Luxembourg, Italy, Latvia, and Switzerland achieved municipal recycling rates of at least 50% in 2022. In contrast, four Member States (Romania, Malta, Cyprus, and Greece) reported rates below 20%. Furthermore, a number of countries with historically low recycling rates have made limited progress over the past 15 years. As of 2023, 18 EU Member States were identified as being at risk of failing to meet the 2025 municipal waste recycling target of 55%, as set out in the Waste Framework Directive. This signals the need for stronger national implementation efforts and continued EU-level support to ensure all Member States remain on course towards shared circular economy goals.

When considering the input of environmental protection expenditure and specific waste management allocation, the countries that performed best in maintaining higher recycling rates over the interval 2010–2022 included Germany, Austria, the Netherlands, Luxembourg, Belgium, and Switzerland. Compared to the EU-27 average government expenditure on waste management of 0.4% of GDP, Austria (0.1% of GDP), Switzerland (0.1% of GDP), Germany (0.2% of GDP), and Luxemburg (0.2% of GDP) had the lowest expenditure in spite of their overall higher recycling rates. The countries that recorded substantial improvements of recycling rates throughout the interval 2010–2022 included Lithuania, Slovenia, Slovakia, Latvia, Croatia, Czech Republic, and Poland, with most of these countries notably scoring below the EU-27 average government expenditure on waste management. Since 2020, Latvia (11%) and Ireland (8%) had the highest increase in recycling rates, while maintaining relatively low government expenditure (<0.2% of GDP) on waste management operations.

**Country-specific progress towards a circular economy**

For the following countries, progress has been reported (European Environment Agency, 2025):

**Austria**

Austria's performance towards a circular economy is defined by its comprehensive national strategy with ambitious, non-binding targets. Adopted in 2022, the Austrian Circular Economy Strategy aims to transform the nation into a climate-neutral, sustainable circular economy by 2050. This is underpinned by specific goals, such as reducing the material footprint to 7 tonnes per capita by 2050, lowering domestic material consumption to 14 tonnes per capita by 2030, and increasing the circular material use (CMU) rate to 18% by 2030. While Austria's domestic material consumption per person is currently higher than the EU average, its CMU rate of 13.8% in 2022 is also above the EU average. The country's approach is characterised by a strong combination of financial incentives, such as the Green Finance Agenda, and a robust legal framework that includes new landfill bans for specific construction wastes and a forthcoming deposit refund scheme for single-use bottles and cans.

**Belgium**

Belgium's performance is uniquely defined by its federal structure, with distinct and advanced regional strategies driving the transition to a circular economy. In Flanders, performance is guided by the long-term Vision 2050 where the circular economy is a key transition priority with a target to reduce the material footprint by 30% by 2030. This is supported by a mature policy ecosystem, including the Circular Flanders hub and the detailed Circular Economy Monitor Flanders, which reports a high recycling rate of 65.6% and a CMU rate of 16%. In Wallonia, the *Circular Wallonia* strategy, adopted in 2021, focuses on five main axes, including priority value chains such as construction, plastics, and textiles. The region has set numerous targets for job creation, waste reduction, and resource productivity, and actively supports businesses through various schemes and project calls. However, Wallonia's performance is currently more difficult to assess as it is still developing a comprehensive monitoring dashboard, in contrast to the established system in Flanders.

**Germany**

Germany's performance is characterised by a transition from a historically strong foundation in waste management and recycling towards a more holistic, life-cycle-based approach. The country has long demonstrated high performance in specific areas, achieving a municipal waste recycling rate of 68% in 2021. However, its broader circular economy performance is now being shaped by the development of its first National Circular Economy Strategy, which aims to reduce overall primary raw material consumption. This marks a strategic shift from focusing on end-of-life management to influencing the entire value chain. Performance is also defined by strong, decentralised action, including pioneering zero-waste city strategies in municipalities such as Munich, financial incentives such as regional repair bonuses, and the widespread influence of the *Blue Angel* eco-label in promoting circular criteria for products.

**Italy**
Italy demonstrates a strong performance in circularity, with high recycling rates and a CMU rate that is consistently well above the EU average, standing at 18.7% in 2022. This is built on a long history of environmental legislation and a well-established recycling industry. The country's performance is currently defined by the implementation of its 2022 National Circular Economy Strategy and the new National Waste Management Programme, which aim to further develop secondary raw material markets and enhance waste traceability. A key driver of its current and future performance is the National Recovery and Resilience Plan, which dedicates significant investment to modernising waste management infrastructure and funding flagship circular economy projects in critical sectors such as WEEE, plastics, and textiles.

**Latvia**
Latvia's circular economy performance is defined by its action-oriented approach, guided by the Action Plan for the Transition to a Circular Economy 2020–2027. The country has set clear targets to increase its material circularity to 11% and improve resource productivity to 1.55 euro/kg by 2027. Performance is characterised by the recent implementation of concrete regulatory measures, including the establishment of an Extended Producer Responsibility system for tobacco products and textiles, and the nationwide rollout of separate collection systems for textiles and organic waste. A standout success has been the deposit system for beverage packaging, which has significantly reduced environmental litter. The implementation of these policies is actively supported by the LIFE Waste to Resources IP, which fosters best practices and public awareness initiatives to drive the transition.

**Luxembourg**
Luxembourg's circular economy performance is complex to assess due to its small, open, and service-oriented economy, which significantly influences statistics such as material footprint and CMU rate; however, its approach is defined by a strong focus on digital innovation and cross-sectoral collaboration. The 2021 National Circular Economy Strategy functions as a toolbox for public authorities to implement circular principles in priority sectors such as construction and finance. A key defining initiative is the government-led development of the Product Circularity Data Sheet Luxembourg, an innovative digital tool aimed at standardising and sharing information on the circular properties of products across value chains, positioning Luxembourg as a leader in digital solutions for the circular economy. Performance is further driven by targeted financial instruments, including tax relief for circular economy investments and dedicated support programmes such as *Fit4Sustainability* for businesses.

**Netherlands**
The Netherlands is defined by its position as a front runner in the circular economy, driven by ambitious long-term national targets and a sophisticated, evidence-based policy framework. The government's programme aims to halve the use of primary raw materials by 2030 and achieve a fully circular economy by 2050.
A key characteristic of the Dutch approach is its robust monitoring system, anchored by the biennial Integral Circular Economy Report, which provides a critical and transparent assessment of progress, noting that goals are "still far out of reach" despite significant efforts. This commitment to self-assessment ensures that policy remains adaptive. Performance is further structured around detailed transition agendas for priority value chains, including construction, plastics, and consumer goods, allowing for targeted and sector-specific measures.

**Slovenia**
Slovenia's performance is characterised by a gradual transition that is strongly supported by its National Recovery and Resilience Plan, which has a dedicated component for the circular economy. While the 2018 Roadmap Towards the Circular Economy set the initial direction by identifying priority areas such as the food system and manufacturing, the Recovery and Resilience Plan is now a key driver, funding investments to increase resource efficiency, strengthen the wood processing value chain, and support businesses in their transition. Although national-level indicators suggest the transition is slow compared to the EU average, Slovenia's performance is also defined by strong local and regional initiatives, with cities such as Maribor and Ljubljana adopting dedicated circular economy or zero-waste strategies. Furthermore, the country is actively developing innovative monitoring tools at the micro and meso levels to better track progress in the future.

**Switzerland**
Switzerland's performance towards a circular economy is defined by a growing political and legislative momentum aimed at tackling its high per capita resource consumption. A pivotal development is the parliamentary initiative Strengthening the Swiss Circular Economy, adopted in March 2024, which establishes a robust legal framework empowering the government to set requirements for products regarding recyclability, repairability, and resource efficiency. This signals a shift towards a more regulatory approach. The country's performance is further characterised by a multilevel governance system where federal measures, such as financial support for environmental technology and a focus on reducing emissions in public procurement, are complemented by proactive cantonal and municipal actions. Examples include the Canton of Zurich's constitutional mandate to close material cycles and the City of Zurich's pioneering use of recycled concrete in public buildings.

### 8.5.4. Key insights and policy outlook

**Key points are:**

- Economic growth remains the primary driver of total waste generation. Despite some signs of decoupling from economic growth, the strong link between economic activity and waste volumes hampers the ongoing efforts for waste reduction.
- An important shift away from landfilling is observed in municipal waste management practices, where landfilling declined by 61% between 2010 and 2022. Despite the overall progress, the volume of sorting residues sent to landfill more than doubled for the same period, posing operational challenges for managing secondary waste.
- Despite binding targets, overall recycling performance has slowed and even reversed in recent years. The overall recycling rate for total waste was lower in 2022 than a decade earlier. As at 2023, 18 EU Member States were at risk of missing the 2025 municipal waste recycling target of 55%.
- Continued increases in overall waste volumes undermine the effectiveness of current strategies and hinder the ability to meet future landfill reduction targets.
- To achieve a circular economy and curb waste generation, the sustained implementation of ambitious and forward-looking waste policies is required.
- Incentives for recycling and reuse, alongside strong disincentives for landfilling and incineration, remain essential.

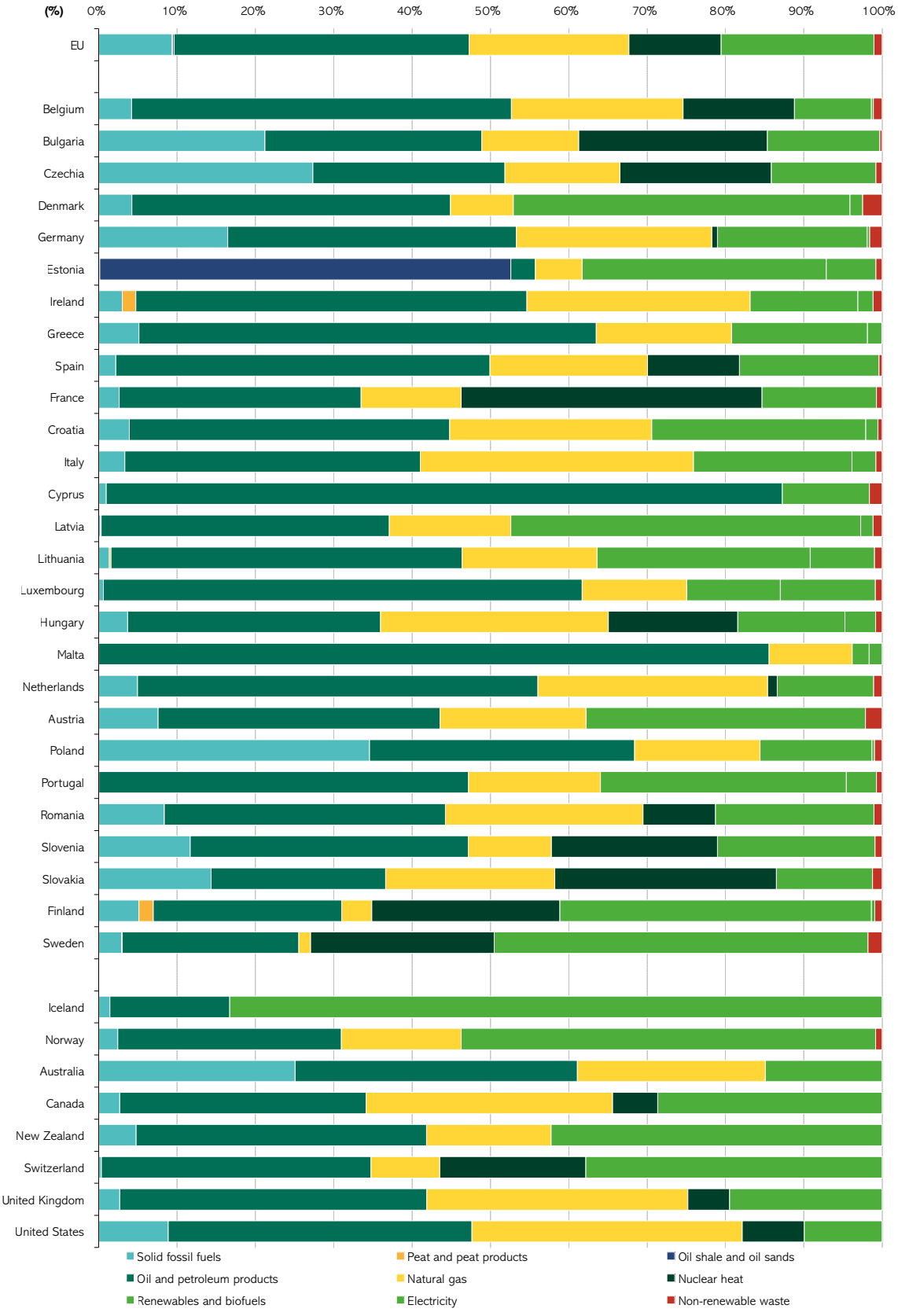
# 8.6. ENERGY

In 2023, the EU's energy sector continued to undergo structural shifts in response to geopolitical pressures, market developments, and long-term climate and energy objectives. The EU's energy import dependency remained high at 58.4%, which shows the continued reliance on external energy sources to meet domestic demand. According to annual data reported by Member States, gross available energy in the EU declined by 4.1% compared to 2022, continuing a downward trend observed over the past decade (−11.9% compared to 2013). This reflects both a structural transformation of the EU energy system and the impacts of recent energy-saving measures. Natural gas consumption decreased by 7.2% in 2023 relative to 2022, primarily as a result of EU-wide efforts to reduce dependence on Russian gas following the invasion of Ukraine. Similarly, the use of solid fossil fuels saw a sharp decline of 22.6%. In contrast, oil consumption (crude oil and petroleum products) increased slightly by 2.0%, maintaining its position as the dominant energy source within the gross available energy (37.6%). Natural gas followed as the second most significant source, with a share of 20.4%. Renewable energy sources were up 4.5% compared with 2022, and 31.2% compared with 2013. Renewables have consistently expanded their share of the energy mix, having overtaken solid fossil fuels in 2018 and 2019. Their growth continued in 2020, 2022, and 2023, hence narrowing the gap with natural gas to less than 1% in the latest year. Nuclear heat also experienced a modest increase of 1.6% in 2023.

### 8.6.1. Gross available energy and fuel mix

In terms of energy composition, oil and petroleum products remained the largest source of energy in the EU, accounting for 37.6% of gross available energy in 2023. This was followed by natural gas at 20.4% and solid fossil fuels at 9.4%, meaning that fossil fuels collectively contributed 67.4% of the EU's total energy supply. Nuclear energy represented 11.8%, while renewable sources accounted for 19.5%. The national energy mix across countries is shaped by factors such as domestic resource availability, economic structure, and national energy policies. In 2023, only two EU countries, Sweden (28.4%) and Finland (32.9%), recorded a fossil fuel share of gross available energy below 40%, reflecting strong commitments to alternative energy pathways (Figure 19). Solid fossil fuels remained a dominant source in Poland (34.6%) and Czech Republic (27.9%), far above the EU average of 9.4%. In Estonia, oil shale and oil sands represented a substantial 52.5% of gross available energy. Peat and peat products accounted for 1.8% in Finland and 1.7% in Ireland. Oil and petroleum products constituted the highest share of gross energy in Cyprus (86.3%), Malta (85.6%), and Luxembourg (61.1%), influenced by specific national contexts. For example, Cyprus and Malta are island nations with limited energy diversification, while Luxembourg experiences high fuel consumption due to cross-border fuel purchases.

*Figure 19: Energy mix by source (%) per country in 2022*




*Source: Eurostat & Energy Institute – Statistical Review of World Energy*

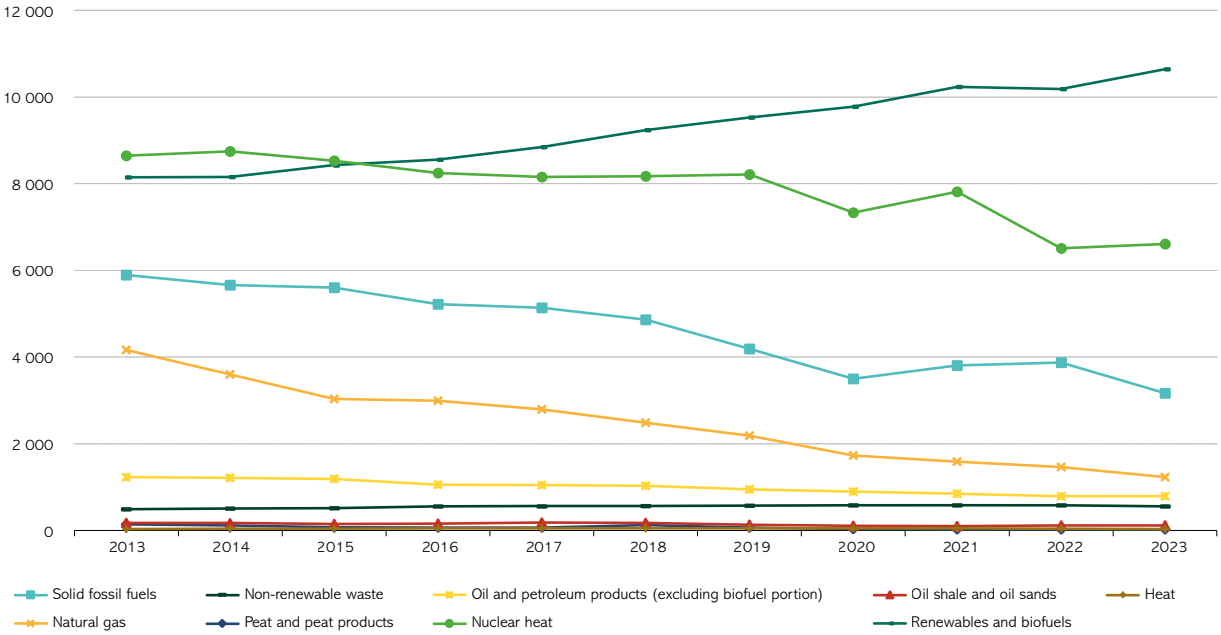
Natural gas use ranged from 34.8% in Italy to under 2% in Sweden and Cyprus. It also held significant shares in Hungary and the Netherlands, approaching 30% in both. Renewables provided over 50.2% of gross available energy in Sweden, with high shares also observed in Denmark (43.0%) and Finland (39.6%). The lowest shares were recorded in Malta (2.2%), Belgium (9.8%), and Cyprus (11.1%). Nuclear energy contributed significantly in countries with operational nuclear power plants (13 EU Member States in 2023). France led with the highest share of nuclear heat in its gross available energy (39.1%), followed by Slovakia (28.8%), Sweden (24.7%), Bulgaria (24.4%), and Finland (23.9%). Among the non-EU countries, Iceland (83.3%) and Norway (55.3%) recorded the largest share of renewable energy sources. In the United Kingdom (39.2%) and the United States (38.8%) the largest energy source in 2023 was oil and petroleum products, while Switzerland had the highest reliance on renewable and biofuels (37.8%). These national differences underline the complexity of the energy landscape and the importance of tailored policy approaches that align with national capacities while contributing to the broader goals of energy transition, decarbonisation, and energy security.

### 8.6.2. Energy production and trade flows

In 2023, the primary production of energy within the EU added up to 23,159 petajoules (PJ), representing a 1.7% decrease compared with 2022 and a 19.9% decline relative to 2013. The production of solid fossil fuels and natural gas experienced notable declines of 18.3% and 15.9%, respectively. Oil production remained relatively stable (+0.5%), while nuclear heat saw a modest increase (+1.6%). Renewable energy and biofuels continued their expansion and a growing role in the EU's energy mix (Figure 20). In 2023, renewables represented the largest share of EU's primary energy production (46.0%), followed by nuclear heat (28.6%), solid fossil fuels (13.7%), natural gas (5.3%), oil and petroleum products (3.4%), and non-renewable waste (2.4%). Over 2013–2023, primary energy production in the EU registered the most substantial decline across natural gas production (−70.5%), solid fossil fuels (−46.4%), and oil and petroleum products (−35.9%). Conversely, renewables registered a substantial growth of 30.7%, which indicates a long-term structural shift in the EU's energy production landscape.

The steady decline in domestic primary energy production has resulted in a growing dependence on imports of both primary and secondary energy products. This trend accelerated over the past decades but temporarily slowed in 2020 due to reduced demand during the COVID-19 pandemic. Import volumes rebounded in 2021 and 2022, before falling again in 2023 amid demand-side adjustments and energy diversification measures. In 2023, natural gas imports reached 12,530 PJ, which represents the lowest level since 2015. Natural gas remained the second most imported energy product, following crude oil, which remained the EU's leading import at 19,982 PJ. This marked a 1.0% decrease compared to 2013, and a 7.0% decrease relative to 2019, the final year before the pandemic disrupted global energy markets.

*Figure 20: Primary production by fuel source EU-27 (in PJ), 2013–2023*



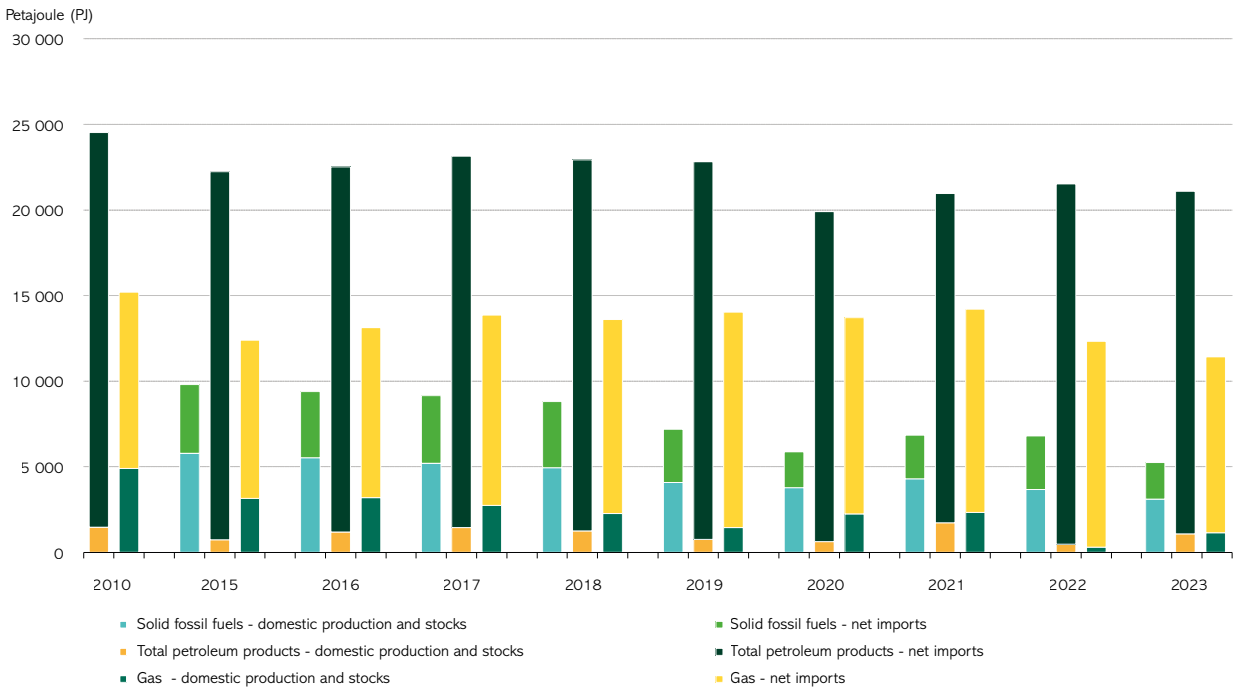

*Source: Eurostat*

EU energy exports remained significantly lower than imports in 2023. The leading export product was gas oil and diesel oil at approximately 4,014 PJ, followed by gasoline (2,929 PJ) and fuel oil (2,127 PJ). It is important to note that trade figures for both imports and exports include intra-EU trade flows, reflecting the internal dynamics of the EU single market as well as the Union's external energy trade balance.

### Energy dependency

Gross available energy reflects the total quantity of energy required to meet the energy demand of a country or region. A key indicator derived from this metric is the energy dependency rate, which measures the proportion of energy needs met through net imports (imports minus exports) relative to gross available energy. This indicator reveals the extent to which a country or region relies on external sources to satisfy its energy consumption. As illustrated in Figure 21, gross available energy is visually represented through a stacked column. The lower segment corresponds to domestically produced energy (including stock changes), while the upper segment captures net imported energy. The energy dependency rate is therefore represented by the share of the total column accounted for by imports.
In 2023, oil and petroleum products continued to represent the largest share of the EU's energy demand, reaching 21,092 PJ, with 94.9% of this demand met through imports. For natural gas, total consumption was 11,431 PJ, of which 90.0% was covered by imports. Meanwhile, domestic production of solid fossil fuels continued its long-term decline, both in volume and contribution to gross available energy. In 2023, 40.8% of solid fossil fuels consumed in the EU were imported.

*Figure 21: Energy dependency by fuel, EU, in selected years, 2010–2023 (in PJ)*



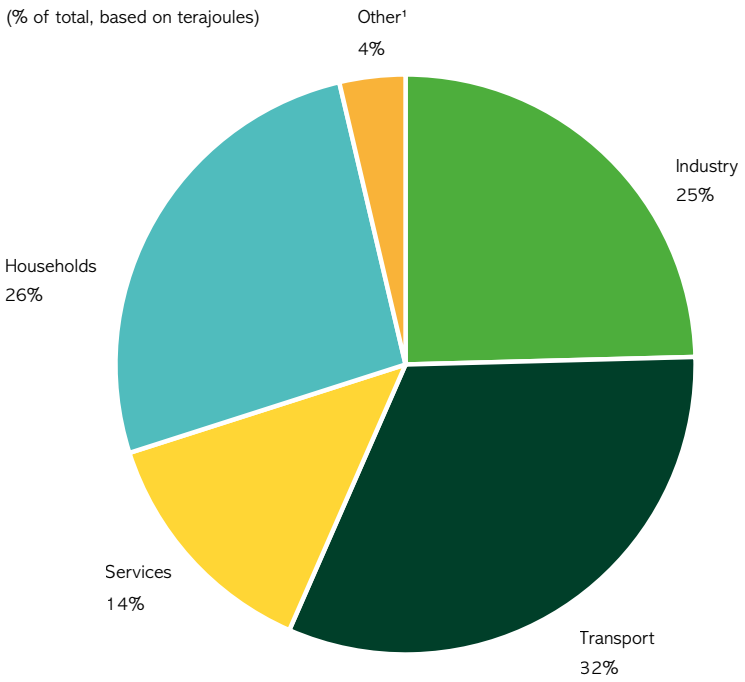

*Source: Eurostat*

From a longer-term perspective, the EU's energy dependency has generally remained stable over the past decade, fluctuating within a narrow range. Notable exceptions include 2019, when the rate reached 60.5%, and 2022, which saw a peak of 62.5%, driven by global energy market volatility and geopolitical instability. In 2023, the EU's energy dependency rate stood at 58.4%, showing a substantial reliance on external energy sources despite increasing efforts to expand renewable energy production and improve energy efficiency.

### 8.6.3. Energy consumption

In 2023, final energy consumption in the EU amounted to 36,566 petajoules (PJ), a 3.3% decrease compared to 2022. In terms of energy carriers, oil and petroleum products accounted for the largest share of final energy consumption in 2023 (37.4%), followed by electricity (22.9%). The final energy use by sector in 2023 shows three dominant areas (Figure 22): transport (32.0%), households (26.3%), and industry (24.6%).

*Figure 22: Final energy consumption by sector, EU, 2023*




[1] International aviation and maritime bunkers are excluded from category Final energy consumption for transport.

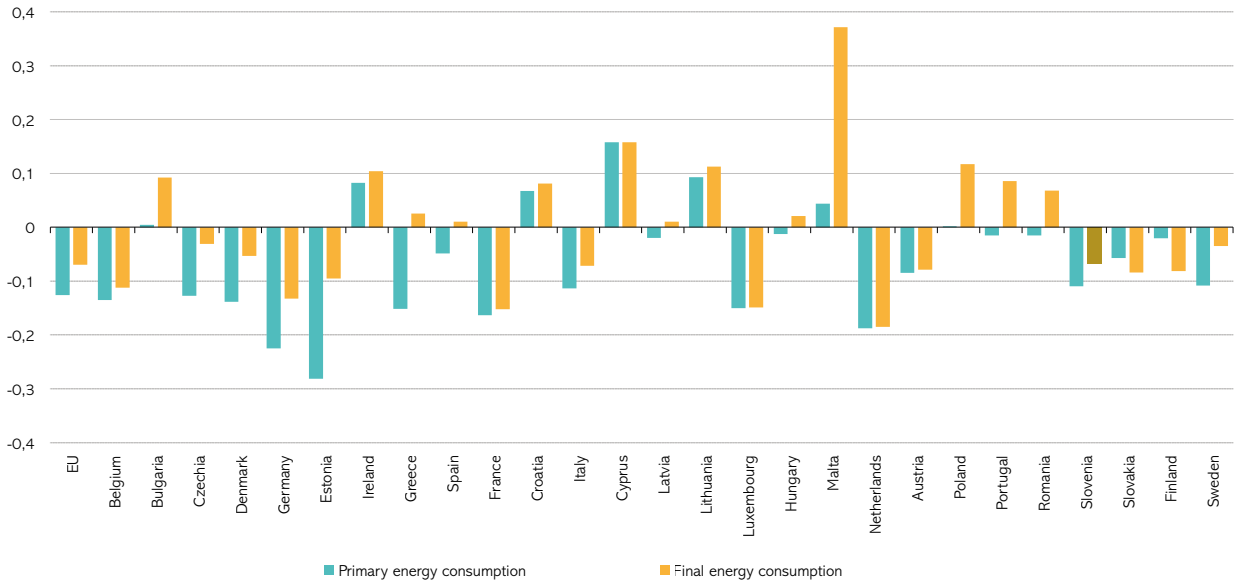
*Source: Eurostat*

The transport sector alone consumed 11,695 PJ of energy in 2023. Since 2013, the most significant contraction occurred in 2020, with a 12.9% drop compared to 2019, primarily due to the COVID-19 pandemic. Between 2020 and 2023, consumption rebounded by 11.0%, but it remained below pre-pandemic levels. The sectoral analysis for 2013–2023 reveals varying trends in energy demand concerning industry (−9%), transport (+5%), households (−14%), and services (−11%), and an overall net decrease of 6% over the decade.

### 8.6.4. Energy efficiency

The EU adopted Directive 2012/27/EU on energy efficiency in 2012, setting a target to reduce energy consumption by 20% by 2020, relative to baseline projections. This goal translated into maximum limits of 1,483 million tonnes of oil equivalent (Mtoe) for primary energy consumption and 1,086 Mtoe for final energy consumption across the EU. For 2030, an initial binding target was established at a 32.5% reduction, corresponding to 1,273 Mtoe of primary energy consumption and 956 Mtoe for final energy consumption. Following the United Kingdom's withdrawal from the EU, the targets were technically adjusted to reflect the EU-27, revising the maximum 2020 and 2030 limits to primary energy and final energy. In 2023, another revision of the Energy Efficiency Directive was adopted, following proposals presented under the European Green Deal (2021) and strengthened in the REPowerEU plan (2022), which aimed to reduce dependency on fossil fuel imports, particularly from Russia. The revised Directive sets new, more ambitious binding targets for 2030, with primary energy consumption (below 992.5 Mtoe) and final energy consumption (below 763 Mtoe).

*Figure 23: Changes in primary and final energy consumption 2013–2023*



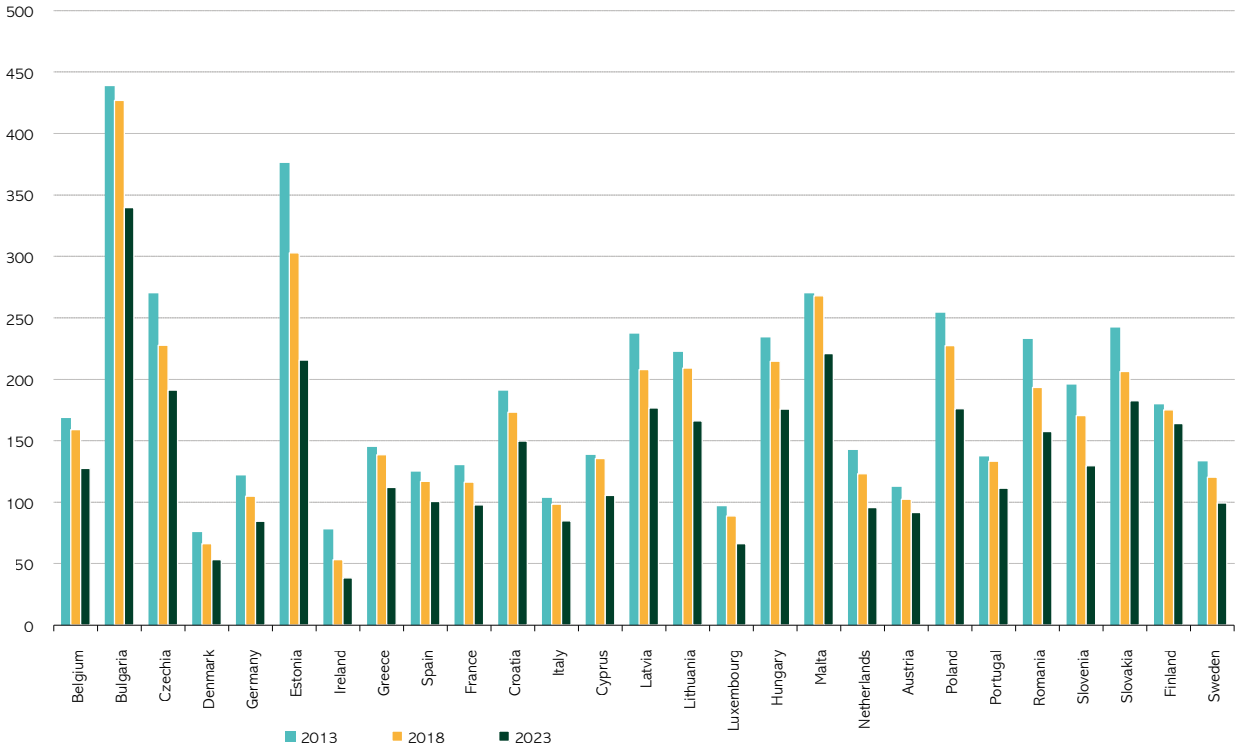

*Source: Eurostat*

Between 2013 and 2023, the EU reduced primary energy consumption by 12.6%. Nine countries achieved reductions greater than the EU average, most notably Estonia (−28.1%), Germany (−22.5%), and the Netherlands (−18.7%). Conversely, seven countries recorded an increase in primary energy use over the same period. Four of these exceeded 5%: Cyprus (+15.8%), Lithuania (+9.3%), Ireland (+8.3%), and Croatia (+6.8%). For final energy consumption, the EU recorded a 7% decrease between 2013 and 2023. Ten countries had the largest declines, including the Netherlands (−18.5%), France (−15.2%), and Luxembourg (−14.9%). Conversely, Malta (+37.1%), Cyprus (+15.8%), and Poland (+11.7%) registered notable increases.

Differences in the evolution of primary and final energy consumption often reflect structural changes in national energy systems. A key example is the shift from fossil fuel and nuclear-based electricity generation (lower efficiency) to renewable technologies such as wind and solar photovoltaic (considered 100% efficient under EU methodology). This transition reduces primary energy consumption without significantly altering final energy consumption. In addition, transformation losses in energy production are included in primary energy consumption, but not in final energy use. Consequently, net energy exporters may see an increase in primary energy consumption when exports rise, even if domestic consumption remains unchanged. For net importers or countries without refining capacity, changes in final energy use translate directly into changes in primary energy use. Primary energy consumption always equals or exceeds final energy consumption. Thus, final energy consumption reflects the actual energy use by end users, while primary energy includes the broader system-level inputs and losses.

Energy intensity, measured as energy consumption per unit of GDP, serves as an indicator of the energy efficiency of economic output. Improvements in energy intensity are often attributed to (1) structural shifts from industry to services, (2) increased efficiency within industrial processes, (3) closure of inefficient facilities, and (4) adoption of more energy-efficient technologies.

*Figure 24: Energy intensity (EI) of the economy in selected years, 2013–2018–2023, kilogram of oil equivalent per €1,000*




*Source: Eurostat*

As illustrated in Figure 24, based on chain-linked GDP values for temporal comparability, all EU Member States have improved their energy intensity over the past decade, which indicates positive developments towards decoupling economic growth from energy use. Between 2013 and 2023, EU energy intensity declined across the board due to effective energy efficiency policies, cleaner energy systems, and structural shifts towards energy-efficient industries. The best-performing countries were Ireland (EI = 38.2, and a 51% decline compared to 2013), Denmark (EI = 53.2, and a 30% decline compared to 2013), Luxembourg (EI = 66.3, and a 31% decline compared to 2013), Germany (EI = 84.4, and a 31% decline compared to 2013), and the Netherlands (EI = 95.6, and a 33% decline compared to 2013). The countries that registered the sharpest decline in energy intensity over the same period include Croatia (−48%), Estonia (−46%), Greece (−44%), and Slovakia (−41%).

**Country-specific progress in energy efficiency and decarbonisation**
For the following countries, progress has been reported
(European Environment Agency, 2025; International Energy Agency, (2023)):

**Ireland** has made notable progress in transforming its electricity system, with renewable energy currently supplying more than 40% of the electricity used, largely driven by wind power. The country generated over one-third of its electricity from wind energy in 2023, and aims to increase renewable electricity generation to 80% by 2030, with specific targets including 9 GW of onshore wind, 8 GW of solar, and at least 5 GW of offshore wind. However, this rapid deployment presents system integration challenges, demonstrated by the curtailment of wind generation, which was typically 7–11% since 2020 and reached 9.5% in 2023, or between 5% and 15% for wind and solar PV generally. Concerning energy efficiency, progress is required to speed up the transition of energy, transport, food, and industrial systems to meet the national objective of a climate-neutral economy by 2050. Key challenges persist as electricity accounts for only one-fifth of total energy use, and the transport and heating systems are still heavily reliant on fossil fuel systems. Measures have been taken, however, including the requirement for new buildings to meet the Nearly Zero Energy Building standard and the upgrading of existing buildings through retrofitting. The implementation of well-established options such as demand reduction and low-carbon heating is deemed crucial for Ireland to advance its energy decarbonisation efforts.

**Luxembourg's** energy policy is marked by ambitious targets and structural reliance on imports. Despite being a wealthy nation that has made progress in reducing energy consumption and increasing the use of renewable energy, the country imports around 90% of its energy. The updated National Energy and Climate Plan sets ambitious goals, aiming for 37% of energy consumption to be derived from renewables by 2030 and a 42% reduction in final energy demand by 2030. However, the current share of renewable energy in gross final energy consumption is increasing but remains one of the lowest in the EU. Renewable production capacity within the small, landlocked country is mostly constrained to hydropower, biogas, wind, and increasingly, wood waste. To bolster its renewable energy statistics, Luxembourg plans to accelerate permit-granting procedures for decarbonisation projects and enter into cross-border agreements for statistical transfer of renewable energy production. Regarding energy efficiency, substantial progress has been achieved, particularly in the services sector, but the residential sector still needs to catch up. This lagging progress in housing may be due to the structure of government financial support, which requires upfront funding from homeowners before tax relief is provided, potentially discouraging low- and middle-income residents. Furthermore, Luxembourg's economy still has a high carbon intensity and is persistently dependent on fossil fuels, particularly for road transport, which constitutes roughly three-quarters of its energy mix.

