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Education and Training Monitor 2019

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Additional contextual data can be found online (ec.europa.eu/education/monitor)*

Foreword

Education is back where it belongs: at the top of the European Union's political agenda. Together with Member States, the European Commission has put solid foundations in place to ensure that we build a true European Education Area: overcoming barriers, boosting learning abroad, fostering mutual recognition of diplomas, the learning of foreign languages and early childhood education and care, as well as strengthening common values and inclusion. This is a bold, comprehensive project, covering all aspects of education – from kindergartens to post doctorates and lifelong learning. The European Education Area is the leap forward that the EU needs to face the challenges of the XXIst century, and I am proud to have played my part in shaping it.

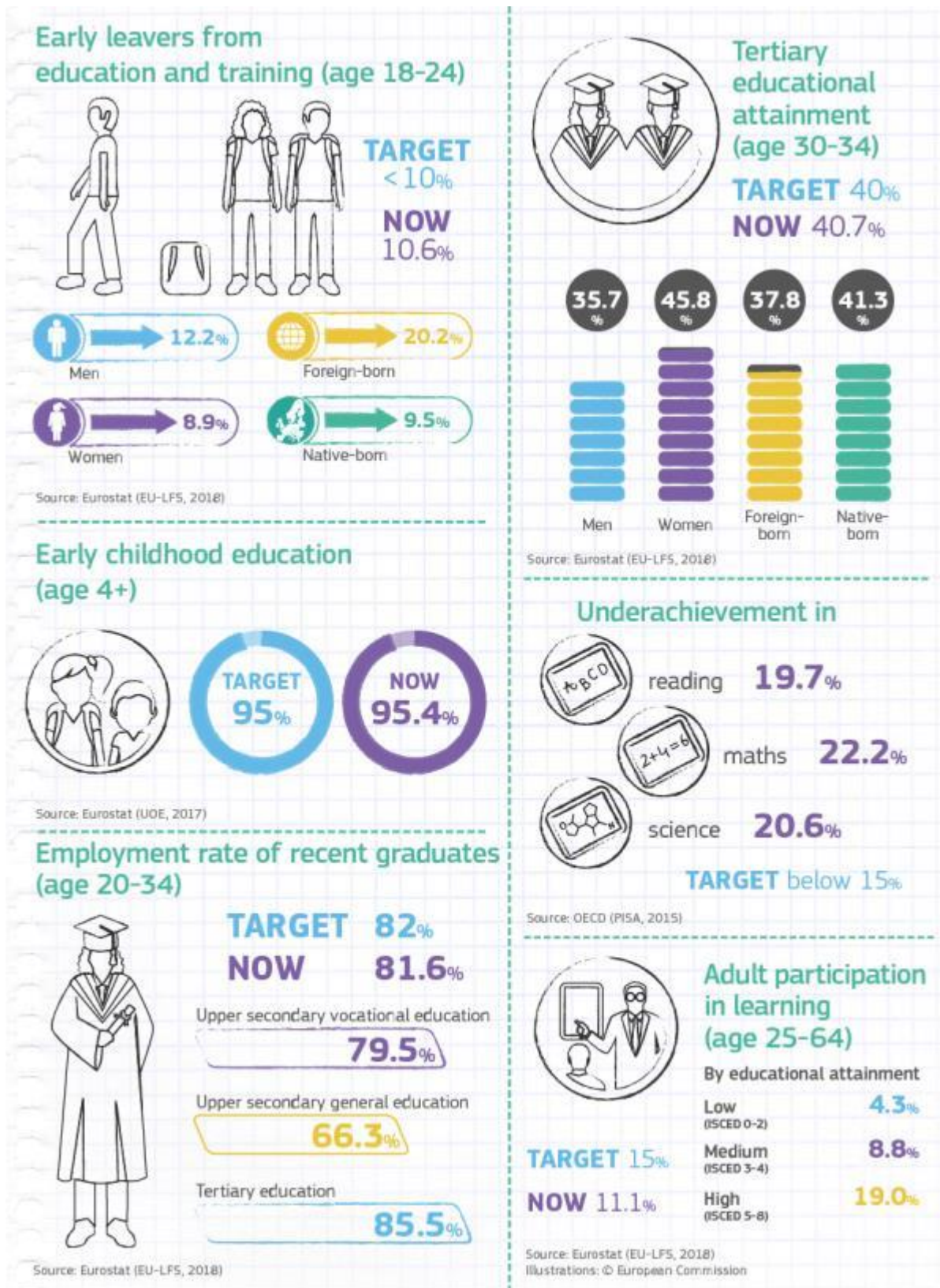
How successfully we make this project a reality depends notably on one factor: teachers, their training, their motivation and their self-perception. Without motivated and confident teachers, the European Education Area will not have the impact we all expect from it. This 2019 edition of the Education and Training Monitor provides an extremely useful overview of the teaching profession in the EU. Incorporating and analysing the results of the OECD's TALIS survey, the Monitor presents invaluable insights into teacher's state of mind, how they assess their current situation, their needs and their future. And it sends clear messages to policy makers.

Most importantly, teachers want more and better training to face the social and technological challenges they are confronted with. Moreover, they seek social recognition – fewer than one fifth of them consider their profession is valued by the rest of society. Beyond raising salaries, which remain low, boosting teachers' prestige is a must, not an option. The Monitor also points to teacher shortages in several EU Member States, especially in disciplines related to Science, Technology, Engineering and Mathematics (STEM) as well as in certain geographical areas. These are only some of the key findings the Monitor offers to policy makers and they highlight an obvious yet sometimes forgotten fact: teachers are the cornerstones of our education systems.

This latest edition of the Monitor also gives an update on the progress Member States are making in working towards the Education and Training benchmarks for 2020 and in other important areas such as public investment in education and digital skills. Moreover, like every year, it presents a detailed state of play of education policies in every EU country, pointing out achievements as well as remaining challenges. This is how the Education and Training Monitor, the EU's flagship publication in this field, has been making a vital contribution to driving education reform for eight years now, feeding into the European Semester and helping to implement the European Pillar of Social Rights. I am proud of what we have accomplished together with Member States, and I trust that the joint effort will continue – keeping education high on the political agenda, and ensuring that it delivers, for all.

Tibor Navracsics
Commissioner for Education, Culture, Youth and Sport

EU targets for 2020 in education



Note: See front flap for sources and definitions.

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Executive Summary

Among all factors in the school environment, teachers are considered to have the greatest impact on students' learning outcomes. At the same time, more than 60%¹ of public expenditure in education in the EU is spent on teachers. Any policy effort seeking to improve educational outcomes – or the efficiency of education and training – is bound to take a close look at the role of teachers and look for ways to help teachers excel in their demanding profession. New evidence from the OECD TALIS survey sheds more light on teachers. The recent survey data inform the 2019 Education and Training Monitor, which contains a dedicated analysis of school teachers in the EU. Being a unique source of information on teachers' motivations, lifelong learning and careers, the new evidence from TALIS 2018 can help policy-makers harnessing the full potential of teachers by preventing and addressing challenges.

After the teacher-dedicated part, the 2019 Monitor sets to analyse the existing targets adopted by the Council of the European Union under the strategic framework for European cooperation Education and Training 2020 ('EU benchmarks'). This part of the report presents latest data on participation in early childhood education and care; early leaving from education and training; tertiary educational attainment; underachievement in basic skills; employment rate of recent graduates; adult learning; and learning mobility in higher education. Next, the 2019 Monitor offers analysis on education indicators used in other well-established or emerging priorities, including entrepreneurship education; digital education; multilingualism. The report concludes with a section analysing public investment in education and training.

At the core of learning: the teachers

Across the entire EU, education systems are confronted with a number of challenges relating to teachers. Several countries already face or are about to face shortages of teachers, either across the board or in particular subject areas (typically science, technology, engineering and maths); or in particular geographical areas. In view of the proportions of teachers aged 50 or plus, the 23 EU countries participating in TALIS 2018 will have to renew about one third of their teaching population in the next decade or so. At least five EU countries will have to renew around half of their secondary school teachers in the same period (Italy, Bulgaria, Lithuania, Estonia, Greece and Latvia; and the same applies to primary school teachers in the former three countries).

Successfully renewing the teachers' population requires acting upon key factors such as the number of students deciding to embark on teacher education, the number of new teachers starting in the job and the number of teachers stopping to work. To address this challenge, there is a need to improve the attractiveness of the profession and offer good working conditions for sustained professional activity.

According to survey data, only 18% of lower secondary school teachers in the EU consider their profession as valued by society; and their proportion lowers with longer years of teaching experience. Similarly, the share of teachers would still choose to work as teachers, declines significantly, in several EU countries, among more experienced teachers. Overall, there is a specific challenge in attracting men into teaching; and particularly so for primary and pre-primary education, where the proportion of female teachers reaches 85% and 96% respectively.

Salaries of teachers do not always compare favourably to salaries of other equally qualified professionals. Among EU countries with available data, in four (Czechia, Slovakia, Italy and Hungary) teachers at all education levels earn less than 80% of what other tertiary-educated workers do. In most Member States, primary (and especially pre-primary) teachers earn less than secondary level teachers. In secondary education, teachers' statutory salary tends to be higher at upper-secondary level than at lower-secondary level.

There are also shortages of teachers with specific profiles. Nearly 40% of principals in lower secondary schools in the EU declare that the shortage of teachers teaching students with special

¹ DG EAC calculation on Eurostat's general government finance statistics, reference year 2017 ([gov_10a_exp](#)).

needs hinders the quality of instruction at their school. Principals also point to shortages of teachers who have competences in teaching in a multicultural or multilingual setting (the largest shortages are in France, Italy and Portugal); and competences in teaching students from socio-economically disadvantaged homes (largest shortages in France, Italy, and Portugal). This second type of shortage is driven by change (technology; diversity in classrooms) and points to a need to improve training (initial and continued).

Furthermore, against an evolving technological and demographic background, teachers need new skills more than ever, including for dealing with cultural and linguistic diversity in the classroom, teaching in a technology-rich environment, and adopting collaborative teaching practices. While 92% of teachers report regular participation in professional development, 21% of them declare a further need for training on teaching students with special needs; 16% report a further need for training on the use of information and communication technology (ICT) for teaching; and about 13% report a further need for training in teaching in multilingual and multicultural environments.

Growing participation in education and educational attainment: main achievements in the last decade

In the last decade, the EU experienced a massive increase in tertiary educational attainment and met its target of having at least 40% tertiary graduates in the 30-34 year-old population – up from 32% in 2009. Despite this increase, there are clear patterns of inequalities in educational attainment. For example, on average, women's tertiary educational attainment (45.8%) is higher than men's (35.7%) – and the gap has been continuously increasing over recent years. Typically, women complete tertiary education earlier than men do. Also, young adults born in the reporting country or elsewhere in the EU, graduate more than their peers from non-EU countries (41.0% against 35.8% respectively). Yet, an overview of policy measures to broaden tertiary educational attainment shows that less than half of EU countries set specific targets to support participation in higher education of under-represented groups, such as, for example, people with disabilities, migrants or students from disadvantaged background.

The attendance of children from the age of 4 in early childhood education has expanded, and is, by now, almost universal. There are also high rates of participation in early childhood education by children from the age of 3. Yet the 90% participation rate for the general population decreases to 77.8% in the group of children at risk of poverty or social exclusion. Experiencing education in the early years of life has been found to be beneficial for better learning outcomes later on in life, and particularly so for children from socio-economically disadvantaged homes. The challenge of ensuring equal access to education in the early years needs to be addressed.

Since the EU cooperation framework in education and training started in 2009, the proportion of young adults leaving education and training without obtaining at least an upper secondary qualification has considerably reduced. Nonetheless, at EU level this process came to a halt after 2016. Comparing 2016 and 2018, there was progress on this indicator in large countries such as Spain or Poland, as well as in other countries such as Romania, the Netherlands and Portugal. However, this was countered by negative developments in other countries – for example, Italy, Sweden, Denmark, Slovakia, and Estonia (in descending order by size of population). Furthermore, in the past 2 years, early school leaving rates increased for both young adults born in the EU (between 2016 and 2017) and those born outside (between 2017 and 2018). Reducing early leaving remains a priority and a target of the EU, as those who leave education and training before obtaining an upper-secondary diploma will struggle with lower employment rates and lower rates of participation in adult learning.

The main challenge for the next decade: improving learning outcomes at school, and increasing adult participation in learning

Participation in education can be measured by data on enrolments, qualifications, or performance test. The latter show that reducing the number of underachieving 15-year-olds to meet the EU

target of less than 15% by 2020² remains a challenge, particularly for pupils from disadvantaged socio-economic backgrounds. Failing to achieve basic mathematics, reading or science tasks at the age of 15 impacts on individuals' chances to continue studying, find and maintain employment later in life, cope with fast-paced technological change, and develop as citizens. Between 2012 and 2015, the EU has actually moved further away from meeting this target. Approximately one fifth of pupils in the EU cannot complete basic reading tasks, and the share is slightly higher for science and maths (2015 data). Despite less favourable or sometimes adverse background conditions, around a quarter of socio-economically disadvantaged pupils born in another country are considered academically resilient. Individual factors associated with higher resilience include high academic expectations, and not repeating grades; while disengagement from school (for example skipping classes, and abusing substances) has a negative association with resilience. At school level, the use of school evaluations, connecting the students' test results to teachers' performance, adequate provision of study rooms and being surrounded by pupils with higher socio-economic status are all factors correlating positively with resilience.

Over the years, there has been limited growth in the share of adults participating in education and training during the last 4 weeks in the EU – from 9.5% in 2008 to 11.1% in 2018. In addition, in practically in all EU countries people with little or no qualifications in education – those most in need of access to learning – are the least likely to benefit from it. Age and educational attainment matter when it comes to adult participation in learning. Young adults (25-34) are more than four times more likely to participate in learning as those aged 55-64. Similarly, those with a tertiary degree are more than four times more likely to participate in learning than those holding at most an upper-secondary diploma.

Developing competences for future life and employment

Research has long established the positive outcomes of being able to study abroad. Transnational learning mobility is associated with future mobility, higher earnings, and lower risk of unemployment. 'Making learning mobility a reality for all' is one of the objectives of the European Education Area³. In 2017, 11.6% of higher education graduates 'were mobile', meaning that they studied partially or entirely abroad. About 8% of them were abroad for short-term periods, while 3.6% graduated in another country. The Erasmus+ programme supported about half of the short-term study periods spent abroad by EU graduates. Overall, Luxembourg, Cyprus, the Netherlands, and Finland (in descending order) have high shares of mobile graduates. As to inward mobility, capturing the volume of students coming into a country for a period of study, it can be read as a measure of the attractiveness of the education system. On this indicator the United Kingdom leads the way – both in percentage of inward graduates and in absolute numbers.

There are a number of key competences (or combination of knowledge, skills and attitude) that can support an individual's life chances and also easier transition to the labour market and career job prospects. For example, participation in entrepreneurship education increases the likelihood of engaging in entrepreneurial activities later in life by 35% on average. Of this 35%, a 7 percentage point increase is due to improved self-perceptions by participants of their entrepreneurial skills. However, available data show that participation in entrepreneurship education in the EU is mostly optional, and only a handful of countries make it compulsory.

Furthermore, the potential of digital technologies in improving educational practices is being held up by challenges that education systems still face. To successfully undergo digital transformation, schools need to support teachers' digital competence for pedagogical use, design innovative pedagogical approaches, and provide digital equipment as well as better connectivity. Capacity

² Data for this benchmark come from the OECD PISA survey. Students scoring below level 2 are considered underachievers.

³ In November 2017, EU leaders met in Gothenburg to discuss the social dimension of Europe, including education and culture. As part of the debate on the Future of Europe, the Commission set out its vision and concrete steps to create a European Education Area by 2025. One of the main objective of the European Area of Education is 'making mobility a reality for all', by building on the positive experiences of the Erasmus+ programme and the European Solidarity Corps and expanding participation in them, as well as by creating an EU Student Card to offer a new user-friendly way to store information on a person's academic records. Other measures to boost mobility under the European Education Area include initiating new processes to ensure the mutual recognition of diplomas; improving language learning; creating a network of European universities; and supporting teachers and their mobility.

building for digital assessment needs to be implemented for learners, teachers, schools and education systems.

Moreover, speaking several languages can increase individuals' employment prospects. Overall in Europe, between 2005 and 2015, the number of pupils who experienced compulsory language learning grew both in primary and secondary education. As to the former, 83.7% of primary school children learned at least one foreign language in 2014, against 67.3% almost a decade before. At lower secondary level, 59% of pupils learned two languages in school in 2015, against 46.7% in 2005.

After reaching the lowest point in 2013 (75.4%), the employment rate of recent graduates has been continuously increasing in the EU. With 81.6% in 2018, the rate is now close to the pre-crisis 2008 level of 82%. However, some countries still suffer from the effects of the crisis on employability of recent graduates – in particular Greece and Italy, where employment rates of recent graduates are around 55%. As compared to secondary graduates holding a vocational qualification, those with a general orientation qualification have a less easy transition into the labour market. The employment rates of these three groups were at 66.3%, 85.5% and 79.5% respectively in 2018.

Public investment in education

In 2017, EU Member States invested, on average, 4.6% of their gross domestic product (GDP) in their education systems. This proportion has been slightly but continuously decreasing in the last few years, down from 4.9% in 2014. On average, EU countries spend about one third of their public expenditure for education on pre-primary and primary education; 41% on secondary education; and 15% on tertiary education. Looking at different education sectors, real expenditure on secondary and post-secondary education decreased (-1.3%, between 2016 and 2017) and increased in pre-primary and primary education (+ 1.4%), as well as tertiary education (+ 1.7%).

So far trends in education expenditure have been largely independent from demographic developments, with the partial exception of expenditure on tertiary education. Due to the predicted school-age population decline in many EU countries, even constant spending on education is likely to result in an increase in spending per student.

Country highlights

Austria

To avoid teacher shortages, Austria needs to attract enough students into initial teacher education and improve continuing professional development. Investment in higher education aims to improve the study environment. Improving digital competence is a priority in the education and training system. Discontinued recent reforms may weaken efforts to integrate students with migrant backgrounds and to improve education outcomes of students from a socially disadvantaged background.

Belgium

The Flemish Community (BE fl) will implement reforms at all levels of education, including dual learning, starting in September 2019. The French Community (BE fr) will also implement school reforms, starting with changes to governance, then the new extended common curriculum and reforming initial teacher education from September 2020. Education spending in Belgium is among the highest in the EU, but educational outcomes are comparatively low, suggesting room for increased efficiency and effectiveness. To reduce inequality and improve outcomes, teachers need more support to manage diversity in the classroom. Tertiary educational attainment is high but disparities remain between regions and groups.

Bulgaria

The modernisation of the education and training system continues while quality, labour market relevance and inclusiveness remain challenging. Demographic trends and rising skill shortages suggest that Bulgaria needs to invest better in the skills of its current and future workforce. The need to upskill and reskill the adult population is high while participation in adult learning is low. The status of the teaching profession is low, and the teacher workforce is ageing. Salaries are being increased as a means to boost the attractiveness of the profession. Steps have been taken to increase the labour market relevance of vocational education and training (VET).

Croatia

Pilot implementation of curricular reform and ambitious preparations for full implementation are under way. Reforms are under way in vocational education and training. Participation in early childhood education and care is held back by shortages of teachers and places. Plans to expand the very short average instruction time could help to improve low education outcomes.

Cyprus

The teaching profession is highly attractive. Reforms to upgrade it are promising but need to be sustained and expanded. Reforms are implemented to foster high-quality public early childhood education and care. However, provision is insufficient for the early years. Tertiary education attainment has risen further but underutilisation of skills remains a challenge given the specific features of the Cypriot labour market. Measures have been taken to upgrade vocational education and training and adult learning, but attractiveness of both sectors and participation in them remain low.

Czechia

Czechia continues to make vocational education and training more relevant to the needs of the jobs market. Authorities are making good use of EU funds to support reforms. Inclusive education is progressing but measures targeted at Roma remain limited. The attractiveness of the teaching profession remains low.

Denmark

Changes to university education are making it more flexible and labour market friendly, but the need for more STEM graduates remains. The number of apprenticeships has been increased and measures are being taken to promote adult learning. Reduced education spending is having an impact on schools and universities. There is considerable local variation in the education performance of young people from migrant backgrounds.

Estonia

Estonia is developing an education strategy for 2021-2035, aiming to bring gradual changes to the system to respond to changes in the labour market and society. Due to demographic trends and the limited responsiveness of the education and training system to labour market needs, aligning skills supply and labour demand remains a challenge. The ageing of the teaching population coupled with the low attractiveness of the teaching profession are a long-term challenge for the functioning of the education system. Participation in adult learning has reached a record high but the need for upskilling and reskilling remains high.

Finland

While teaching is a prestigious and attractive profession, there are teacher shortages for kindergarten and special needs education. There has been some growth in education inequalities, and spending on education has fallen. New policy measures aim to improve the quality, effectiveness and internationalisation of higher education. Demand for graduates in Information and Communications Technology (ICT) is high and difficult to meet. Implementation of vocational education and training reform is ongoing, and reforms are planned to foster adult learning.

France

Work continues on improving educational outcomes and reducing inequalities, with support for teaching staff and funding measures. A new law on education extends the length of compulsory education and training to 3-18. Authorities are faced with the challenge of combining the rapid pace of reforms with the need to consult stakeholders to ensure good ownership and optimal impact. Implementation of the vocational education and training reform is in full swing.

Germany

Germany has announced significant investments in digitalisation, higher education and research in the decade ahead, but as well in school education. Germany is preparing for fundamental change in the skills of its workforce by carrying out digital initiatives and by refocusing the system of adult learning. The teaching workforce is aging and Germany faces a challenge to replace a large number of teachers. Young people from disadvantaged socio-economic and/or migrant backgrounds continue to lag behind in educational attainment.

Greece

The teaching profession is highly attractive in Greece but opportunities and incentives to improve professionalism are lacking. Education expenditure is lower than in most EU countries and largely spent on salaries. Early school leaving has been further reduced, particularly in rural areas. Finding employment after education remains difficult, including for highly qualified people. Measures to tackle the brain drain of tertiary graduates are being implemented but internationalisation of Greek universities is underdeveloped.

Hungary

Recent measures have raised the qualification levels of staff in early childhood education and care. Measures to reduce performance gaps between pupils have been strengthened. Admission conditions for entry to higher education have been made more restrictive. A new medium-term strategy aims to modernise vocational education and training and adult education.

Ireland

Ireland has a strong framework to ensure highly qualified teachers and further plans to meet emerging needs, including teacher shortages. Early school leaving has continued to decline, and participation in early childhood education and care is to be supported by new national schemes. Despite increased public spending on education, investment in higher education has not kept up with rising student numbers. Ireland implements initiatives aimed at upskilling and increasing adult participation in learning and training but the numbers of low-skilled adults in the population remain sizeable.

Italy

Italy invests well below the EU average in education, particularly in higher education. The share of teachers satisfied with their jobs is among the highest in the EU, but only a small share believe that theirs is a valued profession. Compulsory work-based learning in vocational education and training could help provide more structured training for apprentices and ease the transition from

education to work. The level of tertiary educational attainment is low, and the transition from education to work remains difficult, even for highly qualified people.

Latvia

Latvia has already met and exceeded its Europe 2020 education targets. Latvia should achieve further improvements in learning outcomes through the new competence-based curriculum, a stronger individual approach to students at risk and support for inclusion of students with special educational needs. Enrolment in vocational education and training (VET) is increasing and the employment rate of VET graduates is improving, although both remain below the EU average. In higher education, a gradual increase in investment and incremental changes in quality assurance are welcome, but the sector remains fragmented and international competitiveness low.

Lithuania

Current trends in student population and teacher workforce call for a comprehensive strategy to manage teacher supply and demand. Improving key competences and relevant skills remains a priority at all levels. Further development of monitoring and evaluation systems may help improve the quality of education and training. Measures have been put in place to increase the education system's overall efficiency, but further efforts are needed to ensure their implementation. Policy measures to address low participation in adult learning are lacking.

Luxembourg

In 2018, more flexible entry requirements for the recruitment competition for early childhood and primary education teachers attracted more candidates. Pupils' performance is heavily influenced by their ability to cope with the trilingual system. A reform of the orientation process at the end of primary education may have stopped a trend whereby many pupils were being guided to the lowest track in secondary education. Employment rates among recent graduates from all types of education are significantly higher than the EU average.

Malta

Work is underway to improve the quality of teaching and the attractiveness of the profession. Improving the quality of investment in education and developing monitoring and assessment are key challenges. Increased participation in early childhood education and care and the new secondary system may help reduce the number of early school leavers. While participation in tertiary education is increasing, its labour market relevance is still a challenge.

Netherlands

The early school leaving rate is below the Europe 2020 national target but has slightly increased. The Netherlands faces an increasing shortage of teachers, both in primary and secondary education. The 2019-2022 Quality Agreements aim to improve the quality of vocational education and training. Dutch tertiary education increasingly attracts foreign students.

Poland

Early school leaving continues declining and participation in early childhood education and care among children under 3 remains low. The higher education reform has been launched, bringing major changes to the functioning of higher education institutions. Implementing the 2017 school system changes is causing organisational, financial and curricular challenges. Further challenges relate to teachers' pay, emerging shortages, and initial and continuing training. Participation in adult learning remains low.

Portugal

Teachers are satisfied with their jobs, but the ageing teacher population, the high proportion of non-permanent staff and weaknesses in induction and continuing professional development remain challenging. Investment to upgrade infrastructure is insufficient, particularly for early childhood education and care in metropolitan areas. Regional disparities in education outcomes, grade repetition and early school leaving rates are improving. Tertiary educational attainment has grown but business demand for ICT specialists exceeds supply. There is a significant proportion of low qualified adults while participation in adult learning remains low.

Romania

Concrete ideas have been presented for major reform of the education and training system. Clear steps need to be taken for the implementation of the reform. Public spending on education is low in

EU comparison, while the sector's investment needs are high. Any major reform is likely to require additional funding linked to stronger equity and efficiency mechanisms. Better support for teachers – in particular by redesigning initial teacher education and strengthening continuing professional development – can help improve quality and equity. Efforts were made to expand dual education. Participation in adult learning remains low despite the high need for upskilling and reskilling.

Slovakia

Slovakia is improving early childhood education and care, which is particularly positive for children from deprived families. Slovakia is taking a more strategic approach to lifelong learning, upskilling and reskilling. The early school leaving rate has continued increasing since 2010, approaching 14% in Eastern Slovakia. Investment in education and training is insufficient, and this is reflected in teachers' still low salaries despite recent increases.

Slovenia

Enrolment in early childhood education and care is approaching the EU benchmark. The proportion of Slovenian upper secondary students enrolled in vocational education and training is one of the highest in the EU, and the employment rate of such graduates is high. There are enough new entrant teachers but large numbers are approaching retirement and shortages already exist in certain categories. Tertiary educational attainment is high, but the differences between men and women and the native-born and foreign-born population are large.

Spain

The teaching profession is attractive, but working conditions differ among regions and between public and private education systems. Private spending in education is significant, while public spending is static compared to GDP. Planned reforms, reflecting political uncertainties, have been slowed down. The process to modernise vocational education and training is ongoing. Adult participation in education is slowly rising.

Sweden

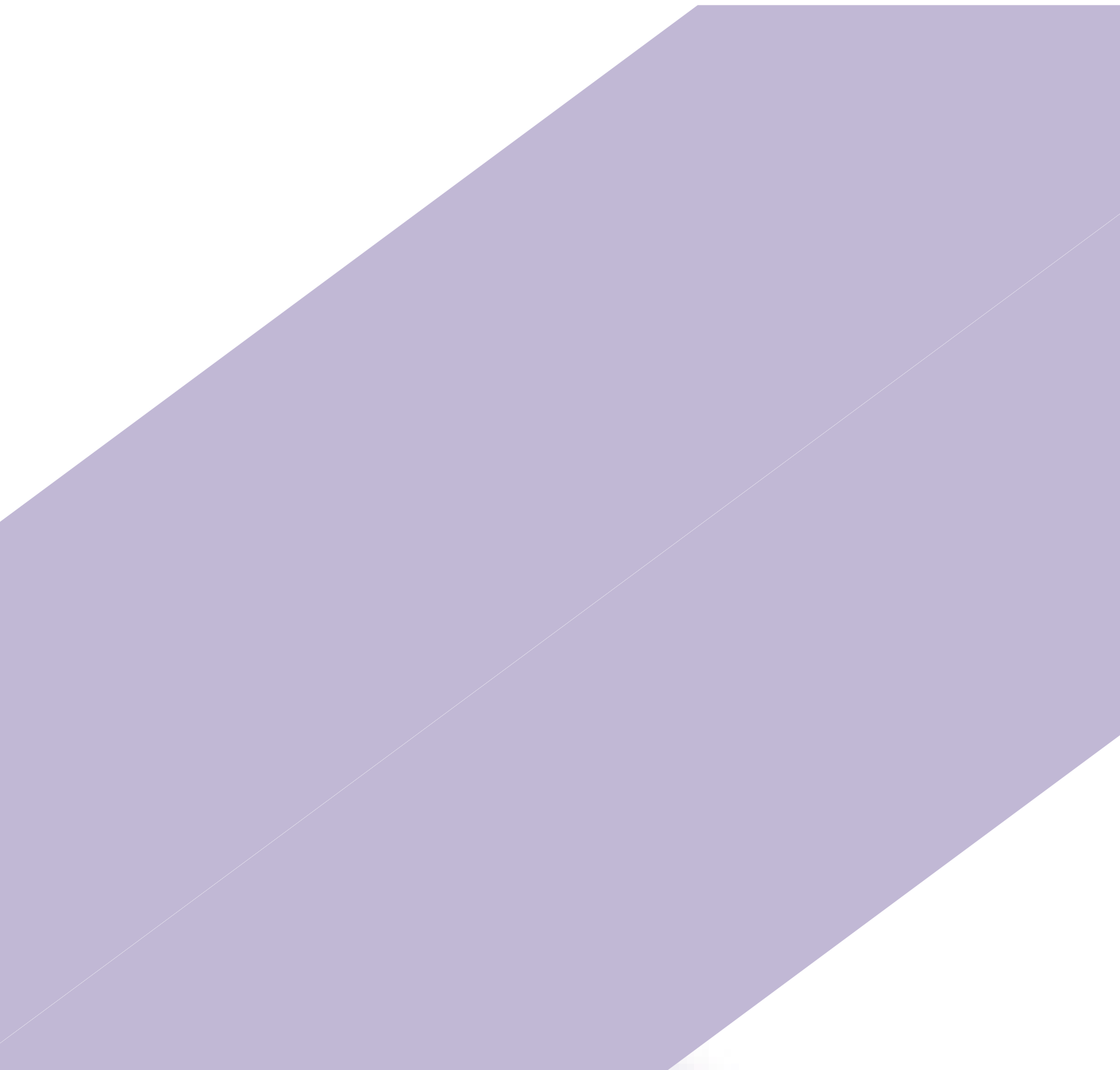
Tertiary educational attainment and graduate employment rates are high. The population's digital skills are among the best in the EU. There is a serious teacher shortage, and a large number of teachers lack formal qualifications. School segregation and inequality are serious and growing concerns.

United Kingdom

Efforts are being made to tackle the high proportion of teachers leaving the profession. In England, school academies are growing in number but many are facing financial pressures. The consequences of Brexit for UK higher education are unclear but policy responses to address the potential loss of EU research funding and reduced student inflows will be needed. England will introduce new qualifications as part of ongoing reforms of upper secondary VET.

Part 1

Teachers and teaching



1. Teachers and teaching

1.1. Profile of teachers

Key findings

One of the major challenges for education systems is to have an adequate number of highly-qualified teachers, in all schools and across all subject areas. Some countries are soon set to experience a wave of retirements, or have an insufficient number of prospective candidates for teaching. Overall, Italy, Bulgaria, Lithuania, Estonia, Greece and Latvia will have to renew around half of their teaching workforce in secondary school in the next decade or so. The same goes for primary school teachers in Italy, Bulgaria and Lithuania.

Teachers are predominantly women. In the EU, the proportion of female teachers decreases as the level of education increases: women represent 95.7% of pre-primary, 85.5% of primary and 64.7% of secondary school teachers. Raising the attractiveness of the teaching profession can help to increase and diversify the pool of teacher candidates.

There are also shortages of teachers with specific profiles. In the EU, about 23.5% of principals report a shortage of teachers with competences in teaching in a multicultural or multilingual setting, which hinders the quality of instruction in their schools. In addition, almost 40% of principals report a shortage of teachers with competences in teaching students with special needs.

In the EU, teaching requires a tertiary-level qualification. The most common minimum qualification ranges from a bachelor's degree at primary level, to a master's degree at secondary level.

On average in the EU, 34% of teachers work in schools with at least 10% of special-need students; 19% of teachers in the EU works in a school where more than 30% of students come from socio-economically disadvantaged homes; 24% of teachers work in schools with at least 10% non-native-speaking pupils and 32% of teachers work in schools with at least 1% of refugee students.

This chapter offers a demographic picture of who teachers are, with particular regard to the age and gender distribution of the teaching workforce in the EU. Next, the chapter looks at teacher shortages. Anticipating shortages requires forward-planning at system level, also in light of demographics and organisational developments. Avoiding shortages also requires increasing the attractiveness of the teaching profession for both prospective and serving teachers. The chapter moves on to teachers' initial qualifications and finally looks at the average composition of schools and class size in EU countries⁴.

In 2017, there were about 8.8 million teachers in the EU, distributed across education levels as follows:

- 1.5 million teachers in early childhood education;
- 2.1 million teachers in primary education;
- 3.6 million teachers in secondary education;
- 0.1 million teachers in post-secondary education (ISCED 4);
- 1.5 million teachers in tertiary education (ISCED 5-8).

⁴ This part of the Monitor covers data on lower secondary schools, gathered by the OECD TALIS 2018 survey, covering: Austria, Belgium (French Community), Belgium (Flemish Community), Bulgaria, Croatia, Cyprus, Czechia, Denmark, UK-England, Estonia, Finland, France, Hungary, Italy, Latvia, Lithuania, Malta, the Netherlands, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden. TALIS offers data also on primary schools for the following EU countries: Belgium (Flemish Community), Denmark, UK-England, France, Spain, Sweden; and on upper secondary schools for Croatia, Denmark, Portugal, Slovenia, and Sweden. Volume I of TALIS 2018 Results report will not contain data for BE fr; but results for BE fr will be available on the OECD website in a separate format. These Monitor chapters cover data from Belgium (as a whole) and Belgium (Flemish Community) only. For further references see OECD (2019). [TALIS 2018 Results \(Volume I\): Teachers and School Leaders as Lifelong Learners](#). From here onwards, the dataset will be footnoted as OECD, TALIS 2018, and applicable chapter reference.

About 1 million of these teachers are employed in vocational education (ISCED 3.5 and 4.5)⁵.

1.1.1. A demographic profile of teachers

On average across the EU, 32.8% of primary school teachers and 39% of secondary school teachers were at least 50 years old in 2017⁶.

In primary education, the proportion of teachers aged 50 or over exceeded 40% in Italy (56.3%), Bulgaria (48.1%), Lithuania (45.8%), Estonia (44%), Greece (43.1%), Czechia (42.2%) and Hungary (40.6%). A few countries also have high shares of teachers aged 60 or over, including Italy (16.1%), Estonia (14.6%), Germany (13.7%), and Sweden (13.7%). On the other hand, the countries with the greatest proportions of younger teachers, aged under 30, were the United Kingdom and Malta – both approximately 30% – and, to a lower extent, Luxembourg and Belgium – both approximately 20%.

At secondary level, there is a higher number of countries with more than 40% of teachers aged 50 or more, including Italy (60%), Estonia (52.6%), Greece (52.6%), Lithuania (51.5%), Latvia, (50.4%), Bulgaria (48.5%), Austria (47.6%), Czechia (44.7%), Germany (44.2%), the Netherlands (43.2%), Portugal (41%), Hungary (40.9%), Sweden (40.5%) and Finland (40.1%). The countries with high proportions of teachers aged 60 or more include Estonia (22.1%), Italy (19.7%), Germany (16.6%), and Latvia and the Netherlands, which both have about 16% of their teaching workforce aged over 60. Malta and the United Kingdom are the only countries in which over 20% of teachers are aged under 30; in Belgium and the Netherlands around 15% of teachers are in the youngest age group.

The age of the teaching population is a concern as upcoming waves of retirement could result in potential shortages in the teaching workforce in a country⁷. The OECD estimates that EU countries will have to renew about one out of three members of their teaching workforce over the next decade or so. Overall, Italy, Bulgaria, Lithuania, Estonia, Greece and Latvia will have to renew around half of their teaching workforce in secondary education in the next decade or so. The same goes for primary school teachers in Italy, Bulgaria and Lithuania⁸.

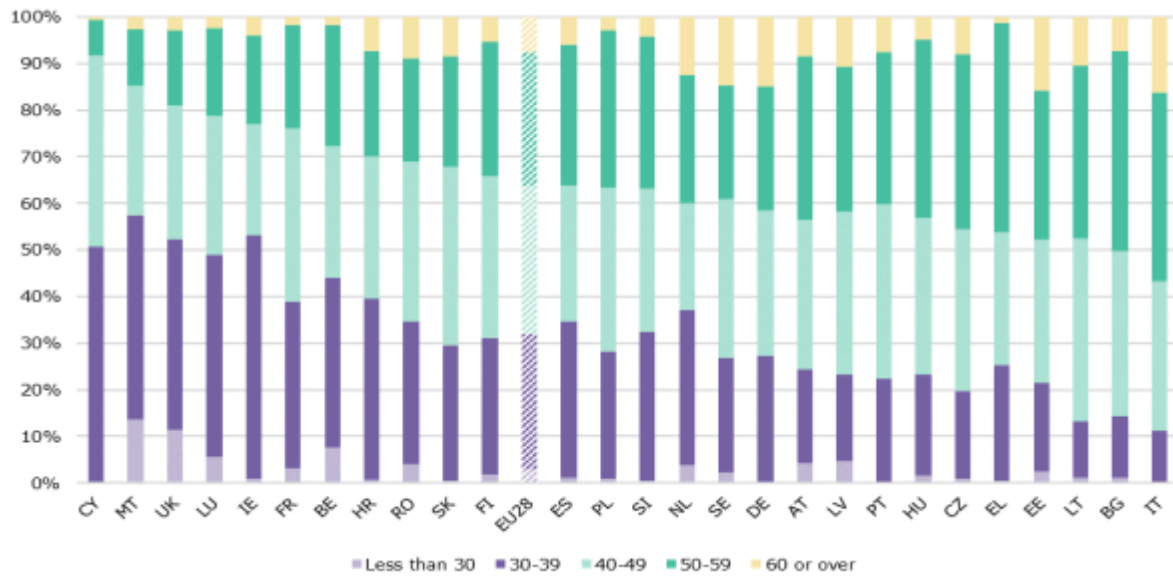
⁵ Data on age and sex of teachers from UNESCO-OECD-Eurostat, reference year 2017. This counts classroom teachers in early childhood education and care, primary, secondary and post-secondary education (ISCED 0-4), as well as academic staff (ISCED 5-8). The classification includes classroom teachers, special education teachers, and other teachers who work with a whole class of students in a classroom, with small groups in a resource room, or one-on-one inside or outside a regular classroom. For a complete definition of education personnel, see the [UNESCO-UIS/OECD/EUROSTAT \(UOE\) data collection on education statistics \(2018\)](#).

⁶ See footnote 5.

⁷ See section 4.2 of this report for demographic projections of the students' population and section 1.1.2 for a discussion on teacher shortages.

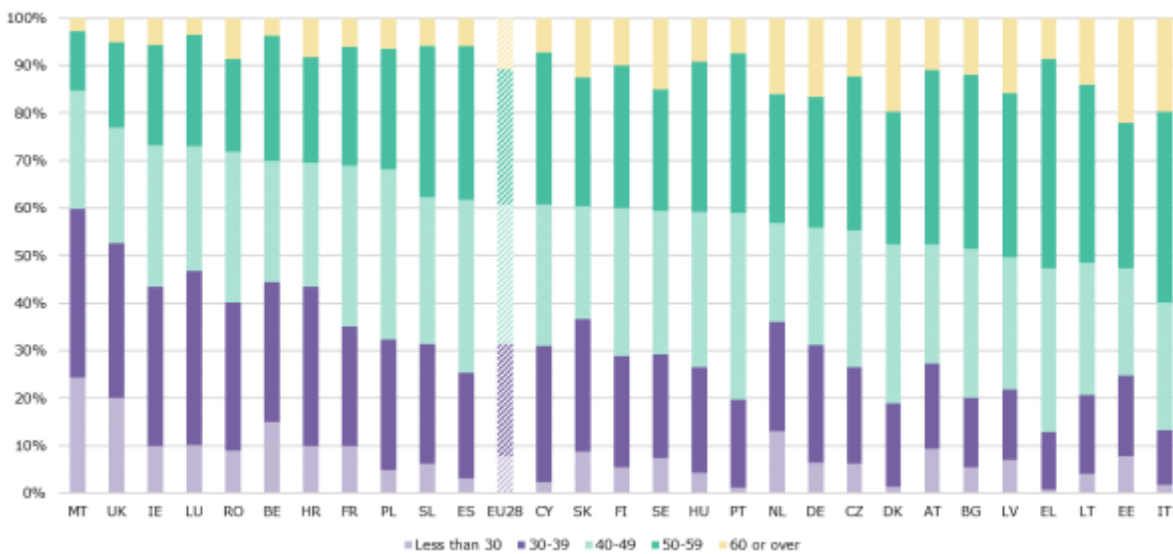
⁸ OECD calculation in OECD (2018). [TALIS 2018 results: Teachers and School Leaders as Lifelong Learners](#). Calculations is based on average pension age in OECD countries, which is 64.3 for men and 63.7 for women.

Figure 1 – Primary education classroom teachers by age group, 2017 (in %)



Source: Eurostat, UOE, [educ_uoe_perp01](#). Ranked from the lowest to the highest proportion of teachers aged 50 or over.
Note: Data not available for Denmark.

Figure 2 – Secondary education classroom teachers by age groups, 2017 (in %)



Source: Eurostat, UOE, [educ_uoe_perp01](#). Ranked from the lowest to the highest proportion of teachers aged 50 or over.
Note: Greece, Italy and Cyprus do not have the unknown age category which affects values of these countries and EU28 average.

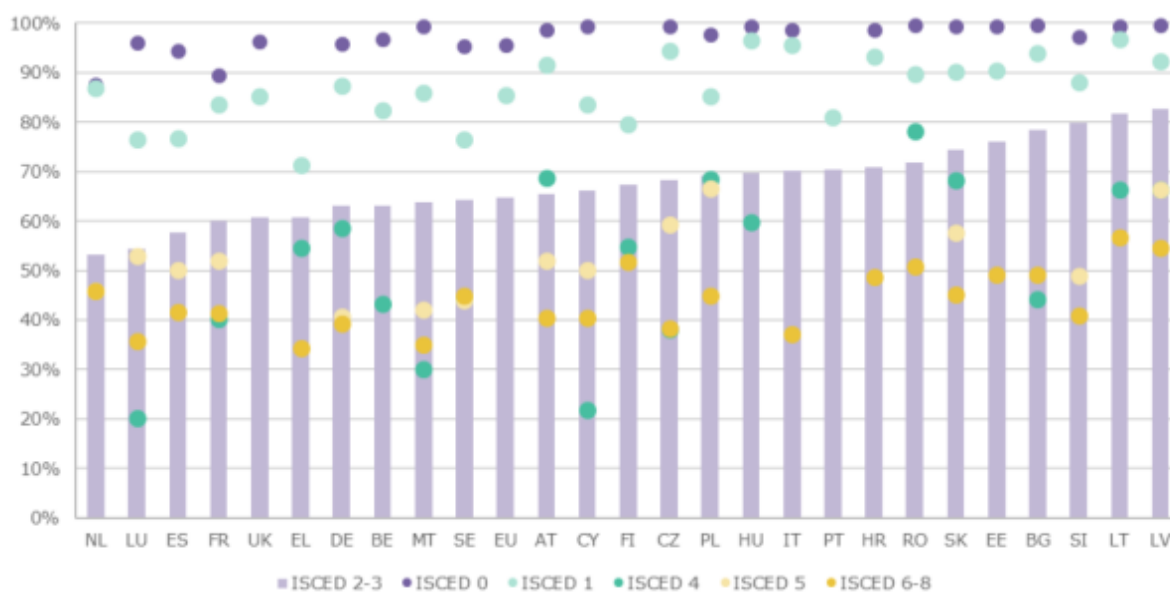
The age of teachers also has major policy implications for the design and provision of initial education and continuing professional development, as experienced teachers received their initial teacher education decades ago. Regarding for example the use digital technologies in teaching, age matters, given the recent increase in including the use of ICT in classroom as a topic for initial teacher education⁹.

⁹ OECD, TALIS 2018. Table I.4.13.

Policy makers in systems with high shares of younger teachers can on the other hand consider the importance of mentoring them in the first years of their career, to keep their motivation high and ultimately retain them in the profession. Under the TALIS survey, the satisfaction that experienced teachers show with their profession is lower than the one of novice teachers; and the perception of the value that society gives to teaching lowers with duration of the work experience¹⁰. At the same time, teachers' confidence in their own capacity to control disruptive behaviour in the classrooms, and get students to follow classroom rules, typically increases after the first few years of their careers¹¹. For example, in typical classroom setting, teachers with more than 5 years' experience spend more time on actual teaching, and less time on administrative tasks and classroom discipline, than junior teachers. Research shows that support and assistance for novice teachers has a positive influence on the commitment from and the retention of teachers, classroom teaching practices and student achievement¹². Across the EU, teachers who took part in induction activities report higher levels of self-efficacy and job satisfaction, particularly in Finland, Sweden, Belgium, Spain and Croatia (in descending order)¹³.

Comparing novice and experienced teachers also shows that a higher share of novice teachers work in challenging school environments, such as schools with a higher proportion of students from socio-economically disadvantaged homes and migrant students. This means that it is essential to prepare novice teachers and offer appropriate training in dealing with diversity, and in teaching students who require dedicated support, be it linguistic or other in nature¹⁴. It can also be observed that actual teaching time is higher in socio-economically advantaged schools¹⁵, than in those with a higher concentration of students from socio-economically disadvantaged backgrounds, possibly indicating that the latter schools require greater time for student care efforts. Policy interventions such as mentoring, job shadowing, or collaborative teaching practices to support novice teachers in difficult schools can help reducing teachers drop-out from the profession and increasing the quality of their teaching.

Figure 3 – Percentage of female teachers across ISCED levels, 2017 (in %)



Source: Eurostat, UOE, [educ_uoe_perp01](#).

Note: Ranked from lowest to highest proportion of female teachers in ISCED 2-3. Belgium: data for ISCED 5 and ISCED 6-8 not available.

¹⁰ OECD, TALIS 2018. Table I.4.34.

¹¹ Data on self-efficacy of teachers from the OECD, TALIS 2018, Table I.3.57.

¹² Ingersoll, R. and Strong M. (2011). [The Impact of Induction and Mentoring Programs for Beginning Teachers](#), Review of Educational Research, Vol. 81/2, pp. 201-233, cited in OECD TALIS 2018.

¹³ OECD, TALIS 2018. Tables I.4.17-19.

¹⁴ European Commission/EACEA/Eurydice (2018). [Teaching Careers in Europe: Access, Progression and Support](#). A Eurydice Report.

¹⁵ Technically: 'teacher-reported' teaching time.

On average across the EU, teachers are predominantly women. The percentage of female teachers drops as the level of education increases: 95.8% at pre-primary level, 85.5% at primary and 64.7% at secondary level are women. The share of female academic staff reaches or exceeds 50% only in Romania (50.8%), Finland (51.9%), Latvia (54.5%) and Lithuania (56.7%). In all other EU countries, it ranges between 40% and 50%, except for Greece, Malta and Luxembourg, all with fewer than 36% female academics. In vocational education, across the EU, about 60% are women.

There are various reasons for this gender imbalance. Factors associated with the low attractiveness of the teaching profession¹⁶, such as limited opportunities for professional development, and salaries that are comparatively lower than those of other equally qualified professionals, may impact men's decisions on embarking on this career more than women's¹⁷. On a cultural level, there are gender stereotypes that consider women better suited for the teaching profession. Both these arguments are relevant throughout the teaching field, and even more so for teaching to youngest children. Also, both reinforce the need to intervene on the attractiveness of the teaching profession, in order to offer a greater variety of role models to students, and as a response to subject-specific or overall teacher shortage¹⁸.

1.1.2. Shortage of specific teachers' profiles

In some EU countries, the supply of qualified teachers in each subject matter represents a major challenge. Education systems may experience challenges related to the shortage or oversupply of teachers. Shortages occur across the board, or in certain subjects, or in certain geographical areas; they can also be related to specific competences such as, for example, competence to teach students with special needs. Some countries may experience different combinations of these elements simultaneously (for example, shortages and oversupply co-exist Germany, Greece, Spain, Italy, Lithuania)¹⁹. Shortages may arise due to the ageing teacher population, demographic changes leading to a large increase in the student population, the difficulty of attracting students into teacher education, and retaining teacher students and also in-service teachers into the profession. In several EU countries (Italy, UK-England, France, Belgium (French and Flemish communities), Romania and Portugal), about one third of principals report an existing shortage of qualified teachers that can hinder quality of instruction in their schools²⁰. This is a reality for at least one in five secondary school principals in the Netherlands, Latvia, Denmark, Portugal and Hungary.

Figure 4 shows that principals also point to shortages of teachers who have competences in teaching in a multicultural or multilingual setting (the greatest shortages are in France, Italy and Portugal); and competences in teaching students from socio-economically disadvantaged homes (greatest shortages in France, Italy, and Portugal).

In France, 70.5% of principals report a shortage of teachers with competence to teach students with special needs, while approximately half of the principals report the same shortage in Belgium (French Community), Italy, Estonia, Portugal and Romania. In the Netherlands, Croatia and Finland the shortage of teachers with competence in teaching students with special needs shrank between 2013 and 2018, apparently showing that these countries successfully addressed the problem in the last 5 years.

