



### 3 Investment and quality of expenditure in education and training

#### *In a nutshell*

Financial resources are essential for education and training systems to perform. Evidence of the effectiveness of education measures in different contexts continues to grow, but knowledge of the cost of such measures remains limited.

In recent years public expenditure on education in EU Member States was fairly steady, but with considerable variations between countries. In 2019, on average, the EU dedicated 4.7% of its GDP to education, accounting for around 10% of total public expenditure. Education spending varied from 3.1% of GDP in Ireland to over 6% in Estonia, Belgium, Denmark and Sweden. The largest share of public investment goes to secondary and post-secondary non-tertiary education (38.7%), followed by the combination of pre-primary and primary education (33.4%) and then tertiary education (16.2%).

The largest component of public expenditure on education is the total remuneration paid to teaching staff (64.4%), followed by intermediate consumption (13.6%), which consists of the purchase of goods and services needed to provide education services. The third-highest item was gross capital formation (7%), which comprises capital investments in e.g. buildings, followed by social benefits (6%) and other current transfers (6%).

With the COVID-19 pandemic, teachers and students had to move abruptly to online learning, though many were unprepared for this sudden change: not all had the technical and pedagogical skills needed to integrate digital devices; ICT equipment was not always available; there was little online learning support; and not all students had access to a quiet place to study.

A partial overview of the initial policy response in a selection of Member States shows that investment to accelerate digitalisation increased, additional teachers were hired or additional teacher training was provided, funding was made available for student counselling and assistance, and bonuses were paid to teachers. Some countries also compensated schools for additional prevention costs, e.g. of protective equipment or additional disinfection products. Investment in better infrastructure or summer "bridging" programmes were mentioned in fewer countries. In this new context, the EU set up a Recovery and Resilience Facility (RRF). With the European Structural and Investment Funds, the increase in EU funds going into education and training is much higher than in the period 2014-2020.

The benefits that educational attainment can bring to individuals and society are very well established<sup>234</sup>. They are significant and typically materialise over a long period of time<sup>235</sup>. However, there is a wide consensus that levels of educational attainment do not give the full picture. Being in school does not always necessarily translate into learning. It is important to assess the quality of education by looking both at students' academic achievements and at their learning outcomes, as well as at their social, emotional and ethical competences.

---

<sup>234</sup> The economic benefits of education to individuals include employability, higher lifetime earnings, or higher job satisfaction and at the macroeconomic level, education can spur long-run economic growth through accumulated human capital, see EENEE (2014). [The Economic Case for Education](#). Greater educational attainment is also positively associated with a variety of social outcomes; for example data collected before the Covid-19 outbreak show that people with a tertiary degree are less likely to report suffering from depression and they are more likely to be in contact with their friends and family physically and through the Internet, see and OECD (2020). [What role might the social outcomes of education play during the COVID-19 lockdown?](#) In: Education Indicators in Focus, No. 75.

<sup>235</sup> European Commission (2017). [Investment in human capital – Assessing the Efficiency of Public Spending on Education](#). Technical note prepared by European Commission staff for the Eurogroup of 6 November 2017.

Financial resources are essential for education and training systems to perform and to ensure equity in learning opportunities and outcomes. Additional school resources improve educational achievement, when used effectively. However, there is no certainty that increasing the amount of funding invested in education automatically improves the performance of education and training systems or leads to significantly better learning outcomes. Students living in countries that channel different levels of public resources to education achieve comparable learning outcomes, as measured by PISA.

As an illustration, we can focus on the six countries where students' academic achievement, as measured by PISA, is above average<sup>236</sup>. Four of the countries where the proportion of low achievers are below average, namely Denmark, Estonia, Slovenia and Poland, dedicate more than the EU average (1.5% of GDP in 2018) to public investment in pre-primary and primary education<sup>237</sup>, while in the other two, Ireland and Finland, the amount of public investment is well below the EU average. Among the countries where the proportion of top performers in reading is above 10%, three countries, namely Estonia, Sweden and Poland, dedicate more than the EU average to public investment in education. In the other three (Germany, Finland and Ireland), the share of public investment in pre-primary and primary is below the EU average.

There has long been a focus on resource-based education policies and the impact that additional funding invested in education has on students' outcomes. A review of studies<sup>238</sup> highlights that, while a meta-analysis carried out in 1996 concluded that "school resources are systematically related to student achievement and that these relations are large enough to be educationally important," subsequent studies had found little or no effect. However, some recent studies attest to the positive impact of increasing investment in low-income school districts on students' achievements, as well as the positive effect of school funding on students' college enrolment and the likelihood of earning a postsecondary degree.

#### **Box 26: Directing investment towards disadvantaged youth**

An important factor behind the cycles of disadvantage affecting young people in the EU is the intergenerational transmission of educational success. A child's household environment plays a substantial role in the development of their potential and research has shown that family income or socio-economic background is a key determinant of student performance. In particular, households with more limited financial resources do not have the means to invest substantially in their children's curricular and extracurricular activities. Disadvantaged young people may also face systemic underinvestment in schooling, compared to young people from more privileged backgrounds, thus perpetuating inequality.

Education policies may partially compensate for disadvantage in schools. Such policies can, for example, provide for more educational resources and staff for schools in disadvantaged areas.

<sup>236</sup> These countries have a share of low achievers in at least one of the three domains below 15%.

<sup>237</sup> A more precise measure of the resources invested in this context could be the cumulated expenditure per student.

<sup>238</sup> Belmonte, A., Bove, V., D'Inverno, G. and Modica, M. (2020). School infrastructure spending and educational outcomes: Evidence from the 2012 earthquake in Northern Italy. In: *Economics of Education Review*, Volume 75, April 2020. The study provides evidence of a positive impact of capital spending in improving the learning environment and performances of high school students, by analysing the impact of extra funding on school infrastructure after the 2012 Northern Italy earthquake. A stronger positive effect is found for lower-achieving students. The study reviews studies using US evidence, including the meta-analysis by Greenwald, R., Hedges, L.V., Laine, R.D. (1996). [The effect of school resources on student achievement](#). in: *Review of Educational Research*, 66 (3), pp. 361-396 and the studies by LaFortune, Rothstein, and Schanzenbach (2018), School finance reform and the distribution of student achievement in: *American Economic Journal: Applied Economics*, 10 (2) (2018), pp. 1-26 showing that school finance reforms, by increasing investment in low-income school districts, caused an important increase in students' achievements and Hyman, J. (2017). Does money matter in the long run? Effects of school spending on educational attainment. in: *American Economic Journal: Economic Policy*, 9 (4) and (2017) showing that school funding can boost students' college enrolment and the likelihood to earn a postsecondary degree.

Behind the idea of increasing resources is the assumption that if more resources are given to low-performing schools and directed at disadvantaged young people, then educational attainment and performance among this group of students will improve.

Evidence shows the positive impact of resources on the achievement of disadvantaged children, even if not all investments will produce positive returns as the effectiveness of measures also depends on the specific nature of the settings. In particular, a US study has shown that increases in per-student spending increased educational attainment and improved labour market outcomes for socio-economically disadvantaged children. Another US study has shown that increasing funding for textbooks had a positive effect on elementary-school student performance, but no detectable impact on middle and high-school students. These results suggest that channelling resources to the earlier levels of schooling may be most beneficial. A review of a programme in the Netherlands that provided an unconditional transfer of funds to primary schools with a high proportion of disadvantaged children for the purpose of either hiring extra staff or purchasing computers and software found that the programme had a negative effect on student learning. This might be explained by the fact that schools had a low student-teacher ratio even before the funds were granted, so they struggled to spend the staff subsidy effectively.