**Germany** is advancing a major transformation of its energy system, which is central to its effort to achieve greenhouse gas neutrality by 2045. This transition involves phasing out nuclear power, which was completed in 2023, and accelerating the phase-out of coal. A core objective is to have at least 80% of gross electricity consumption come from renewable energy sources by 2030, a goal supported by the 2023 revision of the Renewable Energy Act. The pace of installation has increased, but to meet its 2030 targets, Germany must significantly expand its capacity from 61 GW to 115 GW for onshore wind and nearly triple its photovoltaic (PV) capacity from 83 GW to 215 GW. The future energy mix also relies heavily on hydrogen, with a national strategy aiming for at least 10 GW of electrolysis capacity by 2030 and the development of a core hydrogen network to be completed by 2032. In parallel with promoting renewables, Germany is focused on improving energy efficiency. The Energy Efficiency Regulation sets targets for reducing primary and final energy consumption, while the Building Energy Act, effective from 2024, mandates that heating systems in new buildings are powered by at least 65% renewable energy. Despite these efforts, the country faces significant challenges, as the transport and heating sectors still rely too heavily on fossil fuels. To manage the transition and ensure supply security, a Power Station Strategy will promote investment in new gas-fired power plants capable of switching to 100% hydrogen between 2035 and 2040.

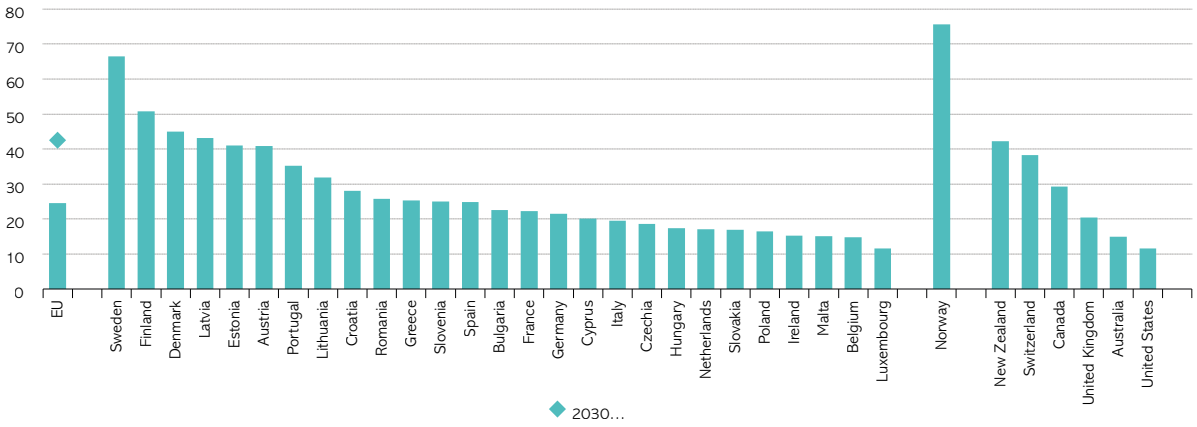
**The Netherlands'** energy system is considered the most crucial component of achieving climate neutrality by 2050. This transition is now entering a major implementation phase, which anticipates the installation of many new renewable facilities such as windmills and solar panels, alongside a related extension and strengthening of the electricity infrastructure. However, despite recent progress, the sources suggest it is unlikely that the Netherlands will reach its 2030 EU climate goals. The government's strategy focuses on developing four interconnected energy chains (electricity, hydrogen, carbon, and heat) to create an integrated future energy system. The country faces enormous challenges in this transformation, including significant grid congestion and new scarcities of land, raw materials, and labour. High nitrogen emissions represent a key national environmental issue that currently hampers construction, including that of renewable energy infrastructure. In terms of energy efficiency, a special emphasis is placed on the electrification of transport, which is the dominant mode of mobility. The uptake of electric vehicles is increasing rapidly, with almost one in six passenger cars currently being electric or hybrid. This shift is supported by a network of over 183,000 semi-public charging points.

**Estonia** is recognised as a global leader in environmental progress and ranks among the top ten countries in the world for energy security and sustainability. Commended as one of five nations reducing emissions at a rate sufficient to achieve climate neutrality by 2050, its energy system was ranked 7th globally for sustainability in 2023. Estonia has set an ambitious goal to transition its electricity consumption to 100% renewable electricity by 2030, and to become a climate-neutral country by 2050. A core part of this strategy is a major transformation to phase out its historical reliance on oil shale, a transition that requires significant investment and is being formalised through a forthcoming Climate Resilient Economy Act, which will set legally binding targets. The country's strong focus is on renewable sources, particularly bioenergy-based heat and power production and wind energy, including leveraging its coastal access for offshore wind potential. Having already met its 2020 targets for energy savings and renewable energy, Estonia is accelerating the deployment of renewables and increasing electrification. This green transition is also supported by Estonia's digital innovation, which can facilitate the development of smart grids and renewable energy management systems.

### 8.6.5. Share of energy from renewable sources

In 2023, the share of renewable energy in the EU's gross final energy consumption reached 24.5%, up from 23.0% in 2022. In the transport sector, the share of renewables rose to 10.8%, compared to 9.6% the previous year. The expansion of renewable energy offers multiple benefits. These include reducing greenhouse gas emissions, enhancing energy supply diversification, and lowering dependence on fossil fuels, particularly oil and gas. In addition, renewable energy development supports green job creation and underpins the Clean Industrial Deal, a cornerstone of the EU's sustainable growth agenda. Renewable energy sources include wind, solar (thermal, photovoltaic, and concentrated), hydropower, tidal, geothermal, ambient heat via heat pumps, biofuels, and the biodegradable fraction of waste.

*Figure 25: Share of energy from renewable sources, 2023 (percentage of gross final energy consumption)*




*Source: Eurostat & Energy Institute – Statistical Review of World Energy*

Under Directive (EU) 2023/2413, the EU has increased its 2030 renewable energy target from 32% to 42.5%, with an aspirational target of 45%. Achieving this objective will require a nearly 20% increase in the EU's renewable share by 2030, calling for intensified efforts across Member States. Concerning country-level performance, Sweden recorded the highest renewable share in 2023, with 66.4% of gross final energy consumption from renewables, primarily sourced from solid biofuels, hydro, and wind. Finland followed with 50.8%, and Denmark ranked third at 44.9%, both heavily reliant on biofuels and wind. The lowest shares were observed in Luxembourg (11.6%), Belgium (14.7%), and Malta (15.1%). In 2023, 45.3% of gross electricity consumption in the EU came from renewable sources, up from 41.2% in 2022. This growth has been primarily driven by wind and solar power, reflecting continued expansion across the EU. According to Directive (EU) 2018/2001, renewable electricity from hydro and wind must be normalised to account for annual weather variability, with hydro over 15 years and wind over 5 years. Wind and hydropower together accounted for 66.7% of renewable electricity in 2023 (38.5% and 28.2% respectively). Solar power represented 20.5%, while the remainder came from solid biofuels (6.2%) and other renewables (6.6%). In terms of national electricity consumption, Austria (87.8%), Sweden (87.5%), and Denmark (79.4%) led in renewable electricity share. More than half of electricity consumed came from renewables in Portugal, Croatia, Spain, Latvia, and Finland. The lowest shares were in Malta (10.7%), Czech Republic (16.4%), Luxembourg (18.0%), and Hungary (19.5%). Norway generated more renewable electricity than their total consumption, surpassing 100%.

In 2023, 26.2% of the EU's energy for heating and cooling came from renewable sources. Growth has been supported by progress in the industrial, service, and residential sectors, including the increasing use of ambient heat through heat pumps and renewable energy in cooling systems. Highest shares were recorded in Sweden (67.1%), Estonia (66.7%), Latvia (61.4%), Finland (61.3%), Denmark (54.9%), and Lithuania (53.6%). The lowest shares were found in Ireland (7.9%) and the Netherlands (9.6%). The EU has agreed on a common target of 29% renewable energy use in transport by 2030, covering liquid biofuels, renewable electricity, biomethane, and hydrogen. Between 2013 and 2023, the average share of renewable energy in EU transport rose from 6.1% to 10.8%. Performance varies widely among Member States. Sweden leads with 33.6%, followed by Finland at 20.6%. The lowest shares were recorded in Croatia (0.9%), Latvia (1.4%), and Greece (3.9%). Norway reported a high renewable share of 27.7%.

**Country-specific progress in renewable energy production and decarbonisation**
For the following countries, progress has been reported
(European Environment Agency (2025); International Energy Agency, (2024)):

**Denmark** has demonstrated high ambitions for climate action and has made significant progress in transforming its energy system towards renewable sources. The transition is well underway, with a goal to achieve 100% green electricity production by 2030. This progress is evident in recent figures, as by the end of 2023, electricity generated from Danish wind and solar power already covered 62.8% of the country's total electricity usage. The country is developing large-scale offshore wind parks and innovative Power-to-X plants to further this transition. Projections indicate that by 2032, fossil fuel consumption for Danish power generation will be minimal, primarily limited to waste incineration and oil for backup generation. To support this, a 2023 climate agreement facilitates the state's role in planning large terrestrial energy parks where renewable facilities can be co-located. While facing challenges, such as an unsuccessful offshore wind power tender in 2024, the government has responded by adjusting the terms to make future tenders more attractive to the market. This energy transition is underpinned by the 2020 Climate Act, which legally commits Denmark to reducing greenhouse gas emissions by 70% by 2030 compared to 1990 levels. In terms of energy efficiency, a political focus on energy savings and carbon dioxide reductions has lowered the energy consumption for car transport, a trend supported by a substantial increase in the share of new electric cars from 0.7% in 2018 to 49.3% in 2024.

**Norway's** low-carbon transition is comparatively well advanced, largely due to the widespread use of renewables, primarily hydro and wind power. The country is energy self-sufficient and generates a surplus of renewable electricity in normal years. An accelerated decarbonisation is expected, underpinned by policies such as a ban on fossil oil for heating homes and commercial buildings since 2020, with further regulations anticipated to phase out fossil gas for heating and fossil fuels in construction. A key national target is the replacement of natural gas used for offshore electricity production with renewables, highlighted by the 2023 opening of Hywind Tampen, the world's first floating wind farm built to power offshore petroleum installations. Increased electrification is a core part of its strategy to improve energy efficiency; electric vehicles are more energy-efficient than their fossil fuel counterparts, and a gradual electrification of machinery is also expected in sectors such as agriculture and construction. This is particularly evident in the transport sector, where Norway has the highest number of electric vehicles per capita in the world and is on track to meet its goal of 100% zero-emission new passenger car and van sales by 2025. However, Norway faces challenges, including a relatively high energy consumption per capita – above the OECD average – driven mainly by the industrial sector and household heating needs. The country is also addressing an upward trend in electricity consumption by focusing on greater flexibility in the power system and the potential of reusing waste heat from industrial processes to improve its energy balance.

**Sweden's** electricity production is predominantly fossil-free, relying largely on a mix of hydro, wind, and nuclear power. In recent years, the country has experienced a significant increase in renewable energy generation, driven primarily by a major expansion of wind power (from 2.3 TWh in 2013 to 33.1 TWh in 2023) and a near doubling of solar power production between 2021 and 2022. This shift has been supported by long-standing energy and carbon dioxide taxes that have been key instruments since the 1990s. However, Sweden faces the significant challenge of meeting a predicted large increase in future electricity consumption, which is being spurred on by the electrification of new and existing industries, including fossil-free steel production and the transport sector.

Regarding energy efficiency, Sweden has a strong track record, resulting in a level of energy poverty that is lower than the EU average. This success is built on decades of investment in fuel-switching and efficiency measures, particularly in the building sector, where greenhouse gas emissions from heating have fallen by 91% since 1990. Key contributing factors include the expansion of district heating networks and the widespread adoption of heat pumps. Energy efficiency is also a significant source of employment, with related roles accounting for 50% of jobs in the environmental goods and services sector over the past five years. The transport sector, however, remains a major challenge. Despite progress in the energy efficiency of road traffic and a growing share of electric vehicles, Sweden is not expected to meet its 2030 emissions reduction target for domestic transport. Recent policy decisions to significantly decrease the greenhouse gas reduction mandate for fuels have negatively impacted progress in this area.

**Latvia** is making notable progress in its transition towards renewable energy and greater energy efficiency, a transformation significantly accelerated by the need to end its historical energy dependence on Russia. Until 2022, over 95% of Latvia's natural gas was imported from Russia, but this has been forbidden since 2023, and electricity trade has also ceased, culminating in the synchronisation of the Baltic states with the EU's electricity system in February 2025. In response, the country is experiencing a surge in renewable energy installations, particularly in solar power, which benefits from faster implementation and fewer administrative hurdles. This builds on previous support programmes, such as feed-in tariffs, that have significantly increased biomass and biogas capacities over the last two decades. The government has committed to ambitious renewables targets and has strengthened the legislative framework to support their integration by reducing the administrative burden on projects. On the efficiency front, the 2022–2023 energy crisis prompted society and companies to invest more in efficient buildings and technologies. A key measure has been the widespread adoption of smart metering technologies, which now monitor 99% of electricity consumption, with uptake for gas and district heating also growing. The popularity of heat pumps, often combined with solar photovoltaics, is also increasing for individual heating. Despite this progress, significant challenges remain. The transport sector is still heavily dependent on fossil fuels, making it one of the largest contributors to greenhouse gas emissions. Furthermore, Latvia lags behind the EU average in investments in eco-innovation and energy efficiency, highlighting a need for stronger policies to fully cut its fossil fuel dependence.

**Finland** has an ambitious policy to become carbon-neutral by 2035 and has long focused on energy efficiency due to its cold climate. The country's energy system has recently undergone major changes, including a strong increase in wind power production, the deployment of the new Olkiluoto 3 nuclear reactor, and a rapid reduction in Russian fossil fuel imports. While bioenergy from its abundant forests has traditionally been the most important renewable energy source, both wind and solar power have seen rapid growth. The future energy transition is focused on the electrification of the fossil-fuel-based system and innovations such as large-scale hydrogen production. Despite a history of efficiency efforts, Finland still has one of the highest per capita energy demands in the EU, driven by its export-oriented heavy industry and heating needs. Significant progress has been made in the building sector, where many homeowners have shifted from oil heating to more sustainable solutions such as heat pumps, which also complement the widespread district heating systems. The 2022–2023 energy crisis further highlighted the potential for savings, as household electricity consumption fell by over 10% through more mindful energy use. However, Finland continues to face challenges, including the struggle to phase out peat in energy production and a significant fossil fuel dependency in the transport sector. The country's old, petrol-dependent car fleet and a recent rollback of renewable fuel distribution obligations jeopardise the achievement of its 2030 transport emission reduction targets.

### 8.6.6. Key insights and policy outlook

**Key points are:**

- Oil remained the dominant energy source, accounting for 37.6% of gross available energy in 2023. Oil consumption saw a slight increase of 2.0% in 2023.
- Natural gas consumption, the second most significant source (20.4% share), decreased by 7.2% in 2023, largely due to EU-wide efforts to reduce dependence on Russian gas.
- In 2023, renewables represented the largest share of EU primary energy production (46.0%), by consistently expanding their share (19.5%) and narrowing the gap with natural gas to less than 1%.
- The EU's energy import dependency remained high at 58.4% in 2023, reflecting a substantial reliance on external energy sources.
- All EU Member States improved their energy intensity (energy consumption per unit of GDP) over the past decade, demonstrating positive developments towards decoupling economic growth from energy use.
- Structural shifts in the energy sector are occurring in response to long-term climate objectives, market developments, and geopolitical pressures, such as efforts to reduce reliance on Russian gas.
- The high complexity and diversity of national energy mixes require tailored policy approaches that align with national capacities while supporting broader goals of decarbonisation and energy security.

# 8.7. BIODIVERSITY AND LANDSCAPES

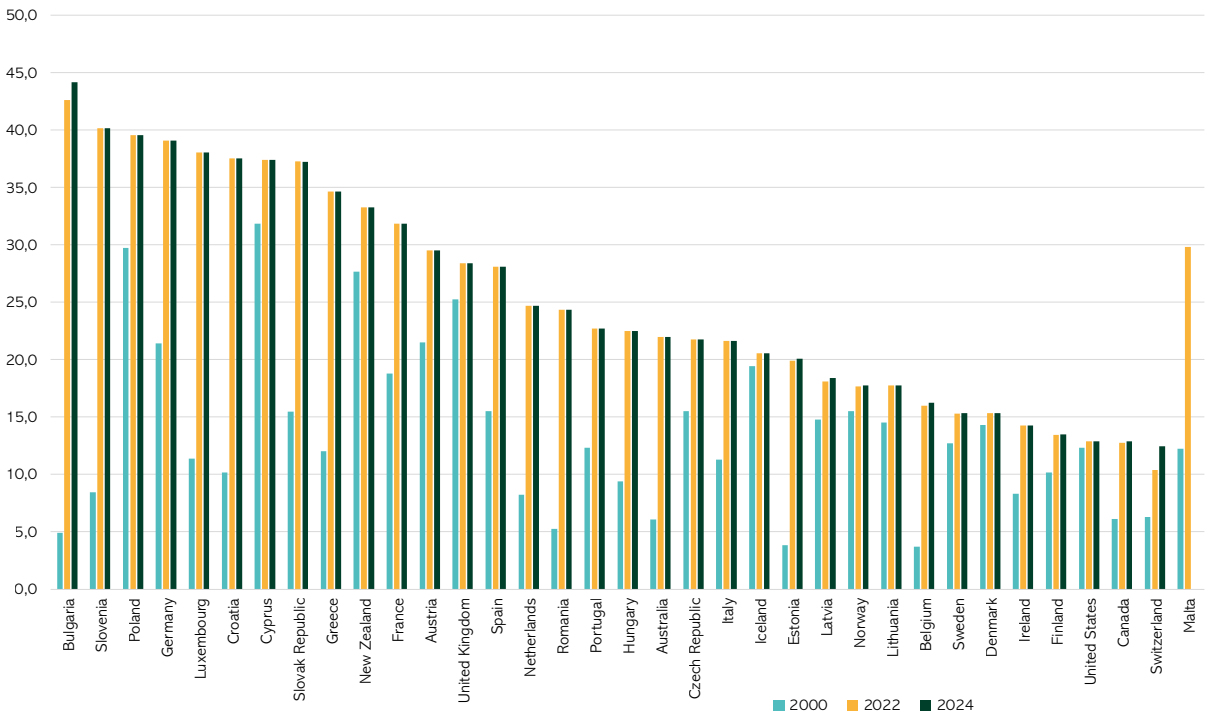
Biodiversity encompasses the number, variety, and variability of plants, animals, and other organisms, including humans. The European Union is committed to the protection of biodiversity and has built up a large network of 27,000 protected areas (known as Natura 2000) in all the Member States. This represents 18% of the EU territory on land and 9% of EU seas. Designation of protected areas is an important policy tool for halting biodiversity decline. Economic activities are allowed under Natura 2000 as long as they do not affect the conservation status of species or habitats in a negative way. In addition, EU Member States have protected large portions of their territory under national protection schemes. In 2023, around 1.1 million km² of the EU Member States' land area was designated for the preservation of biodiversity as Natura 2000 sites or nationally protected sites. This section examines the main indicator for biodiversity – information on protected areas (for terrestrial and marine biodiversity) in the reporting countries.

### 8.7.1. Terrestrial protected areas

This indicator represents the share of terrestrial protected areas as a percentage of each country's total land area, based on OECD data. Protected area coverage reflects a mix of national designations, Natura 2000 sites (for EU Member States), and other land-based conservation categories included in OECD reporting.

Overall, by the end of 2022, terrestrial protected areas covered 26.1% of EU land, with 18.6% of this area designated as Natura 2000 sites and 7.5% as other national designations. The EU biodiversity strategy for 2030 (European Commission, 2025) sets out a target of protecting at least 30% of EU land by 2030, while also ensuring that all protected areas are effectively managed (Eurostat, 2023d). In 2024, the countries with the highest terrestrial protection levels include Bulgaria, Slovenia, Poland, Luxembourg, and Germany, all of which are above or around the 38% mark. Several EU countries – such as Austria, Spain and the Netherlands – are nearing the 30% EU target threshold. In contrast, a small group of Member States with 15% or less of protected land – notably Finland, Ireland, and Sweden – will need to significantly intensify their efforts to meet the EU target of protecting at least 30% of land by 2030. Among non-EU countries, Canada and the United States report the lowest share of protected areas (both 12.87%). Figure 26 also shows that all the reporting countries have increased the share of terrestrial protected areas between 2000 and 2024 with some showing a significant increase (e.g. Belgium, Bulgaria, Slovenia, Croatia, Cyprus, and Romania).

*Figure 26: Terrestrial protected areas (% of total land area)*

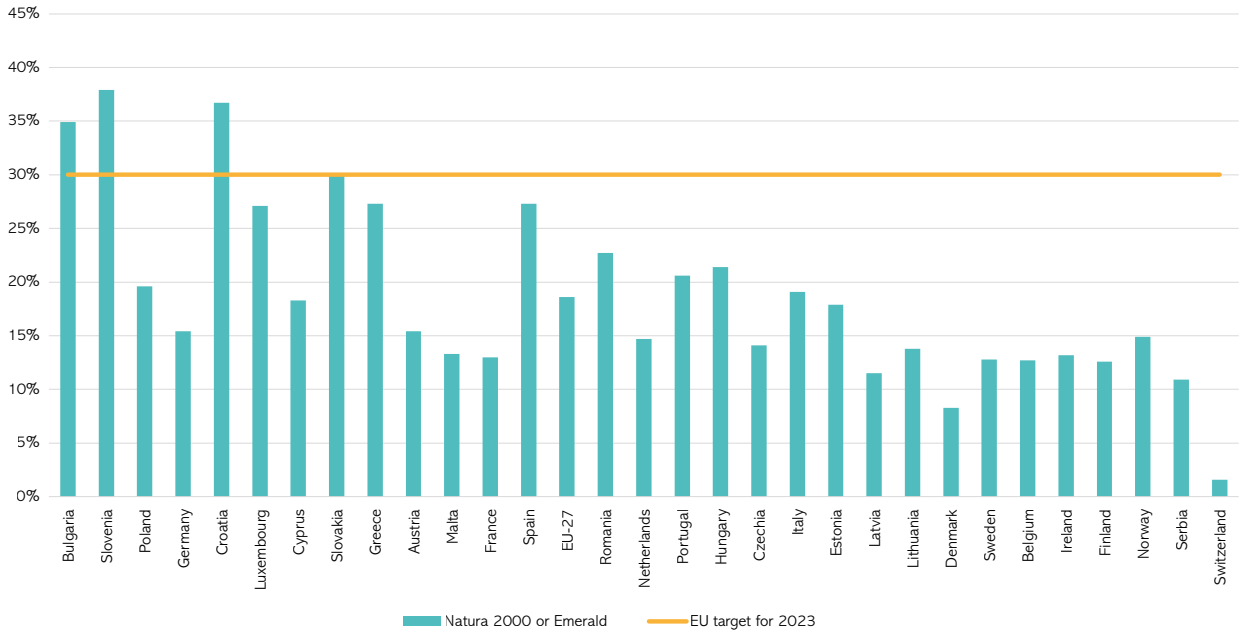



*Source: OECD*

There is no clear correlation between how much countries spend on biodiversity and landscape protection, and the share of their land designated as protected. This is because protected area coverage mostly reflects past land designations and geographic conditions, not current spending levels. In contrast, present expenditure often targets the management, restoration, and enforcement of existing protected sites rather than expanding their total area. Countries with limited available land, such as Denmark, Malta, or Iceland, may spend more per hectare without significantly increasing protection coverage, while others with large designated areas, such as Slovenia or Bulgaria, can maintain high protection levels with comparatively lower annual investment.

Some Member States protect a large proportion of their land as Natura 2000 (Figure 27). The highest shares of terrestrial protected area (as Natura 2000) are in Slovenia (38%), Croatia (37%), Bulgaria (35%), Slovakia (30%), Spain, Luxembourg, and Greece (27% each). At the other end of the spectrum are Denmark (8%), Latvia and Sweden (both 12%), and six other Member States that have designated 13% of their land territory as Natura 2000 sites. It is important to note that, in general, biodiversity in Europe decreases from south to north (or from the Equator to the North Pole) which partly explains the geographical pattern of designating protected areas. The largest network of terrestrial Natura 2000 areas in absolute terms is located in Spain with a coverage of 138,083 km$^2$ in 2020. This is almost twice the size of the next largest national Natura 2000 network in France (71,030 km$^2$), and it is larger than the country area of 19 smallest EU Member States (Eurostat, 2023d). Furthermore, when correlating population density (persons per square kilometres) with the size of terrestrial protected areas Malta, Netherlands, and Switzerland have the highest share of terrestrial protected areas in relation to the population density. This largely indicates on limited space for human activities in these countries.

*Figure 27: The share of terrestrial protected areas in the EU land area by country and in the EU-27 by 2023 as Natura 2000*



**Country-specific profiles in designated terrestrial protected areas**
For the following countries, progress has been reported (European Environment Agency, 2025):

**Bulgaria**
Bulgaria has established an extensive National Ecological Network, which integrates Natura 2000 sites (designated under the EU Birds and Habitats Directives) and nationally protected areas, with substantial overlap between the two protection categories. By the end of 2023, a significant number of protected areas – including Natura 2000 sites – had been designated, covering a total of 41,768 km² of the National Ecological Network (excluding overlap), of which 38,947 km² were terrestrial. As a result, the network covers approximately 35.1% of Bulgaria's national territory. As shown in Figure 26, more than 40% of Bulgaria's land area appears to be protected, though this figure is likely an overestimate, as it includes state game husbandries classified as "other conservation areas", which are not officially considered part of Bulgaria's terrestrial protected area system. Overall, the consistent implementation of EU environmental directives and Bulgaria's high sufficiency index demonstrate the country's strong commitment to nature protection and biodiversity conservation. The updated National Biodiversity Strategy is currently in the process of adoption, and Bulgaria is also preparing its national pledges under the EU Biodiversity Strategy for 2030.

**Slovenia**
Slovenia continues to expand its protected areas in line with national biodiversity objectives, which aim to increase coverage by an additional 2% by 2030, bringing the total share of land under protection to over 42%. As of 2022, protected areas covered 8,206 km² of the country's territory. In 2024, nationally designated protected areas, established according to the International Union for Conservation of Nature criteria, accounted for 13.3% of Slovenia's land area, while Natura 2000 sites covered 37.9%, with an overlap of slightly more than 10% between the two designations. Despite this progress, several challenges remain. Agricultural intensification, often driven by market pressures and limited agri-environmental support under the Common Agricultural Policy, continues to prioritise food production over biodiversity conservation.

**Germany**
Germany has achieved and surpassed the EU policy target for 2030 of protecting at least 30% of its total land area, with approximately 39% of the country's territory designated as protected. This figure is derived from the combined data of all Natura 2000 sites and nationally designated protected areas listed in the Common Database on Designated Areas. These include national parks, nature conservation areas, nature monuments, and landscape protection zones. However, it is important to note that while these areas are formally listed as protected, a considerable share consists of landscape protection areas that may not fully meet the European Commission's stricter criteria for the 30% target under the EU Biodiversity Strategy for 2030, which emphasises effective conservation management and ecological integrity.

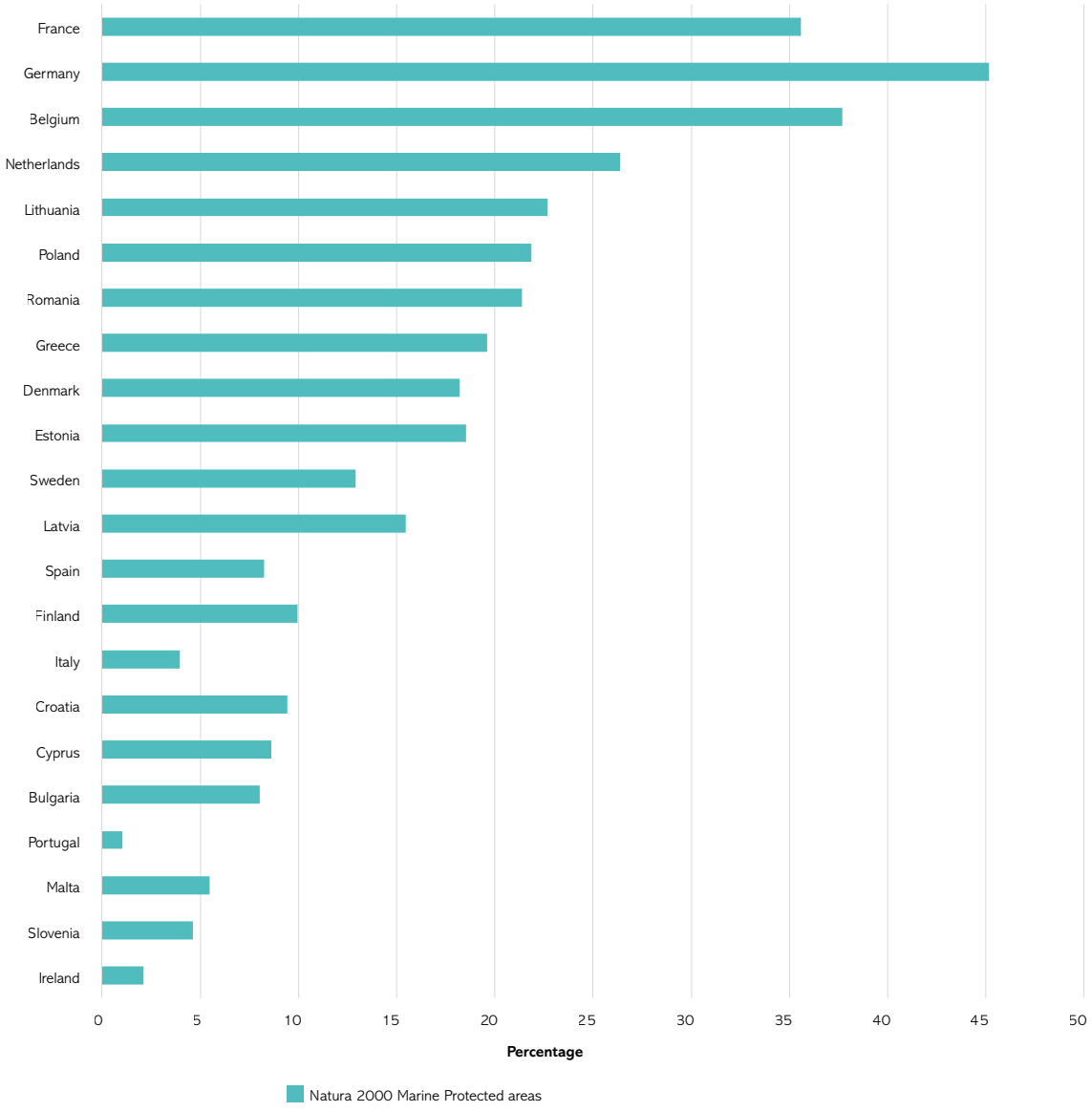
**Poland**
Protected areas cover about 40% of Poland's territory, exceeding the EU 30% target and remaining stable for many years. In 2022, legally protected areas (excluding Natura 2000) accounted for 32% of the territory, while the Natura 2000 network covered about 20%, above the European average. Poland has ten forms of nature protection, including 23 national parks (with a 24th planned for the Lower Odra Valley), 11 biosphere reserves, and 19 Ramsar sites. About 22% of the land is classified as protected landscape areas. Recent initiatives aim to expand nature reserves (currently over 1,500) and develop community forests. A LIFE-funded project seeks to establish by 2027 a modern, multifunctional system for managing and protecting natural resources.

**Netherlands**
Currently, almost 23% of the terrestrial territory of the Netherlands is designated as a protected area (see graph), just under the 26% EU average. About half of the area comprises sites designated under national laws, while the other half covers those recognised as Natura 2000 sites. With the increase in natural areas since 1990, spatial continuity between natural habitats on land has improved. However, a significant proportion of the designated protected areas are still too small or fragmented to offer space for stable populations. Almost all the Natura 2000 sites are part of the Nature Network Netherlands. It originates from the 2013 Nature Pact between the national and provincial governments. The Pact is an important Dutch measure for reversing the international decline in biodiversity, and it aims to create a coherent network of natural areas by the end of 2027, including 80,000 ha of new natural areas.

### 8.7.2. Marine protected areas

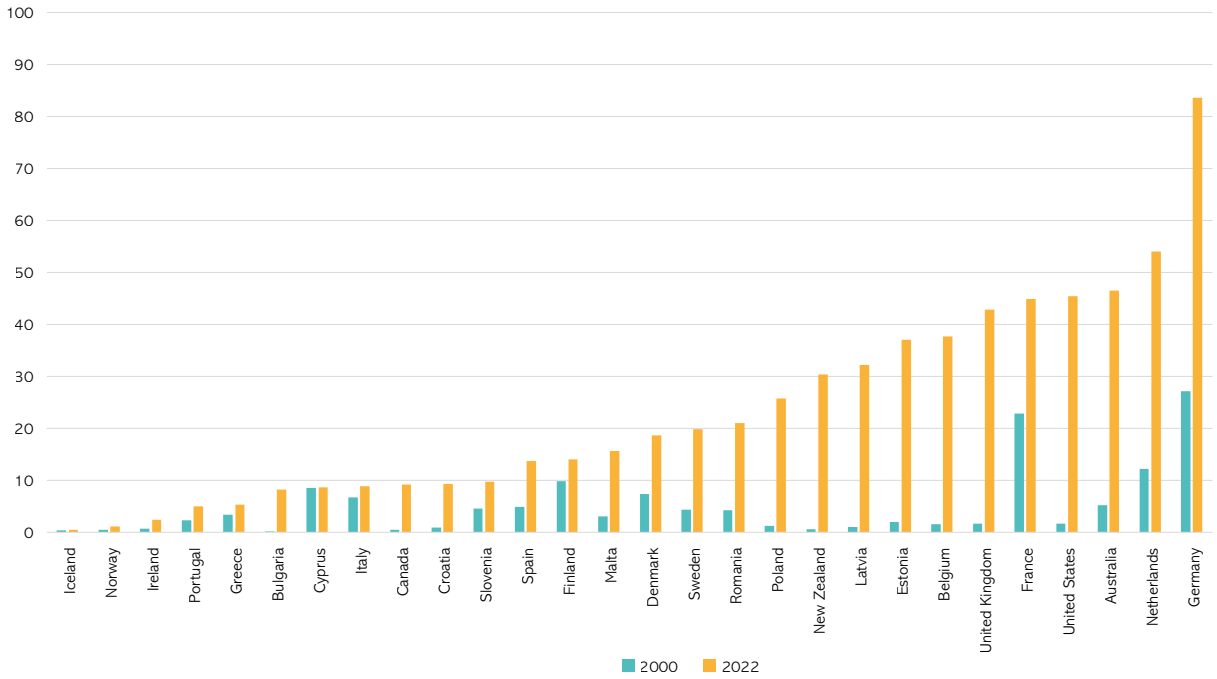
This indicator represents country-level protected marine area coverage ($km^2$ and percentage of national marine waters area) under Natura 2000, without area only protected under national legislation. The EU has made progress in designating new marine protected areas, both as part of the Natura 2000 network and through complementary national designations. As a result, marine protected area coverage more than doubled, to 12.3%, between 2012 and 2022. Germany protected the largest share of its marine waters as Natura 2000 (45%), followed by Belgium (38%) and France (36%) (Figure 28). The smallest shares of protected marine waters were observed for Ireland (2%), Portugal (2%), and Italy (4%), followed by Greece and Slovenia (5% each) (Figure 27). These shares have been calculated using the area of marine waters reported for the Marine Strategy Framework Directive as the total. In absolute terms, the largest national network of marine Natura 2000 areas is located in coastal waters around France (132,688 $km^2$). Together with the second largest national network in Spain (84,405 $km^2$) these account for almost half (48%) of the total marine Natura 2000 area of the EU (Eurostat, 2023d). However, efforts will need to increase significantly to achieve the EU Biodiversity Strategy 2030 target of protecting at least 30% of EU seas by 2030, while also ensuring that all protected areas are effectively managed. At present it appears unlikely that the target will be met (EEA, 2024).

*Figure 28: Marine protected area coverage in EU Member States under Natura 2000, 2012–2022*



At the same time, OECD proposes a different indicator to measure marine protected areas calculated from the World Database on Protected Areas. It is measured as the percentage of exclusive economic zones for marine protected areas. The exclusive economic zone of a country extends 200 nautical miles from the coastline, or to the mid-point between coastlines where the exclusive economic zones of different countries would otherwise overlap. Figure 29 displays the marine protected areas as a percentage of exclusive economic zones for 2000 and 2022 with Germany and the Netherlands reporting the highest share of marine protected areas in 2022.

*Figure 29: Marine protected areas (% of exclusive economic zones)*




*Source: OECD*

### 8.7.3. Key insights and policy outlook

**Key points are:**

- By 2024, 26.1% of EU land was protected, with 18.6% under Natura 2000 and 7.5% under national designations.
- Bulgaria, Slovenia, Poland, Luxembourg, and Germany have already surpassed 38% protected land, while Finland, Ireland, and Sweden remain below 15%.
- Most countries show incremental rather than large-scale expansion, with efforts focusing on management quality and connectivity.
- Spending levels and protection coverage are not strongly correlated, as current budgets mainly support the maintenance and restoration of existing sites.
- Marine protected areas reached 12.3% of EU marine waters in 2022, but progress remains too slow to meet the 30% target by 2030.

# 8.8. CITIZENS' PERCEPTIONS OF CLIMATE CHANGE AND ENVIRONMENTAL POLICY

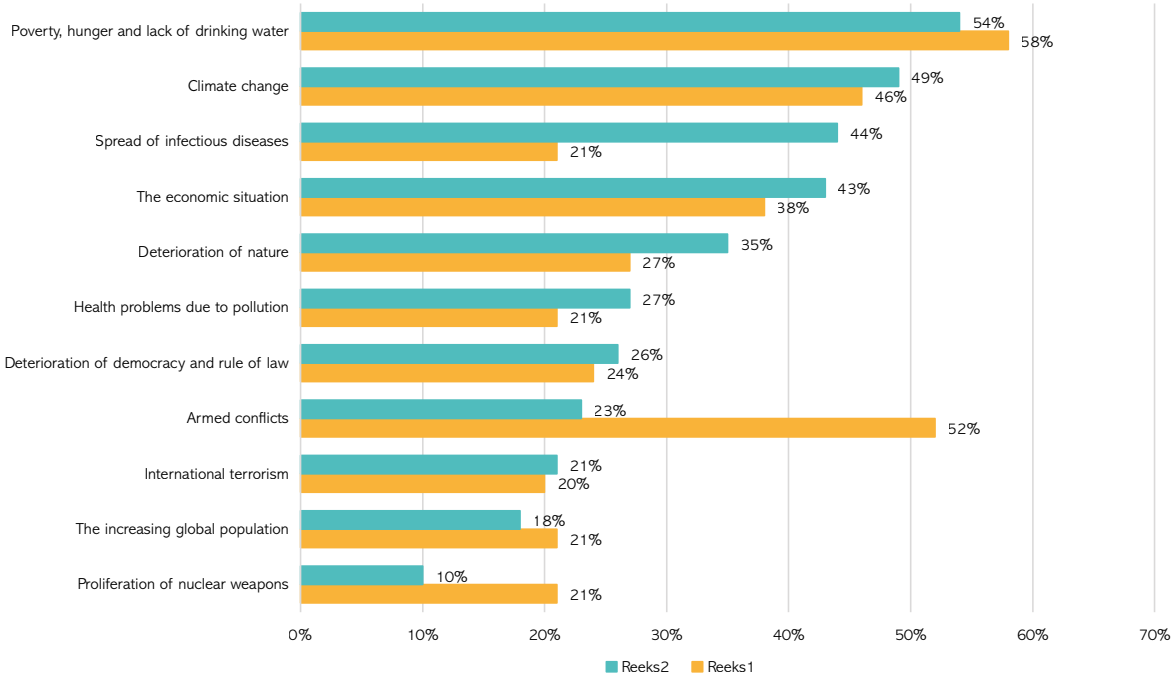
Governments must currently navigate a complex set of interrelated challenges, including the climate crisis, growing geopolitical tensions, rapid technological changes, and economic uncertainty, all while confronting rising polarisation and declining citizen engagement in democratic processes. In such a volatile environment, the issue of building and maintaining trust in public institutions has become essential. Citizens' perceptions of climate change and environmental policy currently reflect these pressures. Across the countries included in this study, people consistently rank the cost of living, climate change, and income inequality as top challenges. A majority also believe that the transition to a carbon-neutral economy will only succeed if it addresses inequalities, underlining demands for climate actions that are both environmentally effective and socially fair.