Regarding vocational teachers, only in Romania did around one third of principals report a shortage; but this is also still a considerable problem in Portugal (29.9%), Belgium (Flemish Community) (28%), Italy (29.9%), and Denmark (24.8%).

¹⁶ European Commission (2013). [Study on Policy Measures to improve the Attractiveness of the Teaching Profession in Europe](#)

¹⁷ OECD (2017). [Education at a Glance](#), indicator D3.1 – Teachers actual salaries relative to earnings for similarly educated workers. More in-depth analysis of teachers' salaries in chapter 3.3 of this report.

¹⁸ For more references and a discussion on the under-representation of men in teaching, see Eurydice article (2018). [Does it matter if men don't teach?](#)

¹⁹ European Commission/EACEA/Eurydice (2018). [Teaching careers in Europe: access, progression and support](#).

²⁰ Data on teacher shortages of teachers in lower secondary education from OECD (2018). TALIS, Table I.3.62.

Figure 4 – Percentage of principals who report that the following shortages of resources hinder the school's capacity to provide quality instruction 'quite a bit' or 'a lot'

| | Shortage of qualified teachers | Shortage of teachers with competence in teaching students with special needs | Shortage of vocational teachers | Shortage of teachers with competence in teaching students in a multicultural or multilingual setting | Shortage of teachers with competence in teaching students from socio-economically disadvantaged homes |
|-------------|--------------------------------|--|---------------------------------|--|---|
| EU23 | 24.6 | 37.8 | 16.4 | 23.5 | 24.2 |
| BE | 46.5 | 55.6 | 33.8 | 28.6 | 26.1 |
| BE fl | 34.2 | 39.4 | 28.0 | 26.7 | 18.3 |
| BG | 9.4 | 17.7 | 11.5 | 9.3 | 10.7 |
| CZ | 18.2 | 30.0 | 4.9 | 19.1 | 4.6 |
| DK | 22.4 | 33.0 | 24.8 | 14.8 | 15.2 |
| EE | 17.7 | 47.0 | 3.7 | 14.2 | 14.7 |
| ES | 5.8 | 24.5 | 12.2 | 17.4 | 14.4 |
| FR | 36.2 | 70.5 | 13.5 | 39.9 | 62.6 |
| HR | 8.9 | 24.7 | 5.3 | 4.6 | 5.4 |
| IT | 41.1 | 47.5 | 29.9 | 52.2 | 38.9 |
| CY | 6.3 | 19.4 | 15.1 | 12.7 | 9.1 |
| LV | 22.9 | 26.0 | 2.3 | 11.9 | 6.6 |
| LT | 11.8 | 19.9 | 5.5 | 7.4 | 9.2 |
| HU | 29.2 | 35.2 | 1.8 | 15.7 | 17.4 |
| MT | 18.0 | 28.6 | 23.1 | 11.4 | 9.2 |
| NL | 20.5 | 20.5 | 8.5 | 7.7 | 5.1 |
| AT | 4.4 | 13.6 | 4.7 | 13.6 | 13.1 |
| PT | 32.1 | 47.5 | 29.9 | 41.2 | 31.8 |
| RO | 32.6 | 45.1 | 33.4 | 21.9 | 27.0 |
| SI | 1.1 | 28.2 | 1.1 | 10.2 | 3.9 |
| SK | 8.2 | 29.6 | 10.8 | 13.2 | 10.1 |
| FI | 2.1 | 14.8 | 0.6 | 5.4 | 5.0 |
| SE | 13.4 | 30.4 | a | 14.2 | 8.8 |
| UK-ENG | 37.6 | 23.1 | 17.3 | 7.3 | 11.1 |

Source: OECD, TALIS 2018.

Note: Results based on responses of lower secondary principals. a = participation rate is too low to ensure comparability.

1.1.3. Teachers' qualifications and motivations

When asked about their motivations, 9 out of 10 teachers refer to the possibility of influencing the development of children and young people (90.7%), as well as contributing to society (89%) as elements that had high importance in their career choice. Other factors that influence the choice to take up and remain in a teaching career include:

- the value that society gives to teachers, or the prestige of the profession;
- remuneration, safety of contracts and possibilities for career progression;
- opportunities to engage in self-assessment and autonomy in the choice of teaching practices;
- the quality of initial teacher education, early career mentoring and opportunities for professional development throughout the career;
- positive school environments, autonomy in teaching practices and opportunities for collaborative working practices;
- workload and balance between teaching activity and other type of responsibilities (for example, administrative tasks);

- classroom conditions, including number of pupils and, in some countries, heterogeneity of classes; but also material school conditions (e.g. availability of ICT or other pedagogical equipment)²¹.

In the EU, about 90% of teachers in the EU express satisfaction with their job. Only 8.6% of them declare that they regret their career choice. Out of the countries with available data, greater proportions of teachers seem to regret their career choice in Portugal (21.9%), Malta (17.8%), Lithuania (16.4%) and Bulgaria (16.3%).

In the EU, teaching generally requires a tertiary qualification²². The most common minimum requirement for teaching at primary level is a bachelor's degree. At primary level, a master's degree is required in Czechia, Estonia, France, Italy, Portugal, Slovenia, Slovakia, Finland, Sweden and Croatia. To teach at lower secondary level, half of the EU systems set the minimum qualification at master's level. To teach in upper secondary schools, a bachelor's degree is sufficient to qualify only in Bulgaria, Ireland, Greece, Cyprus, Latvia, Lithuania, Malta and the United Kingdom. In all other EU countries, teachers need a master's degree as a minimum qualification²³. Graduating at higher level can give prospective teachers intermediate or advanced academic knowledge, equip teachers with more skills to assess their practices, and autonomously drive innovation in teaching practices – an element that has been associated to greater satisfaction for teachers. On top of this, increasing the minimum entry requirement to become teachers can signal a higher value attributed to teaching in society, and ultimately lead to higher teaching quality²⁴.

1.1.4. Class size and school characteristics

Across the EU, there are on average 21 pupils per class at primary level and 23 pupils at lower secondary level. In primary education, classes tend to be largest in English-speaking countries, with Ireland having on average 25 children and the United Kingdom 27. In contrast, classes are small by EU standards in Latvia (11 children), Lithuania (16 children) and Greece (17 children)²⁵. At lower secondary level, the distribution changes, with largest classes being in France and Spain (25 pupils), and classes with fewer than 20 pupils only in Latvia (15), Lithuania (18), Estonia and Slovakia (19). To date, research results prove inconclusive as to the role of class size in favouring better learning outcomes, but tend to converge on the fact that students with special needs or from disadvantaged background may benefit from smaller classes²⁶. In 2018, about 34% of teachers in the EU worked in schools with at least 10% of students with special needs²⁷. Compared to 2013, this proportion decreased by 12.7 percentage points (pps) in UK-England and 10.5 pps in Sweden. On the other hand, it increased in Italy (+12.5 pps), Czechia (+15.7 pps), and Portugal (+18.8 pps).

Increasing diversity in EU schools calls for dedicated professional development for teachers and schools leaders, and school-level policy measures to promote social inclusion and level out

²¹ European Commission (2003). [Study on policy measures to raise the attractiveness of the teaching profession in Europe](#) and OECD (2018). [Effective Teacher Policies: Insights from PISA](#)

²² Data on minimum qualifications to become teachers come from the Eurydice network. For references, see European Commission/EACEA/Eurydice (2013). [Key data on teachers](#), (2014). [Key data on early childhood education and care](#), and (2018) [The teaching profession](#)

²³ Teaching in ECEC comes with different requirements for minimum qualifications. Chapters 2.1 of this report discusses these aspects.

²⁴ Pasi Sahlberg (2015). [Finnish Lessons 2.0](#)

²⁵ OECD (2018). [Education at a glance](#), indicator D2.1. Data for Austria, BE fr, CZ, DK, EE, FI, FR, DE, EL, HU, IE, IT, LV, LU, NL, PL, PT, SK, SL, ES, SE, UK, LT.

²⁶ For references on class size see European Commission (2018). [Education and Training Monitor](#), p.103, footnotes 223-24; as well as EENEE report (2018). [Class size and student outcomes in Europe](#).

²⁷ This section presents data on school composition based on the OECD TALIS 2018 dataset (Table I.3.63). The following definitions apply: 'Special needs' students are those for whom a special learning need has been formally identified because they are mentally, physically, or emotionally disadvantaged. Often they will be those for whom additional public or private resources (personnel, material or financial) have been provided to support their education. 'Socio-economically disadvantaged homes' refers to homes lacking the basic necessities or advantages of life, such as adequate housing, nutrition or medical care. A 'refugee' is one who, regardless of legal status, fled to another country seeking refuge from war, political oppression, religious persecution, or a natural disaster. 'Immigrant students' refers to 'students who are immigrants or with a migrant background', as reported by the school principal. An immigrant student is one who was born outside the country. A student with a migrant background has parents who were both born outside the country. All data are based on replies by principals on the school composition.

potential learning barriers. Approximately 19% of teachers in the EU work in a school where more than 30% of students come from socio-economically disadvantaged homes (see Figure 5). According to lower secondary principals, the proportion of teachers working in schools where more than 30% of students come from socio-economically disadvantaged families exceeds 20% in Austria (20.6%), Bulgaria (23.1%), UK-England (26.1%), France (41.6%) and Portugal (52.5%), signalling that teachers in these countries may need targeted training or other support measures in order to maximise the schools' potential to level out inequalities. At the other end of the spectrum, 5% or less of teachers work in a school with a high rate of socio-economically disadvantaged students in Cyprus (5%), Estonia (4.2%), Slovenia (3.6%), Finland (2.9%) and Malta (1.3%). In the past 5 years, the proportion of schools with at least 30% students coming from disadvantaged homes decreased in Slovakia (-5.2 pps), Estonia (-6.8 pps) and Latvia (-11.5 pps); but increased by 5.4 pps in Sweden.

Cultural diversity is also a reality in EU schools. Compared to 2013, the proportion of teachers working in schools with at least 10% non-native speakers increased in six countries: Portugal, Finland, Bulgaria, Sweden, UK-England and Belgium (Flemish Community), in ascending order. Across the EU, about one in four teachers work in schools where at least 10% of the students are non-native speakers. At least half of the teachers work in schools where more than 10% of students are non-native speakers in Austria (50.6%) and Sweden (55.1%), coinciding with the fact that in these two countries, about 50% of teachers work in schools where more than 10% of students were born outside the country or whose parents were born outside the country (51.7% in Sweden and 48.3% in Austria)²⁸. A second group of three countries has between 32% and 39% of teachers working in schools where at least 10% of students were born outside the country or whose parents were born outside the country (Belgium, Italy and France). Schools in Bulgaria, Croatia, Czechia, Estonia, Hungary, Lithuania, Portugal and Romania have a significantly lower diversity in demographic composition.

Following the 2015 increase of refugees reaching the EU, the 2018 TALIS survey gathered information on the schools hosting refugee students. On average across the EU, 32% of teachers work in schools where at least 1% of the pupils are refugee students. Yet this proportion reaches 50% for Finland and Belgium; exceeds 60% for Cyprus and Denmark; and peaks at 74% for Austria and 84.2% for Sweden.

²⁸ OECD, [TALIS 2018](#). Table I.3.25.

Figure 5 – Percentage of teachers teaching in schools with different characteristics (2013, 2018)

| | Non-native speakers | | Special needs | | Socio-economic | |
|--------|---------------------|------|---------------|------|----------------|------|
| | 2013 | 2018 | 2013 | 2018 | 2013 | 2018 |
| EU23 | : | 24.9 | : | 34.0 | : | 19.1 |
| BE | : | 37.4 | : | 42.7 | 16.0 | 18.5 |
| BE fl | 26.9 | 45.1 | 54.0 | 51.4 | : | 12.4 |
| BG | 32.6 | 42.8 | 1.5 | 4.6 | 23.9 | 23.1 |
| CZ | 3.6 | 2.5 | 21.4 | 37.1 | 3.9 | 1.5 |
| DK | 26.2 | 27.6 | 32.4 | 32.1 | 2.5 | 7.1 |
| EE | 9.7 | 13.3 | 28.8 | 29.8 | 10.9 | 4.2 |
| ES | 30.0 | 21.5 | 16.4 | 17.3 | 13.9 | 9.1 |
| FR | 17.8 | 15.9 | 38.5 | 42.4 | 44.6 | 41.6 |
| HR | 5.6 | 10.7 | 9.4 | 10.7 | 7.3 | 10.8 |
| IT | 31.7 | 31.1 | 28.5 | 41.0 | 9.5 | 7.8 |
| CY | 33.2 | 41.2 | 12.1 | 15.6 | 7.8 | 5.0 |
| LV | 20.9 | 23.0 | 8.4 | 9.5 | 18.3 | 6.8 |
| LT | : | 5.8 | : | 23.9 | : | 7.9 |
| HU | : | 1.2 | : | 21.8 | : | 20.0 |
| MT | : | 18.7 | : | 38.6 | : | 1.3 |
| NL | 14.3 | 25.1 | 45.6 | 50.6 | 11.6 | 7.1 |
| AT | : | 50.6 | : | 9.9 | : | 20.6 |
| PL | 0.3 | : | 57.9 | : | 18.1 | : |
| PT | 2.7 | 7.2 | 14.2 | 33.0 | 48.5 | 52.5 |
| RO | 9.8 | 8.5 | 3.5 | 4.3 | 27.7 | 19.9 |
| SI | : | 13.5 | : | 26.7 | : | 3.6 |
| SK | 10.5 | 11.4 | 15.9 | 17.7 | 10.4 | 5.2 |
| FI | 9.2 | 18.2 | 26.8 | 31.1 | 3.1 | 2.9 |
| SE | 41.9 | 55.1 | 63.0 | 52.5 | 10.4 | 15.8 |
| UK-ENG | 27.6 | 41.4 | 66.5 | 53.8 | 24.4 | 26.1 |

Source: OECD, TALIS 2018.

Note: Results based on responses of lower secondary principles.

1.2. Teachers' lifelong learning

Key findings

In the past 5 years, the content of initial teacher education changed to include more systematically topics such as 'teaching in a multicultural or multilingual setting', and 'use of ICT for teaching'. Regarding 'ICT for teaching' in particular, in 2018 between 70% and 90% of novice teachers in almost all EU countries with available data had 'ICT for teaching' as a topic of initial teacher education, against 52.9% of more experienced teachers (EU average).

These changes in the content of initial teacher education are important, as both 'ICT for teaching' and 'teaching in multicultural or multilingual settings' ranked high in the list of teachers' training needs. Teachers also reported high levels of training needs for the topic of 'teaching students with special needs'.

International mobility of teachers during teacher education (captured by the proportion of teachers who spent a study period abroad as part of their initial education) is not very common and varies considerably between Member States. EU teachers are more mobile during their initial education than their colleagues in other world regions, which is at least partly explained by the Erasmus+ programme.

Induction and mentoring programmes at the early stages of careers allow teachers to develop professional skills and fruitful links within the school environment. A high quality induction with classroom experience, good opportunities for professional trainings and appraisal methods focussed on teachers' development needs have been identified as three common policy elements in countries where learning outcomes are good.

Teaching is a complex task, which requires a broad set of competences, the ability to apply them in varying situations, and the readiness and opportunity to develop them continuously. Initial teacher education offers candidate teachers knowledge and skills, which they can then practice and develop further in their professional life. Induction can be used to ease the transition from teacher education to professional life, by introducing new teachers to school practices, colleagues and fellow staff members, and the main challenges that they will face in their job. Induction can help retaining novice teachers and thus reducing the number of those leaving the profession after a few years (attrition rate). In working life, continuing professional development helps teachers keep up with the latest research, best practices, and technology for learning and teaching, while also addressing new challenges that may arise as time goes on. Initial teacher education, induction and in-service training phases should not be seen as separate entities, but as a part of a continuum of lifelong learning²⁹. Research on education suggests that a comprehensive approach to initial teacher education, induction and continuing professional development will further strengthen the teaching profession³⁰.

1.2.1 Becoming teachers

In around half of the education systems in the EU, successfully completing initial teacher education is the only condition to become fully qualified teachers. In others, graduates of initial teacher education have to take additional steps, such as passing a competitive examination, appraisal at the end of an induction programme, or by accreditation, registration or certification. This section only focuses on the content of initial teacher education, including the particular element of transnational mobility during initial teacher education.

In the EU, the main pathway to acquiring a teaching qualification is through initial teacher education programmes that are organised in either concurrent or consecutive models³¹. Concurrent programmes are dedicated to teacher education right from their start, and they integrate content knowledge and professional subjects (pedagogy, teaching methods, etc.) in the same programme. In consecutive programmes students who have already undertaken higher education studies in a particular field move on to professional teacher training in a separate, successive phase. The availability of the two models for prospective teachers varies by country and target school level; generally speaking, a reason to adopt consecutive models is to ensure that a system has a sufficient pool of qualified teachers.

Some education systems have introduced alternative pathways to the teaching profession alongside the main model(s) of initial teacher education³². Alternative pathways are generally flexible, employment-based and shorter in duration than the main initial teacher education programmes. The alternative programmes typically target individuals who already have professional experience, be it within or outside education, or graduates from other disciplines. Traditionally these alternative pathways have been introduced in education systems suffering from teacher shortages, alongside more flexible recruitment methods. They can also aim to diversify the teacher population by attracting high-quality graduates and/or skilled professionals from fields outside education.

On top of responding to teachers shortages, initial teacher education has to prepare teacher candidates for the challenges that they will meet in the classroom. Data show that the content of initial teacher education impacts on teaching quality³³. For example, teachers who were trained to use ICT in the classroom in their initial teacher education display a higher propensity to let students use ICT for projects and classwork. By the same token, teachers trained to teach in multicultural or multilingual settings report higher self-efficacy in teaching in these types of

²⁹ European Commission (2015). [Shaping career-long perspectives on teaching – A guide on policies to improve Initial teacher education](#).

³⁰ Trumpa, S., Wittek, D., Sliwka, A. (2017). [Die Bildungssysteme der erfolgreichsten PISA-Länder: China, Finland, Kanada, Japan und Südkorea](#). Münster: Waxmann.

³¹ Information on initial teacher education models in Europe and pathways to become teachers from: European Commission/EACEA/Eurydice (2013). [Key data on teachers and school leaders in Europe](#); page 23.

³² Alternative pathways available for teachers of different education levels in BE (except BE fr), DE, DK, EE, ES, LV, LT, LU, NL, SK, SE, UK-ENG. Data on this section from European Commission/EACEA/Eurydice (2018). [Teaching careers in Europe: access, progression and support](#), page 36-37.

³³ On the basis of data on self-efficacy and content of initial teacher education, OECD, [TALIS 2018](#). Tables I.4.13, I.4.17-20.

conditions. Yet teaching in multilingual and multicultural environments remains a fairly rare topic in initial teacher education.

In the EU, elements of teaching in multicultural and multilingual settings were included in initial teacher education for 31.7% of teachers at lower secondary level. In all European countries that participated in TALIS (except UK-England), under 50% of teachers reported this topic being included in initial teacher education, with four countries having under 20% report it. On average in the EU, over 77% of teachers report that they can help reduce ethnic stereotyping among students and over 74% report that they can ensure that students with and without a migrant background work together, if they have been trained to teach in a multicultural or multilingual environment. Teaching in multilingual and multicultural environments was also one of the topics where teachers reported the highest need for professional development.

In the past 5 years, there has been a leap forward in the inclusion of 'ICT for teaching' as a topic of initial teacher education³⁴. In nine EU countries, under 50% of teachers reported that 'ICT use in classrooms' was included as a topic in their initial education. Zooming on novice teachers (those trained in the past 5 years) shows that the proportion of those who had 'ICT use in classrooms' as a topic of initial teacher education grows to at least 70% in all EU countries surveyed, except Austria (68.3%). Teachers who reported having this topic as part of their initial education were more likely to let their students use ICT for projects and classwork.

International mobility of teachers during initial teacher education is not very common and ranges considerably between countries – from low take-up in Romania and Latvia (less than 10% of mobile teachers during their education), to higher shares in Denmark and the Netherlands, where about one third of teachers participate in an international mobility experience/programme³⁵. Almost half of the teachers in Cyprus spent time abroad during teacher education. Compared to other participating non-EU countries, EU countries had higher participation rates in international mobility, explained at least in part by the Erasmus+ programme.

Teachers who have taken part in international teacher mobility programmes during their career reported that they developed intercultural competences and language skills, learned new teaching practices and became more open to innovation. These programmes also help them make connections to schools and institutions in other countries. Teachers who had participated in these programmes also reported that there were more discussions about internationality, and they also felt that the school environment had become more open and tolerant³⁶. Studies on university students also point to the beneficial effects of studying abroad on intercultural skills³⁷.

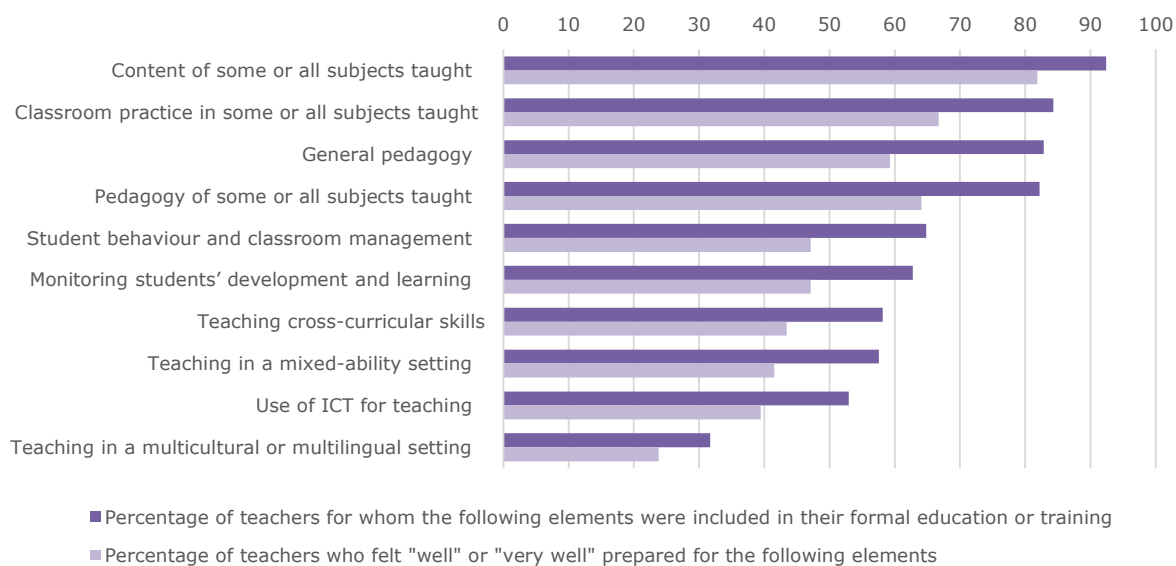
³⁴ OECD, [TALIS 2018](#). Table I.4.13.

³⁵ Teachers teaching foreign languages are more mobile. In 2013, more than half of foreign language teachers (56.9%) confirmed having travelled abroad for professional purposes, in comparison to 19.6% of non-language teachers (OECD TALIS 2013 dataset).

³⁶ Erasmus+ National Agency of Lithuania (2017). [Impact and sustainability of the Erasmus+ Programme Key Action 1 mobility projects for school education staff](#); and Finnish Centre of International Mobility CIMO (2007). International teacher mobility: benefits and impact in comprehensive and upper secondary schools, vocational education and training, and higher education.

³⁷ Williams, T. (2005). [Exploring the Impact of Study Abroad on Students' Intercultural Communication Skills: Adaptability and Sensitivity](#), *Journal of Studies in International Education*, Vol. 9/4, pp. 356-371.

Figure 6 – Content of teacher education and sense of preparedness for teaching



Source: OECD, TALIS 2018.

Initial teacher education in Finland

In Finland, all teachers in general education are required to hold a master's degree, and this also applies to those who teach in pre-primary classes in conjunction with schools. VET teachers are expected to have a master's or a bachelor's degree, while teaching and guidance staff within day-care centres generally have bachelor's degrees. The high level of training is seen as necessary, as teachers have considerable professional autonomy in Finland. Teacher education is a popular field of study. The intake into teacher education for primary level is 16% of all applicants, while subject teacher education intake varies from 10% to 50% depending on the subject. In vocational teacher education the intake is 25% of applicants.

The high level of teacher training also allows Finland to emphasise the link between teaching and research in initial teacher education. All primary-level class teachers write their master's theses in the field of education, while subject teachers choose a topic in their own field, often relating to the teaching of their particular subject. The objective of the focus on research is to produce teachers who are able to solve problems independently and utilise the most recent research in both education and their taught subjects to reflect and improve their own teaching practices and cooperate with colleagues to share education, while subject teachers choose a topic in their own field, often relating to teaching their particular subject. The objective of the focus on research is to form teachers who are able to solve problems independently and utilize the most recent research in both education and their taught subjects to reflect and improve their own teaching practices and cooperate with colleagues to share knowledge³⁸.

Despite the high level of qualification and focus on research, academic ability is not considered the best predictor of teacher effectiveness. Only a minority of those accepted to these teacher programmes come from the top quintile of academic performance³⁹, and prospective teachers are instead selected based on a combination of talents and personal characteristics. Moral purpose and passion about education, as well as skills in empathy, leadership and cooperation are seen as key competences when selecting future student-teachers.

³⁸ The Finnish Ministry of Education and culture (2016). [Teacher education in Finland 11/2016](#).

³⁹ Sahlberg, P. (2017). *FinnishED Leadership: Four big, inexpensive ideas to transform education*. Thousand Oaks: Corwin Press.

1.2.2 Induction and mentoring

Research suggests that quality induction may play a key role in teacher retention⁴⁰, and that induction activities also positively affect teaching practices, and even student outcomes⁴¹. Typically, induction programmes combine elements of mentoring, professional training, peer reviews and scheduled meetings with school leaders and colleagues through which personal, social and professional support are provided⁴². Data also shows that induction activities are linked to higher self-efficacy and job satisfaction. In countries where the practical classroom training part of initial teacher education is shorter, more intensive induction and mentoring programmes can help give novice teachers the practical experience they need at the beginning of their careers by bridging the gap between theory and practice⁴³. Under the TALIS survey, around 39% of teachers report having participated in some form of induction when they joined their current school.

Mentoring constitutes one of the main stages of induction programmes, and it generally encompasses personal, social and professional support for teachers. The mentor is usually a more senior teacher who introduces new teachers to the colleagues and fellow staff, as well as to professional life, supporting them and providing coaching and advice when necessary. Studies suggest that mentoring has a positive impact on teaching skills, and as mentors often have school-specific information that new teachers may lack, they can also help in teacher retention⁴⁴. Mentoring is a compulsory component of induction programmes in all education systems where induction is regulated, except in Ireland where it is optional⁴⁵. Under TALIS 2018, 34% of principals reported that mentoring in the school is only accessible to teachers who are new to teaching; while 15% of them reported accessibility of mentoring programme in the school for all teachers⁴⁶.

1.2.3 Continuing professional development

Continuing professional development is an important way for teachers to maintain and improve their teaching skills, keep up with the most recent developments in the field of education and their own taught subjects, as well as keep up with the needs of students in rapidly changing societies. As a result of comparative analysis on teacher policies, the OECD concluded that countries with the highest learning outcomes have three elements in common: a mandatory and extended period of clinical practice, either during initial teacher education or during induction; a good offer of quality opportunities for continuing professional development; and teacher-appraisal mechanisms with a strong focus on teachers' training needs⁴⁷.

In 11 EU countries it is mandatory for teachers in primary and general secondary education to participate in professional development (i.e. there is a minimum amount of continuing professional development that all teachers must complete)⁴⁸, where teachers must take a defined minimum

⁴⁰ Ashby, P., Hobson, A., Tracey, L., Malderez, A., Tomlinson, P., Roper, T. Chambers, G. and Healy, J. (2008). [Beginner Teachers' Experiences of Initial Teacher Preparation, Induction and Early Professional Development](#): A review of literature.

⁴¹ Ingersoll, R. and Strong M. (2011). [The Impact of Induction and Mentoring Programs for Beginning Teachers](#), The Review of Educational Research, Vol. 81/2, pp. 201-233; Glazerman, S. et al. (2010). [Impacts of Comprehensive Teacher Induction: Final Results from a Randomized Controlled Study](#), National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education; Helms-Lorenz, Slof M., B. and van de Grift W. (2013). [First year effects of induction arrangements on beginning teachers' psychological processes](#). The European Journal of Psychology of Education, Vol. 28/4, pp. 1265-1287.

⁴² European Commission/EACEA/Eurydice (2018). [Teaching Careers in Europe: Access, Progression and Support](#).

⁴³ OECD (2018). [Effective Teacher Policies: Insights from PISA](#) p. 45.

⁴⁴ Rockoff, J. (2008). [Does Mentoring Reduce Turnover and Improve Skills of New Employees? Evidence from Teachers in New York City](#), National Bureau of Economic Research, Cambridge, MA.

⁴⁵ Mentoring is compulsory in DE, EE, ES, FR, HR, IT, HU, MT, AT, PL, PT, RO, SI, SK, SE, UK. Data from European Commission/EACEA/Eurydice (2018). [Teaching Careers in Europe: Access, Progression and Support](#).

⁴⁶ OECD, TALIS 2018, Table I.4.60.

⁴⁷ OECD (2018). [Effective Teacher Policies: Insights from PISA](#).

⁴⁸ EU countries where continuing professional development for teachers in primary and general secondary education is mandatory: BG, CY, LT, LV, LU, MT, HU, PT, AT, RO and SI. In Estonia, skill development and staying up-to-date with innovation in education is considered part of the professional standard for teachers. Data on teachers training from European Commission/EACEA/Eurydice (2018). [Teaching Careers in Europe: Access, Progression and Support](#). A Eurydice report. Reference year 2016/2017. Data on minimum number of mandatory CPD hours, days or credits for the given number of years on page 57.

amount of training per year. In 10 EU countries it is mandatory for teachers in lower secondary education to participate in professional development in order to maintain employment, and in 6 EU countries it is mandatory in order to gain a promotion or – salary increase. Additionally, professional development is mandatory in some regions of two EU countries (the French Community of Belgium, UK-Scotland, and UK-Northern Ireland). In the rest of Belgium and the United Kingdom, and in nine other EU countries, continuing professional development is considered to be a teacher's professional duty⁴⁹, but with no minimum amount specified. In France, it is only mandatory for primary school teachers to participate in professional development. Participation in professional development in primary and general secondary education is optional in Denmark, Greece, Ireland, the Netherlands and Sweden.

Towards a professional learning community in Malta

To increase teacher participation in continuing professional development, the sectoral agreement signed in 2017 widened the concept to include all types of learning opportunities (within schools, designed outside school and based on teachers' choice). The agreement also allowed teachers who undertake at least 360 hours of training to get a salary increase after 6 years rather than 8. Between October 2018 and February 2019, the Malta College of Arts, Science and Technology – a provider of advanced vocational training (MCAST) – provided professional development sessions for teachers, including workshops with a special focus on innovative pedagogies and digital literacy (use of social media in classrooms, innovative pedagogies, using technological tools in the classroom). The agreement also requires teachers and school heads to draw up a school development plan to respond to the changing educational environment and also changes in school composition.

Between October 2018 and February 2019, the Malta College of Arts, Science and Technology – a provider of advanced vocational training (MCAST) provided professional development sessions for teachers, including workshops with a special focus on innovative pedagogies and digital literacy (use of social media in classrooms, innovative pedagogies, using technological tools in the classroom).

Similarly, the Institute of Tourism Studies (ITS) and the Malta Union Teachers signed a collective agreement in 2018. The agreement allows academic staff who undertakes CPD activities to progress faster within the academic ranks' framework set in the collective agreement. While academic staff can decide to participate at CPD activities of their own choice, the ITS organises compulsory bi-annual seminars and workshops which focus on technology in education, innovative pedagogies and inclusive education.

Source: Conjoint statement between the Institute of Tourism Studies (ITS) and the Malta Union of Teachers (MUT) on the Collective Agreement signing between ITS and MUT.

Over 92% of teachers across the EU report that they regularly participate in professional development. This applies to teachers working in urban or rural areas, as well as in publicly managed or privately managed schools. Variations in the EU are not stark: even countries with comparatively lower shares of teachers participating in continuing professional development, such as France, still show quite high levels of participation (82.6%)⁵⁰. On average across the EU, there are no sizeable differences between the participation of male and female teachers in professional development. Yet in Finland, Romania and Italy, female teachers seem to be taking up professional development more frequently. Austria, Latvia and Lithuania show the highest shares of teachers' participation in continuing professional development. According to teachers, the main barriers to

⁴⁹ When it is a professional duty, professional development is classified as such in regulations or applicable policy documents; but without a minimum number of compulsory hours.

⁵⁰ OECD, [TALIS 2018](#). Table I.5.1.

participation in professional development are conflict with work schedules; the lack of incentives; and training costs⁵¹.

Early professional development has been shown to be important for building teachers' self-confidence and improving teaching practices⁵², and can thus be a key factor in retaining teachers. Yet in Europe, teachers with less than 5 years of professional experience were on average slightly less likely to have attended professional training. The difference between novice and more experienced teachers is high in Italy (7 pps) and Romania (7.5 pps), even if 87% of Italian novice teachers and 83% of Romanian novice teachers still participated in continuing professional development.

When asked about their needs for professional development, 21% of teachers in the EU report that further training is required to teach students with special needs. However, it is important to note that in the past 10 years, the proportion of teachers reporting this need approximately halved in Austria, Hungary, Italy, Portugal, Slovenia and Malta. On the other hand, it increased in Bulgaria (by 12 pps) and Slovakia (by 32 pps). Across the EU, more female teachers than male teachers report that further training is needed on how to teach students with special needs; on this issue younger or less experienced teachers report that further training is needed compared to more experienced teachers. The need for more professional development on teaching students with special needs is mirrored by the shortage of teachers with these competences, reported by 38% of school principals as one of the main issues that hinders schools' capacities for providing high-quality education⁵³.

The use of ICT for teaching is an important topic of teachers learning, and remains high in the ranking of teachers' professional development needs. Research shows that while ICT use is encouraged more and more in classrooms, teachers need training to effectively use it to the benefits of student learning⁵⁴. In Europe, 16% of teachers report a high need for professional development on the use of information and communication technology (ICT) for teaching. Within the EU, this is a high need for more than one in five teachers in Croatia (26.2%), Bulgaria (22.7%), France (22.9%), Lithuania (23.6%), Latvia (22.6%), Sweden (22.2%), Romania (21.2%), and Hungary (20.5%). In most EU countries, the proportion of teachers declaring a high need for teaching in this department decreased in the last decade. The drop was particularly significant in Slovenia (-16.6 pps), Lithuania (-12.5 pps), Portugal (-12.2 pps) and Spain (-11.2 pps). In Slovenia and Portugal in particular, teachers in 2018 expressed a need for training on ICT well below the EU average⁵⁵.

Another topic ranking high in training needs reported by teachers is teaching in multilingual and multicultural environments. While about 13% of them report a further need for training in these competences, only 19.7% of teachers report it being included in professional development, signalling a gap in training opportunities in this area. Furthermore, teaching in multicultural environments is rarely included in teacher initial education programmes, which strengthens the call to better support both prospective and serving teachers in this area. Research shows that the mismatch between the offer of professional development and the needs expressed by teachers is generally smaller in countries where schools and teachers themselves are responsible for setting training priorities⁵⁶.

⁵¹ For a presentation of innovative models of teachers' continuous professional development that could remove some of the known barriers, see Vuorikari, R. (2019). [Innovating Professional Development in Compulsory Education. An analysis of practices aimed at improving teaching and learning](#). A JRC Report; and Vuorikari, R (2018). [Innovating Professional Development in Compulsory Education. Examples and cases of emerging practices for teacher professional development](#), A JRC Report.

⁵² Ashby, P., Hobson, A., Tracey, L., Malderez, A., Tomlinson, P., Roper, T. Chambers, G. and Healy, J. (2008). [Beginner Teachers' Experiences of Initial Teacher Preparation, Induction and Early Professional Development](#): A review of literature.

⁵³ As reported in chapter 1.2 of this report, 37.8% of principals on average in the EU declare that shortage of teachers teaching special-needs students hinder the quality of instruction. Data from OECD, TALIS 2018. Chapter 3.

⁵⁴ OECD (2015). [Students, Computers and Learning: Making the Connection, PISA](#).

⁵⁵ The use of ICT in classrooms is also discussed in chapter 2.8 of this report.

⁵⁶ European Commission/EACEA/Eurydice (2015). [The teaching profession in Europe: Practices, Perceptions, and Policies](#).

Figure 7 – Content of teachers training and need for it



Source: OECD, TALIS 2018.

Continuing professional development in Sweden

In order to support teachers' professional development, Sweden launched the 'Boost for Teachers' programme (Lärarlyftet) (2007-11). The programme offered 30 000 teachers the possibility of following advanced continuing professional education at higher education institutions, and about 24 000 took part in this initiative. 'Boost for Teachers II' also offers the possibility for registered teachers without formal teaching qualification in a subject or age group they teach to take specialised courses.

'Boost for Mathematics' (2012-2016) and 'Boost for Reading' (2015) are collaborative learning programmes for teachers to help them improve the planning, conducting and evaluating of their practices. Approximately 35 000 and 20 000 teachers participated, respectively. The 'Boost for Reading' programme has also been extended to pre-school level to strengthen the educational mission of pre-schools and improve the teaching of Swedish to children who have a mother tongue other than Swedish.

Source: National Agency for Education (2016). [Lärare nöjda med Matematiklyftet](#), 25 November 2016; (2019). [Läslyftet i skolan](#), 14 June 2019; (2019), [Läslyftet i förskolan](#), 14. 6. 2019; (2019). [Lärarlyftets kurser och utbildningar](#), 23 May 2019.

1.3. Teacher careers

Key findings

Structural career elements such as salaries, career progression and teacher appraisal can help increase the attractiveness of the profession.

Currently, teacher appraisal takes place in most EU countries and can be linked to promotion and professional development, or be a way to provide teachers with feedback on their performance. It proves most effective when it is based on a strong and comprehensive framework that includes clear reference standards.

Around half of EU countries adopt a multi-level structure for teacher careers. In most of them, promotion to a higher level in the career structure is linked to a salary increase. Opportunities for school staff to diversify careers can be promoted also in systems with a single-level career structure. These opportunities involve taking on additional roles to classroom teaching and/or school leadership. Together with clearly established competence levels, career structures enhance teachers' appreciation of career prospects.

Most European countries adopt frameworks describing a set of competences that teachers should possess, or develop over their career. In practice, however, such frameworks vary in format, level of detail, value and use.

Looking at remuneration, teaching in the EU competes with professions requiring equivalent education levels in attracting and retaining skilled graduates. In most EU countries teachers earn less than their peers in other professions that require high qualifications. In some Member States, teaching loses out to other professions in the competition for the best⁵⁷. On top of this, several countries face a decline in the prestige of the profession and staff shortages, holding back the quality of school education.

Most EU countries aim to attract a wider range of suitable candidates to careers in teaching, as well as motivate and support them to excel in this demanding profession. Section 1.1.3 presented a list of key aspects influencing the attractiveness of the teaching profession. This chapter looks at some structural elements that can make teaching careers more attractive in EU countries: teacher appraisal, career progression, and salary levels. The chapter also tests the association of some of these elements with the perceived status of the teaching profession.

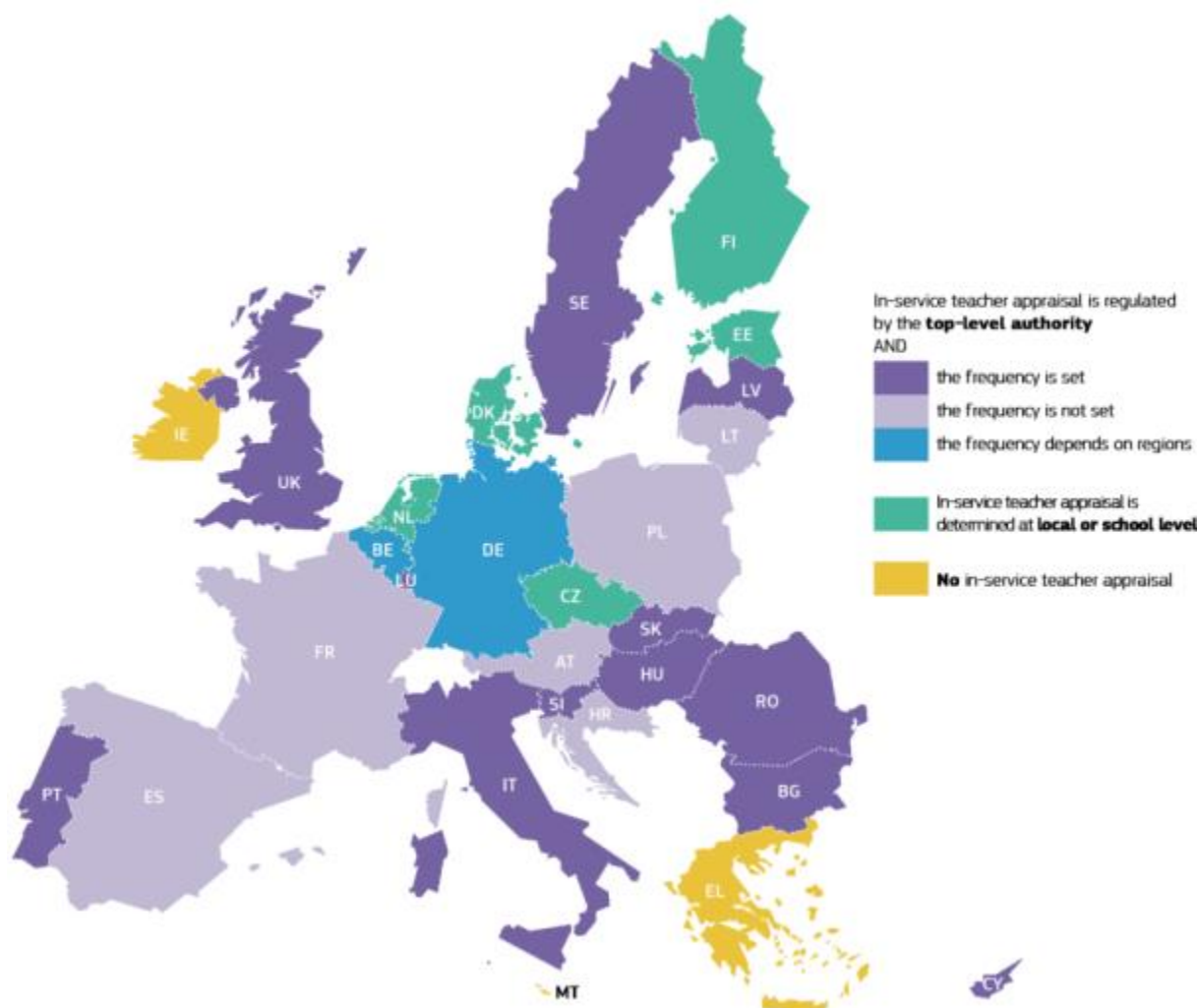
1.3.1. Appraisal

In the vast majority of the EU countries teacher appraisal is common practice (reference year 2016/2017)⁵⁸. In many cases it is regulated by top-level education authorities, like central/national government; while in other countries, schools or local authorities have full autonomy in this matter (e.g. Czechia, Denmark, Estonia, Finland, the Netherlands). Only Greece, Ireland and Malta do not carry out in-service teacher appraisals. In half of the EU education systems, appraisal is carried out at various regular intervals. It ranges from being an annual exercise for all teachers (Italy, Sweden, Slovenia, Slovakia) to taking place only in specific years of service (Cyprus, Luxembourg). In the remaining systems, frequency is not set and depends on different factors (e.g. promotion purposes, individual teacher request, appraiser's initiative).

⁵⁷ European Commission (2017). [Communication on School development and excellent teaching for a great start in life](#), COM(2017) 248 final.

⁵⁸ OECD TALIS 2018 data on appraisal are still under embargo. This section of the 2019 Monitor is based on data from the Eurydice network, presented in European Commission/EACEA/Eurydice (2018). [Teaching careers in Europe: Access, Progression and Support](#). Reference year for the indicators is 2016/2017. In some countries, reforms may have been initialised in the two last years. For example, since the reference year of the Eurydice's report (2016/2017), a reform of teacher appraisal has been implemented in France (as from September 2017). The reform introduces regular 'career meetings' for teachers, at precise moments of their career, namely when a teacher is at the 6th, 8th and 9th step of the pay scale (i.e. every 7 years on average). These meetings are privileged moments of exchange on the acquired skills and the perspectives of professional evolution.

Figure 8 – Extent and frequency of in-service teacher appraisal in primary and general secondary education (ISCED 1-3) according to top-level authority regulations, 2016/17



| Frequency in years | | | | | | | | | | | | | | | | |
|--------------------|--------------|----------|-----|-----|-----|----|-----|-----|-----|-----|-----|------------|------------|--------------|------------|-----|
| BE fr | BE de | BE fl | BG | CZ | DK | DE | EE | IE | EL | ES | FR | HR | IT | CY | LV | LT |
| (-) | 1, 2 or 3 | 4 | 4 | (-) | (-) | : | (-) | (-) | (-) | (-) | (-) | (-) | 1 | 12*, 10** | 5 | (-) |
| LU | HU | MT | NL | AT | PL | PT | RO | SI | SK | FI | SE | UK- ENG | UK- WAL | UK- NIR | UK- SCT | |
| 12; 20 | 3-5 | (-) | (-) | (-) | (-) | 4 | 1-4 | 1 | 1 | (-) | 1 | 1 | 1 | 1 | 1-5 | |

Source: European Commission/EACEA/Eurydice (2018). [Teaching Careers in Europe: Access, Progression and Support](#).

Note: (-) Not applicable. Greece: Legislation on in-service teacher appraisal exists but its implementation is currently suspended pending a review. Portugal: Teachers with temporary contracts undergo appraisal every year. Teachers with indefinite contracts are evaluated every four years. Slovenia: The frequency refers to regular appraisal. *ISCED 1; **ISCED 2 and 3.

Teacher appraisal may serve different purposes. It can be either formative (i.e. used to identify individual and collective development needs) or summative (i.e. used to support decisions related to salary and/or career advancement) or, as is more often the case, a mixture of the two. It can be linked to promotion and professional development needs, or be a way to provide teachers with feedback on their performance. More specifically, four of the most commonly stated purposes of teacher appraisal are:

- to provide teachers with feedback on their performance;
- to assess whether they merit a bonus or other reward;

- to determine whether they qualify for salary progression; and
- to assess whether they are ready for promotion.

In-service teacher appraisal for promotion follows a different process to that carried out for other purposes, at least in most countries where it exists. Usually, in addition to a satisfactory assessment of performance, appraisal for promotion takes other elements into account such as years of experience and participation in professional development activities. Therefore, appraisal for promotion is a more comprehensive process than others. Moreover, it is usually a voluntary process as teachers request to be evaluated for promotion purposes.

There may be tensions between formative and summative goals for appraisal. Therefore, it is essential to build teacher trust in the independence and value of the process. Attention to the evaluation of teacher effectiveness and its use for decisions on teacher retention, career advancement and salary is relatively recent, and teachers may be wary of these new approaches. Teacher evaluation may be viewed negatively if it is believed that the results may be used for issuing penalties or associated with potential job loss. On the other hand, evaluation and feedback that lead to improvements in teaching can build up trust⁵⁹.

Consultation with teachers and their representatives on the overall design and implementation of new systems, is also an effective approach to building teacher trust, as well as to ensuring the quality of evaluations⁶⁰. In most EU countries school leaders are either charged with the responsibility of appraising teachers or participate actively in the process. This requires them to acquire specific competences on teacher appraisal. However, only one third of EU education systems have mandatory training for school leaders in this area⁶¹.

A common framework for schools' self-evaluation in Ireland

In 2016, Ireland published a new common framework for teaching and learning that included standards for leadership and management. Schools, which are required to conduct self-evaluation using the common framework, have access to national support services. The Inspectorate works with schools to develop a common understanding of the standards, to encourage teachers within schools to share experiences and good practice, and to improve schools' capacity to gather and use data effectively in order to improve student learning.

Source: European Commission (2017). [Quality Assurance for School Development: Guiding principles for policy development on quality assurance in school education](#). ET2020 Thematic Working Group - Schools

1.3.2. Career progression

Across the EU, teacher career structures have one or more levels:

- Career structures with only one level are referred to as 'flat career structures' in this report. A salary scale may be used but it usually relates to years spent in service and, possibly, performance. A flat career structure may enable teachers to widen their experience or take on additional tasks or responsibilities⁶².
- In multi-level career structures, the levels are usually defined by a set of competences and/or responsibilities. Within a multi-level career structure, different career levels are structured in terms of increasing complexity and greater responsibility. A salary scale may be linked to the career structure, but is not its determining feature.

Figure 9 shows that Cyprus, Poland, Bulgaria, Estonia, Ireland, France, Croatia, Hungary, Lithuania, Latvia, Malta, Romania, Sweden, Slovenia, the United Kingdom (except Northern Ireland) and Slovakia have a multi-level career structure, while the other EU education systems have a flat

⁵⁹ OECD (2013). [Teachers for the 21st Century: Using Evaluation to Improve Teaching](#).

⁶⁰ OECD (2016). [Engaging Public Employees for a High-Performing Civil Service](#).

⁶¹ For an overview of countries where appraisal training programmes for school leaders are mandatory, recommended, or do not exist, see European Commission/EACEA/Eurydice (2018). [Teaching careers in Europe: Access, Progression and Support](#). A Eurydice Report., page 99.

⁶² European Commission/EACEA/Eurydice (2018). [Teaching careers in Europe: Access, Progression and Support](#).

career structure where teachers cannot move to higher career levels. Promotion to a higher level in the career structure is linked to a salary increase in most of the countries with a multi-level career structure.

