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Foreword

Spending on education is an investment, not a cost. It produces multiple economic and social benefits over time, as highlighted by this report.

As Member States prepare their national budgets and as the European Commission has made its proposal on the future EU Multiannual Financial Framework for 2028-2034, this report considers the critical importance of investing in education.

The most recent data shows that education investment in the EU is showing early signs of recovery since the Covid-19 pandemic's disruption with EU Member States spending on average 4.7% of their GDP (€806 billion) on education in 2023, placing the EU in an intermediate position among major advanced economies, such as the US and Japan. However, it still lags behind pre-pandemic levels due to increased competition for public funding and consequently continues to get a lower share of total public expenditure than in the 2010s, and disparities between Member States persist.

The evidence also shows that education is a key driver of competitiveness and economic resilience, enhancing intergenerational fairness and preparedness. Education enhances labour productivity and supports the pace of innovation required in a knowledge-based economy, by improving the quality of human capital. The report confirms that quality education is an effective answer to the challenges posed by the demographic transition, as it enhances job opportunities for the younger generations, and helps to reduce skill gaps when education and training systems are aligned with labour market needs. Better-educated people tend to have higher earnings: getting just one more year of education can boost a person's income by about 7 per cent in Europe. Research also shows that countries with a better-skilled population recover faster from economic shocks.

For these reasons, the European Commission is committed to support Member States in reforms and smart investment in education and skills, as presented in the Union of Skills on 5 March 2025. Europe's competitiveness relies on education and skills, contributing to economic, social and territorial cohesion. Research consistently demonstrates that higher levels of basic skills are linked to greater long-term economic growth. Recent estimates indicate that by 2030, the GDP of European countries could increase by between 8 to 10 per cent above current projections if more people were equipped with sufficient level of basic skills. The Action Plan on Basic Skills, presented as one of the first deliverables of the Union of Skills on 5 March 2025, provides as a target for 2030 to decrease the share of underachievement in basic skills to below 15 per cent. We will launch a Basic Skills Support Scheme together with interested Member States, to develop a framework of effective intervention measures for children and young people struggling to acquire basic skills including introducing basic skills to support young people's understanding of citizenship and the importance of becoming informed and engaged about the society they live in.

In addition, the European Commission's European Semester Spring Package 2025 highlights the importance of human capital in enhancing productivity and growth. The Commission's recommendations on education and skills for all Member States emphasise the need to boost basic skills, enhancing the quality and labour market relevance of education and training system, in particular in STEM fields – those relating to science, technology, engineering and mathematics, as well as strengthening the teaching profession.

While the primary responsibility for education financing lies with national governments, EU funding plays a crucial role to improve the quality and effectiveness of education investments. Around €148 billion have been earmarked for education and skills from 2021 to 2027 through various EU instruments such as the European Social Fund+ and Erasmus+. Under the Recovery and Resilience Facility, €75 billion has been made available for investment in education and skills for the period 2021-26. This funding is key for

supporting major reforms, such as improving educational infrastructure, adapting education systems to the digital transition and enhancing learning mobility. That is why the proposed next Multiannual Financial Framework presented on 16 July 2025, supports increased funding in education and skills, through National and Regional Partnership Plans, a new European Competitiveness Fund and a reinforced Erasmus+ programme.

The European Commission will continue collaborating with EU countries through the Learning Lab on Investing in Quality Education and Training to support effective investment and help policymakers make informed decisions to ensure that investments lead to real and lasting improvements, to unlock the full potential of education for all Europeans.

Roxana Mînzatu
Executive Vice-President
Social Rights and Skills, Quality Jobs and Prepared

Executive summary

Education investment in the EU is showing early signs of recovery, but persistent challenges remain. Following the pandemic's disruption, the latest 2023 data reveals a moderate rebound in public expenditure on education across the EU. Learning outcomes are beginning to improve in several countries thanks to targeted catch-up efforts. Yet, long-standing structural issues continue to undermine progress. National education spending reached 9.6% of total public expenditure and 4.7% of GDP on average—but disparities between countries persist. While investment in education is inching back up after the 2020-2021 dip, it still lags behind pre-pandemic levels due to increased competition for public funding.

The new EU economic governance framework and the Union of Skills open the door for more strategic education investment. The updated economic governance rules offer countries more flexibility to invest in growth-enhancing reforms, including education. Through EU funding tools, around €148 billion is earmarked for education and skills from 2021 to 2027. This funding is key for several areas, such as improving educational infrastructure, adapting education systems to the digital transition and promoting learning mobility. However, national governments remain the primary source of investment, with total education budgets across the EU hitting €806 billion in 2023. Meaningful reform requires both EU-level support and strong national commitment.

Education is a proven engine of competitiveness and long-term resilience. Boosting education investment pays off by enhancing human capital, increasing productivity, and fuelling innovation. Higher basic skill levels cause higher GDP growth, making education not just a social good, but a strategic economic asset. Countries with a better-skilled population perform better in terms of long-term economic growth, resilience and preparedness.

Tackling educational inequality is key to promoting intergenerational fairness and mobilising all economic potential. Despite progress, unequal access to quality education remains a critical obstacle. It reinforces cycles of poverty and limits opportunities for those from disadvantaged backgrounds. Without targeted efforts to reduce inequality, Europe risks leaving talent on the sidelines, and that comes at a cost to society and the economy alike.

Quality education is central to addressing Europe's demographic transition, including the challenge of skills shortages. An aging population threatens to shrink the workforce and strain public finances. Investing in education, especially for younger generations, is essential to maintain economic vitality. Higher education levels improve employment prospects and quality education reduces skills shortages—particularly in STEM disciplines—helping to counteract the effects of demographic decline. At the same time, smaller cohorts open new avenues for higher spending per pupil and more personalised, high-impact learning. Within the framework of the European Education Area, the EU is stepping up support for quality investments through initiatives like the Learning Lab on Quality Investment in Education and Training, ensuring policy is backed by data and evidence.