Public support is evident for structural reforms, such as ending subsidies for aviation and fossil fuel-intensive industries, while many also believe wealthier nations should compensate developing countries for climate impacts. While most respondents consider climate change a very serious problem, in Europe citizens expect the EU, national governments, and industry to take the lead in tackling the climate crisis. There is strong support for accelerating renewable energy, improving efficiency, and speeding up the green transition, especially in response to energy price shocks linked to geopolitical instability. Citizens are overall supportive of ambitious actions, but their trust hinges on fairness, credible commitments, and effective communication of how short-term costs connect to long-term benefits. For governments, sustaining that trust will be key to advancing climate and environmental policies in times of profound uncertainty.

### 8.8.1. Citizens' perceptions of climate change and environmental protection

In most countries included in this study, climate change and the deterioration of nature are perceived as key challenges. According to the latest EIB Climate Survey (European Investment Bank, 2024), a significant share of respondents in the European Union and United States recognise the importance of climate change and its consequences. The Special Eurobarometer on Climate Change (European Commission, 2023) highlights that Europeans view climate change as one of the most pressing global challenges, though it competes with other urgent concerns. When respondents were asked to name the single most serious problem facing the world, climate change ranked third, behind poverty, hunger and lack of drinking water, and armed conflicts. Across the EU, poverty, hunger, and lack of drinking water (58%), and armed conflicts (52%) emerged as the two most frequently mentioned problems in 2023, each seen as serious by more than half of Europeans. Both issues rose in prominence compared to 2021, with armed conflicts showing a dramatic increase of 29 percentage points, a clear reflection of Russia's invasion of Ukraine and broader geopolitical instability. Mentions of poverty also rose modestly by 4 percentage points. By contrast, climate change, though still considered one of the top concerns, declined slightly. In 2023, 46% of respondents named it as one of the most serious problems, down 3 percentage points from 2021 (Figure 30). Importantly, this decline masks significant variation across Member States. For instance, mentions fell sharply in Portugal (–20%), Estonia (–19%), and Ireland (–17%), while countries such as Denmark (+4%) and Sweden (+4%) saw slight increases. Overall, this trend illustrates how the salience of climate change in European public opinion has been reframed by concurrent crises. While nearly half of Europeans continue to see it as one of the world's most serious problems, its relative prominence has diminished as immediate threats such as armed conflict and economic instability have moved to the forefront of public concern.

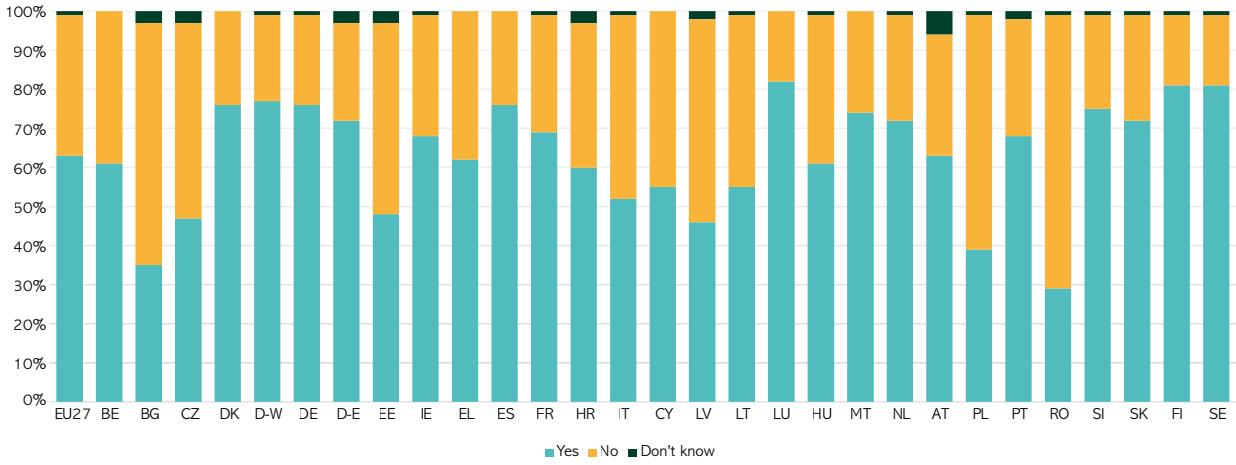
*Figure 30: EU-27 overview 2021 and 2023: Which of the following do you consider to be the single most serious problem facing the world as a whole?*




*Source: Eurostat*

When considering the actions undertaken to combat climate change, the EU survey on climate change (European Commission, 2023) shows that the majority of EU citizens (93%) undertook at least one action to combat climate change, down 3% from 2021. The most frequently reported action is reducing waste and separating it for recycling (70%), which registered a 5% decrease compared to 2021. Along with cutting down on disposable items (53%), 6% less than in 2021, these are the only measures adopted by at least half of respondents. Nearly four in ten (37%) consider lower energy consumption an important factor when purchasing household appliances, marking a 5% drop since 2021 and the second consecutive decline since 2019. Just over three in ten (31%) report eating less meat. More than one in four say they regularly use environmentally friendly alternatives to private cars such as walking, cycling, public transport, or car-sharing (28%), down 2% from 2021, or that they buy and eat more organic food (28%), marking a 4% decrease since 2021. Other pro-environmental behaviours are mentioned by fewer than one in five respondents, with little change compared to 2021.

*Figure 31: Breakdown per country EU-27, 2023: Have you personally taken any action to fight climate change over the past six months?*



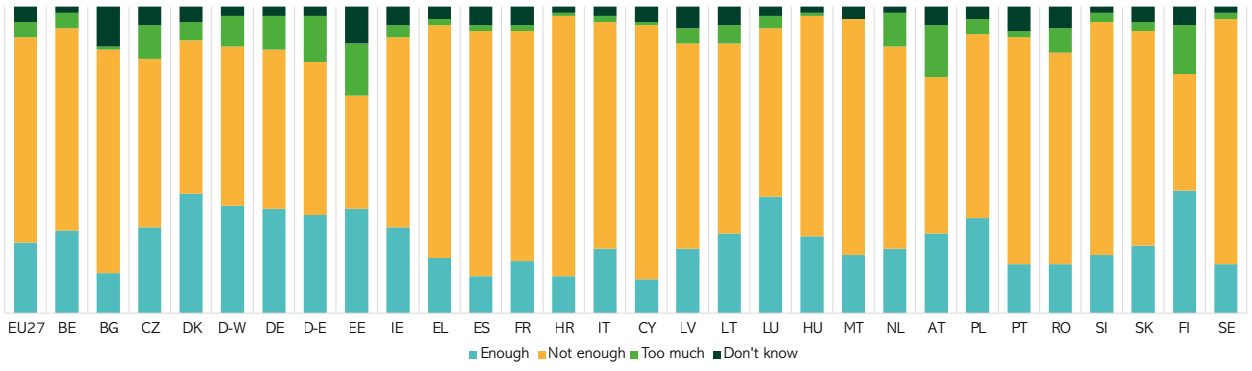

*Source: Eurostat*

Long-term trends reveal a steady decline in everyday climate actions. Efforts to reduce waste and cut disposable consumption are at their lowest since 2013. Likewise, considering energy efficiency when buying appliances has fallen back to 2017 levels. Despite this, climate-conscious behaviour remains widespread, with at least eight in ten citizens in every EU Member State reporting taking some form of action in the past six months (Figure 31). In Malta, every respondent (100%) claimed to have acted, followed closely by Sweden (99%), Luxembourg, Slovenia, and the Netherlands (98%). In contrast, lower levels are reported in Bulgaria (80%), Cyprus (83%), and Romania (85%). Compared to 2021, action has declined in 21 countries, most notably in Portugal (−13%), Poland (−10%), Czech Republic (−8%), and Latvia (−8%). Only Malta (+3%) and Romania (+2%) show slight increased engagement, while Sweden, Luxembourg, France, and Finland report no change.

### 8.8.2. Citizens' perceptions of climate change and environmental protection policy

Concerning the energy debate and related solutions to combat climate change, a clear majority of the EU (61%) and the United States' (66%) respondents believe that climate measures will improve daily life, including food quality and health (European Investment Bank, 2024). Views diverge on the labour market impact of the green transition, with EU citizens almost evenly split (51%), and American respondents somewhat more optimistic (57%) about job creation. Respondents widely acknowledge that the transition will carry financial costs, particularly for lower-income households, and therefore support policies that address social and economic inequalities. Most agree that achieving climate neutrality requires tackling inequality at the same time in the EU: 68%, Canada: 65%, United Kingdom: 64%, and the United States: 56%. Yet, confidence in governments to deliver a fair transition is limited. In the EU, 62% of respondents doubt their governments' ability to balance both goals, compared to greater optimism in the United States, where 57% of respondents trust their government to do so. There is also broad support for climate justice at international level. The EIB Climate Survey highlights the public support for structural reforms (European Investment Bank, 2024). Notably, 74% of EU and 78% of United States' respondents express support for fossil fuel tax reforms designed to eliminate subsidies and preferential taxes for the aviation sector and other fossil fuel-intensive industries. The findings also highlight a disposition among the respondents in the EU (59%) and the United States (67%) to accept higher personal income taxation to support lower-income households in managing the financial burden associated with the green transition. Majorities in the United States (63%), EU (60%), Canada (59%), and the United Kingdom (58%) agree their countries should provide financial compensation to nations most affected by climate change.

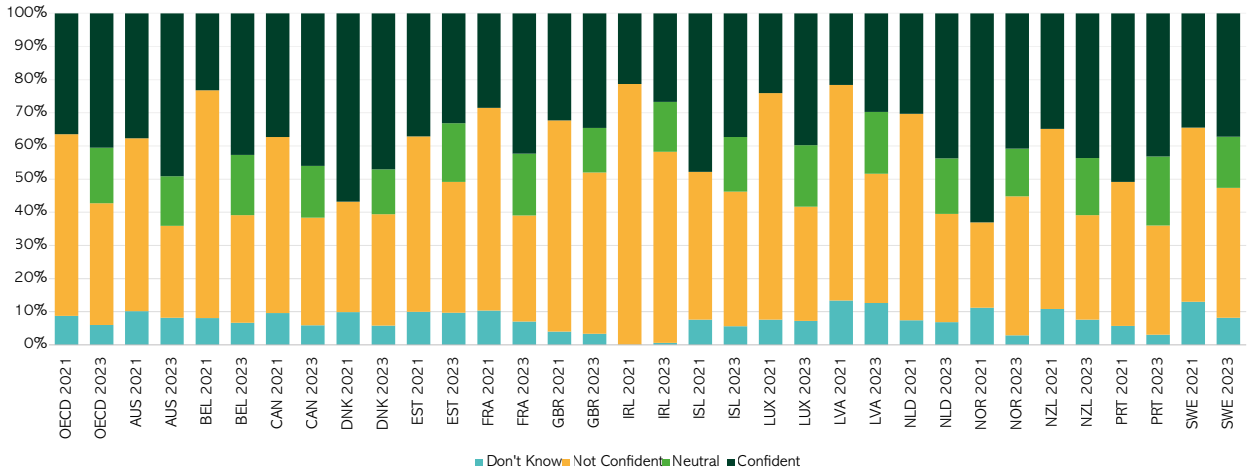
*Figure 32: Breakdown per country EU-27, 2023: Do you think that the (NATIONALITY) government is doing enough, not enough, or too much to tackle climate change?*




*Source: Eurostat*

According to the Eurobarometer on Climate Change (European Commission, 2023), 67% of respondents in the EU believe their national government is not doing enough to address climate change, representing a decline of 8% compared to 2021 (Figure 32). By contrast, 23% consider current government efforts sufficient (+4% since 2021), while 5% (+2%) feel that too much is being done, and another 5% (+2%) remain uncertain. Across Member States, dissatisfaction with government action is the prevailing sentiment. In Croatia (85%), Cyprus (83%), Spain and Sweden (both at 80%), at least four in five respondents judge national efforts to be inadequate. Even in countries where opinion is more divided, such as Estonia, Denmark, and Austria, critical views are in the majority. Finland stands as the sole exception, with 40% of respondents stating that their government is doing enough, compared to 38% who disagree. The survey further highlights that responsibility for addressing climate change is widely attributed to institutions rather than individuals. A majority of respondents believe that the EU (56%), national governments (56%), and business and industry (53%) should take the lead, whereas only 35% assign primary responsibility to themselves. These findings underscore the central role of public authorities in advancing climate action.

*Figure 33. Share of respondents to question "How confident are you that [COUNTRY] will succeed in reducing greenhouse gas emissions in the next 10 years?", for 2021 and 2023.*




*Source: OECD*
*Note: The answer scale differed between 2023 and 2021. In 2023, the "confident" proportion aggregates responses from 6 to 10 on the scale; "neutral" corresponds to a response of 5; "not confident" aggregates responses from 0 to 4; and "don't know" was a separate answer choice. In 2021, the scale comprised three answer options.*

Looking ahead to the next decade, the OECD Survey on Drivers of Trust points out that 42% of respondents express confidence that their country will reduce greenhouse gas emissions, while 35% are sceptical (OECD, 2022, 2024). This optimism contrasts with scientific assessments, which show emissions are unlikely to fall enough to limit global warming to 1.5°C (IPCC 2014; UNEP 2025). Notably, confidence in countries with comparable data has risen by roughly 4% since 2021 (figure 33). The gap between perception and reality may reflect several factors. Respondents may interpret the question as a general expectation that emissions will decline, rather than a strict assessment of achieving carbon neutrality or meeting international targets. Political discussions around initiatives such as the Green Deal and Paris Agreement, the technical complexity of climate policy, and limited media scrutiny of implementation and effectiveness may also contribute to inflated confidence.

While citizens recognise climate change as a pressing challenge and largely expect national governments and industry to take the lead, their continued support depends on fairness, credibility, and clear communication linking short-term costs to long-term benefits. Within the EU, the support for accelerating renewable energy, improving efficiency, and advancing the green transition reflects both concern over climate impacts and an increased awareness of energy vulnerabilities. However, addressing the climate crisis ultimately requires continuous communication and collaboration between governments, industry, and society at large to maintain trust and mobilise collective action in times of uncertainty.

### 8.8.3. Key insights and policy outlook

**Key points are:**

- The number of respondents naming climate change as one of the most serious problems declined slightly in 2023, compared to 2021. This trend illustrates how the importance of climate change in the broader public opinion has been reframed by concurrent crises.
- Long-term trends show a steady decline in everyday climate actions, with efforts to reduce waste and cut disposable consumption being at their lowest since 2013.
- Most EU citizens agree that achieving climate neutrality requires tackling social and economic inequalities simultaneously, yet there is low confidence in their governments' ability to succeed.
- An increasing number of respondents expressed confidence that their country will reduce greenhouse gas emissions, while this optimism contrasts with scientific assessments that suggest emissions are unlikely to fall enough to limit global warming to 1.5°C.
- Maintaining citizen support requires fairness, credibility, and clear communication linking short-term costs to long-term benefits. Enhancing dialogue and collaboration between governments, industry, and society remains essential for collective action.

# 8.9. CONCLUSIONS

This update of the Environmental Protection and Climate Change chapter of the EIPA Benchmarking Study provided an overview of recent developments across 35 countries. This was achieved by updating the data, examining the relationship between inputs, outputs, and outcomes, and identified key trends, progress, and remaining challenges in the field of environmental protection and climate change. We first provided an overview of the inputs used by the countries for environmental protection purposes, such as environmental protection expenditure, environmental policy stringency index, and environmental transfers. We then examined different indicators underlying the themes of air quality, water resources, waste management, energy, biodiversity and landscapes, as well as citizens' perception of climate change and environmental policy by focusing on the developments of the past two years.

This update identifies several trends and patterns, which seem to suggest that the environmental protection and climate change sector is still facing significant challenges in terms of reaching different environmental targets. Over the past two years, environmental protection expenditure remained broadly stable across the EU, averaging around 0.8% of GDP, yet uneven across countries from below 0.2% in Finland to above 1.2% in the Netherlands, Belgium, and Malta. The Netherlands maintained the highest overall expenditure in 2023 at 1.4% of GDP. Over the past two years, environmental transfers also remained broadly stable across European countries, continuing the trends observed in the previous edition. In parallel, the stringency of environmental policies in 2020 remained high across OECD and EU countries, with France, Switzerland, Luxembourg, and Finland leading and the Netherlands performing strongly after nearly doubling their index since 2000. Together, these trends indicate that while financial efforts have levelled off, countries have maintained strong regulatory ambition, reflecting policy adjustments within stable overall budgets rather than large-scale increases in spending.

In terms of air quality, emissions of major pollutants such as PM2.5, $SO_2$, and $NO_x$ continued to decline across Europe, leading to improvements in urban air quality. PM2.5 emissions decreased in all examined countries. Similarly, GHG emissions declined considerably in most reporting countries, driven largely by the transition towards cleaner energy sources, though the energy and transport sectors continue to account for the largest shares of total emissions. Despite steady long-term progress, achieving the 2030 target of –55% will require accelerated cuts in the energy and transport sectors, which remain the main sources of emissions.

In terms of water resources, freshwater resources per inhabitant have been stable in most of the countries. At the same time, there are considerable differences in the amounts of water abstracted within the countries partially reflecting countries' size and resources available, but also abstraction practices, climate, and the industrial and agricultural structure of each country. Regarding wastewater treatment, the share of the population connected to at least secondary wastewater treatment plants, this share has been generally increasing over the past decades and is above 80% in most of the countries. In several countries – including the Netherlands, Luxembourg, Denmark, Germany, Austria, Sweden, Switzerland, and the United Kingdom – coverage reached or remained at full connection (close to, or at 100%).

The analysis of waste management across all countries revealed both structural progress and persistent challenges. While total waste generation has stabilised, it continues to follow economic growth and, as such, it hampers the ongoing efforts for waste reduction. The shift away from landfilling has proved significant, with municipal landfilling reduced by more than 60% since 2010, though the rising volume of sorting residues highlights operational bottlenecks in secondary waste treatment. Sustained improvement will depend on stronger implementation of waste prevention measures, expanded recycling capacity, and coherent fiscal and regulatory incentives that make reuse and recovery more attractive than disposal. The EU's and broader circular economy ambitions still require significant improvements in waste management operations and the approach to waste as a strategic resource towards sustainable development.

The EU's energy landscape is undergoing a profound structural transformation driven by climate objectives, geopolitical pressures, and technological change. Fossil fuels continued to dominate the energy mix, with oil accounting for over one-third of gross available energy, yet renewables have become the largest source of domestic energy production and are steadily narrowing the gap with natural gas. Energy import dependency remained high and, as such, it highlights the importance of diversifying supply and accelerating the deployment of renewable and low-carbon solutions. All EU countries have improved energy intensity and demonstrated progress towards decoupling economic growth from energy use. However, achieving the 2030 targets will require sustained investment in renewable infrastructure, grid modernisation, and efficiency measures across transport, buildings, and industry.

Regarding biodiversity, all countries covered by this chapter have increased their share of terrestrial protected areas between 2000 and 2022 with the highest shares of terrestrial protected areas being recorded in Luxembourg, Bulgaria, and Slovenia in relation to total land area, and Malta, Netherlands, and Switzerland in relation to population density. At the same time, Germany, Belgium, and France have the highest share of Natura 2000 marine protected areas, and Germany, the Netherlands, and Australia have the highest share of marine protected areas as percentage of exclusive economic zones. Between 2022 and 2024, the overall share of terrestrial protected areas increased slightly across most countries, confirming a continued but moderate upward trend towards the EU 2030 target of 30%.

Citizen perceptions of climate change and environmental protection reveal a complex picture of sustained concern but shifting priorities. The share of respondents identifying climate change as one of the world's most serious problems declined slightly in 2023 compared to 2021, which reflects how simultaneous crises have reframed public attention. Everyday climate actions, such as reducing waste and limiting disposable consumption, have fallen to their lowest levels since 2013. Most respondents recognise that to achieve climate neutrality both social and economic inequalities should be addressed, yet confidence in governments' capacity to deliver a fair transition remains limited. Sustaining citizen support will depend on fairness, credibility, and transparent communication linking short-term costs to long-term benefits.

# 8.10. REFERENCES

European Commission. (2023). *Special Eurobarometer 538: Climate Change.* https://europa.eu/eurobarometer/surveys/detail/2954

European Commission. (2025). *Biodiversity strategy for 2030.* https://environment.ec.europa.eu/strategy/biodiversity-strategy-2030_en

European Institute of Public Administration. (2022). *Public sector performance programme 2022–2025 An international benchmarking study, study proposal 2022–2025.*

European Environment Agency. (2020). State of the Environment Report. https://www.eea.europa.eu/soer/2020

European Environment Agency. (2024). *Country profiles on Circular Economy in Europe.* https://www.eea.europa.eu/en/topics/in-depth/circular-economy/country-profiles-on-circular-economy

European Environment Agency. (2025). *Europe's Environment 2025 – Country profiles overview.* https://www.eea.europa.eu/en/europe-environment-2025/countries/country-profiles

European Investment Bank (EIB). (2024). *EIB Climate Survey, Attitudes towards climate change adaptation.* https://www.eib.org/files/publications/20240347_the_eib_climate_survey_en.pdf

European Parliament. (2022). *Climate Mainstreaming in the EU Budget: 2022 Update.* https://www.europarl.europa.eu/RegData/etudes/STUD/2022/732007/IPOL_STU(2022)732007_EN.pdf

European Parliament. (2021). *Climate Action in Luxembourg: Latest State of Play.* https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/690664/EPRS_BRI(2021)690664_EN.pdf

Eurostat. (2023a). *Government expenditure on environmental protection* – Eurostat Statistics Explained. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Government_expenditure_on_environmental_protection#Expenditure_on_.27environmental_protection.27

Eurostat. (2023b). *Environmental subsidies and similar transfers statistics* – Eurostat Statistics Explained. https://ec.europa.eu/eurostat/statistics explained/index.php?title=Environmental_subsidies_and_similar_transfers_statistics#Most_environmental_transfers_are_mainly_about_environmental_protection

Eurostat. (2023c). *Water statistics* – Eurostat Statistics Explained. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Test_Wendy_3

Eurostat. (2023d). Biodiversity Statistics – Eurostat Statistics Explained. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Archive:Biodiversity_statistics

Framework and suggested indicators to measure sustainable development: http:// www.unece.org/fileadmin/DAM/stats/documents/ece/ces/2013/SD_framework_and__indicators_final.pdf
https://commission.europa.eu/strategy-and-policy/eu-budget/performance-and-reporting/horizontal-priorities/green-budgeting/climate-mainstreaming_en
https://www.oecd.org/economy/greeneco/How-stringent-are-environmental-policies.pdf

International Energy Agency. (2023). *The Evolution of Energy Efficiency Policy to Support Clean Energy Transitions.* https://www.iea.org/reports/the-evolution-of-energy-efficiency-policy-to-support-clean-energy-transitions

International Energy Agency. (2024). *Renewables 2024: Analysis and forecast to 2030.* https://www.iea.org/reports/renewables-2024

The Intergovernmental Panel on Climate Change (IPCC). (2014). *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland.

Joint UNECE/Eurostat/OECD Task Force on Measuring Sustainable Development. (2013).

Kruse, T., Dechezlepretre, A., Saffar, R., & Robert, L. (2022). *Measuring environmental policy stringency in OECD countries: an update of the OECD composite EPS indicator.* Documents de travail du Departement des Affaires economiques de l'OCDE. 1703. DOI: 10.1787/90ab82e8-en

Ministry of the Environment and Spatial Planning of the Republic of Slovenia. (2018). *Roadmap towards the circular economy in Slovenia.* https://circulareconomy.europa.eu/platform/sites/default/files/roadmap_towards_the_circular_economy_in_slovenia.pdf

Organisation for Economic Cooperation and Development (OECD). (2016). *How stringent are environmental policies? A review of OECD work on indicators of environmental policy stringency (EPS).* https://www.oecd.org/content/dam/oecd/en/topics/policy-sub-issues/economic-policies-to-foster-green-growth/how-stringent-are-environmental-policies.pdf

Organisation for Economic Cooperation and Development (OECD). (2022). *Building Trust to Reinforce Democracy – Main Findings from the 2021 OECD Survey on Drivers of Trust in Public Institutions.* https://www.oecd-ilibrary.org/sites/b407f99c-en/index.html?itemId=/content/publication/b407f99c-en

Organisation for Economic Cooperation and Development (OECD). (2024). *OECD Survey on Drivers of Trust in Public Institutions – 2024 Results, Building trust in a complex policy environment.* https://www.oecd.org/en/publications/oecd-survey-on-drivers-of-trust-in-public-institutions-2024-results_9a20554b-en.html

Statista: *Carbon dioxide emissions in Sweden 1970–2022.* (2025). https://www.statista.com/statistics/449823/co2-emissions-sweden/?srsltid=AfmBOoom_Vkk9gfebv5lnwOQB4nRntE-43XUGupLeq9mqlpTCG3T8r8s

United Nations Environment Programme (UNEP). (2025). *Emissions Gap Report 2025: Off Target - Continued Collective inaction puts Global Temperature Goal at Risk.* https://www.unep.org/resources/emissions-gap-report-2025

United Nations Framework Convention on Climate Change. (2015). *Paris Agreement to the United Nations Framework Convention on Climate Change T.I.A.S. No 16–1104.* https://unfccc.int/process-and-meetings/the-paris-agreement#:~:text=The%20Paris%20Agreement%20is%20a,force%20on%204%20November%202016

United Nations. 2023. *The United Nations World Water Development Report 2023: Partnerships and Cooperation for Water.* Paris: UNESCO.

Van Dooren, W., Bouckaert, G. & Halligan, J. (2015). *Performance Management in the Public Sector.* London: Routledge.

World Commission on Environment and Development. (1987). Oxford: Oxford University Press.

# 9. HEALTH

# 9.1. INTRODUCTION

### Goal

This report aims to further explore the findings described in the International Benchmarking Study published in the Public Sector Performance Programme 2022–2025: Health Chapter (Bernal-Delgado, Angulo-Pueyo, & Royo-Sierra, et al., 2024).

Specifically, comparing the Dutch health system with other health systems in terms of breadth, scope and depth of coverage and ultimately, inform concise, evidence-based policy recommendations.

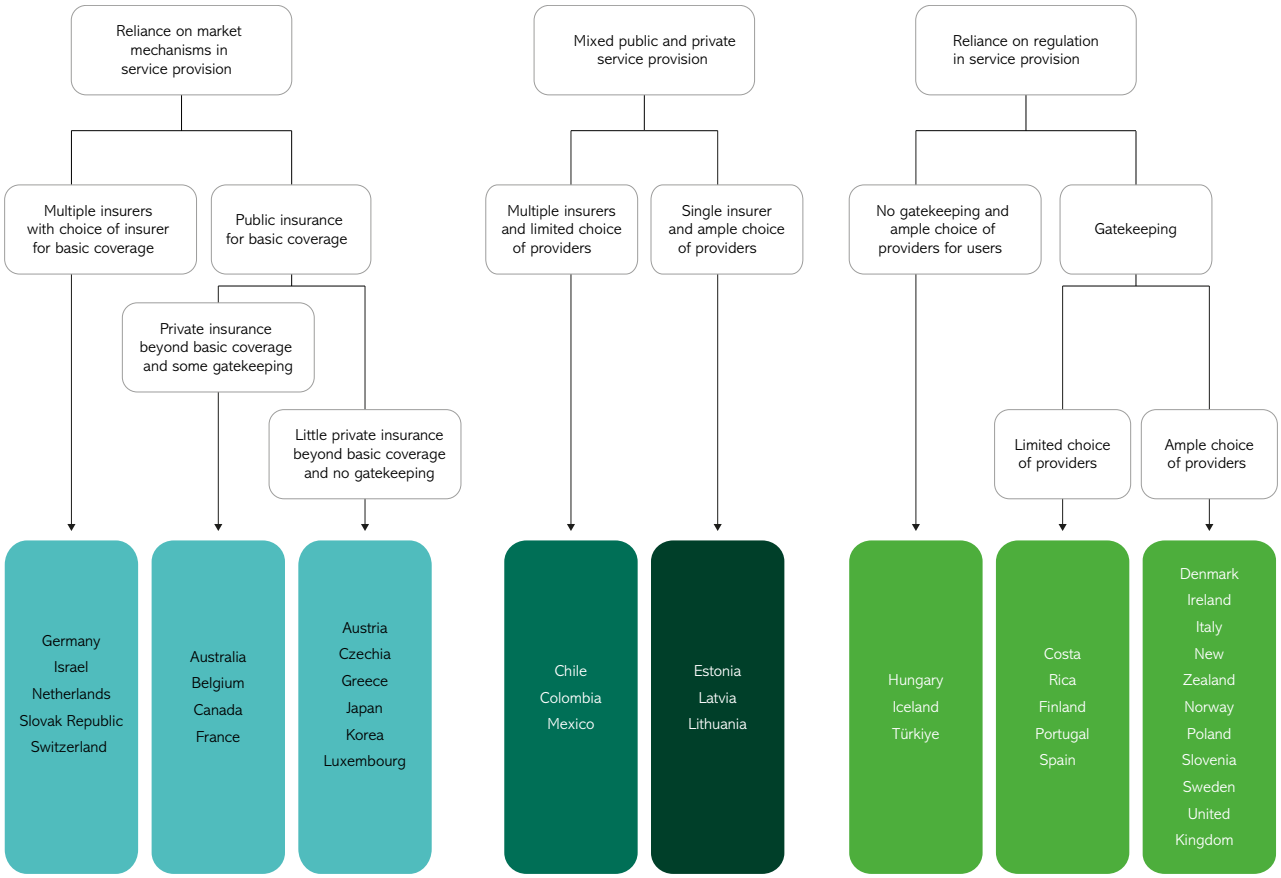
# 9.2. METHODOLOGY

The comparison of the Dutch health system was based on an institutional analysis of a subgroup of health systems relevant to this report and the outcome indicators used in this international benchmarking 2024 study. The following sections describe the rationale for the selection of countries, the selection of indicators supporting the comparison and the institutional analysis trying to respond to benchmarking the Dutch health system.

### 9.2.1. Country selection strategy

Some of the countries used in the Public Sector Performance Programme 2022–2025: Health Chapter that showed similar performance than the Dutch system were selected. The selection was based on their institutional features according to the OECD (OECD, 2025a). Following the clustering OECD approach, we selected countries whose design was somewhat similar to the Dutch system and countries fully dissimilar. Among the former group, countries with strong reliance on market mechanisms in healthcare provision – Austria, France, and Switzerland – representing each of the lowest level clusters are shown in Figure 1. Then, four countries representing the other end of the figure, relying on regulation in service provision and strong gatekeeping – Denmark, Spain, Sweden, and the UK – are shown.

*Figure 1: Countries clustering according to institutional features*




*Source: OECD, 2025a*

### 9.2.2. Comparing performance: health outcome indicators

The benchmarking study in this report builds on indicators measuring health outcomes (see Box 1). For each selected indicator, this report shows: a) figures outlining the health system performance in the Netherlands, as well as the rates and evolution over time for those countries that outperform the Dutch system; b) a summary of possible institutional drivers of good performance, based on the country health system summaries presented in **Annex 1**; c) when the Dutch system is among the top performers, the focus of analysis has been the identification of internal design features that may explain the good results.

*Box 1: Definitions of selected health outcome indicators*

| Indicator | Definition and rationale |
|---|---|
| 1. Preventable mortality | Preventable mortality refers to "causes of death that can be mainly avoided through effective public health and primary prevention interventions (i.e. before the onset of diseases/injuries, to reduce incidence)". It refers to premature mortality (under age 75). It reflects the impact of non-healthcare policies (e.g. tobacco control, traffic regulation, vaccination campaigns, alcohol regulation) and the broader effectiveness of primary and community health strategies. Lower preventable mortality rates suggest stronger population-level prevention and risk-reduction policies. |
| 2. Treatable mortality | Treatable mortality refers to causes of death that can be mainly avoided through timely and effective healthcare interventions, including secondary prevention such as screening and treatment (i.e. after the onset of diseases, to reduce case fatality). This indicator reflects the performance of the healthcare delivery system itself – including early detection, clinical quality, and continuity of care – rather than public health or behavioural determinants. |
| 3. Infant mortality | Infant mortality refers to the number of deaths of children aged under one year of age that occurred in a given year, expressed per 1,000 live births. It is a key indicator of overall health system performance, maternal and neonatal care quality, and broader social determinants of health. Low infant mortality typically reflects effective prenatal care, safe childbirth conditions, postnatal follow-up, and early detection of congenital or infectious conditions. |
| 4. Healthcare quality | This indicator measures the percentage of patients aged 45 and over who die within 30 days after being admitted for an acute myocardial infarction. It reflects the performance of emergency response systems, clinical quality of hospital care, care coordination during the acute phase, and early follow-up. Lower mortality rates indicate better quality of acute cardiovascular care and overall system responsiveness. |
| 5. Unmet needs for medical care | This indicator measures the percentage of the population reporting unmet needs for medical care due to cost, distance, or waiting times. It is a proxy for equity and accessibility in the health system, and reflects how well financial protection and service availability function in practice. Lower values indicate stronger universal access and fewer barriers to care. |
| 6. Healthy life years at age 65 (men and women) | This indicator measures the number of years that a person at age 65 is expected to live in good health, accounting for functional limitations and self-perceived health. It is a key metric of both health system effectiveness and equity, capturing the balance between life expectancy and quality of life. Gender differences in this indicator can reveal structural and/or behavioural inequalities in health outcomes and access to care. |
| 7. Financial hardship | Financial protection is a core dimension of universal health coverage (UHC) and a central goal of health financing policy. According to the World Health Organization, financial protection is achieved when people can access the health services they need without being exposed to financial hardship or a reduction in living standards. In this report, financial protection is measured throughout financial hardship as the percentage of households with catastrophic health spending and households with out-of-pocket payments that are greater than 40% of their capacity to pay for healthcare, which may mean that they can no longer afford to meet other basic needs (food, housing, and utilities). |
| 8. Overall efficiency | Health system efficiency refers to the capacity of a system to produce better health outcomes relative to its spending. In this context, overall efficiency is assessed by comparing three key outcome indicators – preventable mortality, treatable mortality, and healthy life years at age 65 – against total health expenditure per capita (PPP-adjusted, 2022), and share of current health expenditure per capita on long-term care (LTC) 2022. Following Lorenzoni et al. (2018), this approach helps to identify whether countries are achieving value for money in terms of population health, especially when adjusted for levels of spending. |

*Sources: OECD https://data-explorer.oecd.org/; Eurostat https://ec.europa.eu/eurostat/data/database UHC watch. (https://apps.who.int/dhis2/uhcwatch/#/)*

### 9.2.3. Health system institutional analyses

An interpretation of the cross-health system performance differences was carried out using the Health Systems in Transition (HiT) framework where the main comparative analysis relies on three key dimensions; thus, a) breadth: who is covered? b) scope: what services are covered and how are they delivered? and, c) depth: how much of the cost is covered, including some features proportion of out-of-pocket expenditure and level of financial protection?

Country-by-country analysis following HiT structure is included in **Annex 1**. A synthesis of this information drawing from these structured comparisons has produced **policy recommendations for the Netherlands**.

# 9.3. FINDINGS

Findings collected in Tables 1 (latest figures snapshot) and 2 (evolution of the indicators over time) are presented for each outcome. Then, the section provides a general overview of the performance of the Dutch health system, and the health systems deemed benchmarks for a particular indicator. In addition, potential explanations for the level of performance of the Dutch health system are provided, as well as a brief analysis of institutional features that could potentially be associated with better performance in those benchmark health systems.

*Table 1: Health outcomes – comparative analyses (2022 or latest)*

| | Preventable mortality* [deaths per $10^6$] | Treatable mortality* [deaths per $10^6$] | Infant mortality* [deaths per $10^3$] | Healthcare quality [deaths per 100] | Unmet needs [population %] | Healthy life years [years at age 65] | Financial hardship [population %] |
|---|---|---|---|---|---|---|---|
| The Netherlands | 107 | 48.2 | 3.3 | 3.2 | 0.3 | 9.1 | 0.5 (2015) |
| Austria | 140.8 | 57.4 | 2.4 | - | 0.6 | 9.4 | 4.2 (2020) |
| Denmark | 111.3 | 51.4 | 2.4 | 6.9 | 2.7 | 10.2 | 2.6 (2015) |
| France | 115 | 46.5 | 3.9 | 7.2 | 3.7 | 11.0 | 2.1 (2017) |
| Sweden | 89.7 | 47.7 | 1.8 | 6.8 | 2.1 | 13.9 | 1.6 (2015) |
| Switzerland | 93.8 | 37.5 | 3.2 | 8.9 | 0.8 | 10.7 | 2.7 (2017) |
| Spain | 111.6 | 50.6 | 2.6 | 7.0 | 1.8 | 9.7 | 2.9 (2020) |
| United Kingdom | 137.1 | 84.2 | 4.2 | 8.4 | 2.8 | 10.4 | 1.5 (2019) |

Note: [*] Shown age-standardised rates

*Table 2: Health outcomes – comparative analyses (evolution 2010 to 2022 or latest)*

| | Preventable mortality [deaths per $10^6$] | | | Treatable mortality [deaths per $10^6$] | | | Infant mortality [deaths per $10^3$] | | | Healthcare quality [deaths per 100] | | | Unmet needs [population %] | | | Healthy life years [years at age 65] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2010 | 2022 | %Δ | 2010 | 2022 | %Δ | 2010 | 2022 | %Δ | 2010 | 2022 | %Δ | 2010 | 2022 | %Δ | 2014 | 2022 | %Δ |
| The Netherlands | 116.0 | 107 | – 8 | 67.8 | 48.2 | –28.9 | 3.8 | 3.3 | –13.2 | 10.1 | **3.2** | **–68.3** | 0.4 | **0.3** | –25 | 10.5 | 9.1 | –13.3 |
| Austria | 144.2 | 140.8 | –2.4 | 70.2 | 57.4 | –22.3 | 3.9 | **2.4** | **–38.5** | - | - | - | 0.6 | 0.6 | 0 | 8 | 9.4 | 17.5 |
| Denmark | 160.2 | 111.3 | –30.5 | 78.5 | 51.4 | **–34.5** | 3.3 | **2.4** | **–27.3** | 10.4 | 6.9 | –33.7 | 1.1 | 2.7 | 58.8 | 11.9 | 10.2 | –14.3 |
| France | 126.2 | 115 | –8.8 | 58.5 | **46.5** | –20.5 | 3.6 | 3.9 | 7.7 | 9.2 | 7.2 | –21.7 | 1.9 | 3.7 | 94.7 | 10.6 | **11.0** | 3.7 |
| Sweden | 109 | **89.7** | –17.7 | 64.3 | **47.7** | –25.8 | 2.5 | **1.8** | **–28.0** | 8.7 | 6.8 | –21.8 | 1.9 | 2.1 | 10.5 | 15.9 | **13.9** | –12.6 |
| Switzerland | 104.3 | **93.8** | –10.1 | 53.7 | **37.5** | **–30.1** | 3.8 | 3.2 | **–15.8** | - | 8.9 | n/a | 1.1 | 0.8 | –27.3 | 9.9 | **10.7** | 8.1 |
| Spain | 111.4 | 111.6 | 0 | 63.6 | 50.6 | –20.4 | 3.2 | 2.6 | **–18.8** | 9.3 | 7.0 | –24.7 | 0.3 | 1.8 | 500 | 9.7 | 9.7 | 0 |
| United Kingdom | 137.1 | 150.6 | 9 | 84.2 | 71.5 | -17.8 | 4.2 | 4 | –5 | 10.6 | 8.4 | –20.8 | 1.0 | 2.8 | 180 | 10.2 | - | - |

Legend: %Δ: Percentage change between 2010 and 2022 (or latest available year) is calculated as the relative difference between the initial and final values, using the following formula: [( Value2010 – Value2022 ) / Value2010] x 100. A negative value indicates a reduction in the indicator over the period, which typically reflects improvement (e.g. lower preventable mortality).