Figure 9 – Types of career structure for fully qualified teachers as defined by the top-level education authority, primary and general secondary education (ISCED 1-3) 2016/17



Source: European Commission/EACEA/Eurydice (2018). [Teaching careers in Europe: access, progression and support](#).

Note: Germany: In some *Länder*, ISCED 1 and 2 teachers may be promoted within a two-level career structure (grades A12 and A13). This type of promotion, limited to some *Länder*, is not taken into account here. Netherlands: Social partners set the framework for a multi-level career structure through collective agreements. School boards are responsible for its interpretation and adaptation at school level. UK: The multi-level career structure applies to England, Scotland and Wales, whereas Northern Ireland has a flat career structure. LV: voluntary quality level system, linked with rewards for qualitative work.

Opportunities for school staff to diversify careers can be promoted in both multi-level career structures and flat career structures. They involve taking on additional roles to classroom teaching and/or school leadership:

- coordinating or leadership roles;
- support to colleagues, including mentoring and professional development;
- involvement in school development;
- extracurricular activities;
- cooperation with external partners.

Clearly defined competence levels and career structures enhance teachers' appreciation of career prospects. As teachers pass through different stages of their careers, their progress is linked with their command over a set of competences required for effective practice. Competence frameworks or professional standards also clarify expectations for the engagement of teachers and school leaders. If these tools provide the opportunity for dialogue, rather than serving as mechanistic checklists, they can help promote quality in the teaching profession. They increase transparency, help teachers deploy and develop their professional competences, while maintaining the freedom to take risks, develop and innovate. Most European countries now have frameworks that lay out and describe a set of competences teachers should possess, or develop over their career. In practice, however, such frameworks vary in terms of format, level of detail, value and use. In some countries competence frameworks extend to guidelines for initial teacher education, or lay out competences at different steps in a teacher's career and underpin criteria for career advancement⁶³.

Competence standards in Latvia

A new standard for the teaching profession is being developed under the new competence-based approach to the curriculum. This standard describes the necessary skills and attitudes, professional knowledge and competences of teachers according to their professional activities and responsibilities. In developing the new standard's content the experience and examples of neighbouring Baltic States are being taken into account.

Distributed leadership in Slovenia

Teachers can occupy different roles, such as class tutors, heads of subjects or team leaders. Although these roles are defined either by central legislation or schools' internal acts, they are not formally recognised as career advancement, and do not lead structurally to more senior positions at the school level. However, being part of a teacher team or holding a (non-formal) position at school is part of the distributed leadership practice and the promotion of teacher leadership. It serves to recognise and make use of individual teachers' talents and competences for change management and school development. Different forms of distributed leadership are being piloted within the project 'Leading and Managing Innovative Learning Environments', supported through the European Social Fund.

Source: European Commission (2018). [Teachers and school leaders in schools as learning organisations. Guiding principles for policy development in school education](#)

1.3.3. Salaries

Salary levels are relevant in making a teaching career attractive to graduates of upper secondary education who might decide to take initial teacher education and skilled graduates that would otherwise look for jobs in other sectors; they can also play a role in retaining present teachers in the profession. About 64-66% of teachers in the EU declare that a reliable income and a steady career path were important elements in taking their career choice – and in both cases the share slightly increased for younger teachers⁶⁴.

This section will look at two salary indicators. The first is the teacher statutory salary, i.e. the gross wage paid to full-time, fully qualified teachers according to statutory salary ranges. The second is the ratio of actual teacher salary⁶⁵ to earnings of tertiary-educated workers⁶⁶. This shows how financially attractive the teaching profession is compared to other highly qualified jobs.

⁶³ European Commission (2018). [Teachers and school leaders in schools as learning organisations. Guiding principles for policy development in school education](#).

⁶⁴ OECD, TALIS 2018. Table I.4.1.

⁶⁵ The weighted average gross annual salary actually received by all teachers within the age range 24-65 at a specific education level, including the statutory salary and other additional payments.

⁶⁶ Average earnings for full-time, full-year workers aged 25-64 with an education qualification at ISCED level 5, 6, 7 or 8.

There is room for statutory salary progression throughout a teacher's careers, but it varies widely among countries. According to the most recent available data⁶⁷, in general lower secondary education, the smallest percentage increase between the starting and top statutory salary is in Lithuania (below 3%), followed by Denmark (16%). The highest percentage increases are in Romania (143%), the Netherlands (104%), Portugal (99%), Greece (95%), Austria (94%), Hungary (90%), Ireland (89%) and Slovenia (80%). Overall, the longer a teacher's career, the greater the percentage difference is between starting salary and top salary. On average, in lower secondary education it takes about 28 years to reach the top of the statutory salary range, but in some countries (Bulgaria, Denmark, Lithuania, Malta, Romania) the statutory salary after 10 years in service is already identical with (or very close to) the top salary. On top of their statutory salaries, all education systems in the EU provide allowances to teachers. Almost all of them compensate teachers for additional responsibilities and working overtime. Allowances for further formal qualifications, outstanding performance and teaching in challenging circumstances are provided in about half of the education systems.

In 2016/17, teachers' statutory salaries increased in real terms in most EU countries. A policy reform or a change in the pay scales brought an increase of 4% or more (compared to salaries in 2015/16) in eight Member States (Bulgaria, Czechia, Estonia, Hungary, Ireland, Latvia, Romania, Slovakia). Collective bargaining brought salary rises of more than 3% also in Denmark, Malta and Sweden⁶⁸.

In most Member States, primary (and especially pre-primary) teachers earn less than secondary level teachers. In secondary education, teacher statutory salary tends to be higher at upper-secondary level than at lower secondary level. However, teachers often earn significantly less than the average for tertiary-educated workers (Figure 10). Among EU countries with available data, in four (Czechia, Slovakia, Italy and Hungary) teachers at all education levels earn less than 80% of what other tertiary-educated workers earn. Only in Luxembourg, Portugal and Greece, do teacher salaries at all levels of education exceed those of other tertiary graduates, while in Latvia, Belgium (both Flemish and French communities), Finland and Germany this happens at upper-secondary level. In all other cases, teacher salaries are below (or equal) the earnings of other tertiary graduates.

Figure 10 – Actual salaries of all teachers, relative to earnings for workers with tertiary education, 2016



Source: OECD (2018). Education at a Glance 2018.
Note: 2015 for CZ, FI, BE and FR; 2014 for IT, LT, NL.

⁶⁷ European Commission/EACEA/Eurydice (2018). [Teachers' and school heads' salaries and allowances in Europe 2016/17](#).
⁶⁸ Ibid.

Strong evidence exists on the impact of teacher salaries on recruitment, retention and pupils' outcomes. Higher salaries are associated with positive impacts on the recruitment and retention of better qualified teachers⁶⁹. Levels of teacher salaries are positively correlated with pupils' academic performance⁷⁰. However, modest increases to teacher salaries in disadvantaged schools do not appear to be sufficient on their own to have a significant impact on inclusiveness⁷¹.

There is an extensive body of interdisciplinary research from the fields of economics and psychology exploring the impact of different types of incentives on performance (although very little of this research has been conducted in European contexts)⁷². In economics, monetary incentives are widely seen as a major tool to promote desired behaviour. To attract and retain high-quality teachers, economists have pointed to the need to close the gap in earnings between teaching and other professions requiring a tertiary qualification⁷³. Indeed, competitive teacher salaries are considered as essential for raising the quality of the teacher workforce.

At the same time, in the field of psychology, some theorists emphasise that monetary awards may to some extent undermine intrinsic motivation⁷⁴. Some of this research also highlights the importance taking both macro- and micro-level factors into account when designing incentive schemes. For example, while there has been interest in the potential of performance bonuses based mainly on student learning outcomes, research has found that one-size-fits-all incentive policies may not be appropriate⁷⁵. Incentives targeted at individuals, if used inappropriately, may undermine the impact of other policy tools, such as developing teacher networks or professional learning communities. Group-based incentive schemes may be more effective in smaller schools with more cohesive teacher bodies⁷⁶.

Differentiated salary scales in the Netherlands

The Netherlands introduced diversified career paths from 2009 onwards. This implies distributing teachers across different salary scales and is achieved with extra money made available to school boards. Salary scales are linked to promotion steps and apply to both primary and secondary education, including special needs education and vocational education and training. To be eligible for promotion, teachers need to have at least a *HBO* (university of applied sciences) degree. Promotion conditions are different in primary and secondary education. They both include some kind of specialisation and the take up of various roles within the school (e.g. to develop the curriculum on a certain topic or to support colleagues).

Source: European Commission (2018). *Teachers and school leaders in schools as learning organisations. Guiding principles for policy development in school education*

1.3.4. Status of the profession

Most EU teachers perceive the social status of their profession as low (Figure 11). Only in Finland more than half (58%) of them think the teaching profession is valued in society; more than 1 in 4 teachers think the teaching profession is valued in society in Cyprus (43.5%), Romania (41%), the Netherlands (31%), the United Kingdom (29%), Estonia and Belgium (Flemish Community), all at

⁶⁹ Ferguson, R. F. (1991). Paying for public education: New evidence on how and why money matters. *Harvard Journal on Legislation*, 28: 465-498; Figlio, D. N. and Stone, J. A. (1997). *School Choice and Student Performance: Are Private Schools Really Better?*, Institute for Research on Poverty Working Paper: 1141-97.

⁷⁰ Dolton, P. and Marcenaro-Gutierrez, O. (2011). *If You Pay Peanuts, Do You Get Monkeys? A Cross-country Analysis of Teacher Pay and Pupil Performance*. *Economic Policy*, 26(65): 5-55; European Commission (2018). *Education and Training Monitor 2018*.

⁷¹ European Commission (2017). *Study on governance and management policies in school education systems*.

⁷² European Commission (2018). *Boosting teacher quality: Pathways to effective policies*.

⁷³ Münich, D. and Rivkin, S. (2015). *Analysis of Incentives to Raise the Quality of Instruction*. European Expert Network on Economics of Education (EENE), Analytical Report No. 26.

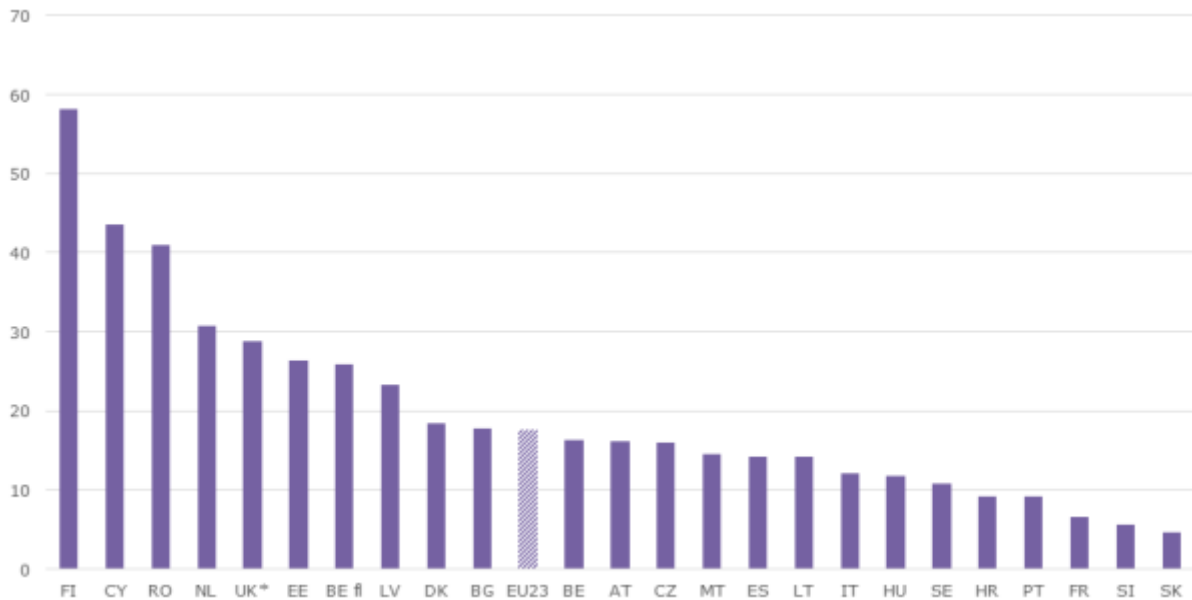
⁷⁴ Deci, E.L., Koestner, R. and Ryan, R.M. (1999). *A Meta-analytic Review of Experiments Examining the Effects of Extrinsic Rewards on Intrinsic Motivation*. *Psychological Bulletin*, Vol., 125, No. 6, pp. 627-668.

⁷⁵ Münich, D. and Rivkin, S. (2015). *Op cit*.

⁷⁶ Goodman, S. F. and Turner, L.J. (2013). *The Design of Teacher Incentive Pay and Educational Outcomes: Evidence from the New York City Bonus Program*. *Journal of Labor Economics*, Vol. 31, No. 2., pt.1, pp. 409-420.

about 26%). In all other Member States, less than 1 in 5 teachers (and even less than 1 in 10 in Slovakia, Slovenia, France, Portugal and Croatia) share this view.

Figure 11 – Percentage of teachers who agree/strongly agree with the following statement: 'I think that the teaching profession is valued in society', 2018

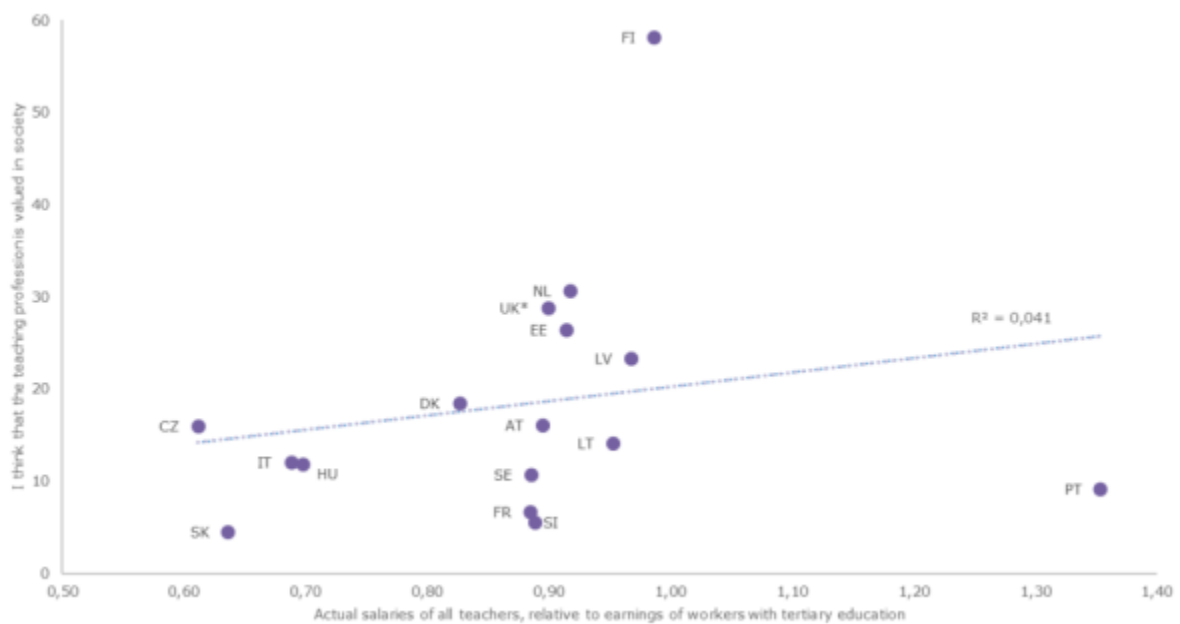


Source: OECD TALIS 2018.

Note: UK* = only data for England available.

Interestingly, teachers' perception of their social status is not significantly correlated with their 'financial status', i.e. the ratio of their salary to earnings of tertiary-educated workers (Figure 12). It is then reasonable to conclude that salary levels are not the only key to making the teaching profession attractive.

Figure 12 – Teacher salaries relative to earnings of tertiary-educated workers versus social status of the teaching profession, 2018

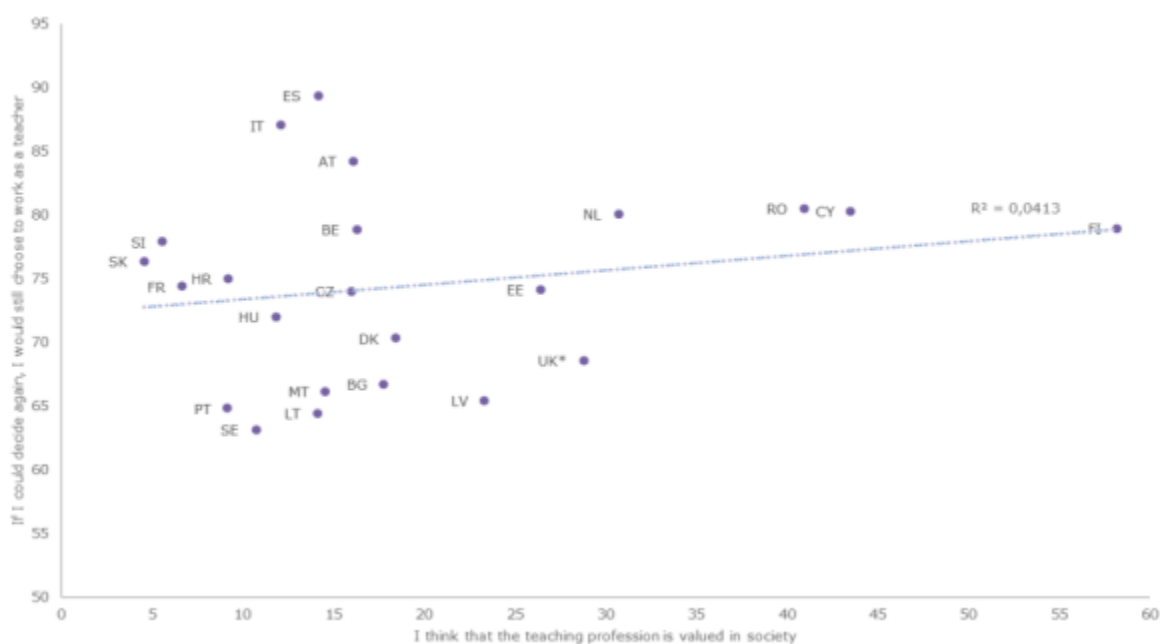


Source: DG EAC calculations based on OECD TALIS 2018. UK* = only data for England available.

Note: The chart tests the association between two variables: the ratio of teachers' salaries to salaries of other workers with tertiary education (collected by the OECD, in *Education at a Glance*, indicator D3.2) and the proportion of teachers who think that the teaching profession is valued by society (recorded by OECD, TALIS 2018 data). The result is a very low correlation coefficient of 0.2026, indicating low associations between the two variables. The t-value is 0.774.

At the same time, most teachers would stand by their choice of profession. The proportion of teachers who would still choose to work as teachers is over 60% throughout the EU, ranging from 89% in Spain to 63% in Sweden. This has no correlation with the proportion of teachers thinking their profession is valued in society (Figure 13) – and confirms the importance of other factors in deciding to embark on a teaching career.

Figure 13 – Social status of the teaching profession versus confirmation of professional choice, % values, 2018



Source: DG EAC calculations based on OECD TALIS 2018. UK* = only data for England available.

Note: The chart tests the association between two variables: the proportion of teachers who think that the teaching profession is valued by society and those of teachers who, if they could decide again, would still choose to work as teachers (both recorded by OECD, TALIS 2018 data, Table I.4.34). The result is a very low correlation coefficient of 0.2031, indicating low associations between the two variables. The t-value is 0.95.

Both the proportion of teachers who think that teaching is valued by society and the proportion of teachers would still choose to work as teachers decline significantly in many EU countries among more experienced teachers (Figure 14). Lower levels of satisfaction among more experienced teachers should encourage policy makers to create attractive long-term conditions in order to retain qualified teachers into the profession.

Figure 14 – % difference between teachers with more than five-year experience compared with those with at most five-year experience who agree/strongly agree with the following statements, 2018



Source: OECD TALIS 2018, Table I.4.34.

Note: Statistically significant differences are in darker tones. UK* = only data for England available. The table shows that in general, the perception of the value of the teaching in society and teaching as a career decreases with experience. For example, at EU level: (a) 23.6% of novice teachers (i.e. teachers with 5 years of working experience or less) think that the teaching profession is valued by society; and (b) 16.5% of teachers with more than 5 years of working experience think that the teaching profession is valued by society. The chart shows then (b)-(a), i.e. -7.1 as a difference in the purple category: 'I think that the teaching profession is valued by society'. Similarly, in the EU, (a) 83.7% of novice teachers report that if they could decide again, they would still choose to work as teachers, against a (b) 73.4% of those with more than 5 years of working experience. Thus the green bar shows -7.3, corresponding to the difference between most experienced and less experienced teachers, i.e. (b)-(a).

Promoting the image of the teaching profession in Estonia

Estonia is one of a few countries to have designed a coherent, long-term strategy to promote a positive image of teaching in society. An information campaign 'Õpi õpetajaks' ('Study to become a teacher') was launched in 2014 under the Development Programme for Education Sciences and Teacher Training 2008-2015. It was supported through European Structural Funds and featured celebrities sharing their school memories, children talking about their teachers and teachers explaining why they like their jobs. This campaign was necessary in Estonia as in 2013 a lower proportion of Estonian teachers than the TALIS average considered teaching to be valued, and would choose the profession again.

Source: European Commission (2018). [Boosting teacher quality: Pathways to effective policies](#).

Part 2

EU targets and indicators in education and training



2. EU targets and indicators in education and training

This section of the Monitor analyses progress made against the seven EU benchmarks agreed by the Council of the EU under the cooperation framework on education and training (ET 2020). Most of the benchmarks were adopted in 2009. Ten years later, there is scope to look at the latest state of play, developments in the past few years, as well as longer-term trends. For all benchmarks and indicators, the Monitor presents the latest data, avenues for further analysis, and an overview of policy reforms – the latter often being based on the work of the Eurydice network of national units.

2.1. Early childhood education and care

Key findings

With 95.4% of children from the age of 4 and 93.3% from the age of 3 enrolled in early childhood education (ECE), participation in this first formal level of education is by now almost universal in Europe. However, the 'almost' warrants a lot of attention from policy makers, as it signals unequal access to education and care for different social groups. Children at risk of poverty or social exclusion have participation rates in education and formal childcare that are 11 percentage points lower than their peers from non-disadvantaged families for the group aged 3 or more; and the gap is even greater for children aged 0-2.

Given that high-quality early childhood education correlates with better learning outcomes and increased social mobility later in life, it is important to keep striving to improve access to and quality of early years education throughout the EU.

2.1.1. Progress towards the EU target on early childhood education and care

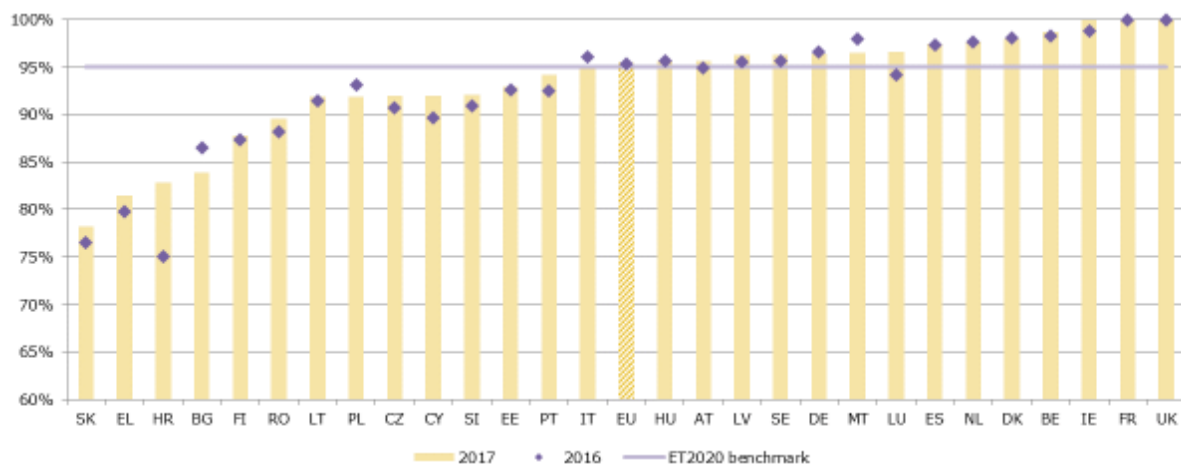
Promoting the social integration of children from an early age to level out disadvantage remains a key objective of the EU⁷⁷. In 2009, EU countries adopted a target for increasing participation in this early stage of education to 95% for children from the age of 4⁷⁸. The EU met this target in 2016. In 2017 the positive trend continued (Figure 15), and reached a rate that can by now be considered almost universal (95.4%). Fifteen EU countries have participation rates above 95% (in descending order: the Ireland, France, United Kingdom, Belgium, Denmark, the Netherlands, Spain, Luxembourg, Malta, Germany, Latvia, Sweden, Austria, Hungary and Italy). Compared to 2016, most countries with a participation rate below 95% saw a moderate increase between 0.3 and 2.3 pps. Croatia stands out with a notable increase of 7.7 pps in the proportion of children in ECE. Some countries took a step backwards: Bulgaria, Italy, Malta and Poland⁷⁹.

⁷⁷ See principle 11 of the [European Pillar of Social Rights](#): 'Children have the right to affordable early childhood education and care of good quality. Children have the right to protection from poverty. Children from disadvantaged backgrounds have the right to specific measures to enhance equal opportunities'.

⁷⁸ The early childhood education participation rate provided in UNESCO-OECD-Eurostat data captures participation to programmes that fall under the ISCED 0 category, including ISCED 010 (early childhood education) and ISCED 020 (pre-primary education). According to the definition: 'ISCED 010 has intentional educational content designed for younger children (typically in the age range of 0 to 2 years); 020 is typically designed for children from age 3 years to the start of primary education (ISCED level 1)'. For more information on the ISCED 0 classification, see UOE (2015). UOE data collection on formal education. Appendix A: Additional guidance on early childhood education programmes.

⁷⁹ In Poland this is likely to be a temporary drop, due to structural changes in the education system, reinstating of the compulsory schooling for 7 year-olds and enrolling one additional cohort of children in pre-school education.

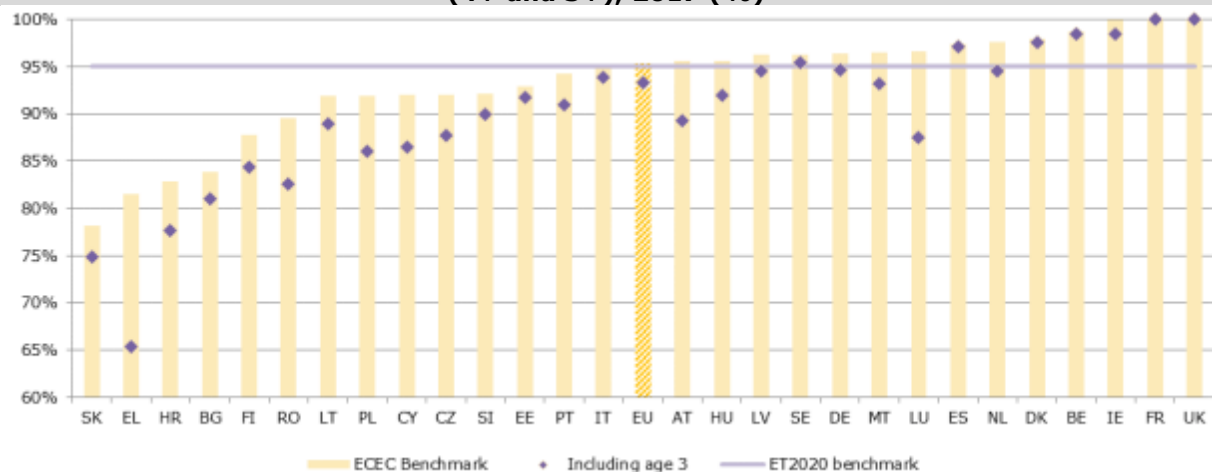
Figure 15 – Participation in early childhood education of children between 4 years old and the starting age of compulsory education, 2016 and 2017 (%)



Source: Eurostat (UOE). Online data code: [[educ_uoe_enra10](#)].
Note: break in time series in LU (2017)

As for children from the age of 3, which is the typical entry age in the second part of early years education in countries adopting a split system, only 7 countries have participation rates above 95% (Figure 16). In descending order, these are the France, United Kingdom, Belgium, Ireland, Denmark, Spain and Sweden. The EU average stands at 93.3%. Most other countries reaching the 4+ target level also remain within a 2 pps range from 95% for the 3+ group, with the exception of Luxembourg (87.5%) and Austria (89.3%). Greece has the biggest disparity between the participation rate of children aged 3+ (65.3%) and 4+ (81.5%).

Figure 16 – Participation in early childhood education of children of different age groups (4+ and 3+), 2017 (%)



Source: Eurostat (UOE). Online data code: [[educ_uoe_enra10](#)] for the benchmark indicator (counting children from the age of 4 to the starting age of compulsory primary education) and [[educ_uoe_enra21](#)], including children from the age of 3.
Note: break in time series in LU (4+ and 3+); provisional data for FR (3+); definition differs for IE (3+).

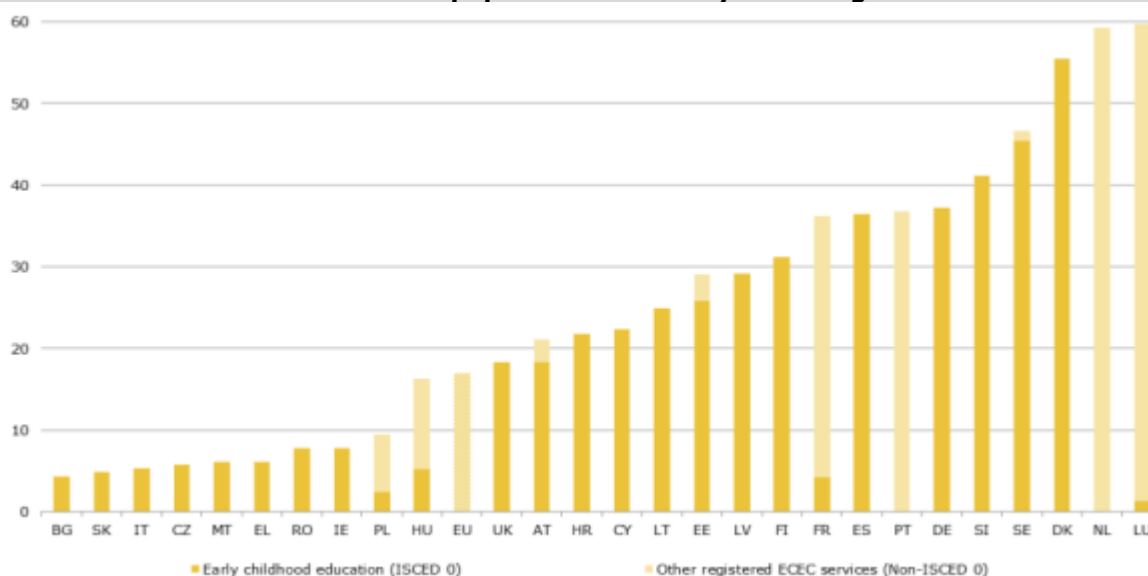
Under the same UNESCO-OECD-Eurostat data collection, participation rates for the younger age group (0-2) drop to 17% on average in the EU. Less than 10% of children below the age of 2 attend early childhood education in 14 EU countries. Note that, in most of these countries, no programme for children aged 0-2 qualifies as 'early childhood education', or 'ISCED 010'. Programmes for children below 3 are only included in the nomenclature under ISCED 0 if they adhere to a number of descriptive criteria⁸⁰. If they do not, the number of children enrolled in

⁸⁰ According to UOE (2015) for an ECE programme to be reported as ISCED level 0, it should: 1) have adequate intentional educational properties; 2) be institutionalised; 3) have an intensity of at least 2 hours per day of educational activities

those programmes would not count in this data collection. For example, this is the case in France, where publicly subsidised and regulated home-based childcare (*Assistant(e)s maternel(le)s agréé(e)s*) is available and widely used for children under 3 (as well as a range of community day-care services such as *Crèches collectives*, *Jardin d'enfants/Kindergarten*, etc.), but fall outside the scope of the ISCED classification. In Luxembourg, the well-developed system of regulated home-based care provided by child-minders (*assistants parentaux*), as well as the day-care centres (*Crèches*), are not reported under ISCED 0. Similar situations arise in other countries (e.g. with *Amas* in Portugal)⁸¹. Over the last few years, the OECD has started collecting data on other registered childcare services outside the scope of ISCED 0⁸². This ongoing work has significant potential to increase the comparability of early years education and childcare data across countries⁸³.

Figure 17 presents how the situation changes considerably for some countries when other registered childcare services are taken into account. These services dominate the sector in France, Portugal, the Netherlands and Luxembourg, and they are also highly important in Poland and Hungary⁸⁴. Once both early education and childcare components are taken into account, nine countries display participation rates below 10%, while 10 countries reach participation levels above 30%. The countries with the highest participation for children under 3 are Luxembourg, the Netherlands and Denmark, all with rates above 50%. The lowest levels of participation – shown for Bulgaria, Slovakia, Italy, Czechia, Malta and Greece are estimations, as there may only be a partial evaluation of the country's situation due to the lack of information on non-ISCED 0 services in these countries (as in some others).

Figure 17 – Participation in early childhood education and other services of children below 3 years of age, 2017
% over the population below 3 years of age



Source: Eurostat (UOE and EU-SILC; 2017) and OECD data. Data on early childhood education (ISCED 0) is from a Eurostat special extraction on UOE data; data on other registered ECEC services outside the scope of ISCED 0 comes from an INES ad-hoc survey in OECD Education at a Glance 2019 [Table B2.1]; the data extracted on 15 June 2019.

⁸¹ and a duration of at least 100 days a year; and wherever possible 4) have a regulatory framework recognised by the relevant national authorities; and 5) have trained or accredited staff as per the appropriate regulatory framework. For more information see e.g. European Commission/EACEA/Eurydice (2015). [Early childhood education and care systems in Europe national information sheets 2014/15.](#); and OECD (2017). Starting Strong 2017.

⁸² See OECD (forthcoming). Education at a Glance 2019: Indicator B2. The complete mapping of ECEC programmes is available in Table B2.5. For more information on the issue, see OECD (2017). Proposal to improve the indicators on early childhood education and care (ECEC). Document from the Working Party on Indicators of Educational Systems.

⁸³ This information is missing for non-OECD countries (Bulgaria, Cyprus, Croatia, Malta, Romania) – which are not covered in Education at a Glance (EAG) – as well as for Belgium, Czechia, Denmark, Greece, Spain, Finland, Ireland, Italy, Slovakia and the United Kingdom. Therefore, the picture might still be incomplete for these countries.

⁸⁴ Since data on other registered ECEC services is not available for all EU countries, EU averages cannot be computed.

Note: Early childhood education (ISCED 0) covers programmes classified as ISCED 0; other registered ECEC services (Non-ISCED 0) cover other ECEC services that lie outside the scope of ISCED 0 because they do not comply with all ISCED criteria (and are therefore excluded from UOE data). For UOE data on early childhood education: data for children under the age of 2 is missing for BE, therefore the indicator was not computed; as a consequence, the EU28 average is based on the other 27 EU countries; definitions differ for DE (children in day-care are included both in ISCED 01 and ISCED 02); ISCED 01 not applicable for BG, CZ, FR, IE, IT, LU, MT, NL PL, PT, SK. For OECD EAG data on other registered ECEC services: data is missing for non-OECD countries (BG, CY, HR, MT, RO), not covered in Education at a Glance, as well as for BE, CZ, DK, EL, ES, FI, IE, IT, SK and UK; it is not applicable for DE, LT and LV, where all programmes are covered under UOE data. Since data on other registered ECEC services is not available for all EU countries, EU averages cannot be computed. Countries are ordered by increasing shares of ECEC participation (including programmes both within and outside the scope of ISCED 0).

2.1.2. Participation of children from socio-economically disadvantaged homes

Research shows that high-quality pre-primary education and care can improve children's socio-emotional development and cognitive competences⁸⁵, with children from socio-economically disadvantaged backgrounds benefiting the most⁸⁶. The EU Survey on Income and Living Conditions (EU-SILC) allows for analysis of participation rates of children in pre-primary school age from different socio-economic backgrounds⁸⁷.

Figure 18 and Figure 19 show participation rates of children who live or do not live in a household at risk of poverty or social exclusion (AROPE)⁸⁸. Comparing the young children (below 3 years of age) from AROPE households to children from non-AROPE households⁸⁹, there is an average gap of 15 pps for the EU28 as a whole, leaving the children from disadvantaged homes with a participation rate of little over 20%. This suggests that socio-economic disadvantages are also associated with more limited access to formal childcare. A few countries have large disparities between children from AROPE households and non-AROPE households, independently from their overall average. They include the Netherlands, France, Spain, Belgium and Slovenia among countries with overall rates higher than the EU average; on top of Lithuania and Hungary among the countries with overall low participation rates.

⁸⁵ See OECD (2017). [Starting Strong 2017](#); these effects are influenced by quality, type and timing of care provided.

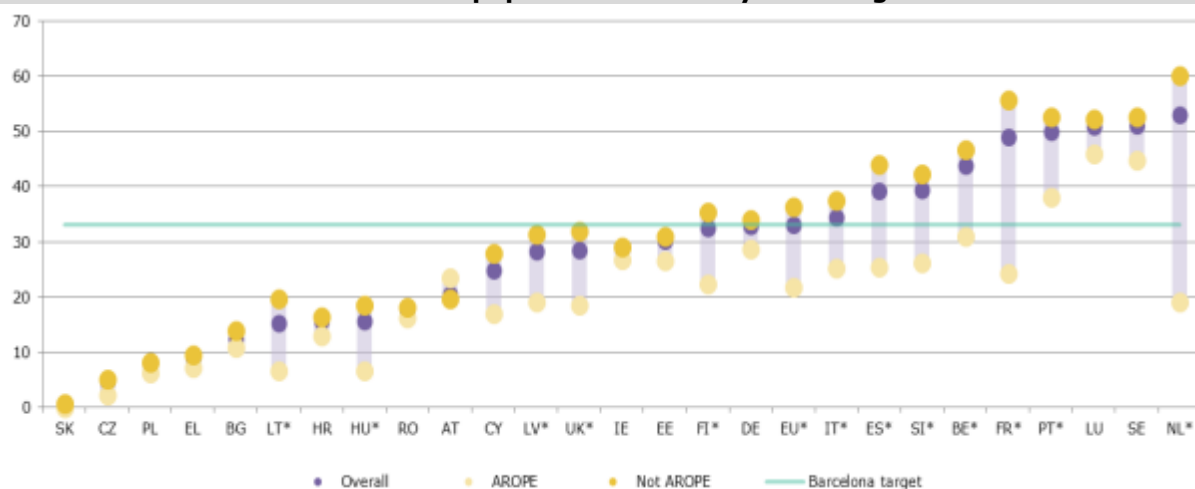
⁸⁶ See Esping-Andersen, G. (2004). Untying the Gordian Knot of Social Inheritance. *Research in Social Stratification and Mobility*, 21, 115–139; Esping-Andersen, G., Garfinkel, I., Han, W.-J., Magnuson, K., Wagner, S. and Waldfogel, J. (2012). [Child care and school performance in Denmark and the United States](#). *Children and Youth Services Review*, 34(3), 576–589; OECD (2017). [Starting Strong 2017](#); Del Boca, D., Flinn, C., Piazzalunga, D., Pronzato, C., Sorrenti, G., & Wiswall, M. (2016). *Child Care Policies in Different Countries*. Report Fondazione Rodolfo De Benedetti, 71; also intergenerational positive effects have been identified, see Heckman J.J. and Karapakula G. (2019). *Intergenerational and Intragenerational Externalities of the Perry Preschool Project*.

⁸⁷ This section describes participation in 'formal childcare or education' as defined in the EU Survey on Income and Living Conditions (EU-SILC). This covers services identified as 'formal arrangements', which includes all kinds of care organised and/or controlled by a structure (public or private), i.e. pre-school or equivalent; compulsory education; centre-based services outside school hours; a collective crèche or another day-care centre, including family day-care, and professional certified child-minders. The Barcelona target set in 2002 by the European Council established that Member States should provide childcare by 2010 to at least 33% of children below 3 years of age, and to 90% of children between 3 and the mandatory school age. While it might appear straightforward to draw a direct connection between the ECE benchmark and the Barcelona target, it should be pointed out that the two are different targets established for different purposes. For a detailed overview of differences and overlapping between the two indicators see Flisi, S., Meroni, E., and E. Vera-Toscano (2016). [Indicators for early childhood education and care](#). A JRC Technical Report JRC102774.

⁸⁸ According to official Eurostat definitions, at risk of poverty or social exclusion corresponds to persons who are either at risk of poverty, or severely materially deprived or living in a household with a very low work intensity.

⁸⁹ This section is based on Flisi, S., and Blasko, Zs. (2019). A note on early childhood education and care participation by socio-economic background. The study reproduced the figures provided in the Eurostat online dataset [ilc_caindformal](#) using 2016 EU-SILC microdata, for all EU countries but Malta. For 26 EU countries it was possible to replicate official Eurostat childcare statistics with marginal differences, while some small discrepancies remain for Germany.

Figure 18 – Participation in formal childcare or education of children below 3 years of age, by socio-economic background (2016)
% over the population below 3 years of age

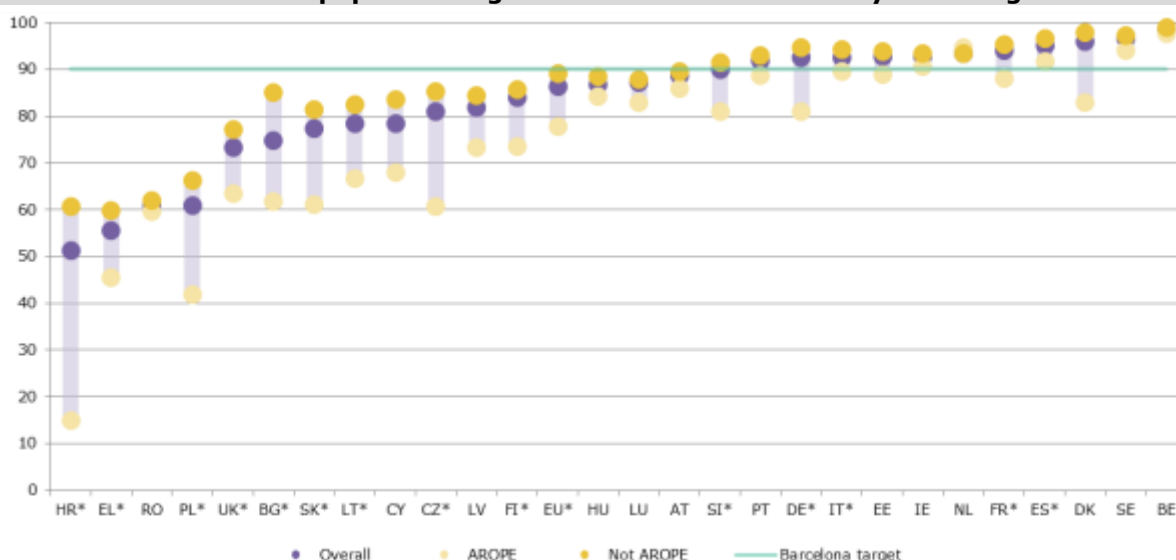


Source: European Commission, DG JRC calculations based on Eurostat data: 2016 EU-SILC microdata.

Note: * = difference between AROPE and not AROPE statistically significant ($p < 0.05$). MT is missing because no age variable is available in the dataset. DK not reported because of low sample size for the AROPE sub-group. The rate for AROPE in RO is unreliable.

Given the higher overall attendance rates, the gaps between children from disadvantaged homes and children from non-disadvantaged homes are slightly smaller among children aged between 3 and the mandatory school age; but they are still remarkable. On average, children at risk of poverty or social exclusion lag around 11 pps behind non-AROE children.

Figure 19 – Participation in formal childcare or education of children between 3 and minimum mandatory school age, by socioeconomic background (2016),
% over the population aged 3 to minimum mandatory school age



Source: European Commission, DG JRC calculations based on Eurostat data: 2016 EU-SILC microdata.

Note: * = difference between AROPE and not AROPE are statistically significant ($p < 0.05$). MT is missing because no age variable is available in the dataset. The rate for AROPE in DK and LU is unreliable. See Flisi and Blasko (2019) for more information.

2.1.3. Recent policy reforms

In May 2019, the Council of the EU adopted a Recommendation on high-quality early childhood education and care (ECEC). The recommendation aims to support Member States in improving their ECEC systems based on a quality framework with five key components:

- access to ECEC;
- training and working conditions of staff in charge of ECEC;
- establishment of appropriate curricula and governance;
- funding;
- monitoring and evaluation of systems.

The quality framework has already supported reforms in many countries⁹⁰. In the last five years, Czechia, Poland and Portugal extended legal entitlement to ECEC⁹¹. Other countries introduced compulsory ECEC of at least 1 year before primary education (Belgium, Czechia, Greece, France, Croatia, Lithuania, Hungary, Finland, Slovakia, Sweden⁹²). At the same time, there is increasing emphasis on the education component of ECEC. Belgium (Flemish Community), Bulgaria, France, Croatia, Italy, Latvia, Portugal, Slovakia and Finland recently adopted new educational guidelines (curricula) for ECEC or are revising their content⁹³.

Initial qualification requirements for staff are generally lower than for primary education teachers in many EU countries. This sector typically employs several types of professionals. Teams of 2-3 people usually work with groups of children under age 3, while 1-2 professionals work with groups of older children. Often, one leading team member is required to have a higher qualification than others who perform support roles. However, only 11 Member States require at least one professional working with a group of children under age 3 to have a bachelor's degree or higher level of qualification. Moreover, ECEC assistants are not required to have an initial qualification related to their profession in half of cases when they are employed. This underlies the importance of appropriate and continuous in-service training – which in practice is rarely regulated. Training at work is mandatory for all staff only in Luxembourg, Romania, Slovenia and the United Kingdom (Scotland). For example, in Slovenia, every team member, including assistants, must undertake 15 days of professional training over a period of three years. Structural reforms concerning staff qualification or continuing professional development are ongoing in Belgium (Flemish Community), Bulgaria, Estonia, Ireland, Italy, Malta and Finland⁹⁴.

Hungary - Ensuring adequate supply of educational staff in early childhood education and care

Since the introduction of the teacher career progression model in Hungary (2013), educational staff in ECEC need to hold a tertiary degree in pre-primary education. This attracted growing numbers of applicants to initial pre-primary teacher education (+50% from 2013 to 2014). However, in spite of the resulting increase in graduate numbers, the supply of ECEC teachers has not yet caught up with demand. In 2016, some further changes were introduced in the qualification standards for pre-primary teachers. These include the requirement to acquire competences in the areas of children's rights, inclusion of and support to disadvantaged children, and teaching through arts. Source: The 2019 Education and Training Monitor, country report Hungary.

⁹⁰ NESET II ad hoc question No. 4/2017, The current state of national ECEC quality frameworks, or equivalent strategic policy documents, governing ECEC quality in EU Member States.

⁹¹ A legal entitlement to ECEC refers to a statutory duty on ECEC providers to secure publicly subsidised ECEC provision for all children from a certain age living in a catchment area, whose parents, regardless of their employment, socio-economic or family status, request a place for their child.

⁹² For Belgium and Slovakia, the measure is planned as of 2020.

⁹³ Data on minimum qualification for ECEC staff from European Commission/EACEA/Eurydice (2019). Key [Data on early Childhood Education and care in Europe – 2019 Edition](#). European Commission/EACEA/Eurydice (forthcoming). Structural Indicators for Monitoring Education and Training Systems in Europe – 2019.

⁹⁴ European Commission/EACEA/Eurydice (forthcoming). Structural Indicators for Monitoring Education and Training Systems in Europe – 2019.

2.2. Early Leavers from Education and Training

Key findings

In 2018, about 10.6% of people in the EU aged 18-24 were considered early leavers from education and training, and there has been little or no progress in this field over the past 2 years. In the EU, on average, women have lower rates of early leaving than men, and native-born young people have lower rates of early leaving than their foreign-born peers.

Those who leave education before obtaining an upper secondary qualification struggle with lower employment rates⁹⁵, and lower rates of participation in adult learning. People with low levels of education also face a higher risk of being unemployed or becoming inactive while not being involved in education or training.

Several EU countries have recently adopted measures to reduce early leaving from education and training, in particular through action on: teachers' continuing professional development; career guidance; flexibility and permeability of education pathways; second-chance education; language support; and strengthening data collection and monitoring.

2.2.1. Progress towards the EU target on early leaving from education and training

The indicator 'early leavers from education and training (ELET)' (also named 'early school leavers') refers to people aged 18-24 who obtained no more than a lower secondary diploma and are not enrolled in further education or training. People with low levels of education are particularly vulnerable as they are more likely to fall into poverty, suffer from health problems and take less informed decisions affecting marriage, parenthood and retirement⁹⁶. They tend to contribute less in terms of tax revenues and rely more often on social assistance as compared to higher qualified people. Keeping virtually everyone in education at least until they complete upper secondary schooling is a main objective of the EU's strategy for sustainable growth and employment (Europe 2020).

In 2018, early leaving from education and training stood at 10.6% in the EU. The three countries with the highest rates are Spain (17.9%), Malta (17.5%) and Romania (16.4%). While the first two had progressed significantly since 2009 on reducing early school leaving, this is not the case for Romania. High early leaving rates can also be observed in Italy (14.5%), Bulgaria (12.7%), Hungary (12.5%) and Portugal (11.8%). Portugal actually stands out because of its impressive trend in reducing the percentage of early leavers. In 2012, the country had 20.5% of young people who had left education without an upper secondary diploma. In 6 years, the rate shrank to 11.8% in 2018.