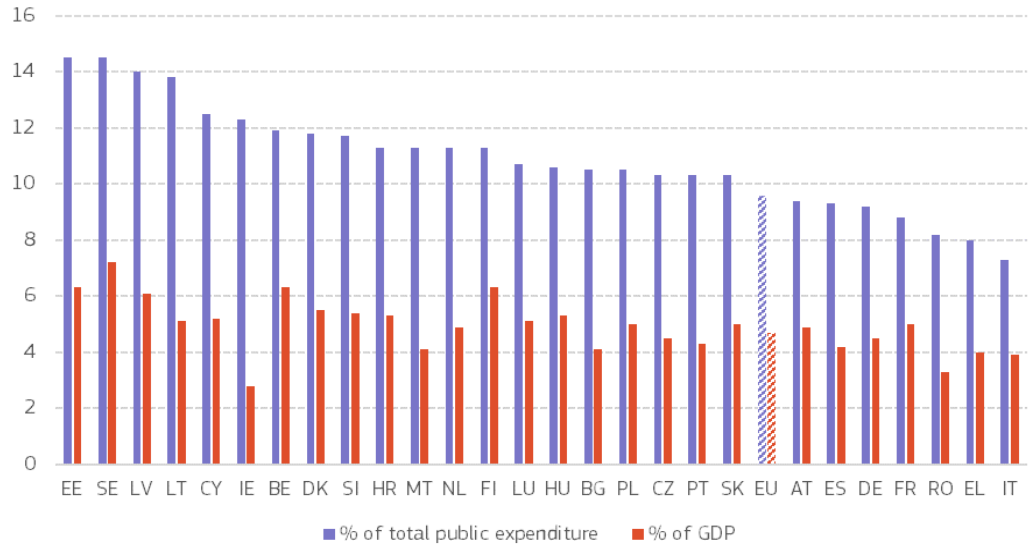
Part 1

Early signs of a moderate rebound in investment in education

The first part of this report looks at the latest data[1] on education investment (2023)[2] and long-term trends. 2022 marked the exit from any Covid-19-related measures for EU education systems (UNESCO, 2022). In some EU countries, learning outcomes started to recover in 2023 compared to the period right after COVID-19, thanks to compensatory measures in schools (e.g. targeted additional support for underachieving students or more focused curricula; see Schnepf et al., 2024). However, research at national level suggests that pandemic-related learning losses are likely to persist over the medium-to-long term without effective remedial policy action at system level (Di Pietro, 2023; Maldonado et al., 2024). Moreover, learning outcomes were already declining in the EU before the pandemic (European Commission, 2024b), pointing to structural challenges that education systems have to address, such as the impact of socio-economic background, teacher shortages, declining parental involvement and digital distraction (European Commission, 2025a).

Public expenditure on education in the EU amounted to 9.6% of total public expenditure and 4.7% of GDP in 2023.[3] At the country level, the former varied from 14.5% in Estonia and Sweden to 7.3% in Italy; the latter ranged from 7.2% in Sweden to 2.8% in Ireland (Figure 1).[4] The correlation between these two indicators is strongly positive, but not perfect (Figure 2). This depends on the different size of total public expenditure in each economy,[5] reflecting the variety of long-term approaches to welfare in EU countries.

Figure 1. Public expenditure on education (2023)



Notes: Provisional data for BE, DE, ES, FR, PT, SK. See footnote 4 for IE.
Source: Eurostat COFOG data. Online data code: [gov_10a_exp].

1 Eurostat releases data on government expenditure by function (COFOG) for year t in late February/early March of year t+2. The most recent data available in 2025 refers to 2023.

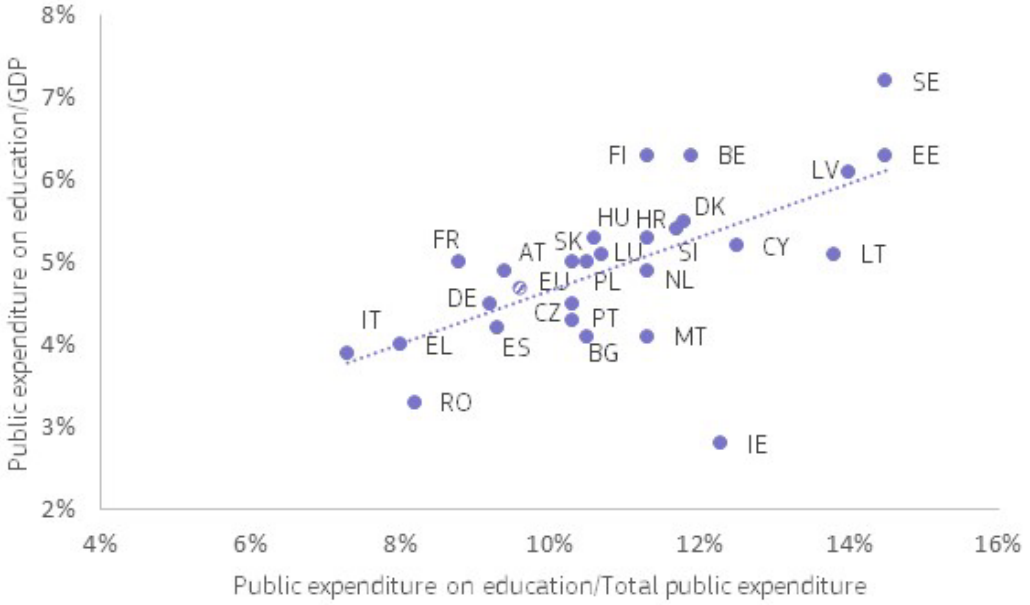
2 This report will use 'investment in education' interchangeably with 'public expenditure on education'.

3 In monetary terms, this amounted to €806 billion.

4 The low value of this indicator for Ireland (2.8%) is explained by the specific structure of the Irish economy. In most countries, GDP and Gross National Product (GNP) are very close in value, but in Ireland GDP is larger than GNP because of negative net factor income: income outflows are much larger than income inflows due to the presence of many foreign-owned multinational firms, which pay their profits back to their owners abroad (Central Statistics Office, 2025). Consequently, public expenditure on education as a share of GNP would be higher than as a share of GDP.

5 The mathematical relationship between the two indicators is expressed as:
(expenditure on education/GDP) = (expenditure on education/total expenditure) * (total expenditure/GDP).

Figure 2. Association between public expenditure on education as a share of total public expenditure and as a share of GDP (2023)



Notes: Provisional data for BE, DE, ES, FR, PT, SK. See footnote 4 for IE. Pearson correlation coefficient (r=0.63) statistically significant at 1% level.

Source: Eurostat COFOG data. Online data code: [gov_10a_exp].