### 9.3.1. Preventable mortality

The Dutch system scored fairly well in preventable mortality in 2022 although, in comparison to its peer health systems, the relative reduction over time is shown to be small. Sweden and Switzerland may be deemed benchmarks in this indicator, both in terms of the low rates and fairly high relative reduction since 2010. Interestingly, Denmark, with high rates of preventable deaths in 2010, showed average figures in 2022, with a substantial 30.5% reduction.

Although the Netherlands maintains a solid position in preventable mortality, the Dutch system lags behind Sweden and Switzerland. Three factors may partially explain this gap:

1) Behavioural risk profiles remain elevated in some population sub-groups, particularly in relation to smoking, alcohol use, and obesity – with persistent socio-economic and gender gaps.
2) Prevention governance is split across national and municipal levels, potentially limiting coordination, coherence, and accountability.
3) While some community services are strong (e.g. maternal care, vaccinations), public health investment is lower than in Sweden, and long-term behavioural interventions may lack consistent funding and political visibility.

### Institutional features potentially associated with better performance

In the case of **Sweden**, a number of features may well explain the very low rates of preventable deaths. These are the strong and sustained emphasis on health policies for behavioural risk factor reduction (e.g. tobacco, alcohol, physical activity); the long-standing decentralised public health programmes integrated at municipal level; the high intersectoral collaboration (health, education, transport, environment); and the direct access to preventive and community-based services.

In the case of **Switzerland**, features favouring low rates of preventable deaths are a strong health promotion capacity governed at local level, as well as high per capita spending in prevention and a broad insurance coverage that includes preventive services.

The strong reduction of the death toll in preventable causes in **Denmark** may lie on the structural 2007 reform allocating responsibility for health promotion and disease prevention to municipalities, with coordination between general practitioners and municipal social and public health services. Accompanying this reform is the implementation of a series of national preventive strategies with measurable targets and broad intersectoral support (e.g. tobacco and alcohol control, nutrition, physical activity). Although preventable mortality is shaped by long-term structural determinants, this combination of decentralised governance, sustained investment in community-level prevention, and coordinated risk-reduction policies aligns closely with the empirical progress observed in Denmark over the past decade. An additional interesting point is the institutional culture of continuous data-driven evaluation informing local and national public health action.

## 9.3.2. Treatable mortality

As observed in Tables 1 and 2, the Dutch rates of treatable mortality are mild relative to the other health systems. Importantly, the percentage improvement in the death toll for this indicator has substantially improved – a 29% reduction since 2010. The benchmark countries for treatable mortality – Switzerland, Sweden, and France – are reporting lower treatable mortality rates and also substantial improvements in the last decade. Notably, Denmark has reduced treatable mortality rates by 34.5% since 2010.

The gap between the Dutch system and the benchmark countries is small. Some factors that could partly explain this gap may be:

1) Regional fragmentation may entail care coordination and data sharing gaps, despite high-quality clinical protocols.
2) Structural workforce shortages and part-time employment among nurses and certain medical specialties may limit responsiveness and capacity in acute care settings.
3) Lower hospital bed availability compared to some of its peers could limit flexibility in addressing urgent or highly complex cases.

### Institutional features potentially associated with better performance

Accessibility, quality assurance, and care coordination seem to be strong features, consistently present in treatable mortality reduction. More specifically:

- The **Swiss** healthcare system exhibits the lowest figures of treatable mortality after a deep reduction over the last decade. Arguably, some potential reasons for this reduction are competitive insurance-based models with incentives for timely and effective care, and well resourced and responsive specialised services, including in rural areas.

- The **Swedish** healthcare system, with predominant public provisions puts strong emphasis on quality assurance and clinical outcomes. Primary care centres in Sweden are paid through a mix of capitation, fee-for-service and small performance-related bonuses (including for guideline adherence and care coordination) which may support timely referral to specialised care. Regional authorities invest in systematic monitoring and improvement of care pathways while a widespread use of electronic health records and patient data integration is fostered.

- In turn, **France's** good results may come from a comprehensive public insurance coverage complemented by near-universal voluntary health insurance, reducing access barriers, well resourced services and a strong emphasis on continuity of care for chronic and complex patients.

### 9.3.3. Infant Mortality

Although the slight improvement (13% relative reduction) since 2010, the Dutch infant mortality remains higher than in the compared health systems. The death toll in infants is as high as 1.7 times compared to Sweden and 1.4 times compared to Austria and Denmark, countries that have managed to reduce the death toll at a substantially higher rate.

The gap between the Dutch system and the rest of countries might be explained by several factors, including:

1. There is lower coverage of vaccination and screening in the first year of life compared to peers such as Austria, Sweden, and Denmark with gaps in early detection of risk pregnancies and limited targeted interventions for high-risk mothers.
2. While overall access to perinatal services seems strong, the Dutch system has faced challenges related to coordination across maternity care providers (midwives, GPs, hospitals) and insurers. These structural elements could further affect some vulnerable population sub-groups, although specific socio-economic or ethnic disparities in infant outcomes are not directly reported in the available data.
3. Fragmentation in early childhood care responsibilities between municipalities, GPs, and maternity care organisations might have hindered continuity of care.

#### Institutional features potentially associated with better performance

Although infant mortality is influenced by wider social and demographic factors, some institutional characteristics may be explaining better maternal and neonatal care figures in the top-performing countries.

In **Sweden**, high-quality midwifery-based prenatal care integrated into the public system, robust screening and follow-up protocols for newborns, and strong coordination between maternity services and child health centres, may explain the good figures.

In the **Austrian system** a high density of obstetric and neonatal care units, even in rural areas, comprehensive maternal and child health monitoring system (the "Eltern-Kind-Pass") with high compliance, and the broad insurance coverage for perinatal and postnatal care are factors found relevant in the good results.

In **Denmark** factors that may explain the good outcomes are free and universal access to prenatal and maternity care services, high continuity of care from midwife-led teams, and early home visits and monitoring through integrated community nursing.

### 9.3.4. Healthcare Quality (30-day mortality after acute myocardial infarction)

The Dutch health system stands out for its performance in healthcare quality. In the particular case of 30-day mortality after an acute myocardial infarction – figures are between 2.1 and 2.8 times lower than the countries in comparison. Importantly, the reduction in the death toll since 2010 is the largest in this group of health systems (68.3% relative reduction).

Potential explanatory factors of this outstanding performance, and potential lessons for the other countries may have been:

- the existence of coordinated emergency response protocols between primary care services and emergency departments;
- regional concentration of acute care services, including capacity for delivering primary percutaneous coronary interventions;
- integration of hospital discharge planning with primary and community nursing care.
- a deep tradition of clinical guideline implementation and quality monitoring using performance data for hospital benchmarking and quality improvement.

Interestingly, consistent with this outstanding performance in caring for acute myocardial infarction patients, the death toll in acute stroke was also found to be the lowest among the countries in comparison, reinforcing the underlying idea that acute care delivery in the Dutch system could be deemed gold-standard.

### 9.3.5. Unmet Needs for Medical Care

The Netherlands health system reports the lowest levels of unmet needs for medical care among the countries in comparison, with just 0.3% of the population reporting unmet needs. Noticeably, the improvement has been substantial with a 25% relative reduction since 2010.

Potential underlying factors that explain these good results are related with a high level of effective accessibility and responsiveness. Some institutional characteristics that may contribute to this effect and provide some lessons for the other countries in this report are:

1. The compulsory health insurance scheme guarantees universal coverage for a comprehensive standard package.
2. Primary care is free at the point of use, and community nursing and maternity care are accessible and exempt from the annual deductible.
3. Overall out-of-pocket payments are relatively low.
4. There is a high availability of GPs, with a strong gatekeeping function and widespread after-hours GP cooperatives.
5. Digital health tools support patient access and communication with providers, which may mitigate fragmentation across providers.

### 9.3.6. Healthy Life Years at Age 65

Compared with the countries in our sample, the Dutch system ranks the lowest in terms of total healthy life years at age 65 (9.1 years), with a negative gender gap (−0.4 years) against women. Importantly, this indicator has worsened in the Netherlands since 2014.

These suboptimal figures may be an indication of a higher burden of chronic conditions among older adults, particularly among women and socio-economically disadvantaged groups. Importantly, this difference is not a result of a higher life expectancy; the Netherlands performs worse than most countries in comparison, also life expectancy at birth. Possible explanatory factors of this relatively suboptimal performance in health-life years at the age of 65 may be the following:

1. Self-rated health indicators and the reversed gender gap in healthy life years suggest that older women in the Netherlands may experience a higher burden of chronic conditions and functional limitations compared to their male peers.
2. Socio-economic and educational inequalities may play a significant role in shaping healthy ageing trajectories in the Netherlands – with particularly negative outcomes observed among women and older people with lower educational levels.
3. Fragmentation in long-term care coordination may limit the effectiveness of preventive and rehabilitative efforts.
4. Some of the functional or self-perceived health limitations reported by women may reflect unmet or unrecognised mental health needs – an area that remains insufficiently documented in the available data.

#### Institutional features potentially associated with better performance

Countries that outperform the Netherlands in this indicator are **Sweden**, **Switzerland**, and **France**, which show higher levels of healthy life years at age 65 and/or smaller gender gaps. Potential factors explaining a better performance are detailed below.

In **Sweden** there is a strong focus on active and healthy ageing policies, including health promotion, community participation, and functional autonomy. In addition, there is a high investment in home-based preventive services and municipal long-term care with a universalist approach. Along the same lines, there is a definite integration between primary care, rehabilitation services, and social support for the elderly population. Finally, a gender-sensitive health and social policy, supported by high levels of gender equity in education, employment, and income throughout the life course may well explain the smaller gender gaps.

In the case of the **Swiss** health system, a potential explanation of the good performance may lie on a high per capita spending on health and long-term care at cantonal level, with broad access to rehabilitation and support services. In addition, the primary care model fosters early detection of chronic diseases and functional decline. Finally, the system design reflects a strong emphasis on individual responsibility and autonomy, with long-term care structured to support home-based living and personal planning, although variation across regions may exist.

In the case of **France**, public coverage of a wide range of services for the elderly, including home help and care coordination along with significant investment in long-term care, may explain the good healthy life expectancy figures. In addition, broad social protection mechanisms for older adults, such as income supplements and long-term care allowances, may play a relevant role in sustaining the well-being of older cohorts.

### 9.3.7. Financial hardship

The Dutch health system is one of the systems with a lower share of out-of-pocket payments (11.3%) and high levels of financial hardship (the percentage of households reporting catastrophic spending in health amounts for 0.5% of the population) while voluntary health insurance remains contained – 4% of the total health expenditure. These figures make the Dutch system a benchmark for the rest of the health systems in this report (Table 3).

*Table 3: Catastrophic expenditure in the Dutch health system, out-of-pocket payments (OOP), and voluntary health insurance (VHI)*

| | Catastrophic expenditure in health [population %] | OOP over total expenditure [%] | VHI over total expenditure, 2024 [%] |
|---|---|---|---|
| The Netherlands | 0.5 (2015) | 11.3 (2015) | 4 |
| Austria | 4.2 (2020) | 16.5 (2020) | 5 |
| Denmark | 2.6 (2015) | 13.5 (2015) | 2 |
| France | 2.1 (2017) | 9.9 (2017) | 6 |
| Sweden | 1.6 (2015) | 14.9 (2015) | 1 |
| Switzerland | 2.7 (2017) | 21.6 (2017) | 6 |
| Spain | 2.9 (2020) | 19.7 (2020) | 6 |
| United Kingdom | 1.5 (2019) | 16.7 (2019) | 3 |

The mandatory nature of the insurance model, the broad portfolio of essential health services, and the pooled funding design with a small share of OOP may be features that make the Dutch system benchmarking the rest of the countries under scrutiny when it comes to financial protection (Kuipers et al., 2022), although some reporting biases in terms of financial hardship stated in previous publications hinders comparisons (Thomson, 2023)

Despite the measures pursuing the mitigation of potential financial hardship, such as exemptions from the mandatory annual €385 deductible in primary care, community nursing, and maternity care, more than 80% of the population purchases voluntary health insurance to access services excluded from the essential package (e.g. adult dental care, optical services, physiotherapy). In addition, some socio-economic inequalities persist in specific vulnerable groups such as mental health (Verra et al., 2024) and diabetic patients (Meisters et al., 2024). Finally, the fiscal tension derived from the COVID19 crisis may exacerbate inequalities.

### 9.3.8. Overall Efficiency

When comparing the high expenditure on health (€4,530 per inhabitant) and its long-term care expenditure share (28.4%) with the rates of preventable and treatable mortality or the average healthy life years at the age of 65, the Dutch health system does not outperform the selected countries (European Institute of Public Administration, 2024). This finding raises concerns about the system's ability to translate money into population-level health gains. (see Table 4 and Annex III, pages 51–55). On the contrary, the Netherlands consistently falls close to or below the trendlines, suggesting **lower-than-expected returns** from its health and long-term care investments. Underlying reasons for this relatively poorer performance may be several institutional features contributing to this gap:

- There is high system complexity and fragmentation with responsibilities shared among insurers, municipalities, and national authorities, which complicates care coordination, particularly for older adults and people with chronic conditions.
- Administrative and transaction costs are relatively high, due to the multiplicity of actors and regulatory interfaces.
- Incentive misalignment across sectors and financing streams (e.g. between health insurers and municipalities) may reduce efficiency in managing long-term and complex care needs.
- Heavy reliance on VHI to access services not included in the basic package – such as dental care, optical services and physiotherapy – may lead to inequality in utilisation and financial burden.
- Workforce pressures, particularly in nursing and long-term care, limit the capacity of the system to deliver timely and effective services, despite high per capita spending.

*Table 4: Expenditure and health outcomes*

| Country 2022 | Health expenditure [€ per capita] | Long-term care expenditure [% over total expenditure] | Preventable mortality [deaths per $10^6$] | Treatable mortality [deaths per $10^6$] | Healthy life [years at age 65] |
|---|---|---|---|---|---|
| The Netherlands | 4,530.0 | 28.4 | 107.0 | 48.2 | 9.1 |
| Austria | 4,745.0 | 13.0 | 140.8 | 57.4 | 9.4 |
| Denmark | 4,149.0 | 20.5 | 111.3 | 51.4 | 10.2 |
| France | 4,309.8 | 15.8 | 115.0 | 46.5 | 11.0 |
| Sweden | 4,363.3 | 26.0 | 89.7 | 47.7 | 13.9 |
| Switzerland | 5,630.0 | 20.2 | 93.8 | 37.5 | 10.7 |
| Spain | 2,822.2 | 9.3 | 111.0 | 50.6 | 9.7 |
| United Kingdom | 3,651.0 | 19.0 | 150.6 | 71.5 | 10.4 |

*Source: Public Sector Performance Programme: Health Chapter (Annex III) 2022 Data*

### Institutional features potentially associated with better performance

Among the selected countries, Spain is shown to be the health system with highest value for money in preventable and treatable mortality. In turn, Sweden is the system that, compared to the Dutch system, has a slightly lower share of long-term care expenditure and achieves more health-life years at the age of 65.

In the case of **Spain**, institutional factors that likely contribute to the highest overall efficiency include the following.

1. A tax-based universal system with tight control on public spending, through contained salary growth for a workforce based on civil servants, and a single purchaser with highly regulated provision delivered mostly by public providers. This design leads to control unit prices and administrative complexity and costs.
2. There is strong public primary care gatekeeping based on specialised primary care doctors and nurses with capacity for case-care coordination and care continuity, which reduces the overall cost of disease management.
3. Other features are high accessibility with a comprehensive basket of benefits, vast exemptions for out-of-pocket payments, and low voluntary health insurance dependency, that mostly plays a subsidiary role.

In the case of **Sweden**, features that could explain that with a slightly lower share of long-term care expenditure achieving almost five more health-life years at the age of 65 could be:

1. Strong focus on active and healthy ageing policies, including lifelong health promotion, community participation, and functional autonomy;
2. High investment in home-based preventive services and municipal long-term care with a universalist approach;
3. Gender-sensitive health and social policies, supported by high levels of gender equity in education, employment, and income throughout the life course;
4. Integration between primary care, rehabilitation services and social support for the elderly population.

# 9.4. RECOMMENDATION ACCORDING TO THE RESULTS AND REMARKS

**Generally, the Dutch system shows good performance in equal access, overall effectiveness, care quality and financial protection, while it lags behind in areas such as infant mortality and overall efficiency. Nonetheless, more granular analyses provide evidence of potential risk of financial hardship in some vulnerable groups and persistent inequalities across gender and socio-economic groups.**

Based on the comparative analysis with other health systems, a number of potential policy-oriented recommendations can be identified.

### 1. Improve overall effectiveness

Although the Dutch system outperforms most of its peers in treatable and preventable mortality, further improvements could still be pursued. When it comes to the former, increasing care coordination led by primary care professionals, aligning incentives across service providers, and implementing fast-track access mechanisms for those most in need, are areas that could be further analysed for improvement. When it comes to preventable mortality, a combination of long-term health promotion policies – with special emphasis on vulnerable groups – and short-term, close coordination with social care could be considered to enhance performance.

### 2. Reduce childhood risks

Infant mortality is the main indicator where the Netherlands lags substantially behind its peers. An in-depth comparative analysis of the underlying causes of this relatively high rate should be conducted. Strong midwifery and perinatal care, proper access to comprehensive screening and follow-up services, and maintaining high vaccination rates are key features of the top-performing countries in this report.

### 3. Improve healthy life years in the elderly

Despite being the health system with the highest share of expenditure on long-term care, the resources spent do not translate into healthier life years at 65. Assuming a partial association between long-term care expenditure and healthy life years at 65, top performers provide lessons for improvement, such as focusing more on active and healthy ageing policies– including health promotion, community participation, and functional autonomy at home.

### 4. Improve care coordination and value for money through simplified governance

Fragmentation between national authorities, insurers, and municipalities limits coherence, produces misalignment, creates incentives for shifting patients to institutional care, and fosters higher administrative costs.

### 5. Reduce the risks of financial hardship

Although exemptions from the annual deductible exist, the widespread use of complementary VHI premiums may translate into financial hardship for the most vulnerable groups. Expanding the basic basket of benefits may help reduce the long-term risk of financial hardship.

# 9.5. REFERENCES

Anderson, M., Pitchforth, E., Edwards, N., Alderwick, H., McGuire A., & Mossialos, E. (2022). The United Kingdom: health system review. *Health Systems in Transition, 24*(1), 1–192. PMID: 35579557.

Anderson, M., Pitchforth, E., Edwards, N., Alderwick, H., McGuire, A., Mossialos, E., & Hernández-Quevedo, C. (2022). The United Kingdom: health system summary. Brussels: WHO/European Observatory on Health Systems and Policies.

Bachner, F., Bobek, J., Habimana, K., Ladurner, J., Lepuschütz, L., Ostermann, H., Rainer, L., Schmidt, A. E., Zuba, M., Quentin, W., & Winkelmann, J. (2018). Austria: health system review. *Health Systems in Transition, 20*(3), 1–256. PMID: 30277215.

Bachner, F., Bobek, J., Habimana, K., Ladurner, J., Lepuschütz, L., Ostermann, H., Rainer, L., Schmidt, A. E., Zuba, M., Quentin, W., Winkelmann, J., & Maresso, A. (2024). Austria: health system summary, 2024. Copenhagen: European Observatory on Health Systems and Policies, WHO Regional Office for Europe.

Bernal-Delgado, E., Angulo-Pueyo, E., Ridao-López., M, Urbanos-Garrido, R. M., Oliva-Moreno, J., García-Abiétar, D., & Hernández-Quevedo, C. (2024a). Spain: health system review. *Health Systems in Transition, 26*(3), 1–187. https://eurohealthobservatory.who.int/publications/i/spain-health-system-review-2024

Bernal-Delgado, E., Angulo-Pueyo, E., Ridao-López, M., Urbanos-Garrido, R. M., Oliva-Moreno, J., García-Abiétar, D., & Hernández-Quevedo, C. (2024b). Spain: health system summary, 2024. Copenhagen: European Observatory on Health Systems and Policies, WHO Regional Office for Europe.

Bernal-Delgado, E., Angulo-Pueyo, E., Royo-Sierra, S. (2024). An International Benchmarking Study Sub-Study 2024 Public Sector Performance Programme, 2022–2025. Maastricht, EIPA. https://www.eipa.eu/wp-content/uploads/2025/05/2024-1621_Eipa_Benchmarking-Study_2024_v13hhh.pdf

Birk, H. O., Vrangbæk, K., Rudkjøbing, A., Krasnik, A., Eriksen, A., Richardson, E., & Jervelund, S. S. (2024). Denmark: health system review. *Health Systems in Transition, 25*(6), 1–152.

Birk, H. O., Vrangbæk, K., Rudkjøbing, A., Krasnik, A., Horschig, M., Eriksen, A., Richardson, E., & Jervelund, S. S. (2024). Denmark: health system summary, 2024. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies.

Boes, S., Weisstanner, D., & Durvy, B. (2025). Health systems in action 2024: Switzerland. Copenhagen: European Observatory on Health Systems and Policies, WHO Regional Office for Europe.

De Pietro, C., Camenzind, P., Sturny, I., Crivelli, L., Edwards-Garavoglia, S., Spranger, A., Wittenbecher, F., & Quentin, W. (2015). Switzerland: health system review. *Health Systems in Transition, 17*(4), 1–288. PMID: 26766626

Janlöv, N., Blume, S., Glenngård, A. H., Hanspers, K., Anell, A., & Merkur, S. (2023). Sweden: health system review. *Health Systems in Transition, 25*(4), 1–236. PMID: 38230685

Janlöv, N., & Merkur, S. (2024). Sweden: Health System Summary. Copenhagen: European Observatory on Health Systems and Policies, WHO Regional Office for Europe.

Kroneman, M., de Jong, J., Polin, K., & Webb, E. (2024). The Netherlands: Health System Summary, 2024. Copenhagen: European Observatory on Health Systems and Policies, WHO Regional Office for Europe. https://eurohealthobservatory.who.int/publications/i/the-netherlands-health-system-summary-2024

Kuipers, T., van de Pas, R., & Krumeich, A. (2022). Is the healthcare provision in the Netherlands compliant with universal health coverage based on the right to health? A narrative literature review. *Global Health, 18*(1), 38. DOI: 10.1186/s12992-022-00831-7

Lorenzoni, L., Murtin, F., Springare, L-S., Auraaen, A., & Daniel, F. (2018). Which policies increase value for money in health care? *OECD Health Working Papers*, No. 104. Paris: OECD Publishing. DOI:10.1787/a46c5b1f-en

Meisters, R., Albers, J., Sezer, B., de Galan, B. E., Eussen, S. J. P. M., Stehouwer, C. D. A., Schram, M.T., van Greevenbroek, M. M. J., Wesselius, A Koster, A & Bosma, H. (2024). Socioeconomic inequalities in health-related functioning among people with type 2 diabetes: longitudinal analyses in the Maastricht Study. *BMC Public Health. 24*(1), 73. DOI: 10.1186/s12889-023-17553-z

OECD/European Observatory on Health Systems and Policies. (2023a). *France: Country Health Profile 2023, State of Health in the EU.* Paris: OECD Publishing. DOI: 10.1787/07c48f9f-en.

OECD/European Observatory on Health Systems and Policies. (2023b). *Austria: Country Health Profile 2023, State of Health in the EU*. Paris: OECD Publishing. DOI: 10.1787/0f110d90-en.

OECD/European Observatory on Health Systems and Policies. (2023c). *Sweden: Country Health Profile 2023, State of Health in the EU*. Paris: OECD Publishing. DOI: 10.1787/ec938a6d-en.

OECD/European Observatory on Health Systems and Policies. (2023d). *Denmark: Country Health Profile 2023, State of Health in the EU*. Paris: OECD Publishing. DOI: 10.1787/e4f0bee3-en.

OECD/European Observatory on Health Systems and Policies. (2023e). *Spain: Country Health Profile 2023, State of Health in the EU*. Paris: OECD Publishing. DOI: 10.1787/71d029b2-en.

OECD/European Observatory on Health Systems and Policies. (2023f). *United Kingdom: Country Health Profile 2023, State of Health in the EU*. Paris: OECD Publishing. DOI: 10.1787/71d029b2-en.

OECD/The Health Foundation. (2025a). How do health system features influence health system performance? Paris: OECD Publishing. DOI: 10.1787/7b877762-en.

OECD (2025b), Health at a Glance 2025, OECD Publishing, Paris, https://doi.org/10.1787/8f9e3f98- en.

Or, Z., Gandré, C., Seppänen, A-V., Hernández-Quevedo, C., Webb, E., Michel, M., & Chevreul, K. (2023). France: health system review. Health Systems in Transition, 25(3), 1–276. PMID: 37489947.

Or, Z., Gandré, C., Seppänen, A-V., Hernández-Quevedo, C., Webb, E., Michel, M., & Chevreul, K. (2004). France: health system summary, 2024. Copenhagen: European Observatory on Health Systems and Policies, WHO Regional Office for Europe.

Thomson, S., Cylus, J., Al Tayara, L., Martínez, M. G., García-Ramírez, J. A., Gregori, M. S., Cerezo-Cerezo, J., Karanikolos M., & Evetovits, T. (2023). Monitoring progress towards universal health coverage in Europe: a descriptive analysis of financial protection in 40 countries. *Lancet Reg Health Eur*, 37:100826. DOI: 10.1016/j.lanepe.2023.100826.

Verra, S. E., Evans, C., Oude Groeniger, J., de Wit, J., Poelman, M. P., & Kamphuis, C. B. M. (2024). Intersectional inequalities in mental health by education, income, gender and age before and during the COVID-19 pandemic in the Netherlands: a longitudinal study. *International Journal for Equity in Health 23*(1), 250. DOI: 10.1186/s12939-024-02338-6

Vonk, R. A. A., & Schut, F. T. (2009). Can universal access be achieved in a voluntary private health insurance market? Dutch private insurers caught between competing logics. *Health Economics, Policy and Law, 14*(3), 315–336. DOI: 10.1017/S1744133118000142

World Health Organzation. (2020). The Triple Billion Targets. https://www.who.int/news-room/questions-and-answers/item/the-triple-billion-targets (accessed 2025, June 30th)

World Health Organization. (2025). Netherlands: Health data overview for the Kingdom of the Netherlands. https://data.who.int/countries/528 (Accessed on 20 June 2025).

# 9.6. ANNEX 1. HEALTH SYSTEMS AND THEIR DESIGN FOR EIGHT OECD SELECTED COUNTRIES

## 9.6.1. SWITZERLAND

### 9.6.1.1. Who is covered? (breadth)

Switzerland achieves near-universal coverage through **mandatory health insurance**, introduced in 1996 (De Pietro, 2015). All residents must purchase insurance from private insurers operating under **strict regulation and community rating**. Insurers are obliged to accept all applicants, regardless of health status or age. The system ensures equity in formal entitlement, but coverage **may lapse temporarily** for those who do not pay premiums or are unaware of their entitlement to subsidies (Boes, 2025).

The system includes **income-based subsidies** for low-income individuals, managed at the **cantonal level**, with around 27% of the population receiving some form of subsidy. However, people in transition (e.g. the unemployed) or those who are unaware of their entitlements may face **delays in coverage or risk of financial hardship**, particularly among vulnerable groups.

### 9.6.1.2. What is covered? (scope)

The MHI benefits package is set in federal legislation and includes a broad range of essential services: primary and specialist care, inpatient treatment, prescribed therapies, and some preventive services. However, coverage is limited for dental care, vision aids, and some forms of rehabilitation, which must often be paid out-of-pocket or covered through voluntary insurance.

### How are the services delivered?

Switzerland's federalist structure means that **cantons hold primary responsibility for planning and organising service delivery**, resulting in **regional variation**. Ambulatory care is mostly provided by **self-employed physicians**, often working in solo or small group practices. Patients can access specialists directly, and gatekeeping by GPs is not required. However, **integrated care models** are increasingly adopted via **alternative insurance models**, such as a health maintenance organisation, to improve coordination and efficiency.

Inpatient services are provided by a mix of **public and private hospitals**, with financing shared between cantons and MHI. Since 2012, the **SwissDRG system** has standardised payments for acute hospital care based on diagnosis-related groups, encouraging efficiency and competition.

**Long-term care** is organised and funded by municipalities and cantons, and provided by a mix of public and private actors. Medical components may be covered under MHI, but **non-medical and residential services require a significant private contribution.**

**Mental health services** are covered under MHI but are increasingly under pressure due to **growing demand and workforce shortages**, especially among young populations. Cantons are responsible for planning mental health capacity.

**Public health and prevention** services, such as vaccination and screening programmes, are decentralised and provided at cantonal and municipal levels, often resulting in **fragmented coordination**.

Although access to services is generally high, challenges remain regarding geographic disparities in primary care access and the ageing of the health workforce, particularly among general practitioners.

Efforts to improve care coordination and efficiency have led to the growing adoption of integrated care models. These often involve alternative insurance plans with restricted provider networks. By limiting the choice of providers, such models aim to strengthen the organisation of care and enhance continuity.

#### 9.6.1.3. How much of the cost is covered? (depth)

While MHI covers a wide range of services, patients face substantial cost-sharing. Individuals choose an annual deductible (ranging from CHF 300 to CHF 2,500), followed by a 10% co-payment until reaching an annual ceiling (CHF 700 for adults). Although this is intended to encourage cost-conscious behaviour, it also creates access barriers, especially for lower-income and chronically ill populations.

#### Out-of-pocket payments (OOP) and financial hardship

Switzerland has one of the highest levels of out-of-pocket payments among high-income countries. OOP payments accounted for 23% of current spending on health in Switzerland in 2021, above the EU average of 19%. Although this share declined substantially in Switzerland between 2000 and 2016, before beginning to grow again before the COVID-19 pandemic, OOP payments per person grew at a faster rate than GDP between 2000 and 2021 (3.1% for OOP payments against 1.1% for GDP).

Although the Swiss health system ensures universal access through mandatory health insurance, individuals face **significant out-of-pocket payments**, making financial hardship a key concern. OOP spending accounted for **26% of total health expenditure in 2021**, one of the highest shares among high-income OECD countries.

Cost-sharing under MHI consists of an **annual deductible** (between CHF 300 and CHF 2,500) and **co-payments** of 10% for the remaining costs up to a ceiling (CHF 700 per year for adults). These amounts are not income-related and must be paid directly by the insured, potentially affecting access to care, especially for people with chronic conditions or a low income.

In absolute terms, Swiss households spent an average of **CHF 2,045 per capita** in OOP health expenses in 2021. While these contributions are meant to incentivise responsible use of healthcare, they also expose households to the risk of financial hardship, particularly in the absence of income-adjusted exemptions or caps.

According to WHO Triple Billion targets, “the number of additional people expected to be covered by essential services and not experiencing financial hardship is projected to be 425.6k (265k–567.4k) by 2025 compared to 2018”. Also, “the number of additional people expected to be protected from health emergencies is projected to be −0.6m (−1.1m–0.2m) by 2025 compared to 2018” (World Health Organization, 2020).

#### Voluntary health insurance

**Voluntary health insurance (VHI)** plays a substantial role in Switzerland, covering services and amenities not included in the MHI benefits package. VHI mainly finances **upgrades in hospital accommodation (e.g. semi-private or private wards)** and offers **faster or more flexible access** to certain services.

In 2021, **VHI accounted for 6.7% of total health expenditure (EU average 3.7%)**. About **two-thirds of the population** had some form of VHI, indicating its widespread use. Premiums are risk-rated, and insurers are allowed to reject applicants or vary conditions based on age and health status, unlike MHI which is community-rated and universally accessible.

Because VHI is often used to secure more comfortable services or bypass waiting lists, there is concern that it reinforces inequalities in access to care based on ability to pay. Additionally, unlike MHI, VHI products are not subject to strict benefit regulation, which can lead to variability in coverage and transparency.

## 9.6.2. THE NETHERLANDS

### 9.6.2.1. Who is covered? (breadth)

The Netherlands has **universal health coverage**, with mandatory health insurance for all residents and non-residents working in the country. Adults must purchase private health insurance from a regulated market of insurers, while children (under 18) are automatically covered free of charge. The government provides **income-based subsidies** for low-income individuals to ensure affordability.

Healthcare is delivered by private providers and operated by private health insurers. Each person in the Netherlands can choose their healthcare insurer (although the largest four insurers cover over 80% of the market) and healthcare plan. Long-term care is operated as a single payer social insurance system run by the regionally dominant healthcare insurer. Social care is handled by municipalities. Some residents are uninsured or do not make their payments (defaulters). For these groups, there are special measures to finance their healthcare.

All insurers must **accept applicants regardless of health status** under a risk equalisation system that prevents selection bias and ensures financial sustainability. The government also oversees insurers' compliance with these regulations.

### 9.6.2.2. What is covered? (scope)

The central government determines the services covered. The health insurance package includes:

- **primary and specialist care**, including general practitioner (GP) services and hospital care;
- **emergency care and maternity care**, which are fully covered without co-payments;
- **mental healthcare**, with mandatory insurance covering treatment for mild to severe conditions;
- **prescription drugs**, with a regulated formulary that ensures access to essential medications;
- **some rehabilitation and long-term care**, though long-term care is covered separately under the **Long-term Care Act *(Wet langdurige zorg – Wlz)*.**

All Dutch residents are compulsorily insured for long-term care requiring 24 hours per day supervision. Individuals who need care for less time are covered by health insurance and/or social support. Only 0.1% reported unmet needs across services in 2022 (OECD, 2025b).

### How are the services delivered?

The Ministry of Health, Welfare and Sport oversees the stewardship, planning, and regulation of the health system, although it does not have a hierarchical relationship with payers or providers, and has limited ability to act autonomously.

Negotiations between providers and health insurers determine the price, volume, and quality of services available to patients, within the boundaries of the nationally set regulations and benefits package. Providers are responsible for infrastructure investments and both payers and providers maintain financial reserves.

There is a strong emphasis on primary healthcare through a GP gatekeeper system; in parallel, several policies promote the delivery of integrated care.

*Public Health*: this is primarily organised at the municipal level. Municipal Public Health Services (*Gemeentelijke Gezondheidsdienst* – GGD) are responsible for disease prevention, health promotion, and infectious disease control. Key areas include vaccination and screening programmes.

The Netherlands runs several nationwide screening programmes and a national vaccination programme. These programmes are optional but generally have high participation rates; more individuals are screened for breast and colorectal cancer than on average in the EU. **All children up to 13 years old are eligible for vaccinations free of charge for 12 infectious diseases** (Kroneman et al., 2024), but vaccination rates show potential for improvement (e.g. measles at 89.4%, below the EU average). Public health service delivery is primarily the responsibility of municipalities.

Smoking is the largest contributor at 21% of deaths, and higher than the EU average at 17%, but smoking has declined from 19% of adults in 2014 to 14.7% in 2021. In 2020 and 2021, the Netherlands adopted measures including increasing taxes on tobacco and introducing plain packaging, which may have contributed to this decrease in smoking rates. Individuals with lower education are more likely to smoke, while individuals with higher education are more likely to report heavy drinking.

*Primary and Ambulatory Care*: is the foundation of the Dutch health system, gatekeeping to specialist care, but also coordinating care for common chronic conditions and mental healthcare. Primary care includes a wide range of services such as physiotherapy, dental care, and midwifery. Occupational doctors can refer patients to secondary care. Out-of-hours GP services are available for urgent medical needs. GP services are excluded from the deductible and are generally accessible within two days; almost 100% of the population can reach a GP within 15 minutes. Patient satisfaction with GP care, communication, and decision-making is high (Kroneman et al., 2024).

Practice nurses handle patients with chronic conditions. Home nursing care is provided by district nurses, who assess and coordinate care between clients, informal carers, GPs and other professionals. Specialised ambulatory care is mostly provided in hospitals.

Regional differences in demographic development have an impact on the demand for health services to which the workforce must adapt. There is a shortage of GPs, which is projected to intensify in the coming years. Other challenges include further integrating technological innovation and enhancing data management.

*Hospital care*: This is divided into general hospitals, academic (university) hospitals, specialised hospitals, independent treatment centres, so-called top clinical centres (*topklinische*) and trauma centres. Services are paid based on diagnosis treatment combinations (DBCs), a Dutch form of DRGs.

*Long-term and social care*: This is financed through a mandatory insurance scheme and focuses on home-based and institutional care for people with chronic conditions or disabilities. Municipalities are responsible for social support services, such as home adaptations and personal assistance, aiming to promote independent living for as long as possible. Nursing homes and residential care facilities provide services for those requiring intensive support. The most relevant reforms are listed:

- The Health Insurance Act (Zvw) and the Healthcare Market Regulation Act (2006) introduced managed competition among actors as a new driving mechanism in the Dutch healthcare system.
- Sectoral agreements (2012–2021) address challenges such as cost containment, improving quality of care and increasing efficiency. Typically, they cover a broad spectrum of healthcare sectors.
- Reform of non-acute care (2015) introduces the Long-term Care Act for inpatient nursing care, the Youth Act for Mental Care for Children and Help with Parenting, and the Social Support Act. Aims included to reduce inpatient nursing care and stimulate people to live in their own homes for longer, with a focus on municipal support. This reform was accompanied by a significant reduction of the total budget.
- Changes in GP reimbursement (2018) meant increase in funding, better compensation for longer and more complex consultations, and expanded reimbursement for digital and after-hours care. GPs were also given additional support for managing chronic illnesses and mental health, and for coordinating elderly care. The reforms aimed to relieve workload pressures and promote innovative care models while simplifying administrative processes.
- Quality of care initiatives in long-term care and youth care (2019): several measures have been taken to improve quality of youth care and long-term care, including in nursing homes, reducing waiting lists in youth care and strengthening collaboration in care (both medical and social) to keep elderly people living at home for as long as possible.
- The Sectoral Care Agreement (IKA) (2022–2024) targets sustainability, accessibility, and quality of healthcare. It emphasises preventive care and integrated care, shifting more services from hospitals to primary care and encouraging collaboration among healthcare providers. The agreement also addresses workforce shortages by improving working conditions and reducing administrative burdens. A key focus is on financial sustainability, setting limits on healthcare spending growth while promoting efficiency and digitalisation.
- Mental health financing (2022–2024) introduced a new healthcare performance payment model for mental care, and a new financing system for curative mental care for adults.
- Changes in the Public Health Act (2023): options were included to introduce collective measures in the case of a pandemic disease.
- The Healthcare Provider Admission Act (2023) regulates registration and licencing of care providers that deliver care covered under the Health Insurance Act or the Long-term Care Act.

**Care integration** is a core principle of the Dutch health system, supported by financing reforms. Between 2008 and 2016, experimental integrated care models were introduced for older people. In 2010, bundled payments were implemented for common chronic conditions (type 2 diabetes, COPD, asthma, cardiovascular risk), followed by a new GP payment model in 2013 to foster coordination. General practitioners are responsible for coordinating chronic and mental healthcare, while integration among specialists and hospitals has also increased. Insurers use integrated care arrangements as a means of competition. In 2022–2023, the Integrated Care Agreement (IZA) was introduced to ensure sustainable, high-quality care. It shifts the focus from disease to health, prioritising prevention, support for vulnerable groups, and intersectoral responses, including social care. It promotes innovative care pathways involving primary care, public health, social services, and mental health.

#### 9.6.2.3. How much of the cost is covered? (depth)

The system operates on a **mandatory private insurance model**, with **income-based contributions** and **risk equalisation mechanisms** to ensure affordability and fairness. Insured individuals pay a **standard deductible (€385 in 2023)**, meaning they must cover the first part of their annual healthcare costs out of pocket before insurance takes over. Some services, such as GP visits and maternity care, are exempt from this deductible. Long-term care and social support services are financed **separately from standard health insurance**, with a mix of **public funding and private contributions**. These services include home care, institutional care, and personal assistance for individuals with severe chronic conditions.

#### Out-of-pocket payments (OOP) and financial hardship

Out-of-pocket (OOP) spending in the Netherlands is roughly two-thirds of the EU average (15%), at 9.3% of total health spending in 2021. Most OOP payments go towards **cost-sharing for inpatient and outpatient services**, and **pharmaceuticals**.