Source: Behaghel, L., Gurgand, M., Kuzmova, V. and Marshalian, M. (2018). [European Social Inclusion Initiative, A Review Paper](#).

The evidence base for the effectiveness of education-related measures in different contexts continues growing, but knowledge about the cost of such measures remains limited. This makes it more difficult to assess which measures are effective for achieving good outcomes, and efficient. More can be done on building and sharing evidence of how public investment can improve the quality of education and training.

As an example of focused assessments of investments in specific measures, a review<sup>239</sup> of evidence highlights the experimental research findings that tutoring measures evaluated in rigorous experiments are highly effective in supporting students who are struggling with reading or mathematics. The impact was found to be greater when the measures are carried out during school hours by teachers or teaching assistants and in the lower grades. The effects are greater compared with other measures to support struggling students, such as after-school programmes, extended day instruction or use of computer-assisted instruction and other digital approaches. The costs of tutoring measures ranges between medium and high: overall, the authors of the review assess the cost of tutoring to be relatively high, but simple forms of tutoring are found to be less costly and still effective. In comparison, high costs are associated to the other measures assessed which are found to be significantly less effective.

At EU level, policy attention to the effectiveness and efficiency of public expenditure on education has increased in recent years, with more focus on how to improve the impact of resources invested than necessarily on changes in funding levels or different distribution of funding. The Council Resolution on a strategic framework for European cooperation in education and training<sup>240</sup> confirmed the commitment to intensifying work on investment in education and training, as part of the new European cooperation framework towards the European Education Area and beyond, stating: 'Effective and efficient investment in education and training is a prerequisite for enhancing quality and inclusiveness of the education and training systems and improving the education

---

<sup>239</sup> De Witte et al (2021). [Presentation to the Flemish Parliament: How can we reverse the learning deficit? and Highlight Tutoring Among Post-Covid Solutions](#).

<sup>240</sup> Council Resolution on a strategic framework for European cooperation in education and training towards the European Education Area and beyond (2021-2030), OJ 2021/C 66/01.

outcomes, as well as for driving sustainable growth, improving well-being and building a more inclusive society. While respecting the principle of subsidiarity, intensified work on investment has a potential to aid the recovery from the current crisis and contribute to the green and digital transitions of the education and training sector<sup>7</sup>.

The following sections provide a broad context for the theme of investment in education using the available indicators for education expenditure in recent years. A preliminary review is then given of early national responses to the sudden needs emerging from the physical school closures at various levels of education. Finally, there is an overview of the Recovery and Resilience Plans and the increased EU resources being channelled into education and training.

### 3.1 Total expenditure on education and training

Expenditure on education largely comes from public budgets, and also includes funding from students, their families and other private sources<sup>241</sup>. Figure 69 shows the estimated proportion of expenditure on education from the three main sources - government, non-educational private sources and international organisations - in 2018 the most recent year for which comparable data are available.

The share of total education-related expenditure from public budgets ranged from 73.0% in Cyprus to 97.7% in Romania, in the countries for which data is available for 2018<sup>242</sup>. The share of expenditure coming from private sources was above 9% in all countries for which data are available, except Romania, Luxembourg and Finland, and within the range of 18-26% in Netherlands, Slovenia, Slovakia, Portugal, Spain and Cyprus. The contribution of international organisations is generally below 3% of total expenditure in all but five of the Member States for which data are available: Slovakia, Portugal, Poland, Lithuania and Latvia.

#### **Box 27: Infrastructure investments in Croatia's Recovery and Resilience Plan to speed up improvements in education**

Croatia will make use of the funds available under the Recovery and Resilience Facility to invest in ECEC and school infrastructure. It will provide funding for building and upgrading ECEC facilities to create 22 500 additional places with the goal of increasing ECEC participation of children from the age of 3 from 76.3% to 90% by 2026. In primary schools, funding will be provided for the building and upgrading of primary schools. Currently, 60% of Croatian students go to schools in two or even three shifts due to insufficient infrastructure, which limits the possibility of reforms based on more instruction hours. Investments aim to increase the percentage of students attending primary one-shift schools from 40% to 70%, bringing closer a set of reforms to improve the quality of education.

The tertiary-education level has the largest proportion of funds coming from private sources, with household expenditure (through tuition fees) being the biggest source. Private sources account for at least 30% of total expenditure in tertiary education in Portugal, Slovakia, Latvia, Spain, Cyprus and Bulgaria. They account for 10% or below in Romania, Luxembourg and Denmark.

<sup>241</sup> Private sources other than households include enterprises, non-profit organisations and religious institutions, with a relatively small role of international organisations such as the United Nations or the World Bank. For more details, cf. Eurostat (2021). [Educational expenditure statistics – Statistics Explained](#).

<sup>242</sup> 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.

**Figure 69: Distribution of expenditure on education by source (all levels of education excluding early childhood educational development, and tertiary education), 2018**

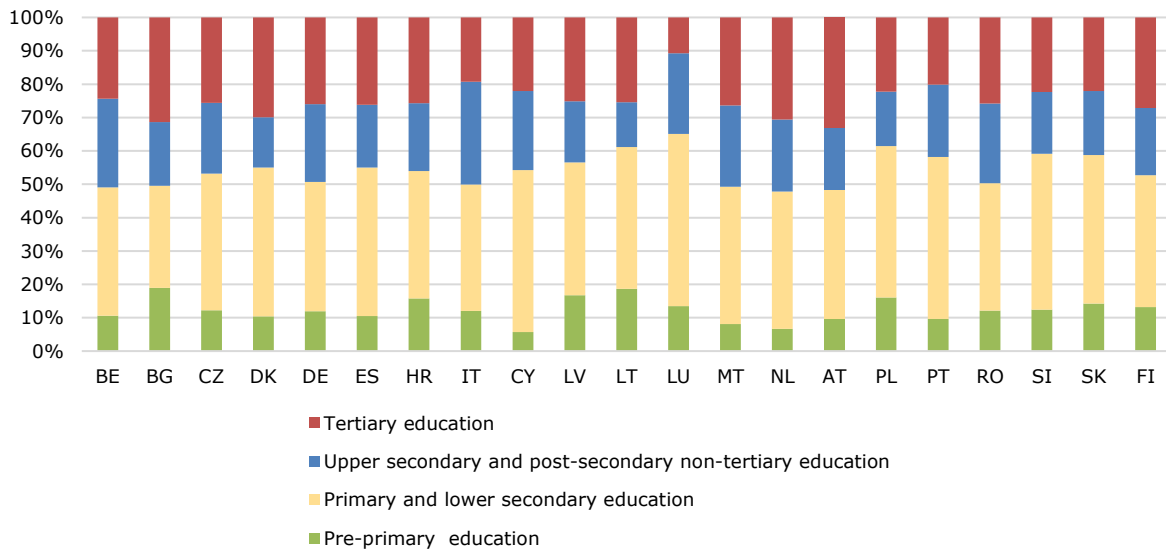
	All ISCED2011 levels excluding early childhood educational development			Tertiary education (levels 5-8)		
	Government	Non-educational private sector and other private entities	International organisations	Government	Non-educational private sector and other private entities	International organisations
<b>EU</b>	:	:	:	:	:	:
BE	88.3	10.5	1.2	77.1	20.2	2.7
BG	80.3	17.1	2.1	52.6	44.5	2.9
CZ	83.4	15	1.5	68.1	26.4	5.6
DK	88.4	10.2	1.4	80.9	15.4	3.8
DE	:	:	:	:	:	:
EE	:	:	:	:	:	:
IE	:	:	:	:	:	:
EL	:	:	:	70.1	19.2	10.7
ES	74.9	24.7	0.4	62.2	36.4	1.4
FR	:	:	:	:	:	:
HR	:	:	:	58.4	36	5.6
IT	83	16.1	0.8	65.6	32.7	1.7
CY	71.1	26.3	1.4	48.3	46.1	5.6
LV	74.8	17.7	6.6	45.6	36.5	17.9
LT	77.8	15.5	6.1	56.8	31.3	11.9
LU	92.7	4.4	2.7	86.1	10.1	3.9
HU	:	:	:	:	:	:
MT	82.1	15.1	1.1	81.1	16.7	2.1
NL	74.7	24.3	0.9	66.8	30.9	2.2
AT	:	:	:	:	:	:
PL	78.9	16.9	4.2	75.5	23.6	1
PT	74.9	21.5	3.5	58.4	32.6	8.9
RO	:	:	:	:	:	:
SI	78	19.2	2.3	70.2	24	5.8
SK	74.6	22.1	3	57.6	38.7	3.8
FI	88	10.7	1.2	72.9	23.3	3.8
SE	:	:	:	:	:	:

Source: Eurostat [educ\_uoe\_fine01]

Figure 70 shows the distribution of total expenditure on education by level of education, excluding early childhood educational development, in 2018. The largest proportion of expenditure on education goes to primary and lower secondary education, except in Bulgaria where that category is the second highest. Primary and lower secondary education account for between 30.6% of total expenditure in Bulgaria and half of the total in Luxembourg (51.6%). Tertiary education often accounts for the second highest share of total expenditure, except in Bulgaria where it is the highest, in Luxembourg where it is the lowest, and in Italy where it is the second lowest. Tertiary education accounts for between 20% and 30% of total educational expenditure in all countries, except Luxembourg (10.8%), Italy (19.3%) and Netherlands (30.6%).

Upper secondary and post-secondary non-tertiary education typically accounted for between 15% and 25 % of total educational expenditure, with lower shares recorded in Lithuania (13.4%), and higher shares registered in Malta (26.4%), Belgium (26.5%) and Italy (30.7%). Generally, pre-primary education has the smallest share of educational expenditure, ranging from 5.7 % in Cyprus and 10.0 % or below in Netherlands, Malta and Portugal, and up to 15% to 20% of total education expenditure in Latvia (16.7%), Lithuania (18.7%) and Bulgaria (18.9%). In Lithuania and Denmark, the proportion of expenditure on upper secondary and post-secondary non-tertiary education was the lowest, and in Luxembourg the share of expenditure on tertiary education was lower than the share on pre-primary education.

**Figure 70: Distribution of total expenditure on education (excluding early childhood educational development), by level of education, 2018**



Source: Eurostat [educ\_uoe\_fine01].

### 3.2 Public expenditure on education and training

The most recent comparable data on general government expenditure available are for 2019, when general government expenditure on education amounted to €654 bn or 4.7% of GDP in the EU. Of this, “pre-primary and primary education” accounted for 1.6% of GDP and secondary education accounted for 1.8% of GDP. For tertiary education, expenditure amounting to 0.8% of GDP was reported in the EU<sup>243</sup>.

<sup>243</sup> Eurostat collects data on general government expenditure by economic function according to the international Classification of the Functions of Government (COFOG). In this classification in use in national accounts, expenditure on “education” is divided into groups based on the ISCED 1997 classification, which means that expenditure in pre-primary and primary education cannot be distinguished. The following COFOG groups form the education division: “pre-primary and primary education”, “secondary education”, “post-secondary non-tertiary education”, “tertiary education”, “education not definable by level”, “subsidiary services to education”, e.g. expenditure on providing school busses, “R&D education”, i.e. R&D related to education not all R&D undertaken for example in universities and “education not elsewhere classified”.

**Figure 71: Public expenditure on education, 2016-2019**

	Year-on-year real change (%)				Share of total public expenditure (%)				Share of GDP (%)			
	2016	2017	2018	2019	2016	2017	2018	2019	2016	2017	2018	2019
<b>EU</b>	<b>0.5</b>	<b>-0.6</b>	<b>3.6</b>	<b>1.9</b>	<b>9.9</b>	<b>10.0</b>	<b>10.0</b>	<b>10.0</b>	<b>4.7</b>	<b>4.7</b>	<b>4.7</b>	<b>4.7</b>
BE	0.5	1.5	0.8	0.8	11.7	12.0	11.9	11.8	6.2	6.2	6.2	6.2
BG	-8.5	8.4	-0.2	9.9	9.7	10.1	9.6	10.7	3.4	3.5	3.5	3.9
CZ	-8.3	6.1	12.9	7.5	9.9	10.4	11.3	11.8	3.9	4.1	4.6	4.9
DK	-0.6	-2.6	0.2	1.1	12.9	12.7	12.6	12.7	6.8	6.4	6.4	6.3
DE	1.7	1.9	1.3	2.8	9.5	9.5	9.5	9.6	4.2	4.2	4.2	4.3
EE	-3.1	4.1	10.7	-0.7	14.4	14.5	15.8	15.5	5.6	5.7	6.2	6.0
IE	4.3	3.3	4.7	4.1	12.3	12.6	12.6	12.8	3.5	3.3	3.2	3.1
EL	-3.1	-3.6	5.4	-3.2	8.1	8.0	8.5	8.3	4.0	3.9	4.1	4.0
ES	2.0	1.6	1.6	2.1	9.6	9.7	9.5	9.5	4.1	4.0	4.0	4.0
FR	1.0	1.5	1.2	1.6	9.5	9.5	9.6	9.5	5.4	5.4	5.3	5.3
HR	-1.3	3.6	3.2	-3.0	9.9	10.5	10.2	10.2	4.7	4.8	4.7	4.8
IT	-2.4	1.0	1.3	-0.1	7.9	7.9	8.1	8.0	3.9	3.9	3.9	3.9
CY	3.5	0.9	0.8	6.7	14.6	14.4	11.8	13.4	5.5	5.3	5.1	5.4
LV	-2.2	6.5	3.3	-3.5	14.8	14.9	14.8	15.0	5.5	5.8	5.8	5.8
LT	-4.5	-1.2	-0.5	-0.6	14.0	13.7	13.4	13.3	4.8	4.5	4.5	4.6
LU	0.5	3.5	3.8	3.4	10.9	10.8	10.9	11.0	4.5	4.5	4.6	4.7
HU	-5.1	3.6	3.2	-3.0	10.6	10.9	10.9	10.3	5.0	5.1	5.0	4.7
MT	4.0	0.5	12.7	7.4	14.2	13.6	14.0	14.2	5.1	4.8	5.1	5.3
NL	2.2	0.6	0.1	-0.9	12.0	12.1	11.9	11.8	5.2	5.1	5.1	5.0
AT	1.7	0.6	0.7	0.8	9.8	9.8	9.8	9.9	4.9	4.8	4.8	4.8
PL	-3.3	2.7	5.3	5.1	12.1	11.9	12.0	12.0	5.0	4.9	5.0	5.0
PT	-4.0	-1.5	-1.4	0.7	10.6	10.1	10.3	10.3	4.8	4.6	4.4	4.4
RO	0.3	-13.9	7.4	17.6	9.6	8.5	9.1	10.1	3.3	2.8	3.2	3.6
SI	0.5	1.7	3.4	1.8	12.0	12.3	12.4	12.6	5.5	5.4	5.4	5.5
SK	-7.3	2.0	3.6	5.2	9.1	9.4	9.5	9.8	3.9	3.9	4.0	4.2
FI	1.5	-2.8	-0.5	2.1	10.9	10.5	10.4	10.6	6.0	5.6	5.5	5.6
SE	4.5	1.7	3.4	1.8	13.3	13.6	13.8	14.1	6.6	6.7	6.9	6.9

Source: Eurostat General government expenditure by function (COFOG) [[gov\\_10a\\_exp](#)]

Note: The "real change" is adjusted by inflation. Provisional data for 2019 for ES and PT; for 2018 and 2019 for FR; and for the period from 2016 to 2019 for SK. Pending revision of data for HU.