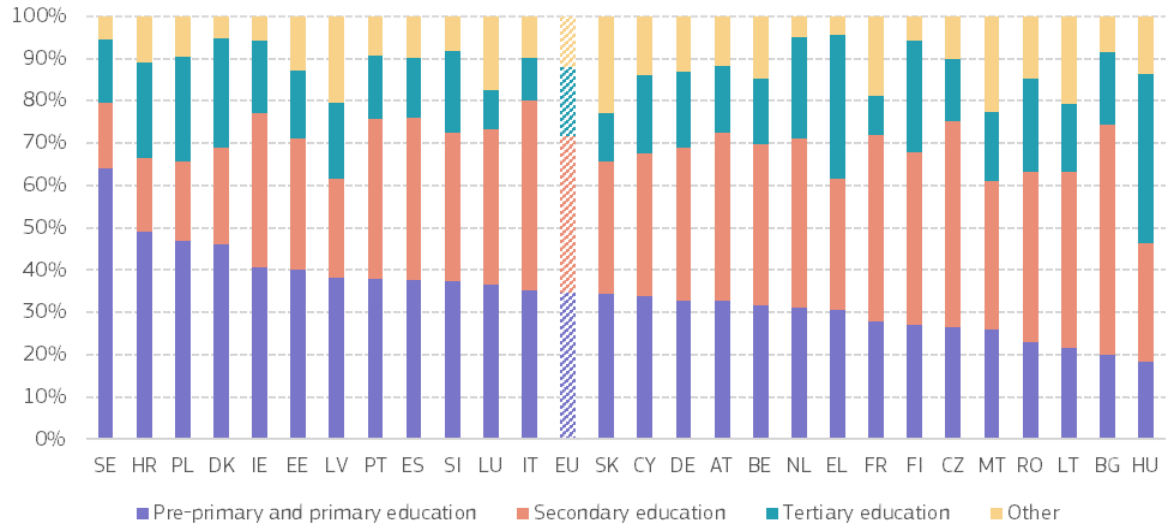
The bulk of public expenditure on education goes to schools. In 2023, school education received more than 70% of public expenditure on education at EU level. This is roughly equally split between, on the one hand, pre-primary and primary levels (35%) and, on the other hand, secondary level (37%), while tertiary education accounted for 16% of public expenditure. Those shares remained largely stable between 2019 and 2023 (European Commission, 2022; European Commission, 2024a). The EU averages mask large differences among Member States (Figure 3). Those differences can be explained by many factors:

- level of involvement of the general government in the education system;
- enrolment levels;
- the duration of compulsory education;
- relative wages in the education sector;
- class size and student-teacher ratios;
- instruction time; and
- the cost of teaching materials and facilities.

At tertiary level, tuition fees and support for students are also determining factors.

Staff costs account for almost two-thirds of public expenditure. 62% of public expenditure on education at EU level went to compensation of employees (i.e. wages and non-wage costs such as employers' social contributions), ranging from 81% in Belgium to 43% in Sweden. Intermediate consumption (i.e. purchases of non-durable goods, such as teaching materials, and services needed to provide education, such as heating, electricity, cleaning and maintenance services) received 14% of expenditure. Gross capital formation (i.e. investment in acquiring fixed assets and durable goods, such as computers and buildings, and also including the depreciation of fixed assets) accounted for 8% of expenditure (Figure 4). Those shares remained largely stable between 2019 and 2023 (European Commission, 2022; European Commission, 2024a).

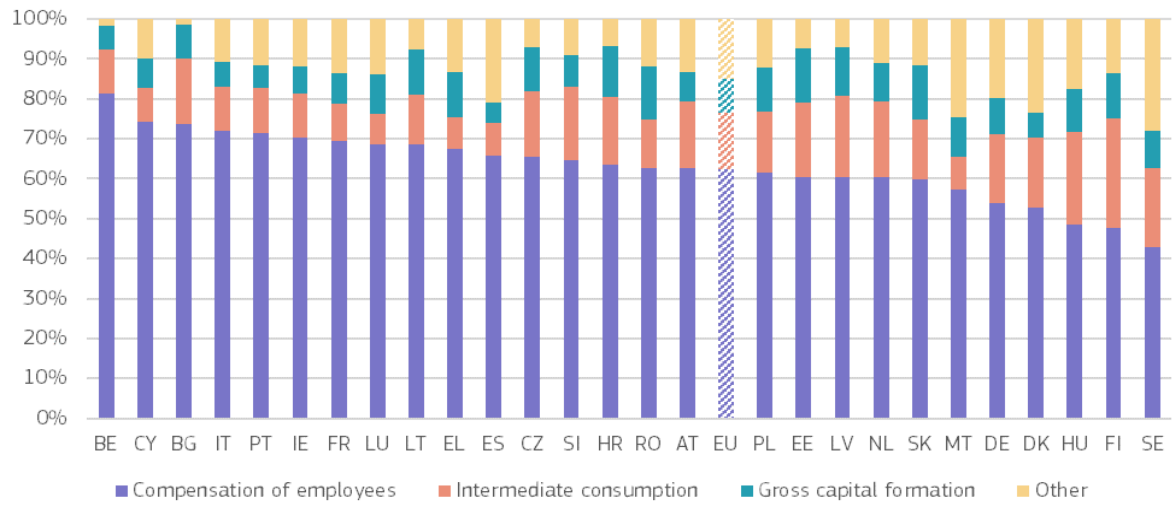
Figure 3. Distribution of public expenditure on education by educational level (2023)



Notes: Provisional data for BE, DE, ES, FR, PT, SK. 'Secondary education' also includes expenditure on post-secondary non-tertiary education'. 'Other' is the sum of the following items: education not definable by level, subsidiary services to education, R&D education and education not elsewhere classified.

Source: European Commission services' calculations based on Eurostat COFOG data. Online data code: [gov_10a_exp].

Figure 4. Distribution of public expenditure on education by category (2023)

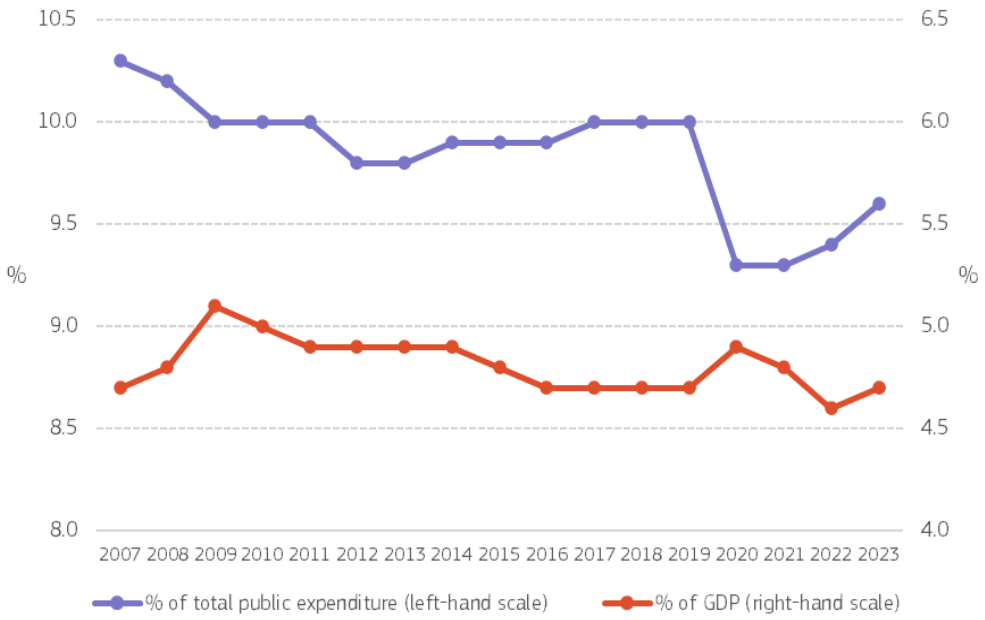


Notes: Provisional data for BE, DE, ES, FR, PT, SK. 'Other' is the sum of the following items: subsidies, other taxes on production, property income, social benefits, other current transfers, capital transfers.