While the Netherlands does have the mandatory deductible of €385 a year to access health services, there are collective insurance packages through municipalities through which individuals with low incomes (minimum wage) do not pay a mandatory deductible.

According to WHO Triple Billion targets, "the number of additional people expected to be covered by essential services and not experiencing financial hardship is projected to be 0.4m (−0.2m–1m) by 2025 compared to 2018". Also, "the number of additional people expected to be protected from health emergencies is projected to be −2.1m (−5m–0.2m) by 2025 compared to 2018" (World Health Organization, 2020). Although the coverage of vaccinations for high-priority pathogens shows improvement relative to the COVID-19 pandemic-related disruptions in 2020–2021 at the international level, it has not yet returned to pre-pandemic levels.

#### Voluntary health insurance (VHI)

VHI may finance services not covered by the basic package such as adult dental care or physiotherapy. Around **84% of the population** purchases supplementary insurance.

The Dutch experience illustrates that while universal access can, in principle, be achieved within a private voluntary health insurance market, doing so requires a high degree of institutional engineering that fundamentally transforms the nature of such a market (Vonk & Schut, 2019). The historiographic perspective shows that private insurers, left to operate under pure market logic, systematically failed to ensure inclusivity and equity. Only through incremental state interventions – ranging from regulatory mandates to risk equalisation schemes and ultimately to a universal insurance mandate – could the goals of solidarity and accessibility be met.

However, this transformation came at the cost of diluting the core principles of free-market insurance: entrepreneurial autonomy, actuarial fairness, and consumer sovereignty. What emerged in the Dutch case was not a triumph of voluntary private insurance, but rather the emergence of a hybrid system where private actors became instruments of public policy, bound by strict rules of access, pricing, and coverage.

From a normative perspective, the Dutch model challenges the ideological notion that universal coverage can emerge organically from voluntary, profit-driven arrangements. It suggests instead that markets must be deliberately shaped to serve collective goals, and that without sustained political will, regulatory coherence, and societal consensus, private insurance systems will remain structurally incapable of delivering universal access.

## 9.6.3. FRANCE

### 9.6.3.1. Who is covered? (breadth)

France has a universal health coverage system based on **compulsory health insurance** (Or, 2023). All residents or workers in France for at least three months are entitled to health coverage under the statutory health insurance (SHI), in particular the *Régime Général*), with legal residence being the main criterion since the introduction of PUMa (protection *universelle maladie*) in 2016 (Or, 2024). More than 99% of the population is covered through the SHI.

Coverage also extends to dependents and unemployed individuals. People without sufficient contributions or residence history can access healthcare through complementary solidarity health insurance (*Complémentaire santé solidaire, C2S*) or state medical aid (*Aide médicale de l'État* – AME) in the case of undocumented migrants.

### 9.6.3.2. What is covered? (scope)

The benefits package is broad and defined at the national level, covering prevention, diagnosis, treatment, and rehabilitation. All SHI schemes provide access to the same benefits package, which offers a wide range of medical services and goods. The benefits package is defined through explicit positive lists of the services, medicines, devices, and equipment covered. It includes:

- primary and specialist care, both outpatient and inpatient;
- pharmaceuticals, medical devices, and laboratory tests;
- mental health services;
- maternity care and family planning;
- dental and optical care (with partial public coverage);
- palliative care and long-term care services;
- transport when medically necessary.

However, not all services are fully covered. The statutory health insurance sets reimbursement rates (*tarifs de responsabilité*) which vary by service type, and patients are often required to pay a share of the cost (*ticket modérateur*). Some services (e.g. dental prostheses, hearing aids, glasses) may be only partially reimbursed or subject to ceilings.

Recent reforms have aimed to expand coverage and reduce out-of-pocket costs, especially through the *100% Santé* scheme, which guarantees full reimbursement for a range of dental, optical, and hearing services.

### How are the services delivered?

The French system is largely publicly financed but delivered by a mix of public and private providers.

*Public health:* Santé publique France is the main agency in charge of public health, covering health promotion, surveillance, disease prevention, and emergency response. Regional Health Agencies (*Agences régionales de santé* – ARS) coordinate health services and implement national policies locally. The National Influenza Pandemic Plan, though used during COVID-19, was found to be inadequate for novel viruses without vaccines. Traditionally reliant on GPs and paediatricians, vaccination roles have expanded: midwives, nurses, and pharmacists can administer many vaccines under certain conditions. Recently, these roles were broadened further, enabling pharmacists to vaccinate without prescriptions.

*Primary care:* This is delivered by general practitioners (GPs), some outpatient medical specialists (e.g. cardiologists, paediatricians), and allied health professionals (dentists, pharmacists, midwives, nurses, physiotherapists).
A **voluntary gatekeeping system** has existed since 2004, but primary care remains weakly connected to other care sectors and has limited involvement in health promotion and disease prevention. Recently, **financial incentives** were introduced to encourage GPs to refer patients to prevention pathways aligned with national guidelines. The number of **specialists** increased by 8% between 2012 and 2023, while the number of **GPs declined by 4%**, with no expected improvement in GP density soon. **Strengths**: high patient satisfaction with GP care (84–88%), and good financial accessibility through universal health insurance and the C2S scheme for low-income populations. **Weaknesses**: heavy reliance on self-employed physicians not integrated into multidisciplinary teams, and poor coordination with other sectors. Group practices are being promoted with dedicated funding. While initial uptake was slow, **69% of GPs worked in group settings in 2022**, up from 54% in 2010. **Geographical disparities**: 6% of the population live in underserved areas; 10–20% report difficulties accessing one or more primary care professionals.

*Hospitals:* Public hospitals (two-thirds of inpatient capacity) and private clinics coexist. In 2019 the Law on the Organisation and Transformation of the Health System introduced the concept of local hospitals (*Hôpitaux de proximité*): public or private hospitals which are responsible for specific services shared with ambulatory structures and professionals within a given territory.

*Long-term care:* This is delivered through both health and social care structures, including institutional (e.g. *établissements d'hébergement pour personnes âgées dépendantes* – EHPADs) and home-based settings.

In France, recent policies have sought to improve the **integration of healthcare services** through initiatives such as **territorial hospital groups** (*Groupements Hospitaliers de Territoire* – GHTs) and **territorial professional health communities** (*communautés professionnelles territoriales de santé* – CPTS). GHTs, established in 2016, aim to pool resources and functions (e.g. procurement, IT, training) among public hospitals within the same area, led by a designated support hospital. However, GHTs **only include public hospitals**, despite the fact that **half of surgical care is provided by private clinics**, and there are concerns about their size, levels of integration, and potential to reinforce a hospital-centred system and the creation of monopolistic markets. CPTSs aim to connect hospital, primary care, and social care professionals at the local level. Additionally, **innovative payment models** (e.g. bundled payments, team-based budgets) are being piloted to encourage more collaborative, preventive, and integrated care delivery. However, it remains **too early to assess** their long-term effectiveness.

#### 9.6.3.3. How much of the cost is covered? (depth)

France's statutory health insurance (SHI) covers about 79% of total health expenditure. The remainder is funded through complementary mechanisms and out-of-pocket payments.
The SHI sets standard reimbursement rates, typically:

- 70% for primary and outpatient specialist care.
- 80% for hospital stays.
- 15–65% for prescribed medicines (depending on their medical benefit).
- 100% for certain long-term conditions (*Affections de longue durée* – ALD) and maternity care.

Co-payments (*ticket modérateur*), fixed fees per consultation (e.g. €1), and co-insurance apply to many services, although exemptions exist for vulnerable populations and certain conditions.

#### Out-of-pocket payments (OOP) and financial hardship

In 2021, France had the second lowest level of out-of-pocket (OOP) spending among OECD countries (OECD, 2023a), at around 9% of total health expenditure. The majority of OOP spending was on long-term care (38%), followed by pharmaceuticals and therapeutic devices (18%), and outpatient care (18%). While most of the population is protected through complementary health insurance (public or private), patients still face financial exposure for services not fully reimbursed by SHI.

User charges are required for most healthcare goods and services in France and protective mechanisms are in place to reduce the financial burden for vulnerable patients (such as patients with chronic conditions, pregnant women or those with very low incomes).

Financial protection mechanisms include the following:

- Most costs related to their chronic condition are covered for ALD patients (*Affection de longue durée*, around 11 million people).
- At the department level, protection of children, particularly through the management of maternal and child protection services, offers consultations and free healthcare.
- The CSS (*Complémentaire santé solidaire*), allows 100% coverage of the costs of services and medicines included in the benefits basket (with no cost-sharing) to low-income groups (individuals living 20% under the poverty limit).

Despite these protections, some households still experience high OOP payments, especially for dental, optical, and hearing services not fully covered under SHI.

According to WHO Triple Billion targets, "the number of additional people expected to be covered by essential services and not experiencing financial hardship is projected to be 2m (1m–2.9m) by 2025 compared to 2018". Also, "the number of additional people expected to be protected from health emergencies is projected to be 7.8m (5.2m–10.1m) by 2025 compared to 2018" (World Health Organization, 2020).

### Voluntary health insurance (VHI)

VHI plays a crucial role in France, covering the cost gaps left by SHI. In 2019, around 96% of the population had complementary coverage, either through:

- employer-sponsored schemes (compulsory since 2016 for private sector employees);
- individual subscriptions;
- CSS for those with low income.

VHI reimburses co-payments, user fees, and services beyond SHI tariffs. The reliance of the population on private complementary insurance to cover OOP payments raises concerns about solidarity, financial redistribution, and efficiency in the health system. Despite the existence of protective schemes for vulnerable patients, such as those suffering from chronic illnesses who receive a complementary solidarity insurance (C2S), pregnant women or those with very low income, people with the highest care needs (in particular, older individuals and those with multiple chronic conditions) have higher OOP payments. The generosity of complementary health insurance contracts varies widely. The poorest and sickest populations are more likely to hold less advantageous contracts, spending a higher share of their income on healthcare.

### 9.6.4. AUSTRIA

#### 9.6.4.1. Who is covered? (breadth)

Austria has a universal health coverage system primarily funded through statutory health insurance (SHI). Coverage is mandatory for employees and self-employed individuals above a minimum income threshold, with automatic inclusion through employment, self-employment, or pensioner status. Dependents, students, and those receiving unemployment benefits are also insured, and people without mandatory coverage can enrol voluntarily or through social assistance (Bachner et al., 2024).

Coverage reached over 99% of the population in 2023, but certain groups remain at higher risk of being uninsured, including older students no longer qualifying as dependents, unregistered asylum seekers, and unemployed individuals without entitlements (Bachner et al., 2024).

Although the Austrian system originated from the Bismarck model, with entitlement linked to employment, it functions today as a de facto universal system. The 2020 reform merged the former eighteen SHI funds into three, including the creation of the *Österreichische Gesundheitskasse* (ÖGK) for standardisation. However, disparities remain, notably in benefit coverage for services such as psychotherapy and regional variations in entitlements (Bachner et al., 2024).

#### 9.6.4.2. What is covered? (scope)

Austria does not have explicit positive or negative lists defining the statutory benefits package, except for pharmaceuticals. Coverage is largely defined implicitly and through established practice (Bachner et al., 2018).

Preventive services such as check-ups and vaccinations are included, although not all are fully covered or free at the point of use. Some services – particularly dental care, glasses, and alternative therapies–often require significant out-of-pocket payments or additional private insurance coverage (Bachner et al., 2018; OECD, 2023).

Differences in benefit entitlements persist across the Länder, and harmonisation remains incomplete. Regional variations continue to affect access to psychotherapy, and payment arrangements for the same service can differ significantly between regions (Bachner et al., 2024).

#### How are the services delivered?

Austria has a **strong hospital sector** and a traditionally **fragmented ambulatory care system**, mostly provided by **self-employed physicians** contracted by SHI funds. There is **no formal gatekeeping**: patients have free choice of providers and can access specialists without referral. This can lead to inefficiencies and overuse of specialist care.

*Public health:* The Austrian Public Health Institute (*Gesundheit Österreich GmbH* – GÖG) acts as a facilitator and scientific expert in the planning process led by the Federal Health Agency and it decision-making body, Federal Target-Based Governance Commission (FT-BGC). Austria's Public Health Service is responsible for areas such as epidemiology, health promotion, disease prevention, crisis management, and environmental health. However, public health governance is highly fragmented, involving numerous actors from various sectors and levels of government. The Federal Ministry of Labour, Social Affairs, Health and Consumer Protection oversees communicable disease surveillance via an electronic reporting system.

Preventive efforts remain focused on medical prevention (vaccinations, health check-ups, screenings, and addiction programmes), though there is growing recognition of social and environmental determinants. As part of the 2024–2028 healthcare reform, health promotion and disease prevention will receive significantly more funding. The national vaccination programme is being expanded, including new early childhood interventions and €90 million annually to fund additional vaccines. Efforts are also underway to merge overlapping projects and reform the public health workforce, including the role of public health officers.

Primary care is delivered by GPs and contracted specialists in solo or small group practices. Recent reforms promote group practices and multiprofessional primary healthcare units (*Primärversorgungseinheiten* – PVEs) to strengthen coordination, prevention, and access, especially in underserved areas. However, their development is still limited.

Since 2017, Austria has been developing multidisciplinary primary healthcare centres to better address local needs, particularly for chronic conditions and in underserved areas. These centres aim to improve accessibility and reduce unnecessary hospital outpatient visits. Core teams include GPs and nurses, with optional involvement of other professionals like paediatricians and social workers. Centres may be single-location or network-based.

However, by 2023 only 39 PVEs had been established, far short of the original goal of 75, due to contractual disputes. New investment aims to triple this number through the use of EU recovery funds (Bachner et al., 2024).

Austria's primary care system offers good access to GPs, including same-day appointments, though this can lead to shorter consultation times. Despite a high physician density, the system is considered relatively weak, largely due to a heavy reliance on specialist and inpatient care. Only 8% of physicians work as contracted GPs, mostly in solo practices. To address this, the government is investing in reforms to strengthen primary care, notably by establishing multidisciplinary centres that provide broader services, extended hours, and team-based care.

*Hospital care:* inpatient care is provided by public hospitals owned by the Länder and private non-profit institutions. The country has one of the largest hospital sectors in the EU, with high bed-to-population ratios and hospital discharge rates, despite ongoing reform efforts aimed at reducing hospital capacity. Several policies such as the Federal Target-Based Governance **Agreements** (2013, 2017, 2024) and the **Primary Health Care Act** (2017, 2022) have sought to shift care from inpatient to ambulatory and daycare settings, particularly by strengthening primary care. As a result, between 2013 and 2023, Austria saw a 23% decrease in hospital discharges and a 24% reduction in hospital bed days.

Austria has formal commitments to improving care integration through **health reforms** (2013, 2017, 2024) and the **Article 15a Agreement** of the Federal Constitutional Law, aiming to reduce system fragmentation. Initiatives include **disease management programmes** (starting with type 2 diabetes in 2007), **structural quality standards** for integrated care in areas such as stroke and heart failure, and the development of **new primary healthcare centres** and **e-prescriptions**.

The **community nursing pilot** launched in 2022 supports patients with chronic or complex needs through preventive home visits, care coordination, and guidance, especially post-discharge. However, **continuity of care remains a challenge**, particularly during transitions from hospital to residential or home-based care.

#### 9.6.4.3. How much of the cost is covered? (depth)

Statutory health insurance covers about 78% of total health expenditure, with the remainder funded through out-of-pocket payments (OOP) and voluntary health insurance (VHI). This level of public funding is slightly below the EU average, but still among the highest in Europe. (Bachner et al., 2024).

While coverage is generally comprehensive, co-payments are required for many services (Bachner et al., 2018):

- Pharmaceuticals: A fixed co-payment of €6.00 (as of 2018) per prescribed medicine applies, regardless of the actual price. While this represents a small proportion for high-cost drugs, it may equal or exceed 10–20% of the price for lower-cost items.
- Hospital stays: flat daily fees apply for up to 28 days per year, typically €13–€20 depending on the region.
- Dental and optical care: there is limited coverage, often requiring substantial private contributions. The SHI covers only a basic package of dental services, such as simple fillings and extractions.
- Medical aids: partial reimbursement applies to medical devices and aids (e.g. orthopaedic devices, hearing aids). Patients often need to cover a substantial share of the cost.

A growing concern is the increasing share of non-contracted providers, especially GPs and paediatricians, whose fees are largely unregulated. Since SHI only partially reimburses their services, this undermines equity and leads to higher private expenditure. Addressing this issue is now part of ongoing health reforms (Bachner et al., 2024).

These co-payments, while modest in some areas, may represent a significant burden for low-income groups, particularly in regions with fewer contracted providers.

#### Out-of-pocket payments (OOP) and financial hardship

In 2021, OOP spending accounted for around **16% of total health expenditure**. It mainly relates to:

- pharmaceuticals (24%)
- outpatient medical care (19%)
- long-term care (19%)
- dental care (17%)

Direct payments for benefits not covered by SHI funds represent the largest share of OOP spending. **Exemptions** from co-payments apply for certain population groups, including socially deprived groups, patients with notifiable infectious diseases, people in compulsory community service or asylum seekers under federal care, pensioners entitled to compensatory allowances, and children or co-insured dependents up to the age of 18.

Protective mechanisms exist, such as **income-based exemptions**, caps for vulnerable groups (e.g. chronically ill, low-income earners), and the **medicine fee exemption** for those under a defined income threshold.

However, **financial protection is not comprehensive**, and some individuals may delay or avoid care due to cost, especially for services such as dental or long-term care. Recent efforts have aimed to improve equity, though challenges remain, particularly for older adults and people with multiple chronic conditions (OECD, 2023b).

According to WHO Triple Billion targets, "the number of additional people expected to be covered by essential services and not experiencing financial hardship is projected to be 0.9m (0.3m–1.3m) by 2025 compared to 2018". Also, "the number of additional people expected to be protected from health emergencies is projected to be 1.7m (0m–3m) by 2025 compared to 2018" (World Health Organization, 2020).

### Voluntary health insurance (VHI)

Voluntary health insurance (VHI) in Austria plays a **supplementary role**, providing coverage for services not included in the statutory health insurance (SHI) basket, such as **enhanced hospital accommodation**, **choice of senior consultants**, and **some dental or alternative treatments** (Bachner et al., 2018). It is **not a substitute** for SHI and does not provide primary access to care.

As of 2021, **VHI represented just over 6% of private health expenditure**, according to official estimates (Bachner et al., 2004). The **proportion of the population holding some form of VHI** was around **36% in 2016**, a figure that includes both individual and employer-based group contracts (Bachner et al., 2018).

While VHI can increase comfort and perceived quality for those who can afford it, it has also raised **equity concerns**. In particular, VHI coverage may influence the **speed and type of treatment** in hospital care – especially in areas such as access to senior consultants or single rooms – thus contributing to a **dual-track system** that favours higher-income groups (Bachner et al., 2018).

These dynamics have been subject to **criticism by the Austrian Court of Audit**, which has repeatedly pointed to potential inequalities in access and prioritisation of care between SHI-only and SHI+VHI patients, particularly in inpatient settings (Bachner et al., 2018).

### Methodological note

Some sections of this analysis – particularly those referring to the coverage of specific services such as dental care, optical aids, medical devices, and voluntary health insurance (VHI) – draw on the *Health Systems in Transition: Austria* report (2018). While certain details may have evolved since its publication, this source remains the most comprehensive available description of Austria's benefit package depth. In the absence of contradictory evidence from more recent sources (Bachner et al., 2004; OECD, 2023b). It has been considered valid and appropriate for this comparative analysis.

## 9.6.5. SWEDEN

### 9.6.5.1. Who is covered? (breadth)

Sweden guarantees universal health coverage to all individuals who are legally resident in the country. Entitlement is based on legal residence and is granted automatically, regardless of employment status or income. There is no formal enrolment in a national health insurance scheme; instead, entitlement is based on legal residence and administratively managed through the tax system. Non-residents such as asylum seekers and undocumented migrants are also entitled to receive urgent care, maternal health services, and contraceptive counselling (Janlöv & Merkur, 2024; OECD, 2023c).

### 9.6.5.2. What is covered? (scope)

The Swedish system provides an extensive range of services with no formal benefits package. Instead, the Health and Medical Services Act stipulates that "care should be given on equal terms and according to need", ensuring all cost-effective services are included (Janlöv & Merkur, 2024). Services covered include inpatient and outpatient care, mental healthcare, long-term care, rehabilitation, palliative care, pharmaceuticals, and dental care for children and young adults. Preventive care is also prioritised, including national screening programmes for cancer and public health interventions (Janlöv et al., 2023; OECD, 2023c).

Regional variation may occur in how services are organised or prioritised, but the overarching principle of equal access to medically necessary and effective care applies nationwide (Janlöv et al., 2023).

### How are the services delivered?

Sweden delivers healthcare through a highly decentralised system structured around its 21 regions and 290 municipalities. Care provision is anchored in the public sector, although private providers operate under public financing, particularly in primary and digital care. Service delivery is organised into primary, specialised, and municipal long-term care, with a strong emphasis on equity and accessibility. Despite universal access and good medical outcomes, challenges persist around **waiting times, continuity of care, and coordination across levels** – especially for patients with complex or chronic conditions.

*Public health:* national public health responsibilities are led by the **Public Health Agency of Sweden**, which focuses on communicable disease surveillance, outbreak preparedness, and the promotion of healthy lifestyles. Sweden's public health approach is decentralised, with many responsibilities – such as health promotion in schools and food safety – shared with municipalities (Janlöv & Merkur, 2024).

Preventive care includes general screening programmes (for breast, cervical, and colorectal cancers), youth clinics, maternal and child health, and occupational health services. Vaccination campaigns and preventive counselling are widely implemented. However, the system has been critiqued for its fragmented responsibilities between regions and municipalities, which can weaken coordination and accountability (Janlöv et al., 2023, p.106).

Efforts to improve preventive care include digital tools, integrated public health planning, and a stronger emphasis on mental health and non-communicable disease risk factors. *Sweden's Recovery and Resilience Plan* earmarks additional investments to reinforce the long-term care sector and modernise digital and preventive infrastructure (OECD, 2023c).

*Primary care:* Sweden's primary care model is centred around **Primary Care Centres (PCCs)**, which are multiprofessional units staffed by GPs, registered nurses, psychologists, physiotherapists, and other allied health professionals. Since the 2010 *Freedom of Choice reform*, patients can choose any PCC, public or private, in any region. Providers are financed through risk-adjusted capitation, complemented by small performance-based elements in some regions (Janlöv et al., 2023; Janlöv & Merkur, 2024).

The organisational model is built around team-based care, but the system suffers from persistent shortages of **general practitioners (GPs)** and **specialist nurses**, which has led to reduced availability and continuity of care, particularly outside metropolitan areas (HiT Summary, 2024, p.9). Around **40% fewer GPs** than needed are currently employed, and turnover remains high. There is also variation in the scope of services offered and in how regional and municipal care responsibilities are integrated.

Recent reforms aim to strengthen primary care as the foundation of the system. These include clarifying its role as the first point of contact, expanding digital health services, enhancing care coordination for patients with chronic illnesses, and introducing financial incentives to promote continuity and proactive care. Nevertheless, despite national guidelines, implementation remains uneven across regions ((Janlöv et al., 2023).

*Hospital care:* Sweden has progressively shifted from a hospital-centric model towards **outpatient and community-based care**, while centralising highly specialised services. Most hospitals are owned and operated by the regions, which also oversee planning, staffing, and funding (Janlöv & Merkur, 2024).

Efforts to **separate elective and emergency care** have been reinforced by reforms that concentrate trauma, oncology, and transplant services in larger centres to ensure better quality and efficiency. At the same time, average hospital bed capacity in Sweden is the **lowest in the EU**, at just **190 beds per 100,000 population** in 2022. While this reflects effective outpatient care, it has also led to **overcrowding and discharge delays**, particularly during winter months or public health crises (Janlöv et al., 2023); OECD, 2023c).

Integration between hospital and municipal care is variable, and discharge coordination remains a challenge, especially for elderly patients or those with complex needs (Janlöv et al., 2023) Sweden has made formal and strategic commitments to improving **integrated care**, particularly through its long-standing goal of shifting from hospital to community-based services. The **National System for Knowledge-Driven Management**, launched in 2021, supports the uptake of evidence-based, equitable care pathways across regions through 26 national clinical programme areas. Further integration efforts include *person-centred care initiatives*, standardised clinical pathways (e.g. in cancer care), digital tools for shared documentation, and coordination teams bridging regional and municipal care ((Janlöv et al., 2023); OECD, 2023c).

Waiting times are the main barrier to access; various patient surveys report that long waiting times are a greater reason for forgoing care than OOPs. In 2023, 30% of patients had been waiting for a first appointment in specialised care for longer than the waiting guarantee limit of three months; this was 40% for treatment or surgery. In May 2024, the government launched an inquiry aimed at creating a new waiting time guarantee for specialised care featuring shorter time limits, earlier care from outside the patient's region, and measures for supervisory authorities to enforce the guarantee without financial penalties (Janlöv & Merkur, 2024).

However, **structural fragmentation** between levels of government remains a persistent barrier, with variable implementation of reforms across regions. National actors are increasingly involved in monitoring and guiding integration, though local autonomy still constrains uniform progress. A key objective moving forward is to enhance **continuity of care**, particularly during transitions between hospital and home or residential care (Janlöv & Merkur, 2024).

#### 9.6.5.3. How much of the cost is covered? (depth)

There are user fees for many services, but these are generally modest and heavily regulated. The country has established financial caps to limit the burden on patients: annual ceilings exist for outpatient visits (SEK 1,300 ≈ €117) and for prescription drugs under the National Drug Benefit Scheme (SEK 2,600 ≈ €234) (Janlöv & Merkur, 2024; Janlöv et al., 2023). Exemptions apply for key groups such as children, youth under 20, pregnant women, and the elderly over 85 years of age.

The level of private cost-sharing is higher for medicines, dental care, and technical devices, which are not covered by public funding to the same extent as hospital stays and outpatient care.

#### Out-of-pocket payments (OOP) and financial hardship

Out-of-pocket payments (OOP) accounted for about 13% of total health expenditure in 2022, mostly directed at pharmaceuticals (33%), dental care (23%), and outpatient care (15%) (Janlöv & Merkur, 2024). Despite the presence of user fees, financial protection in Sweden is robust. The share of the population reporting unmet needs due to cost is very low, and catastrophic health expenditure is rare (OECD, 2023c). However, affordability barriers are more pronounced in dental care, which is less generously subsidised for adults (Janlöv & Merkur, 2024).

Patient fees are charged for almost all types of services and medical products, with exceptions such as child and maternity care, dental care up to 24 years of age, and many services for people aged 85 years and older.
The regions determine the fees, so they vary across the country. There are annual caps on specific types of user fees, such as primary care, outpatient care, and pharmaceuticals (Janlöv & Merkur, 2024).

The share of households that experienced catastrophic healthcare spending is also low in Sweden from an international perspective. However, it is somewhat more common to have refrained from accessing dental care than from other healthcare due to costs.

According to WHO Triple Billion targets, "the number of additional people expected to be covered by essential services and not experiencing financial hardship is projected to be 391.9k (129.9k–637.5k) by 2025 compared to 2018". Also, "the number of additional people expected to be protected from health emergencies is projected to be −0.4m (−1.1m–0.3m) by 2025 compared to 2018" (World Health Organization, 2020).

### Voluntary health insurance (VHI)

Voluntary health insurance plays a marginal role in the Swedish system. It accounted for just 1% of total health expenditure in 2022 and serves primarily as complementary coverage. VHI is mainly used to access services not covered by the public system (e.g. some elective services or quicker access to care), particularly in private settings or for occupational health care (Janlöv & Merkur, 2024); Janlöv et al., 2023, p. 79).

### 9.6.6. DENMARK

#### 9.6.6.1. Who is covered? (breadth)

All residents are entitled to publicly financed healthcare services (universal health coverage), which are largely free at the point of use. This entitlement is not conditional upon contributions to a health insurance fund, as access is guaranteed through residence status and is financed mainly via general taxation. Non-residents are only entitled to emergency care, while asylum seekers receive access to "necessary care", a category that is not explicitly defined but generally includes urgent services and chronic condition management (Birk, Vrangbæk, Rudkjøbing, Krasnik, Horschig, et al., 2024; OECD, 2023d).

#### 9.6.6.2. What is covered? (scope)

The Danish benefits package includes access to preventive care, primary care, outpatient specialist services, hospital and emergency care, rehabilitation, mental health services, and long-term care. Dental care for children and adolescents is also publicly covered, with the age limit progressively increasing (up to 20 since 2023, currently rising to 21 by 2025). However, there are important exclusions and cost-sharing requirements for adults. Notably, outpatient prescription drugs are only partially covered and require co-payments; the same applies to adult dental care, glasses, and over-the-counter medicines (Birk et al., 2024, p. 44). Fertility treatments are publicly covered but with restrictions – for instance, women over 40 are not eligible for publicly funded in vitro fertilisation (IVF), and most regions limit reimbursement to three treatment cycles (Birk, Vrangbæk, Rudkjøbing, Krasnik, Horschig, et al., 2024, Box 2).

The benefit package does not vary across regions, although each municipality may provide additional services in the realm of social care and health promotion. Overall, the scope of coverage is broad, although financial protection is incomplete in areas such as pharmaceuticals and dental services.

#### How are the services delivered?

Denmark's health system is decentralised and built around the principle of free and equal access to a comprehensive range of services, organised across three levels of government. The state level is responsible for overall regulation, supervision, and health policy development. The five regions are tasked with the provision of hospital services and planning of primary care, including contracting self-employed general practitioners and specialists. The 98 municipalities are responsible for health promotion, prevention, home care, rehabilitation, public health services, and long-term care (Birk et al., 2024). Public health responsibilities are shared between regions and municipalities. While no comprehensive national public health programme has been adopted since 2009, local actors carry out a variety of initiatives, with recent reforms encouraging regional-municipal collaboration through "health clusters" aimed at strengthening disease prevention and cross-sector coordination (Birk et al., 2024, Chapter 5.1). Examples include interventions to reduce alcohol and tobacco consumption, and to promote physical activity, particularly in lower-income groups where behavioural risks remain high.

*Primary care* is strongly developed and is delivered predominantly by self-employed general practitioners (GPs), who operate under contracts with the regional authorities. GPs serve as the first point of contact and play a central role in managing patient pathways. They function as formal gatekeepers to most specialised services, and access to outpatient specialists typically requires a GP referral. This gatekeeping role, combined with a remuneration system based on a mix of capitation and fee-for-service, is designed to ensure continuity, efficiency, and cost-effectiveness in care delivery. While access to primary care is generally good and patient satisfaction is high, persistent workforce shortages – especially in rural and socio-economically deprived areas – have prompted national efforts to expand GP training positions and improve recruitment (Birk et al., 2024; OECD, 2023d).

*Hospital care* is provided almost exclusively by public hospitals (over 95% of hospital beds). The country has undergone extensive hospital reform over the last two decades, involving consolidation and centralisation of services, including the construction of several "super hospitals". Concurrently, there has been a shift towards increased ambulatory activity and same-day surgeries. Hospital funding is based on global budgets combined with some activity-based elements and national quality indicators. Waiting time guarantees exist (30 days for diagnosis and treatment), and when unmet, patients can opt for treatment in the private sector at public expense (Birk et al., 2024, Chapter 5.4).

Efforts towards integrated care have intensified in Denmark, particularly in response to the needs of patients with chronic conditions and an ageing population. Building on a decentralised system, coordination across levels of care has been formalised through mandatory health agreements between each region and its municipalities. In 2022, Denmark introduced 21 health clusters centred around each acute hospital, designed to enhance collaboration between hospitals, general practice, and municipal services. These structural mechanisms reflect a strong policy

commitment to integrated care. Nonetheless, fragmentation persists – especially in transitions between care levels and in cross-sectoral communication – and challenges remain in areas such as data sharing and digital infrastructure (Birk, Vrangbæk, Rudkjøbing, Krasnik, Horschig, et al., 2024, pp. 3, 13; Birk et al., 2024, Chapters 5.3 and 5.5).

Denmark has built an integrated delivery system grounded in decentralisation, gatekeeping and territorial collaboration, though interoperability and cross-sector data use remain key areas for improvement.

#### 9.6.6.3. How much of the cost is covered? (depth)

In terms of financial coverage, Denmark provides a relatively high degree of protection. In 2021, 85.2% of total current health expenditure was covered by public or mandatory sources, compared to an EU average of 81% (Birk, Vrangbæk, Rudkjøbing, Krasnik, Horschig, et al., 2024; OECD, 2023d). This reflects a strong reliance on tax-based financing and a unified benefits package. Despite high overall public financing, the system does not cover all services in full, and cost-sharing applies to certain areas, especially outpatient pharmaceuticals and dental services.

#### Out-of-pocket payments (OOP) and financial hardship

Out-of-pocket payments (OOP) accounted for approximately 13% of current health expenditure in 2021 (Birk, Vrangbæk, Rudkjøbing, Krasnik, Horschig, et al., 2024). OOP is mostly concentrated in outpatient pharmaceuticals (24% of total OOP) and adult dental care (20%). Despite the existence of co-payment caps for medicines, the financial burden can still be substantial for certain groups, particularly those with chronic conditions or low incomes. According to the 2023 Country Profile, unmet needs for medicines and dental care are higher among low-income groups, indicating gaps in financial protection. Nevertheless, overall unmet needs for medical care are low in Denmark and among the lowest in the EU.

All registered residents, regardless of nationality and country of birth, are entitled to a wide range of healthcare services free of charge. Thus, the level of financial protection in Denmark appears high. Gaps in coverage are concentrated among asylum seekers and undocumented migrants and in specific areas requiring co-financing (dental care and outpatient prescription medicines).

There are no informal payments in the Danish system, and direct payments (e.g. glasses, cosmetic surgery, over-the-counter purchases) are regulated and relatively limited.

According to WHO Triple Billion targets, “the number of additional people expected to be covered by essential services and not experiencing financial hardship is projected to be 370.3k (263k–466.1k) by 2025 compared to 2018”. Also, “the number of additional people expected to be protected from health emergencies is projected to be 230k (−212.5k–525.5k) by 2025 compared to 2018” (World Health Organization, 2020).

#### Voluntary health insurance (VHI)

Voluntary health insurance plays a complementary and supplementary role in Denmark. Approximately 42% of the population purchases VHI to cover user charges (mainly for outpatient pharmaceuticals and dental care), and around 32% purchase supplementary insurance to access faster or expanded services from private providers (Birk, Vrangbæk, Rudkjøbing, Krasnik, Horschig, et al., 2024). The market is regulated but plays a minor role in the overall system. VHI does not serve as a substitute for public coverage and is not needed for accessing essential services.

## 9.6.7. SPAIN

### 9.6.7.1. Who is covered? (breadth)

Spain has a **universal healthcare system**, the National Health System (*servicio nacional de salud* – SNS). Coverage is based on **residency** – meaning residents, regardless of employment status – have access to public healthcare services. Non-residents and undocumented migrants could suffer certain **limited access in some autonomous communities (ACs) due to bureaucracy barriers**, though regional policies sometimes expand coverage.
Public insurance is compulsory.

### 9.6.7.2. What is covered? (scope)

Royal Decree-Law 16/2012 regulates the benefits package provided by the SNS with a view to defining what benefits should be co-financed by patients. Two categories of services were defined: the common package with three subcategories – **basic package**, supplementary package and accessory services – **common to the 17 regional health services composing the National Health System (*Sistema Nacional de Salud* – SNS)**, and the complementary package, decided under the rule of the ACs.

The **basic benefits package** includes healthcare prevention, diagnosis, treatment and rehabilitation services, and emergency medical transport. It covers the following:

- **primary and specialist care**, including outpatient and hospital services;
- **emergency care** and **public health services**;
- **pharmaceuticals**, with co-payments based on income and age;
- **mental health services**, though coverage varies regionally.

**Dental care** is **limited**, mostly for children, pregnant women, and emergencies. In general, it includes **preventive check-ups and basic treatments for the aforementioned groups**. However, **more complex procedures, such as orthodontics, implants, and prosthetic treatments, are not covered** under the public system.

**Long-term care** is available but varies by region, both in **availability and accessibility**.

- **Eligibility criteria and benefits**: while national legislation (e.g. the **Law on Promotion of Personal Autonomy and Care for Dependent People, 2006**) establishes a common framework, regions **interpret and apply the criteria differently**, leading to disparities in access to services and waiting times. For **service provision**, some regions prioritise **home-based care**, while others focus more on **residential facilities**.
- **Co-payment levels**: there are **regional differences in user co-payments**, with some communities offering more financial support than others.
- **Waiting times**: the **time required to access services** varies widely depending on regional funding and resource allocation.
- There has been recent regulation introduced for the reinforcement and empowerment of health technologies and pharmaceutical assessment.

People have access to a comprehensive range of publicly financed benefits with the exception of the limited coverage for **dental care** (which, while improving over the last few years, is variable across ACs) and **optical care** (which is outside public coverage) and **some types of rehabilitation services**.

### How are the services delivered?

Spain's healthcare system is **highly decentralised**, with **17 ACs** holding primary responsibility for healthcare organisation and service delivery. Each AC manages its regional **health service *(Servicio de Salud)***, which is integrated into the **SNS**.
Public funds come mostly from general taxes and the ACs manage most of the health resources (92.2% of public health expenditure in 2020). Although private providers play a limited role in direct service provision, particularly in primary and specialist care, **some services are contracted out, especially for diagnostic tests and elective surgeries.** Spain has a predominantly publicly delivered system, with a relatively low degree of outsourcing compared to other European countries.
According to WHO Global Health Expenditure data, in 2021 Spain invested 10.7% of its GDP in health. This level was in line with other countries which have national health service type systems, such as Denmark (10.8%), although far from the levels of the United Kingdom (12.4%) and Sweden (11.3%), and from countries with social health insurance-based models, such as France or Germany, with higher percentages of GDP devoted to health (12.3% and 12.9%, respectively).

Collection and pooling mechanisms, purchasing and provision relationships, provider financing mechanisms, and workforce payments have not experienced significant changes over the last 10 years.

**Healthcare organisation and governance**

- **National coordination**: the **Ministry of Health *(Ministerio de Sanidad)*** sets general regulations, public health strategies, and coordinates ACs through the **Interterritorial Council of the National Health System *(Consejo Interterritorial del Sistema Nacional de Salud* – CISNS)**. However, ACs have significant autonomy in structuring and managing their own healthcare systems.
- **Regional management**: ACs define **service portfolios, resource allocation, and provider contracts,** leading to **regional variations** in service provision, healthcare access, and policies.
- **Local governance**: some large cities and municipalities participate in health planning, particularly for **primary care** and **social services.**

**Healthcare service provision**

- **Primary care** is delivered through **publicly managed health centres *(Centros de Salud)* distributed in administrative healthcare areas,** where multidisciplinary teams provide integrated and longitudinal healthcare, and **gatekeeping functions**. Lately, waiting times both in primary care and its transfers to another provider is worsening citizens' perceptions on public provision.
- **Hospital care** is mainly provided in **public hospitals** (most are state-owned and regionally managed), with a smaller role for **private hospitals**, often contracted for specific services.
- **Long-term care** is a mix of **health and social care services**, managed by ACs, with regional disparities in accessibility, coverage, and co-payments.

Spain's National Health System (SNS) has structural elements that support care integration, such as mandatory registration with a family doctor who coordinates access to specialists and provides long-term follow-up. However, existing financing mechanisms lack incentives for care continuity. To address this, some ACs have introduced complementary strategies, including legally established integrated care organisations (e.g. *Organización Sanitaria Integrada* or *Estructuras Organizativas de Gestión Integrada*), population risk stratification to prioritise care, and evidence-based clinical pathways. Nonetheless, limited evaluation and scarce public data hinder a clear understanding of these initiatives' impact.

### 9.6.7.3. How much of the cost is covered? (depth)

- **Public financing** accounts for approximately **70–75%** of total healthcare expenditure.
- Out-of-pocket payments apply to:
  - **supplementary packages** (pharmaceuticals, specific orthoses, orthopaedic prostheses) and accessory services, with co-payments ranging from **0% to 60%** depending on household income and maximum ceiling of monthly payments;
  - **dental care**, mostly privately financed;
  - some **specialist and diagnostic services**, especially if accessed privately.
- **Private insurance** covers around **20% of the population (excluding mutual funds)**, mainly for faster specialist access and additional services.