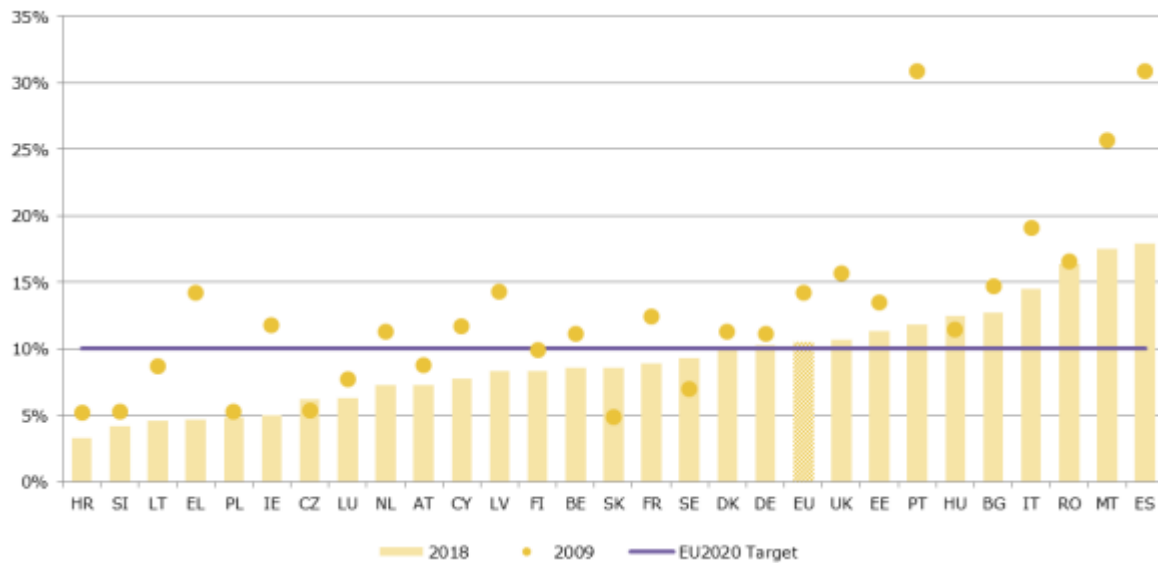
A number of countries succeeded in bringing early leaving to or below 5% - Croatia (3.3%), Slovenia (4.2%), Lithuania (4.6%), Greece (4.7%), Poland (4.8%) and Ireland (5%). Compared to 2017, there was progress in Romania (-1.7 pps), Greece (-1.3 pps) and Luxembourg (-1.0 pps). On the other hand, percentages of early leavers rose in Denmark (+1.4 pps) and Sweden (+1.6 pps).

Countries that had low percentages of early school leavers in 2009 mostly continue to do so, with the exception of Slovakia, where early leaving grew, and Sweden, where the trend is also negative. Poland, Hungary, Romania and Czechia remained relatively stable over the past decade.

⁹⁵ Employment rates for young people not in education and training, aged 20-34, who completed highest level of education less than 3 years ago are 51.2% for those who completed ISCED 0-2, compared to 76.8% for those who completed ISCED 3-4 and 85.5% for those with tertiary qualification. Source: Eurostat, [edat_lfse_24](#).

⁹⁶ Brunello, G. and De Paola, M. (2013). [The costs of early school leaving in Europe](#). An EENEE Analytical Report 17.

Figure 20 – Early leavers from education and training, 2009 – 2018



Source: Eurostat, EU Labour Force Survey.

Note: No target in National Reform Programme for the UK. Online data code: [\[edat_lfse_14\]](#).

A closer look at the percentages of early leavers by sex and country of birth provides further insight. On average, fewer young women than young men leave education before gaining an upper secondary diploma (8.9% versus 12.2% respectively), and this gap has remained broadly constant over the last decade. Also, on average in Europe, native-born people have lower rates than foreign-born people (9.5% versus 20.2% respectively), especially those born outside the EU (20.7%).

Between 2016 and 2018, there was virtually no progress made in reducing the overall rate of early leavers in the EU. Some progress occurred in large countries such as Spain or Poland, on top of other countries such as Latvia, Malta, Romania and Portugal, but was compensated by negative developments in Italy, Sweden, Denmark, Finland, Slovakia, Croatia, Estonia and Luxembourg (in descending order by size of population).

In the past 2 years, the EU rates for early school leaving improved somewhat for native born young adults, especially women. On the other hand, they increased between 2016 and 2018 for foreign born young adults, particularly so for those born in the EU in 2017 and those born outside the EU in 2018.

Irrespective of overall higher or lower early leaving rates, in Czechia, Denmark, Luxembourg and, to some extent, Portugal and Malta, there is no sizeable distinction by native status. In Ireland, the United Kingdom, Luxembourg and Denmark, the rates of early leaving from education and training are higher for the native-born population compared to the foreign-born population. In some other countries, the opposite can be observed (Belgium, Sweden, Germany, Austria, Greece, Spain, and Italy).

Figure 21 – Early leavers from education and training (18-24 years) by sex and country of birth, 2018 (%)

| | Total | Men | Women | Native-born | Foreign Born | | |
|-----------|-------------|------------------|------------------|-------------|-------------------|---------------------|--------------------|
| | | | | | Born in the EU | Born outside the EU | Total foreign born |
| EU | 10.6 | 12.2 | 8.9 | 9.5 | 19.2 | 20.7 | 20.2 |
| BE | 8.6 | 10.6 | 6.5 | 7.2 | 18.0 | 19.2 | 18.7 |
| BG | 12.7 | 12.6 | 12.8 | 12.7 | : | : ^u | : ^u |
| CZ | 6.2 | 6.4 | 6.1 | 6.2 | 7.6 ^u | 7.6 ^u | 7.6 ^u |
| DK | 10.2 | 12.5 | 7.8 | 10.2 | : ^u | 11.1 ^u | 9.9 ^u |
| DE | 10.3 | 11.5 | 9.1 | 8.1 | 25.6 | 23.4 | 24.1 |
| EE | 11.3 | 16.1 | 6.4 | 11.5 | : | : | : |
| IE | 5.0 | 6.1 | 3.9 | 5.4 | 5 ^u | : ^u | 3.4 ^u |
| EL | 4.7 | 5.7 | 3.6 | 3.9 | 19.9 ^u | 17.3 | 17.9 |
| ES | 17.9 | 21.7 | 14.0 | 14.9 | 35.4 | 31.0 | 32.0 |
| FR | 8.9 | 10.8 | 6.9 | 8.4 | 11.8 ^u | 15.8 | 15.0 |
| HR | 3.3 | 3.5 ^u | 3.1 ^u | 3.3 | : | : ^u | : ^u |
| IT | 14.5 | 16.5 | 12.3 | 12.0 | 32.2 | 36.3 | 35.2 |
| CY | 7.8 | 9.9 | 6.0 | 6.2 | 13.5 ^u | 14.1 ^u | 13.9 |
| LV | 8.3 | 11.4 | 5.0 | 8.4 | : ^u | : ^u | : ^u |
| LT | 4.6 | 6.1 | 3 ^u | 4.6 | : | : ^u | : ^u |
| LU | 6.3 | 6.8 | 5.9 | 6.5 | 4.9 ^u | : ^u | 6 ^u |
| HU | 12.5 | 12.6 | 12.3 | 12.6 | : ^u | : ^u | : ^u |
| MT | 17.5 | 19.4 | 15.5 | 17.4 | : ^u | 28.3 ^u | 19.1 ^u |
| NL | 7.3 | 9.3 | 5.3 | 7.0 | 14.6 | 9.6 | 11.1 |
| AT | 7.3 | 8.9 | 5.7 | 5.5 | 10.6 ^u | 22.3 | 17.0 |
| PL | 4.8 | 5.8 | 3.7 | 4.8 | : | : ^u | : ^u |
| PT | 11.8 | 14.7 | 8.7 | 11.7 | : ^u | 13.3 | 12.8 |
| RO | 16.4 | 16.7 | 16.1 | 16.4 | : | : ^u | : ^u |
| SI | 4.2 | 5.3 ^u | 3 ^u | 3.6 | : ^u | 11.2 ^u | 11.6 ^u |
| SK | 8.6 | 8.3 | 8.8 | 8.5 | : ^u | : | : ^u |
| FI | 8.3 | 9.2 | 7.4 | 8.1 | : ^u | 13.6 ^u | 12.7 ^u |
| SE | 9.3 | 10.4 | 8.0 | 7.3 | 13.2 | 18.5 | 17.7 |
| UK | 10.7 | 12.2 | 9.1 | 11.0 | 12.5 | 6.0 | 8.9 |

Source: Eurostat, EU Labour Force Survey. Online data code: [\[edat_lfse_14\]](#) and [\[edat_lfse_02\]](#).

Note: flag 'u' means 'data with low reliability'⁹⁷.

2.2.2. Are early leavers also 'NEETs'?

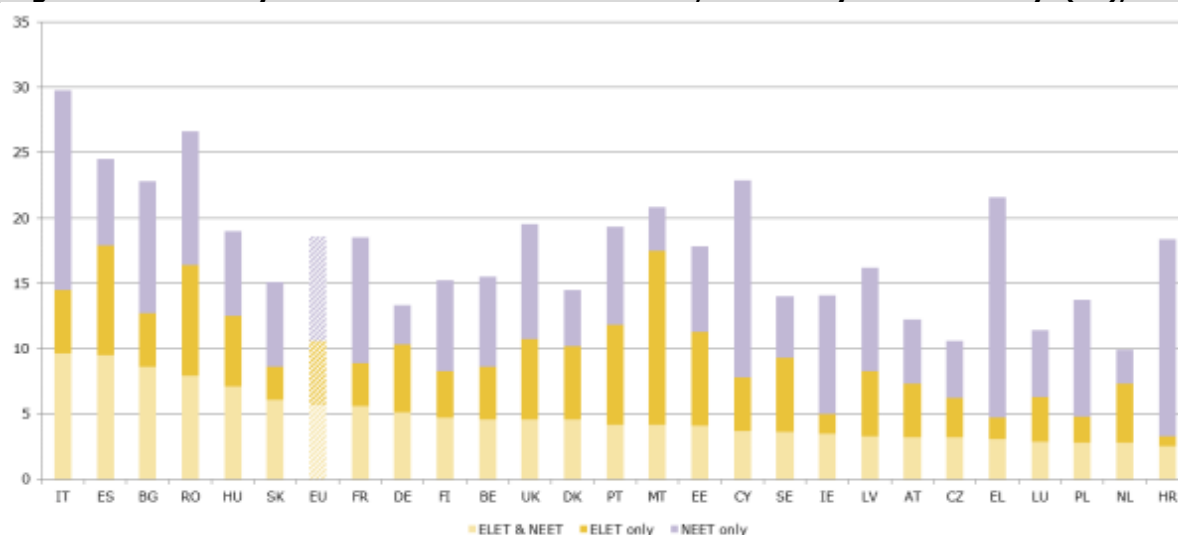
The share of young people who are neither in employment nor in education and training is called the 'NEET' rate. As both the indicators on early leaving and the 'NEET' rate refer to young people who most likely do not optimally reach their academic or professional potential, it is interesting to examine their differences and similarities. First of all, young adults falling into the category of 'early school leavers' are less likely to change their status by completing upper-secondary education at or after the age of 24; this makes the early school leaving status largely a long-term one. Being out of employment, education or training ('NEET') is, on the other hand, to a large extent a transitory condition likely to be influenced by the economic cycle, temporary factors and personal choices.

⁹⁷ Data flagged 'u' are considered 'low reliability' due to small sample size. This data can be shown in tables and charts but is not discussed in the analysis.

Figure 22 shows the two indicators in 2018⁹⁸. Firstly, all countries (but Malta) where the proportion of early leavers is above 12% are characterised by high proportions of individuals who are simultaneously 'NEET' and 'ELET'. For instance, Spain has the highest early school leaving rate and the second highest proportion of individuals who are both 'NEET' and 'ELET'. Similarly, Romania displays the second highest early school leaving rate and the fourth highest proportion of individuals who are both 'NEET' and 'ELET'. As indicated above, this result reflects the fact that people with low levels of education have weaker employment prospects and, therefore, face a higher risk of being unemployed or becoming inactive while not in education or training.

Secondly, poor labour market conditions for young people may make it hard to find a job even for people with an upper-secondary or a tertiary degree, thereby increasing their risk of becoming NEET. For instance, the proportion of people who are 'NEET only' is especially high in two countries with very low rates of 'ELET & NEET' and 'ELET only' percentages (Greece and Croatia), which can signal that young adults with secondary education find it particularly difficult to access the labour market. By contrast, Malta, with very high 'ELET only' rates, has a very small share of people who are 'NEET only', signalling that the Maltese labour market offers opportunities for people with low levels of education, especially men.

Figure 22 – 18-24 year-olds who are 'ELET & NEET', 'ELET only' or 'NEET only' (%), 2018



Source: Eurostat, EU Labour Force Survey.

Note: Country values are presented in descending order of the value for ELET & NEET. The total of the bars indicates the share of population (18-24) falling in one of the following categories: ELET only; NEET only; or both.

2.2.3. Recent policy response

The overall decrease of early leavers from education and training since the introduction of the EU target in 2009 has been supported by concerted policy efforts across the EU⁹⁹. Recent policy interventions include improving data collection and monitoring, strengthening teachers' capacities, education and career guidance, supporting the flexibility and permeability of education pathways, supporting re-entry of early leavers and language support for students.

⁹⁸ For a detailed discussion of the relationship between ELET and NEETS see: Flisi S., Goglio V., Meroni E.C., Vera-Toscano E. (2015). [School-to-work transition of young individuals: what can the ELET and NEET indicators tell us?](#), A JRC Technical Report, JRC 95223.

⁹⁹ See European Commission (forthcoming). Assessment of the Implementation of the 2011 Council Recommendation on Policies to Reduce Early School Leaving.

A requirement prior to designing evidence-based policy is data collection, which in this case can be a national data collection system based on a student register¹⁰⁰. The same dataset can be employed to monitor absenteeism, and evaluate the effectiveness of policies to reduce early leaving. Hungary is among the countries that have introduced an early warning system for primary and secondary schools in the last couple of years (as from November 2016). This data collection makes it possible to monitor absenteeism, and analyse early school leaving at several levels – school/school district, regional and national. In some other EU countries, the recent reforms in this area led to modifications and expansions in the national data collection on early school leaving. While the EU data on ELET is based on the Labour Force Survey, as of today, most of European countries collect national data through a student register.

Strengthening teachers' capacities to support students who are at risk of disengaging from school is also critical. Since 2015, most policy developments across Europe have aimed to ensure that ELET is explicitly addressed in competence frameworks for initial teacher education and/or in centrally promoted continuing professional development. This is done by promoting the topic through regulations and recommendations adopted at central government level, and/or supporting relevant training programmes. For example, since the implementation of the 'Teacher and school leadership education programme 2017-2020' in Estonia, inclusive education has been the priority of all teachers' continuing professional development courses. This includes training for teachers and school heads on how to adjust teaching and assessment to the needs of students who are most at risk of dropping out of school as well as how to cooperate with colleagues and parents to support these students.

The role of education and career guidance in preventing students from leaving education and training is widely acknowledged. Over the past 5 years, several countries introduced reforms to ensure that education and career guidance is not only provided through school-based guidance or counselling services, but also through the national curriculum, thus systematically reaching all students. In Poland, for example, education and career guidance has become part of the secondary school national curricula since 2017/18; and in Malta at primary and secondary school curricula since 2014, in addition to the current support provided by the school guidance services in these countries¹⁰¹. This two-way approach of promoting education and career guidance in schools is now supported through policies in about two-thirds of European countries.

Policy measures supporting the flexibility and permeability of education pathways can help prevent early leaving by removing potential obstacles to completing education and training programmes. They include initiatives to promote alternative education and training pathways (e.g. vocational or technical), facilitate transitions within education and training systems (between general and vocational education), and improve the recognition of students' skills and qualifications. For example in Greece, new legislation introduced in 2016 reformed the Vocational Lyceum (Upper Secondary Vocational Cycle). This allows for permeability among programmes in a more flexible framework, so as to attract a greater number of students and promote a smoother transition from one education pathway to another. Almost all European countries have policies promoting the provision of alternative education and training pathways; many of them support/encourage the transitions within education and training systems through official measures or policies. Yet, only around half of these countries have policies promoting the recognition of skills and/or qualifications.

A number of policy interventions at national level since 2015 have focused on support for early leavers wishing to re-enter the education and training system. Policies in this area may promote the provision of second chance education, education and career guidance and/or youth guarantee commitments. For example, in the Flemish Community of Belgium, young people who are labelled as 'hidden NEET' are systematically contacted by the Flemish Employment Services and Vocational Training Agency (VDAB) and asked to register as job seekers, as the VDAB has a mandate to carry out the requirements of the youth guarantee plan. As of today, almost all European countries have policies promoting second chance education for early leavers, and most of them support this group

¹⁰⁰ Like in other chapters of the 2019 Monitor, the overview of recent policy reforms is largely based on European Commission/EACEA/Eurydice (forthcoming). Structural Indicators for Monitoring Education and Training Systems in Europe – 2019.

¹⁰¹ In this regard, the curriculum of Personal, Social and Career Development (PSCD) in both primary and secondary in Malta, includes Career Guidance, as an integral part of the curriculum of this subject which is taught to all students.

through targeted education and career guidance¹⁰². A few European countries advocate youth guarantee related initiatives as a way of supporting early leavers re-entering the education and training system.

Regarding language support for students with a mother tongue other than the language of instruction, who may be at an increased risk of early leaving, most European countries already had such policies in place already before 2015. Recent policy developments in this area were mainly focused on intensifying this support. For example, in Austria, as part of the legislative package of July 2016, language support courses were extended to part-time vocational schools and VET colleges. Also, the most recent reforms - implemented in both Austria and Slovenia in 2018/19 - address language provision and support given to students with little or no knowledge of the language of instruction. Similarly, in the school year 2015/2016, Italy and Cyprus introduced reforms aimed to ensure the availability of language support measures for unaccompanied foreign minors as well as children of asylum seekers. Today, almost all European countries have language support policies for students with a different mother tongue.

2.3. Tertiary educational attainment

Key findings

The EU has met its target of raising the rate of tertiary educational attainment to at least 40% of the population. In 2018, 40.7% of the population aged 30-34 held a tertiary degree. On average, women's tertiary educational attainment (45.8%) is higher than men (35.7%) – and the gap has been continuously increasing over recent years.

Among the countries with a low proportion of tertiary graduates, Romania and Italy stand out as outliers (with 25% and 28% respectively). Yet, both countries have registered an impressive 32% progress rate since 2009. In 2018, a group of 13 countries had tertiary educational attainment rates of between 40% and 50%. In Sweden, Luxembourg, Ireland, Cyprus and Lithuania (in ascending order), more than 50% of the population holds a tertiary degree.

As can be seen from the monitoring of the structure of education systems, less than half of EU countries set specific targets to help under-represented groups participating in higher education. Furthermore, only one third of the EU countries implemented performance-based funding mechanisms with a social dimension focus to improve participation in higher education.

On average in the EU, students graduate from higher education at the age of 26. Typically, women graduate at that level earlier than men. However, there are large variations among countries in terms of average tertiary graduation age and gender.

A generally high level of education in the population is commonly seen as a prerequisite for a modern society that promotes productivity growth, innovation and competitiveness. The fast pace of technological progress and the intensification of global competition make labour markets, especially in knowledge-intensive economic sectors, increasingly demanding in terms of skills and abilities. High education levels also promote social innovation and increase people's capacity to address economic, environmental and societal challenges.

¹⁰² The Flemish Community of Belgium gathered data on second chance education for early leavers, showing that around 35% of early leavers subscribes for second change education. Most of them subscribed in the same year as early leaving or in the year after early leaving.

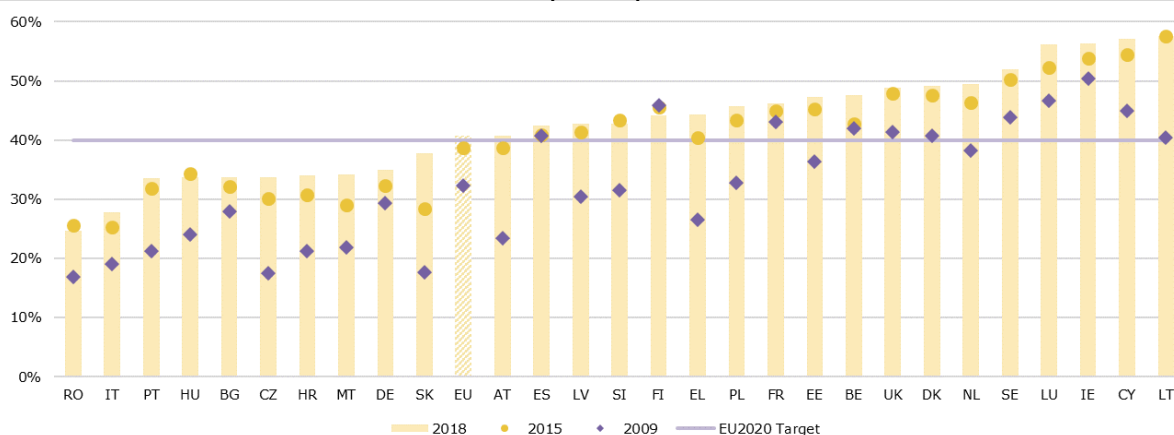
2.3.1. Progress towards the EU target on tertiary educational attainment

In order to ensure sustainable economic growth and social progress, it has become increasingly important for the EU to raise the number of people who complete tertiary education and improve the quality of higher education. Back in 2009, EU countries set a headline target of bringing the number of 30-34 year-olds with tertiary education to at least 40%. At that time, less than one third of people in this category held a tertiary degree. Today, 40.7% do.

Among the countries with a low proportion of tertiary graduates, Romania and Italy stand out as outliers (with 25% and 28% respectively). Yet, both countries have registered an impressive 32% progress rate since 2009, against an overall progress rate of 26% at EU level over the same period. In 2018, 13 countries had tertiary educational attainment rates of between 40% and 50%. In Sweden, Luxembourg, Ireland, Cyprus and Lithuania (in ascending order), more than 50% of the population holds a tertiary degree.

On average in the EU, women's tertiary educational attainment (45.8%) is higher than men's (35.7%) – and the gap has been continuously increasing over recent years. Despite some fluctuations, overall tertiary educational attainment rates have been growing for nationals of reporting countries, as well as for those born outside these countries. Yet, native-born young adults and EU nationals, either from the reporting country or not, graduate more than their peers from non-EU countries (41.3% and 41.7% respectively, against 35.8% for non-EU).

Figure 23 – Tertiary educational attainment (30-34 years) 2009, 2015, 2018



Source: EU Labour Force Survey, Eurostat, online data code [[edat_lfse_03](#)].

Note: The indicators cover the share of the total population aged 30-34 having successfully completed tertiary education (ISCED 5-8). Break in series for all countries in 2014 due to the introduction of the new ISCED 2011 classification.

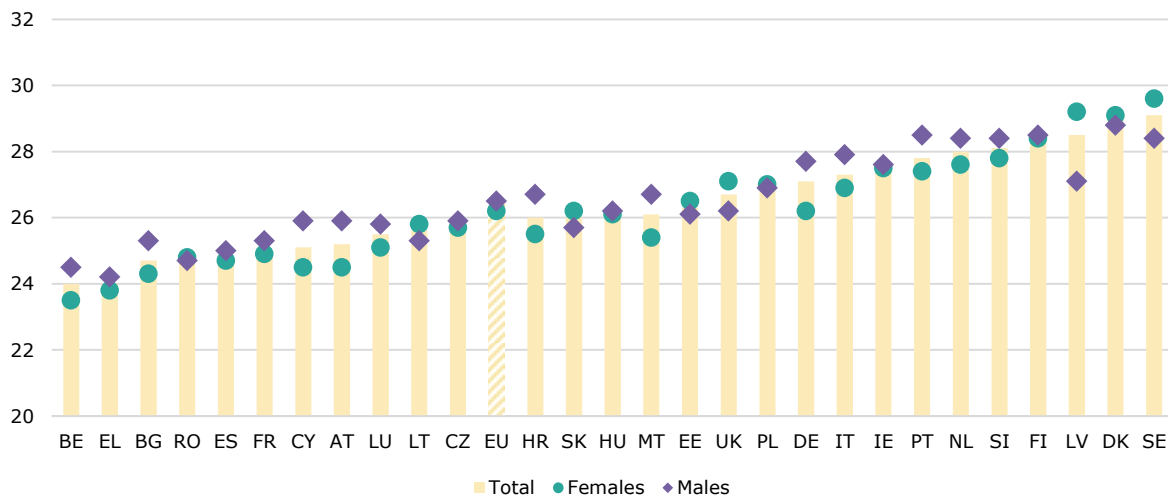
2.3.2. Average tertiary graduation age from higher education

The EU target on tertiary educational attainment is linked to the age group of 30-34 year-olds. In this regard, the age when students actually graduate from higher education is relevant to see if the benchmark measures the right age group when assessing the education level of the population. The average EU student graduates from higher education at the age of 26¹⁰³. However the national averages vary widely and depend on several factors, such as the typical enrolment age, the average length of study programmes and availability of options for part-time study arrangements and interruptions to study.

¹⁰³ Graduation at ISCED 5-8 level.

On average, the youngest average tertiary graduation age can be observed among Belgian female students (23.5 years), while Swedish female students graduate on average 5 years later (29.6 years). Although the average female and male EU students graduate at the same age, women graduate earlier in 20 countries, on average by 9 months. However, a rather large difference from the opposite perspective can be observed in Latvia, where the average male tertiary student graduates more than 2 years earlier than his female compatriot.

Figure 24 – Average age of graduation from higher education, 2018



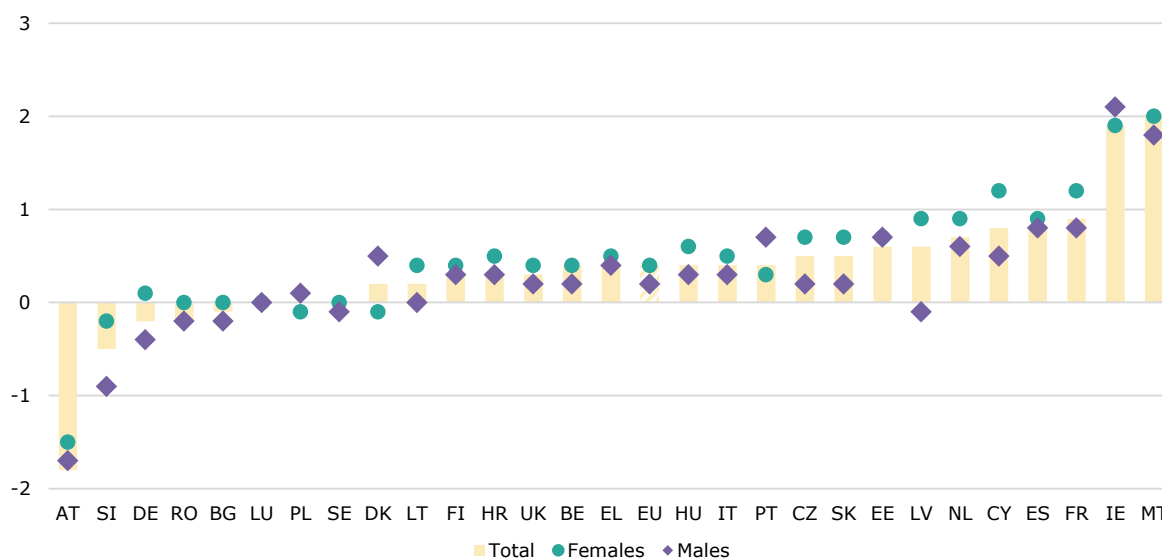
Source: EU Labour Force Survey, Eurostat, special data extraction.

Further analysis has also shown that the higher the average graduation age from tertiary education, the wider the age distribution of the graduates. Overall, findings confirm that the 30-34 age group is appropriate for measuring tertiary educational attainment. The choice of a younger age group would risk ignoring tertiary graduates in countries where the average graduation age is close to 30.

Since the start of the Bologna Process (1999)¹⁰⁴, which has strongly promoted the introduction of the three cycle system (bachelor/master/doctorate) the average graduation age increased in all EU countries, except Bulgaria. However, at the EU level the increase was insignificant - only half a year. Despite this, the average masks more substantial changes in Denmark, Ireland, Spain, Latvia, Lithuania and Slovakia, where the mean graduation age increased by more than 2 years over the last 20 years.

¹⁰⁴ The Bologna Process seeks to bring more coherence to higher education systems across Europe. It established the European Higher Education Area to facilitate student and staff mobility, make higher education more inclusive and accessible, and make higher education in Europe more attractive and competitive worldwide. As part of the European Higher Education Area, all 48 participating countries agreed to: introduce a three-cycle higher education system consisting of bachelor's, master's and doctoral studies; ensure the mutual recognition of qualifications and learning periods abroad completed at other universities; implement a system of quality assurance, to strengthen the quality and relevance of learning and teaching. See more on [EHEA's website](#).

Figure 25 – Change of average age of graduation from higher education (ISCED 5-8), 2009-2018 (in years)



Source: EU Labour Force Survey, Eurostat, special data extraction.

Note: The decrease in Austria is related to a change in methodology effective as of 2014: with the introduction of ISCED 2011, in AT, the programme spanning levels were re-classified: the qualification acquired upon successful completion of higher technical and vocational colleges is allocated in ISCED 2011 to ISCED level 5; under ISCED 1997 the same qualification was reported on ISCED level 4 but classified as equivalent to tertiary education).

Changes in graduation age from higher education were less substantial since the launch of the tertiary educational attainment target in 2009. This could be linked to a stabilisation period after the financial crises of 2007/2008. Nevertheless, the bulk of the increase in graduation age in Ireland took place in this period and today the average age of graduation for Maltese students has increased by 2 years, compared to 10 years ago. Between 2009 and 2018 graduation age decreased only in Slovenia, Germany, Sweden and Bulgaria.

2.3.3. Recent policy response

Expanding overall tertiary educational attainment rates does not mean that different socio-economic groups have equivalent access to higher education. In order to increase participation rates in this educational sector, around two thirds of EU countries monitor the socio-economic characteristics of students, and more than half of EU countries recognise prior informal or non-formal learning¹⁰⁵. Almost half of EU countries implemented the requirement of completion rates as a required criterion in external quality assurance. However, only 10 education systems had quantitative targets for widening participation of and/or attainment for under-represented groups, and 9 education systems had funding systems based on performance with a social dimension focus (see Figure 27).

Although there is no correlation between the improvement of tertiary educational attainment and the number of areas where national policy initiatives have been implemented to improve tertiary education, it can be observed that countries active in at least four areas have all reached a tertiary educational attainment (TEA) level well above the EU target.

Very few reforms have taken place since 2015 in the monitored areas. In fact, the only areas with new policies were quantitative targets for widening participation and attainment of under-represented groups (in Austria in 2017), and completion as a required criterion in external quality assurance (in Croatia in 2017). On the other hand, Finland and UK-Northern Ireland ceased to have quantitative targets for widening participation and attainment of under-represented groups between 2015 and 2019.

¹⁰⁵ European Commission/EACEA/Eurydice (forthcoming). Structural Indicators for Monitoring Education and Training Systems in Europe – 2019.

Figure 26 – Structural indicators related to tertiary educational attainment, 2018/2019

| | 1. Quantitative targets for widening participation and/or attainment of under-represented groups | 2. Monitoring of socioeconomic background of students | 3. Recognition of informal or non-formal learning in entry to higher education | 4. Completion rates as a required criterion in external QA | 5. Performance-based funding mechanisms with a social dimension focus | Change in TEA 2009 - 2018 in pp |
|----|--|---|--|--|---|------------------------------------|
| BE | • | • | • | • | • | 5.6 |
| BG | | • | | • | | 5.8 |
| CZ | | | | | | 16.2 |
| DK | | • | • | | | 8.4 |
| DE | | • | • | • | | 5.5 |
| EE | | | | • | | 10.9 |
| IE | • | • | • | • | • | 5.9 |
| EL | • | | | | | 17.7 |
| ES | | • | • | • | • | 1.7 |
| FR | • | • | • | • | • | 3.2 |
| HR | | • | | | • | 12.8 |
| IT | | • | • | • | | 8.8 |
| CY | • | | | | | 12.1 |
| LV | | | | | | 12.2 |
| LT | | • | • | • | | 17.2 |
| LU | | | • | | | 9.6 |
| HU | | • | • | | | 9.7 |
| MT | • | • | • | | | 12.3 |
| NL | • | • | | | | 11.1 |
| AT | • | • | | | | 17.3 |
| PL | | • | • | • | • | 12.9 |
| PT | | | • | • | • | 12.2 |
| RO | • | • | | | • | 7.8 |
| SI | | | | • | | 11.1 |
| SK | | | | | | 20.1 |
| FI | | • | • | | | -1.7 |
| SE | | • | • | | | 8.1 |
| UK | • | • | • | • | • | 7.4 |

Source: European Commission/EACEA/Eurydice (forthcoming). Structural Indicators for Monitoring Education and Training Systems in Europe – 2019.

Note: Scores for the Belgian French, Flemish and German Communities are combined to BE. Scores for England, Wales, Scotland and Northern Ireland are combined to UK. The table reports data as it appears in the cited publication. National reforms having happened since the last consultation on the *Structural Indicators* are not shown in the 2019 Monitor.

2.4. Underachievement in reading, maths and science

Key findings

Reducing the number of underachieving 15 year-olds to meet the EU target of less than 15% by 2020 remains a challenge. Between 2012 and 2015, the EU actually moved further away from meeting its objective. In most countries, students with migrant backgrounds¹⁰⁶ tend to perform worse than students without, signalling that investing in equal opportunities for all students remains a top-level priority in the EU.

Despite adverse conditions, around a quarter of socio-economically disadvantaged migrant students are considered academically resilient. Individual factors associated with higher resilience include high academic expectations, and not repeating any grades. On the other hand, disengagement from school (for example skipping classes, or abusing substances) has a negative association with resilience. At school level, the use of school evaluations, adequate provision of

¹⁰⁶ Definition from the OECD, applicable to PISA results: Students whose mother and father were both born in a country/economy other than that where the student sat the PISA test. A distinction is made between those born in the country/economy of assessment and those born abroad: First-generation immigrant students are foreign-born students whose parents are also both foreign-born. Second-generation immigrant students are students born in the country/economy where they sat the PISA test and whose parents are both foreign-born.

study rooms and having schools with higher average socio-economic status are all factors correlating positively with resilience.

Individual characteristics influence young people's development of non-traditional competences such as effort, persistence and perseverance¹⁰⁷. In general, the factors linked to classic dimensions of social inequalities (gender, migrant and social backgrounds) play a role in developing not only traditional, but also these non-traditional competences. Here, factors that can make a positive difference on the development of effort, persistence and perseverance include provision of extracurricular activities and a positive school climate.

2.4.1. Progress towards the EU target on underachievement in basic skills

EU Member States agreed to benchmark progress on reducing the proportion of underachieving 15 year-olds, with a goal of reducing their share to less than 15% by 2020¹⁰⁸. Across the EU, the share of pupils who fail to complete basic tasks is around 20% (19.7% in reading, 22.2% in maths and 20.6% in science). Compared to the previous PISA round, conducted in 2012, in 2015 the proportion of underachievers at EU level¹⁰⁹ increased by 1.9 pps in reading and 4 pps in science, while remaining overall stable in maths. The EU has thus moved further away from the agreed target for 2020.

While EU Member States on average miss the target of bringing the share of underachievers to below 15% by a wide margin, the situation varies considerably between Member States. Four Member States (Estonia, Finland, Poland and Ireland, with Slovenia being just 0.1 percentage point above) reach the benchmark level for reading, three the maths benchmark (Denmark, Finland, Estonia); and two the science one (Estonia, Finland). On the other hand, several Member States have considerably higher percentages of underachievement, with levels of around 40% in Cyprus, Bulgaria and Romania.

2.4.2. Performing well against the odds

Students from socio-economically disadvantaged background and those with a migrant background are overrepresented in the group of underachievers. A thorough analysis of PISA 2015 results focused in particular on those from a migrant background, and on the factors that are associated with their capacity to perform well despite adverse background conditions – their resilience¹¹⁰. For example, students with a migrant background were found to achieve better academic results when they are well integrated in the school environment and are expected to perform well.

The average science performance of foreign-born students whose parents were also born outside the host country is 447 score points, well below the mean performance of non-migrant students (500 score points). Second-generation migrant students perform between the two, with an average score of 469 points¹¹¹. This difference is reduced after taking students' socio-economic status into account, as students with a migrant background tend to have lower socio-economic status. But these performance gaps, and the extent to which socio-economic status accounts for these gaps, vary widely across countries and economies. Among the countries with relatively large migrant student populations, the gaps are largest in Austria, Belgium, Denmark, Germany, Slovenia and Sweden¹¹².

After taking their socio-economic status into account, migrant students are more than twice as likely as their non-migrant peers to underachieve in science. Yet, 24% of socio-economically

¹⁰⁷ European Commission (2019). [Beyond achievement. A comparative look into 15-year-olds' school engagement, effort and perseverance in the European Union](#).

¹⁰⁸ This benchmark is based on the OECD PISA survey. Students scoring below level 2 are considered underachievers.

¹⁰⁹ See the Education and Training Monitor 2017, chapter 1.2.1; and [EU Note on the PISA results](#).

¹¹⁰ Academic resilience: succeeding academically despite facing education-related adversity. See: European Commission (2019). [Against the Odds – Academically resilient students with a migrant background and how they succeed](#).

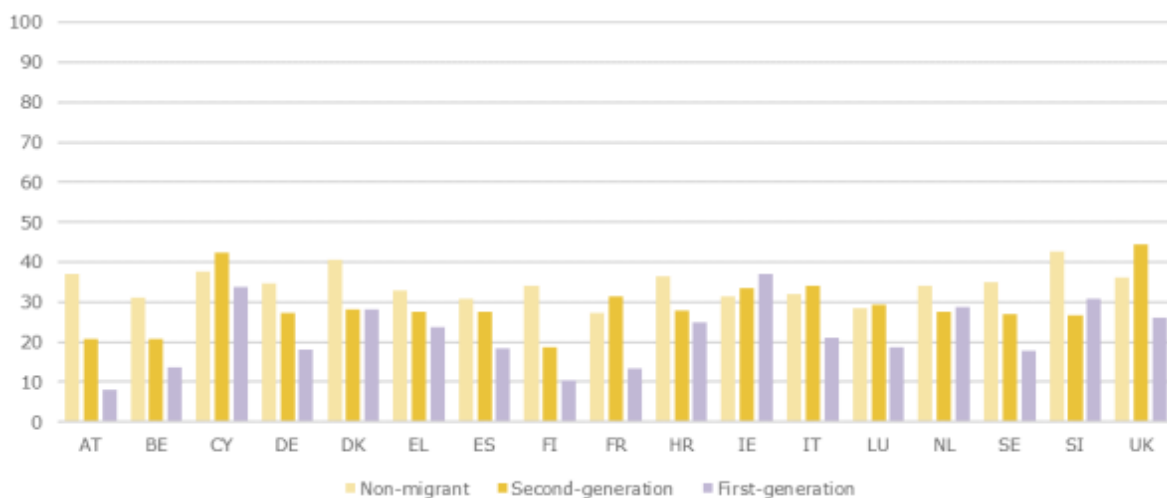
¹¹¹ OECD, [PISA 2015 Databases](#), Table I.7.4a. The progress during one year of schooling accounts for 30-40 points.

¹¹² OECD, [PISA 2015 Databases](#), Table I.7.4a.

disadvantaged migrant students are considered resilient. In general, there are greater proportions of academically resilient students among the native population and second-generation migrant students than first-generation migrant students¹¹³.

There are various aspects to consider when explaining these differences between EU Member States. In general, higher proportions of academically resilient students with a migrant background are more common in Member States where the geographical/cultural/educational settings were closer to those of the countries of origin. Examples include the migration to Slovenia from nearby countries, or a long history of migration from particular countries (e.g. the Indian population in the United Kingdom; or the French, Portuguese and Belgian populations in Luxembourg)¹¹⁴.

Figure 27 – Proportion of resilient students, by EU Member State



Source: European Commission (2019). Against [the Odds – Academically resilient students with a migrant background and how they succeed](#).

Note: Restricted EU18 student dataset from OECD PISA 2015. N = 38 802 (lowest ESCS¹¹⁵ quartile only). Only countries with relevant shares of students with migrant backgrounds are included.

Regarding associations with resilience at the individual level, there is a strong positive association with academic expectations. Although expectations are in part formed by past achievement, the role of parents and teachers in supporting higher expectations is well-recognised as a potential area for intervention to increase the resilience of students with a migrant background¹¹⁶.

The analysis also found that not repeating a grade has a strong association with resilience status¹¹⁷. However, disengagement from education in the form of skipping and/or being late for school is negatively associated with resilience status. More generally, inappropriate student behaviour (based on the principals' perception on students skipping classes, lacking respect for teachers and using alcohol or illegal drugs) appears as to be strongly associated with underachievers in schools.

Looking at school factors, there is a positive association between schools undertaking internal evaluation and their students' academic resilience. This suggests that schools which reflect on their students' needs and outcomes are better able to develop support for specific groups of students.

¹¹³ OECD (2018). [The Resilience of Students with an Immigrant Background: Factors that Shape Well-being](#), OECD Reviews of Migrant Education.

¹¹⁴ Ibid.

¹¹⁵ The PISA index of economic, social and cultural status was created on the basis of the following variables: the International Socio-Economic Index of Occupational Status (ISEI); the highest level of education of the student's parents, converted into years of schooling; the PISA index of family wealth; the PISA index of home educational resources; and the PISA index of possessions related to 'classical' culture in the family home.

¹¹⁶ Wigfield, A., and Eccles, J. S. (2000). [Expectancy-value theory of achievement motivation](#). Contemporary Educational Psychology.

¹¹⁷ OECD (2018). [The Resilience of Students with an Immigrant Background: Factors that Shape Well-being](#), OECD Reviews of Migrant Education.

Likewise, the use of student testing to monitor teachers performance provides 'reflect and learn' opportunities for school leaders. It also provides an opportunity to collect more up-to-date data on any learning gaps and the changing needs of students in order to effectively tailor the ways students are taught.

The provision of study rooms (for students to complete homework, etc.) also has a positive association with resilience. This is particularly relevant for socio-economically disadvantaged students, who are less likely to have many educational resources available at home.

Resilience is positively associated with attending a school that has, on average, students with higher socio-economic status. This type of environment can (a) facilitate affiliation with peers who are academically stronger, (b) allow schools to focus more on at-risk students with a migrant background given that fewer other students may be in academic need, and (c) may also reflect a more advantaged local geographical area that is better resourced (e.g., libraries, transport, etc.), which experiences lower levels of community stress, both of which affect academic outcomes¹¹⁸. The higher the school's average socio-economic status, the lower the share of low achievers in the school¹¹⁹. Thus, the social background of students is a highly relevant variable not only for individual students, but also for the impact that schools can have on learning.

Larger class sizes had a positive association with resilience. In general, the evidence on the impact of class sizes on student outcomes is inconclusive¹²⁰. Analysis provided by the OECD found that, on average, students in larger classes score higher in science. Other studies¹²¹ show that larger schools and public schools tend to be associated with smaller shares of low achievers in some Member States (Bulgaria, Germany, Ireland, Malta, and Slovenia for large school size; in Greece, Lithuania, Malta and Slovenia for public schools). On the other hand, higher school autonomy and accountability are negatively related to the share of low achievers in a few Member States (in Lithuania, Malta, and Slovenia for school autonomy; in Greece, Croatia, Luxembourg, and Malta for school accountability; the exception for accountability is Slovakia).

Delivering Equality of Opportunity in Schools in Ireland

Since May 2005 Ireland has been running a programme known as DEIS (Delivering Equality of Opportunity in Schools) aiming at prioritising and effectively addressing educational needs of students from disadvantaged communities. As from 2017, the country set for the first time specific targets for literacy and numeracy in disadvantaged schools. One of the goals is to increase the number of pupils in urban primary schools performing at the highest levels in maths by 42% by 2020. Also, measurable targets on continuing professional development and leadership will be established and progress will be assessed annually. In addition, the programme includes a new model for identifying schools for inclusion, targeted support for school leaders and teachers, additional psychologists and dedicated career guidance counsellors for second-level schools. Moreover, measures for reducing school uniforms and other direct costs and expanding the school meals programme are also available.

Source: European Commission/EACEA/Eurydice (2016). [Structural indicators for monitoring and education and training systems in Europe – 2016](#).

¹¹⁸ Leventhal, T. and Brooks-Gunn, J. (2000). [The neighborhoods they live in: The effects of neighborhood residence upon child and adolescent outcomes](#). Psychological Bulletin.

¹¹⁹ Costa P. and Biagi F. (forthcoming). School policies and low achievers in science: evidence from PISA 2015. A JRC Technical Report.

¹²⁰ Hattie, J. (2009). Visible learning. Oxford: Routledge, with a small, positive effect of smaller class sizes, or OECD (2016). [PISA 2015 Results in focus](#); which found that, on average, students in larger class sizes score higher in science.

¹²¹ OECD (2016). [Pisa 2015 results \(volume II\): policies and practices for successful schools](#).

2.4.3. Engagement and achievement – the role of non-traditional competences

The PISA 2015 survey included a computer based test of students' competences in science, reading, mathematics and problem solving. The digital platform used for the test recorded some of the students' behaviours during the test session into log files, for instance the time students' spent at each task and the action they took to solve a given task. Data from the log files can be combined with the students' results on each task and the background information captured in questionnaires. A recent study analysed this combination of data, giving valuable insights about students' non-traditional competences, like school engagement, effort and perseverance¹²².

There are noticeable differences among countries in non-traditional competences. However, what matters most for young people's development of non-traditional competences are individual characteristics such as parental education and migrant background. School characteristics such as the provision of extracurricular activities and a positive school climate play a smaller role, but still have the potential to make a positive impact on students' competences. This conclusion is consistent with literature on the effectiveness of school programmes suggesting that schools can have a positive effect on students' non-traditional competences, especially if interventions are carried out at a younger age.

The study shows that some student profiles are more in need than others of specific programmes and attention by schools and policy makers. For example, if the goal is to boost young people's engagement in science, then emphasis should be put on girls, in order to improve gender equality in scientific fields (science, engineering, technology and mathematics).

Looking at how students keep up their performance over the course of the OECD PISA test, it is noteworthy that, considering individual level characteristics, students from the most advantaged socio-economic backgrounds tend to have a higher chance of being 'persistently good' than 'persistently bad' compared to students coming from families with less income and fewer educational qualifications. Likewise, boys and native students have a considerable advantage over girls and students with a migrant background.

Generally, relevant school-level factors show that extracurricular activities have positive effects, while problematic student behaviour has a negative effect.

France – Improving basic skills and reducing inequalities from early stages of education

Educational authorities in France launched a comprehensive set of measures to improve basic skills from the first grades of primary education – some of them targeting all pupils, some targeting those in disadvantaged schools (éducation prioritaire). From September 2019, the starting age of compulsory education will be lowered to 3. The halving of class size in the first two grades of primary education will be extended to all disadvantaged schools, and there are plans to strengthen teacher training in order to provide differentiated teaching. The first evaluations show that differentiated teaching is essential when reducing class size to have a positive impact. Cost-free tutoring for homework is being extended to lower secondary schools. New evaluations of pupils' outcomes, schools and education systems have been designed to support policy-making; enable teachers to adapt teaching to pupils' needs; provide inspectors with indicators on school performance; and give students feedback on their results.

For additional information see the [French Ministry of Education](#).

¹²² Findings in this section are based on the study European Commission (2019). [Beyond achievement. A comparative look into 15 year-olds' school engagement, effort and perseverance in the European Union](#). Details about methodology, sample sizes etc. can be found in the report.

2.4.4. Recent policy response

The Eurydice network¹²³ provided an overview of recent reforms in EU Member States to reduce the share of low achievers in their countries¹²⁴. It concluded that there have been very few policy changes and reforms across the structural indicators on achievement in basic skills over the past 5 years and these areas (except for the introduction of national standardised tests). Specifically, while most countries organise national standardised tests and publish national reports on achievement, not all three basic skills are treated equally and science is given less attention. Many countries use student performance data in external school evaluations but only half have issued national guidelines to include tackling student underachievement as a topic in initial teacher education. Finally, while most countries provide some type of central support to schools with large numbers of disadvantaged students, there is a great variety of approaches in terms of the organisation of the support, the target groups and actions funded.

2.5. Transition from education to the labour market

Key findings

The share of recent graduates in employment, at 81.6% in 2018, has almost reached the EU target of 82%. This indicates a general recovery in the prospects for recent graduates in the labour market after the financial crisis of 2009. However, some countries continue to suffer from the effects of the crisis on the employment levels of recent graduates.

Tertiary graduates enjoy a higher employment rate (85.5%) than those holding an upper-secondary or post-secondary vocational qualification (79.5%). Recent graduates of general upper-secondary qualification have a much lower employment rate of 66.3%. Between 2017 and 2018, the employment rates of recent EU graduates increased by 2.2 pps for those with a medium-level diploma in general education; by 2.9 pps for those with a medium-level vocational diploma; and by 0.6 pps for those with a tertiary diploma.

There continues to be a stable flow of learners into upper-secondary vocational education and training. The share of new entrants into VET, at 60% in 2018 (with the other 40% entering 'general' education programmes), changed little since 2014. This is likely influenced by the relatively good employment prospects for graduates of vocational education and training, especially for those who take part in VET programmes with a substantial component of work-based learning. In 2016, 56.7% of VET graduates reported having a substantial work-based learning experience as part of their studies.