There are considerable differences between countries in the amount of public expenditure on education as a percentage of GDP, ranging from below 4% in Ireland (3.1%), Italy (3.9%), Romania (3.6%) and Bulgaria (3.9%) to 6.0% and above in Estonia (6.0%), Belgium (6.2%), Denmark (6.3%) and Sweden (6.9%).

Public expenditure on education in the EU accounts for on average 10% of total public expenditure. In Estonia (15.5%) and Latvia (15.0%), public expenditure on education accounted for over 15% of general government total expenditure while the ratio is below 10% in Italy (8.0% of total expenditure), Greece (8.3%), Spain and France (both 9.5%), Germany (9.6%), Slovakia (9.8%) and Austria (9.9%).

There were limited changes in recent years in most countries. The most significant changes occurred in Bulgaria, Czechia and Estonia, where education accounts for an increasing share of total public expenditure (with an increase of over 1 percentage point between 2016 and 2019), and Cyprus where the share has decreased (above 1 percentage point over the same period). Recently, there has also been a year-on-year real change of over 7% in Romania, Bulgaria, Czechia, Cyprus and Malta.

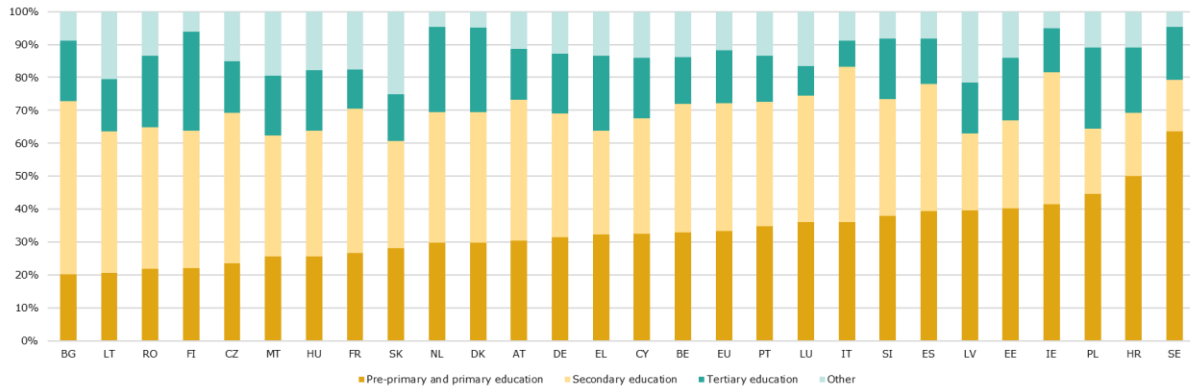
### 3.3 Public expenditure by education sector and category

The size of public expenditure on education in total public expenditure indicates the priority given by governments to education relative to other areas of investment, such as health care, social security, housing, defence or security. On average, in 2019, EU Member States directed 33.4% of public education expenditure to pre-primary and primary education. Secondary education



accounted for an average of 38.7% of public education expenditure, while tertiary education totalled 16.2%. 11.7% was not attributable to one of the three main levels<sup>244</sup>. The biggest difference across countries concern the resources devoted to pre-primary and primary education, which range from 20% of total education expenditure in Bulgaria and Lithuania to 63.7% in Sweden.

**Figure 72: Public expenditure per education level, 2019**



Source: Eurostat - General government expenditure by function (COFOG) [gov\_10a\_exp]

Note: The Government expenditure on education covers all public expenses for education – including public subsidies for private education – but not private funding for private education institutions, for example payment from parents, grants from private funds and other sources of income. The data are sorted in ascending order of expenditure on pre-primary and primary education. The category “other” includes expenses not covered by the other categories, it contains, in particular, post-secondary non-tertiary education, R&D or subsidiary expenditure.

The sizeable differences between countries can be explained by many factors that have an impact on government education expenditure: involvement of the general government in the education system, including in supporting educational services<sup>245</sup>, enrolment, 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 the tertiary level, tuition fees and support for students are also determining factors.

Enrolments in compulsory levels of education mostly depend on demographic developments. In other levels of education, enrolment rates are partly influenced by policy priorities, for example some countries invest public resources in near-universal education for children from 3 years of age and others emphasise broad access to tertiary education, or both. Some countries favour smaller classes for younger children at the pre-primary and primary level of education, which tend to increase the number of staff and associated expenditure. Enrolment rates in non-compulsory education may also depend on factors such as the economic cycle, with economic booms reducing incentives for students to remain in education and training.

Changes in the numbers of children born and the resulting shifts in the age structure of the population affect the number of school-age children and young populations in many countries, with implications for the organisation of schooling, e.g. when there are changes in the number of school-age children concentrated in certain areas, especially decreases in the number of children in

<sup>244</sup> It included “education not definable by level”, “subsidiary services to education”, e.g. expenditure on providing school busses, “R&D education”, i.e. R&D related to education not all R&D undertaken for example in universities and “education not elsewhere classified”.

<sup>245</sup> These are peripheral to the main education services, including for example meals, school health services, and transport to and from school.

rural areas. At the same time, intra-EU mobility, when families move across the EU, affects the number of children at various levels in the education system. Newly arrived refugee children and other immigrant children also push up the number of school-age children in specific communities, regions and countries.

Education systems typically adapt slowly to long-term demographic change and enrolment trends. Moreover, there is no simple relation between a decreasing student population and expenditure on education<sup>246</sup>, which may also be affected by measures to improve learning support for students, or innovative ways of teaching.

Differences in the types of services provided at each education level can vary significantly from country to country. At the primary level, for example, some countries provide transport to and from school or student meals (Sweden, Finland, Estonia).

### **Box 28: The impact of demographic change on public expenditure on education**

Demographic change influences the ratio of education expenditure to total public expenditure via the number of students and, indirectly, changes in entitlements to pensions and healthcare. The 2021 Ageing report presents projections carried out to assess the impact of long-run demographic changes on general government education expenditure until 2070. Projections over a very long time-horizon illustrate the impacts that demographic change – which takes a long time to materialise – can be expected to have on government expenditure on education, assuming no change in policy.

Projections are made using a stylised methodology that considers major aspects of education systems (such as enrolment rates by age and education level) and expenditure categories by education level and type, but does not take into account the full complexities of Member States' education systems.

The baseline scenario focuses on the impact of demographic factors on government education expenditure and assumes a “no-policy-change” in education: the key assumption is a constant student-to-staff ratio, which implies an instantaneous adjustment in the number of teaching staff-to-student levels.

According to the projection, government expenditure on education is set to remain broadly stable at the EU aggregate level. Government expenditure on education will increase in 5 countries (Bulgaria, Czechia, Germany, Slovakia and Slovenia) and fall in 21 countries. The projected impact varies across individual countries ranging from a decline of 0.9 percentage point in Finland to a 0.6 percentage point increase in Czechia. In the countries for which a reduction in total expenditure is projected, usually primary and secondary education (ISCED levels 1 to 3) bear most of the projected fall in total expenditure. At the same time, in Member States where total education expenditure is projected to rise, tertiary education tends to contribute positively to the overall increase in expenditure.

In countries projected to have the biggest decrease in education spending, the projected decrease of the number of students is often an important driver. The countries with the largest projected reduction are Finland, Denmark and Luxembourg respectively.

Source: European Commission (2021). [The 2021 Ageing Report – Economic and Budgetary Projections for the EU Member States \(2019-2070\)](#), An Institutional Paper 148, May 2021.