In the case of the complementary package of services, funding is decided at ACs level, but the effective adoption of those new benefits is conditional on ACs' capacity to pay for them.

### Out-of-pocket payments (OOP) and financial hardship

Out-of-pocket payments represented 20.6% of total health expenditure in 2021. The average annual expenditure on health by household increased from €972 in 2015 to €1,048 in 2019, decreasing to €1,001 in 2020. Household expenditure increased again, reaching €1,228 in 2022.

Co-payments are limited to outpatient-prescribed medicines and orthoprosthetic devices (such as supportive braces and splints, prostheses, wheelchairs, crutches, glasses, hearing aids) and there are several protection mechanisms for co-payments.

Full exemptions from co-payments are shown in Table 3.3 in Bernal-Delgado, 2024a.
However, the lack of a cap on cost-sharing for active workers acts as a barrier to accessing outpatient prescriptions for those with lower incomes. In the poorest quintile, catastrophic spending is also driven by spending on outpatient medicines.

According to WHO Triple Billion targets, "the number of additional people expected to be covered by essential services and not experiencing financial hardship is projected to be 0.9m (−1.1m – 2.4m) by 2025 compared to 2018". Also, "the number of additional people expected to be protected from health emergencies is projected to be −1.2m (−11m–5.7m) by 2025 compared to 2018" (World Health Organization, 2020).

### Voluntary health insurance (VHI)

One in five Spanish people hold VHI plans in addition to having universal, compulsory public coverage. In 2021 (latest consolidated information), 71.7% of total health expenditure was publicly funded via taxation, with the remaining financing coming from OOP expenditure (20.6%) and VHI schemes (7.7%).

On average, catastrophic spending was driven by dental care and medical products. The latest evidence shows that in 2019, 0.8% of households (about 150,000 households) were impoverished or further impoverished after OOP payments, up from 0.2% in 2006 (Bernal-Delgado et al., 2024a; OECD, 2023e). In the same year, 1.6% of households (about 300,000) experienced catastrophic health spending, up from 1.0% in 2006.

All in all, the incidence of catastrophic spending is much lower than would be expected given Spain's relatively heavy reliance on OOP payments – a finding that can be explained by the many protective features of coverage policy and the redistributive effect of public spending on health, which reduces income inequality.

### 9.6.8. UNITED KINGDOM

#### 9.6.8.1. Who is covered? (breadth)

The UK provides **universal health coverage** through the National Health Service (NHS) in each of its four constituent nations. All residents are entitled to access a comprehensive range of health services **free at the point of use**, based on clinical need rather than ability to pay. This includes primary, emergency, and psychiatric care, irrespective of immigration status, but **secondary care requires "ordinary residency" status** ("living in the UK on a properly settled basis").

Despite the broad coverage, **gaps exist** in dental, optical, and social care, especially due to **means testing in social care.** Migrants with irregular status can face barriers to some non-emergency secondary services (i.e. maternity healthcare services) (Anderson et al., 2022b).

#### 9.6.8.2. What is covered? (scope)

The NHS offers a broad benefit package including preventive, curative, rehabilitative, and palliative services, with some **differences across nations** due to devolution. There is **no explicit positive list of entitlements**, but legislation defines general categories of care to be covered. **Key exclusions from free access include:**

- **prescription drugs in England** (free in Scotland, Wales, NI);*
- **dental care and optical services;**
- **social care**, which is **means tested and partially privatised**.

* Patients typically have to pay a fixed charge per prescription item (currently around £9.90 per item in 2024). However, there are many exemptions.

The UK performs **comparatively well on essential services coverage**, but gaps persist for services like mental health, rehabilitation, and long-term care (Anderson et al., 2022a; Anderson, Pitchforth, Edwards, Alderwick, McGuire, Mossialos, & Hernández-Quevedo, 2022)

#### How are the services delivered?

The United Kingdom's health system is free access to a broad range of services and decentralised across the four constituent countries – England, Scotland, Wales, and Northern Ireland – each responsible for organising and delivering healthcare. National governments define strategic priorities, while local bodies such as Integrated Care Systems (England), Health Boards (Scotland and Wales), and the Health and Social Care Board (Northern Ireland) oversee the commissioning and planning of services (Anderson et al., 2022).

Public health responsibilities are shared between national agencies and local authorities. Each country develops its own initiatives: for example, Office for Health Improvement and Disparities (built up from the defunct Public Health England) leads major campaigns targeting smoking cessation, obesity reduction, and mental health promotion. However, the absence of a unified national public health strategy and the fragmentation between services pose coordination challenges (Anderson Pitchforth, Edwards, Alderwick, McGuire, Mossialos, & Hernández-Quevedo, 2022).

*Primary care* is strongly developed and delivered mainly by self-employed general practitioners (GPs) operating under contracts with the NHS. GPs act as the first point of contact and are the **formal gatekeepers** to specialist and hospital care. Their remuneration is a combination of **capitation, fee-for-service** for specific activities, and **pay-for-performance** incentives (notably under the Quality and Outcomes Framework). Despite good access and high patient satisfaction, shortages of GPs – especially in deprived and rural areas – have led to policies aiming to expand GP training places and develop multidisciplinary teams in primary care (Anderson et al., 2022).

*Hospital care* is predominantly provided by NHS-owned public hospitals, with more than 95% of beds publicly managed. Hospitals are organised as Trusts (England and Northern Ireland) or Health Boards (Scotland and Wales). Over recent decades, reforms have promoted increased ambulatory care and same-day surgery, although unlike Denmark, consolidation efforts have been more gradual. Activity-based payments (Payment by Results in England) complement global budgets, and waiting time standards exist, although their performance has deteriorated in recent years (Anderson et al., 2022) (OECD, 2023f).

Efforts towards integrated care have accelerated, particularly with the introduction of Integrated Care Systems across England in 2022, designed to improve coordination between hospitals, primary care, and social services. Also in England, a high-profile cross-governmental national strategy from 1997 to 2010 achieved temporal reductions in geographical inequalities in life expectancy (Anderson et al., 2022). Scotland and Wales have implemented similar

structures through Health and Social Care Partnerships and Regional Partnership Boards. Nevertheless, fragmentation remains an issue, particularly across health and social care boundaries, and challenges persist regarding data interoperability and patient transitions between care settings (Anderson et al., 2022).

#### 9.6.8.3. How much of the cost is covered? (depth)

The United Kingdom's health system offers **very high financial protection** by international standards. Healthcare funded through the NHS is **mostly free at the point of use**, covering a comprehensive set of services without cost-sharing for consultations, hospitalisations, surgeries, maternity care, mental healthcare, and preventive services (Anderson et al., 2022; OECD, 2023f).

However, **specific areas involve out-of-pocket payments (OOP)**, such as prescription drugs (in England), dental care, optical services, and social care. These payments, although relatively moderate compared to other OECD countries, can affect access for some population groups. The financial burden is particularly significant for social care users, as social care services are **subject to means testing** and not fully integrated into the NHS universal model (Anderson et al., 2022b).

Overall, **83%** of health spending comes from **public sources** (general taxation and national insurance), and **OOP account for about 12%** of total health expenditure (Anderson, Pitchforth, Edwards, Alderwick, McGuire, Mossialos, & Hernández-Quevedo, (2022); OECD, 2023f).

##### Out-of-pocket payments (OOP) and financial hardship

Out-of-pocket payments in the UK are **limited in scope** but concentrated in a few sectors:

- **Prescription charges**: only patients in **England** pay a standard fee per prescription item (currently £9.90 in 2024). Exemptions are available for many groups, including children, older adults, pregnant women, and those with low incomes or certain chronic conditions. In **Scotland, Wales, and Northern Ireland, prescriptions are fully free** since reforms between 2007 and 2011 (Anderson et al., 2022).
- **Dental care**: NHS dental services usually require patient contributions unless the individual qualifies for full exemption (e.g. children, pregnant women, low-income groups). These co-payments vary according to the complexity of the treatment (for example, standard check-ups vs. crowns or dentures) (Anderson et al., 2022b). Despite targeted exemptions, there is evidence of substantial difference in access to dental services by socio-economic groups (Anderson et al., 2022).
- **Optical care**: basic vision tests are free for certain groups (children, older adults, people on low incomes), but others pay out of pocket for eye examinations and corrective lenses (Anderson et al., 2022b).
- **Social care**: services such as home care, residential care, and nursing homes are means tested. Users with assets above a certain threshold must fund their care costs, exposing them to high financial risks. Although a lifetime cap on social care costs (£86,000) has been legislated for England, its implementation has been postponed (Anderson et al., 2022).
- **Other areas**: over-the-counter medicines and some private consultations or treatments outside the NHS package are paid fully out of pocket.

Despite these pockets of cost-sharing, **the incidence of catastrophic health expenditure is among the lowest in the OECD.** The United Kingdom's health system ensures that **illness rarely pushes households into poverty** (Anderson et al., 2022).

According to WHO Triple Billion targets, "the number of additional people expected to be covered by essential services and not experiencing financial hardship is projected to be 3.5m (2.1m–4.7m) by 2025 compared to 2018". Also, "the number of additional people expected to be protected from health emergencies is projected to be 2.3m (−2.5m–6.2m) by 2025 compared to 2018" (World Health Organization, 2020).

##### Voluntary health insurance (VHI)

**Voluntary health insurance (VHI)** plays a **minor complementary role** in the United Kingdom. About **10–11% of the population** hold private health insurance policies (Anderson et al., 2022).

VHI is primarily used to **access private providers** for faster elective treatments, private rooms in hospitals, or services not fully covered by the NHS (e.g. cosmetic procedures). Private insurance represents only **2.8% of total health expenditure (it has decreased since 2000)**, much lower than in countries such as France (Or et al., 2024) or Switzerland.

There is **no substitutive private coverage** for essential health services. VHI does **not replace NHS entitlements**, but provides parallel access for those willing to pay. While VHI offers choice and faster access, it raises concerns about inequalities in service utilisation, although the core NHS model ensures that medically necessary care remains universally accessible (Anderson et al., 2022) (OECD, 2023f). VHI **has little impact on financial protection at system level**, but it creates an additional "fast-track"" for those who can afford private premiums.

# 10. SPORTS

# 10.1. INTRODUCTION

**This chapter is an updated version of a previous chapter on sport featured in the 2024 benchmarking study (EIPA, 2024, ch. 4). While it builds on the foundation of its predecessor, it broadens the scope by delving into three interconnected themes (outlined below), providing a comprehensive analysis of trends, best practices, and the health implications associated with sport and physical activity in Europe and beyond.**

The report from the World Health Organisation (2020) (WHO) highlights physical activity as a cornerstone of good health, recognising sport and exercise as essential components within a broader spectrum of activities that offer significant health benefits. Physical activity encompasses a diverse range of behaviours, from everyday movements and recreational activities to more organised and structured pursuits such as sport. Each form of physical activity, including sport and exercise, plays a crucial role in improving physical fitness, building muscular strength, and supporting mental well-being, while also reducing the risk of lifestyle-related diseases. In addition to individual health benefits, the report emphasises the substantial social advantages of physical activity, such as fostering a sense of achievement, belonging, and overall well-being. At a societal level, physical activity emerges as a powerful instrument for addressing inactivity and enhancing public health outcomes.

This chapter aims to situate sport and exercise within the broader framework of physical activity, recognising their shared health benefits while underscoring the importance of other forms of movement and the diverse factors that influence participation. While sport and exercise play a significant role, they constitute only a subset of the myriad ways individuals can engage in physical activity. Moreover, it is essential to acknowledge that numerous confounding factors beyond physical activity contribute to population health including nutrition, climate, air quality, education levels, socio-economic status, and more (Dahlgren and Whitehead, 2021).

The first section examines *trends in physical activity level*, focusing on global and European statistics. Drawing on data from the WHO, it highlights patterns of physical inactivity worldwide and compares these with Europe. Supplementary Eurostat data sheds light on non-work-related physical activity, providing a clearer picture of participation trends.

In a smaller second section, Sport, physical activity, and health, we examine the relationship between participation rates in sport and exercise, and their impact on health outcomes. Drawing on data from EIPA's (2024) benchmarking study on health and sport, this section provides a preliminary exploration of the correlations between participation rates in physical activity and life expectancy. The analysis highlights the significant impact of confounding variables on health outcomes, as previously discussed, thus underscores the need for caution in drawing definitive conclusions or establishing causal relationships between these factors.

The third and largest section, *Best practices? Understanding high participation and activity levels*, investigates the factors that contribute to the success, where we first take a look at the factors that characterise the ten European countries with the highest sport and exercise participation rates. Further, it includes a regression analysis using these factors as independent variables across all EU countries, with participation rates serving as the dependent variable. The section also incorporates a supplementary regression analysis, using the metric of engaging in 150 minutes or more of health-enhancing aerobic physical activity per week – aligned with WHO recommendations – as the dependent variable. The section is enriched with qualitative case studies of three leading countries – Finland, the Netherlands, and Ireland – offering insights into their successful approaches to fostering high participation.

Finally, the chapter concludes by synthesising the findings to provide meaningful insights and implications. It aims to offer a broader understanding of the dynamics of sport and physical activity across Europe, emphasising possible effective policies and practices.

# 10.2. DEFINITIONS

Before diving deeper into the results, it is crucial to clarify the terminology used throughout the analysis. In the first section, we adopt a broad approach to physical activity. Specifically, the first two tables present crude estimates of insufficient physical activity among adults, based on data from the WHO/The Global Health Observatory (GHO). Conversely, the third table shifts focus to the opposite measure – physical activity itself. This includes activities such as walking and cycling to work or school, as well as more structured and intentional forms of training and exercise.

In the second section, the approach remains relatively broad, encompassing measures of both sport and exercise, alongside moderate physical activity. However, in the third section, we adopt a more specific focus by adhering to the definition of sport and exercise established by the European Council in 1992, which was also referenced in the chapter on sport in EIPA (2024). This definition includes both recreational and competitive sport, but excludes physical activities related to occupational or educational contexts such as walking or cycling to work or school. In this section the analyses are grounded in two primary data measures: first, the frequency of participation in sport and exercise at least once per week, as reported by the Eurobarometer; and second, the more detailed measure of engaging in health-enhancing aerobic activity for over 150 minutes per week, based on data from Eurostat. These measures provide a comprehensive framework for examining patterns of physical activity across different contexts and definitions.

# 10.3. TRENDS IN PHYSICAL ACTIVITY LEVEL IN EUROPE AND GLOBALLY

**Over the past 15 years, several significant global trends have emerged regarding physical activity and inactivity. These trends suggest a rise in activity levels within fitness-related contexts, particularly in OECD countries. However, data from recent years hint at a potential decline, possibly attributable to the effects of the COVID-19 pandemic (EIPA, 2024). Conversely, there appears to be a notable decrease in activity levels across other domains, such as work, education, and daily life, which may outweigh the potential increases observed in exercise and sport participation.**

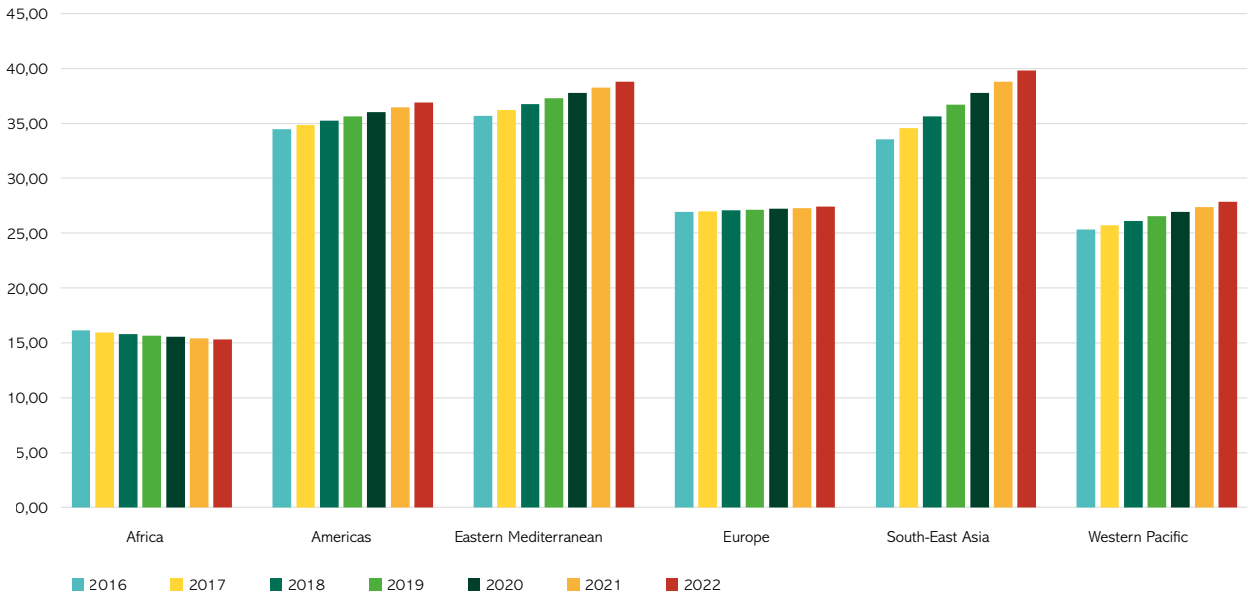
Several underlying factors may contribute to the observed trends. On the positive side, there has been a rise in the fitness movement, marked by the growing popularity of gyms, group exercise classes, and personal training sessions, as individuals increasingly prioritise physical activity as an integral component of their lifestyle. Furthermore, the proliferation of fitness applications and wearable technologies such as Strava, Fitbit, and the Apple Watch, has facilitated the tracking of physical activity and goal-setting, potentially encouraging higher levels of physical engagement. Additionally, particularly in Western societies, there appears to be a burgeoning interest in outdoor recreational activities such as running, cycling, and hiking.

Conversely, several broader societal developments have contributed to a rise in physical inactivity. The widespread adoption of technology, including smartphones, computers, and televisions, has fostered more sedentary lifestyles, particularly among younger populations. Moreover, in many regions the processes of urbanisation have led to a reduction in opportunities for physical activity. Lastly, changes in work patterns have played a significant role, as an increasing number of jobs now involve prolonged periods of sitting in front of computers, with minimal opportunities for physical movement during the workday.

Consequently, while there appears to be a positive trend marked by growing awareness and interest in physical activity, significant challenges related to physical inactivity continue to persist across many regions of the world. The interplay of technological, social, and economic factors plays a pivotal role in shaping these trends. A striking example of these contrasting effects can be seen in Eurostat statistics, which juxtapose the prevalence of walking and cycling for commuting purposes with overall trends in exercise and physical activity. This dynamic is visually captured in Figure 2 below. However, first will be a preliminary exploration of global and European inactivity patterns, which is essential to lay the groundwork for a more in-depth and nuanced analysis.

A seminal study conducted by Strain et al. (2024) revealed that approximately one-third of the global adult population (aged 18 and above) exhibited insufficient physical activity levels in 2022. Alarmingly, this figure has increased by 8 percentage points since 2000. The following section presents a comparative analysis of the developmental trajectories observed across various geographical regions of the world.

*Figure 1: Prevalence of insufficient physical activity among adults aged 18+ years (crude estimate*) (%) from 2016–2022 distributed by world region*




*Source: WHO/The Global Health Observatory (GHO)/NCD-PAC, see https://www.who.int/data/gho/data/themes/topics/indicator-groups/insufficient-physical-activity-indicator-group*

* *Crude estimate refers to a basic, unadjusted calculation or assessment of a statistical value. This type of estimate does not take into account factors that may affect the accuracy of the result such as age, gender, socio-economic variables, or other demographic or contextual factors. For example, the ageing population in Western countries may be one explanation of relatively high share of inactivity in some of these countries despite these countries scoring high when it comes to sport and exercise (EIPA, 2024).*

As illustrated in Figure 1, Europe performs relatively well in comparison to other world regions, with the exception of Africa. While all other regions – again, excluding Africa – have experienced an increase in physical inactivity from 2016 to 2022, Europe has maintained a stable trend. However, a closer examination of Europe reveals notable regional disparities. According to the study by Strain et al. (2024), inactivity rates have decreased in high-income Western European countries but have risen in Central and Eastern European regions. Despite these contrasting trends, neither region within Europe is on track to achieve the global target of a 15% reduction in physical inactivity by 2030. Consequently, the study's authors underscore the critical role of effective policies in promoting healthier and more active lifestyles.

Nevertheless, 12 high-income Western countries appear to be on track to achieve this objective[1]. As depicted in Table 1, countries demonstrating a decline in physical inactivity are represented in green, with dark green denoting those that achieved a reduction of 3 percentage points or more between 2016 and 2022. While many Northern and Western European countries have attained favourable outcomes, it is noteworthy that several Central and Eastern European nations have also shown commendable progress in addressing the prevalence of insufficient physical activity. Nevertheless, consistent with the findings of Strain et al. (2024), countries in Central and Eastern Europe, and to some extent Southern Europe, remain at the lower end of the spectrum. Many of these countries are highlighted in deep red, signifying a worrisome negative trend. While it is essential to acknowledge that these figures are based on crude estimates, the overarching patterns and trends they reveal are sufficiently significant to merit attention and concern.

[1] It should be noted that the regions examined in the study by Strain et al. (2024) and those presented here do not fully overlap.

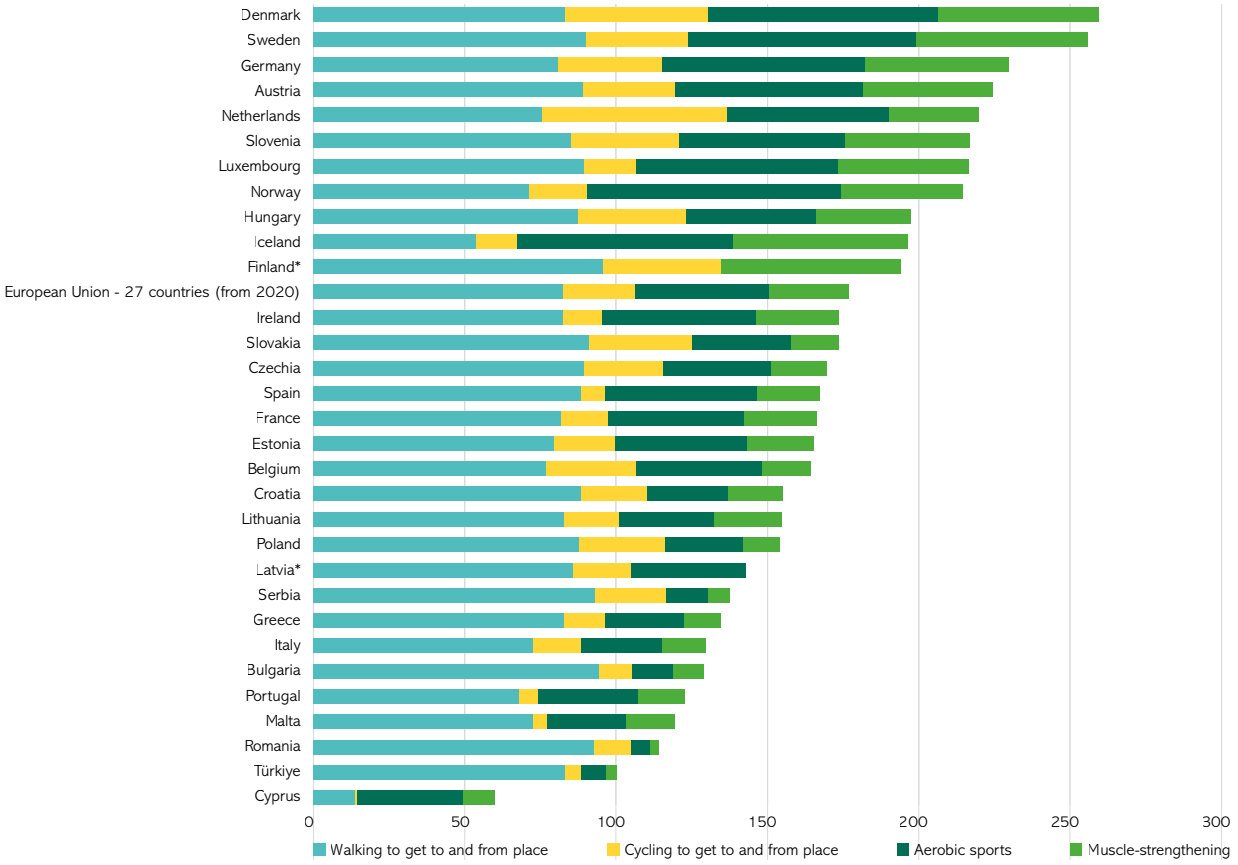
*Table 1: Insufficient physical activity among adults aged 18+ years (crude estimate) (%) in European countries*, distributed by the last prevalence in 2022*

| Country | 2022 | 2016-2022 |
|---|---|---|
| Sweden | 11 | -4,41 |
| The Netherlands | 11 | -2,26 |
| Republic of Moldova | 12 | -1,02 |
| Finland | 12 | -3,52 |
| Denmark | 14 | -3,12 |
| Germany | 15 | -1,88 |
| Ukraine | 15 | 1,80 |
| Luxembourg | 15 | -3,17 |
| Belarus | 16 | -0,69 |
| Latvia | 18 | -1,06 |
| Estonia | 20 | 1,61 |
| Russian Federation | 20 | 3,18 |
| United Kingdom of Great Britain and Northern Ireland | 22 | -4,50 |
| Switzerland | 22 | -1,73 |
| Slovenia | 23 | 1,02 |
| Austria | 23 | -2,89 |
| Bosnia and Herzegovina | 24 | 2,88 |
| Ireland | 24 | -4,15 |
| Lithuania | 24 | -0,43 |
| Montenegro | 25 | 1,86 |
| Spain | 25 | -5,07 |
| Slovakia | 26 | -0,08 |
| Albania | 27 | 2,54 |
| France | 27 | -3,97 |
| Czechia | 27 | 0,89 |
| Iceland | 28 | -1,32 |
| North Macedonia | 28 | 2,14 |
| Belgium | 29 | -5,29 |
| San Marino | 29 | -1,54 |
| Andorra | 29 | -1,77 |
| Croatia | 33 | 6,24 |
| Hungary | 33 | 3,92 |
| Bulgaria | 37 | 4,42 |
| Norway | 38 | 1,24 |
| Greece | 40 | 2,15 |
| Poland | 40 | 5,15 |
| Romania | 40 | 6,41 |
| Cyprus | 43 | 0,25 |
| Malta | 44 | -3,78 |
| Italy | 45 | -0,53 |
| Serbia | 49 | -0,55 |
| Portugal | 56 | 2,90 |

*Changes: 2016-2022 (in percentage points) indicated as follows:*
*dark green = positive+, light green = positive; light red = negative; dark red = negative–*
*Source: WHO/The Global Health Observatory (GHO)/NCD-PAC*
** Not including the former Soviet republics east of the Black Sea*

Norway represents an intriguing case, as it demonstrates exceptional performance in terms of participation in sport and exercise (EIPA, 2024). However, it remains positioned in the lower half of the rankings, with a relatively high prevalence of insufficient physical activity. A potential explanation for this discrepancy is illustrated in Figure 2, which reveals that Norway ranks comparatively low in engagement with other forms of non-work-related physical activity.

*Figure 2: Performing (non-work-related) physical activities, 2019 (15+)*




*Source: Eurostat, European Health Interview Survey*
*https://ec.europa.eu/eurostat/databrowser/view/HLTH_EHIS_PE3E/default/table?lang=en*

Norway (and Iceland) stands out for having a low proportion of people who walk or cycle regularly, yet a high proportion engaged in various forms of structured exercise. It might be tempting to attribute this disparity to the climate; however, comparable countries such as Finland and Sweden consistently perform well in terms of walking and cycling for work, studies, and other daily purposes. Notably, both Finland and Sweden also rank highly in overall exercise activity (although specific data on aerobic sports is unavailable for Finland). A plausible explanation is that Norway, in contrast to its Nordic neighbours, has evolved into a nation increasingly reliant on four-wheeled transport, drawing more influence from American car-centric traditions than from the urban planning commonly seen in continental European cities (Eriksen, 2020). Thus, culture – both its more recent adaptations and its historically rooted foundations – should, as argued later, be factored into the equation.

In contrast, many Eastern European countries, such as Slovenia, Hungary, Slovakia, the Czech Republic, Poland, and Serbia, excel in what can be described as everyday physical activity – walking or cycling out of necessity. However, some of these countries, such as Serbia, score low in terms of exercise-based activity. Meanwhile, certain Southern and Southeastern European countries, including Italy, Portugal, Bulgaria, and Romania, rank low across most measures except walking for work, studies, and similar purposes.

When examining physical activity in a broader context, participation rates are significantly influenced by overarching societal trends, structural conditions within each country, urbanisation levels, wealth, and more. In the following section, we will concentrate on sport and exercise within EU countries, a domain where active policy interventions are expected to yield noticeable impacts.

# 10.4. SPORT, PHYSICAL ACTIVITY, AND HEALTH

**As mentioned, the WHO report (World Health Organization, 2020) underscores sport and exercise as integral components among a broader spectrum of activities with significant health benefits. Still, as also mentioned there, numerous other factors such as everyday physical activity, nutrition, climate, air quality, education levels, socio-economic status, and more contribute to population health.**

To conduct a more robust and comprehensive analysis, more substantial and nuanced data would be required, such as that derived from quasi-experimental studies, interventional trials, or longitudinal research – methodologies that extend beyond the scope of this chapter. Furthermore, as demonstrated by the two correlation matrices presented in the Appendix (Figure 3 & 4), combining cross-sectional datasets at the country level, rather than at the individual level, reveals an inconsistent pattern[2]. For example, while higher national participation rates in sport and exercise are positively associated with increased life expectancy (Figure 3), moderate levels of physical activity demonstrate a negative correlation (Figure 4). Despite its limitations, these findings offer meaningful insights that, in certain respects, resonate with the perspectives discussed previously. The observed inconsistencies underscore the necessity of investigating factors that extend beyond the domains of sport, exercise, or physical activity as a whole.

Take, for instance, the countries of Southern Europe – Spain, Italy, Portugal, and Greece – which exhibit high life expectancy despite relatively low levels of sport participation and physical activity. This phenomenon is likely attributable to factors such as nutrition, with the Mediterranean diet widely regarded as one of the healthiest dietary patterns, as well as favourable climate conditions, strong family networks, and cultural traditions. Conversely, Central and Eastern European countries fall significantly below the correlation line, suggesting that while high levels of inactivity may play a role, other factors – likely related to poor nutrition, higher rates of alcohol and tobacco consumption, weaker civic engagement, and other societal challenges – contribute more substantially to their lower life expectancy. These findings underscore the multifaceted and complex interplay of determinants that shape health outcomes at the population level.

Nevertheless, the evidence-based studies highlighted in the WHO report underscore the positive impact of sport and physical activity on individual health outcomes. Building on this foundation, the next section will aim to identify and explore key factors that can help foster greater participation in sport and exercise at a national level.

[2] Correlation analysis of participation rates and composition is from the chapter on sport in EIPA's (2024) benchmarking study, with life expectancy (OECD) from the health chapter.

# 10.5. BEST PRACTICES? UNDERSTANDING HIGH PARTICIPATION AND ACTIVITY LEVELS

We have integrated a diverse array of factors that may influence participation rates. Naturally, there are additional elements that exert influence: individual factors such as age and gender play a significant role in determining activity levels (Strain et al., 2024). However, these factors have been excluded from our analysis because they are challenging to influence and thus offer limited guidance for actionable political implications. More importantly, they are largely uniform across countries, reducing their variability as a meaningful point of comparison. Nonetheless, some variations exist: in most European countries, women tend to participate less, with notable exceptions in Denmark and Iceland. Furthermore, there is a general decline in participation rates with increasing age across all countries, yet Denmark, Iceland, Sweden, Austria, and Norway exhibit a less steep decline (Eurostat, 2022).

Additionally, the level of urbanisation is a pertinent factor (Van Tuyckom and Scheerder, 2010). To capture its influence, we have chosen to include access to recreational and green areas as an intermediate output factor, serving as a proxy for the degree of urbanisation. Further, the inclusion of regions in Europe may reflect various climate condition that can influence the participation level. The core of the model is composed of well-established contextual variables, including wealth, educational attainment, and governance quality[3]. These factors are assumed to significantly influence physical activity levels and can be effectively evaluated at the national level. Furthermore, sport-related factors, both input and output, have been included as presented in the EIPA (2024) benchmarking report.

**These factors can be categorised into three distinct groups:**

1. Background or contextual variables: these are structural elements related to the country that are not specific to sport, such as economic conditions, educational level, or geographical location.

2. Intermediate input factors: these represent the resources allocated to sport, including funding and infrastructure investments.

3. Intermediate output factors: these are variables within the sports sector that result from the input factors, such as the availability of recreational facilities and membership levels in sports clubs.

[3] The index is based on a large citizen survey where respondents are asked about perceptions and experiences with public sector corruption, along with the extent to which citizens believe various public sector services are impartially allocated and of good quality (see https://www.gu.se/en/quality-government/qog-data).

### 10.5.1.Characteristics of the ten best-performing countries in Europe

Table 2 illustrates how the ten highest-ranked EU countries in terms of sport and exercise participation in 2022 performed relative to the average for all EU countries across both contextual variables and sport-related input and output variables.

*Table 2: The top ten performing countries in sport and exercise in EU and scores on various relevant indicators compared with the mean for all 27 EU countries*

| Country | Percentage of GDP on sport and recreation | Public expenditure per inhabitant (in euro) on sport and recreation | Sports sector percentage of total employment in 2022 | Access to recreational or green areas difficult | Member of a sports club, fitness club, or social organisation for sport | Real GDP per capita euro | Population by education – tertiary education | QoG Index |
|---|---|---|---|---|---|---|---|---|
| Finland | 0.53 | 241.6 | 1.24 | 4.0 | 34.3 | 37,330 | 35.9 | 80.49 |
| Luxembourg | 0.47 | 533.0 | 0.75 | 6.1 | 35.9 | 85,850 | 46.0 | 75.52 |
| The Netherlands | 0.54 | 262.8 | 0.95 | 12.1 | 28.5 | 44,870 | 38.8 | 75.63 |
| Sweden | 0.59 | 304.7 | 1.39 | 3.2 | 50.9 | 45,030 | 41.1 | 79.95 |
| Denmark | 0.37 | 212.1 | 1.18 | 2.9 | 48.9 | 51,600 | 35.0 | 79.87 |
| Ireland | 0.09 | 71.2 | 2.74 | 8.1 | 44.4 | 77,300 | 46.1 | 67.65 |
| Slovenia | 0.27 | 66.8 | 0.87 | 7.5 | 27.4 | 21,790 | 35.1 | 42.97 |
| Czechia | 0.42 | 95.7 | 0.59 | 19.6 | 24.0 | 18,690 | 23.5 | 42.90 |
| Germany | 0.27 | 118.1 | 0.56 | 8.6 | 32.0 | 36,690 | 27.9 | 71.44 |
| Belgium | 0.38 | 166.5 | 0.60 | 12.8 | 39.5 | 37,170 | 40.2 | 62.78 |
| Estonia | 0.65 | 152.6 | 1.03 | 10.9 | 31.7 | 16,130 | 36.7 | 54.39 |
| Mean | 0.22 | 98.8 | 0.55 | 4.8 | 17.7 | 21,104 | 19.0 | 33.37 |

Regarding sport input factors nearly all countries, except Ireland, exceed the average in terms of expenditure on sport and recreation as a percentage of GDP. However, when examining expenditure in euros per capita, both Slovenia and Czechia fall below the average. Although all ten countries boast a larger sports sector relative to their total workforce and a higher percentage of individuals affiliated with sport-related clubs or organisations compared to the EU average, only the Nordic countries outperform the mean in terms of access to recreational or green spaces. This suggests that contextual factors, along with sport and exercise-related elements, influence a country's performance in sport and exercise participation. Nonetheless, as highlighted in the previous sports chapter (EIPA, 2024), the correlation between public expenditure on sport and exercise and actual participation rates is relatively weak. To gain a deeper understanding of which factors have the greatest impact, we have conducted a linear regression analysis of the included variables, controlling for each of the other variables.

### 10.5.2.Regression analysis of various factors influencing participation in sport and exercise

*Table 3: Linear regression analyses. Dependent variable: exercise or playing sport once a week in 2022 (15+)*

| Variables | Model 1 beta coefficient | Model 2 beta coefficient | Model 3 beta coefficient |
|---|---|---|---|
| Real GDP per capita (euro), 2022 | 0.39* | 0.30 | −0.16 |
| Percentage holding a tertiary education (levels 5–8), 2022 | 0.09 | 0.10 | −0.12 |
| European Quality Index (1–100), 2017 | 0.55** | 0.53** | 0.47* |
| Dummy: 0=Northern Europe; 1=Western Europe | −0.36** | −0.35* | −0.11 |
| Dummy: 0=Northern Europe; 1=Central and Eastern Europe | −0.11 | −0.11 | 0.10 |
| Dummy: 0=Northern Europe; 1=Southern Europe | −0.27 | −0.25 | −0.04 |
| Percentage of GDP | | −0.05 | −0.24 |
| Public expenditure per inhabitant (in euro) 2021 | | 0.13 | 0.56 |
| Percentage of total employment in 2022 | | | 0.32 |
| Access to recreational or green areas (2016); rather or very difficult | | | −0.23 |
| Member of a sports club, fitness/health club or social organisation for sport (2022) | | | 0.00 |
| (Constant) | 14.7 | 16.2 | 33.0 |
| Adjusted $R^2$ (model sig.) N=27 | 0.749(<0.001) | 0.726(<0.001) | 0.720(<0.001) |

** sig=0.1; ** sig=0.05*[4]

[4] Given that this analysis specifically targets EU countries, the significance level should be interpreted primarily as an indicator of the strength of the various correlations within the EU context. It does not necessarily imply that these observed correlations can be generalised universally to all countries worldwide.

The regression analyses show a strong association between quality of governance and participation rates across various countries, even when accounting for other contextual and sport-related variables within the models. Despite the inclusion of the standardised coefficients (beta) in the table, it is advisable to exercise caution when directly interpreting them. A notable finding is that the models explain a significant portion of the variation in participation rates among the countries examined (R-squared). Furthermore, the incorporation of additional sport-related input and output factors does not enhance the explanatory power of the models, suggesting that contextual factors are predominantly influential in determining participation rates. In summary, improving governance quality and raising GDP per capita are strongly associated with higher participation rates. Conversely, sport-related input and output factors appear to be of less significance. This observation is consistent with the findings reported by Nessel and Kościółek (2022).

However, when sport-related factors are integrated into the model, the influence of a country's wealth and education levels diminishes. This highlights the intricate interplay among several independent variables, where overlapping effects are distributed across multiple variables. As a result, the significance of each individual variable is attenuated. Moreover, this suggests that sport-sector-related variables primarily act as intermediary factors, shaped by broader contextual elements that determine the structure of the sports sector which, in turn, influences participation levels.

Sport-sector-related variables, however, also demonstrate an independent relationship with participation rates. Notably, factors such as public spending on sport (measured in euros per capita), the proportion of the workforce employed in the sports sector, and access to recreational spaces show measurable, albeit relatively weak, correlations with participation levels, when controlling for contextual variables. Given that this study primarily focuses on EU countries (N=27), the findings suggest that investment in the sports sector – perhaps unsurprisingly – do have some influence on participation rates. However, the prioritisation of the sports sector, measured as a percentage of GDP, exhibits no meaningful correlation with participation rates and, in fact, reveals a negative relationship.

Participation in sport and exercise at least once a week serves as a broad indicator of physical activity levels. According to WHO, individuals are recommended to engage in at least 150 minutes of moderate to intense exercise per week. Eurostat provides a more detailed classification of health-enhancing aerobic physical activity, categorising it into four modalities: no activity, 1–150 minutes, 150–300 minutes, and over 300 minutes per week. To refine our analysis, we utilised the same regression models as previously discussed, but with a narrower focus: the dependent variable was defined as *engaging in 150 minutes or more of health-enhancing aerobic activity per week*.