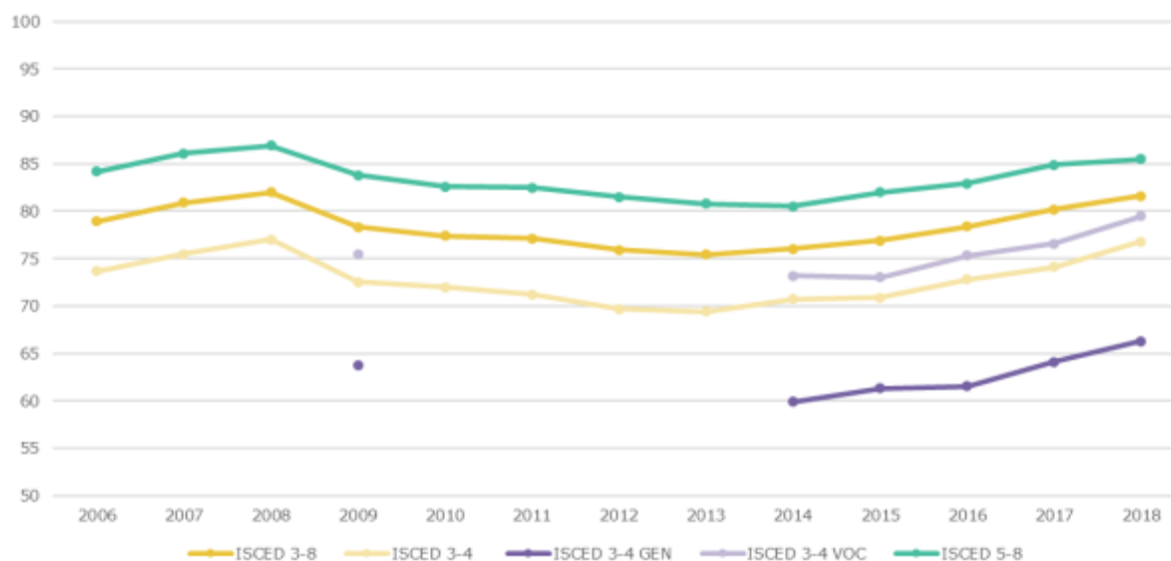
2.5.1. Progress towards the EU target on the employment rate of recent graduates

The employment rate of recent graduates in the EU continued to increase in 2018 since bottoming-out in 2013, in line with the growing employment rates of the overall working-age population. In 2018, the employment rate of recent graduates from upper-secondary and tertiary education reached 81.6%. Tertiary graduates enjoyed a higher employment rate (85.5%) than those holding an upper-secondary or post-secondary vocational qualification (79.5%). Recent graduates of general upper-secondary qualification had a much lower employment rate of 66.3%. In some countries the gap between graduates of vocational and general education diminishes after young people spend some years in the labour market. While in Germany the gap is high and persistent, in France the gap is very large for recent graduates, but closes almost entirely after 3 years have passed since graduation. In some countries, 3 to 5 years after graduation the employment rate gap between general and vocational graduates even reverses (in Czechia, Estonia, Luxembourg or United Kingdom). Between 2017 and 2018, the largest increase in employment rates was registered for graduates of vocational education and training.

¹²³ [Eurydice Network website](#).

¹²⁴ European Commission/Eurydice/EACEA (forthcoming). Structural Indicators for Monitoring Education and Training Systems in Europe 2019.

Figure 28 – Employment rate of recent graduates, EU28 average, 2006-2018

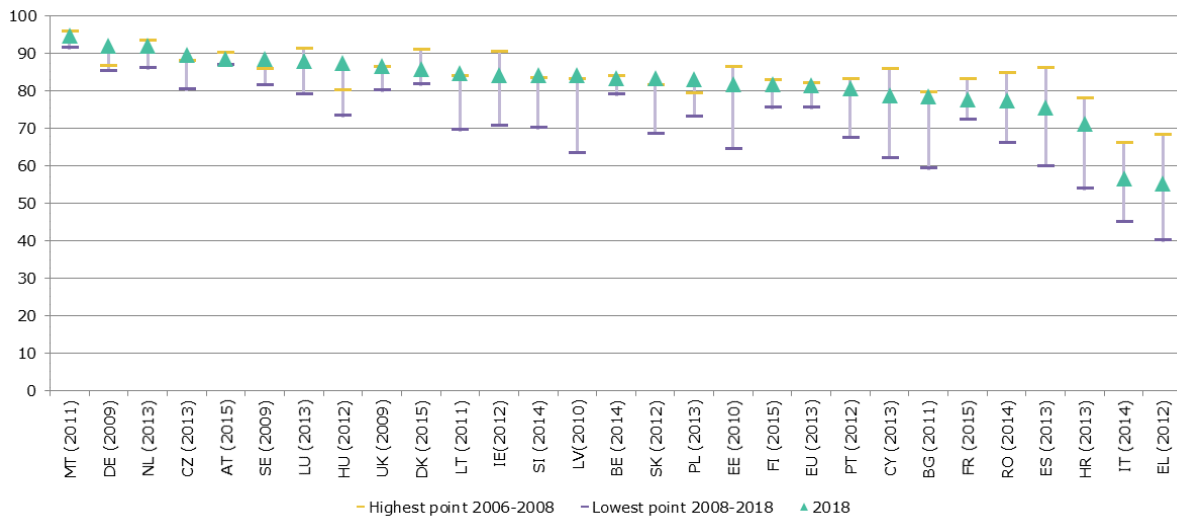


Source: Eurostat, EU Labour Force Survey. Online data code: [\[edat_lfse_24\]](#).

Note: the indicator measures the employment rates of people aged 20 to 34 having completed education 1-3 years before the survey with a medium-level qualification diploma (ISCED levels 3 and 4) or high-level qualification diploma (ISCED levels 5-8) and who are currently not enrolled in any further formal or non-formal education or training, out of the people in the same age group. Chart also includes data from LFS ad-hoc module 2009 providing recent graduate employment rates disaggregated by general/vocational orientation for the EU27, provided as a special extraction from Eurostat to DG EMPL.

The global recession had a notable impact on the employment rates of recent graduates, that was similar to, or even more pronounced than the impact on the general working-age population. In the EU, the average employment rate of recent graduates dropped from 82.0% in 2008 to 75.4% in 2013. However, the impact of the crisis varied greatly across countries – both in severity and timing. For example, in the case of Germany, recent-graduate employment rates were actually lower before the crisis (2006 and 2007) than in any other year afterwards. Several other countries had a similar pattern, with the financial crisis having a limited impact (or no impact at all) on graduate employment rates (Austria, Sweden, Malta and Belgium). In other countries the impact of the crisis was more pronounced. For example, after the financial crisis, recent graduate employment rates dropped in Greece by 28.3 pps; in Spain by 26.1 pps; in Croatia by 24.1 pps; in Cyprus by 23.7 pps; in Estonia by 21.9 pps; in Italy by 21.2 pps, in Bulgaria by 20.4 pps; in Latvia by 20.7 pps; in Ireland by 19.6 pps; and in Romania by 18.6 pps. In some of these countries, the effects of the crisis are still being felt. The employment rate of recent graduates is still below its 2008 level in Greece, Italy, Romania, Spain, Croatia and Cyprus.

Figure 29 – Changes of recent-graduate employment rates across the EU28, 2006-2018



Source: Eurostat, EU Labour Force Survey. Online data code: [\[edat_lfse_24\]](#).

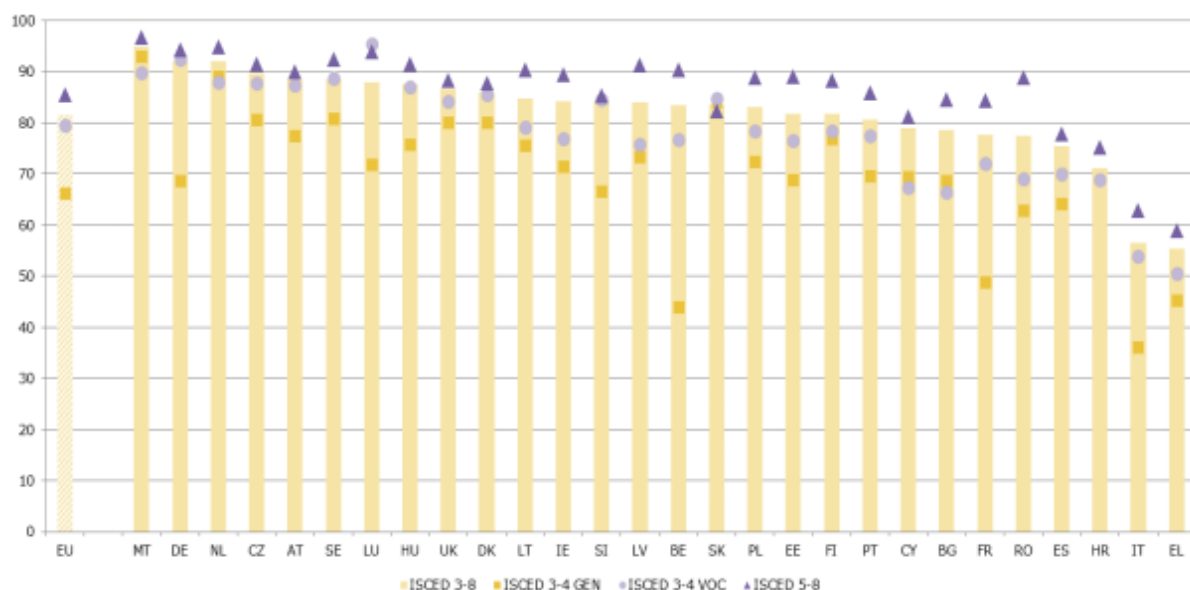
Note: the indicator measures the employment rates of people aged 20 to 34 having completed education 1-3 years before the survey with a medium-level qualification diploma (ISCED levels 3 and 4) or high-level qualification diploma (ISCED levels 5-8) and who are currently not enrolled in any further formal or non-formal education or training, out of the people in the same age group. The year next to the country name indicates the year when the lowest recent graduate employment rate was registered.

In a shorter term perspective, the employment rate of recent graduates between 2017 and 2018 increased in the EU by 1.4 pps, most notably in Cyprus (+7.3 pps), Latvia (+6.1 pps) and Croatia (+5.3 pps). However, in countries with small numbers of recent graduates, any year-on-year changes need to be monitored with caution, because the data can be highly sensitive to short-term distortions in the labour market or changes in the survey sample. Employment rates of recent EU graduates increased by 2.2 pps for those with a medium-level diploma in general education, by 2.9 pps for those with a medium-level vocational diploma and by 0.6 pps for those with a tertiary diploma.

In almost all countries, recent graduates from medium-level general education pathways are at a disadvantage in employment rates. Nevertheless, a few countries stand out for the severity of this disadvantage (at least during the initial years after graduation): Belgium, France and Italy. On the other hand in Greece, with low overall rates of employment for recent graduates, the differences between different education levels and pathways are not as pronounced. In Germany, despite the high overall employment rates of recent graduates, those with a medium-level general education diploma also face a rather pronounced disadvantage, though the absolute number of such individuals was relatively small.

In some countries, particularly countries with primarily school-based vocational education and training, VET graduates do not enjoy as strong an employment premium as in other countries. This is the case for Bulgaria and Cyprus in particular, where recent graduates from VET have lower employment rates than any other group of recent graduates. Low employment premium for VET graduates is also evident in Greece, Latvia, Lithuania, and Finland. In the case of Finland, the relatively low employment premium of recent VET graduates may be related to a sudden jump of 15.9 pps in the employment rate of recent graduates from general education compared to 2017.

Figure 30 – Employment rate of recent graduates by country, level of educational attainment and type of education, 2018



Source: Eurostat, EU Labour Force Survey. Online data code: [\[edat_lfse_24\]](#).

Note: the indicator measures the employment rates of people aged 20 to 34 having completed education 1-3 years before the survey with a medium-level qualification diploma (ISCED levels 3 and 4) or high-level qualification diploma (ISCED levels 5-8) and who are currently not enrolled in any further formal or non-formal education or training, out of the people in the same age group.

Countries aiming to increase the employability of recent graduates can choose to implement a broad range of policy actions. A number of such policy actions, targeted at facilitating the transition from the education to the labour market, have been selected for more consistent monitoring by the Eurydice network as structural indicators¹²⁵. Such actions/indicators include:

- the systematic use of regular labour market forecasting (Indicator 1);
- compulsory involvement of employers in quality assurance (Indicator 2);
- requirements and incentives for work placements for all students (Indicator 3);
- career guidance for all students in higher education institutions (Indicator 4); and
- the systematic use of regular graduate tracking surveys (Indicator 5).

The implementation of policies in labour market forecasting (Indicator 1), compulsory involvement of employers in quality assurance (Indicator 2), and graduate tracking surveys (Indicator 5) is relatively widespread, meaning that at least half of EU countries have measures in place under each of these indicators. Nonetheless, between 2015 and 2019, a number of reforms to support employability of recent graduates took place.

Indicator 1) As of 2015, Greece started using labour market forecasting systematically. This happened thanks to an action plan for labour market forecasting drafted by the Ministry of Labour and the National Institute of Labour and Human Resources in May 2015 and approved by the European Commission on 15 May 2015. Furthermore, Estonia in 2015 launched an upgraded labour market monitoring and skills forecasting system 'OSKA'¹²⁶.

Indicator 2) In Czechia, employers have been required to be involved in external quality assurance since 2016. An amendment to the Higher Education Act introducing a new system of quality evaluation for higher education institutions was approved in 2016. Czechia also set up a new accreditation agency – the Accreditation Bureau.

¹²⁵ For more details, see Figure 67 in this document: Transition from the education to the labour market.

¹²⁶ SA Kutsekoda – Estonian Qualifications Authority, the [OSKA platform](#).

Indicator 3) The area where most work is still needed is incentives or requirements for work placements for all students. This type of policy is implemented only in 9 EU countries, suggesting that most students in Europe are not obliged or incentivised to undertake work experience as part of their studies. Many countries offer incentives or require work placements, but these are often only for professional higher education.

Indicator 4) The most widely implemented policy to promote graduate employment in 2019 is career guidance for all students in higher education institutions (Indicator 4). This policy is implemented in 26 EU countries – and no reforms took place in the last 5 years.

Indicator 5) Hungary in 2018 enhanced graduate tracking methods, including the initiation of more systematic use of graduate tracking surveys. In Croatia, the data within administrative registers (such as the Higher Education Information System; the Student Loan Centre; and other public registers on tax, social security, health and labour) were linked together enabling regular tracking of almost all graduates. Croatia's Educational Authority also carries out surveys on graduates' careers regularly at 1, 3 and 5 years after graduation. The aim of the surveys is to inform applicants for degree programmes about career prospects and to make it easier to adapt degree programmes to the jobs market.

2.5.2. Vocational education and training and work-based learning

Given the importance of VET in providing an education and training pathway for many young people across Europe, it is worth looking in more detail at how VET performs across EU Member States and how attractive it is for learners. One measure of attractiveness is the number of students choosing VET pathway. At least three indicators are available to measure this: (i) the number of new entrants; (ii) the number of enrolled students and (iii) the number of graduates. Each of these indicators need to be interpreted with caution. For example, the number of enrolled students is strongly influenced by the average duration of the programme. On the other hand, the indicator of new entrants into VET is likely to be more sensitive to short-term changes and may be under-reported in case programme orientation data is not available. Finally, the indicator on graduates may also cover diplomas issued as part of processes for recognition of prior learning, in which case those graduates may not have participated in a formal programme prior to graduation.

There continues to be a healthy flow of learners into upper-secondary VET. Between 2014 and 2017, the number of new entrants into VET as a percentage of all new entrants at upper-secondary level increased from 57% to 60% at EU level¹²⁷. Increases were particularly pronounced in Estonia (+11 pps), Greece (+12 pps), the United Kingdom (+28 pps) and Slovenia (+26 pps). However, enrolment in upper-secondary VET as part of total enrolment in secondary education decreased in Denmark, Portugal and Slovakia.

¹²⁷ Eurostat, UOE (UNESCO-OECD-Eurostat data collection). Online data code: [\[educ_uoe_ent01\]](#)

Figure 31 – New entrants, enrolled learners and graduates at ISCED 3 VOC, 2017

| | Entrants | Enrolment | Graduates | Graduates / enrolment | Graduates / entrants |
|-------------|------------------|-------------------|------------------|-----------------------|----------------------|
| EU28 | 3 503 342 | 10 234 874 | 3 124 770 | 31% | 89% |
| BE | : | 439 501 | 71 364 | 16% | |
| BG | 30 753 | 132 932 | 16 138 | 12% | 52% |
| CZ | 62 839 | 281 177 | 57 725 | 21% | 92% |
| DK | 28 530 | 114 940 | 30 931 | 27% | 108% |
| DE | 450 535 | 1 136 356 | 319 068 | 28% | 71% |
| EE | 8 106 | 17 982 | 2 627 | 15% | 32% |
| IE | : | 19 280 | 25 012 | 130% | |
| EL | 41 721 | 99 132 | 28 626 | 29% | 69% |
| ES | 216 731 | 599 747 | 165 332 | 28% | 76% |
| FR | 314 538 | 1 078 016 | 586 594 | 54% | 186% |
| HR | 29 787 | 114 910 | 31 402 | 27% | 105% |
| IT | 323 218 | 1 566 407 | 322 002 | 21% | 100% |
| CY | 1 661 | 4 818 | 1 238 | 26% | 75% |
| LV | 8 923 | 23 591 | 3 916 | 17% | 44% |
| LT | 7 331 | 20 133 | 4 692 | 23% | 64% |
| LU | 3 993 | 16 067 | 3 511 | 22% | 88% |
| HU | 29 865 | 97 724 | 20 718 | 21% | 69% |
| MT | 3 325 | 4 916 | 2 122 | 43% | 64% |
| NL | 117 579 | 570 592 | 146 661 | 26% | 125% |
| AT | 66 646 | 238 161 | 72 399 | 30% | 109% |
| PL | 177 793 | 684 955 | 166 681 | 24% | 94% |
| PT | 40 015 | 162 613 | 34 989 | 22% | 87% |
| RO | 105 847 | 413 229 | 98 997 | 24% | 94% |
| SI | 21 378 | 66 513 | 14 003 | 21% | 66% |
| SK | 34 643 | 130 768 | 30 822 | 24% | 89% |
| FI | 52 534 | 261 660 | 69 395 | 27% | 132% |
| SE | 37 877 | 186 467 | 28 220 | 15% | 75% |
| UK | 1 287 174 | 1 752 287 | 769 585 | 44% | 60% |

Source: Eurostat, UOE (UNESCO-OECD-Eurostat data collection). Online data code: [[educ_uae_ent01](#)], [[educ_uae_enrs05](#)] and [[educ_uae_grad01](#)].

Note: the table includes the number of new entrants, enrolled learners and graduates from vocational programmes at the upper-secondary (ISCED 3) level. Note as regards the UOE data for France: this data includes several programmes and diplomas in ISCED 35, some of which are considered as intermediate (i.e. a student can obtain a 'CAP' certificate and continue afterwards in a 'Bac Pro' programme). However, the UOE data do not consider such a student as a new entrant which partly explains the imbalance between 'new entrants' and 'graduates'.

Comparing the data between new entrants, enrolled learners and graduates in VET could provide insights that are worth further exploration, but should be interpreted with caution due to possible data gaps and/or differences in coverage. For example, comparing these three indicators, there seems to be very few graduates of VET as compared to the total number of enrolled students in some countries like Belgium (16%), Bulgaria (12%), Estonia (15%), Latvia (17%) and Sweden (15%). The EU average for the number of VET graduates as a percentage of the number of students enrolled in VET is 31%. These countries also have a low number of VET graduates as a percentage of VET entrants. This could be a sign that these countries may have problems with students dropping out or with students who continue to be registered in programmes for a long time. Furthermore, in some countries the number of graduates is significantly larger than the number of entrants –particularly in France, Finland and the Netherlands, despite stable or even increasing number of new entrants since 2014. A possible explanation for this phenomenon is that a substantial proportion of diplomas issued in those countries are acquired through learning in non-formal programmes and/or recognising skills and competencies acquired through informal learning (i.e. without enrolling in any formal or non-formal educational programme). It may also be that this difference exposes imperfections of the counting of certification where general and VET entrants are sometimes classified as general students and the distinction between general and VET is only made later, after graduation.

It can also be helpful to examine the content of VET programmes. For example, it is often argued that much of the positive impact of VET on employability is due to curriculum-related work-based learning. While there are many definitions and types of work-based learning, the type that appears to have the strongest impact on graduates' employment rates is real work experience during studies that is linked to the curriculum. This can be organised as an apprenticeship, i.e. a long-term training course with half or more of the time dedicated to learning in a workplace, often remunerated, and lasting more than 6 months. There can also be 'lighter' arrangements, where work-based learning is unpaid and/or of shorter duration. Overall, in the EU in 2016, 67.1% of those holding a medium-level vocational qualification and 66.2% of those holding a tertiary qualification said they acquired some practical work experience during their education. For 56.7% of VET graduates and 40.0% of higher education graduates, this work experience was related to the curricula they studied¹²⁸.

But although more than 50% of VET graduates in most countries said they had some kind of curriculum-related work experience, this was the case for less than 30% of VET graduates in Croatia, Ireland, Spain, Bulgaria, Greece and Romania. Relatively low rates of work-based learning, with less than 50% of VET graduates reporting curriculum-related work experience was also identified in Cyprus, the United Kingdom, Slovenia, Portugal and Italy. In many of countries, traineeships are the main form of this type of experience. In only a few countries with advanced apprenticeship systems (such as Austria and Germany) do apprenticeship-type forms of work experience predominate¹²⁹. Strengthening apprenticeships and work-based learning has been high on Member State agendas as a way of supporting the VET sector.

Policy interventions to support VET can also focus on: (i) increasing access to VET and qualifications for all; and (ii) supporting teachers, notably by training the trainers. Another challenge is making apprenticeships more attractive for learners and employers, either by strengthening employer and social partner involvement, or by using apprenticeships to promote entrepreneurial culture. There is also scope to introduce structural changes to: (i) make VET pathways more flexible; (ii) broaden access to VET; and (iii) improve progression opportunities (including through more widespread validation of non-formally acquired skills or prior formal learning). Last but not least, formal VET, labour market training and guidance can all be better planned by using skills-anticipation tools, outcome indicators, and graduate tracking.

2.6. Adult learning

Key findings

Despite the high level of importance given to adult learning, progress towards achieving the 15% EU target for this indicator has been slow. In 2008, about 9.5% of the adults took adult learning – and the share increased only to 11.1% in 2018. People with low levels of qualification – those most in need of access to learning – are the least likely to benefit from it in nearly all EU countries. However, some countries have succeeded in providing ample training opportunities for unemployed adults or migrants. Age also matters: younger adults (25-34) are almost three times more likely to participate in learning than adults aged 55-64.

Across the EU, financing of adult learning reaches around EUR 200 billion per year. Employers (private and public) bear the greatest share of this expenditure, by providing company-sponsored non-formal job-related training, with little reported contribution from individuals or the public sector to such form of learning. Individuals on the other hand mostly invest in formal education and training or non-job-related non-formal learning. Finally, the public sector mostly covers the costs of training provided as part of active labour market policies, but it also shares some of the costs of formal educational programmes.

¹²⁸ Eurostat, EU Labour Force Survey, 2016 ad-hoc module on young people in the labour market. Online data code: [\[lfsq_16feduc\]](#)

¹²⁹ Ibid.

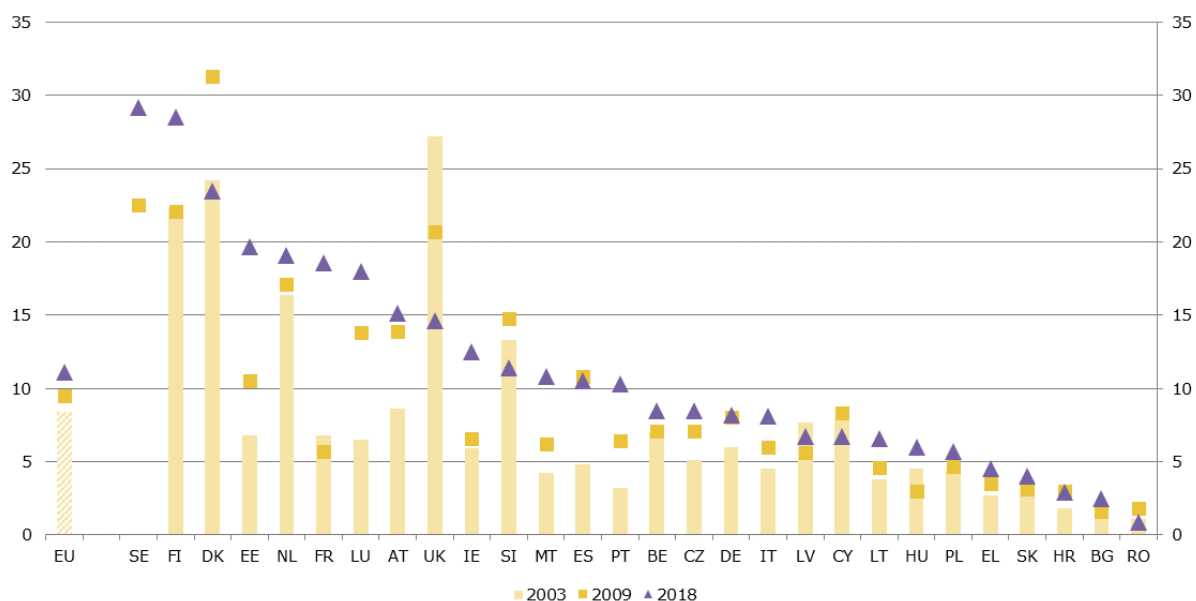
2.6.1. Progress towards the EU target on adult learning

The policy importance of adult learning has increased in recent years as part of the discussion on the changing nature of work and ongoing technological transformation. Changes in the technology used at work are already being felt by 43% of adult employees in Europe, according to the European Skills and Jobs Survey¹³⁰. In addition, OECD estimates suggest that 46% of workers are at risk of either losing their job or seeing their job change significantly because of automation over the next two decades¹³¹.

One key way to analyse adult learning is by assessing the rate of participation in it. Back in 2003, the Council of the European Union set a target of having, by 2010, 12.5% of adults participating in education and training during the last 4 weeks (this target was later raised to 15% by 2020). Over the years, there has been some growth of adults participating in learning in the EU – from 7.1% in 2002, to 9.5% in 2008, to 11.1% in 2018. However, despite some very promising examples (notably France, Portugal, Hungary, Estonia and Finland), overall progress on this indicator has been slow and in some cases the impact of methodological adjustments cannot be isolated to analyse the evolution over time in a comparable way (which is particularly the case in France).

Adult participation in education and training depends mainly on participation in non-formal education and training. While participation in formal education continues to be low – a little above 3%¹³², a few Member States, notably Portugal, Hungary, Ireland and France, have seen considerable progress in the participation in non-formal education and training.

Figure 32 – Adults' participation in learning, 2003, 2009 and 2018.



Source: Eurostat, EU Labour Force Survey. Online data code: [\[trng lfse 01\]](#).

Note: countries are sorted in ascending order, based on the share of adults participating in learning in 2009. No data available for Sweden for 2003. An extensive revision of the questionnaire of the French Labour Force Survey (in use from 1 January 2013 onwards) explains the level shift break for France, which had an impact also on the EU aggregates. Some other countries also revised their data collection methodology for this indicator, but in most of those cases the revisions had more limited impact on the indicator. The red line denotes the ET2020 benchmark for adult learning set at 15%.

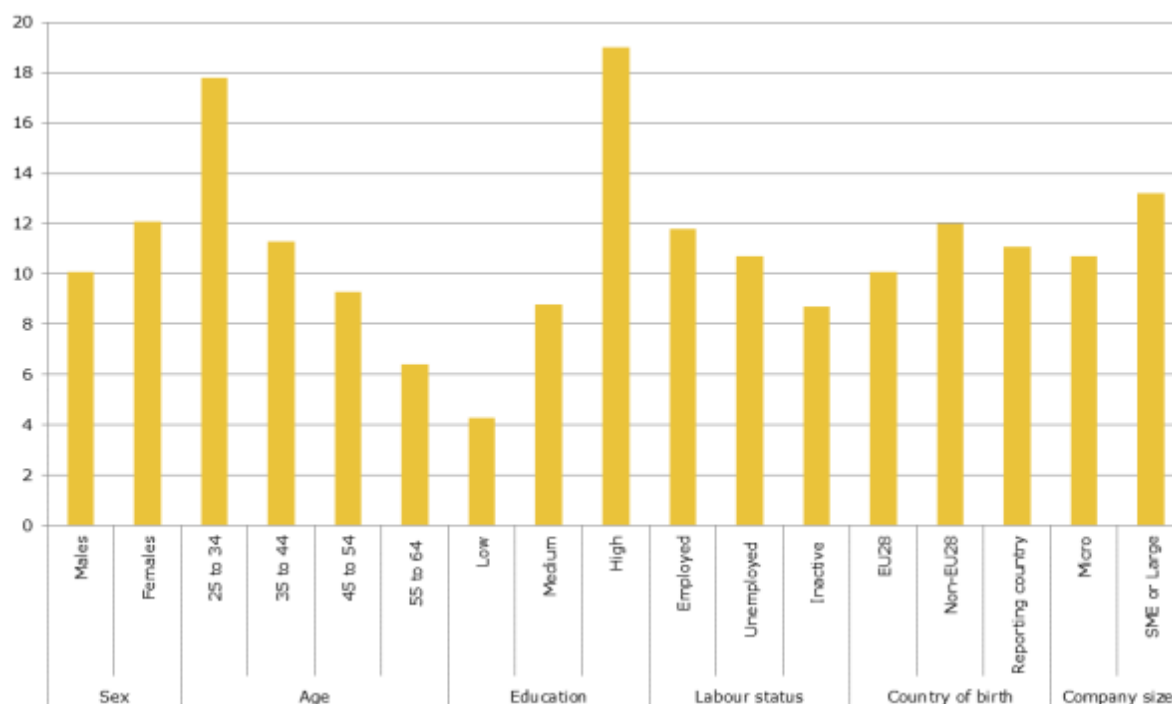
¹³⁰ Cedefop (2018). [Insights into skill shortages and skill mismatch: Learning from Cedefop's European skills and jobs survey.](#)

¹³¹ Nedelkoska, L. and G. Quintini (2018). [Automation, skills use and training](#), OECD Social, Employment and Migration Working Papers, No. 202.

¹³² In the Adult Education Survey (which is conducted every 5 years since 2007) on participation in education and training in the 12 months before the survey participation in formal education is low too. In 2007 it reached 6.6%, and in 2016 – 5.8% (at that time participation in non-formal education reached respectively 31.6% and 42.6%).

Access to adult-learning opportunities is significantly influenced by a variety of socio-demographic characteristics. The two most important factors are age and educational attainment level. Younger adults aged 25-34 are almost three times more likely to participate in learning than older adults aged 55-64. Similarly, those holding a tertiary degree are more than four times more likely to participate in learning than people with at most a lower-secondary qualification.

Figure 33 – Share of adults participating in learning during the last 4 weeks, EU28 average, by sex, age-group, educational attainment level, labour market status, country of birth and size of the company they work for, 2018



Source: Eurostat, EU Labour Force Survey. Online data code: [\[trng_lfse_01\]](#), [\[trng_lfse_02\]](#), [\[trng_lfse_03\]](#), [\[trng_lfs_07\]](#) and [\[trng_lfs_13\]](#).

Note: the adult learning participation by company size is calculated for employed persons only.

To identify background factors influencing adult learning, it is possible to calculate the degree of 'advantage or disadvantage in learning'. This concept measures the rate of participation in learning for a specific socio-demographic group, and compares it to the average rate of participation in learning of the total adult population aged 25-64 in each country. The result indicates the difference in participation rates of the selected socio-demographic group as compared to the general population (see Figure 34). This indicator can be used to devise more targeted policy interventions to promote adult learning.

On average in the EU, low-qualified adults are at the most significant disadvantage in learning, followed by older adults, inactive adults, and migrants from within the EU. Unemployed adults and adults working in micro-companies have only a very slight disadvantage, while migrants from outside the EU on average participate in adult learning more than the general adult population. However, average learning disadvantage at the EU level may hide very diverse patterns of disadvantage within and across countries. For example, age is a very important factor in Croatia, Greece, Poland, Malta and Germany. Irrespective of total rates of adult participation in learning, in these countries employed adults aged 55-64 take part much less in learning activities compared to the general population. On the other hand, age does not seem to be such a restrictive factor in the United Kingdom, Sweden, Finland, Lithuania (where this is possibly in part due to an active third-age university network¹³³), Italy, France, Ireland and Denmark (see Figure 34).

¹³³ See Electronic Platform for Adult Learning in Europe's website – [Universities of the third age in Lithuania. Situation of 2018.](#)

Figure 34 – Relative disadvantage in access to learning, for selected socio-demographic groups underperforming in adult participation in learning, 2018

| | Total population | Adults 55-64 years of age | Low-qualified adults | Unemployed adults | Inactive adults | EU28 migrants | Non-EU28 migrants | Workers in micro companies |
|--------------|------------------|---------------------------|----------------------|-------------------|-----------------|---------------|-------------------|----------------------------|
| EU-28 | 11.1 | -42% | -61% | -4% | -22% | -10% | 9% | -4% |
| BE | 8.5 | -48% | -62% | 45% | -6% | 13% | 68% | -21% |
| BG | 2.5 | | -72% | | 100% | | | -24% |
| CZ | 8.5 | -52% | -72% | -40% | -36% | 11% | -14% | -16% |
| DK | 23.5 | -31% | -37% | 21% | 2% | -2% | 9% | -15% |
| DE | 8.2 | -61% | -48% | 2% | 26% | -32% | 48% | -5% |
| EE | 19.7 | -47% | -62% | 2% | -47% | -5% | -55% | -18% |
| IE | 12.5 | -34% | -65% | 28% | -7% | -19% | 78% | -10% |
| EL | 4.5 | -73% | -82% | -13% | 20% | | -67% | -11% |
| ES | 10.5 | -55% | -65% | 22% | -8% | -39% | -20% | -12% |
| FR | 18.6 | -27% | -62% | -23% | -30% | -35% | -35% | 3% |
| HR | 2.9 | -86% | -83% | -48% | 48% | | | -41% |
| IT | 8.1 | -38% | -75% | -38% | -7% | -58% | -56% | -28% |
| CY | 6.7 | -57% | -78% | -15% | 18% | -39% | 58% | -33% |
| LV | 6.7 | -55% | -63% | 1% | -16% | | -61% | 0% |
| LT | 6.6 | -35% | -64% | -56% | -30% | | 82% | -15% |
| LU | 18 | -54% | -59% | 65% | -46% | -14% | 23% | -26% |
| HU | 6 | -57% | -52% | -55% | -27% | | | -28% |
| MT | 10.8 | -63% | -62% | -44% | -54% | 6% | 8% | -17% |
| NL | 19.1 | -39% | -48% | -3% | -35% | 1% | 50% | -10% |
| AT | 15.1 | -44% | -63% | 8% | -19% | -3% | -5% | -11% |
| PL | 5.7 | -67% | -82% | -14% | -54% | | 119% | -16% |
| PT | 10.3 | -51% | -54% | 28% | -15% | 19% | 17% | -31% |
| RO | 0.9 | | | | 67% | | | |
| SI | 11.4 | -48% | -75% | 5% | -36% | | -48% | -2% |
| SK | 4 | -53% | -78% | -60% | -20% | | | 33% |
| FI | 28.5 | -34% | -45% | -13% | -21% | -12% | 33% | -10% |
| SE | 29.2 | -28% | -29% | 56% | 12% | -18% | 41% | -16% |
| UK | 14.6 | -32% | -60% | -10% | -43% | 7% | 33% | -8% |

Source: Eurostat, EU Labour Force Survey. Online data code: [trng_lfse_01], [trng_lfse_02], [trng_lfse_03], [trng_lfs_07] and [trng_lfs_12].

Note: relative disadvantage is calculated as the rate of participation in learning by a specific socio-demographic group expressed as a percentage of the rate of participation in learning on average of the total adult population aged 25-64 in each country. The category 'workers in micro companies' is defined as employed individuals, reporting that there are fewer than 10 employees in the enterprise or part of the enterprise where they are working. The category 'migrants' (both intra-EU and extra-EU) is defined by citizenship, denoting by 'migrants' those people who hold citizenship from a country other than the country where they are resident at the time of the survey.

Low-qualified adults are at a particular learning disadvantage in Bulgaria, Czechia, Greece, Croatia, Italy, Cyprus, Poland, Slovenia and Slovakia¹³⁴. In these countries, the participation rates in adult learning of low-qualified adults stand at around one quarter of those of the general population. On the other hand, in Sweden, Finland, the Netherlands, Germany and Denmark, low-qualified adults are relatively less disadvantaged in terms of access to adult learning (although the disadvantage remains significant).

Countries vary significantly in terms of access to learning opportunities for unemployed adults. In some countries, unemployed people are more likely to participate in learning than the general population. Such countries include Luxembourg (65% more likely), Sweden (56% more likely), Belgium (45% more likely), Ireland (28% more likely), Portugal (28% more likely), Spain (22% more likely) and Denmark (21% more likely). On the other hand, in other countries unemployed adults are much less likely to participate in learning. This is the case for Slovakia (60% less likely),

¹³⁴ As contextual information, however, the differences in the proportion of the population aged 25-64 with low educational attainment (ISCED 0-2 – 'the low-skilled') between different Members States should be taken into account when interpreting this indicator. The share of low-qualified adults in 2018 was 21.9% on average in the EU and ranged from 5.2% in Lithuania, 6.1% in Czechia, 7.6% in Poland to 38.3% in Italy, 39.9% in Spain, 46.7% in Malta and 50.2% in Portugal, as measured by the EU Labour Force Survey, [ledat_lfse_03].

Lithuania (56% less likely), Hungary (55% less likely), Croatia (48% less likely), Malta (44% less likely), Czechia (40% less likely) and Italy (38% less likely). This is likely due to different policy choices about the provision of active labour market policies in these countries.

Across Europe there is also a great variety in the levels of enrolment of economically inactive adults in adult learning¹³⁵. Inactive adults in countries with very low overall adult participation in learning (such as Romania, Bulgaria, Croatia) are more likely to participate in learning than the general population. Conversely, inactive adults in some other countries are highly disadvantaged (i.e. much less likely to participate in adult education). This is the case in Czechia, Estonia, Luxembourg, Malta¹³⁶, the Netherlands, Poland, Slovenia and the United Kingdom.

There are also very different patterns for migrants across the different Member States, reflecting different migration routes and different source and destination countries. EU migrant citizens are relatively advantaged – as regards participation in learning – in Portugal, Belgium, Czechia, the United Kingdom and Malta, compared to the national population of their country of destination. They are conversely at a disadvantage in Italy, Spain, Cyprus, France, Germany, Sweden and Ireland. Non-EU citizens are relatively advantaged in Poland, Lithuania, Ireland, Belgium, Cyprus, the Netherlands and Germany. On the other hand they are very disadvantaged in Greece, Latvia, Italy, Estonia and Slovenia.

Finally, concluding this part of analysis based on Figure 34, adults working in companies with fewer than 10 persons employed ('micro-companies') are at a significant disadvantage in terms of relative access to learning in Croatia, Cyprus, Portugal, Italy, Hungary, Luxembourg, Bulgaria and Belgium. They are exceptionally advantaged in Slovakia, as well as, even if the advantage was relatively small, in France.

Another way to analyse adult learning is to assess whether the learning activity is job-related or not. A job-related activity can be identified by the fact that it is either sponsored by an employer or declared to be job-related by the individual himself or herself. Job-related non-formal adult learning is often reported to be the most prevalent type of adult learning: out of all adult learners in non-formal education or training, 79.2% of adults said they had participated in at least one job-related non-formal learning activity during the previous year. Nevertheless, non-job-related adult learning also plays an important part in adult learning in many countries. When evaluating the share of all adult-learning activities, it must be taken into account that a single individual can undertake a number of different learning activities during the reporting period. For example, in 2016 nearly half of adults who took part in learning participated in more than one learning activity¹³⁷.

Based on the data from EU Adult Education Survey, it can be estimated that 30.1% of all non-formal learning activities undertaken by adults in 2016 in the EU were non-job-related learning activities. Non-job-related non-formal adult-learning activities play a particularly important role in Hungary, Cyprus and France, where nearly half of all non-formal learning activities are not job-related. On the other hand, in Bulgaria, Lithuania and Slovakia, job-related non-formal adult learning activities predominate, with 10% or fewer of all non-formal learning activities being not job-related. Currently used standard indicators probably underestimate the prevalence of non-job-related non-formal learning activities. In many cases, adults who undertake multiple learning activities take part both in job-related and non-job-related adult non-formal learning.

¹³⁵ A person is economically inactive, according to the International Labour Organisation definition, if he or she is not part of the labour force. So, inactive people are neither employed nor unemployed. In the EU Labour Force Survey (which covers the working-age population) the inactive population can include students, pensioners and stay-at-home parents, for example, provided that they are not working at all and not available or looking for work either. In this analysis the data refers to inactive, working-age adults, who are between 25 and 64 years of age.

¹³⁶ Malta's Public Employment Service (PES) Jobsplus offers free training courses aimed at helping individuals acquire transversal or specific skills which are labour market related. Furthermore it has in place the following schemes: Training Pays, Work Exposure Scheme, Work Placement and Traineeships Scheme. Inactive adults can also access these free training courses and schemes, thus there are opportunities for such cohort.

¹³⁷ European Commission (2018). [The 2018 Education and Training Monitor](#).

2.6.2. Sources of financing in adult learning

Adult learning is funded in a variety of different ways across the EU. However, the latest data reveals one common feature: there seems to be little cost-sharing between businesses, individuals and public sector. For example, in the EU Adult Education Survey, only around 20% of individuals said that they fully or partly contributed to their non-formal learning costs, and most of these contributions were for learning that was not job-related. Most individuals also said that they received little financial support from the public sector for non-formal learning activities (though they may not always be aware of support provided directly to the training provider). Likewise, very few companies said they benefited from public incentives to provide training. All in all, companies seem to invest exclusively in job-related non-formal learning, while individuals invest primarily in non-job-related non formal learning. Some cost-sharing is only more evident between the public sector and individuals in the formal education sector – 55% of respondents of the EU Adult Education Survey, who undertook formal learning, said that they covered their learning costs in part or in full.

By combining different data sources, it is also possible to estimate the level of investment in adult learning by these different groups. Individual expenditure on non-formal learning is reported in the EU Adult Education Survey. Company expenditure is reported in the EU Continuing Vocational Training Survey. And part of public sector expenditure (training-related expenditure for the unemployed or at risk of unemployment) is collected and reported in the labour market policy database of the European Commission. Based on these three data sources, it is estimated that annual expenditure on adult learning in the EU is around EUR 100 billion. However, this is a very incomplete estimate, as it does not cover several types of investment for which data is not available, such as: (i) expenditure for formal education by individuals and the public sector; (ii) the training costs of public sector for its employees; and (iii) the training costs of employees working in micro-companies with fewer than 10 persons employed. For example, the participation rate in training of public sector employees, who represent 26% of all employees in the 25-64 age group, is comparable to the participation rate of the same age group in private enterprises, indicating that there is also substantial investment in training for its employees by the public sector. Another 30% of individuals in the EU work for micro-enterprises, where the participation rate in learning is only slightly lower than the average participation rate among the employed people in general. This suggests that the total expenditure for staff training (including private sector, public sector and micro-enterprises) is likely to be in the range of EUR 120 billion a year, and more than EUR 180 billion a year if the data also include individual expenditure on non-formal learning as well as public expenditure on active labour market policies (but still excluding all the expenditure on formal adult education). All this suggests that the total amount of investment in adult learning could be comparable to the level of investment in research and development (R&D) in the EU, which in 2017 amounted to EUR 320 billion.

Figure 35 – Investment in adult learning, in millions of EUR, 2015/2016

| | Total | Company expenditure | Share (%) | Individual expenditure | Share (%) | ALMP* expenditure | Share (%) |
|-------------|----------------|---------------------|------------|------------------------|------------|-------------------|------------|
| EU28 | 101 659 | 60 622 | 60% | 17 936 | 18% | 23 101 | 23% |
| AT | 3 578 | 1 324 | 37% | 695 | 19% | 1 559 | 44% |
| BE | 3 422 | 2 580 | 75% | 200 | 6% | 642 | 19% |
| BG | 161 | 129 | 80% | 25 | 16% | 7 | 4% |
| CY | 77 | 46 | 60% | 21 | 28% | 9 | 12% |
| CZ | 767 | 610 | 79% | 120 | 16% | 38 | 5% |
| DE | 26 155 | 15 416 | 59% | 4 559 | 17% | 6 180 | 24% |
| DK | 3 274 | 2 105 | 64% | 154 | 5% | 1 014 | 31% |
| EE | 133 | 100 | 75% | 18 | 14% | 16 | 12% |
| EL | 524 | 296 | 56% | 162 | 31% | 67 | 13% |
| ES | 8 103 | 4 135 | 51% | 2 736 | 34% | 1 231 | 15% |
| FI | 1 818 | 578 | 32% | 235 | 13% | 1 005 | 55% |
| FR | 21 713 | 13 321 | 61% | 2 247 | 10% | 6 144 | 28% |
| HR | 326 | 168 | 52% | 61 | 19% | 97 | 30% |
| HU | 726 | 346 | 48% | 353 | 49% | 28 | 4% |
| IE | 1 952 | 1 201 | 61% | 175 | 9% | 577 | 30% |
| IT | 9 555 | 4 514 | 47% | 2 280 | 24% | 2 761 | 29% |
| LT | 117 | 79 | 67% | 14 | 12% | 25 | 21% |
| LU | 372 | 316 | 85% | 29 | 8% | 27 | 7% |
| LV | 81 | 45 | 55% | 22 | 27% | 15 | 18% |
| MT | 55 | 45 | 82% | 8 | 14% | 2 | 4% |
| NL | 4 883 | 3 753 | 77% | 679 | 14% | 451 | 9% |
| PL | 1 450 | 1 000 | 69% | 398 | 27% | 51 | 4% |
| PT | 1 194 | 503 | 42% | 212 | 18% | 480 | 40% |
| RO | 337 | 289 | 86% | 46 | 14% | 2 | 0% |
| SE | 2 940 | 2 020 | 69% | 267 | 9% | 652 | 22% |
| SI | 354 | 282 | 80% | 56 | 16% | 16 | 4% |
| SK | 337 | 251 | 74% | 78 | 23% | 8 | 2% |
| UK | 7 416 | 5 171 | 70% | 2 245 | 30% | : | : |

Source: Eurostat, EU Adult Education Survey - AES (reference year: 2016), special data extraction for DG EMPL; Eurostat, EU Continuing Vocational Training Survey - CVTS (reference year: 2015), special data extractions for DG EMPL; DG EMPL, [Labour market policies \(LMP\) database](#) (reference year: 2015).

Note: *ALMP means 'active labour market policy'. Company expenditure data (collected via the CVTS) only includes data from private sector enterprises with 10 employees or more (thus excluding expenditure in micro-enterprises and the whole employment in the public sector). CVTS data for Germany has quality issues (item non-response, imputation). Individual expenditure data (collected via the AES) only includes data on private individual expenditure on non-formal learning, thus excluding expenditure on formal education. All this data also does not include public expenditure on publicly provided or co-financed education and training programmes for adults.

2.7. Learning mobility

Key findings

In 2017, 11.6% of higher education graduates were mobile, meaning that they studied abroad, partly or entirely. On average in Europe, 8% of them had a temporary experience abroad (so called 'credit mobility'), and 3.6% of them graduated in a country which wasn't the one where they received their upper secondary diploma ('degree mobility'). Different EU countries display different combinations of credit mobility and degree mobility, reflecting the availability of different funding schemes or geographical factors as well as network effects.

Promoting worldwide learning mobility is a key objective of the EU and its countries. To this effect, EU countries adopted a learning mobility target for higher education, which regrettably still cannot be fully calculated to the lack unavailability of data from a number of non-EU economies, first and foremost the US.

Within the EU, Luxembourg, Cyprus, the Netherlands, and Finland (in descending order) have high shares of mobile tertiary graduates. EU mobility programmes approximately half of the credit mobility stays occurring in the EU, and at least three quarters of these stays in as many as 15 EU countries.

Inward degree mobility measures the graduates coming into a country to take a degree, and can be read as a measure of the attractiveness of the education system. On this indicator, the United Kingdom leads the way – both in absolute numbers and in the percentage of tertiary graduates who came from abroad to take their degree in the country.

2.7.1. Progress towards the EU target on learning mobility

Research has long established the positive outcomes of taking a study period abroad. Learning mobility is associated with future mobility, higher earnings, and lower unemployment. It also correlates with improved mutual understanding, openness, and citizenship skills¹³⁸. Transnational learning mobility is one of the major objectives of the European Education Area.

In 2011, EU countries agreed on a target that ‘by 2020, an EU average of at least 20% of higher education graduates should have had a period of higher education-related study or training (including work placements) abroad, representing a minimum of 15 European Credit Transfer and Accumulation System (ECTS) credits or lasting a minimum of three months’. This target refers to worldwide outward mobility, i.e. mobility from EU countries to both EU and non-EU destinations. It covers two types of mobility, credit mobility and degree mobility¹³⁹. Regrettably, due to the lack or incompleteness of inward degree-mobility data for some destination countries, the calculation of this benchmark remains underestimated¹⁴⁰.

In 2017, 11.6% of higher education graduates were mobile. On average in Europe, 8% of them had a temporary experience abroad (so called ‘credit mobility’), and 3.6% of them graduated in a country which wasn’t the one where they received their upper secondary diploma (‘degree mobility’); 8% of them through credit mobility (a short-term type of mobility), and 3.6% graduated in a different country. In Europe, Luxembourg, Cyprus, the Netherlands, and Finland (in descending order) have the highest shares of outward mobile graduates. Figure 36 highlights the different incidence of the two mobility components across Member States. For example, among the best performers, the Netherlands and Finland register a percentage of credit-mobile graduates (22.6% and 15.2% respectively) higher than the percentage of degree-mobile graduates. In Luxembourg, on the other hand, there are more degree-mobile graduates (73.6% of all graduates), most likely because of mobility to neighbouring countries. The prevalence of degree mobility can also be observed in countries such as Greece, Slovakia or Cyprus.