Source: European Commission services' calculations based on Eurostat COFOG data. Online data code: [gov_10a_exp].

Public expenditure on education in the EU is slowly recovering, especially as a share of total public expenditure. It had declined from 10% in 2019 to 9.3% in 2020 during the Covid induced- recession and remained roughly constant in 2021 and 2022 at historically low levels, before slightly increasing to 9.6% in 2023. As a share of GDP, it spiked to 4.9% in 2020 due to a strong GDP contraction (European Commission, 2022), then it reverted to its pre-pandemic trend, with a minor rise between 2022 and 2023, from 4.6% to 4.7% (Figure 5). Variations at country level between 2022 and 2023 were usually rather small (see Annex A.1).

Figure 5. Public expenditure on education as a share of total public expenditure and of GDP in the EU-27 (2007-2023)



Source: Eurostat COFOG data. Online data code: [gov_10a_exp].

Since 2020, public expenditure on education increased considerably in the EU in nominal terms, but not after accounting for increases in price levels. Figure 6 shows that between 2007 (the last year before the Great Recession) and 2023, nominal (i.e. at current prices) public expenditure on education in the EU rose by almost 60%, recording an increase in all years but 2012. Around half of this rise took place after 2020, mostly due to increasing price levels. Real (i.e. at constant prices) [6] expenditure grew by around 15% over 2007-2023, although with year-on-year declines in 2011, 2012, 2020 and 2022.[7]

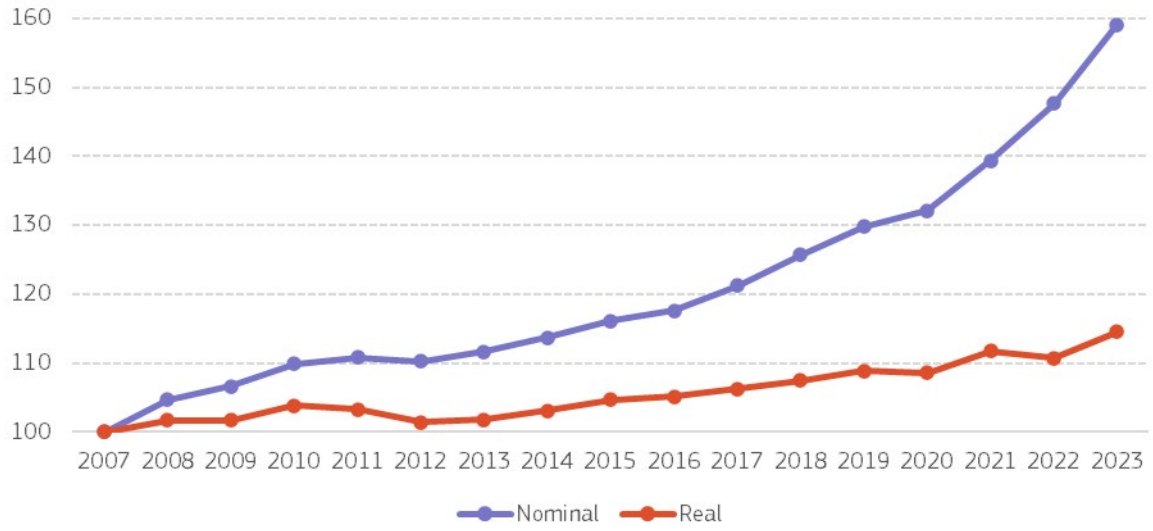
Education still takes up a smaller proportion of total public expenditure than it did before the Covid-19 pandemic. Figure 7 explains how the structure of total public expenditure changed between 2019 and 2023. 'Economic affairs' jumped by 1.7 percentage points. The government measures to mitigate the economic impact of the Covid-19 pandemic (e.g. subsidies to support various productive sectors affected by Covid-related restrictions) caused the strong increases observed in 2020 and 2021. In 2022 and 2023, the financial impact of those measures was significantly reduced, but new measures to mitigate the impact of rising energy prices on productive sectors partly compensated that decrease (European Commission, 2025c). Among other larger expenditure functions,[8] only 'Health' increased its share during the pandemic, because of the response to new public health needs, but then it reverted to pre-crisis values (European Commission, 2025d). Most other spending areas saw a decrease, and education is still 0.4 percentage points below its 2019 level.

6 This report uses the price deflator for collective consumption expenditure of general government to convert public expenditure on education from current prices to 2015 constant prices.

7 The average yearly increase in public expenditure on education in the EU between 2007 and 2023 was 2.9% in nominal terms and 0.9% in real terms.

8 The increase in 'Housing and community amenities' from 1.2% of total public expenditure in 2019 to 2.4% in 2023 mostly depends on capital transfers recorded for payable tax credits in Italy (European Commission, 2025e).

Figure 6. Evolution of nominal and real public expenditure on education in the EU-27 (index 2007=100)



Notes: Real values are expressed at 2015 constant prices by using the price deflator for collective consumption expenditure of general government.

Source: European Commission services' calculations based on Eurostat COFOG data and AMECO data

Figure 7. Public expenditure by function (2019-2023)

	2019 % of total	2020 % of total	2021 % of total	2022 % of total	2023 % of total	2019-2023 percentage point change
Economic affairs	10.1	12.3	12.7	12.1	11.8	1.7
Housing and community amenities	1.2	1.2	1.7	2.0	2.4	1.2
Defence	2.6	2.5	2.4	2.5	2.7	0.1
Environmental protection	1.7	1.6	1.5	1.6	1.7	0.0
Health	14.9	15.0	15.7	15.4	14.8	-0.1
Public order and safety	3.6	3.4	3.3	3.4	3.5	-0.1
Recreation, culture and religion	2.5	2.3	2.3	2.3	2.4	-0.1
General public services	12.3	11.4	11.4	11.9	12.0	-0.3
Education	10.0	9.3	9.3	9.4	9.6	-0.4
Social protection	41.2	41.1	39.6	39.3	39.3	-1.9

Source: Eurostat COFOG data. Online data code: [gov_10a_exp].