<sup>246</sup> For example, in BG and CZ where the increases in the share of education in total public expenditure were the largest, the number of students in all education levels (excluding early childhood education development) actually decreased over the period between 2013 and 2019 (-8.3% in BG and -2.1% in CZ). Conversely, the share of education in total public expenditure decreased in CY, while the number of students increased by 11.1%. Source: educ\_uae\_enra01.

For the EU as a whole, the main category of expenditure is “compensation of employees”, which is the total remuneration of employees: wages, salaries and employers' social contributions, for professors, teachers, assistants and other non-teaching staff such as school leaders or special educational support staff. Around 64% of public expenditure on education is in the form of “compensation of employees”. The second-largest category of public expenditure (14.8%) is in the form of “intermediate consumption”, meaning purchases of non-durable goods (e.g. teaching materials such as teaching manuals) and services needed to provide education (e.g. heating, electricity, cleaning and maintenance services). Gross capital formation (investment in acquiring fixed assets and durable goods, such as computers and buildings, and also including the depreciation of fixed assets) accounts for around 7.1% of education expenditure. The main remaining categories are social benefits, for example school transport (5.5% of public expenditure) and other current transfers, which includes for example payments to private schools (5.6% of public expenditure).

**Figure 73: Public expenditure by category of expenditure, 2019**

	Compensation of employees	Intermediate consumption	Social benefits	Other current transfers	Gross capital formation
<b>EU</b>	<b>64.4</b>	<b>13.6</b>	<b>5.5</b>	<b>5.6</b>	<b>7.1</b>
BE	82.3	10.6	1.0	0.7	5.2
BG	74.9	16.1	0.0	0.7	7.8
CZ	62.7	16.4	0.0	3.7	15.0
DK	50.9	18.2	14.8	9.1	6.8
DE	57.0	16.5	2.9	11.5	7.6
EE	59.2	19.1	4.7	2.5	14.1
IE	69.7	11.2	4.1	4.5	7.9
EL	79.4	6.9	3.3	1.0	9.2
ES	68.9	7.3	16.1	3.9	3.3
FR	69.7	9.7	5.6	3.5	7.5
HR	70.4	18.4	3.9	0.7	5.1
IT	75.6	10.4	0.0	4.8	3.3
CY	76.7	8.9	7.0	2.9	4.4
LV	59.1	20.3	4.2	1.0	15.3
LT	69.7	15.1	1.7	4.6	8.8
LU	69.4	7.8	2.9	9.8	8.4
HU	52.2	19.1	3.2	13.4	9.0
MT	58.3	8.9	7.8	14.5	10.4
NL	57.6	22.0	4.3	0.4	8.3
AT	64.5	16.2	3.0	6.9	6.1
PL	65.3	15.0	6.9	3.4	8.3
PT	72.7	10.8	8.8	1.0	3.1
RO	67.5	10.5	6.1	3.4	7.3
SI	65.6	18.3	6.8	0.9	6.9
SK	68.8	16.9	2.4	4.4	6.2
FI	48.0	22.3	5.5	8.5	15.0
SE	44.4	15.8	17.1	2.9	9.9

Source: Eurostat. Online data code: [\[gov\\_10a\\_exp\]](#).

Note: The category “compensation of employees” includes wages and non-wage costs such as employers’ social contributions for e.g. teachers; “intermediate consumption” includes purchases of goods and services; “other current transfers” includes for example payments to private schools. The category “intermediate consumption” encompasses intermediate consumption; other taxes on production; current taxes on income, wealth, etc.; and adjustment for the change in pension entitlements.

The quality of teachers and trainers is key to achieving quality outcomes and high inclusion. Teachers and trainers support students in their development and play an important role in stimulating or hampering student motivation and inspiration<sup>247</sup>. Appropriate salaries can help

<sup>247</sup> European Commission/EACEA/Eurydice (2021). [Teachers in Europe: Careers, Development and Well-being](#). A Eurydice report.

school systems attract the best candidates to the teaching profession and underpin its social status<sup>248</sup>. Other conditions matter too, in particular high-quality initial teacher education and measures to maintain teachers' motivation throughout their careers<sup>249</sup>. The physical environment in schools also has an influence on teaching methods and learning processes. Investing in effective learning environments and ensuring that the potential of learning spaces is used effectively are also determinants of quality education and training.

Another aspect worth highlighting is financial assistance to households or students, which may take a variety of different forms, including scholarships, public loans and allowances dependent on a student's status. The share of public education expenditure that was used for financial aid to households and students ranged in 2018 from 0.2% in Greece and 1.5% in Luxembourg to 16.9% in Denmark; the highest share was recorded in Bulgaria (18.4%) – see Figure 74. The relative importance of financial support may also depend on the education level: compulsory education is generally free to students, even though there are a number of hidden costs<sup>250</sup>, while tertiary education may or may not be free.

**Figure 74: Financial aid to students by education level – as % of total public expenditure, 2018**

EU	All ISCED 2011 levels except early childhood educational development	Primary and lower secondary education (levels 1 and 2)	Upper secondary and post-secondary non-tertiary education (levels 3 and 4)	Tertiary education (levels 5-8)
BE	5.4	1.3	5.0	14.6
BG	18.4	22.6	15.2	11.2
CZ	2.8	2.1	3.2	1.5
DK	16.9	2.2	19.8	35.9
DE	8.6	0.4	16.7	17.5
EE	:	0.1	3.3	4.4
IE	:	2.2	17.1	34.7
EL	0.2	0.0	0.0	0.9
ES	4.2	1.2	4.4	11.5
FR	4.3	3.4	4.3	8.5
HR	:	:	:	1.2
IT	7.1	2.0	3.1	27.9
CY	3.9	0.4	0.8	20.6
LV	2.7	0.2	8.2	5.4
LT	2.8	1.0	2.5	9.5
LU	1.5	0.9	1.3	6.2
HU	3.2	1.5	1.9	10.7
MT	6.0	0.1	9.6	12.7
NL	15.2	0.7	20.5	33.3
AT	4.1	0.5	5.1	8.6
PL	3.6	2.2	0.7	10.9
PT	5.1	3.4	5.3	12.8
RO	4.3	1.3	4.4	10.3
SI	8.2	3.7	18.1	13.3
SK	4.0	0.4	7.8	11.7
FI	3.6	0.0	5.9	9.0
SE	9.5	0.5	14.1	26.7

Source: Eurostat. Online data code: [\[educ\\_uoe\\_fina01\]](#)

<sup>248</sup> Thum-Thysen, A., Cravetto, R., Varchola, J. (2021). [Investing in People's Competences: A Cornerstone for Growth and Wellbeing in the EU](#). A European Commission discussion paper.

<sup>249</sup> European Commission/EACEA/Eurydice (2021). [Teachers in Europe: Careers, Development and Well-being](#). A Eurydice report.

<sup>250</sup> There is a distinction between core educational expenditure, such as expenditure on teachers, maintenance of school buildings etc. and related expenditure, such as school meals and health services, transportation to and from school or school trips. The latter is relevant when assessing the affordability of compulsory education for families.

### Box 29: Affordability of formal education: the perspective of households

There is limited comparable information on the affordability of education from the perspective of households. Focusing on formal education, the costs for households include tuition fees, registration, exam fees, books, school trips, canteen costs and other expected costs. In the case of adult learners, the cost can include the loss of income resulting from the individual giving up employment or reducing their working hours in order to participate in education. In 2016, the majority (59%) of households living in the EU were able to pay the costs of formal education fairly easily (26%), easily (20%) or very easily (13%), while 41% of households reported some difficulty (22%), moderate difficulty (12%) or great difficulty (7%) in paying for these costs. The affordability of formal education in the EU was similar across cities, towns and suburbs, and rural areas. Difficulty covering the related costs was reported by 44% of households in rural areas, 41% in cities and 39% in towns and suburbs. At least 1 in 2 households reported difficulty in paying the costs of formal education in 15 EU Member States, in particular in Greece (89%), Cyprus (82%), Romania (78%) and Croatia (77%). In contrast, in the remaining 13 EU Member States, at least half of households were able to pay for formal education with ease. In particular, in Finland, 87% of households reported that they were able to cover the financial costs related to formal education fairly easily, easily or very easily, followed by Germany and Sweden (both 85%).