¹³⁸ European Commission (2019). [Erasmus+ Higher Education Impact study](#). Final report. For further references see footnotes 147-149 in the [2018 Education and Training Monitor](#).

¹³⁹ Credit-mobile graduates are those who have had a temporary study period and/or work placement abroad and return to their ‘home institution’ to complete their degree. Degree mobile graduates are those whose country of origin (i.e. the country where their upper secondary diploma was obtained) is different from the country in which they graduate. While data on credit mobility are collected in the countries to which students returned after their credit mobility stay (i.e. one of the EU MS), data on degree-mobile graduates are collected at the level of the destination country. Consequently, the calculation of EU outward mobile graduates relies on figures provided by all EU and non-EU destination countries. For an overview of the learning mobility benchmark, see Flisi, S. and Sanchez-Barrioluengo, M. (2018). [Learning Mobility II: An estimation of the benchmark](#). A JRC Science for Policy Report JRC113390.

¹⁴⁰ The main shortcoming in the calculation of the benchmark value is the lack of data on EU upper secondary graduates graduating in the US. For further information, see the note to the first table in this chapter.

Figure 36 – Degree and credit outward mobility of graduates, 2017 (%)

| | Total mobility (credit+degree) | | | | | Credit mobility | | | | | Degree mobility | | | | |
|-----------------|--------------------------------|---------|---------|---------|---------|-----------------|---------|---------|---------|---------|-----------------|---------|---------|---------|---------|
| | ISCED 5-8 | ISCED 5 | ISCED 6 | ISCED 7 | ISCED 8 | ISCED 5-8 | ISCED 5 | ISCED 6 | ISCED 7 | ISCED 8 | ISCED 5-8 | ISCED 5 | ISCED 6 | ISCED 7 | ISCED 8 |
| EU28 | 11.6 | 3.8 | 10.4 | 15.9 | 14.7 | 8.0 | 2.2 | 7.7 | 10.8 | 4.3 | 3.6 | 1.6 | 2.8 | 5.0 | 10.5 |
| BE | 9.8 | : | 9.8 | 10.2 | : | 6.2 | : | 7.5 | 4.9 | : | 3.6 | 4.3 | 2.3 | 5.3 | 10.3 |
| BG | 9.5 | n.a. | 9.9 | 7.6 | 12.3 | 1.4 | n.a. | 1.6 | 1.1 | 2.8 | 8.1 | n.a. | 8.3 | 6.5 | 9.5 |
| CZ ² | 11.9 | : | 8.4 | 14.9 | 20.6 | 8.0 | : | 5.1 | 11.0 | 14.1 | 3.9 | 31.9 | 3.3 | 4.0 | 6.5 |
| DK | 10.8 | 4.3 | 10.7 | 13.6 | : | 9.2 | 3.9 | 9.6 | 11.2 | : | 1.5 | 0.4 | 1.1 | 2.4 | 8.0 |
| DE ¹ | 17.8 | 69.2 | 15.7 | 22.1 | : | 12.8 | 0.0 | 12.2 | 15.3 | : | 5.1 | 69.2 | 3.5 | 6.8 | 10.0 |
| EE | : | n.a. | : | : | : | : | n.a. | : | : | : | 9.6 | n.a. | 7.8 | 10.1 | 19.9 |
| IE | : | : | : | : | : | : | : | : | : | : | 5.7 | 2.7 | 3.7 | 10.9 | 22.7 |
| EL | 13.9 | n.a. | 7.3 | 25.9 | : | 1.7 | n.a. | 2.5 | 0.2 | : | 12.1 | n.a. | 4.7 | 25.8 | 30.9 |
| ES | 9.6 | 1.4 | 15.4 | 9.8 | : | 7.7 | 1.1 | 14.0 | 6.2 | : | 1.9 | 0.3 | 1.4 | 3.6 | 4.3 |
| FR | 18.0 | 5.7 | 14.5 | 31.4 | 19.9 | 14.6 | 4.4 | 10.1 | 27.6 | 8.1 | 3.4 | 1.3 | 4.4 | 3.8 | 11.8 |
| HR ² | 7.7 | 79.2 | 4.3 | 10.6 | 26.0 | 4.6 | 0.0 | 2.3 | 7.2 | 9.2 | 3.1 | 79.2 | 2.0 | 3.4 | 16.8 |
| IT ² | 13.6 | 16.6 | 8.9 | 17.3 | 48.7 | 9.1 | 0.0 | 6.5 | 11.5 | 28.2 | 4.4 | 16.6 | 2.4 | 5.9 | 20.5 |
| CY | 36.9 | 21.0 | 51.7 | 23.1 | 67.1 | 1.7 | 0.1 | 3.6 | 0.2 | 0.4 | 35.1 | 20.9 | 48.1 | 22.9 | 66.7 |
| LV | 15.7 | 6.8 | 19.3 | 14.4 | 32.2 | 7.2 | 2.2 | 10.1 | 5.2 | 7.8 | 8.5 | 4.6 | 9.2 | 9.3 | 24.4 |
| LT | 15.4 | n.a. | 14.7 | 13.7 | 30.9 | 6.8 | n.a. | 7.4 | 5.1 | 8.8 | 8.6 | n.a. | 7.3 | 8.6 | 22.1 |
| LU | 80.5 | : | 86.8 | 85.5 | 77.5 | 6.9 | : | 12.3 | 0.5 | 0.0 | 73.6 | 6.9 | 74.5 | 85.0 | 77.5 |
| HU ² | 7.9 | 6.6 | 5.9 | 12.1 | 11.6 | 3.8 | 0.3 | 2.9 | 6.4 | 1.4 | 4.1 | 6.4 | 3.1 | 5.7 | 10.2 |
| MT | 14.4 | 3.8 | 11.3 | 22.5 | 55.9 | 5.4 | 1.7 | 8.3 | 2.5 | 0.0 | 9.0 | 2.1 | 3.0 | 20.0 | 55.9 |
| NL | 24.9 | 11.1 | 25.2 | 25.9 | : | 22.6 | 6.3 | 24.4 | 20.9 | : | 2.3 | 4.9 | 0.8 | 5.0 | 14.0 |
| AT ¹ | 14.5 | 0.2 | 19.6 | 24.0 | 28.8 | 9.6 | 0.0 | 13.0 | 16.4 | 13.1 | 5.0 | 0.2 | 6.6 | 7.6 | 15.7 |
| PL | : | n.a. | : | : | : | : | n.a. | : | : | : | 1.0 | 86.9 | 0.6 | 1.2 | 14.1 |
| PT | 11.1 | 5.3 | 10.1 | 13.3 | 19.4 | 7.5 | 0.2 | 8.2 | 7.9 | 0.6 | 3.6 | 5.1 | 1.9 | 5.4 | 18.8 |
| RO | 7.6 | n.a. | 6.9 | 7.2 | 17.6 | 1.8 | n.a. | 1.8 | 1.9 | 1.1 | 5.8 | n.a. | 5.1 | 5.3 | 16.6 |
| SI ² | 6.5 | 1.8 | 5.2 | 9.7 | 13.2 | 2.8 | 0.6 | 3.0 | 3.5 | 0.6 | 3.6 | 1.2 | 2.1 | 6.1 | 12.6 |
| SK | 13.0 | : | 13.6 | 11.8 | 14.1 | 0.0 | : | 0.0 | 0.0 | 0.0 | 13.0 | 27.4 | 13.6 | 11.8 | 14.1 |
| FI | 19.0 | n.a. | 17.6 | 22.7 | 8.1 | 15.2 | n.a. | 14.6 | 17.5 | 2.4 | 3.8 | n.a. | 2.9 | 5.2 | 5.6 |
| SE | 15.5 | 2.7 | 15.1 | 21.2 | 12.8 | 10.9 | 0.4 | 11.2 | 15.1 | 5.9 | 4.6 | 2.3 | 4.0 | 6.1 | 6.9 |
| UK | 4.1 | 0.4 | 5.9 | 2.2 | 4.0 | 3.3 | 0.1 | 5.4 | 0.1 | 1.8 | 0.8 | 0.3 | 0.4 | 2.1 | 2.3 |

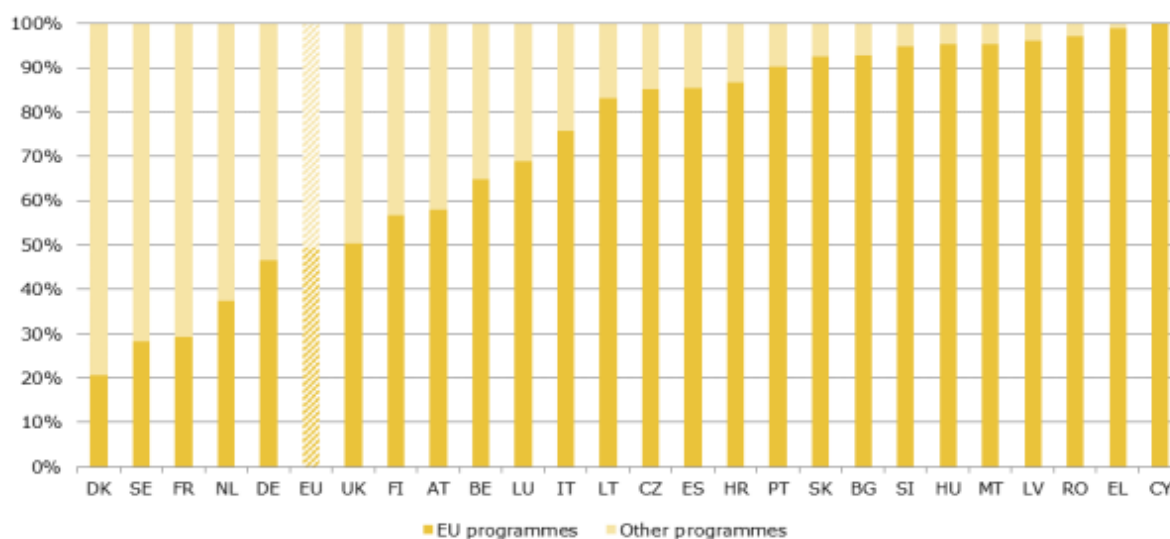
Source: Eurostat (UOE; 2017). Online data codes: [[educ_uae_mobc01](#)] for credit-mobile graduates and [[educ_uae_mobq02](#)] for degree-mobile graduates in EU, EFTA, EEA and candidate countries and OECD, International graduates data, for degree-mobile graduates who graduated in non-European countries (Australia, Brazil, Canada, Chile, Colombia, Israel, Japan, Korea, New Zealand, Russia). [[educ_uae_grad01](#)] for total graduates; the data extracted on 15 June 2019.

Note: Total outward mobility rates for country X are calculated as (outward degree-mobile graduates from country X + outward credit-mobile graduates who were not degree mobile from country X)/graduates originating in country X. Graduates originating in country X are calculated as (total graduates in country X – inward mobile graduates from any other country to country X + outward mobile graduates from country X to any other country). Credit and degree mobility are calculated considering only one component at the numerator. Outward mobility rates for the EU are calculated with similar formulas, with the sum of outward degree- and/or credit-mobile graduates from EU Member States at the numerator, while the denominator is computed as (number of graduates in EU Member States – inward mobile graduates from non-EU to EU Member States + outward mobile graduates from EU to non-EU countries). No information on outward credit mobility available for PL (derogation till end of 2018), EE and IE. No inward degree mobility data available for SI by country of origin; no inward degree mobility data available for ISCED 5 for BE, ISCED 8 for ES, ISCED 5 and 8 for PL; this implies a potential underestimation of outward degree mobility from other countries. No information on EU-origin degree mobile graduates who graduated in the US, which implies potential underestimation for some EU Member States. (n.a.) not applicable; (:) not available; (1) no well-developed credit transfer system is in place for vocational ISCED level 5 programmes; (2) data on graduates with credit mobility who were not degree mobile is missing; total graduates with credit mobility is used instead.

About half of the EU credit mobility graduates had their stay abroad funded by the Erasmus or other EU programmes. In seven EU countries (Cyprus, Greece, Romania, Latvia, Malta, Hungary and Slovenia), this share increases to 95%. In these seven countries, European programmes appear to provide the only real opportunity to go abroad for a short period, which might be due to a lack of bilateral and multilateral exchange programmes at the national and institutional level, or to limited options available to finance the mobility stay¹⁴¹. The limited availability of other resources could also explain why the overall share of credit-mobile graduates in most of these countries is very low, below 4% (except for Latvia and Malta, where the shares are slightly higher, at 7.2% and 5.4% respectively). On the contrary, in Denmark, Sweden and France, non-EU programmes are the most frequent mobility scheme.

¹⁴¹ [Social and economic conditions of student life in Europe. Eurostudent VI 2016-2018: Synopsis of Indicators](#). German centre for higher education research and science studies.

Figure 37 – Credit mobility by type of mobility scheme, ISCED 5-8, 2017



Source: Eurostat (UOE; 2017). Online data code: [[educ_uoe_mobc01](#)]; the data extracted on 15 June 2019.

Note: 'Other programmes' includes the categories 'International/national programmes' and 'Other programmes' as reported by Eurostat. Values are the sum of the ISCED levels available for each country. The EU28 value is the sum of the available EU countries. No information available for PL (derogation till end of 2018), EE and IE. Countries are ordered by increasing prevalence of EU programmes. These data by type of mobility scheme refer to all credit mobile graduates, not only to those who were not degree mobile. As a consequence, they do not correspond to the credit mobility component used in the calculations for the benchmark.

2.7.2. Inward mobility

Inward student mobility is one of the most important channels driving migration of global talent. It has significant potential benefits for the destination countries, in terms of the stock of human capital available. In 2017, the highest rates of inward degree-mobile graduates were recorded in the United Kingdom (34.2%), Luxembourg (26.1%), the Netherlands (17.9%), Austria and Denmark (15.1%), and Belgium (14.9%). Values around 10% were found in Ireland (10.7%), France (10.6%), Czechia (10.3%) and Sweden (10.3%). In all other countries, inward degree mobility accounts for less than 10% of the total graduate population, with rates equal to or below 5% registered in 10 countries.

In the EU, the share of inward degree-mobile graduates tends to increase with the level of education. Mobility rates are at:

- 3.8% for short-cycle degrees (ISCED 5);
- 7% at bachelor level (ISCED 6);
- 18% at masters level (ISCED 7); and
- up to 27.8% for PhDs (ISCED 8).

There is a positive relationship between educational attainment and inward degree-mobility rates for most countries, although in some cases the highest levels are found at ISCED 7 level (e.g. in Estonia, Latvia, Lithuania, Hungary, Malta, and Romania).

Figure 39 provides information on the area of origin of inward mobile graduates across EU countries, distinguishing between the main macro-areas outside the EU. Overall, the vast majority (above 60%) of degree mobile graduates come from another EU country. Inward degree mobility is dominated by students originating in the EU in Luxembourg (77.3%), Austria (75.8%), Slovakia (71.8%), and Denmark (69.5%); while it is largely limited to students from third countries in Poland and Croatia.

Historical and language ties are important for explaining mobility patterns between countries. This is clear in the case of Spain and Portugal, where, respectively, 52.8% and 35.5% of mobile graduates come from the Caribbean, Central America and South America (see Figure 39). Likewise,

the population of UK mobile graduates is composed of many graduates from Commonwealth countries. Geographical proximity is another important factor: countries such as the Netherlands and Luxembourg benefit from their central position in Europe, with many students from neighbouring countries among inward mobile graduates. In the Netherlands, for example, 27% of mobile graduates are of German origin, while in Luxembourg 17% of total graduates are from Belgium and 27.5% from France¹⁴². Similarly, in Poland, the high share of mobile graduates from third countries is driven by graduates from neighbouring countries such as Ukraine (which accounts for 50.8% of mobile graduates in Poland) and Belarus (8.6%).

Figure 38 – Inward degree-mobility rates for higher education graduates by level of qualification and origin, 2017

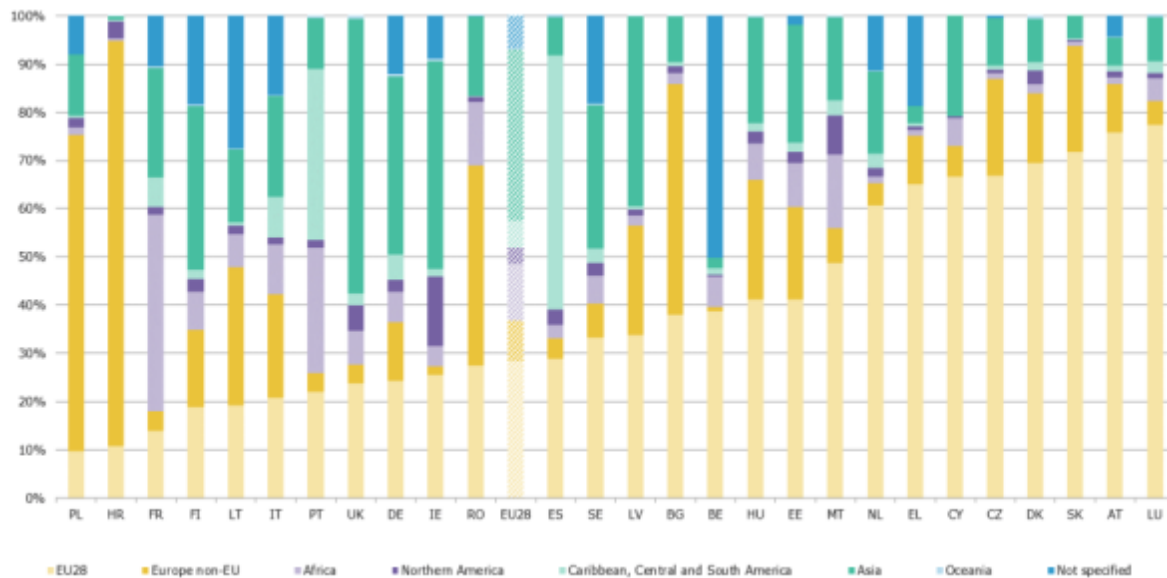
| | Inward degree mobility rate | | | | | Inward mobile graduates | |
|--------------------------|---|--------------------------|-----------------------|---------------------|-----------------------|-------------------------|-----------------------|
| | Total (all ISCED levels) ^e | Short-cycle (ISCED 5) | Bachelor (ISCED 6) | Master (ISCED 7) | Doctoral (ISCED 8) | Total ^e | Of which from EU28 |
| | % | % | % | % | % | N. | % |
| EU28 ^e | 10.8 | 3.8 | 7.0 | 18.0 | 27.8 | 482 950 | 28.2 |
| BE | 14.9 | : | 14.8 | 14.6 | 41.9 | 15 471 | 38.6 |
| BG ¹ | 3.3 | n.a. | 2.4 | 4.4 | 5.7 | 1 966 | 38.0 |
| CZ | 10.3 | 3.9 | 9.5 | 10.8 | 18.7 | 8 426 | 66.9 |
| DK | 15.1 | 21.3 | 7.6 | 24.2 | 52.5 | 10 993 | 69.5 |
| DE | 7.5 | 0.0 | 3.5 | 12.6 | 19.5 | 41 822 | 24.3 |
| EE | 8.6 | n.a. | 5.0 | 15.6 | 14.2 | 834 | 41.2 |
| IE | 10.7 | 3.4 | 6.6 | 22.9 | 30.0 | 7 973 | 25.6 |
| EL | 1.6 | n.a. | 2.1 | 0.5 | 0.6 | 1 218 | 65.0 |
| ES | 4.1 | 0.7 | 1.2 | 12.6 | : | 18 047 | 28.9 |
| FR | 10.6 | 3.8 | 7.9 | 17.3 | 50.7 | 77 509 | 13.9 |
| HR | 3.2 | 6.9 | 2.7 | 3.6 | 8.3 | 1 099 | 10.7 |
| IT | 5.1 | 6.7 | 4.7 | 5.2 | 11.3 | 19 615 | 20.8 |
| CY | 7.9 | 9.7 | 8.5 | 7.2 | 4.1 | 1 014 | 66.8 |
| LV | 5.3 | 0.4 | 4.5 | 10.3 | 8.3 | 803 | 33.7 |
| LT | 3.4 | n.a. | 2.0 | 7.2 | 2.2 | 989 | 19.2 |
| LU | 26.1 | 30.5 | 8.4 | 42.8 | 167.5 | 869 | 77.3 |
| HU | 6.2 | 0.8 | 3.6 | 12.5 | 8.7 | 3 863 | 41.1 |
| MT | 6.8 | 2.1 | 3.8 | 14.7 | 8.8 | 320 | 48.8 |
| NL | 17.9 | 0.0 | 10.8 | 33.2 | 62.3 | 24 031 | 60.7 |
| AT | 15.1 | 0.3 | 18.9 | 25.8 | 37.9 | 11 633 | 75.8 |
| PL | 1.9 | n.a. | 1.7 | 2.4 | : | 9 921 | 9.8 |
| PT | 5.0 | 1.1 | 2.4 | 9.0 | 23.9 | 3 784 | 22.0 |
| RO | 4.1 | n.a. | 2.4 | 6.7 | 4.2 | 5 065 | 27.4 |
| SI | 3.4 | 1.4 | 2.4 | 5.3 | 8.2 | 557 | : |
| SK | 4.8 | 0.3 | 4.8 | 4.7 | 7.5 | 2 625 | 71.8 |
| FI | 8.0 | n.a. | 5.4 | 11.4 | 34.3 | 4 330 | 18.9 |
| SE | 10.3 | 0.2 | 1.9 | 21.9 | 59.2 | 7 170 | 33.3 |
| UK | 34.2 ^d | 7.8 ^d | 20.3 | 85.9 | 81.6 | 201 003 | 23.7 |

Source: Eurostat (UOE; 2017). Online data codes: [[educ_uoe_mobg02](#)], [[educ_uoe_grad01](#)]; Data extracted on 15 June 2019. Note: inward degree-mobility rates are computed as inward degree-mobile graduates as a percentage of graduates originating in the country (i.e. using the same denominator as for the benchmark), for higher education as a whole and within ISCED levels. No information is available for BE (ISCED 5), PL (ISCED 5 and 8) and ES (ISCED 8). No inward degree-mobility data are available for SI by country of origin. Data for CZ, IT, HU, MT, and SK use country of citizenship to identify the country of origin. (e) own estimation based on Eurostat data; (n.a.) not applicable; (:) not available; (1) country estimations; (d) definitions differ.

¹⁴² It should also be noted that these might be 'frontier' graduates, commuting to Luxembourg for study purposes. However, commuters are correctly considered as degree mobile if they study at tertiary level in a different country from the one where they were awarded their upper secondary leaving certificate. It is not residence, but participation in education abroad that defines mobility in line with what was convened by countries for the UOE data collection on mobility.

Other reasons drawing graduates to certain countries include a desire to improve knowledge of foreign languages; and the availability of English-language programmes in non-English speaking countries, especially the Nordic countries¹⁴³. Finally, university characteristics can also play an important role. Higher teaching quality and better reputation are positively related to inward degree-mobility, especially at bachelor and master level. On the other hand, research orientation and excellence appear to be more relevant for degree mobility at doctoral level¹⁴⁴.

Figure 39 – Inward degree mobile graduates (ISCED 5-8) by area of origin, 2017



Source: Eurostat (UOE; 2017). Online data code [[educ_uoe_mobg02](#)]; the data extracted on 15 June 2019.

Note: No information is available for SI (no disaggregation by country of origin); shares are computed on the available ISCED levels for BE (missing ISCED 5), PL (missing ISCED 5 and 8) and ES (missing ISCED 8). Data for CZ, IT, HU, MT, and SK use country of citizenship to identify the country of origin. Countries are ordered by increasing shares of EU28 mobile graduates in the total number of mobile graduates in the country.

2.7.3. Recent policy response

Access to mobility can be hindered by different types of barriers, including financial, administrative, and linguistic barriers¹⁴⁵. To help all students, particularly the ones from disadvantaged background, taking part in transnational mobility, countries can put in place a variety of policy measures. The European Commission and the Eurydice network monitor the set-up of these measures via a 'Mobility Scoreboard'¹⁴⁶.

The lack of funding is one of the biggest obstacles to mobility, and students from disadvantaged socio-economic backgrounds or students with disabilities are less likely to participate in mobility programmes¹⁴⁷. Countries can nonetheless set up targeted financial support to facilitate the

¹⁴³ See footnote 163 of the [2018 Education and Training Monitor](#).

¹⁴⁴ Sánchez-Barrioluengo, M. and Flisi, S. (2017). [Student mobility in tertiary education: institutional factors and regional attractiveness](#). A JRC Science for Policy report. JRC108895.

¹⁴⁵ Hauschildt et al (2015). [Social and economic conditions of student life in Europe. Synopsis of indicators, Eurostudent VI 2016-2018](#);

King, R., Findlay, A. and Ahrens, J. (2010). [International student mobility literature review, Report to HEFCE and co-funded by the British Council, UK National Agency for Erasmus](#);

Souto Otero, M. (2008). The socioeconomic background of Erasmus students: a trend towards wider inclusion?, *International review of education* 54(2).

¹⁴⁶ Data on policy measures to support mobility in this subsection are mainly taken from European Commission/EACEA/Eurydice (2016). [Mobility Scoreboard: Higher Education Background Report](#). Update expected for December 2019.

¹⁴⁷ Hauschildt et al (2015). [Social and economic conditions of student life in Europe. Synopsis of indicators, Eurostudent VI 2016-2018](#);

King, R., Findlay, A. and Ahrens, J. (2010). [International student mobility literature review, A report to HEFCE and co-funded by the British Council, UK National Agency for Erasmus](#);

Souto Otero, M. (2008). The socioeconomic background of Erasmus students: a trend towards wider inclusion? *International review of education* 54(2).

mobility of disadvantaged students. Most countries in the EU (except Bulgaria and Latvia) provide needs-based grants, universal portable grants or targeted mobility grants¹⁴⁸. Through universal portable grants, countries can support student mobility in general (Denmark, Sweden, Finland, Cyprus, Luxembourg and Malta manage to support more than 50% of their students with such grants). Some education systems also provide targeted mobility grants to students from disadvantaged socio-economic backgrounds. This is the case in France with the *aides à la mobilité internationale*, and in Ireland, where students with disabilities can access the Fund for Students with Disabilities¹⁴⁹.

The portability of domestic support (grants and loans) can be a major factor in a student's decision to study abroad. Portability can be split between portability for credit and degree mobility. Degree portability is the extent to which students can take the grant to pursue a full degree abroad, whereas credit portability is the extent to which students can take a grant to pursue credits abroad that satisfy the teaching-credit framework of the home country¹⁵⁰. In 2017-2018, the portability of public support measures for the first and second cycle was more widespread for credit mobility than degree mobility. Within the EU, 14 education systems guarantee portability for both credit and degree mobility (the Flemish and German communities of Belgium, Denmark, Germany, Ireland, France, Cyprus, Luxembourg, the Netherlands, Austria, Slovenia, Finland, Sweden and the UK-Scotland). A slightly larger group of 15 education systems offer portability of domestic support measures for credit mobility (Czechia, Estonia, Spain, Croatia, Italy, Latvia, Lithuania, Hungary, Malta, Poland, Portugal, Slovakia, and the UK-England, Wales and Northern Ireland)¹⁵¹. Most EU countries apply some restrictions, whether geographical (e.g. Germany limits participation to EU countries plus Switzerland) or scheme-based (e.g. Latvia, Lithuania, Portugal and Spain only offer portability of domestic grants for recognised schemes such as Erasmus+).

In the EU, only six countries systematically monitor the participation of students by socio-economic background (the Flemish Community of Belgium, Germany, France, Italy, Austria and the United Kingdom) in transnational mobility. Three of them (Austria, France and the Flemish Community of Belgium) set a national target to increase the learning mobility of disadvantaged students. Austria set a target for 18% of mobile students to come from families without higher education background by 2025. Belgium (Flemish Community) aims for 33% of mobile students to come from under-represented groups by 2020 (defined as students receiving a grant, students with a job, and students with a disability). And the 2017 annual programme of the French Erasmus+ Agency set a 30% target for disadvantaged students in Erasmus+ mobility programmes.

In addition to these measures, policy measures to support learning mobility include foreign language education and automatic recognition of qualifications. On the former, Chapter 2.10 of this report discusses language learning in greater detail. On the automatic recognition of qualifications, this refers to the automatic right of an applicant holding a qualification of a certain level to be considered for entry to a programme of further study in the next level in any other country within the European Higher Education Area¹⁵². The automatic recognition of qualifications is particularly important in supporting degree mobility. One of the objectives of the Bologna Process is to establish convergent degree structures across Europe, thereby making it easier for students to be mobile and study in different systems.

As of today, only a handful of education systems operate an automatic recognition system based on mutual trust of the degrees issued in other countries within the European Higher Education Area. However, some education systems have started signing regional multilateral agreements on the mutual automatic recognition of qualifications. These new bilateral and multilateral agreements on the mutual automatic recognition of qualifications are the most significant policy development in the analysed period. The Benelux agreement – between Luxembourg, the Netherlands, and the three language communities of Belgium – was signed in 2015. Shortly after, in 2016, Denmark,

¹⁴⁸ European Commission/EACEA/Eurydice (2018). [The European Higher Education Area in 2018: Bologna Process Implementation Report](#).

¹⁴⁹ See the Irish [HEA website](#).

¹⁵⁰ European Commission/EACEA/Eurydice (2016). [Mobility Scoreboard: Higher Education Background Report](#). A Eurydice Report.

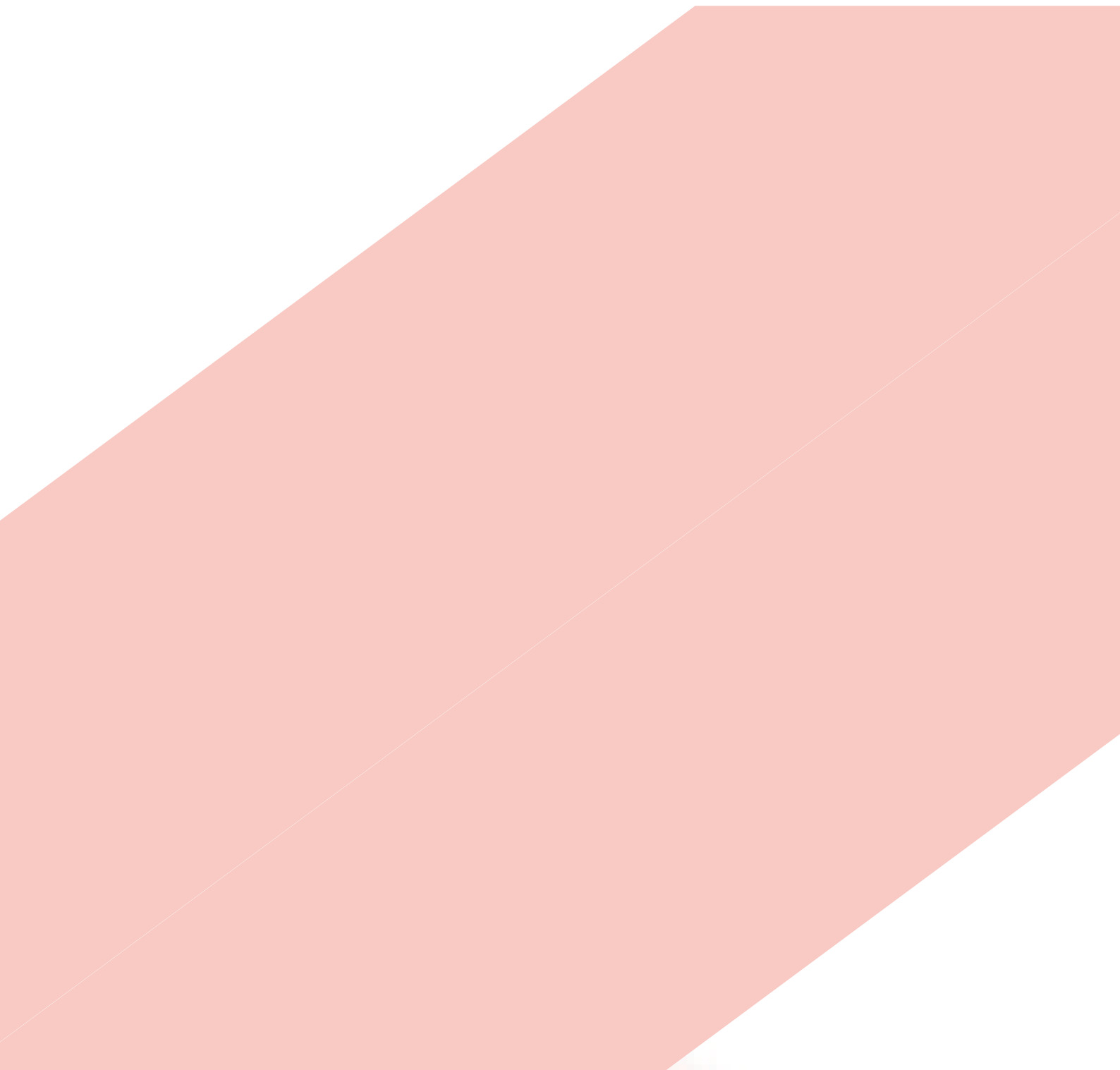
¹⁵¹ See summary table in the annex of this report.

¹⁵² The European Higher Education Area (EHEA) is an international collaboration on higher education. It is the result of the political will of 48 countries with different political, cultural and academic traditions, to implement structural reforms and shared tools to: (i) increase staff and student mobility, and (ii) facilitate employability.

Finland, Sweden, Iceland and Norway signed the Nordic Declaration on the Recognition of Qualifications Concerning Higher Education. In 2018, Estonia, Latvia and Lithuania also signed an intergovernmental agreement on the automatic recognition of higher education qualifications, which entered into force in the academic year 2018/2019.

Part 3

Other indicators in education and training



3. Other indicators in education and training

The set of adopted EU targets ('benchmarks') discussed in Part 2 of this report largely monitors participation in education, with an exception being the target on underachievement in basic skills, which monitors learning outcomes in mathematics, science and reading. Yet, on top of teaching basic skills, education is expected to help pupils develop a broader set of key competences¹⁵³. Key competences are those that all individuals need for personal fulfilment and development, employability, social inclusion and active citizenship. They are developed from early childhood throughout adult life, and through formal, non-formal and informal learning.

This year's Monitor treats three of them in the following chapters: digital competences; entrepreneurship education; and multilingualism.

Digital and entrepreneurship competences are becoming crucial components for individuals' societal functioning and labour market inclusion. They are also considered critical for Europe's future innovation capacity, entrepreneurial gains and market competitiveness. Via the Standing Group on Indicators and Benchmarks, EU countries recently expressed high interest in developing better measurement for learning outcomes in these two sectors.

The 2019 Monitor addresses the themes of digital and entrepreneurship education, despite limitations in the existing data collections. As to entrepreneurship education, in order to have comparable European data, there still needs to be work on definition development, and equally development of dedicated instruments for data collection. On digital skills, the main challenge is to improve the EU coverage of existing surveys, or develop new data collections.

Finally, on top of the adopted EU targets, the Monitor regularly presents data on foreign language learning. Multilingualism contributes to mutual understanding and mobility within the EU – and as such, it is an integral component of the vision for a European Education Area. Despite never generating an adopted EU benchmark on multilingualism, indicators on language learning are considered an important part of the ET 2020 monitoring framework.

3.1. Primary and secondary education in the digital age

Key findings

The progressive integration and effective use of digital technologies requires pedagogical, technological and organisational change. On top of access to digital tools and infrastructure, there is a need to mobilise educational staff and stakeholders to reach this goal.

In 3 out of 4 EU Member States, digital competence are considered as an essential competence that teachers are expected to have. Yet teachers report that 'ICT skills for teaching' is one of their greatest training needs. Those with less than 5 years' experience are much more likely to feel well prepared in the use of digital technologies for teaching.

In the last decade, there has been significant investment in digital equipment and infrastructure in schools. Still, many schools in the EU lack access to high-speed internet.

¹⁵³ European Commission (2019). [Key competences for lifelong learning](#). The 8 key competences include: literacy competence; multilingual competence; mathematical competence and competence in science, technology and engineering; digital competence; personal, social and learning to learn competence; citizenship competence; entrepreneurship competence; cultural awareness and expression competence.

On average, 30% of lower secondary pupils in the EU use their own smartphones for learning at school at least once a week, a trend that has emerged only in the last 7 years. The investment needed to bring schools up to an effective level of access to digital technology for learning is also changing. For example, many schools operate a 'bring your own device' system, where pupils' own equipment is used in classrooms.

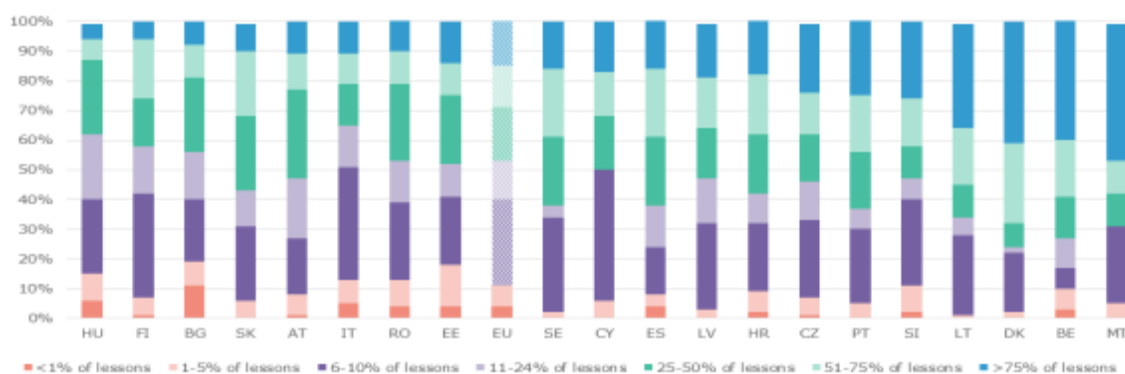
Digital technologies can support a variety of assessment methods aimed at different educational purposes, and they are increasingly adopted for national testing purposes. Still, capacity building for digital assessment is needed for learners, teachers, schools and education systems alike.

A growing body of evidence suggests that digital technologies and the internet can: (i) enrich education; (ii) offer new learning opportunities; and (iii) facilitate problem-based, personalised and interactive learning. In addition, digital technologies can improve learning outcomes in education and promote equity in learning for disadvantaged or disabled students¹⁵⁴. For this to happen, specific conditions need to be in place. They range from having the right equipment, to infrastructure, technical support, pedagogical support, vision, leadership, skills promotion systems, and policy structures¹⁵⁵. Without such conditions, research also shows that general programmes for increasing access to digital equipment risk having no effect on students' outcomes or – even worse – have detrimental effects on academic achievement¹⁵⁶.

3.1.1. Intensity of use of digital technologies for learning

Teachers design the learning activities of their students and are thus instrumental for implementing digital teaching and learning practices. A majority of students in the EU currently have teachers using digital technologies in at least a quarter of their classes (71% at primary level, 58% at lower secondary level; and 65% at upper secondary level). The intensity in use of digital technologies in classrooms across the three education levels, which almost doubled from 2011/2012, appears to be greatest in countries located in Northern Europe¹⁵⁷. As for the more intense users of digital technologies, respectively 19%, 15% and 30% of European students have teachers who use digital technologies in more than 75% of their lessons in primary, lower secondary and upper secondary schools (Figure 40).

Figure 40 – Intensity of use of digital technologies in lessons by teachers over 12 months (ISCED 2, in% of students, country and EU level, 2017-18)



Source: European Commission (2019) European Survey of Schools: ICT in Education (ESSIE).

¹⁵⁴ Rodrigues, M. and Biagi, F. (2017). [Digital technologies and learning outcomes of students from low socio-economic background: An Analysis of PISA 2015](#). A JRC Science for Policy report.

¹⁵⁵ The European Commission has responded to these needs by developing jointly with a high number of international experts the SELFIE tool. By using SELFIE, schools can diagnose what is working well in the use of digital technologies, where improvement is needed and what their priorities should be. The findings can help schools see where they are at and, from there, start a conversation on technology use and develop an action plan. SELFIE can then be used at a later stage to gauge progress and adapt these actions. See European Commission's [website on SELFIE](#) and JRC (2015). [A European Framework for Digitally-Competent Educational Organisations](#).

¹⁵⁶ See Escueta et.al (2017). [Education technology: An Evidence-Based Review](#). NBER Working Paper; and OECD (2015). [Students, Computers and Learning: Making the Connection](#), PISA.

¹⁵⁷ European Commission, DG CNECT (2019). [2nd Survey of Schools: ICT in education](#).

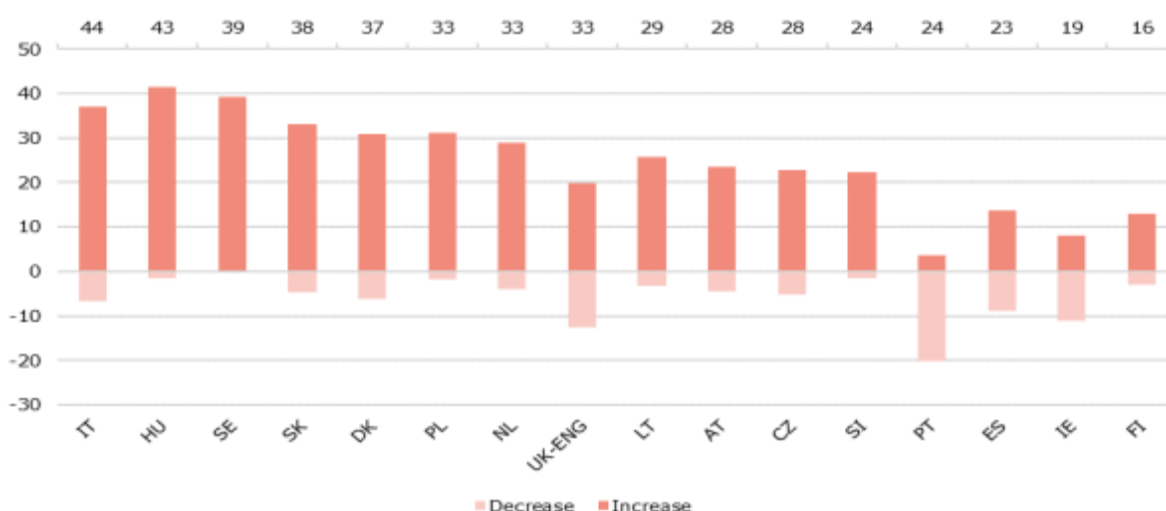
A recent OECD report shows that the overall use of digital technologies in primary and secondary schools increased in the Member States surveyed over the past decade¹⁵⁸.

Students use digital technologies for basic activities, such as internet searches, messaging, text editing, or using simple multimedia (i.e. presentation software). An average of 68% of lower secondary students and 73% of upper-secondary students across the EU use the internet at school for learning purposes at least weekly. In lower secondary education, this varies from 50% in Slovenia to nearly all students in Denmark. More advanced digital practices are rare, and students report they are less competent in digital problem solving and in more advanced digital content creation. However, on average students feel more confident than teachers in approaching more complex activities, such as programming.

Almost all students in upper-secondary education (90%) and primary education (94%) have teachers who use digital technologies to prepare lessons¹⁵⁹. And around 60% of students at all levels have teachers who use digital technologies to communicate with parents. Teachers report being very confident using digital technologies for activities such as emailing a file or producing a document, but less competent in creating more advanced digital content. Teachers also feel less confident in more complex digital tasks such as coding, programming or robotics.

In the classrooms, computers are used for many reasons: practising maths, science or foreign languages; simulations; writing; or just searching for information. In primary education, the increase in the use of digital technologies is almost equally distributed across education in maths, science and reading, with all three disciplines seeing large net increases. At the primary school level, the largest increase in the use of digital technologies took place in independent study practices particularly in maths, but also in science and reading. In general, these are practices where students read books, textbooks or other resources, or look up information on the internet during class. On the other hand, there was little change in the reading of science textbooks versus using the internet for finding information over the past decade. In secondary education, use of digital technologies decreased only in some levels of and specific practices in maths education in some Member States, while it increased in other parts of maths and science education in most Member States. Aggregated data from the SELFIE tool¹⁶⁰ show that the teaching practice which is most closely linked to fostering students' digital competence is engaging students in using digital technologies in cross-curricular projects.

Figure 41 – Innovation in the use of digital technologies in primary and secondary schools (2006-16)



Source: [OECD \(2019\). Measuring Innovation in Education 2019](#). – Figure 14.11.

¹⁵⁸ OECD, [Measuring Innovation in Education 2019](#).

¹⁵⁹ European Commission (DG CNECT) (2019). [2nd Survey of Schools: ICT in education](#)

¹⁶⁰ [Data from the SELFIE tool](#) from 25 October to 31 December 2018.

Note: The index synthesises innovation in computer and ICT use in school and during lessons, conditioned to the availability of computers in schools or lessons. The magnitude can be interpreted as an average effect size (multiplied by 100): levels below 20 can be considered as small, between 20 and 39 as moderate, and over 40 as large. The value on top is the composite index in ICT use computed by summing the absolute values of increases and decreases. For Finland (2011-2016), Ireland (2011-2016), Chile (2011-2015) and Portugal (2011-2016) the index has been calculated for an interval different from 2006-16 due to the unavailability of data.

Another way to use digital technologies for learning is by setting up projects with teachers and students from different schools, who collaborate by using digital technologies. Over the last 14 years, teachers and students have conducted more than 83,300 eTwinning¹⁶¹ projects both at European and national level. The core idea of eTwinning is to co-create educational projects in a collaborative way using digital technologies. In addition to their focus on how to use digital technologies, eTwinning projects primarily cover school curriculum subjects, and use digital technologies to touch on a wide variety of themes, including humanities, sciences, arts, and even sports. Finally, eTwinning projects offer a novel opportunity to teachers for on-the-job-training in digital professional learning communities.

3.1.2. Teacher preparedness to use digital technologies

Teachers commonly report that a lack of equipment (or malfunctioning equipment) prevents them from using digital technologies. They also point at two additional barriers: a lack of teaching models on how to use digital technologies, and their own insufficient personal skills in digital technologies.

In several EU countries, less than half of the teaching population had 'use of ICT for teaching' in their initial teacher education: Sweden (36.7%), Spain (38%), Austria (40.5%), Czechia (44.5%), Lithuania (45.3%), Portugal (46.9%), Denmark (46.7%), Croatia (47.3%), and the Netherlands (49.2%)¹⁶². When asked about their sense of preparedness for using digital technologies for teaching, 39.4% of teachers in the EU felt well or very well prepared for the use of digital technologies for teaching. In Austria and Finland, only 1 in 5 teachers confirmed feeling well prepared for the use of ICT in teaching. The proportion of teachers feeling well prepared for ICT for teaching remains below 30% also in the French Community of Belgium (27.9%), Czechia (27.7%), France (28.7%), the Netherlands (29.3%) and Estonia (27.7%). Only in Cyprus (61.8%), Hungary (65.7%), Romania (69.6%) and Slovenia (67%) more than 60% of teachers felt well prepared for the use of digital technologies for teaching.

Policy makers in the EU partially addressed the need of teachers of being better prepared to use ICT skills for teaching in the last years. In the group of newly educated teachers (those who received their initial teacher education after 2013), use of digital technologies for teaching was included in initial teacher education for at least 70% of teachers in all EU Member States, except Austria (68.3%). On average, younger teachers also feel better prepared to use 'ICT skills for teaching' than their more experienced colleagues. In the group of teachers trained after 2013, only Austria (33.1%) have less than half of the respondents reporting that they did not feel well prepared for using digital technologies for teaching after initial teacher education. 12 Member States have more than 60% of teachers in this group reporting to feel well prepared, with Cyprus and Slovakia reaching 70%, and Hungary, Romania, and Slovenia around 80%.

The use of 'teachers competence frameworks' can support better identification of the objectives of initial teacher education, and define the competence standards that teachers are expected to have. In a majority of European education systems, teachers' competence frameworks also address digital competences¹⁶³. In general, the frameworks emphasise that teachers have to know how to integrate digital technologies into their teaching, use digital material for educational purposes and create digital learning environments.

¹⁶¹ See [eTwinning website](#)

¹⁶² Data on use of ICT for teaching in initial teacher education and teachers' sense of preparedness from OECD TALIS 2018, Tables I.4.13 and Tables I.4.20.

¹⁶³ Data on the use of teachers' competence frameworks from European Commission/EACEA/Eurydice (2019). Digital Education at School in Europe. A Eurydice Report. Expected date of release: September 2019

Six Member States adopted a specific digital competence framework for teachers (Spain, Croatia, Lithuania, Austria) or describing the standards of effective school practices (Estonia and Ireland). In two of them, the digital competence frameworks for teachers also describe the digital standards for pupils and school heads (in Ireland) and the digital competences school heads should aspire to (in Croatia). Yet the use of these digital competence frameworks is only mandatory for the development of initial teacher education programmes in Estonia, Lithuania and Austria. Several of the digital competence frameworks currently used in Europe have been developed based on the Digital Competence Framework for Educators¹⁶⁴.