Overall, early signs of a moderate rebound in investment in education are emerging against the backdrop of increased competition for public funding. 2023 data shows that investment in education started to bounce back from its post-pandemic low, especially as a share of total public expenditure. However, education faces a stronger competition from other public functions, and consequently continues to get a lower share of total public expenditure than in the 2010s. Although part of the measures taken in 2020-2021 to respond to the Covid-19 pandemic in the areas of economic affairs and health were discontinued over 2022-2023, new measures were introduced to face the energy crisis and support Ukraine after Russia's invasion. A clearer picture of whether a new composition of public expenditure in the EU has emerged out of the recent crises and the new economic and geopolitical priorities will likely appear only over the next few years.

Looking ahead, the new EU economic governance framework and the Union of Skills offer an opportunity for quality investment in education. The reform of the EU economic governance framework adopted by the Council and European Parliament in April 2024 (European Parliament and Council of the European Union, 2024, Articles 13-14) provides for a more gradual fiscal adjustment for a Member State in case of specific reform and investment commitments.[9] The set of reforms and investments should fulfil several criteria, including:

- being growth- and resilience-enhancing;
- supporting fiscal sustainability;
- addressing common EU priorities (the most relevant for education being *"social and economic resilience, including the implementation of the European Pillar of Social Rights"* and *"digital transition"*) and relevant European Semester country-specific recommendations.

In its March 2025 communication 'The Union of Skills', the Commission encourages countries "*to use the new extended adjustment option in the updated economic governance framework to include growth-enhancing reforms and investments in education, which contribute to increase productivity and labour market participation*" (European Commission, 2025b, p.17).

The EU budget plays a significant role in supporting education and skills investment, but the primary responsibility for funding education lies with national governments. The seven-year EU budget (2021-2027) allocates investment in education and skills through the European Social Fund Plus, which supports skills with €42 billion, the Recovery and Resilience Facility (€67.7 billion for both human capital investment and infrastructure), European Regional Development Fund (€8.7 billion), Erasmus+ (€26.1 billion), Just Transition Fund (€2.3 billion) and InvestEU (leveraging over €1 billion) (European Commission, 2025b). This amounts to around €148 billion for education and skills over a seven-year period. This funding is key for several areas, such as improving educational infrastructure, adapting education systems to the digital transition and promoting learning mobility. However, the Union of Skills acknowledges that "*the EU budget is only one part of the picture*" (European Commission, 2025b, p.17). For comparison, the sum of EU countries' yearly national budgets for education reached €806 billion in 2023. The ultimate choice to prioritise public investment in education has to come from Member States. There are compelling economic arguments for it. They will be the subject of the next Part of this report.

[9] i.e. up to 7 years instead of 4 years to fulfil fiscal criteria in exchange for specific set of reform and investment commitments.

Part 2

Prioritising investment in education: economic returns and demographic challenges

"Education and skills are an investment – not a cost – which yields benefits many times over" (European Commission, 2025b, p. 16). The Union of Skills – as well as the European Education Area (Council of the European Union, 2021) – identifies this investment as key to strengthening the European economic and social model. Part 2 of this report explores various economic returns from investing in education, including the interplay between educational inequality and social mobility, and how investing in education can help address the EU demographic challenges.

Research consistently emphasises that skill formation is a key driver of sustainable competitiveness, economic growth and resilience. By enhancing the stock and quality of human capital, education boosts labour productivity and supports the pace of innovation required in a knowledge-based economy (Valero, 2021; European Commission, 2024b). This fosters long-term competitiveness and economic growth. For instance, Hanushek and Woessmann (2015) developed an aggregate measure of basic skills for 50 countries, termed the 'knowledge capital of nations', based on standardised test scores in mathematics and science from 1964 to 2003. This measure serves as a proxy for the average skills of a country's labour force. Their growth model combines skill measures, average years of schooling, and initial GDP levels to explain real per-capita GDP growth between 1960 and 2000. The findings indicate a strong correlation between basic skills and economic growth.[10] Further econometric analysis indicates that this relationship reflects a causal effect of enhanced cognitive skills on long-term economic growth, highlighting the pivotal role of skills for economic development. Research also shows that countries with a better-skilled population recover faster from economic shocks and demonstrate greater economic resilience (Algan et al., 2021).

Improving young people's basic skill levels would have a large long-term economic impact. Simulations assessing the macroeconomic impact of improving young people's basic skill achievement suggest that by 2100, the EU's GDP could be up to 30% higher than projections based on 2015 skill levels (Hanushek and Woessmann, 2019).[11] This underscores the long-term benefits of education. Young people with stronger skills enjoy better employment prospects, while those with lower skills face greater risks of leaving education with poor qualifications, leading to weaker job opportunities and lower participation in lifelong learning.[12] Furthermore, improved employability translates into higher earnings. For example, a meta-analysis based on 139 countries over several years showed that, on a global level, the private rate of return on one extra year of schooling is on average about 7% in Europe and 9% at a global level (Psacharopoulos and Patrinos, 2018). Conversely, recent OECD work shows that declining basic skill levels among young people could reduce long-term multifactor productivity[13] growth by around 3% across OECD countries, if no effective policy intervention addresses them (Andrews et al., 2024).

Unequal education opportunities reduce intergenerational social mobility and economic growth. The OECD Programme for International Student Assessment (PISA) 2022 results show that vast educational inequalities exist also in Europe, as socio-economic background is a strong predictor of learning outcomes. For instance, 48% of EU students from the bottom socio-economic quarter of the population underachieve in mathematics, compared with 11% of EU students from the top quarter (European Commission, 2024b). Educational inequalities play a key role in perpetuating a vicious cycle of socio-economic disparities across generations (Blanden et al., 2022). As economic inequality leads to differences in parental investment in education, it then widens the gap in opportunities. Given the high economic returns to education, this cycle

10 In that model, a one-standard-deviation increase in student attainment linked to a 1.7-2 percentage point rise in annual GDP growth rates.

11 The most favourable scenario assumes a 25-point average increase in PISA scores compared to 2015 levels, to be gradually achieved by 2035.

12 The economic cost of failing to invest in education is substantial. By 2030, governments globally could lose an estimated $1.1 trillion annually in foregone revenue due to early school leavers and $3.3 trillion per year for children lacking basic skills (UNESCO et al., 2024).

13 Multifactor productivity (MFP) measures how efficiently labour and capital are used together to produce goods and services. MFP growth is calculated as the portion of GDP growth that cannot be explained by increases in labour and/or capital inputs.

reinforces both income inequality and low social mobility (see Close-Up 1 below). It not only reduces equity, but also hinders economic growth and competitiveness by depressing human capital development among individuals from poorer backgrounds (Cingano, 2014).