Source: 2016 EU-SILC ad-hoc module on access to services.

Note: The category 'with ease' includes those households which were able to cover the costs of formal education fairly easily, easily, or very easily, whilst the category 'with difficulty' includes those households which covered these costs with some difficulty, difficulty, or great difficulty.

## 3.4 Financing education and training in the context of COVID-19

With the COVID-19 pandemic and the physical closures of institutions at various levels of education, most EU countries suddenly needed online learning solutions, including online platforms, take-home packages, and other solutions such as television/radio or mobile phones. The situation differed over time, depending on the phase of the pandemic and across countries, ranging from school closures without any online learning, in some cases, or intense online learning, hybrid formulas (e.g. part-time on site education combined with online learning) and physically open schools (with some temporary closures). The disruption for higher education institutions was considerable with the closure of physical campuses, whereas the access of younger children to school tended to be prioritised.

This section draws entirely on the ad-hoc report on financing education in the context of COVID-19 prepared by the European Expert Network of Economics in Education<sup>251</sup>. Teachers and students had to move abruptly to distance learning, though many were unprepared for this sudden change. For example, the 2018 PISA data suggest that the percentage of students in schools whose principal agreed or strongly agreed that teachers have the necessary technical and pedagogical skills to integrate digital devices in instruction ranged from 83% in Lithuania to lower than 50% in Ireland. Taking a global perspective, several non-EU countries are performing better than the best performers in the EU.

<sup>251</sup> De Witte, K et al (2021). [Financing education in the context of COVID-19](#), EENEE Ad hoc Report 3, 2021.

### Box 30: Emergency funding under COVID-19 in Ireland

In response to COVID-19, Ireland allocated large-scale emergency funding to all levels of education. The funds were intended to address public health compliance measures, enhance teacher supply, increase higher education places and mitigate revenue losses. The funds also aimed at the safe reopening of schools, ECEC facilities and further and higher education institutes as fully as possible. In 2021 an additional €8.9 bn has been allocated to education as emergency funding, which will finance 1 065 additional teachers. In total 23 000 new school places and additional student accommodation will be provided by more than 200 large-scale projects currently at construction stage. Funding provided specifically to support schools in their response to COVID-19 from January to July-August 2021 amounted to €26 m, providing additional capacity for the school system to manage in the COVID-19 environment and to cater for increased demographics. In March, the government announced further support for schools catering for students experiencing the highest levels of educational disadvantage<sup>252</sup>: this included reducing class-size in all primary schools in Ireland under the Urban band 1 of the “Delivering Equality of Opportunity in Schools action plan for educational inclusion” (DEIS)<sup>253</sup>, a 5% increase in funding and extending the school completion programme to include more schools. It also included reducing the enrolment threshold for the allocation of an additional deputy principal in DEIS post-primary schools, from 700 to 600 students. €105 m was allocated to the tertiary sector to reopen on-site education in September 2021.

There was also a lack of ICT equipment and online learning support. According to the 2018 PISA data, in Luxembourg an effective online learning support platform was available for only 22% of students. Also in Romania (31%) and Germany (32%) availability was low before the COVID-19 pandemic. This contrasts with Denmark (91%), Sweden (80%) and Finland (80%) where effective online learning support platforms were more generally available.

Being suddenly required to learn from home, students need to have access to a quiet place to study. The 2018 PISA data show that in some EU education systems, e.g. the Netherlands or Austria, most students have access to a quiet place, while in other education systems, e.g. Bulgaria (20%) and Malta (15), a large group of students does not have access to a quiet place to study.

Finally, online instruction requires that students have a device, internet connection, technical equipment, the digital skills and the necessary technical experience to receive the course materials. The 2018 PISA data suggest that in many European countries students frequently did not use ICT outside school for homework. Particularly in Ireland, Belgium and Luxembourg, prior to the COVID-19 crisis ICT was rarely used for schoolwork outside school.

Countries took many measures to mitigate the pandemic’s negative impact on children and schools: providing subsidised devices (computers, tablets), improving access in remote areas, removing obstacles to internet access, providing support for students with disabilities and providing support for low-income households.

---

<sup>252</sup> Irish Department of Education (2021). [Minister Foley announces new measures to tackle educational disadvantage](#), DES, 1 March 2021.

<sup>253</sup> Cf. the [website of the DEIS](#) action plan.

### **Box 31: An extraordinary investment in education to compensate for the learning losses linked to the pandemic in the Netherlands**

In February 2021, the government announced the national education programme, which encompasses all levels from primary to tertiary education and has a budget of €8.5 bn. Primary schools will receive an average of €180 000 each in the next school year and secondary schools more than €1.3 m. Schools with a larger share of disadvantaged students will receive proportionally more money. Schools are responsible for the design, implementation and monitoring how the funds are used. Of the total amount, approximately €5.8 bn is for school education, and €2.7 bn is for vocational training and higher education. In higher education, the money will be used to reimburse student tuition fees to compensate for the lack of in-class education and the study delays linked to the pandemic. In addition, €645 m will be invested to compensate for the costs of higher student numbers. The programme will run until 2023.

A partial overview of the initial policy response on additional education funding in a selection of Member States, up to 12 May 2021<sup>254</sup> suggests an increase in investment to accelerate digitisation projects, e.g. access to laptops or tablets for children, better or more efficient internet access, increased capacity for digital learning platforms or upgrading ICT infrastructure in general. It also shows evidence of hiring additional teachers or providing for additional training of teachers, as well as additional funding for counselling and assistance for students, and bonuses for teachers. Some countries also compensate schools for additional prevention costs, e.g. for protective equipment, additional cleaning, or disinfection products.

Since regular public spending on education (i.e. not-COVID-19 related expenses) substantially differs between countries, additional spending per child is compared with the regular average spending per child in primary and secondary education. In this way, the percentage increase in public educational spending that can be attributed to COVID-19 can be calculated. The median increase in spending per child was approximately 3%, with a broad range from below 1% to 32%.

Overall, the results of the partial overview suggest that the funding concentrates on ICT provision and general, non-earmarked funding. Several countries realised that their ICT availability and competences were not suitable for organising distance learning effectively and decided to invest in upgrading ICT equipment and tools. For several countries, this may be an opportunity to embrace the potential advantages of digital learning tools and to use them to enhance learning.

For a number of countries, the increase in funding is either not earmarked or it is not clear whether the money should be dedicated to serve specific targets or not. Further, some countries specifically mention "hiring additional teachers" or "additional teacher training". The spending categories of investment on better infrastructure or summer "bridging" programmes are mentioned in fewer countries.

---

<sup>254</sup> Cf. footnote 252 for the reference. Given the ad-hoc national responses, it is challenging to find comparable information on the impact of COVID-19 on educational spending. The amounts of additional spending reported are compiled from a variety of sources, including official governmental communication and newspaper articles, and are probably not exhaustive. Some measures and amounts may be missing in various countries and, in other countries the same measures may be included in several announcements or measures already decided but implemented after the start of the COVID-19 pandemic. It is often unclear whether amounts mentioned in successive government announcements overlap or can be considered as cumulative or what is the time horizon (e.g. are expenses one-shot or recurring, are expenses spread over multiple years or not). A distinction between calendar years versus school years is sometimes missing which makes it difficult to correctly allocate the additional budget. Lastly, a clear distinction between national and regional levels is not always available.