The results of this regression analysis, presented in Table 3, reveal patterns broadly consistent with the earlier analysis. The explanatory power of the models, as indicated by the adjusted R-squared values, is relatively strong. However, the correlations between the independent variables and the dependent variable are weak, again suggesting a notable degree of multicollinearity within the dataset. As in the earlier analysis, the most consistent and statistically significant association is observed between *quality of governance* and the likelihood of engaging in health-enhancing aerobic activity across all three models. Furthermore, the direction of the correlations for the independent variables remains largely consistent with the previous findings. One notable exception is the relationship between government spending on sport and recreation. When expressed as a percentage of GDP, spending shows a positive correlation with health-enhancing activities, whereas when measured in euros per inhabitant, it shows a negative correlation. This finding suggests that the prioritisation of sport and exercise within the broader economic framework may exert a greater influence than the absolute per capita funding allocated, particularly in fostering increased physical activity among the more active segments of the population. Conversely, an opposing trend was observed in these correlations when weekly participation in sport and exercise was designated as the dependent variable (Table 3).

Additionally, access to recreational areas is positively associated with higher levels of health-enhancing aerobic activity, further underscoring the importance of environmental factors in promoting physical activity. However, it is crucial to note that the observed correlations remain weak, and the nature of the dataset necessitates caution when interpreting these findings or drawing definitive conclusions.

Further, across Europe, there is a significant class disparity in meeting the recommended 150 minutes of health-enhancing aerobic physical activity per week in 2019 (Eurostat 2022: Figures 3 and 4). The educational level shows the starkest differences between tertiary and lower secondary education, particularly in Ireland, Greece, Austria, and Iceland, while the disparity is less pronounced in the other Nordic countries. In terms of income, the largest gaps between the highest and lowest income levels are observed in Ireland, Austria, Estonia, and Iceland. Ireland especially stands out as a country with substantial class differences in health-enhancing physical activity.

To sum up, the most striking finding is the seemingly pivotal role of governance quality. Countries characterised by high levels of trust in public institutions and effective governance consistently exhibit higher participation rates, regardless of their spending on sport. This underscores that it is not merely the amount of financial investment that matters, but the quality of policy design and implementation. Good governance fosters trust, ensures equitable access, and cultivates environments conducive to physical activity.

This finding underscores the necessity of broadening the analytical lens to encompass contextual factors beyond the scope of the current model, such as cultural dynamics and deeply rooted institutional characteristics. These factors are likely to play a decisive role in shaping patterns of participation. In the next section we will dig deeper into three successful countries to identify possible patterns.

### 10.5.3.Three qualitative case studies of some of the best-performing countries

#### 10.5.3.1. The Finnish case – high success, however dark clouds on the horizon

Finland excels in both mass participation and elite sport. As highlighted in the previous chapter on sport (EIPA, 2024, ch. 4), Finland ranks among the best performing European countries in terms of exercise and sport, and falls within the upper half for membership in sports-related clubs. Van Tuyckom (2013) identified Finland, alongside Sweden, as part of a cluster of highly active sporting nations. Similarly, Nessel and Kościółek (2022) ranked Finland among the seven top-performing countries in Europe when considering both mass participation and elite sport's success. However, they also noted a declining productivity curve over recent decades. This downward trend is further discussed in Mikkonen et al.'s (2022) study on Finnish sport policy, which has sparked debates on how to address these challenges.

But first, what accounts for Finland's success, particularly in the context of its achievements in promoting sport for all? In this part, we will spotlight three key elements, drawn from several sources (Collins, 2011; Giulianotti et al., 2019; Mikkonen et al., 2022; Wośniak, 2024), which I believe are essential in understanding Finland's success.

The first element lies in the foundation of a thriving civil society and cultural tradition that dates back to the 18th and 19th centuries, during the period when Finland was under Swedish rule. Sport, in all its forms, became an integral part of grassroots engagement. Often, sport was not limited to specific clubs but was embedded within broader organisations with wider social objectives. This development mirrors trends seen in other Nordic countries.

The second key element is the integration of sport into broader social policy, particularly from the early 19th century through to the 1960s. During this time, sport was seen as a tool for promoting social well-being. From the 1960s onwards, two distinct trends emerged. On the one hand, sports clubs became increasingly competitive and professionalised, a process that had begun earlier, such as in Norway and Sweden, but accelerated significantly during this time. On the other hand, there was a growing emphasis, particularly from government initiatives, on promoting 'sport for all'. This dual-track system, which combines organised club sports with widespread participation, has persisted to the present day. While similar developments can be observed in neighbouring Nordic countries, there are notable differences. Using Norway as an example, from the 1960s onwards there was a pronounced focus on sport as an activity pursued for its intrinsic value – as a competitive and recreational pastime (Bergsgard et al., 2007). This emphasis was perhaps even more pronounced than in Finland. Consequently, although sport for all has remained a key priority across the Nordic region, the integration of sport within broader social policy frameworks has gradually weakened over time. However, in the past decade there appears to be a shift in this trend, with an increasing focus on using sport as a tool to include marginalised groups and combat issues such as obesity, signalling a renewed effort to align sport with societal objectives.

These historical and structural factors provide valuable insights into Finland's success, particularly in promoting widespread participation in sport. The third key element pertains to the Finnish sport policy model itself. Although Finland is a relatively centralised country, including in its approach to sport policy, legislation assigns municipalities the primary responsibility for facilitating sport for all. The government's increased focus on facility development after World War II, with municipalities serving as the main implementers, has been a critical foundation for Finland's high participation rates. This emphasis on the role of local authorities – resembling the Danish model – is, in my view, a crucial factor for ensuring sustained success in the future. However, this brings us to the challenges ahead – the dark clouds looming on the horizon.

Despite high levels of sport participation compared to other European countries, Finland faces several challenges. According to Nessel and Kościółek (2022), productivity in the sector is declining, and diminishing international performance in elite sport has triggered numerous reforms and evaluations. However, this narrative needs some

adjustment, particularly concerning mass sport participation. While Eurobarometer data suggest a potential decline in sports and exercise participation in Finland between 2015 and 2022, the findings remain inconclusive. It is likely that the pandemic caused a temporary dip in activity levels (EIPA, 2024), and whether this trend will persist is yet to be determined. Moreover, WHO statistics indicate that the percentage of inactive individuals in Finland is relatively low and has been steadily decreasing over the past six to seven years (Table 1).

Compounding these issues is the increasingly fragmented and diverse sport and exercise landscape, which introduces new governance challenges that must be navigated to sustain and improve participation and performance across all levels. This growing complexity has driven a shift in governance within the Finnish sport system, moving from an ideologically driven framework to a more technocratic and evidence-based approach. Further, over the past decade, the Finnish sport system has undergone significant centralisation, marked by the consolidation of national sport organisations – first into VALO (an umbrella organisation for sport) that later merged with the Finnish National Olympic Committee (NOC). This shift has led to the emergence of a more hierarchical and professionalised structure. However, as Wośniak (2024) observes, the historical class divide within Finnish sports continues to manifest through institutional legacies. Notably, leadership roles in sport organisations remain predominantly occupied by individuals affiliated with the liberal-conservative party. Yet, as Mikkonen et al. (2022, p. 725) point out, the Finnish NOC lacks both the democratic, grassroots-driven authority typical of the Nordic sport system and a legitimate top-down authority, as the state retains control over financial resources and wields the ultimate power. This has created what they describe as a leadership gap in effectively advancing a cohesive sport for all policy. Implicit in their critique is a degree of scepticism regarding the efficacy of an overly centralised model.

Determining the future direction of Finnish sport policy is challenging, but further centralisation does not appear to be the solution. One view is that a more effective approach would involve delegating greater power and resources to local levels, enabling the system to address the challenges posed by an increasingly diverse and dispersed sports landscape.

#### 10.5.3.2. The Dutch case – success; however, do they get value for money?

The Netherlands stands out as a nation with high levels of sport participation and physical activity. It consistently ranks in the upper quartile among European countries in terms of participation rates, as well as membership in sports clubs (EIPA, 2024). The Netherlands is grouped alongside Denmark and Austria in a cluster of active club-based sporting nations by Van Tuyckom (2013, 449). Moreover, the country demonstrates a respectable level of efficiency, measured by the return on public investment in sport and recreation in terms of participation in sport and exercise (EIPA, 2024). However, the study conducted by Nessel and Kościółek (2022), which analysed both public and private funding of sport and exercise as explanatory variables and evaluated elite-level performance alongside mass participation as outcome measures, places the Netherlands at a low average level of relative efficiency. Nonetheless, the study highlights the country's stable productivity in this domain; the Netherlands has a relatively positive score regarding physical inactivity. This highlights that the different studies measure different issues – participation rate in sport and exercise, elite sport performance, and physical inactivity.

This relative success can, as argued in the Finnish case, be attributed to the interplay of cultural, historical, and political factors. Drawing on insights from the literature (Van Bottenburg, 2011; Breedveld and Hoekman, 2017; Breuer et al., 2017), the discussion below highlights the central elements that have contributed to this achievement.

At the heart of the Dutch sport system lies its dynamic voluntary sector. The majority of sporting activities are organised through voluntary sports clubs, with citizens actively engaging in these organisations to shape their sporting experiences. This grassroots structure is supported by the presence of 76 national sport federations, which operate under the umbrella of the NOC*NSF (formed through the 1993 merger of the National Olympic Committee and the Netherlands Sports Federation). This model is comparable to that of Norway and Finland, where the integration of the NOC and the Confederation of Sports has resulted in similarly unified structures.

Unlike many other European countries, Dutch sports clubs rely less on public facilities, as a significant proportion own their own infrastructure. As a result, they face fewer challenges related to facility access and are less dependent on public subsidies. This independence has allowed Dutch clubs to maintain financial stability, with both revenue and expenditure remaining slightly below the European average. Furthermore, the Netherlands boasts the highest percentage of citizens belonging to sports clubs in the EU, reflecting the widespread appeal and accessibility of these organisations.

While the voluntary sector is the backbone of Dutch sport, government facilitation plays an equally vital role in fostering participation. The Dutch government, especially at the local level, has historically prioritised the development of sport infrastructure and opportunities. Local municipalities are responsible for up to 90% of sport funding, highlighting their central role in ensuring that facilities and programmes are accessible to the population. This approach mirrors the decentralisation seen in Nordic countries such as Denmark, where local authorities are similarly pivotal in supporting grassroots sports.

The post-war era represented a pivotal moment in Dutch sport policy, characterised by increased governmental involvement and politicisation. From the mid-1990s onwards, sport became increasingly instrumentalised as a means to achieve broader societal objectives, including the promotion of public health, the fostering of social inclusion, and the strengthening of national identity. This paradigm shift was formalised in 1994 with the renaming of the Ministry of Health, Well-being, and Sport to the Ministry of Health, Welfare, and Sport, underscoring a heightened commitment to embedding sport within public policy. Furthermore, the Netherlands surpasses the European average in public expenditure on sport as a percentage of GDP, reflecting the significant prioritisation of this sector.

One of the distinguishing features of Dutch sport policy is its ability to balance government involvement with the autonomy of voluntary sport organisations. While the government provides financial support it largely depends on the voluntary sport structure to implement its policies. This collaboration ensures that sport policy remains grounded in local needs and community engagement, while also benefiting from the strategic direction provided at the national level.

Despite this collaborative approach, challenges have arisen. The voluntary sports sector has at times struggled to meet the external societal goals set by policymakers, leading to the establishment of the Netherlands Institute of Sport and Physical Activity (later renamed Knowledge Centre for Sport & Physical Activity) to address these gaps. Additionally, the rise of commercial sport providers, such as fitness centres and health clubs, has introduced new dynamics to the sports landscape, highlighting the need for continued adaptation.

The Netherlands excels in fostering widespread citizen engagement in sport and physical activity. Dutch citizens report higher levels of satisfaction with sport facilities compared to their European counterparts and rank second in terms of volunteering in sport organisations. These factors contribute to a culture of participation that extends beyond organised sports to include recreational and fitness activities. However, unlike many Anglosphere countries, educational institutions play a relatively minor role in promoting sport, underscoring the centrality of voluntary clubs and local government in the Dutch model.

In conclusion, the Dutch sport system represents a hybrid model that blends elements of both conservative and Nordic welfare regimes. While the Netherlands shares certain features with conservative systems, such as a strong emphasis on consensus-based policy and the involvement of religious movements, its sport policy and governance bear a closer resemblance to the Nordic regime.

#### 10.5.3.3. The Irish case – an outlier with high success?

Ireland shows one of the highest participation rates in sport and exercise across Europe. However, government investment in sport and exercise, measured as a percentage of GDP or total government expenditure, remains the lowest in the region (EIPA, 2024; Bergsgard, 2025). In contrast, household spending on sport and exercise is among the highest in Europe. When combined, this places Ireland above the European average in terms of total funding allocated to sport and exercise. These figures reflect Ireland's more liberal political climate, particularly when compared to countries such as Finland and the Netherlands, where government involvement is more pronounced. Further, as highlighted above there are huge class differences (income and education level) when it comes to health-enhancing aerobic activity in Ireland and more so than the large part of European countries (see also Lunn, 2006).

In their study, Nessel and Kościółek (2022) assess both funding levels and elite performance as output measures, identifying Ireland as a country exhibiting high average relative efficiency. Furthermore, Ireland has demonstrated a significant increase in productivity over the past decade, a trend also reflected in the notable reduction in physical inactivity observed between 2016 and 2022 (Table 1). This positions Ireland as a particularly compelling case, not only due to its distinctive political stance as a liberal-leaning nation within the EU, but also for its efficient utilisation of resources in sport and exercise. However, this efficiency exists alongside stark class divisions in participation rates, highlighting a complex and nuanced dynamic. Further, an increasing physical inactivity but a stable number in sport and exercise may address the same class division. Drawing on several studies (Hassan and Edwards, 2010; Hassan and O'Boyle, 2016; Van Hoye et al., 2024; Volf et al., 2023), I will highlight the following key features.

A central characteristic of Ireland's success lies in its diverse mix of clubs and centres, many of which are rooted in voluntarism and are deeply embedded in local communities. According to Van Tuyckom's (2013) clustering of European countries based on their sport structures and activity patterns, Ireland is categorised within the "active multi-context sporting countries" cluster. Ireland ranks in the top five for membership in voluntary organisations related to sport and recreation, as well as in broader clubs and organisations that include sport (EIPA, 2024). The country benefits from a healthy balance between voluntary sports clubs, fitness centres, and other types of social clubs that incorporate sports activities.

One particularly noteworthy institution is the Gaelic Athletic Association (GAA), which Hassan and O'Boyle (2016) emphasise as a unique entity of cultural significance. The GAA boasts an extensive network of local community clubs that not only promote sport, but also serve as hubs for social cohesion. This structure creates a low barrier to participation and fosters the development of social capital, offering a compelling explanation for Ireland's high participation rates despite the challenges posed by an implementation gap in national policy (Volf et al., 2023) and relatively limited government funding. This combination of grassroots engagement, voluntarism, and cultural identity forms the foundation of Ireland's success in promoting widespread participation in sport and exercise.

Another key feature that is highlighted is the importance of social inclusion as central pillars of Irish sport policy. This is again driven first and foremost via the strong voluntary sport club tradition in Ireland. There are several national sports strategies and related initiatives that aim to reduce barriers to participation, particularly for children, women, and low-income groups; still, as mentioned there is an implementation gap regarding these initiatives (Volf et al., 2023). Thus, the social gap in participation rate is still a challenge.

The most striking feature of Ireland's sport system is the pivotal role of the local level, encompassing both the club structure and the deeply ingrained culture of voluntarism. This is further supported by the infrastructure, including facilities and community sports hubs, which provide accessible opportunities for participation. Historically, Ireland exhibited a laissez-faire approach to physical education for children and young people. However, from the 1960s onwards, the government began implementing more active policies, though with lower funding levels than their European counterparts. The National Sports Policy 2018–2027 aims to address these shortcomings by pledging to double the investment in sport to €220 million by 2027[5]. While this remains lower than the investment levels seen in Nordic countries, it represents a significant step forward.

Ireland's strong reliance on voluntarism and a well-established local club structure draws clear parallels with the Nordic countries and the Netherlands, distinguishing it from other Anglophone nations where school sports play a more prominent role. This indicates that Ireland's impressive participation rates are not primarily the result of effective government policies but rather stem from a combination of rich cultural traditions, deeply ingrained social norms, and a solid foundation of local infrastructure. This success is further reinforced by significant household expenditure on sport and exercise, reflecting the country's strong commitment to fostering active lifestyles at both individual and community levels. However, the heavy reliance on private spending may inadvertently perpetuate the pronounced class divisions in participation rates, highlighting an ongoing challenge in ensuring equitable access to sport and exercise opportunities.

#### 10.5.3.4. Some concluding points from the qualitative case studies

What can we learn from these snapshots of three successful countries? While these nations differ significantly in terms of political regimes – using Esping-Andersen's typology of social democratic, conservative, and liberal regimes (see EIPA, 2024) – as well as religious background (Protestant and Catholic) and geographical location (Northern Europe, Continental Europe, and Western Europe), one dominant feature emerges: a strong civic tradition and culture, often rooted in the 19th century or earlier, may be the most critical factor explaining success.

This dynamic is clearly illustrated by Finland's long-standing tradition of civic engagement, where sports have historically been intertwined with broader social movements; Ireland's strong emphasis on local anchoring and community participation, juxtaposed with a historically hands-off approach from central authorities regarding sport and the Netherlands' reliance on a vibrant voluntary movement characterised by independent and well-established sports clubs.

[5] National Sports Policy 2018 - 2027 - Gov.ie

In stark contrast, former Eastern Bloc nations such as Lithuania (Čingienė, 2017), Macedonia (Begović, 2020), and Hungary (Földesi, 2011) demonstrate weaker civic traditions, coupled with a pronounced legacy of state-bureaucratic structures. Similarly, Southern European countries distinguish themselves through a cultural emphasis on the family as the foundational unit of society (EIPA, 2024), a societal focus that diverges from the civic-oriented frameworks prevalent in the aforementioned nations. These contrasting models highlight the diverse ways in which cultural, historical, and institutional factors shape the role of sports within different societies.

Fostering a strong civic culture and tradition is, admittedly, a complex and time-intensive endeavour, particularly when approached from a political standpoint. Yet, another crucial consideration arises: the importance of emphasising the local level in promoting sport, especially through the development and maintenance of sport infrastructure. When paired with a robust local civic and voluntary culture that prioritises social inclusion, this local focus becomes a key success factor.

This is not to downplay the relevance of government-targeted programmes and funding. Research by Volf et al. (2022; 2023) illustrates that policy measures such as constructing sport facilities and reducing financial barriers can significantly enhance sport participation. However, broad, top-down programmes often face difficulties in engaging the least active segments of the population – a persistent and critical challenge in this field. While increased funding can deliver positive outcomes, its effectiveness largely depends on the strategic precision with which it is allocated. In this regard, the ability of local authorities to accurately identify and address well-suited targets is essential.

Furthermore, policies aimed at increasing physical activity across sectors such as education, transport, and urban planning have the potential to exert a significant and lasting impact on activity levels (Gelius et al., 2021). Additionally, as highlighted in this context, the general quality of governance is closely associated with higher participation rates in sport and physical activity. However, it is worth noting that the underlying factor may often be the strength of the civic culture itself, which fosters both trust in government and higher levels of participation. This interplay between governance, civic culture, and local engagement underscores the multifaceted nature of promoting physical activity and the importance of addressing it historically and holistically.

# 10.6. CONCLUSION

There are several limitations regarding the data included in this chapter that must be considered when interpreting the findings. The assessment of insufficient physical activity levels is based on a crude estimate that does not account for key characteristics of each country, such as age distribution, educational attainment, and other demographic or socio-economic factors. Furthermore, the data on sport, exercise, and physical activity are derived from self-reported surveys, which inherently carry a degree of uncertainty. For instance, the interpretation of what constitutes 'sport and exercise' may vary significantly across countries, and there is a well-documented tendency for individuals to overestimate their activity levels – an issue that may not manifest uniformly across nations. Additionally, as the correlation and regression analyses are based on cross-sectional datasets, any attempt to draw causal inferences should be approached with caution. These limitations underscore the need for a nuanced interpretation of the findings and highlight the importance of employing more robust methodologies in future research.

As highlighted, there is a well-established relationship between physical activity – including sport and exercise – and positive health outcomes. For example, engaging in just 30 to 40 minutes of moderate to high-intensity activity per day can reduce the risk of premature death associated with a sedentary lifestyle by as much as 30% to 40%. However, our findings at the national level reveal a relatively inconclusive correlation between physical activity and life expectancy. This suggests that numerous other variables contribute to health outcomes, either mitigating or amplifying the effects of physical activity.

For instance, regular exercise does not necessarily offset the impact of sedentary behaviours in other aspects of daily life, such as reliance on cars for commuting to the gym or workplace. This paradox is evident in the Norwegian case, where comparatively high levels of physical inactivity coexist with significant participation in structured exercise, underscoring the complex and multifaceted nature of physical activity's relationship to overall health. Furthermore, the high life expectancy scores observed in Southern European countries, despite relatively low levels of physical activity, point to alternative explanations, such as the influence of nutrition, climate, or other lifestyle factors.

Europe ranks as relatively good in terms of insufficient physical activity compared to other regions, with several countries in Northern and Western Europe performing particularly well, albeit with some variation between nations. This raises an important question: what drives high participation rates in sport and exercise? Among the key contributing factors, the quality of governance emerges as the most significant determinant. Notably, governance quality correlates strongly with the type of welfare regime, as the level of trust citizens place in public institutions is a defining feature of social democratic and, to some extent, conservative welfare systems. This alignment is further reinforced by a historically robust civic tradition that emphasises the role of voluntary organisations in fostering community engagement.

Although the direct influence of public policy on sport and exercise participation may be limited, the broader governance framework plays an important role in shaping outcomes. This influence remains substantial even when controlling for other variables such as wealth, education, and geographic location. Additionally, prioritising local-level initiatives to promote sport and exercise appears to be a crucial factor for success, as localised efforts are often better equipped to address community-specific needs and foster greater participation.

Moreover, to fully grasp the drivers shaping a population's activity patterns, it is essential to extend the analysis beyond contemporary factors. Historical, cultural, and institutional legacies, established long before the advent of current welfare regimes, likely hold valuable insights into the deep-rooted determinants of participation. These structural and cultural influences, which often transcend immediate socio-economic variables, warrant further exploration to uncover the enduring forces that shape engagement in sport and exercise over time.

# 10.7. REFERENCES

Begović, M. (2020). The development of sport policy in Montenegro. *International Journal of Sport Policy and Politics, 12*(2), 321–330. DOI: 10.1080/19406940.2020.1719186

Bergsgard, N. A., Houlihan, B., Mangset, P., Nødland, S. I., & Rommetvedt, H. (2007). *Sport Policy – A Comparative Analysis of Stability and Change.* Oxford: Butterworth-Heinemann.

Bergsgard, N. A. (2025). Factors that determine the level of participation in sport and exercise – an analyze of public policy for sport and exercise in European countries. *Frontiers in Sports and Active Living* 7:1633869. DOI: 10.3389/fspor.2025.1633869

Breedveld, K., & Hoekman, R. (2017). The Netherlands: How the Interplay Between Federations and Government Helps to Build a Sporting Nation. In: Scheerder, J., Willem, A., & Claes, E. (eds.). *Sport Policy Systems and Sport Federations: A Cross-national Perspective.* London, UK: Palgrave Macmillan.

Breuer, C., Feiler, S., Llopis-Goig, R., Elmose-Østerlund, K. (2017). *Characteristics of European sports clubs: A comparison of the structure, management, voluntary work and social integration among sports clubs across ten European countries.* Odense: Center for Forskning i Idræt, Sundhed og Civilsamfund, Institut for Idræt og Biomekanik, Syddansk Universitet.

Čingienė, V. (2017). Lithuania: The Organisation and Governance of Sport. In: Scheerder J, Willem A, Claes E, (eds.). *Sport Policy Systems and Sport Federations: A Cross- National Perspective.* London: Palgrave Macmillan.

Collins, S. (2011). Finland. In: Nicholson, M., Hoye, R., & Houlihan, B. (eds.). *Participation in Sport: International Policy Perspectives.* London: Routledge.

Dahlgren, G., & Whitehead, M. (2021). The Dahlgren-Whitehead model of health determinants: 30 years on and still chasing rainbows. *Public Health, 199*, 20–24. DOI: 10.1016/j.puhe.2021.08.009

EIPA. (2024). *Public Sector Performance Programme 2022–2025. An International Benchmark Study, Sub-Study 2024.* Maastricht: European Institute of Public Administration.

Eriksen, U. (2020). *Et land på fire hjul – hvordan bilen erobret Norge (A country on four wheels – how the car conquered Norway).* Oslo: Res Publica

Eurostat (2022). Health-enhancing physical activity statistics. *Statistics Explained.* Data extracted May 2022. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Health-enhancing_physical_activity_statistics#Health-enhancing_physical_activity – 10/08/2023

Földesi, G. S. (2011). Hungary. In: Nicholson, M., Hoye, R. & Houlihan, B. (eds.). *Participation in Sport – International Policy Perspectives.* London: Routledge.

Gelius, P., Messing, S., Forberger, S., Lakerveld, J., Mansergh, F., Wendel-Vos, W., Zukowska, J., & Woods, C. (2021). The added value of using the HEPA PAT for physical activity policy monitoring: A four-country comparison. *Health Research Policy and Systems, 19*(22). https://doi.org/10.1186/s12961-021-00681-6

Giulianotti R, Itkonen H, Nevala A, & Salmikangas, A-K. (2019). Sport and civil society in the Nordic region. *Sport in Society, 22*(4), 540–554. DOI: 10.1080/17430437.2017.1390906

Hassan, D., & Edwards, A. (2010). Sport, Divided Societies and Social Capital in Ireland. In: Groeneveld M., Houlihan B., & Ohl F. (eds.). *Social Capital and Sport Governance in Europe.* London: Taylor & Francis.

Hassan, D., & O'Boyle, I. (2016). Stakeholder Governance and Irish Sport. *Sport in Society, 20*(5–6), 735–749. DOI: 10.1080/17430437.2016.1158474

Lunn, P. (2006). *Fair Play? Sport and Social Disadvantage in Ireland.* Dublin: The Economic and Social Research Institute. https://www.sportireland.ie/sites/default/files/2019-11/fair-play-sport-and-social-disadvantage-in-ireland-2007-report.pdf

Mikkonen, M., Korsberg, M., Lehtonen, K., & Stenvall, J. (2022). Sport policy in Finland. *International Journal of Sport Policy and Politics, 14*(4), 715–728. DOI: 10.1080/19406940.2022.2127837

Nessel, K., & Kościółek, S. (2022). The total sporting arms race: benchmarking the efficiency of public expenditure on sports in EU countries. *European Sport Management (Quarterly), 22*(6), 833–855. DOI: 10.1080/16184742.2020.1833956

Strain, T., Flaxman, S., Guthold, R., Semenova, E., Cowan, M., Riley, L. M., Bull, F. C., Stevens, G. A., & Country Data Author Group. (2024). National, regional, and global trends in insufficient physical activity among adults from 2000 to 2022: A pooled analysis of 507 population-based surveys with 5.7 million participants. *The Lancet Global Health, 12*(8), e1232-e1243. https://doi.org/10.1016/S2214-109X(24)00150-5

Van Bottenburg, M. (2011). The Netherlands. In: Nicholson M., Hoye R., & Houlihan B. (eds.). *Participation in Sport: International Policy Perspectives.* London: Routledge.

Van Hoye, A., Lane, A., Vuillemin, A., & Woods, C. (2024). An exploration of national and local policies supporting health promoting sports clubs in the Republic of Ireland. *International Journal of Sport Policy and Politics, 16*(2), 271–290. DOI: 10.1080/19406940.2023.2290123

Van Tuyckom, C., & Scheerder, J. (2010). A multilevel analysis of social stratification patterns of leisure-time physical activity among Europeans. *Science & Sports, 25*(5), 304-311. https://doi.org/10.1016/j.scispo.2010.04.003

Van Tuyckom, C. (2013). Six sporting worlds: a cluster analysis of sports participation in the EU-25. *Quality & Quantity, 47*(1), 441–453. DOI: 10.1007/s11135-011-9528-8

Volf, K, Kelly, L, García Bengoechea, E, Casey, B, Gelius, P, Messing, S, Forberger, S., Lakerveld, J., Den Braver N. R., Zukowska J., & Woods, C. B. (2022). Evidence of the impact of sport policies on physical activity and sport participation: a systematic mixed studies review. *International Journal of Sport Policy and Politics, 14*(4), 697–712. DOI: 10.1080/19406940.2022.2127835

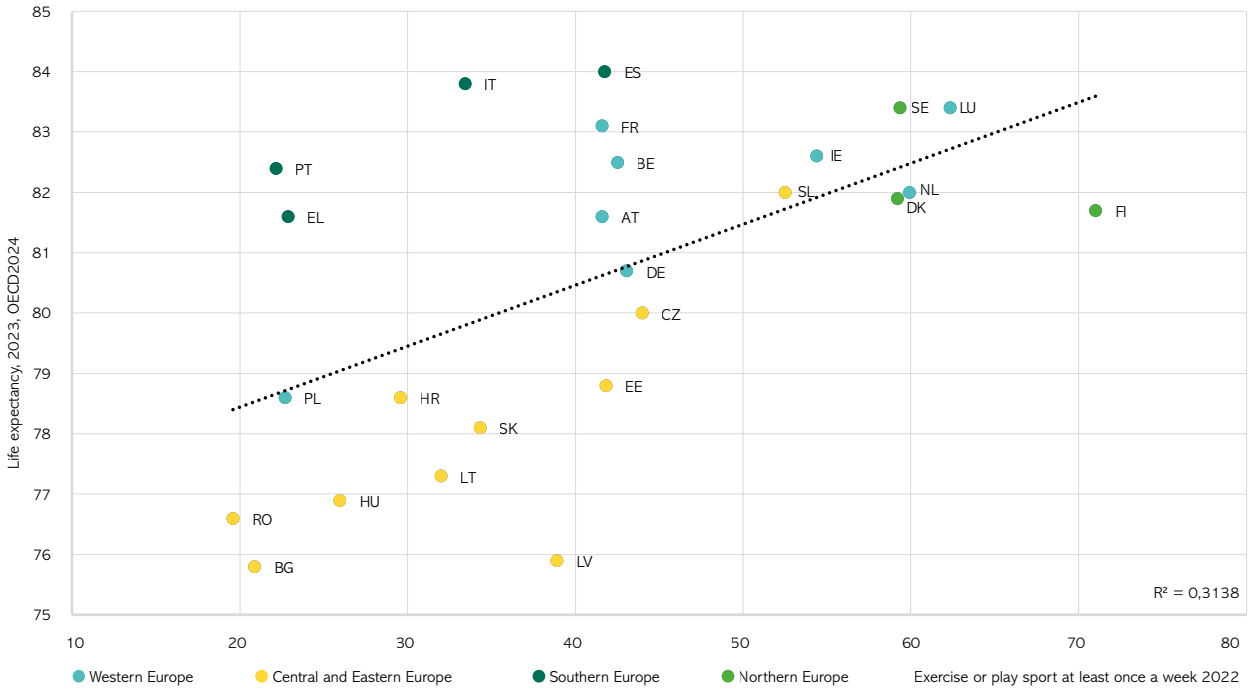
Volf, K, Kelly, L, Van Hoye, A, García Bengoechea, E, Ann MacPhail, A, & Woods, C B. (2023). Assessing the implementation of physical activity-promoting public policies in the Republic of Ireland: a study using the Physical Activity Environment Policy Index (PAEPI). *Health Research Policy and Systems, 21*(1), 63. DOI: 10.1186/s12961-023-01013-6

World Health Organization. (2020). *WHO Guidelines on Physical Activity and Sedentary Behaviour.* World Health Organization. https://apps.who.int/iris/handle/10665/336657

Wosniak, W. (2024). Sport policy in Finland: from class divisions to depoliticisation, from sport for all to business like any other? *Problemy Polityki Społecznej Studia i Dyskusje, 65*(2), 1–19. DOI:10.31971/pps/187282.

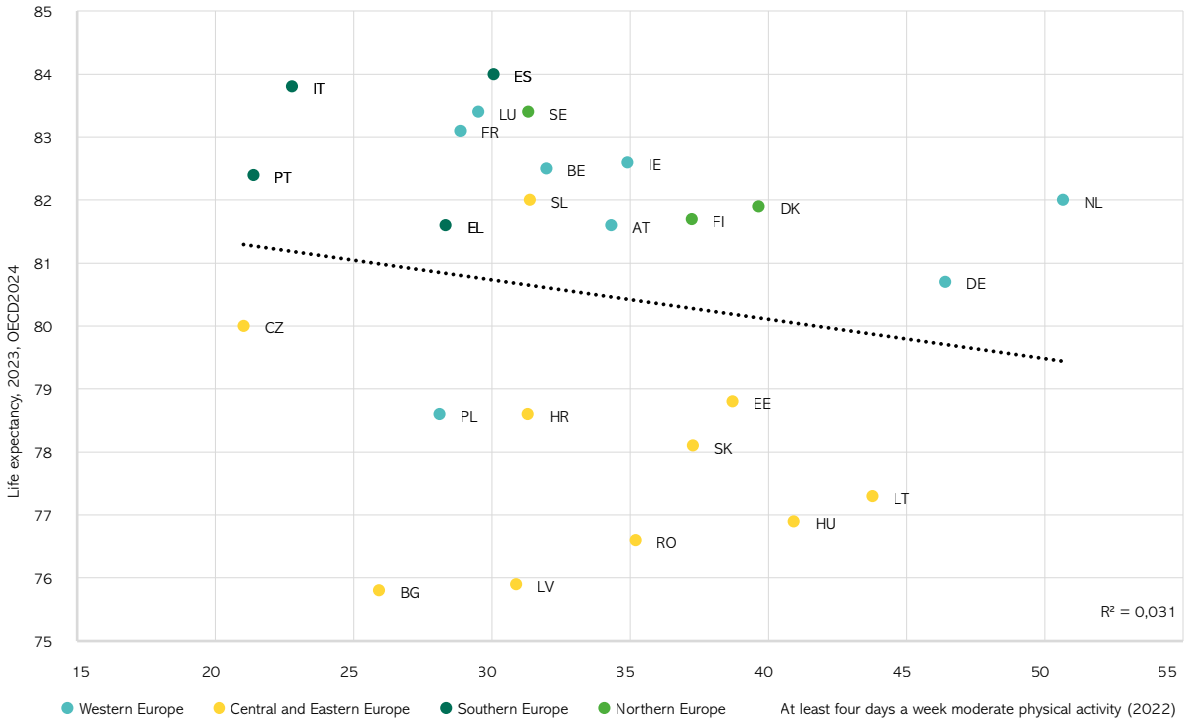
# 10.8. APPENDIX

*Figure 3: Correlation between exercise or playing sport at least once a week in 2022, and life expectancy in 2023 in EU counties*




*Figures for Malta and Cyprus are missing*
*Source: Eurobarometer: Sport and Physical Activity/OECD2024*

*Figure 4: Correlation between moderate physical activity at least four days a week in 2022, and life expectancy in 2023 in EU countries*




*Figures for Malta and Cyprus are missing*
*Source: Eurobarometer; Sport and Physical Activity (ebs_525)/OECD2024*
*Q: In the last seven days, on how many days did you do moderate physical activity such as carrying light loads, cycling at normal pace, or playing doubles tennis? Please do not include walking.*

*Table 4: Linear regression analyses*

| Variables | Model 1 beta coefficient | Model 2 beta coefficient | Model 3 beta coefficient |
|---|---|---|---|
| Real GDP per capita (euro), 2022 | 0.11 | 0.25 | 0.434 |
| Percentage holding a tertiary education (levels 5–8), 2022 | −0.08 | −0.09 | −0.334 |
| European Quality Index (1–100), 2017 | 0.51* | 0.51* | 0.504* |
| Dummy: 0=Northern Europe; 1=Western Europe | −0.31 | −0.27 | −0.174 |
| Dummy: 0=Northern Europe; 1=Central and Eastern Europe | −0.53 | −0.44 | −0.29 |
| Dummy: 0=Northern Europe; 1=Southern Europe | −0.57* | −0.49 | −0.32 |
| Percentage of GDP | | 0.244 | 0.31 |
| Public expenditure per inhabitant (in euro) 2021 | | −0.104 | −0.21 |
| Percentage of total employment in 2022 | | | −0.06 |
| Access to recreational or green areas (2016); rather or very difficult | | | −0.42* |
| Member of a sports club, fitness/health club or social organisation for sport (2022) | | | −0.13 |
| (Constant) | 28.6 | 18.3 | 43.8 |
| Adjusted $R^2$ (model sig.) N=26 | 0.723(<0.001) | 0.759(<0.001) | 0.812(<0.002) |

*Dependent variable: 150 minutes or more spent on health-enhancing aerobic activity per week in 2019 (18+)*
*sig=0.1; **sig=0.05

# 11. EXECUTIVE SUMMARY AND SYNTHESIS

**The EIPA benchmarking study 2022–2025 sets out to analyse the performance of the public sector in 35 countries in ten policy areas. This final report presents the results of the 2025 update of sub-studies published between 2022 and 2024, including the revision of the latest available data, recent developments, trends, and best practices in eight of the policy areas. This synthesis chapter presents the highlights of the respective chapters and shows how public performance and public trust are shaped not only by resources and outcomes, but also by institutional design, governance quality, and the trade-offs governments manage across the policy cycle.**

In this latest sub-study, recurring pressures reappear in different forms: post-crisis volatility (pandemic recovery, inflation, and energy shocks), demographic ageing, digital transformation, and widening distributional tensions. Moreover, a consistent set of strategic trade-offs emerges, requiring governments to navigate recurring tensions. Efforts to improve efficiency and accelerate delivery can conflict with the imperative to ensure equity, due process, and equal treatment. Policymakers must also balance market dynamics against public intervention where essential services and basic needs are at stake, and adapt governance to new technological and societal risks while safeguarding fundamental rights. This focus on procedural fairness is not incidental: in several domains, the analysis indicates that effectiveness depends not only on technical design, but also on whether policies are experienced as legitimate, transparent, and credibly implemented.

Ultimately, the chapters in this sub-study showcase that durable solutions to complex problems are not primarily a function of spending alone. Rather, resilient public administration is forged through institutional coherence, quality governance, and the capacity to build public trust for government interventions.

### 11.1. Public Administration

**This chapter revisits the public administration domain by expanding the 2022 benchmarking study beyond systemic inputs and quantitative performance metrics to examine the institutional practices that shape public trust. Whereas the earlier analysis assessed administrative capacity and service delivery through indicators, it did not capture the dynamics through which legitimacy is built across the policy process. The 2025 chapter therefore turns to the democratic and procedural conditions under which public administrations operate, moving from describing performance to exploring how institutional design can strengthen or erode trust in government. Public administration is understood here as the management of public affairs and the implementation of public policies, a definition that emphasises how administrative behaviour – not only administrative outputs – influences democratic stability.**

The chapter's conceptual argument rests on the premise that trust in government is produced through three interlinked dimensions of legitimacy input, throughput, and output. Each of these dimensions represents a point at which the relationship between state and citizen is shaped. Input legitimacy concerns the degree to which citizens' preferences are meaningfully incorporated in policymaking; throughput legitimacy captures the fairness, transparency, inclusiveness, and accountability of decision-making procedures; and output legitimacy refers to the effectiveness, reliability, and perceived quality of policies and services. These dimensions are complemented by the OECD's five drivers of trust: reliability, responsiveness, openness, integrity, and fairness, which reinforce each other as mutually supportive components of democratic resilience. When improvements occur in one dimension or driver, they tend to strengthen the system as a whole, enabling administrations to build trust even in periods of institutional strain.