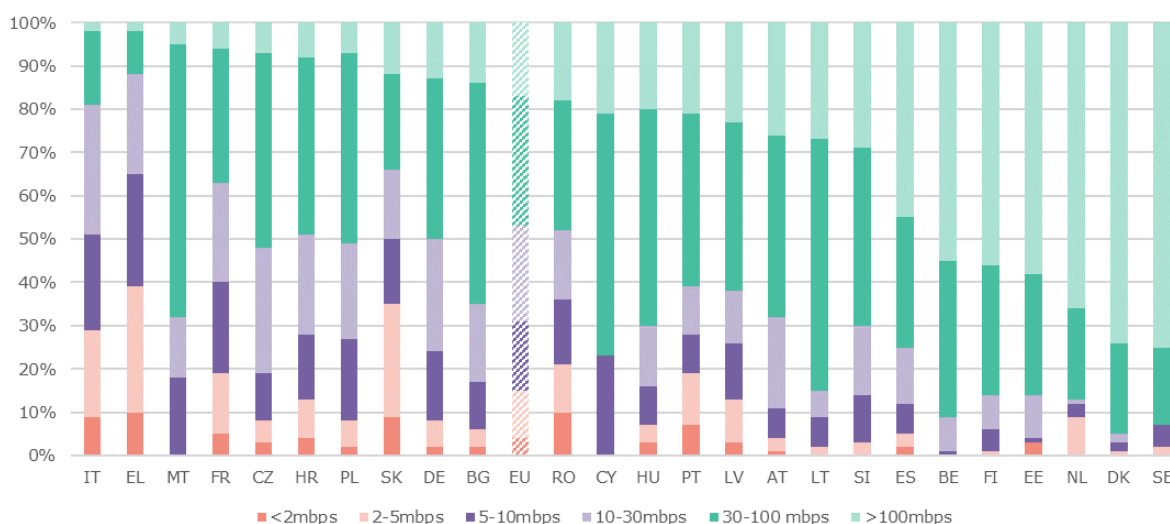
Consistently with the fact that teachers rank 'use of ICT skills for teaching' high in the list of training needs, and with the notion that teachers' are expected to be digitally competent, the 'use of ICT skills for teaching' remains a priority topic for initial teacher education, formative appraisal and continuing professional development of teachers.

3.1.3. Digital equipment and infrastructure in European schools

Across the EU, there has been significant investment in digital equipment and infrastructure in schools in the last decade. However, the lack of high-speed internet access is hindering the development of digital teaching methods in European schools.

The EU broadband target calls for all schools to have access to Gigabit internet connectivity by 2025¹⁶⁵. Being connected to the internet offers many advantages to schools, such as: (i) accessing up-to-date resources and specialised material; (ii) using platforms for collaboration; and (iii) supporting active learning and project work. Schools are increasingly using more bandwidth-heavy applications such as video conferencing, video streaming, online software, cloud computing, and virtual and augmented reality. The use of such applications call for increased broadband capacity. Despite a clear increase in fibre connections in recent years¹⁶⁶, average internet connectivity exceeds 100 megabits per second¹⁶⁷ in only 11% of primary schools, 17% of lower secondary schools and 18% of upper-secondary schools (Figure 42).

Figure 42 – Internet speed (ISCED 2, in% of students, country and EU level, 2017-18)



Source: European Commission (2019). European Survey of Schools: ICT in Education (ESSIE).

¹⁶⁴ The 'DigCompEdu' has been developed for educators at all educational levels, which the objectives of: (i) describing digital competence for educators; (ii) helping them assess their skills; and (iii) identifying their training needs. For further information see Redecker, C. (2017). European Framework for the Digital Competence of Educators: DigCompEdu.

¹⁶⁵ The Commission is using the Digital Education Action Plan to promote funding opportunities provided by the EU for connectivity. A voucher scheme will also be developed to support connectivity in schools.

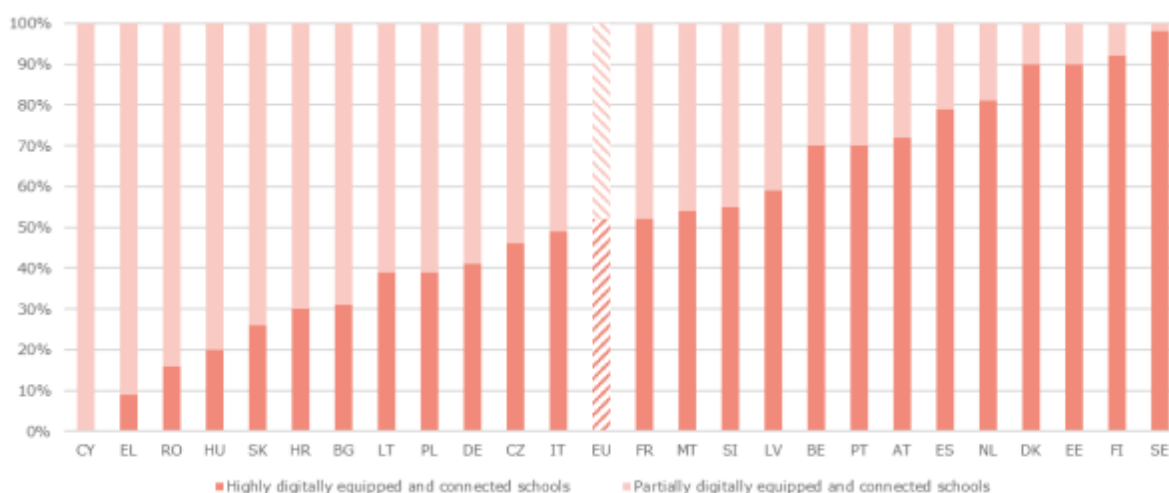
¹⁶⁶ Compared with European Survey of Schools: ICT in Education (ESSIE 2011-2012).

¹⁶⁷ Which represents only a tenth of the broadband target speed of at least one gigabit/s.

Despite the recent increase in use of devices in schools, the OECD found a marked drop in the availability of school-owned computers, laptops and tablets over the last decade¹⁶⁸. This might mark a growing awareness in Member State education systems about the appropriate level of availability of digital equipment for their schools' pedagogical purposes. In parallel, students increasingly own the digital devices used for learning at school – be they tablets, smartphones or laptops. This way of using equipment for instruction is labelled as 'bring your own device', and can be understood as a policy response to reduce the digital investment burden faced by schools. For example, on average 30% of lower secondary students in the EU (with large variations across EU Member States) use their own smartphones for learning at school at least once a week.

The 'Digitally equipped and connected schools'¹⁶⁹ index (Figure 43) qualifies information on IT infrastructure and equipment in education institutions¹⁷⁰. The index indicates large differences in Member States' policies and budget allowances for equipping schools in a digital environment. The index should be understood alongside other information about the digitalisation of education, as mere access to digital technologies does not automatically translate into high rates of use, nor into innovative teaching methods or better learning outcomes.

Figure 43 – Digitally equipped and connected schools (ISCED 2, in% of students, country and EU level, 2017-18)



Source: European Commission (2019). European Survey of Schools: ICT in Education (ESSIE).

A new estimate of the costs of equipping a standard classroom to make the most of digital technologies for learning was recently published¹⁷¹. The model covers four categories of investment: digital equipment; network requirements; professional development of teachers; and access to content. The model covers both standard equipment, such as laptops and networking components, and more novel digital tools such as 3D-printers, maker kits and hybrid courses. The model results estimate costs of a basic, intermediate and cutting-edge level school equipment. The estimate for fully equipping one cutting-edge classroom in the EU today is between EUR 230 and EUR 550 per student per year, depending on the cost levels in different EU Member States. The granularity of the model's construction can help policy makers to estimate the cost of further investments on top of already existing provisions.

¹⁶⁸ OECD (2019). [Measuring Innovation in Education 2019](#), Figure 14.10,

¹⁶⁹ European Commission, DG CNECT (2019). [2nd Survey of Schools: ICT in education](#).

¹⁷⁰ The index includes data for the schools' number of digital tools, the share of fully operational equipment, connectivity, speed and access to digital content.

¹⁷¹ European Commission DG CNECT (2019). [2nd Survey of Schools: ICT in education](#), HECC model.

3.1.4. Digital technologies, learning outcomes and assessment

Browsing the internet for schoolwork by students is associated with better learning outcomes in science¹⁷². On the other hand, activities such as using digital simulations for learning have a negative association with science learning outcomes. Such contrasting findings indicate that teaching methods are as crucial as technological tools in promoting learning outcomes. A recent review¹⁷³ of the impact of digital technologies in education shows that general programmes merely providing computers in classrooms in primary and secondary education have neither positive nor negative effects on learning outcomes. However, digital systems designed to tailor learning pathways for students produce consistent improvements in learning outcomes, in particular for mathematics. There is still a lot more to be learned on how digital technologies and teaching can be used to improve learning outcomes, such as how teachers interact with software and systems.

Digital technologies can support a variety of assessment methods for different educational purposes. They also have the potential to span the traditional divide between formative and summative assessment by: (i) embedding direct or indirect feedback in high-stakes assessment practices; and (ii) facilitating the assessment of natural tasks.

A recent Eurydice report¹⁷⁴ finds that in half of Member States' education systems, digital competence are never assessed at school through national testing. Only Austria has tests in digital competence at all school education levels. Latvia tests digital competence only at lower secondary level, while nine¹⁷⁵ other Member States have national tests on digital competence at both lower and general upper secondary level. In nine¹⁷⁶ Member States digital competence are tested only at general upper secondary level.

Countries carry out national tests for two main reasons: to evaluate and certify the competences of individual students; and to collect data that can be used to support students and teachers, and to evaluate schools and/or the education system as a whole. In most cases, the assessment of individual students' digital competence is the main focus of national tests, while only four Member States test pupils for quality assurance purposes (Croatia in lower secondary education; and Czechia, Estonia and Serbia in lower and upper secondary education). The testing of digital competence for quality assurance purposes is never carried out at primary level.

Although many more Member States have national tests at the upper-secondary level compared to other education levels, the cohort of students tested is limited. In 11 Member States¹⁷⁷ digital competence tests carried out for assessment/certification purposes only involve students on a particular educational pathway (e.g. STEM), or those who decide to take the specific test (for example for reasons linked to higher education admission requirements). Only in Bulgaria, Denmark, Malta and Romania are all upper secondary education students required to take a national test to assess their digital competence. In the four Member States where digital competence are assessed for quality assurance purposes, the cohort of students is limited as these tests are usually carried out on a sample basis.

The national tests carried out for assessment/certification purposes can either be a specific test in digital competence or related subject area (e.g. ICT), or a test in another competence area (e.g. mathematics), which also includes an assessment of digital competence. The latter approach exists only in a few Member States. In France this approach is used for lower secondary students, and in Denmark for lower and general upper secondary students.

Capacity building for digital assessment practices is needed for learners, teachers, schools and education systems alike. Learners should learn how to participate in co-construction of the education process, and they should be engaged in technologically supported self-assessment and

¹⁷² Rodrigues, M. and Biagi, F. (2017). [Digital technologies and learning outcomes of students from low socio-economic background](#): An Analysis of PISA 2015.

¹⁷³ Escueta et.al (2017). [Education technology: An Evidence-Based Review](#). NBER Working Paper.

¹⁷⁴ Data on use of national tests to assess pupils' digital competences from European Commission/EACEA/Eurydice (2019). Digital Education at School in Europe. Expected date of release: September 2019.

¹⁷⁵ Czechia, Denmark, Estonia, Greece, France, Croatia, Cyprus, Malta and Austria.

¹⁷⁶ Bulgaria, Lithuania, Hungary, Poland, Romania, Slovenia and the UK-England, UK-Wales and UK-Northern Ireland.

¹⁷⁷ Greece, France, Croatia, Cyprus, Lithuania, Hungary, Poland, Slovenia and the UK-England, UK-Wales and UK-Northern Ireland.

peer-assessment. Teachers are crucial in this learning process, as they act as the moderators of students' self-reflection and peer reflection. Teachers are also sensitive to students' different abilities, levels of knowledge, and need for support. At the system level, assessment frameworks should integrate various assessment approaches and clear strategies on how to use the outcomes. In particular, assessment frameworks should be developed so that they can feed 'big data' results from student learning systems back into the learning process.

3.2. Entrepreneurship education

Key findings

Developing and promoting entrepreneurship as a key competence for lifelong learning has been a key policy objective in the EU for many years. Even though there are different approaches and levels of engagement at the national level, entrepreneurship education is today a reality in most Member States.

About 48% of primary and secondary school students in Europe report having taken part in a practical entrepreneurial experience¹⁷⁸. Participation in such educational experiences is mostly optional (almost 30%) and only a few countries make attendance in such experiences compulsory in the curriculum. In higher education, entrepreneurship education is even more based on voluntary attendance, and registers lower participation rates. Approximately 35% of tertiary students report having taken part in a practical entrepreneurial experience.

Participation in entrepreneurship education increases the likelihood of engaging in entrepreneurial activities later in life by 35% on average. Of this 35%, a 7 percentage point's increase is due to improved self-perceptions by participants of their entrepreneurial skills.

Finally, partnerships between schools, businesses and community organisations help foster entrepreneurial learning, and also build learning networks among teachers. In Europe, only 19% of lower secondary teachers reported participating in observation visits to businesses, public organisations or non-governmental organisations in the previous year.

3.2.1. The impact of entrepreneurship education

The European Commission has strongly supported two key entrepreneurship policies in recent years: (i) fostering an entrepreneurial mind-set; and (ii) improving the quality and efficiency of education and training through entrepreneurship education¹⁷⁹. Education policy makers in the EU today recognise entrepreneurship skills as key skills that are applicable in many areas. Since 2018, education policy makers have also agreed on the importance of offering all pupils the opportunity of at least one entrepreneurial experience during their compulsory school education¹⁸⁰. Having an entrepreneurial mind-set is considered crucial for innovation, employment and participation in society.

¹⁷⁸ See European Commission (forthcoming). The Impact of Entrepreneurship Education in Europe. The survey is a self-reported assessment of young adults' perceived learning gains from their exposure to entrepreneurship education at primary, secondary and tertiary level based on panel surveys in all EU Member States and the EEA countries. The study takes the exposure to a practical entrepreneurial experience as the departure point and links this empirically to students' sense of entrepreneurial self-efficacy and their recent entrepreneurial activities. EU28 averages. Note that the concept definition and methodology of this study yields results that might differ from previous studies.

¹⁷⁹ [European Parliament resolution on promoting youth entrepreneurship through education and training](#) of 8 September 2015); Two European Commission Communications of 30 May 2017 on a [renewed EU agenda for higher education](#) and on [school development and excellent teaching for a great start in life](#); A European Communication [Rethinking education: Investing in skills for better socio-economic outcomes](#) of 20 November 2012; The [Entrepreneurship 2020 Action Plan](#) of 9 January 2013; and [Council conclusions on entrepreneurship in education and training](#), Official Journal C17/2 of 20 January 2015.

¹⁸⁰ Council of the EU (2018). [Council recommendation on Key Competences for Lifelong Learning](#) of 22 May 2018.

Entrepreneurship education is the process of equipping learners with entrepreneurial skills that enable them to act upon opportunities and ideas, and transform these opportunities and ideas into something of value for others. Education systems organize entrepreneurship education in a variety of ways, either as a separate activity or integrated in the curriculum as a cross-curricular objective¹⁸¹. Although it is a relatively recent area of research, existing evidence shows the benefits of entrepreneurship education for the individual as well as for society. By reinforcing entrepreneurship education, schools, vocational education institutions and universities can have a positive impact on the entrepreneurial dynamism of our economies. In short, entrepreneurship education makes young people more innovative in social, public and private sectors¹⁸².

In Europe, students can be exposed to practical entrepreneurial experiences during school or tertiary education, either by compulsory or voluntary attendance. A practical entrepreneurial experience is an educational experience where the learner has the opportunity to come up with ideas, identify a good idea, and turn the idea into action. The aim of such an opportunity is for learners to develop the skills, confidence and capability to spot opportunities, identify solutions and put their own ideas into practice in a learning environment that recognises and values failure as a learning tool. Evidence shows that in countries where practical entrepreneurial experiences are not yet a part of the formal curriculum, they may be offered through extracurricular activities, national programmes and initiatives with the participation of external partners¹⁸³. The involvement of stakeholders from the wider community is crucial, as it ensures that the entrepreneurial experience is relevant to the 'real world', outside the educational setting¹⁸⁴.

The Global Entrepreneurship Monitor, conducted by the Global Entrepreneurship Research Association, GERA, collects information on 'basic school entrepreneurial education and training'. In 2018, the index showed that Sweden, Latvia, Denmark and Netherlands had a high penetration of entrepreneurship education; but the penetration of entrepreneurship education was quite low in Croatia, Austria, Slovakia, Greece, Poland and Italy¹⁸⁵.

According to a study from the European Commission¹⁸⁶, about 48% of primary and secondary school students in Europe report having taken part in a practical entrepreneurial experience, either on a voluntary (almost 30%) or compulsory basis (almost 18%). The level of participation in such experiences has increased compared to previous analyses. This finding is notable given that the study only took into consideration exposure to practical entrepreneurial experiences, not courses or classes¹⁸⁷.

Within the EU, Bulgaria and Romania registered the highest percentage of penetration of practical entrepreneurial experiences in this same survey. In countries like Spain, Luxembourg, Denmark, France and Latvia, fewer than 40% of students were exposed to this type of experience, and in Finland it was fewer than 30%. At the same time, according to the results of the European Innovation Scoreboard 2018¹⁸⁸, Bulgaria and Romania are considered to be modest innovators; while Luxembourg, Denmark or Finland are recognised as top innovators. This apparent contradiction highlights that since entrepreneurship education is defined and implemented in different ways (as a separate subject, integrated in the curriculum or as a cross-curricular objective), measuring its level of penetration across Europe is particularly challenging¹⁸⁹.

¹⁸¹ European Commission/EACEA/Eurydice (2016). [Entrepreneurship Education at School in Europe](#). A Eurydice report. The report covers 26 EU Member States; data from Germany and Ireland is not available.

¹⁸² European Commission (2015). [Entrepreneurship Education: A road to success](#), news published on 28 January 2015.

¹⁸³ European Commission/EACEA/Eurydice (2016). [Entrepreneurship Education at School in Europe](#). A Eurydice report.

¹⁸⁴ European Commission (forthcoming). The Impact of Entrepreneurship Education in Europe. EAC Entrepreneurship Education Survey.

¹⁸⁵ [Global Entrepreneurship Monitor](#) (2018). EU Member States over 2.5 in Basic Entrepreneurial Education and Training on a scale from 1 to 5. See:

¹⁸⁶ European Commission (forthcoming). The Impact of Entrepreneurship Education in Europe. EAC Entrepreneurship Education Survey.

¹⁸⁷ For instance the 2012 Eurobarometer survey 'Entrepreneurship in the EU and beyond' highlighted that only 23% of EU respondents had taken part in any course or activity at school relating to entrepreneurship, defined as turning ideas into action and developing one's own project.

¹⁸⁸ European Commission (2018). [European innovation scoreboard](#). Released on 22 June 2018. The scoreboard provides a comparative analysis of innovation performance.

¹⁸⁹ European Commission (forthcoming). The Impact of Entrepreneurship Education in Europe. EAC Entrepreneurship Education Survey.

For instance, the Global Entrepreneurship Monitor collects information on 'basic school entrepreneurial education and training'. In 2018, the index showed that Sweden, Latvia, Denmark and Netherlands had a high penetration of entrepreneurship education; but the penetration of entrepreneurship education was quite low in Croatia, Austria, Slovakia, Greece, Poland and Italy¹⁹⁰.

The study from the European Commission looked in particular at formal participation in practical entrepreneurial experiences within and outside formal education. This means that countries that integrated entrepreneurship education transversally as a cross-curricular objective (as in the case of Finland for instance) may show a low percentage of penetration for practical entrepreneurial experiences, compared to the countries implementing entrepreneurship education mostly through extracurricular education. Another issue that may have affected the survey results is its methodology. The methodology was based on panel surveys¹⁹¹ and investigating adults' memory of their own participation and their perceived learning gains, which may have introduced biases that are difficult to address.

At EU level, the entrepreneurial experience most commonly reported by respondents was a practical entrepreneurial experience at school on a voluntary basis (around 30%)¹⁹². Overall, the share of respondents participating in a practical entrepreneurial experience on a compulsory basis in primary and secondary school was about 17%. At university or college level, the share of respondents that attended entrepreneurship education was about 35% across the EU, with more respondents reporting voluntary participation than compulsory courses. Progress has been made recently in delivering entrepreneurship education within universities and in cooperating with the business sector¹⁹³. In spite of this progress, further efforts are needed to build interdisciplinary approaches and support the teaching of entrepreneurship and innovation in higher education institutions in the EU¹⁹⁴.

The term 'self-efficacy' has gained recognition in the entrepreneurship literature as a crucial personal attribute of people who recognise and exploit opportunities. People with high self-efficacy usually believe that they can bring every activity to a successful conclusion and feel that they can control their own success, without depending on external factors such as the intervention of others or good luck¹⁹⁵. The study by the European Commission investigated the impact of entrepreneurship education on entrepreneurial self-efficacy, i.e. on whether respondents thought they had the skills to turn ideas and opportunities into action. On average, the proportion of respondents who participated in a practical entrepreneurial experience and reported entrepreneurial self-efficacy was 62.5% in the EU (Figure 45). Bulgaria was the country where the largest share of respondents reported entrepreneurial self-efficacy (about 81%), with Luxembourg having the lowest share (about 43%). This finding is consistent with the reported rates of participation in entrepreneurship education.

¹⁹⁰ The 2018 Global Entrepreneurship Monitor data: EU Member States over 2.5 in 'Basic Entrepreneurial Education and Training' on a scale from 1 to 5. See: [Global Entrepreneurship Monitor website](#).

¹⁹¹ The methodology of the study was based on survey panels (i.e. pre-recruited respondent panels). Respondents become 'panellists' by completing a profiling questionnaire in which the data collected included demographic and other personal characteristics; this allowed for pre-screening through probability sampling to maximise sample representativeness.

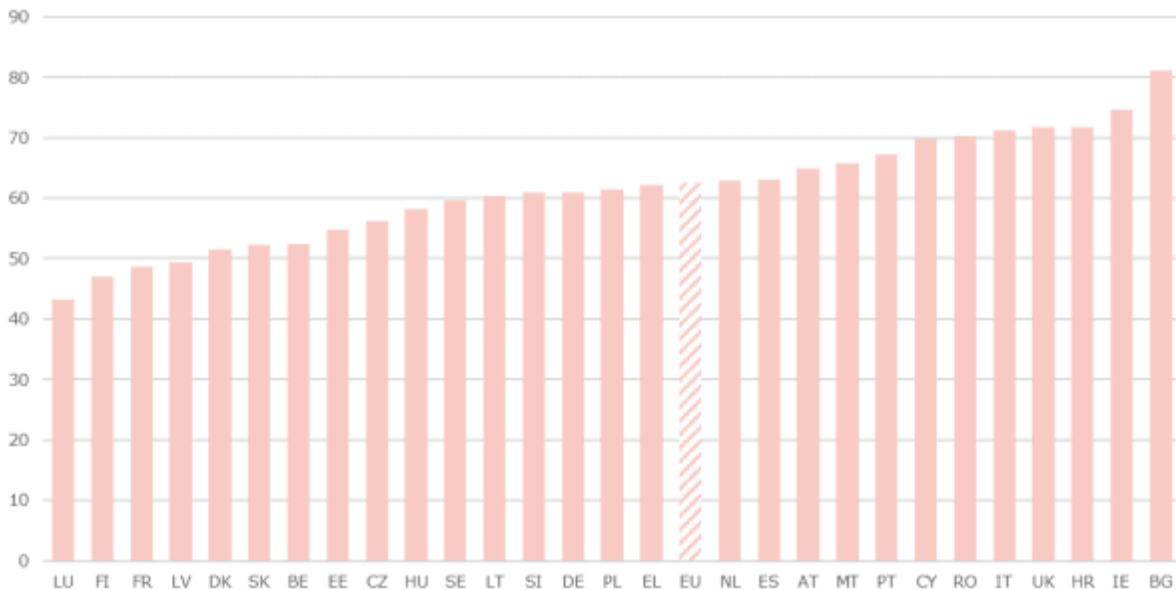
¹⁹² This result confirms what has been highlighted by previous research on the topic. See, for example, European Commission/EACEA/Eurydice (2016). [Entrepreneurship Education at School in Europe](#). A Eurydice report.

¹⁹³ C. Volkmann C., Audretsch D. B. (2017). [Entrepreneurship Education at Universities Learning from Twenty European Cases](#); Davey T., Meerman A., Galan Muros V., Orazbayeva B., Baaken T. (2018). [The state of university-business cooperation in Europe](#).

¹⁹⁴ [HEInnovate](#) is a guiding framework developed by the European Commission and the OECD to support innovation and entrepreneurship in higher education. It includes a self-assessment tool and country reviews providing recommendations for change and improvement, where needed. The tool has been used by more than 1 000 higher education institutions all around the world. So far 5 country reviews have been undertaken (Bulgaria, Hungary, Ireland, Poland and the Netherlands) and 4 more (Austria, Croatia, Italy, Romania) will shortly be published. On the role of higher education fostering an entrepreneurial mind-set among students, see also OECD (2018). [Entrepreneurship and Higher Education](#).

¹⁹⁵ European Commission (2012). [Effects and impact of entrepreneurship programmes in higher education](#).

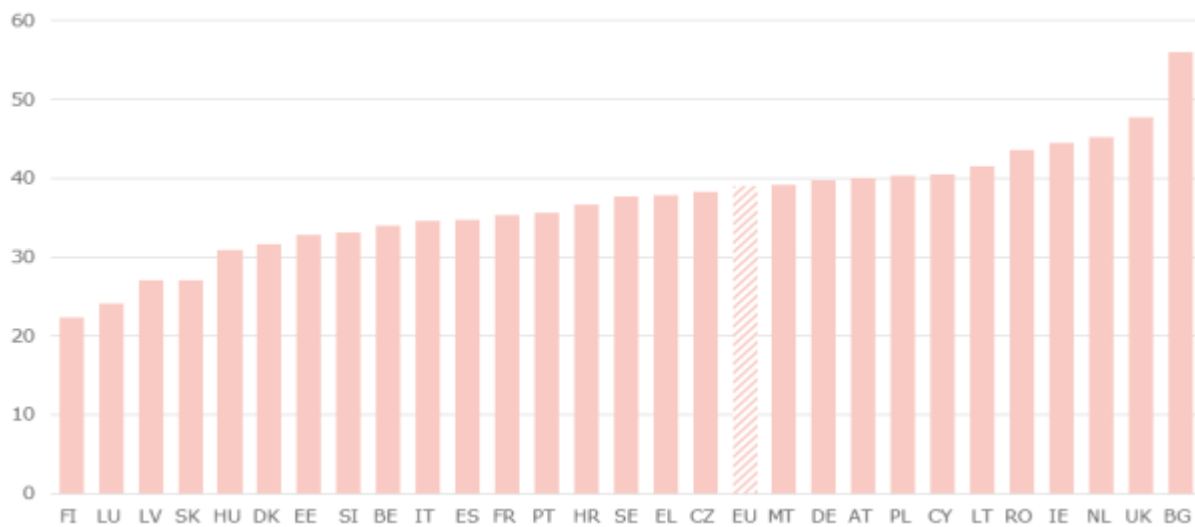
Figure 44 – Reported self-efficacy: Overall results by country and across the EU28 (%)



Source: European Commission, DG EAC, The 2018 Entrepreneurship Education Survey.

When respondents were asked whether they participated or were involved in any entrepreneurial activity (meaning if they had played a leading role in turning an idea or opportunity into action generating social, cultural or commercial value in the last 12 months), the average share of respondents across the EU reporting entrepreneurial action was 39%.

Figure 45 – Reported entrepreneurial activity in the last 12 months: overall results by country and across EU28 (%)



Source: European Commission, DG EAC, The 2018 Entrepreneurship Education Survey.

Exposure to entrepreneurship education is important because it increases the likelihood of engaging in entrepreneurial activity later in life by 35% on average. Of this 35%, a 7 percentage point's increase is due to improved self-perceptions by participants of their entrepreneurial skills¹⁹⁶.

¹⁹⁶ European Commission (forthcoming). The Impact of Entrepreneurship Education in Europe. EAC Entrepreneurship Education Survey.

From this, it appears that people's belief in their ability to turn ideas and opportunities into action can be increased by educational interventions, a finding that is supported by earlier case-study research¹⁹⁷. For example, the Global Entrepreneurship Monitor shows a strong correlation between perceived entrepreneurial capabilities and early-stage entrepreneurial activity¹⁹⁸. This shows how all forms of education (formal, informal and non-formal) are important in developing entrepreneurial skills.

Students that participate in entrepreneurship education are more likely to start their own businesses, and their companies tend to be more innovative and more successful than those led by people without entrepreneurship education backgrounds. Moreover, entrepreneurship education lowers the risk of being unemployed, and increases people's chances of finding steady employment, better jobs and better salaries¹⁹⁹.

3.2.2. Policy response

Back in 2016, only 5 education systems in the EU had a specific strategy on entrepreneurship education (Belgium, Croatia, Sweden, Finland, Estonia, and UK-Wales), while 15 had broader strategies which also covered other policy areas (Austria, Bulgaria, Czechia, Denmark, France, Greece, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia, Spain, and the UK-Northern Ireland and Scotland). Another 7 education systems had no relevant national strategies for entrepreneurship education (Italy, Cyprus, Luxembourg, the Netherlands, Malta, Portugal, and the UK-England)²⁰⁰. However, for instance in the Netherlands, entrepreneurship can be offered as (an elective) part of the curriculum or part of the work based learning. Greater employability is the most common strategic objective of entrepreneurship education. Important factors to promote entrepreneurship education include: (i) setting up national strategies to support entrepreneurship education; (ii) the availability of funding; and (iii) appropriate training and support for teachers and educators.

One of the elements hindering the development of entrepreneurship education at national level is the lack of a shared understanding of entrepreneurship as a competence, which can be developed based on a progression between education levels. In order to fill this gap, the European Commission in 2016 published a framework for entrepreneurship competence, *EntreComp*²⁰¹. *EntreComp* focuses on how people and organisations can address challenges and seize opportunities. Since its publication, the *EntreComp* framework has been widely used in the formal education sector, lifelong learning, inclusion initiatives, and businesses.

To inspire students and foster their entrepreneurial spirit, teachers need a wide range of creative and entrepreneurial skills. They also need to encourage students to embrace failure as a learning tool and to actively engage students through hands-on, real-life learning experiences. Teachers can be trained in entrepreneurship education in their initial training, their continuous professional development, or both. By studying in an institution that offers entrepreneurship education in a broad sense, prospective teachers can develop skills that enable them to be innovative and entrepreneurial in their own teaching. However, the integration of entrepreneurship education into initial teacher education curricula is not regulated in most EU countries. Only five EU education systems treat entrepreneurship education as a compulsory topic in initial teacher education, at least for some prospective teachers (Denmark, Estonia, Latvia, Austria and Slovakia)²⁰².

An average of 58% of teachers in the EU said that the teaching of cross-curricular skills necessary for entrepreneurial learning (such as creativity and problem solving) was included in their initial teacher training²⁰³. And only 43% of EU lower secondary teachers report that they felt ready to teach such skills in their classroom practice²⁰⁴. Typically, teacher training focuses on specific subject areas, and focuses less frequently on practical skills. However, between 2013 and 2018, there has been an overall increase in teachers' participation in training activities such as the

¹⁹⁷ European Commission (2015). [Entrepreneurship Education: A road to success](#), news item published on 28 January 2015.

¹⁹⁸ Global Entrepreneurship Monitor (GEM) data (2018). Index of 'total early-stage entrepreneurial activity', which captures the percentage of the population aged 18-64 who are either a nascent entrepreneur or owner-manager of a new business.

¹⁹⁹ European Commission (2015). [Entrepreneurship Education: A road to success](#), news published on 28 January 2015.

²⁰⁰ European Commission/EACEA/Eurydice (2016). [Entrepreneurship Education at School in Europe](#). A Eurydice report.

²⁰¹ European Union (2016). [EntreComp: The Entrepreneurship Competence Framework](#).

²⁰² European Commission/EACEA/Eurydice (2016). [Entrepreneurship Education at School in Europe](#). A Eurydice report.

²⁰³ OECD, [TALIS 2018](#), Table I.4.18.

²⁰⁴ OECD, [TALIS 2018](#), Table I.4.20.

teaching of cross-curricular activities in several EU Member States²⁰⁵. To implement entrepreneurship education, a school needs a clear vision, strong leadership, and alignment of the curriculum to its learning goals. Entrepreneurial learning can be fostered by partnerships with businesses and community organisations and by setting up learning networks among teachers. In Europe, only 19% of lower secondary teachers reported having participated in observation visits to business premises, public organisations or non-governmental organisations in the previous year²⁰⁶.

3.3. Foreign language education

Key findings

Multilingualism contributes to mutual understanding and mobility within the EU and helps to increase productivity, competitiveness and economic resilience. The EU is home to many official, regional and minority languages. Foreign language skills can promote mobility and social integration. Non-European languages are being widely spoken in many European cities as a result of immigration.

Overall in Europe, between 2005 and 2015, the number of pupils exposed to compulsory language learning grew, both in primary and secondary education. English is the foreign language most students learn during compulsory education, followed by French, German and Spanish.

Education systems set proficiency levels to be reached by students in foreign languages at the end of lower secondary and upper-secondary education – typically A2 and B2 respectively. However, the only source of comparable data on language proficiency in Europe, shows that only 42% of tested students reached the level of independent user (B1+B2 in the Common European Framework of Reference for languages) in their first foreign language, and only 25% reached this level in their second foreign language. Moreover, a large number of pupils did not even achieve the level of a basic user: 14% failed to achieve this basic level for their first foreign language and 20% failed to achieve it for their second foreign language.

Foreign language skills play an increasingly important role in making young people more employable and equipping them for working abroad. They are also a factor in competitiveness. Improving language education in Europe promotes mutual understanding and mobility within the EU and helps to increase productivity, competitiveness and economic resilience. Language forms the basis of the cognitive and social development of a child; and the benefits of multilingualism influence all aspects of life. The lack of language skills is a barrier to mobility within the EU, for both education/training and access to the European labour market.

3.3.1. Europe's multilingualism

Europe's languages are an important part of the continent's cultural heritage. Europe's linguistic landscape has been shaped by regional diversity, centuries of nation-making, and recent migrations – and from outside – Europe. In addition to over 60 languages in Europe with an official status, and the 26 official state languages, the EU is home to a multitude of indigenous regional or minority languages, spoken by some 40 million people.

In the EU, there is also a number of living languages that are spoken in regions of different sizes and with different degrees of official recognition. These languages include minority, indigenous, and regional languages. For example, they include Breton, Welsh, Irish, and Scottish Gaelic. Sami is recognised as a national minority language in Finland and Sweden. German and French are recognised as minority languages in Italy in the special-status autonomous regions of Trentino-South Tyrol and the Aosta Valley respectively. Sardinia, another autonomous region of Italy,

²⁰⁵ Bulgaria, Croatia, Cyprus, Czechia, Denmark, UK-England, Estonia, Finland, Belgium (Flemish Community), France, Italy, Latvia, the Netherlands, Portugal, Romania, Slovakia, Spain and Sweden.

²⁰⁶ OECD, [TALIS 2018](#), Table I.5.7.

recognises the Sardinian language as an official language. And finally, several EU Member States recognise minority languages at various levels of territorial governance. Examples include the Romansh Ladino, Cimbrian and Mochoeno in certain communes of the mountainous North of Italy; the Mirandese language in three small municipalities in north-eastern Portugal and the Kashubian language in Poland.

Intra-European migrations, either as part of the EU's right to free movement or pre-dating this right, have resulted in a sizeable presence of Spanish and Portuguese being spoken in Luxembourg, and of Polish being spoken in Ireland and other countries. Russian is spoken by sizeable populations in the Baltic States. In Bulgaria, Turkish is spoken as a first language by 8.5% of the population, reflecting Bulgaria's period of Ottoman control. There are also Hungarian-speaking minorities in Romania (1.2 million) and Slovakia (460 000).

Post-war immigration from outside the EU brought languages to the EU that were previously rarely spoken in Europe. As a result, there is now a strong presence in the EU of Turkish and various dialects of Arabic, especially Moroccan. Among the migrants originating from Turkey there are also non-Turkish ethnicities such as Kurds, speaking Kurdish languages, and different Assyrian groups who partially preserved the heritage of the ancient Aramaic language. Other languages spoken in Europe as a result of migration include Pashtu, Persian, Mandarin Chinese, Urdu, Hindi and various languages of sub-Saharan Africa.

All these languages contribute to Europe's linguistic diversity. While seeking to preserve Europe's linguistic diversity and heritage, the EU is working with Member States to improve Europeans' language skills. Regional minority languages can be valued as an integral part of a person's language abilities along with their national language and a foreign language.

Language skills are critical to make the European Education Area a reality. Raising the ambition for foreign language learning will make it more likely that students will have the language skills necessary for studying and working in another EU Member State. Increased mobility for language teachers will also help deal with the shortages of qualified language teachers that are currently faced by several countries.

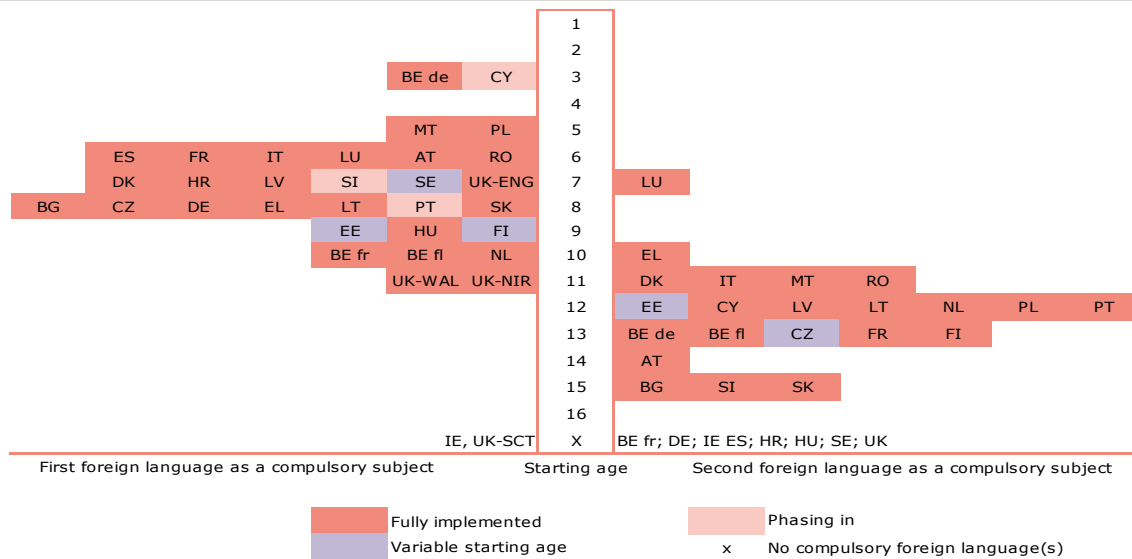
3.3.2. Teaching foreign languages at school

In 2002, all EU countries agreed on taking action to teach 'at least two foreign languages from a very early age'²⁰⁷. A recent report based on Eurydice data offers an insight into how EU countries implement language learning in school education²⁰⁸. Between 2005 and 2014, the proportion of primary school children in Europe learning at least one foreign language grew from 67.3% to 83.7%. European children generally start learning a first foreign language as a compulsory subject during primary education. In most EU countries, the age when a first foreign language becomes a compulsory subject in school ranges between 6 and 8.

²⁰⁷ [Presidency conclusions](#) of the European Council in Barcelona, March 2002.

²⁰⁸ Data in this section from European Commission/EACEA/Eurydice (2017). [Key data on teaching languages at school in Europe – 2017 edition](#).

Figure 46 – Starting ages of first and second foreign languages as compulsory subjects 2016.



Source: European Commission/EACEA/Eurydice (2017). [Key data on teaching languages at school in Europe](#).

Note: In Belgium (German Community), all children enrolled in pre-primary education start learning French as early as 3 years old. French is a 'foreign' language in the sense that it is not the first language of Belgium (German Community), but at the same time French is the official language of Wallonia where the German-speaking community lives. Several countries (including France and Sweden) have introduced reforms that are not yet visible in the Eurydice data collection and therefore not in this chart.

The starting age for the second foreign language tends to be higher, and ranges from 11 to 13. Usually, this corresponds with the end of primary education or the beginning of secondary education (with the exception of Luxembourg, where all students learn a second foreign language from the age of 7). In line with developments in the primary school curriculum, the proportion of lower secondary school pupils learning two foreign languages also grew between 2005 and 2014, from 46.7% to 59.7%.

Another way of analysing the teaching of languages at schools is to look at the recommended minimum number of hours dedicated to teaching foreign languages. In most European countries, the share of instruction time dedicated to language learning during primary school ranges between 5% and 10%. Belgium (German Community), Greece, Spain, Croatia, Latvia, and Malta, apply a higher-intensity model. In Luxembourg, Luxembourgish, German and French are studied throughout all stages of school education, reflecting the specific linguistic context of the country. Recommended minimum instruction time for foreign language teaching at secondary level shows that actually decreased in most EU Member States between 2010/11 and 2015/16 (Figure 47).

Figure 47 – Trends in the recommended minimum number of hours of compulsory foreign language teaching in full-time compulsory general secondary education 2011 – 2016



Source: European Commission/Eurydice/EACEA (2017). [Key data on teaching languages at school in Europe](#).

Note: *the UK applies flexible time allocation except Scotland, where foreign languages are not compulsory (see also previous figure). Countries are sorted by hours in ascending order. In Austria, 'AHS' stands for 'Allgemein bildende höhere Schule' and 'NMS' for 'Neue Mittelschule'.

Recently, EU ministers for education reaffirmed their commitment to promoting language learning and language awareness more broadly²⁰⁹. The role of teachers is also critical in language learning. Investing in initial education and continuing development of teachers (not only for the portfolio of languages that can be taught in schools but also to help teachers deal with linguistic diversity in the classrooms), is the top policy priority for the coming years. The next most important priority is to ensure dedicated support for the mobility of learners and teachers. English is the foreign language learnt by most students during compulsory school education, followed by French, German and Spanish.

Figure 48 – Proportion of pupils learning English, French, German and Spanish as foreign languages in lower secondary education, 2017

| | English % | French % | German % | Spanish % |
|-------|----------------|----------------|----------------|-----------------|
| BE fr | 44.8 | not applicable | 15 | not applicable* |
| BE fl | 52.4 | 101.9° | 0.0 | 0.0 |
| BG | 89.4 | 2.0 | 6.0 | 16 |
| CZ | 97.9 | 3.0 | 47.9 | 2.4 |
| DK | 100.0 | 9.7 | 76.1 | not applicable* |
| DE | 101.3° | 24.0 | not applicable | 4.2 |
| EE | 95.8 | 3.0 | 10.9 | 0.2 |
| IE | not applicable | 55.0 | 22.7 | 17.9 |
| EL | 99.5 | 47.6 | 48.0 | 0.1 |
| ES | 100.2° | 41.9 | 4.6 | not applicable |
| FR | 99.3 | not applicable | 15.5 | 54.1 |
| HR | 97.9 | 14 | 46.2 | 0.1 |
| IT | 99.6 | 64.2 | 9.3 | 23.1 |
| CY | 99.9 | 85.6 | 0.6 | 0.6 |
| LV | 97.3 | 2.6 | 13.5 | 0.2 |
| LT | 97.2 | 3.8 | 12.0 | 0.0 |
| LU | 58.5 | not applicable | not applicable | 0.0 |
| HU | 71.0 | 0.5 | 29.9 | 0.2 |
| MT | 100.0 | 31.5 | 13.1 | 10.9 |
| NL | 93.9 | 55.5 | 49.9 | 18 |
| AT | 99.9 | 4.3 | not applicable | 1.1 |
| PL | 98.2 | 3.3 | 70.0 | 3.7 |
| PT | 95.0 | 69.7 | 1.5 | 19.5 |
| RO | 99.9 | 82.2 | 12.2 | 0.5 |
| SI | 98.5 | 1.8 | 30.7 | 1.9 |
| SK | 97.0 | 1.6 | 43.0 | 0.7 |
| FI | 99.4 | 5.7 | 10.8 | 2.5 |
| SE | 100.0 | 15.0 | 19.5 | 42.6 |

Source: Eurostat, UOE. Online data code: [[educ_uoe_lang01](#)].

Note: *The French Community of Belgium and Denmark do not offer Spanish courses, hence the reported value is 'not applicable'. °The Flemish Community of Belgium, Spain and Germany report values over 100%. These should be interpreted as including extra-curricular language courses. The linguistic composition of a country can explain some of the scores above. E.g. English is only the second foreign language taught in Flemish schools, while French is the first foreign language. This reflects the cultural, linguistic and political context of Belgium.

²⁰⁹ [Recommendation on a comprehensive approach to the teaching and learning of languages](#), adopted by the Council of the European Union, 22 May 2019.

3.3.3. Assessment of the command of languages

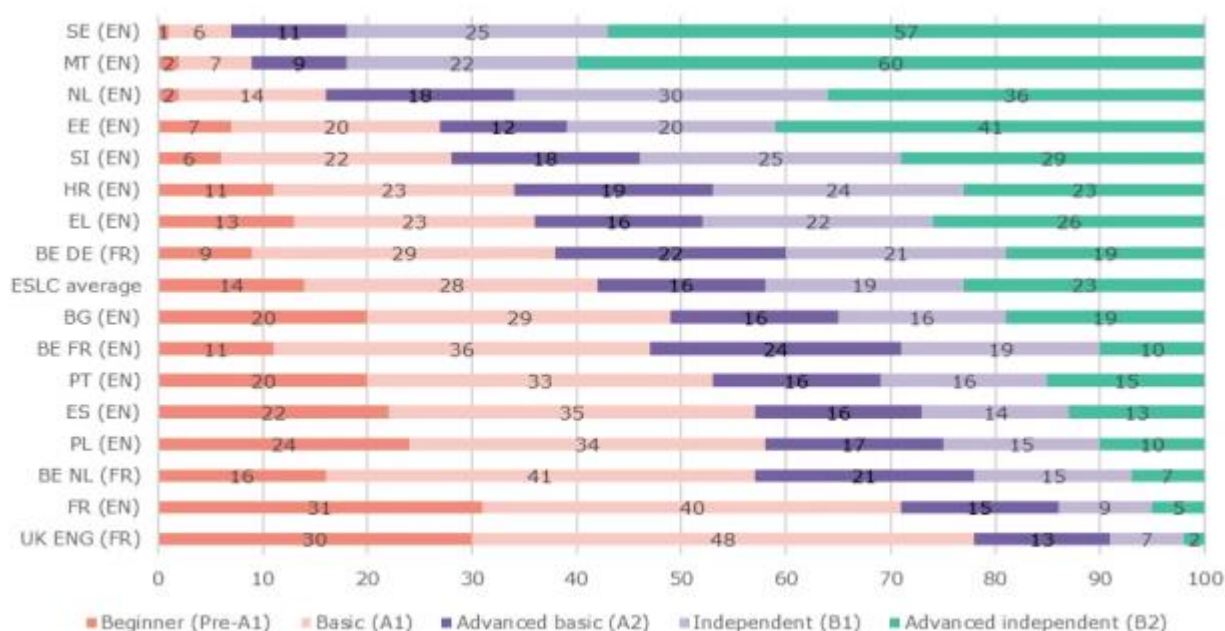
Command of foreign languages encompasses speaking skills, listening comprehension, writing, reading, knowledge of the cultural context, and knowledge of a multitude of different language registers. This means that language learning is not only a task for language teachers. Integrating languages into other subjects or other parts of school life provides a more authentic learning experience, as pupils are learning in real-life situations.

School curricula set expected proficiency levels for language learning. Typically, expected proficiency levels are higher for the first foreign language than the second one. For the first foreign language, most countries require pupils to reach level B2 in the Common European Framework of Reference at the end of upper secondary (and it varies between A2 and B1 at the level of lower secondary education)²¹⁰.

As of today, the 2011 European Survey on Language Competences²¹¹ remains the only language test ever conducted at European level. The survey tested 54 000 pupils in 16 educational systems, and covered the two most widely taught foreign languages in all concerned education systems. The survey tested writing, reading and listening comprehension. It did not test oral expression. The pupils sitting the test were between the end of lower secondary and the beginning of upper secondary school, with most of them aged 14-15.

The survey showed (Figure 49) low overall level of skills in both first and second foreign languages tested. Only 42% of tested students reached the level of independent user (B1+B2 in the Common European Framework of Reference for languages) in their first foreign language, and only 25% reached this level in their second foreign language. Moreover, a large number of pupils did not even achieve the level of a basic user: 14% failed to achieve this basic level for their first language and 20% failed to achieve it for their second foreign language.

Figure 49 – Percentage of pupils achieving different CEFR levels in first foreign language (average scores for reading, listening and writing)



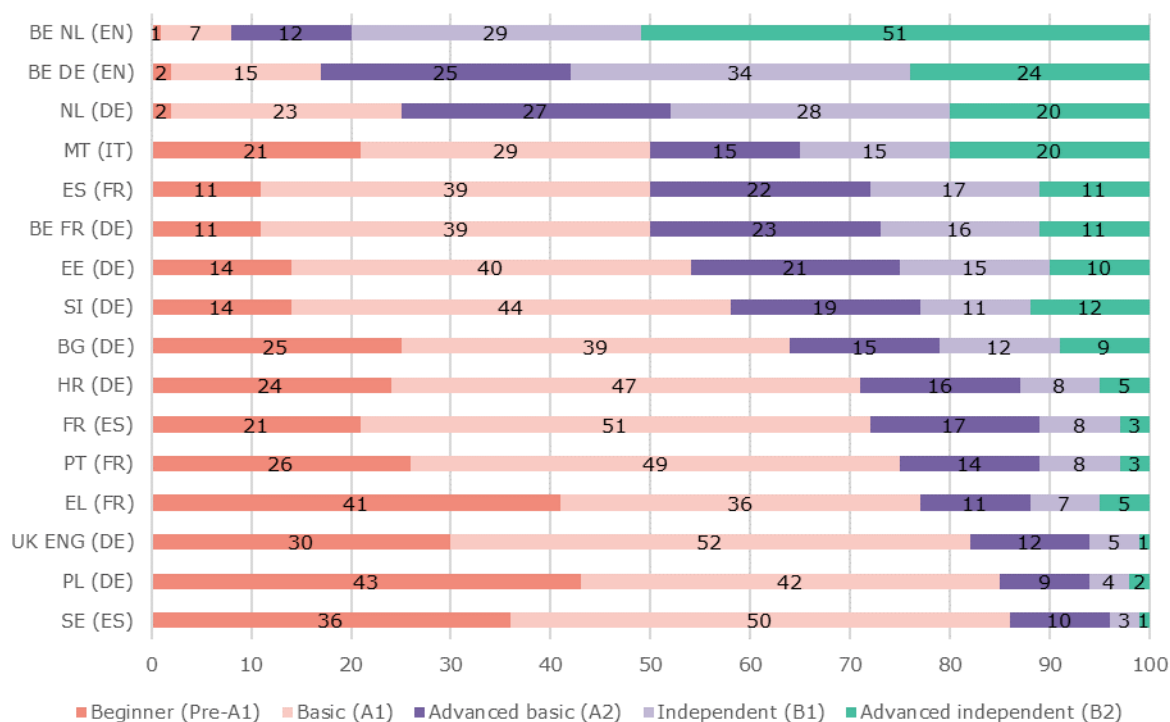
Source: The 2011 European Survey on Language Competences, full report available [here](#).