Future availability of harmonised data on public spending on education in 2020 and 2021 would enable the new situation to be assessed, with the response to set up a Recovery and Resilience Facility. Together with the European Structural and Investment Funds, the increase in EU funds directed to education and training is much higher than in 2014-2020. It would open scope for comparison of the change in public expenditure with for example changes in learning outcomes, the number of days of school closure, availability of ICT at school or at home, or digital competences of teachers and children.

### 3.5 The Recovery and Resilience Facility

The Recovery and Resilience Facility (RRF) is the centrepiece of NextGenerationEU, the European Union's Recovery Instrument, under which up to €675 bn<sup>255</sup> have been made available to Member States in grants (€312.5 bn) and in loans (€360 bn). The RRF supports sustainable and growth-enhancing reforms and investments to help recovery and build institutional capacity, essential to reduce inequalities and divergences in the EU. To benefit from the support under the Facility, Member States had to submit their Recovery and Resilience Plans (RRPs), including a comprehensive set of reforms and investments to be implemented by 2026. Reforms and investments fall under six pillars:

1. Green transition
2. Digital transformation
3. Smart, sustainable and inclusive growth
4. Social and territorial cohesion
5. Health and economic, social and institutional resilience; and
6. Policies for the next generation, children and youth.

Furthermore, at least 37% of total expenditure will be devoted to climate related investments and at least 20% to promoting the digital transition.

As of 15 October 2021, 26 Member States had submitted their RRP and the Commission adopted its final assessment and a proposal for a legally binding act for 22 plans, of which 19 were also adopted by the Council.

Investment in education and skills figure prominently in National RRP. According to provisional calculations based on the 18 of the adopted plans education and skills related reforms and investments make up about 13% of the total RRF expenditure. In addition, Member States have also mobilised funding under the COVID-19 response investment initiative (CRII, CRII+) and are planning further investments under REACT-EU (also part of the NextGenerationEU package) and the Structural Funds (2021-2027). Negotiations on these programmes are still ongoing, and therefore an overview cannot be provided at this stage. However, education and skills will benefit in the next years from an unprecedented level of EU funding. This will facilitate large-scale investments with the potential to improve access to and quality of education and training in the medium to long-term in many countries. In particular, the RRF is expected to give a major boost to the transformation of education and training systems in light of the green and digital transitions. Investments will largely support the implementation of the Digital Education Action Plan (2021-27), which put forward a strategic vision to create a high-performing digital education ecosystem and enhance the digital skills and competences of the population.

---

<sup>255</sup> in 2018 prices



Most countries<sup>256</sup> will invest in the digital infrastructure and connectivity of schools often with a focus on reducing the digital divide. For instance, Slovakia aims to increase the share of schools with highly equipped and connected classrooms from 30% to at least 90%. Some Member States<sup>257</sup> will equip learners and teachers with digital devices to reduce the digital divide. For instance, in Austria 80 000 students per year will receive digital equipment funded under the RRF.

Investments in digital infrastructure go hand in hand with measures to develop the digital competences of students and teachers. Such measures include the adaptation of the school curricula and the development of digital resources and content<sup>258</sup>, teacher training on digital education<sup>259</sup>, as well as modernising the training offer in VET institutions<sup>260</sup>. For instance, in Belgium, the Flemish Community has included in its plan an ambitious reform of digital school education, which provides for setting up a knowledge and support centre for digital school education.

**Box 32: The Cyprus Recovery and Resilience Plan will serve the modernisation and digitalisation of the education.**

The shift to distance learning during the pandemic highlighted key challenges for students and teachers in Cyprus, such as the lack of electronic equipment and the necessary digital skills. With a budget of €13.8 m, a variety of projects will be financed to digitally transform the Cypriot schools and enhance digital as well as STEM skills:

- the purchase of digital equipment (tablets/laptops) for students from less socio-economically advantaged backgrounds;
- the provision of digital equipment for schools;
- training in digital skills and STEM methodology for 3 375 teachers representing around one third of all primary and secondary teachers of t; and
- changes to curricula and the development of educational material for enhancing digital and STEM skills.

The digital transition of higher education will improve quality and excellence and enhance the availability of digital skills in the labour market. Member States have planned a broad range of measures covering areas such as the development of digital infrastructure<sup>261</sup>; digital teaching resources, adaptation of study courses and training<sup>262</sup>; digital training for academic staff<sup>263</sup> and the development of online courses and strengthening of blended teaching<sup>264</sup>. For example, Italy is planning the creation of three Digital Education Hubs (DEH) targeting the digital transformation of higher education. Several countries will also further digitalise the education governance and administration<sup>265</sup>.

<sup>256</sup> e.g. BE, CY,CZ, EL, ES, FR, IE, IT, RO, PO, SI, SK.

<sup>257</sup> e.g. AT, BE, CY, CZ, DE, EL, ES, FR, IE, IT, LV, PT.

<sup>258</sup> e.g. AT, BE, CZ, EL, CY, LT, PT, RO, SI, SK.

<sup>259</sup> e.g. AT, BE, CY,CZ, DE, EL, ES, FR, IT, LT, RO, SI, SK.

<sup>260</sup> e.g. IE, IT, PT.

<sup>261</sup> e.g. CZ, FI, HR, RO, SI.

<sup>262</sup> e.g. BE, CZ, ES, FI, HR, IE, RO, SI.

<sup>263</sup> e.g. BE, CZ, ES, FR.

<sup>264</sup> e.g. FR, LT.

<sup>265</sup> e.g. FR, EL, HR, IT, PT, RO, SI, SK.

To help everybody to adapt to the digitalisation transformation process accelerated by COVID-19, the majority of Member States<sup>266</sup> plan measures to develop the adult population's digital skills. For example, all employees in Latvia placed on short-time work scheme between January and March 2021 may have access to e-learning courses to improve digital skills, using vouchers worth up to €500. The RRF will support also some innovative measures, such as data literacy courses in Germany.

Investments in ECEC are expected to increase participation rates, in particular among disadvantaged groups, hence reducing inequalities. About half of the countries<sup>267</sup> proposed investments to improve access to ECEC by expanding capacities-, while some countries<sup>268</sup> will further develop the quality of provision. Some Member States have set ambitious targets. For example, Croatia plans to create 22 500 new places in ECEC and raise the participation for children between 3 years and the school age from 76.3% to 90% by 2026. Czechia aims to increase the number of childcare facilities by 40% until the end of 2025 with the support of RRF. Romania plans to use the RRF to build 110 crèches and to develop more than 400 complementary early childhood education and care services in disadvantaged areas. Germany will create 90 000 new places in early childhood education and care, while Spain intends to create 60 000 such places (for children aged 0-2) by building or upgrading publicly owned facilities. Slovakia will train at least 10 000 ECEC staff on inclusive approaches and will pilot early care for children from marginalised Roma communities.

Some of the investments in ECEC capacities are also supported by reforms aiming to improve access, inclusiveness and quality. For example, Cyprus plans to lower the age of compulsory pre-school education; Croatia and Slovakia will review the financing model; Portugal will reduce ECEC fees; Greece will improve early diagnosis and support for children with disability and special needs; Italy, Slovakia will review the recruitment system and support the professionalisation of ECEC staff. A legal entitlement to ECEC will be introduced in Croatia and Slovakia. Romania further envisages the development of an integrated ECEC framework and a large-scale teacher-training programme.