CLOSE-UP 1

The economic dimension of intergenerational fairness in education: the Great Gatsby Curve

The Great Gatsby Curve illustrates the relationship between economic inequality and intergenerational mobility. Named after the famous Scott Fitzgerald's novel, which explores wealth disparities, the curve suggests that concentrated wealth limits opportunities for upward social mobility. Studies by economist Miles Corak popularised the concept, showing that countries which exhibit high inequality also experience lower social mobility, whereas nations with lower inequality enjoy greater social mobility (Corak, 2013). This challenges the notion of equal opportunity in societies with significant income disparities.

The Great Gatsby Curve also applies to education, as economic disparities reinforce educational inequality and limit social mobility. In countries with high income inequality, access to quality education is often skewed in favour of wealthier families. Children from affluent backgrounds tend to attend well-funded schools, receive private tutoring, and benefit from enriched learning environments, resulting in higher academic achievement and better job prospects. In contrast, lower-income students often attend underfunded schools, encounter barriers to higher education, and struggle to escape the risk of poverty.

Figure 8 illustrates the 'educational Great Gatsby Curve'. It shows that countries with higher income inequality tend to have a stronger intergenerational persistence of educational attainment (or, in other words, a lower intergenerational educational mobility). This relationships holds true not only at global level (Panel A), but also when focusing on high-income economies only (Panel B).

Figure 8. The educational Great Gatsby Curve

Panel A: high-income and developing economies

Panel B: high-income economies

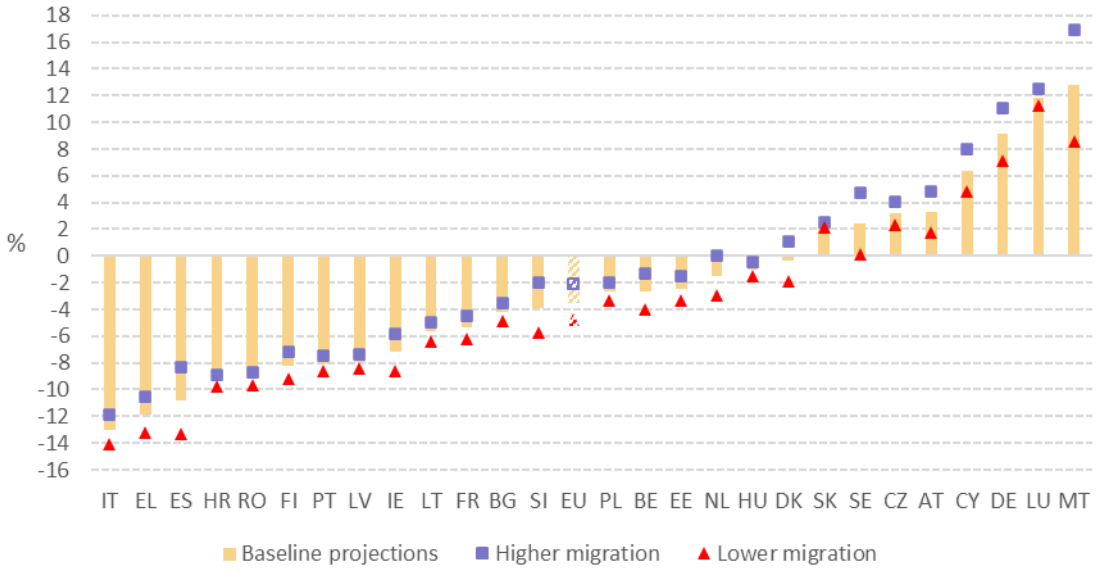
Notes: The horizontal axis shows income inequality, as measured by the Gini coefficient for the most recent available year. The vertical axis displays the correlation coefficient between children's and parents' years of schooling for the cohort born in the 1980s. Panel A: Pearson correlation coefficient (r=0.47) statistically significant at 1% level. Panel B: Pearson correlation coefficient (r=0.43) statistically significant at 5% level.

Source: European Commission services' calculations based on World Bank (2023) and World Bank (2025) data.

Recent studies tracking multiple generations suggest that educational persistence is even stronger than the parent-child correlations presented here indicate (Lindahl et al., 2015; Braun and Stuhler, 2018; Anderson et al., 2018; Adermon et al., 2021). These findings highlight the deep-rooted nature of educational inequality and the necessity for policy interventions to promote equitable access to quality education. Addressing these gaps through policies such as high-quality universal early childhood education and equitable school funding can help break the link between parental income and children's educational success.

Adverse demographic trends will affect European education systems. Figure 9 looks at how demographic change could decrease the population of pre-school and school age in the EU between now and 2030. While several countries make their own forecast for the future number of pupils in their national education systems, there are no internationally comparable projections. To compare trends across Member States, one needs to rely on Eurostat demographic projections and use the population aged 3-18 as a proxy for the number of pupils in pre-primary, primary or secondary education. According to the baseline scenario, the number of people aged 3-18 would decrease by 3.5% in the EU-27 by 2030 compared with 2022. In absolute numbers, this would mean around 2.5 million fewer people. At country level, 19 Member States would experience a demographic decline; Italy (-13%), Greece (-12%) and Spain (-11%) would be the most severely affected countries. By contrast, the population aged 3-18 would increase by more than 5% in Malta (13%), Luxembourg (12%), Germany (9%) and Cyprus (6%). As the time horizon is relatively short, these projections are rather insensitive to possible changes in fertility rates. Different assumptions about migration flows could in principle modify the picture. Eurostat also presents two other scenarios, one assuming larger inflows of migrants ("higher migration") and one assuming smaller inflows ("lower migration"). In the first scenario the EU-27 population aged 3-18 would shrink by 2.2%, while in the second scenario the decrease would reach 4.8%. At country level, the two scenarios would either exacerbate or mitigate the magnitude of the baseline trends, but they would not radically change them.

Figure 9. Demographic projections for the 3-18 age group (% change between 2022 and 2030)



Notes: Higher migration: the scenario assumes that the net migration is higher due to a 33% increase applied to the non-EU immigration flows, in each year of the 2023-2030 time horizon. Lower migration: the scenario assumes that the net migration is lower due to a 33% decrease applied to the non-EU immigration flows, in each year of the 2023-2030 time horizon. For further details, please consult Eurostat metadata.

Source: European Commission services' calculations based on Eurostat population projection data. Online data code: [proj_23np].

An aging population places financial strain on public budgets, as rising pension and healthcare costs may limit government funding for education. With fewer children enrolling in schools, there is a risk that governments may come under pressure to deprioritise education funding, leading to lower investment in school infrastructure, educational resources, and overall quality.

But quality education is one of the keys to respond to the economic and social impacts of the demographic challenges. Demographic shifts could threaten economic prospects (European Commission, 2023b), as a shrinking workforce may result in lower labour supply and slower economic growth. To mitigate these risks, increasing employment rates, particularly among younger populations, will be key to sustaining economic growth and support the cost of ageing. Education plays a crucial role in addressing this demographic challenge, as higher education levels correlate with improved employment prospects. In 2024, among 25-34 year-olds, the employment rates of high-educated and medium-educated people were 86% and 80%, respectively, compared with only 59% for low-educated people. The 'education employability premium' became especially evident during the economic and financial crisis of the late 2000s and the COVID-19 crisis, demonstrating how education enhances resilience during labour market downturns (Figure 10).