The chapter situates these dynamics within a shared challenge: a sustained erosion of citizen trust, briefly interrupted during the early stages of the COVID-19 pandemic, but now accelerated by post-pandemic pressures such as inflation and high energy costs. Although trust levels vary across regions and tiers of government, with local administrations typically outperforming national ones, a consistent downward trajectory presents a common threat to democratic stability. The chapter therefore examines how governments are attempting to reinforce legitimacy across the policy cycle, beginning with efforts to strengthen input legitimacy.

The chapter identifies three principal approaches to enhancing input legitimacy, understood as the foundational dimension of democratic governance. The first is representative democracy, which remains the cornerstone of political legitimacy but faces growing dissatisfaction as citizens perceive legislative bodies as insufficiently responsive or demographically unrepresentative. The second is deliberative democracy, which supplements electoral mechanisms by creating structured forums for evidence-based citizen dialogue. Ireland's Citizens' Assemblies illustrate the potential of this model, having facilitated reasoned public engagement on divisive issues such as abortion, though their effectiveness depends on representativeness and sustained political uptake. The third approach is direct democracy, exemplified by Switzerland,

where referenda form a deeply embedded component of a consensual political culture. The contrast between Ireland's sequential use of deliberation and referendum and Switzerland's long-standing system highlights that direct democratic tools are most legitimate and effective when they are embedded within broader institutional ecosystems that support informed participation and mitigate polarisation.

The chapter then turns to throughput legitimacy, identifying two complementary strategies for strengthening the perceived fairness and quality of governance processes. The first involves safeguarding procedural integrity, particularly through strengthening transparency, accountability, and safeguards against corruption. Integrity pacts that involve civil society in monitoring public procurement exemplify how procedural reforms can enhance public confidence. Yet advances in digital tools come with risks: the Dutch tax authority's use of algorithmic fraud detection illustrates how efficiency-oriented automation can undermine fairness when models incorporate biased or legally irrelevant variables. This case demonstrates the core trade-off between administrative efficiency and equal treatment. The second strategy for enhancing throughput legitimacy focuses on collaborative governance. Latvia's Innovation Laboratory shows how structured co-design environments can make policymaking more adaptive, while Turin's Co-City project demonstrates how co-produced management of urban spaces can create a sense of shared ownership and strengthen trust at the local level. Together, these approaches illustrate that throughput legitimacy depends not only on formal integrity frameworks, but also on the quality of state–society interaction throughout the policy cycle.

The final dimension, output legitimacy, centres on how governments use digital transformation to improve the effectiveness and reliability of public services. The chapter identifies three main areas of innovation. The first concerns accessibility and inclusion, illustrated by Belgium's e-ID single sign-on system, which offers streamlined access to public services but risks deepening the digital divide for vulnerable groups. The second concerns security and institutional trustworthiness, highlighted by the GLASS project, which uses blockchain technologies to create user-controlled digital identities and enhance data sovereignty across borders. The third concerns empathy and fairness in service design, exemplified by the Dutch "Red Button" initiative, which uses a digital trigger and in-person verification to pause debt collection for highly vulnerable individuals. These examples demonstrate that output legitimacy is strengthened when digital innovations are paired with robust institutional accountability and human-centred design, ensuring that the state is experienced as both effective and fair.

Across all three dimensions, the chapter identifies several core tensions that public administrations must navigate. A first tension arises between participation and efficiency: broad citizen engagement enhances input legitimacy, but can slow decision-making and complicate policy coherence. A second tension emerges between evidence and responsiveness: while evidence-informed policymaking produces technically sound outcomes, responsiveness to public values is essential for democratic legitimacy even when they diverge from expert recommendations. A third tension lies between automation and equity, as efficiency-driven digital tools can undermine fairness if not carefully governed. A fourth relates to the challenge of institutionalising innovation: although governance experiments such as deliberative assemblies and policy labs can produce high-quality engagement or creative solutions, they often remain peripheral unless embedded within formal structures.

The chapter concludes that strengthening public trust requires reforms that bind together input, throughput, and output legitimacy rather than treating them as isolated aspects of governance. Trust grows when citizens feel their voices matter, when procedures are conducted with fairness and transparency, and when services are delivered effectively, securely, and empathetically. Although pressures such as polarisation, misinformation, and economic uncertainty continue to challenge democratic systems, the analysis points to a clear direction: institutionalising meaningful forms of citizen engagement, enhancing integrity and transparency, advancing evidence-informed policymaking, embedding innovation and foresight into governance structures, and ensuring that digital transformation promotes inclusion rather than inequality. Together, these reforms create the conditions for durable, adaptive, and legitimate public administration capable of sustaining trust in the long term.

### 11.2. Evidence-Based Strategies For Improving Education

**This chapter benchmarks the Dutch education system against other high-income countries using a multi-dimensional set of indicators covering inputs (expenditure and resources), outputs (enrolment, graduation, test scores), and broader outcomes (labour market integration). Building on the 2022 edition, which assessed the efficiency of education systems across countries, the updated chapter shifts towards a more problem-oriented and Netherlands-focused analysis. The chapter then links to evidence-based policy options.**

The benchmarking evidence reveals a well-resourced and relatively efficient Dutch education system, while highlighting persistent challenges common across Western systems. These include teacher shortages, increasing educational inequality, declining performance in international assessments, and the need for more inclusive early childhood and primary education.

From an input perspective, public expenditure on education in the Netherlands has remained broadly stable as a share of GDP since 2017. At the same time, per-student spending has risen at all levels, particularly in secondary education. The Netherlands spends above the international average at secondary and tertiary levels, but lags behind leading countries such as Finland and Denmark in primary and pre-primary funding. The 2022 analysis already showed that simply adding resources does not automatically translate into higher achievement. It highlighted that the organisation and targeting of resources are crucial. The updated chapter confirms this finding with more recent data and a stronger focus on where investments are most effective.

On the output and outcome side, the Netherlands continues to perform strongly on key structural indicators. Enrolment and upper-secondary graduation rates are high, and the country records one of the lowest NEET (*Not in Education, Employment, or Training*) rates in Europe. The Netherlands already outperforms the EU 2030 target. At the same time, the PISA (*Programme for International Student Assessment*) results show a downward trend in all subjects over recent cycles, with a particularly pronounced decline in reading. It marks one of the largest drops among OECD countries. These developments intersect with challenges in providing inclusive education for students with SEN (special educational needs), marking equity and inclusion as core issues.

A first major challenge concerns teacher shortages and the uneven distribution of qualified staff across sectors, regions, and subjects in primary education. International experience shows that durable solutions combine long-term workforce planning with attractive career paths and strong professional support. Among the best practices are high-status, master's-level teacher education in Finland, centralised workforce planning with clear career ladders in Singapore, and Canadian provinces aligning teacher education intakes with labour market needs and structured induction programmes.

Educational inequality is a second central concern. Dutch students from lower socio-economic and immigrant backgrounds continue to face sizeable performance gaps, linked to socio-economic status and the language spoken at home. Countries such as Estonia, South Korea, Ireland, and Canada reduce such gaps by embedding equity into system design, through later tracking, progressive and targeted funding, additional support for disadvantaged schools, and explicit limits on the share of low achievers. Early childhood education and care (ECEC) plays a pivotal role in these strategies. Almost universal, affordable, and high-quality ECEC in systems such as Estonia's, adequate funding, and professional staff improve children's starting positions. For the Netherlands, staff shortages and financial barriers in ECEC undermine efforts to tackle inequality and require targeted reform.

A third set of strategies focuses on improving learning outcomes in PISA mathematics and reading, and strengthening inclusive education for diverse learners. Ireland, Finland, Estonia, and Canada maintain relatively strong reading performance by pursuing long-term literacy strategies that combine early identification of difficulties, evidence-based teaching methods, and continuous training. Evidence also highlights the impact of structured tutoring for disadvantaged students and intensive, practice-oriented professional development for teachers. Co-teaching models, peer support, assistive technologies, close cooperation with families, and attention to social-emotional learning have been shown to improve both academic and social outcomes for students with special educational needs.

For the Netherlands, the study points to the need for integrated reforms that link how resources are spent to strategies for teacher recruitment, equity, and curriculum and assessment renewal. Strengthening early childhood education, tackling socio-economic learning disparities, and making assessment and support more inclusive emerge as key priorities. These policy directions frame how the Netherlands can sustain strong outcomes in a changing demographic and labour market context.

## 11.3. Housing

**This chapter updates the benchmarking of public sector performance in housing policy presented in the 2022 edition, which concentrated on international variations in availability, affordability, and housing quality. The current version does not update the housing quality section, because quality characteristics of the entire housing stock change very slowly, and housing satisfaction, due to the fact that the updated data is expecting only in 2026. The current version includes three contemporary topics, the search for suitable housing solutions related to the ageing of the European population, the use of the existing housing stock by vertical extension of dwellings, and landlady rentals.**

Europe is experiencing a persistent and widespread housing crisis, characterised by rapidly rising house prices, growing affordability pressures, and shortages of accessible homes – particularly for young adults and lower-income households. While the severity varies across countries, the core challenges are shared: demand has outpaced supply for more than a decade, and new construction has not kept up, especially in the affordable segment. Market-oriented housing policies of the past 30 years have contributed to a shift towards high-end construction, while the supply of non-profit or social rental housing has stagnated or declined in much of Europe.

**Affordability** is at the heart of the crisis. Private tenants face the highest risk of housing cost overburden across all countries, with many spending more than 40% of their income on rent and utilities. Lower-income households remain especially vulnerable, even when overburden rates appear to fall due to increases of private incomes after the recovery from the Global Financial Crisis and the COVID pandemic. Attempts to regulate rents in Germany, the Netherlands, Portugal, and Spain highlight a difficult balance between protecting tenants and maintaining investor confidence. Regulation can improve affordability and facilitate first-time home ownership when landlords sell-off -part of- their stock, but affordable non-profit housing is much needed.

**Availability and accessibility** issues are increasingly visible. An increasing proportion of young adults – including those with permanent jobs – continue living with their parents, especially in Western and Southern Europe. Overcrowding remains prevalent in Eastern Europe, while under-occupancy is widespread in Western and Nordic countries, where many older homeowners live in large family homes. The scarcity of senior-friendly housing prevents efficient use of the stock, limiting mobility, and preventing larger dwellings from becoming available to younger families.

New housing construction faces structural and cyclical barriers. After years of historically low interest rates, the interest hikes of 2022–2023 sharply reduced demand and delayed development starting, especially for high-end, owner-occupied housing. While Southern Europe has seen a rebound in building permits, much of this new supply is oriented towards higher income groups, foreign buyers, or holiday rentals, exacerbating local affordability problems. Overall, construction output remains insufficient to meet demand, deepening shortages in urban areas.

The study outlines several **strategic avenues** to address the crisis:

- **Increasing housing production**, particularly affordable rental supply, by simplifying planning rules, coordinating multi-level regulation, and addressing NIMBY resistance.
- **Strengthening affordable housing sectors** to reduce the cyclicality of housebuilding and ensure access for younger and lower-income households.
- **Improving allocation** of affordable homes and limiting diversion to tourist rentals or second homes.
- **Promoting efficient construction methods**, especially modular and timber-based systems, to speed up delivery and reduce costs.
- **Facilitating mobility within the housing stock**, especially by expanding senior housing options and supporting downsizing.

**The chapter's case studies** provide practical illustrations of innovative solutions:

- **Vertical extensions** (France, Germany, the Netherlands, UK) show how **add-ons** can increase density, finance sustainable retrofitting, and expand supply without new land.
- **Landlady rentals** demonstrate the potential of underused rooms in older households' homes when supported by tax incentives, intermediaries, and flexible tenancy rules.
- **Senior housing and co-housing initiatives** across Europe highlight the importance of integrating design, care, and community, while emphasising the critical enabling role of local governments – particularly regarding land accessibility and financing.

**Overall, Europe's housing crisis is complex, multidimensional, and deeply embedded in long-term structural trends.** There is no single solution, but **a mix of increased affordable supply, regulatory reforms, and innovative use of the existing stock** can meaningfully improve affordability and accessibility, especially for the most affected groups.

### 11.4. Social Safety

**This chapter revisits the social safety domain by focusing on a major gap in the 2022 benchmarking: how countries deal with online safety. The 2022 study compared 35 countries on classic aspects of social safety but could not report much about online harms, as available data does not clearly distinguish between online and offline crime. Therefore, the 2025 chapter – rather than building new composite indicators – looks in detail at the emerging online safety laws of four jurisdictions (Australia, the UK, Canada, and the EU) to see how states are trying to manage risks in digital spaces.**

Online safety in this chapter means that citizens can use digital services and platforms without facing serious risks of harm. It covers a wide range of problems, from illegal content and online crime to harmful behaviour. Because these harms are often cross-border and technological in nature, criminal law and prosecution are no longer sufficient. The chapter argues that online safety depends on a mix of design and technical measures, education, and awareness. It also requires a clearer sharing of responsibilities between governments and the companies that run online services.

Across the four jurisdictions, the frameworks share a common structure. They define which services and harms they cover, place risk assessment and safety duties on providers, and create specialised regulators with powers to monitor compliance and enforce the rules. They rely on an "enforcement pyramid", where regulators act first and police or courts step in mainly as a last resort, and they adjust criminal offences related to online harms and non-compliance. All frameworks also require measures to inform and empower users, for example through reporting tools and redress mechanisms.

Most of these obligations are aimed at situational prevention, by changing how platforms and services are designed and run so that opportunities for harm are reduced. Most obligations focus on situational prevention such as reshaping platforms, products, and online environments to reduce opportunities for harm. Meanwhile, social measures such as media literacy and awareness-raising remain less developed, with the UK standing out for giving them a more central place.

The comparative assessment highlights two broad regulatory approaches. The first approach, seen in the EU's Digital Services Act and the UK's Online Safety Act, covers a wide range of services and goes beyond illegal content to include certain harmful content and online activities. It sets out duties of care, requires systematic risk assessments and mitigation, tailors obligations to providers, and builds in safeguards for rights and accountability. The second, represented by Australia's Online Safety Act and Canada's draft Online Harms Bill, applies mainly to social media and a narrower set of harmful or illegal content. It relies on ministerial regulations and industry codes to specify duties and provides regulators with wider discretion but fewer legislative requirements.

Country cases illustrate the strengths and limitations of each model. The UK framework is presented as particularly ambitious and forward looking: it imposes detailed, legally binding online safety duties, mandates specific protections for children, requires media literacy initiatives, and introduces explicit user empowerment duties and "user empowerment assessments" for larger services.

The EU Digital Services Act stands out for its layered system of obligations. In the system, very large online platforms and search engines are subject to far-reaching duties on systemic risk assessment, independent audits, and internal compliance functions. Moreover, it imposes robust user-complaint procedures and safeguards against abuse of notice-and-takedown systems.

Australia offers an extensive set of complaints schemes to the eSafety Commissioner but relies heavily on voluntary expectations and sectoral codes rather than statutory duties of care. This method may weaken legal certainty and make enforcement more reactive. Canada's Online Harms Bill is notable for proposing a Digital Safety Ombudsperson to support users and represent the public interest, pointing to new institutional options for user-centred online safety. The Bill has since lapsed, however, and it is unclear whether these ideas will be taken forward in a new proposal.

The chapter also points to clear gaps and trade-offs. Many obligations, especially in the EU framework, apply mainly to very large services, leaving smaller but potentially high-risk platforms with lighter rules. Stronger duties of care and wider enforcement powers raise concerns about freedom of expression, privacy, and the shift of responsibility from public authorities to private companies. At the same time, heavy reliance on complaints and notice-and-takedown risks a "whack-a-mole" approach to fast-moving harms.

According to the study, online safety frameworks will only be durable if robust, risk-based duties are combined with clear human rights safeguards, regular independent review, and regulators that can respond to new technologies. Progress in online social safety will depend less on any single law and more on ongoing dialogue, mutual learning, and periodic adjustment as risks and digital environments evolve.

### 11.5. Social Security, Employment, Income, and Wealth

**The chapter extends the benchmarking study conducted in 2023 by the data of the years 2020–2023. The focus of the chapter lies not with repeating the initial analysis but on showcasing the economic and social effects of the pandemic years and policies enacted in the wake of this deep crisis (by some of the most successful countries in the sample). The effects of the Ukraine war shock are showcased as well, but discussed to a lesser extent because data availability after 2023 has been limited.**

The overarching framework of the benchmarking study is followed again and the studied metrics for inputs, outputs, outcomes, and trust and satisfaction are presented in two groupings that constitute sections in the chapter. The first deals with **employment, income, and wealth**; the second with **social security** itself. The third section then presents **policy lessons** from the most successful countries (continuous low levels of unemployment and poverty, or even a measurable decline in the respective rates), and possible causes of their success are explored.

#### Employment, income, and wealth

Prominent **inputs** (government policies) in this thematic grouping are the fiscal, monetary, tax, and labour market policies. *Fiscal policies* in the observed countries followed a similar pattern, with high debt-financed spending to counter the deep recession caused by the pandemic in 2020 and to a lesser degree in 2021. *Monetary policies* were characterised by low interest rates until 2022, when inflation rose sharply in the wake of the Ukraine war (due to high energy prices and increased government spending). Central banks reacted by rapidly raising their interest rates by 5 percentage points on average between 2021 and 2023. In 2024, central banks started to ease monetary policy again as inflation subsided somewhat and signs of recession became stronger. The two *tax policies* discussed in this section are *taxes on goods and services* and *taxes on income and wealth*. The shares these taxes had in the total tax revenue of the observed countries did not change markedly between 2007 and 2022 (with some exceptions). The income tax rates, applied to incomes above a threshold, vary considerably from 15% to >50%, and there is also some diversity in the values of the thresholds. The top income tax rates in the country sample have seen no strong movements in the timeframe 2007–2023 (with some exceptions such as Austria). Relieve for poorer households has often taken the shape of higher applied thresholds in some of the observed countries, as they have risen sharply in the observed timeframe. Regarding *labour market policies*, minimum wage, (percentage of the average median wage) increased in many countries by an average of 7.1 percentage points; the picture is more diverse regarding EPL (Employment Protection Legislation) index scores: the lowest scores unsurprisingly are to be found in liberal, mostly Anglo-Saxon economies, but some Scandinavian countries scored low as well.

**Output** is measured in the report with metrics for *economic growth and its distribution. GDP per capita* (unweighted average of all 35 countries) fell by 5.2% in 2009 and by 4.6% in 2020 in reaction to the already mentioned global crisis. This recession turned out to be V-shaped as growth rates were high in the two years that followed, adding up to about 10% on average for all countries. However, the recovery came to a halt in 2023 when the impact of the Ukraine war and the accompanying sanctions led to a new recession, albeit one that was weaker than the one after the 2020 pandemic. The described developments are based on overall averages and the extent these fluctuations took varied greatly in some countries. Regarding *labour productivity,* the 2009, 2020, and 2023 crises generally harmed productivity growth in many countries, as production and value added declined faster than labour input. The data showed some clear exceptions to this pattern, mostly in Central and Eastern European (CEE) countries, which showed above-average productivity growth. On average, the *distribution of income* did not dramatically change during the period under consideration (2007–2021). In many countries, inequality declined somewhat due to the measures taken during the financial crisis but increased again in later years. On average for all countries, the Gini index (higher scores indicate more inequality) reached its maximum in 2013 and declined afterwards; income support schemes often lowered inequality during the pandemic years.

For **outcome**, measurements for employment, income, and wealth were utilised in this report. Given the situation described above, it is not a surprise that unemployment rose on average sharply in 2009 (10.1%) and to a lesser extent in 2020 (6.6%), probably due to furlough policies by many countries. While almost all countries suffered from the two shocks of the financial crisis and the pandemic, there were substantial differences in the extent of the effect they had on unemployment figures. However, the average unemployment numbers returned swiftly to levels prior to the pandemic (or even lower). The two major recessions are also visible in the gross national income figures, which dropped by 4.6% in the financial crisis in 2009, and by 4.2% during the 2020 pandemic. Here as well, recovery has been much faster since the second shock. On average over the complete period observed and for all countries, the gross national income rose by 6.7%, wealth per adult has grown by 40% since 2007, while income only increased by 18.6%.

**Citizen trust and satisfaction** are arguably some of the final goals of good policy and are measured here in *life expectancy, satisfaction,* and *trust in government. Life expectancy* increased in all countries (except the USA) between 2007 and 2022 over an average of two years. *Life satisfaction* (measured from 0 to 10, with 10 indicating fullest satisfaction) shows clear regional patterns in the observed timeframe. Unsurprisingly, the Nordic European countries reporting the highest average satisfaction and interestingly the CEE countries were gaining satisfaction steadily over the same period. *Trust in government* levels vary strongly among countries (with the average over the period ranging from 80.8% to 24.3%) and developments during the observed timeframe vary wildly. One broad discernible pattern was that *trust in government* declined in many countries during the financial crisis and rose sharply again in 2020, when people felt reliant on the actions of their governments during the pandemic. The previous study (2023) correlated these three target indicators with previously mentioned outputs and outcomes. This update focuses therefore more on an in-depth analysis of the policies of the most successful countries in the third section.

### Social security

Government social spending and policies are prominent *input* factors, but measurement is not a straightforward task due to the variety in social support systems within the observed nations. However, the starting point is often *total public expenditure for social protection as a percentage of GDP.* This metric does not include mandatory and voluntary private spending, but it plays a crucial role in some of the observed countries (e.g. Netherlands, Switzerland, USA).
According to this metric, on average between 2009 and 2022, social spending made up between 15% and 30% of government spending with an average of 21.6%. Generally, expenditure increased during the financial crisis (2009), declined afterwards and jumped significantly during the pandemic in 2020 by about 3% (the average of all 35 countries). After the pandemic, in 2022, a reverse trend is visible: the share of social spending fell back again by more than 2% on average for all countries, and many recovered pre-pandemic GDP levels. The share of *social spending as percentage of total government spending*, an average share of 35% (all countries considered), follows similar patterns.

Regarding *output* factors, these are measured here in transfers received by beneficiaries. First the *replacement levels* (level of former income pensioners can expect) relatively decline the more the higher-than-average former earnings are. The size of the decline is an indicator of the progressive character of the respective pension system. Regarding the *level of protection against various risks*, on average for all countries, the levels are relatively high (about 90%) except for the unemployed where the average value reaches only 60% and to a lesser extent for the poor, the vulnerable, and people suffering from work injury (with some very notable outliers towards lower coverage).

**Outcome**: In the end, social policies including tax policies and labour market regulation should prevent poverty and correct unfavourable market outcomes. On average for all countries, *the Gini index of market income* did not change much between 2007 and 2021. The difference indicates how strongly government policies redistributed income through tax, and social and regulatory policies. Reducing poverty is one of the most important goals of economic and social policy. *Poverty rates* vary substantially between countries, but the average rate is around 16%. How efficiently did the countries implement social policy? The *administrative costs compared to total expenditure* are on average below 3%, and this has declined since 2007. However, a low share of administrative costs may not be the best indicator for efficiency. For instance, better targeting of benefits and means testing require more administrative effort.

### Policy lessons and recommendations

For the third section, the policies implemented in the successful countries in this comparative country analyses point to a pragmatic mix of macroeconomic stabilisation, labour-market institutions, and social protection:

- Use strong counter-cyclical fiscal policy and timely monetary support in recessions, paired with short-time work or furlough schemes to preserve jobs.
- Support coordinated wage-setting that compresses wages moderately and avoids real-wage erosion relative to productivity; maintain adequate minimum wage floors where relevant.

- Invest in active labour market policies and personalised counselling, especially for immigrants and the long-term unemployed (as in Iceland's post-2021 reforms); expand training pathways and job-to-job transitions.
- Recognise that high employment protection need not depress employment when combined with tight labour markets and crisis income support (Netherlands).
- Maintain broad social insurance coverage and benefit adequacy to keep poverty low; deploy targeted family benefits where gaps persist, while monitoring work-incentive effects by means-testing.
- Evaluate "government efficiency" beyond administrative cost ratios; focus on benefit targeting, take-up, and outcome metrics (poverty and unemployment levels, and changes).

### 11.6. Environmental Protection and Climate Change

**This chapter updates the benchmarking study on environmental protection and climate change presented in the 2023 edition, incorporating the most recent data to track longitudinal trends over the past two years. The chapter maintains its original focus on cross-country performance comparisons across the themes of government spending, air quality, water resources, waste management, energy resources, biodiversity, and citizens' perceptions, covering 35 countries.**

On the input side, environmental protection expenditure across the EU has stayed broadly stable over the last two years, averaging around 0.8% of GDP. However, there is considerable variation: Finland is below 0.2% of GDP, while the Netherlands, Belgium, and Malta spend more than 1.2%. Waste management remains the largest expenditure, followed by wastewater. Pollution abatement and biodiversity protection have risen only slightly; R&D for environmental protection remains modest in almost all countries. Subsidies for cleaner technologies, nature protection, or environmental R&D remain broadly stable between 0.2% and 1% of GDP.

Regulatory ambition remains high. The OECD Environmental Policy Stringency index shows that all countries have tightened environmental rules since 2000, with France, Switzerland, Luxembourg, and Finland among the most stringent. The Netherlands almost doubled its score. The composition of instruments has shifted towards non-market tools such as performance standards and technology support, although support for clean innovation has weakened somewhat in the last decade.

On air quality, the update confirms that emissions of major pollutants and urban exposure continue to fall. Greenhouse gas emissions are declining in most countries thanks to cleaner energy. Energy and transport remain the main sources of emissions, and current trends are still not enough to meet the 2030 target.

In water management, renewable freshwater resources per person have been broadly stable, while wastewater treatment has continued to improve. In most countries more than 80% of the population is connected to at least secondary treatment. Several countries, such as the Netherlands, have effectively reached universal coverage, illustrating how long-term investment can deliver almost complete service access.

For waste and the circular economy, overall waste generation has stabilised but still tends to move with GDP. Recycling performance has plateaued and landfilling of municipal waste has been cut by more than half since 2010. Growing sorting residues and stagnating recycling rates leave many countries at risk of missing the 2025 municipal recycling target. The latter points to the need for renewed policy effort.

New circular economy case studies show that progress is strongest where countries back high recycling performance with clear strategies, measurable targets, and close monitoring. Austria, Belgium, Germany, Italy, Latvia, Luxembourg, the Netherlands, Slovenia, and Switzerland follow different paths, but all combine long-term plans, regulatory reforms, and concrete instruments. This underlines that strategic direction matters at least as much as spending levels.

For energy, fossil fuels – especially oil – still dominate overall use, while renewables have become the main domestic source of primary energy. All EU countries have improved energy intensity and partially decoupled growth from energy demand. However, high import dependence and the slow phase-down of fossil infrastructure mean that faster deployment of renewables and efficiency measures is needed to reach 2030 goals.

Biodiversity indicators show steady, modest progress. All countries have expanded terrestrial protected areas since 2000, with Slovenia and Luxembourg standing out on land, and Germany among the leaders in marine protection. Most states are moving gradually towards the 30% protection target for 2030. Questions about management quality and ecological connectivity remain, however.

The update shows that citizens still perceive climate change as a major problem, but other crises compete for attention. Moreover, everyday climate-friendly behaviour has weakened. Many consider climate neutrality only realistic if inequalities are tackled, while trust in governments to deliver a fair transition remains limited. Support for ending fossil fuel subsidies and taxing major emitters remains relatively strong, but public optimism about emission cuts exceeds what current policies can realistically deliver.

Across domains, the policy outlooks point in the same direction: countries need to build on gradual progress by better targeting existing effort rather than only spending more. This means accelerating decarbonisation in energy, buildings, and transport. Moreover, sustaining long-term investment in infrastructure and reinvigorating the circular economy are key policy outlooks. On biodiversity, further expansion of protected areas should be combined with better ecological management. Finally, the study concludes that effective climate policy hinges on trust, perceived fairness, and credible implementation – not just tighter rules or higher spending.

### 11.7. Health

**This chapter revisits the health domain by moving beyond the outcome indicators used in the 2022 benchmarking study to examine the institutional and governance arrangements that shape health system performance. While the earlier study compared countries on preventable and treatable mortality, efficiency, and financial protection, it could not explain the institutional choices behind these results. The 2025 analysis therefore shifts from what systems achieve to why they succeed or fall short, offering more policy-relevant insight into the drivers of performance.**

The "domain of health" is treated as a multidimensional concept centred on preventable and treatable mortality, overall efficiency, and financial protection. A focus on metrics alone is insufficient: without examining regulatory frameworks, financing structures, and delivery models, benchmarking risks remaining descriptive. Strong performance is instead the result of coherent institutional design. To understand these drivers, the chapter compares the Dutch health system with Austria, France, Switzerland, Denmark, Spain, Sweden, and the United Kingdom, examining structural elements—coverage, delivery, financing – and shared challenges of equity, efficiency, and quality.

The analysis identifies two broad governance archetypes, each grounded in different assumptions about how to balance access, efficiency, and responsiveness. The first archetype is *market-oriented systems* that rely on regulated competition among insurers and providers, assuming patient choice and market dynamics foster efficiency. Switzerland exemplifies this model, with mandatory private insurance under strict regulation and community rating. This structure supports highly responsive specialised care and the lowest treatable mortality rates among the comparator countries. However, its reliance on high deductibles and co-payments creates significant financial barriers and produces the highest out-of-pocket payments in the group, illustrating the model's central trade-off between efficiency and equity.

The second archetype is more *regulation-oriented systems* which prioritise public planning, tax-based financing, and strong regulatory oversight, often combined with public providers and primary-care gatekeeping. Sweden and Spain illustrate this design. Sweden's long-standing investment in behavioural risk reduction, intersectoral collaboration, and integrated municipal-level programmes has produced the lowest preventable mortality rates. Spain's tax-funded, integrated public system achieves strong outcomes with comparatively low per capita spending, supported by centralised fiscal control and a predominantly public workforce. Yet these systems can struggle with responsiveness, as reflected in Sweden's longer waiting times for specialised care.

These models highlight the strategic choices governments face and the differing ways systems manage tensions between efficiency, equity, and access.

Several cross-cutting tensions shape performance across governance models.

a) *Competition vs equity:* Market-driven systems such as in the Netherlands and Switzerland risk higher administrative costs and greater out-of-pocket payments. The Netherlands system provides strong financial protection for core services – only 0.5% of households face catastrophic spending – yet over 80% of the population purchases voluntary insurance for essential services such as adult dental care. This reliance on supplementary insurance creates access barriers and weakens universal coverage, contrasting with the more comprehensive financial protection found in Sweden and the UK.
b) *Centralised oversight vs decentralised implementation:* The balance between national strategy and local delivery remains a core challenge. The Netherlands' fragmented governance – split among insurers, municipalities, and national authorities – leads to coordination problems, lower returns on health investment, and high administrative

costs. Sweden and Denmark, in contrast, show how well-designed decentralisation can improve outcomes. Denmark's significant reductions in preventable mortality stem from its 2007 reform, assigning municipalities the responsibility for public health, supported by a strong evaluation culture.

c) *Public vs private roles:* The division of responsibilities between public and private actors has deep implications for access, efficiency, and equity. Spain's efficient, publicly driven model – with tight spending control and reliance on public providers – differs fundamentally from the Netherlands' mandatory private insurance system. The Dutch model's dependence on voluntary insurance to fill coverage gaps not only reinforces inequities, but also creates a hybrid system where private actors pursue public objectives within conflicting market and solidarity logics.

These tensions underline the importance of institutional coherence and clearly defined roles in achieving a balanced system performance.

The Dutch system performs strongly in access to core services and care quality, but other countries perform better in relation to infant mortality, healthy life years at age 65, and overall efficiency. The chapter identifies several policy directions to support more durable and adaptive governance based on lessons from high-performing systems.

First, simplifying governance arrangements is essential to reduce fragmentation among insurers, municipalities, and national authorities, thereby improving coordination and aligning incentives. Second, systems should prioritise integrated, people-centred care, and strengthen active and healthy ageing strategies, supported by better coordination between health and social services. Third, reducing early-life risks must become a priority, requiring focused analysis of infant mortality and the adoption of stronger maternal and perinatal care models observed in benchmark countries. Finally, achieving universal coverage requires reducing financial hardship by expanding the basic benefits package to include services currently reliant on voluntary insurance, lowering access barriers for vulnerable populations.

Durable health governance will depend less on adopting a single model and more on combining coherent institutional design, integrated care, and inclusive coverage, supported by continuous evaluation and adaptive reform.

## 11.8. Sports

**This chapter builds on the 2024 analysis by examining three interconnected themes: a) global and European trends in physical activity and inactivity; b) how sport and exercise participation rates relate to health outcomes; and c) what drives high participation and activity levels. The analysis in the chapter combines descriptive statistics, cross-country regressions, and the reported outcomes of best practices (of top performers in the EU and then specifically Finland, Netherlands, and Ireland).**

It should be kept in mind that health outcomes are shaped by a wider group of determinants (e.g. nutrition, air quality, climate, education, socio-economic status), so the evidence is descriptive rather than causal, and that the metrics often depend on self-reported participation.

### Trends in physical activity and inactivity (global and European trends)

*Global finding:* The chapter reports that global trends around physical activity over the past 15 years are a mixed bag. Activity levels within fitness-related contexts have risen (exercise and sport participation) – particularly in OECD countries – possibly pushed due to health issues for example, but also status considerations but also technological developments (enabling easier tracking and sharing). However, trends in overall activity levels do not reflect this change, probably due to notable decreases in other activity domains that are reported such as work, commuting, and daily life. Around one-third of the global adult population were insufficiently active in 2022, about 8% higher than in 2000. *Europe* performs comparatively well and has been broadly stable since 2016, but with regional differences; for example, inactivity rates have decreased in high-income Western European countries but have risen in Central Eastern European (CEE) countries. One interesting phenomenon in this context is the "Norway paradox": despite very high sport and exercise participation, Norway's overall inactivity level is comparatively high because non-work everyday movement (e.g. walking, and cycling for transport) is lower than in its Nordic peers. These patterns are likely to reflect broader social and infrastructural influences.

### How sport and physical activity relate to health

Observed country-level correlations between metrics show a mixed picture: weekly sport and exercise correlates positively with life expectancy, but moderate activity for four days a week correlates weakly and negatively in cross-section analysis. For example, Southern Europe combines high life expectancy with comparatively low sport and exercise (diet, climate, and family networks could play a role), while many CEE sit below the line despite similar activity levels

– evidence that non-activity determinants strongly shape health outcomes. This section therefore stresses that causal claims cannot be taken directly from the observed relationships due to the confounding influences mentioned above and concludes with a reiteration of the individual-level evidence on the activity benefits for health.

### What drives higher participation? (top ten countries and three specific country cases)

Indicators are grouped into context (wealth, education, region, governance quality), *intermediate inputs* (public spend on sport and recreation; sport-sector employment), and *intermediate outputs* (access to green or recreational areas; club membership). Most top performers allocate a higher share of GDP to sport and recreation than the EU average, although per capita spending varies. All ten countries have larger sport-sector employment and higher club membership than the EU average; the Nordics further stand out on access to green spaces. However, public spending only correlates weakly with participation rates , while the relationship is stronger and more consistent with the quality of governance (QoG) , an index developed by the University of Gothenburg. GDP per capita matters, but becomes less salient when other sport-sector variables are added.

### Best practice country cases

**Finland** has high mass and elite participation in sports, rooted in a long civic tradition and strengthened due to social policies with "sport for all" as one of their goals. Recent centralisation and professionalisation have created governance tensions and a perceived leadership gap; the chapter suggests future success depends on re-empowering local delivery in a diversifying provider landscape.

**Netherlands** has a hybrid model combining a strong and quite independent voluntary club sector (many clubs own their facilities) with large municipal roles in funding and infrastructure. Since the mid-1990s, sport has been instrumentalised for health, inclusion, and identity while preserving club autonomy. Knowledge intermediaries were created when voluntary structures struggled to deliver policy goals. Citizens report high satisfaction with facilities and strong volunteering.

**Ireland** is a remarkable case study because a very high participation rate (in sport and exercise) coexists with the lowest public spend in the region and one of the highest household spending levels. One possible explanatory factor is the strong voluntary and community base, which is notably facilitated by the Gaelic Athletic Association. However, there are some persistent gaps in coverage based on socio-economic factors. A number of national policies and an increase in public funding aim to improve equity while keeping the community-anchored model.

### Conclusion and main takeaways

Europe performs comparatively well in the observed activity metrics in global comparison, but there are widening regional differences.

- High *participation in sports and exercise* is most durable when supported by trusted institutions, civic traditions, and established local delivery systems. It is further aided by accessible public spaces and affordable club ecosystems.
- Aligning sport policy with transport and urban design is necessary to counter "exercise vs everyday movement" trade-offs (e.g. car-centric mobility).
- At country level, weekly sport and exercise tracks positively with life expectancy, but other activity metrics do not; health is shaped by broader determinants.
- Quality of Governance (QoG) has the strongest and most consistent correlation with participation *in sports and exercise* (even after controlling for wealth, education, and region); wealth matters less once sector-specific variables are considered.
- For health-enhancing activity a higher share of GDP devoted to sport aligns positively, but is not a pure determinant and the access to green spaces helps measurably.
- Strong civic and voluntary traditions and local, municipal delivery underpin success, even if inequalities by education or income have a substantial effect in several countries.

# 12. LIST OF AUTHORS

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### Frans van Dongen

Until his retirement on 1 January 2026, Frans van Dongen was a programme manager on public performance at the Ministry of the Interior and Kingdom Relations in the Netherlands. In this position, he was responsible for the development, exploration, and dissemination of empirical and practical knowledge about the performance of the public sector including drivers for success, efficiency, effectiveness, and innovation. He acted in close collaboration with various partners, both nationally and internationally. The purpose of these actions was to inspire and support government organisations to improve their performance. In addition, he was the representative of the Ministry of the Interior and Kingdom Relations at EIPA's board of governors and the Dutch member of the steering committee for the European Public Sector Awards. In 2025 his colleague Jelle Kort took over his role to guide the EIPA Public Sector Performance Programme (2022–2025), together with Iwona Karwot.

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Dr Jelle Kort is a senior scientific officer at the Ministry of Interior and Kingdom Relations. In this job he is involved in the development of the Staat van de Uitvoering, a periodic assessment of policy implementation, and is responsible for developing international benchmarks of public sector performance. He also develops digital "exhibitions" that summarise policy history, for example the modernisation of the Dutch central government.

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She is developing and running seminars in close cooperation with the European Court of Auditors, the EU Commission, and the European Anti-Fraud Office (*Office européen de lutte antifraude* – OLAF). In 2021 she co-authored *The Gender Gap in the EU's Public Employment and Leadership*, for the European Parliament. Before joining EIPA in 2008, she worked as an Associate Senior Lecturer of Postgraduate Studies in European Union Funds at the University of Łódź and the Catholic University of Cardinal Stefan Wyszyński, as a lecturer for the Academy of Human and Economic Science in Zamość and the Centre for European Studies in Strasbourg. She holds an MA in Political Science and International Law, and a PhD in Political Science and European Law.

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Miranda Lovell-Prescod is a Senior Research Officer at EIPA, specialising in public policy evaluation, impact assessment, and EU Better Regulation. For the public administration chapter of the Benchmarking Study, Miranda conducted data analysis, contributed to drafting, and supported the authors of other chapters in the effective use and interpretation of data. She also designs and delivers courses on EU Better Regulation, stakeholder consultation, and the use of evidence in policymaking, incorporating approaches such as strategic foresight and behavioural insights into practical, interactive sessions. Before joining EIPA in 2021, Miranda worked at the Maastricht Graduate School of Governance (Maastricht University/ UNU-MERIT) as a Teaching Assistant providing quantitative and econometric support. Her earlier work focused on social protection, multidimensional poverty measurement, conditional cash transfer programmes, and the effects of corruption on human development. She holds a Double MSc in Public Policy and Human Development from Maastricht University and UNU-MERIT, and an MSc in Economics from Maastricht University's School of Business and Economics.

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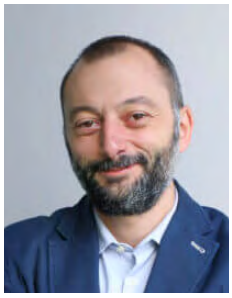

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