The majority of the countries<sup>269</sup> will support reforms and investments to improve quality of school education. In some countries, the RRF will contribute to the implementation of comprehensive reform efforts. Planned measures include for example reforming teachers' recruitment mechanisms in Italy; implementing curricular reforms in Slovakia; and improving external evaluation of schools in Lithuania. In Czechia, a reform of financing of schools is envisaged with the aim to reinforce support of disadvantaged schools. In Croatia, investments will contribute to the transition to single-shift schools, allowing whole-day schooling and increasing of the number of instruction hours. In Romania, schools will be equipped with laboratories for sciences with the support of RRF. Cyprus will address skills mismatches between education and training and the labour market, starting actions in schools.

While some Member States<sup>270</sup> plan to undertake significant measures to promote the inclusiveness of school education, these are unlikely to meet the challenges which have been exacerbated by the pandemic. . Some countries<sup>271</sup> plan targeted measures to compensate for the loss of learning during the pandemic and related school closures, however, these remain scattered and may not meet the high demand. For example in Belgium, 30 000 students from the French community will benefit from individualised support to overcome learning gaps and address the dropout risk resulting from the partial school closure; they will also receive mental and emotional support.

---

<sup>266</sup> BE, CY,CZ, DK, EE, ES, FR, HR, IE LV, LT, LU, PT, RO, SI, SK, FI.

<sup>267</sup> e.g. AT,BE, CY ,CZ, DE, EL, ES, HR, IT, PT, RO, SK.

<sup>268</sup> e.g. EL, RO, SK.

<sup>269</sup> e.g. CY, EL, ES, HR, IT, LT, RO, SK.

<sup>270</sup> e.g. AT, BE, CZ, EL, ES, FR, IT, CY, PT, RO, SK.

<sup>271</sup> e.g. AT, CZ, DE, FR, SK.

France will fund mentoring for over 180 000 students. Dedicated reforms or programmes to fight early school leaving will be funded in Belgium, France, Romania, Malta and Spain. Spain will also finance a programme for education orientation and support for low performing students under its RRP. Other measures aimed at enhancing equity and inclusiveness of education are improving special needs education in Greece and supporting desegregation in Slovakia.

Many Member States<sup>272</sup> will invest in VET to address skills mismatches, improve the labour-market relevance of education and training systems and equip employees for the digital and green transitions. Supported measures will include reforms in apprenticeship schemes or dual learning and large-scale reskilling programmes. For example, Austria will support the training of 94 000 people to address qualification mismatches with a focus on basic qualifications and some professions for which there is high demand on the labour market (ICT, social and care and environment). To support the planned reform of the VET sector in Romania, the RRF will invest in equipping VET high schools, including agricultural schools, with laboratories as well as with IT laboratories. In addition, the RRF will finance the development of 10 regional consortia involving local VET bodies and interest groups. In Portugal, the RRF will finance measures to modernise the VET offer regulated by the National Qualifications Catalogue (CNQ) based on the anticipation system of qualifications needs. Important investments are foreseen to modernise VET institutions by creating and modernising specialised technological centres in public secondary schools, and also broadening and modernising the network of professional training centres of the public employment service.

Many countries<sup>273</sup> plan to use substantial resources for reforms in adult learning. This will include the definition and implementation of comprehensive strategies for lifelong learning, upskilling and reskilling, with specific measures for the development of digital skills and introducing or further developing schemes for individual learning accounts. For example, France plans to top up workers' entitlements on the already existing individual learning accounts ("*Compte personnel de formation*") with a €1 000 credit, which may be used for trainings linked to digital skills or digital careers. Greece plans to utilise Lifelong Skilling Accounts (LSAs) as one of the tools for continuous training, based on individualised needs. Lithuania plans to introduce a one-stop-shop model for lifelong learning that will consolidate the currently fragmented framework of adult skills development, including both VET and higher education.

Several countries will use the RRF to support the transformation in higher education<sup>274</sup> to improve its labour market relevance, but also enhance access. Such measures will include modernising study programmes<sup>275</sup>, increasing the number of study places<sup>276</sup>; launching new study courses<sup>277</sup> including micro-credentials<sup>278</sup>; reviewing the funding model<sup>279</sup>; developing quality assurance and governance mechanisms<sup>280</sup>; tracking graduates<sup>281</sup>; internationalising higher education<sup>282</sup> and improving access<sup>283</sup>. For example, Slovakia will provide scholarships to improve access for domestic and international students. In France, 30 000 new study places will be created and 100 000 students will benefit from state-guaranteed student loans. Latvia is implementing a comprehensive higher education reform with support from the RRF, which envisages complex

<sup>272</sup> e.g. CY, CZ, DE, EL, ES, FI, FR, HR, IE, IT, LT, LV, MT, PT, RO and SI.

<sup>273</sup> e.g. AT, BE, CY, CZ, EL, ES, FR, HR, IT, LV, LT, PT.

<sup>274</sup> e.g. BE, CZ, EL, ES, FR, HR, IE, CY, LV, LT, PT, RO, SI, SK, FI.

<sup>275</sup> e.g. BE, CZ, EE, HR, IT, IE, SI.

<sup>276</sup> e.g. FR, FI.

<sup>277</sup> e.g. BE, CZ.

<sup>278</sup> e.g. BE, CZ, EE.

<sup>279</sup> e.g. LV, LT, SK.

<sup>280</sup> e.g. SI, SK.

<sup>281</sup> e.g. EL, CY.

<sup>282</sup> e.g. EL, LT, SK.

<sup>283</sup> e.g. FR, IT, PT, SK.

structural changes across three pillars: governance, funding, and human resources. Portugal will foster STEAM careers, while Finland will support a programme to attract and retain national and foreign talent. Romania will use the funds for digitalisation in higher education and preparation for the digital professions of the future; it will also allocate funding to student accommodation.

The majority of Member States plan to use the RRF to invest in education infrastructure to improve quality, equity and efficiency in education, as well as the green transitions. Investments aim to modernise buildings, build new facilities or improve energy efficiency. They cover all levels of education: early childhood education and care<sup>284</sup>, schools<sup>285</sup>, VET<sup>286</sup> and higher education<sup>287</sup>. Student campuses at upper secondary or tertiary level will also be renovated, extended or built<sup>288</sup>. As a result of these infrastructure investments, 70% of pupils in primary and lower secondary education in Croatia will be able to attend single-shift schools, compared with the current 40%. Lithuania aims to complete the consolidation of its school network. Portugal plans to use RRF funding to increase the affordability of students housing and intends to double the capacity by providing 5 000 new places. In Cyprus, two model technical schools will be built. In Romania, 40% of places renovated or newly created will be allocated to students from disadvantaged backgrounds.

**Box 33: The Recovery and Resilience Facility (RRF) will support investment in educational infrastructure at all levels in Slovakia.**

Slovakia plans to create additional 12 352 places in early childhood education to implement legal entitlement for 3 year-olds planned for 2025. At least 252 upper-secondary schools are going to be refurbished to improve their accessibility to students with disabilities, double-shifts in 49 primary schools will be eliminated, and 211 school libraries will be established or modernised, which aim to provide a high-quality learning environment to students with a disadvantaged background. At tertiary level, university buildings, including student dormitories, are going to be renovated to improve their energy efficiency.

---

<sup>284</sup> e.g. AT, BE, CZ, DE, EL, ES, HR, IT, CY, PT, RO, SK.

<sup>285</sup> e.g. AT, BE, FR, HR, IT, LV, LT, MT, PT, RO, SI, SK.

<sup>286</sup> e.g. BE, CY, MT, PT, SI.

<sup>287</sup> e.g. BE, CZ, ES, FR, HR, LT, PT, RO, SI, SK.

<sup>288</sup> e.g. CY, CZ, EL, ES, FR, PT, RO, SK.