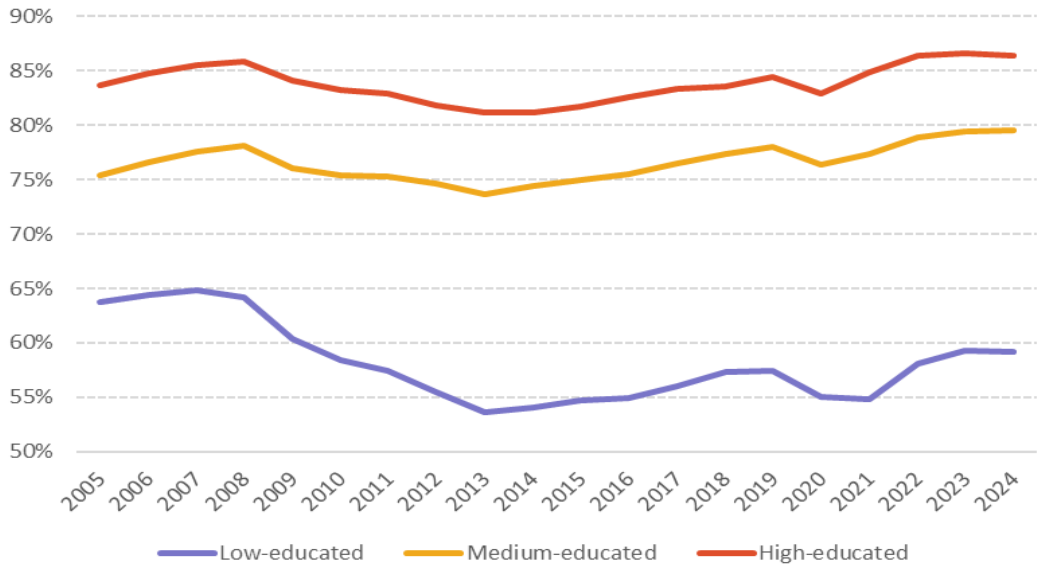
Moreover, quality education can play a pivotal role in reducing future skill shortages across Europe by equipping individuals with the competencies needed in a rapidly evolving labour market. Recent evidence suggests that occupational shortages in the EU economy are largely due to employers' expectations of finding workers with strong learning and adaptability skills (Cedefop, 2024). As technological advancements and green transitions reshape the economy, demand is expected to grow for professionals with digital, technical, and transversal skills (Cedefop, 2025). Without a strategic investment in education and training systems that align with labour market needs, the EU risks facing mismatches between available jobs and the qualifications of the workforce. By fostering inclusive and forward-looking education policies—such as promoting STEM disciplines, and enhancing lifelong learning opportunities—countries can ensure a steady pipeline of skilled workers. This would help buffer against the demographic pressures of an ageing population and declining birth rates, and consequently support productivity and competitiveness.

Demographic trends also present opportunities for innovation in European education systems. Declining birth rates, while reducing student numbers, could ease teacher shortages and allow for more personalised learning experiences. With smaller class sizes, teachers may be better equipped to implement student-centred teaching strategies, enhance critical thinking, and foster creativity. Additionally, fewer students could free up resources for investment in quality improvements, such as modernised curricula, enhanced teacher training, better working conditions, and more effective integration of advanced technologies in classrooms. These changes could lead to more flexible learning models, better preparing students for an evolving job market and ultimately contributing to a more skilled and adaptable workforce.

Opportunities also include the potential to increase public spending per student. Using the same 2030 baseline demographic projections as in Figure 9 — based on the total population aged 3–18 as a proxy for the number of pupils in pre-primary, primary, and secondary education — Figure 11 presents two conservative scenarios for public expenditure per pupil by 2030. The first scenario ('nominal constant') assumes that nominal public expenditure on pre-school and school education will remain unchanged between 2022 and 2030. The second scenario ('real constant') assumes that nominal public expenditure on pre-school and school education will rise by 2% per year over 2022-2030 to keep up with inflation – so that real public expenditure remains stable.[14] Even under the first scenario, public expenditure per pupil would moderately increase in most EU countries, although it would slightly decrease in eight Member States. Under the second scenario, public expenditure per student would rise in all EU countries, with an average increase of 19% across the EU. Larger increases in overall public expenditure than those assumed here would result in more significant gains in spending per pupil.

[14] We choose 2% because it corresponds to the European Central Bank's medium-term inflation target.

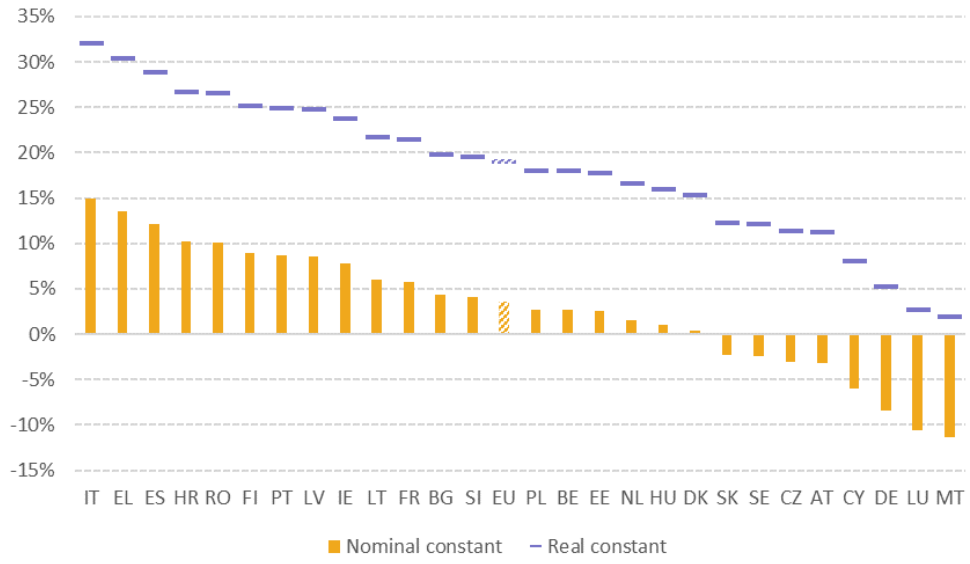
Figure 10. Employment rates of 25-34 year-olds by educational level



Notes: Break in time series in 2014 and 2021. Low-educated people are those with at most a lower secondary qualification, corresponding to International Standard Classification of Education (ISCED) levels 0-2. Medium-educated people have an upper secondary or post-secondary non-tertiary qualification (ISCED 3-4). High-educated people have a tertiary qualification (ISCED 5-8).

Source: European Commission services' calculations based on Eurostat Labour Force Survey data. Online data code: [lfsa_egaed] and [lfsa_pgaed].

Figure 11. 2030 scenarios for public expenditure per pupil (% change compared with 2022 levels)



Notes: Public expenditure per pupil is proxied by the ratio of general government expenditure on pre-primary, primary and secondary education to the total population aged 3-18 as in Eurostat baseline projections. For further details, please consult Eurostat metadata.

Source: European Commission services' calculations based on Eurostat population projection data and COFOG data. Online data codes: [proj_23np] and [gov_10a_exp].

Alongside the amount of public spending, ensuring the effectiveness, efficiency and equity[15] of education investment is key to unlocking its full benefits for the EU economy. Designing the right policies, programmes or reforms, and putting in place proper implementation strategies are the building blocks to make investment in education more effective, efficient and equitable. Within the framework of the European Education Area, EU Member States and the Commission are working together through the Learning Lab on Investing in Quality Education and Training (European Commission, 2025f). The Learning Lab supports EU countries in further developing an evidence-informed approach to policy design and implementation. This includes strengthening the expertise on rigorous evaluation methods among policymakers and sharing knowledge about properly evaluated policies (see Close-Up 2 below). Consequently, the Union of Skills communication stresses the importance of assessing the quality of investment in education with the support of the Learning Lab (European Commission, 2025b, p. 18).

CLOSE-UP 2

The Learning Lab on Investing in Quality Education and Training

Launched in November 2022, the Learning Lab on Investing in Quality Education and Training aims to promote a culture of evaluation in education policy and provide knowledge and resources to identify how to make EU education systems more effective, efficient and equitable. Its activities cover three main areas:

- **Capacity building on evaluation methodologies:** the Learning Lab proposes training courses on education policy evaluation methodologies to policymakers at all levels (national, regional, and local) and education practitioners. So far, specific trainings tailored to the education system's needs took place in Malta, Latvia, the French Community of Belgium, Ireland and Portugal.
- **Collaborative work among Member States:** the Learning Lab has created a Community of Practice, where representatives of Member States and international organisations can discuss their experiences with impact evaluation in education and share good practices.
- **Analysis and evaluation of education policies:** the first open call 'Learning Lab for Evaluation (LL-4E)' was held in 2024: EU countries could apply for a free-of-charge counterfactual impact evaluation to be carried out by the Learning Lab. As a result, the first counterfactual impact evaluation started in September 2024 with Lithuania, to assess the impact of a policy promoting the integration of pupils with special needs in mainstream schools. The Learning Lab also conducts its own policy-oriented research on education policies, ranging from microdata analysis of large-scale international student assessments (Karpiński, 2023; Di Pietro and Karpiński, 2024) to meta-analyses of existing studies (Di Pietro, 2023).

15 Effectiveness refers to the ability to provide good educational outcomes, by making the most of the available human and physical resources. Efficiency adds a financial dimension to the analysis of effectiveness and refers to the ability to provide the desired educational outcomes at the lowest possible cost. Equity requires that the variation in educational outcomes is relatively small among different social groups (e.g. socio-economically advantaged and disadvantaged students). See European Commission (2023a) for a methodological discussion.

Annex and references

Annex A.1. Evolution of public expenditure on education

Figure A.1. Evolution of public expenditure on education by country (2019-2023)

	Share of total public expenditure (%)					Share of GDP (%)				
	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
EU	**10.0**	**9.3**	**9.3**	**9.4**	**9.6**	**4.7**	**4.9**	**4.8**	**4.6**	**4.7**
BE	11.8	11.2	11.3	11.8	11.9	6.1	6.5	6.2	6.2	6.3
BG	10.5	9.5	10.4	9.4	10.5	3.8	3.9	4.3	3.9	4.1
CZ	11.3	10.2	10.4	10.6	10.3	4.6	4.7	4.7	4.5	4.5
DK	12.7	11.7	11.8	11.9	11.8	6.3	6.2	5.8	5.3	5.5
DE	9.4	8.9	8.8	9.0	9.2	4.3	4.6	4.5	4.4	4.5
EE	15.2	14.1	14.0	14.3	14.5	6.0	6.3	5.9	5.7	6.3
IE	13.1	11.8	11.7	12.3	12.3	3.1	3.1	2.8	2.5	2.8
EL	8.3	7.5	7.1	7.8	8.0	3.9	4.4	4.0	4.1	4.0
ES	9.5	9.0	9.1	9.2	9.3	4.0	4.6	4.5	4.3	4.2
FR	9.1	8.4	8.5	8.6	8.8	5.0	5.2	5.1	5.0	5.0
HR	11.2	10.7	11.2	11.2	11.3	5.2	5.7	5.4	5.0	5.3
IT	8.2	7.6	7.5	7.3	7.3	4.0	4.3	4.2	4.0	3.9
CY	12.8	12.3	12.0	12.8	12.5	5.1	5.7	5.1	4.8	5.2
LV	15.0	13.5	12.7	12.8	14.0	5.9	6.0	5.9	5.7	6.1
LT	13.2	12.1	12.7	13.4	13.8	4.6	5.1	4.7	4.9	5.1
LU	11.2	10.6	11.0	10.7	10.7	4.8	5.0	4.7	4.7	5.1
HU	10.2	9.3	10.3	10.3	10.6	4.7	4.7	5.0	5.0	5.3
MT	13.0	11.7	11.7	11.7	11.3	4.5	4.9	4.6	4.4	4.1
NL	11.6	10.7	10.8	11.2	11.3	4.9	5.1	5.0	4.9	4.9
AT	9.9	8.8	8.7	9.0	9.4	4.8	5.1	4.9	4.8	4.9
PL	12.0	10.6	11.2	10.5	10.5	5.0	5.1	4.9	4.5	5.0
PT	10.5	9.6	9.9	10.1	10.3	4.5	4.7	4.7	4.4	4.3
RO	9.8	8.7	8.0	8.1	8.2	3.5	3.6	3.2	3.3	3.3
SI	12.4	10.9	11.7	11.8	11.7	5.4	5.7	5.8	5.6	5.4
SK	10.9	10.6	10.2	10.9	10.3	4.4	4.7	4.6	4.7	5.0
FI	11.1	10.8	10.8	11.0	11.3	5.9	6.1	5.9	5.8	6.3
SE	15.4	14.7	14.7	14.6	14.5	7.6	7.8	7.3	7.1	7.2

Source : Eurostat COFOG data. Online data code: [gov_10a_exp].

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