Note: The foreign language tested is indicated in brackets next to the country label. The first foreign language tested was English in all countries except for the Belgian Flemish Community, the Belgian German Community and the UK where the first foreign language tested was French.

²¹⁰ European Commission/EACEA/Eurydice (2017). [Key data on teaching languages at school in Europe](#) – 2017 edition

²¹¹ See: the [2011 European Survey on Language Competences](#) website.

Figure 50 – Percentage of pupils achieving different CEFR levels in second foreign language (average scores for reading, listening and writing)



Source: The 2011 European Survey on Language Competences, full report available [here](#).

Note: The foreign language tested is indicated in brackets next to the country label. The first foreign language tested was English in all countries except for the Belgian Flemish Community, the Belgian German Community and the UK, where the first foreign language tested was French.

National education systems also conduct national tests of the language skills of their pupils. These national tests are not coordinated at European level. In 2015, a European Commission study looked at national language examinations in secondary schools to assess the comparability of results across Europe. Unfortunately, the study concluded that national assessments do not allow for robust international comparisons²¹².

In all countries, except Belgium (French Community) and Italy, the foreign language certificate issued by national testing systems indicates the assessment results and/or provides information on the attainment levels achieved by students²¹³. At the time of the 2015 study, seven countries used the attainment scale defined by the Common European Framework of Reference (CEFR) for their national assessments (Estonia, France, Latvia, Lithuania, Austria, Romania, Slovakia and Finland). Eight countries reported on student achievement using a different scale (Denmark, Greece, Latvia, Lithuania, Luxembourg, Hungary, Sweden and the UK-Scotland). Latvia and Lithuania refer to both the CEFR scale and their own scale in their language testing certificates.

In a recent 2018 Flash Eurobarometer among 15-30 year-olds, 85% of respondents stated that they wished to improve their proficiency in a language they have already learned (mainly English). This indicates that the survey respondents were not satisfied with the level they achieved at the end of compulsory education or they did not have a chance to maintain their level. One third of surveyed young Europeans said they were unable to study in a language other than the one they used in school (i.e. often the mother tongue).

²¹² European Commission (2015). [Study on comparability of language testing in Europe](#).

²¹³ European Commission/Eurydice/EACEA (2017). [Key Data on Teaching Languages at School in Europe](#), 2017 Edition.

Part 4

Investment in education



4. Investment in education

4.1. Overview of spending on education

Key findings

In 2017, EU Member States invested on average 4.6% of their GDP in their education systems. This share has been slightly but continuously decreasing since 2014, when it was 4.9%. At EU level, investment in education as a proportion of total public expenditure has remained remarkably stable between 2014 and 2017, at 10.2%.

On average, EU countries spend 32% of their public education expenditure on pre-primary and primary education; 41% on secondary, post-secondary and non-tertiary education; and 15% on tertiary education. A breakdown of recent trends in expenditure by education level reveals a minor shift of resources from secondary and post-secondary education (-1.3%) towards greater investment in pre-primary and primary education (+1.4%), as well as tertiary education (+1.7%).

Salaries constitute the largest proportion of education budgets across the European Union, representing 62% at EU level, and ranging from 45% in Sweden to 82% in Greece.

Public spending²¹⁴ on education can be analysed using different indicators, depending on the purpose of the analysis. These indicators are outlined in the bullet points below.

- **Public expenditure on education as a percentage of GDP** portrays the absolute public investment put into education in relation to the productive capacity of the country.
- **Public expenditure on education as a percentage of total public expenditure** measures the priority given to education compared to other areas of public spending.
- **The real change in year-on-year expenditure** shows by what percentage overall spending has changed compared to the previous year, adjusted for inflation.
- **Expenditure per student** is calculated by dividing total expenditure at each education level by the number of (full-time equivalent) students enrolled in the corresponding level of education.

In 2017, EU Member States invested 4.6% of their GDP in their education systems on average. This proportion has been slightly but continuously decreasing since 2014, when it stood at 4.9%. As important contextual information, however, it should be noted that GDP in the EU28 grew in real terms by 2.3% in 2015, 2.0% in 2016 and 2.5% 2017²¹⁵.

Investment in education as a proportion of total public expenditure remained remarkably stable between 2014 and 2017, at 10.2%. It is important to note that spending levels only partially reflects discretionary decisions, as they incorporate spending constraints linked to exogenous or non-discretionary factors, such as demographic change and salary adaptations.

In 2017, 4 Member States expanded their investment in education by more than 5% in real terms compared to the previous year (Bulgaria, +8.4%; Czechia, +5.3%; Latvia, +10%; and Portugal, +6.4%), whereas Romania cut spending on education by 15%. Increases in 21 out of 28 Member States are a sign of recovery in investment in education. Taken together, the changes amounted to an average year-on-year change of 0.5% in 2017 at EU level.

²¹⁴ The data presented in this section comes from the [COFOG](#) data base ('General Government Expenditure by Function').

²¹⁵ Eurostat, 'real GDP growth rate - volume' [[TEC00115](#)]

Figure 51 – Public expenditure on education, 2017 (%)

| | Year-on-year real change* | | | | As a% of total public expenditure | | | | As a% of GDP | | | |
|----|---------------------------|------|------|-------|-----------------------------------|------|------|------|--------------|------|------|------|
| | 2014 | 2015 | 2016 | 2017 | 2014 | 2015 | 2016 | 2017 | 2014 | 2015 | 2016 | 2017 |
| EU | 1.4 | 1.1 | 0.3 | 0.5 | 10.2 | 10.2 | 10.2 | 10.2 | 4.9 | 4.8 | 4.7 | 4.6 |
| BE | 0.7 | 3.3 | -0.1 | 1.9 | 11.5 | 11.9 | 11.8 | 12.1 | 6.4 | 6.4 | 6.3 | 6.3 |
| BG | 12.0 | 3.2 | -9.1 | 8.4 | 9.5 | 9.8 | 9.8 | 10.2 | 4.1 | 4.0 | 3.4 | 3.6 |
| CZ | 3.6 | 0.5 | -7.1 | 5.3 | 12.1 | 11.8 | 11.3 | 11.9 | 5.1 | 4.9 | 4.5 | 4.6 |
| DK | 6.5 | 1.3 | -0.6 | -2.7 | 12.9 | 12.9 | 12.9 | 12.7 | 7.1 | 7.0 | 6.8 | 6.5 |
| DE | 0.8 | 0.9 | 1.8 | 1.1 | 9.6 | 9.5 | 9.4 | 9.3 | 4.2 | 4.2 | 4.1 | 4.1 |
| EE | -5.9 | 4.9 | -3.2 | 3.7 | 14.9 | 15.1 | 14.6 | 14.8 | 5.6 | 6.0 | 5.8 | 5.8 |
| IE | 0.0 | 1.8 | 4.0 | 3.0 | 11.6 | 11.4 | 12.1 | 12.4 | 4.3 | 3.3 | 3.3 | 3.3 |
| EL | -6.1 | -1.1 | -4.2 | -2.1 | 8.6 | 7.8 | 8.2 | 8.2 | 4.3 | 4.2 | 4.0 | 3.9 |
| ES | 0.6 | 3.0 | 2.0 | 2.5 | 9.1 | 9.4 | 9.6 | 9.7 | 4.1 | 4.1 | 4.0 | 4.0 |
| FR | 1.2 | 1.6 | 2.0 | 1.1 | 9.6 | 9.6 | 9.6 | 9.6 | 5.5 | 5.4 | 5.5 | 5.4 |
| HR | -2.9 | 2.3 | 2.6 | 0.5 | 10.0 | 10.0 | 10.2 | 10.5 | 4.8 | 4.8 | 4.8 | 4.7 |
| IT | -1.0 | -0.1 | -1.8 | 0.4 | 7.9 | 7.9 | 7.8 | 7.9 | 4.0 | 3.9 | 3.8 | 3.8 |
| CY | -9.7 | 1.1 | 2.8 | 0.9 | 12,3 | 14,7 | 15,5 | 15,3 | 6,0 | 6,0 | 5,9 | 5,7 |
| LV | 5,6 | 0,0 | -4,8 | 10,0 | 15,5 | 15,5 | 14,8 | 15,2 | 5,9 | 5,9 | 5,5 | 5,8 |
| LT | -3,7 | -2,4 | -4,0 | -1,7 | 15,5 | 15,5 | 15,1 | 14,8 | 5,4 | 5,4 | 5,1 | 4,9 |
| LU | -3,3 | 1,3 | 1,2 | 3,8 | 11,2 | 11,1 | 10,9 | 10,9 | 4,7 | 4,7 | 4,6 | 4,7 |
| HU | 14,5 | 3,3 | -5,9 | 4,5 | 10,3 | 10,3 | 10,5 | 10,8 | 5,1 | 5,1 | 4,9 | 5,1 |
| MT | 4,5 | 6,8 | 4,3 | 1,7 | 13,4 | 13,3 | 14,3 | 13,9 | 5,5 | 5,3 | 5,2 | 4,9 |
| NL | 0,6 | 1,4 | 2,2 | 1,2 | 11,6 | 11,7 | 12,0 | 12,1 | 5,3 | 5,2 | 5,2 | 5,1 |
| AT | -0,4 | 0,9 | 1,9 | 0,8 | 9,4 | 9,6 | 9,8 | 9,9 | 4,9 | 4,9 | 4,9 | 4,8 |
| PL | 3,7 | 3,6 | -3,3 | 3,3 | 12,4 | 12,7 | 12,1 | 11,9 | 5,3 | 5,3 | 5,0 | 4,9 |
| PT | -1,3 | -7,4 | -3,8 | 6,4 | 11,0 | 10,5 | 10,7 | 10,9 | 5,7 | 5,1 | 4,8 | 5,0 |
| RO | 9,2 | 5,8 | 0,3 | -14,9 | 8,4 | 8,5 | 9,6 | 8,4 | 3,0 | 3,1 | 3,3 | 2,8 |
| SI | -4,4 | -4,8 | 1,2 | 1,6 | 12,0 | 11,6 | 12,2 | 12,6 | 6,0 | 5,5 | 5,5 | 5,4 |
| SK | 6,3 | 5,4 | -7,2 | 0,0 | 9,8 | 9,3 | 9,3 | 9,4 | 4,1 | 4,2 | 3,8 | 3,8 |
| FI | -0,4 | -0,8 | 1,5 | -3,6 | 11,0 | 10,9 | 10,9 | 10,5 | 6,4 | 6,2 | 6,1 | 5,7 |
| SE | 2,3 | 2,4 | 4,4 | 2,3 | 12,9 | 13,1 | 13,4 | 13,7 | 6,6 | 6,5 | 6,7 | 6,8 |
| UK | 3,3 | -0,8 | -0,5 | -2,3 | 12,0 | 11,7 | 11,6 | 11,3 | 5,2 | 5,0 | 4,8 | 4,6 |

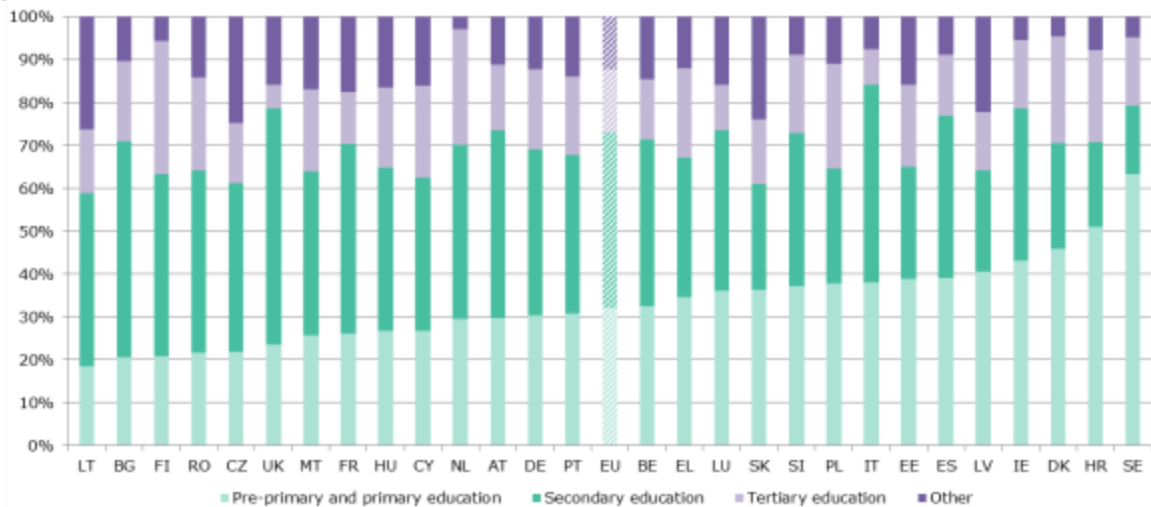
Source: Eurostat, General Government Expenditure by Function (COFOG), online data base: [\[gov_10a_exp\]](#).

Note: The 'real' change is a change that is adjusted by inflation.

On average, EU countries spend 32% of their public education expenditure on pre-primary and primary education; 41% on secondary and post-secondary non-tertiary education; and 15% on tertiary education. A breakdown of recent trends in expenditure by education level reveals a minor shift of resources from secondary and post-secondary education (-1.3%) towards greater investment in pre-primary and primary education (+ 1.4%), as well as tertiary education (+ 1.7%).

Different countries focus their expenditure on different stages of education. For example, in 2017 Latvia spent 18% of its education budget on pre-primary and primary education, while Sweden allocated 63% of its education budget to pre-primary and primary education.

Figure 52 – Public expenditure on education by level, 2017



Source: Eurostat, COFOG, online data base: [\[gov_10a_exp\]](#).

Note: One important limitation of the current COFOG register is that pre-primary and primary education are reported together in a single category of spending. Some countries treat pre-primary education as 'social protection' spending rather than education. This accounting issue limits comparability between countries. The category 'other' contains: 'not definable by level', 'subsidiary services to education', 'R&D education' and 'not elsewhere categorised'. Another point is post-secondary is included in the secondary education expenditure category. Non-availability of the post-secondary data for Bulgaria yielded it to be counted as zero in calculations counted as zero.

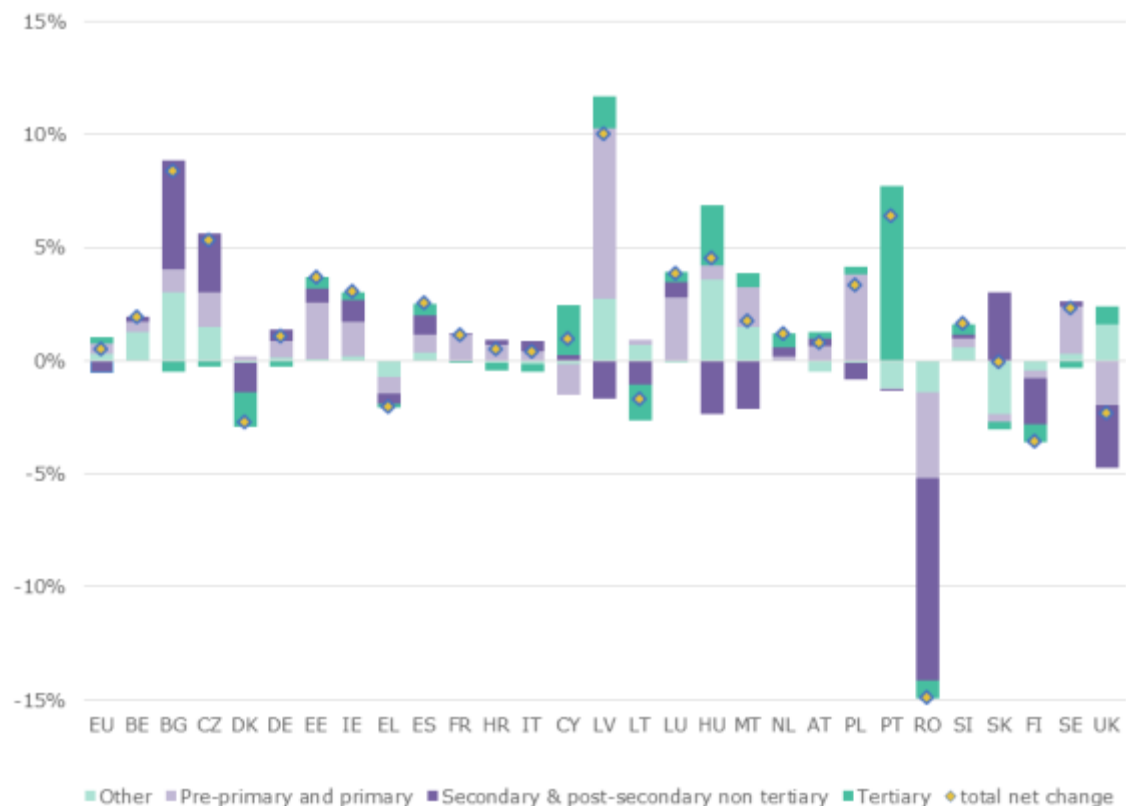
Figure 53 below shows the real percentage change in public expenditure on education between 2016 and 2017 (as diamonds) together with its components i.e. the education sectors (as stacked bars). The total growth (adjusted for inflation) of 0.5% in expenditure on education in the EU28 resulted from the following weighted components: a +0.5 percentage point contribution from the 'pre-primary and primary' sector, a -0.5 percentage point contribution from the 'secondary and post-secondary, non-tertiary', a +0.3 percentage point contribution from the 'tertiary sector and a +0.3 percentage point contribution from 'other' expenditure.

Below a certain level of expenditure, more spending is associated with better outcomes (for example, the OECD puts this level at USD 50 000 in cumulative spending per student aged 6 to 15²¹⁶). At the same time, some Member States with similar levels of expenditure (below USD 50 000) achieve better outcomes than others. This means there is no guarantee that greater public spending will automatically produce better results. This evidence points to the critical importance of increasing efficiency and ensuring effectiveness without leaving anyone behind²¹⁷.

²¹⁶ OECD (2016). [PISA 2015 results \(Volume II\): Policies and Practices for Successful Schools](#), pp. 185-86. The amount USD 50 000 is expressed in purchasing power standard.

²¹⁷ European Commission (2018). [The 2018 Education and Training Monitor](#).

Figure 53 – The 2016-2017 real changes in public expenditure on education and their components (education sectors)



Source: European Commission, DG EAC, based on Eurostat data, COFOG. Online data code: [gov_10a_exp].

Note: The total changes in education expenditure are expressed as a percentage. The components of changes (education sectors) are 'points'. The expenditure growth of 0.5% in the EU resulted from the following unweighted elements (not shown in the figure): +0.5% on the 'pre-primary and primary' sector; -1.3% in the 'secondary and post-secondary, non tertiary'; +1.7% in the 'tertiary' and + 2.7% in 'other expenditure'.

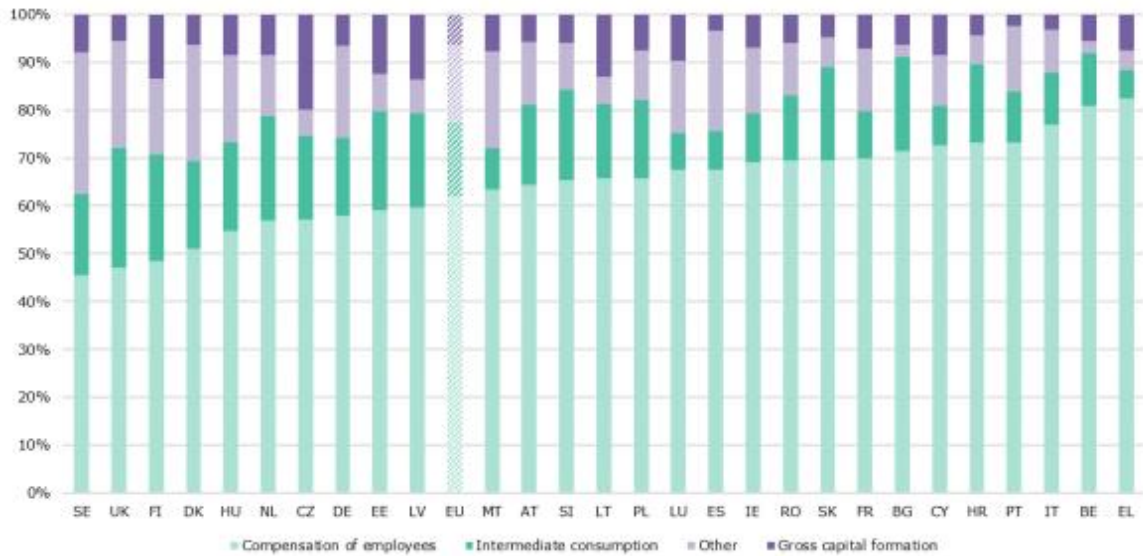
Education in the EU is predominantly funded by public budgets. Public spending on education includes : (i) funding for schools, colleges and universities; (ii) funding for institutions offering education-related services (i.e. ministries or departments of education); and (iii) funding for bodies that provide subsidiary services related to the core activities of education (administration, inspection, operation or support of transportation, food or lodging).

Spending differs within and across countries by level of education and category of spending. Categories of spending include: 'compensation of employees', including gross salaries and social contributions for teaching and non-teaching staff;

- 'intermediate consumption', which covers the purchase 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', which includes investment in fixed assets and durable goods (such as computers) and buildings(the depreciation of fixed assets is also included);
- 'other expenditure' which, for simplicity, was computed by adding up the residual variety of transactions, including subsidies in the form of transfers to households and payments to private schools.

Salaries constitute the largest proportion of education budgets across the European Union, ranging from 45% in Sweden to 82% in Greece. Gross capital formation is the smallest budgetary item at EU level, where it represents 6% of the overall education expenditure in education. Gross capital formation exceeds 10% only in Czechia, Estonia, Latvia, Lithuania and Finland.

Figure 54 – Public expenditure on education by category of expenditure, 2017



Source: Eurostat, General Government Expenditure by Function (COFOG), online data base: [[gov_10a_exp](#)].

4.2. Impact of demographic change on expenditure

Key findings

Real expenditure on education increased in almost all EU countries in the 2000s. It then remained broadly unchanged at EU level between the end of the 2000s and the mid-2010s, despite wide fluctuations at national level. The pattern of variation was rather similar across all educational levels, from primary to tertiary: an increase in half of the countries, and a drop in the others half.

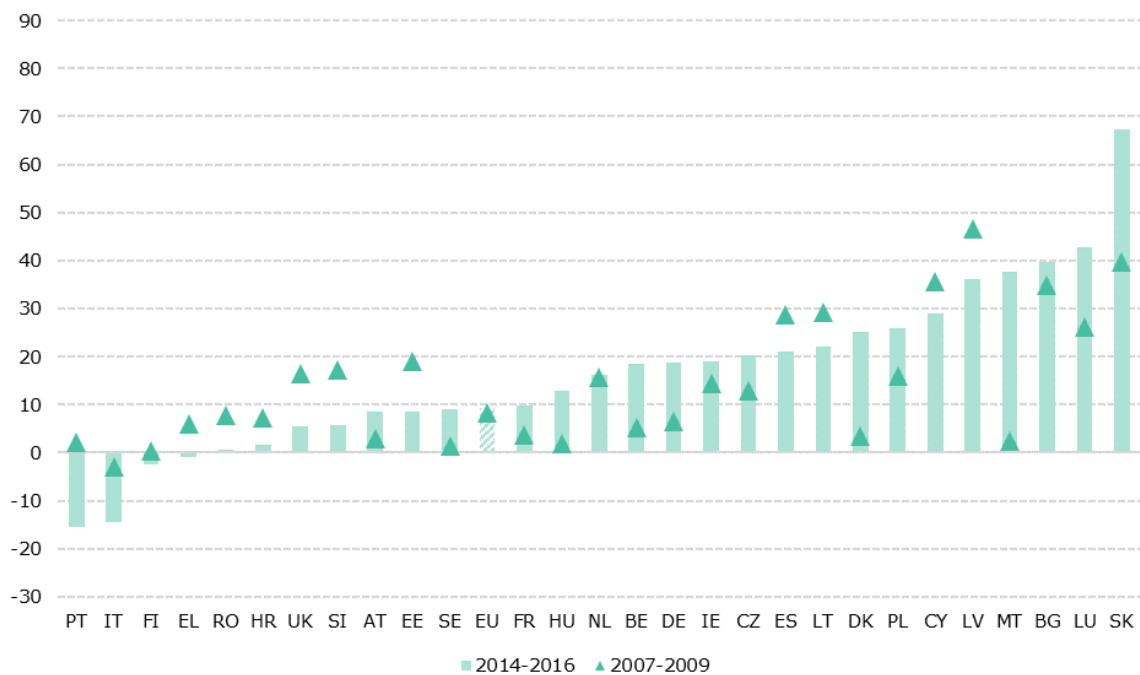
Even rather small yearly variations in expenditure can have a strong impact on Member States' education systems when they are added up over 15-25 years. So far, trends in education expenditure have been largely independent of various demographic trends. Only in tertiary education the movements in spending were somewhat aligned with the changes in the student population. With the school-age population expected to decline, the coming years are likely to see increases in the expenditure per student in most Member States, even if the total education expenditure does not rise.

Real expenditure²¹⁸ on education increased in all EU countries (except Italy) in the 2000s. National patterns then diverged during and after the economic crisis that hit Europe at the end of the 2000s (Figure 55). In about half of EU countries, expenditure continued to grow after the economic crisis, while in the other half it decreased. However, the total level of expenditure remained higher than at the beginning of the century in all but four Member States (Portugal, Italy, Finland and Greece).

As a result, at EU level, education expenditure remained broadly unchanged between the end of the 2000s and the mid-2010s, despite wide fluctuations at national level. The pattern of variation was rather similar across all educational levels, from primary (including pre-primary) to tertiary: an increase in half of the countries, and a drop in the others (Figure 55).

²¹⁸ Expressed at constant 2010 prices by using the implicit deflator for final consumption expenditure of the general government.

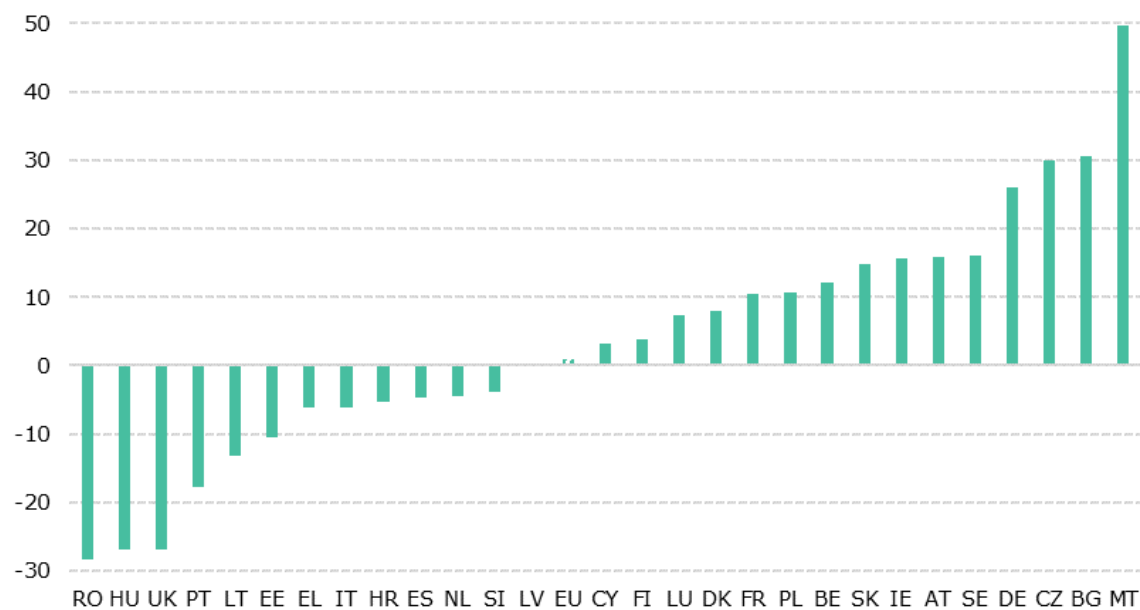
Figure 55 – Percentage change in real public expenditure on education compared to 2001-2003



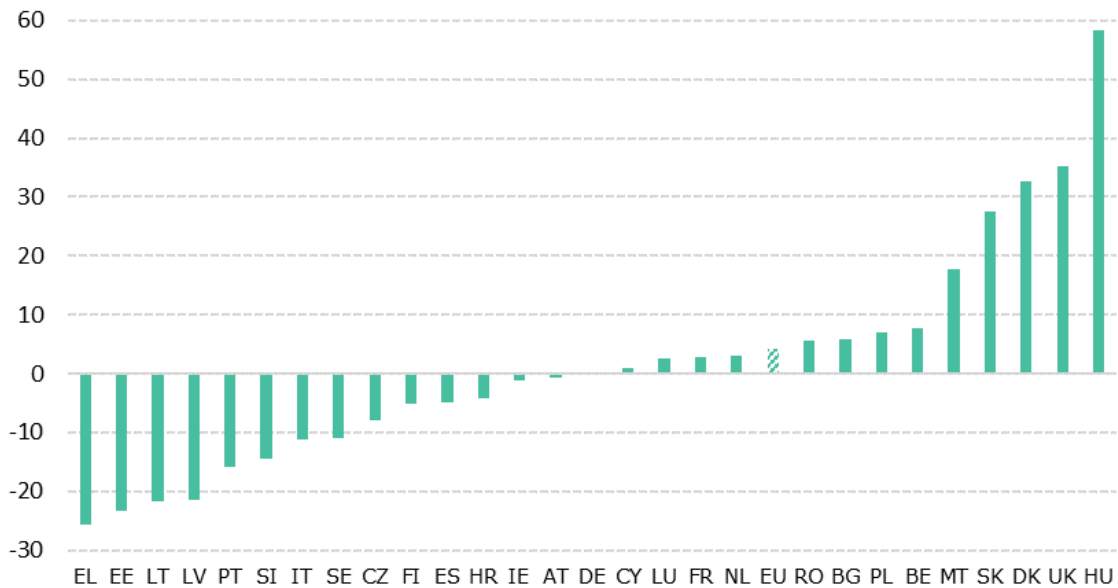
Source: European Commission, DG EAC based on Eurostat data, COFOG and national accounts. Online data codes: [\[gov_10a_exp\]](#) and [\[nama_10_gdp\]](#).

Figure 56 – Percentage change in real public expenditure on education between 2007-2009 and 2014-2016 at different educational levels

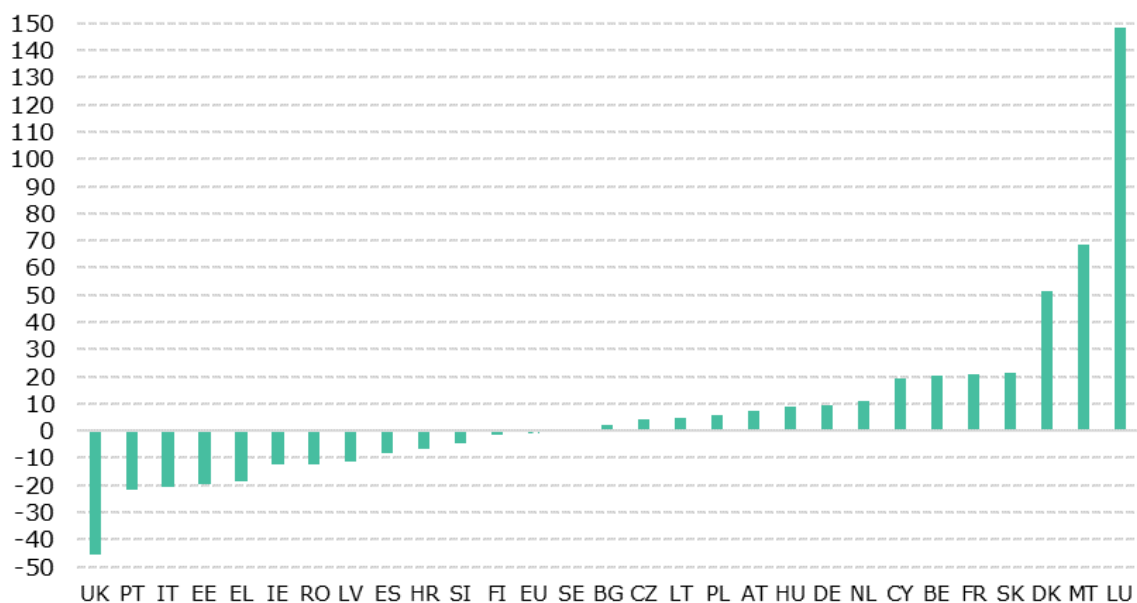
a) Pre-primary and primary



b) Secondary and post-secondary non-tertiary



c) Tertiary



Source: European Commission, DG EAC, based on Eurostat data, COFOG and national accounts. Online data codes: [\[gov_10a_exp\]](#) and [\[nama_10_gdp\]](#).

The number of students is the main demand factor for educational provision. One might expect that education expenditure would adjust to variations in the number of students. Yet in recent years, there has been no correlation between overall demographic change and trends in public expenditure on education. Figure 57 shows the lack of significant association between these two trends.

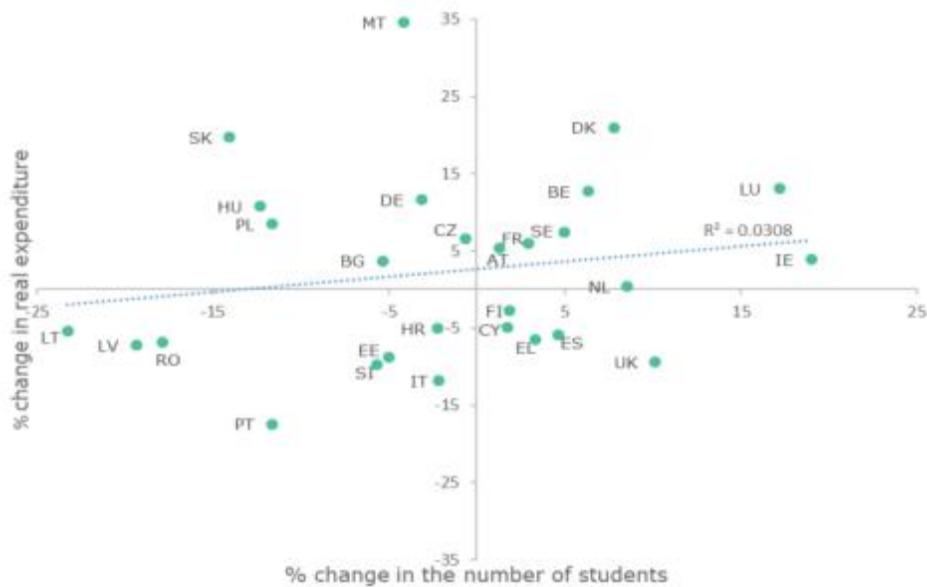
Because the bulk of expenditure goes to teacher salaries, the number of teachers could provide for an alternative demographic-related driving factor for expenditure. However, the analysis shows that variations in education spending are also uncorrelated with changes in the number of teachers (Figure 58, panel 'a'). A possible conclusion is that trends in education expenditure might depend on the overall situation of public finances, largely irrespective of demographic changes. For instance, EU countries pursuing reduction of budget deficits and government debt

(by cutting spending or raising taxes or both) tended to reduce education expenditure by cutting teacher salaries and/or by freezing recruitment of new teachers²¹⁹, irrespectively of demographic changes in the student population.

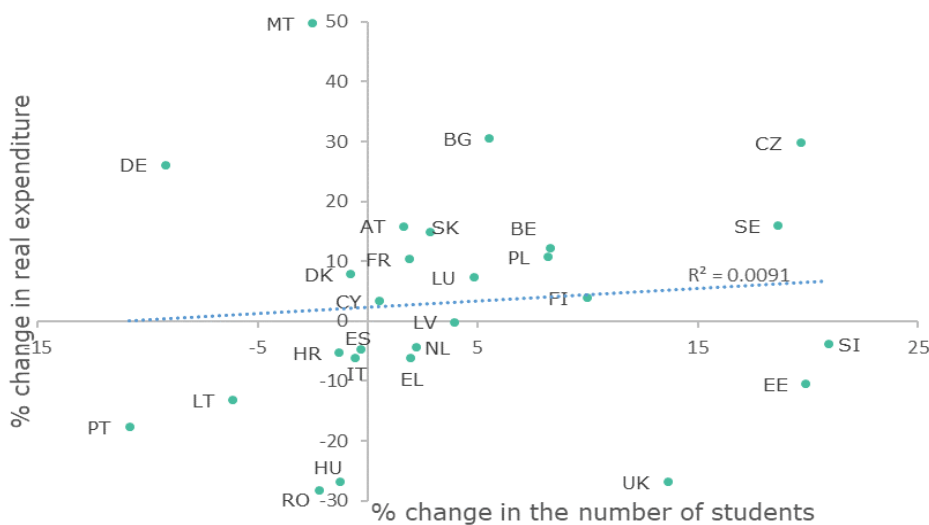
Breaking down the same analysis by educational level, a statistically significant correlation²²⁰ between changes in the number of students or teachers and changes in expenditure appears at tertiary level only (Figure 58, panels 'b', 'c' and 'd'). Thus tertiary education expenditure seems to be somewhat responsive to demographics. A tentative explanation may hint at institutional elements. In particular, higher education institutions often have more autonomy than schools over hiring and dismissing teaching staff and might thus adapt faster than schools to demographic changes.

Figure 57 – Percentage change in real expenditure vs. percentage change in student numbers between 2007-2009 and 2014-2016 at different educational levels

a. All levels



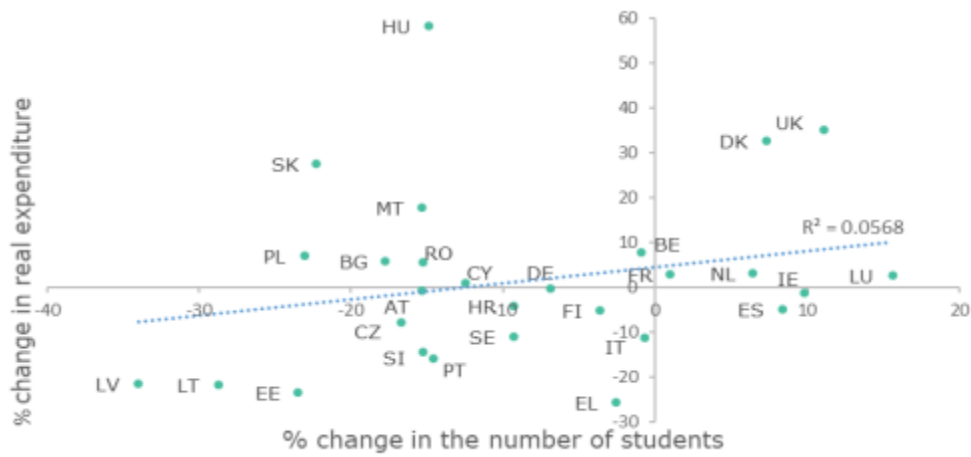
b. Pre-primary and primary



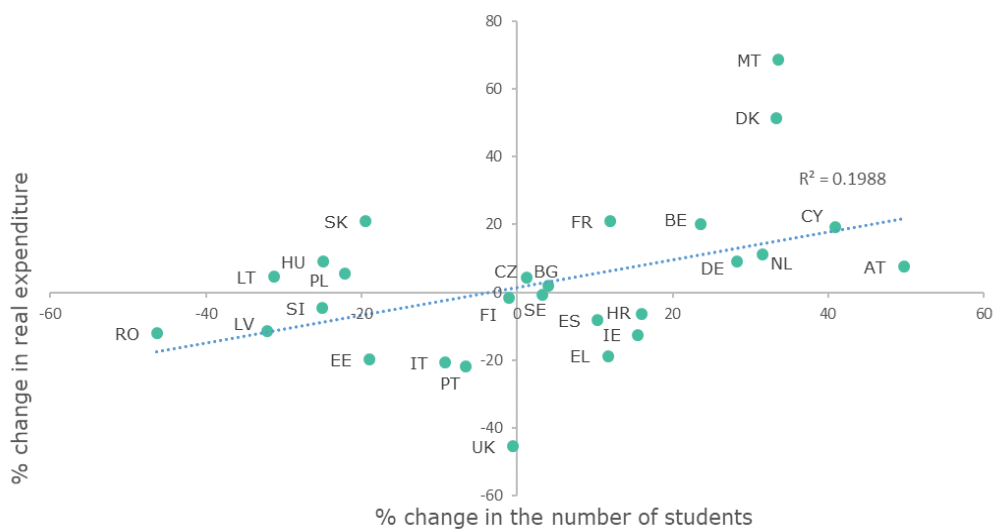
²¹⁹ European Commission (various years). Education and Training Monitor. Country Analysis.

²²⁰ The correlation is significant at 5% level.

c. Secondary



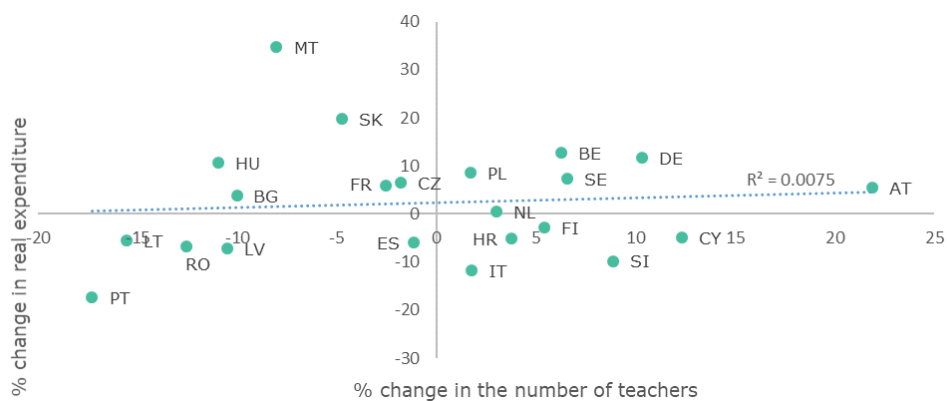
d. Tertiary



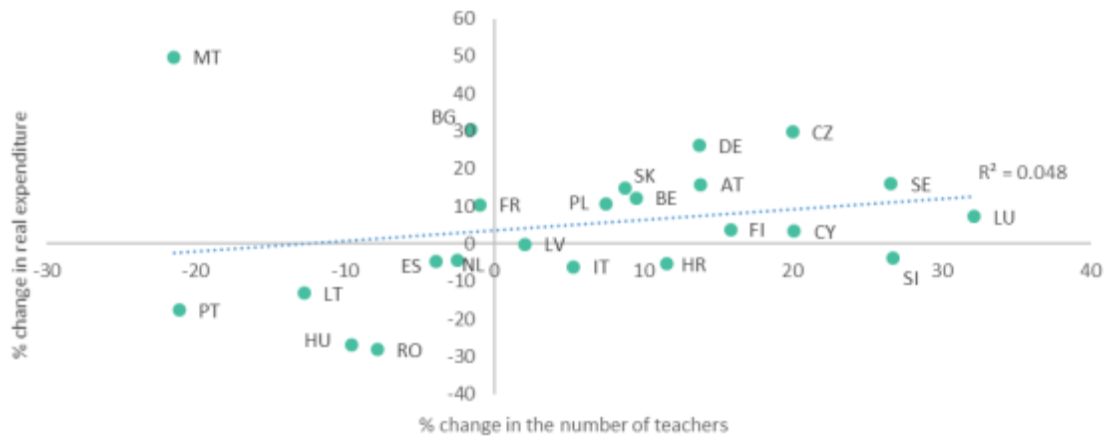
Source: European Commission, DG EAC, based on Eurostat data, COFOG and UOE. Online data codes: [[gov_10a_exp](#)], [[educ_uoe_enra01](#)] and [[educ_enr11t](#)]

Figure 58 – Percentage change in real expenditure vs. percentage change in teacher numbers between 2007-2009 and 2014-2016 at different educational levels

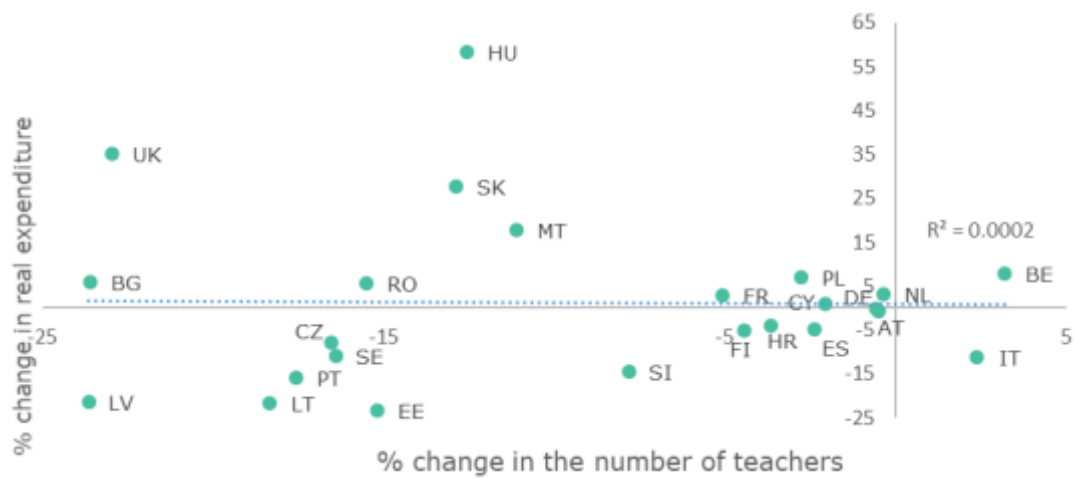
a. All levels



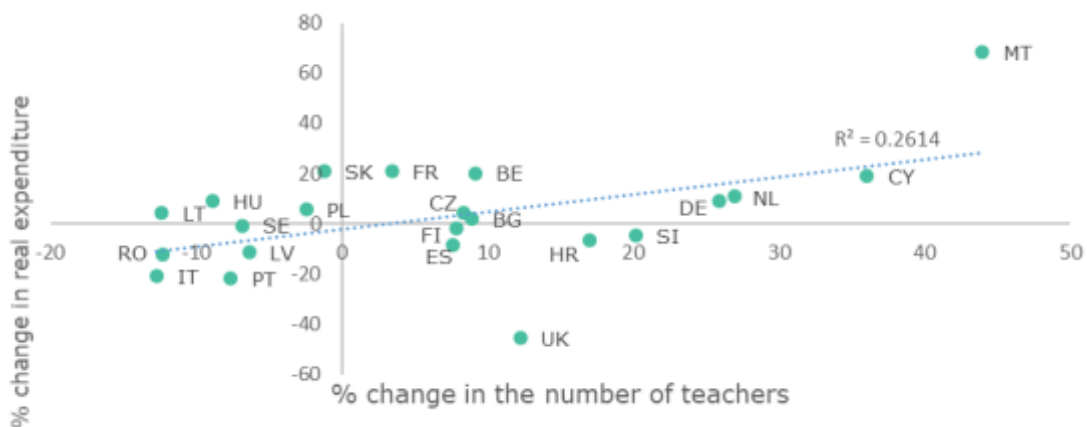
b. Pre-primary and primary



c. Secondary



d. Tertiary



Source: European Commission, DG EAC, based on Eurostat data, COFOG and UOE. Online data codes: [[gov_10a_exp](#)], [[educ_uoe_perp01](#)] and [[educ_pers1d](#)].

It is also possible to make projections about how expenditure per student could evolve over a certain time horizon. This requires the development of different scenarios for total real expenditure on education, and combining these scenarios with Eurostat demographic projections. In what follows below, we show the results of these projections. The key assumption is that changes in education expenditure will also remain independent from demographic trends in the future. The focus is on pre-primary, primary and secondary education²²¹ (henceforth 'school education') up to 2030 and 2040, using the population aged between 3 and 18 as a proxy for the number of students in school education²²².

According to Eurostat projections, the school-age population is expected to decline in most Member States in the coming years, with the pace of decline increasing after 2030. By 2040, the drop could reach or exceed 20% (compared to 2020 levels) in Lithuania, Croatia, Bulgaria, Italy, Portugal and Greece. By contrast, the school-age population could increase by more than 10% in Malta, Luxembourg and Sweden²²³.

Figure 59 – Eurostat population projections (2030, 2040) for 3-18 year-olds (index 2020 = 100)



Source: European Commission, DG EAC, based on Eurostat data, population projections. Online data code: [\[proj_18np\]](#).

²²¹ This corresponds to ISCED levels 2 to 3.

²²² Compared to the real number of students in school education, this proxy also includes people aged under 18 who have already left education and excludes people aged over 18 who are still in secondary education. However, the impact of people aged over 18 who are still in secondary education tends to offset the impact of people aged under 18 who have already left education. As a result, the value of this proxy is very close to the real number of students in school education: 85.5 million as against 88 million in the EU28 in 2015. BE is excluded from the analysis because a large number of students are still in secondary education after 18 and using this proxy would lead to underestimating the number of students and thus overestimating expenditure per student. The scenarios do not cover tertiary education. This would require additional assumptions on the proportion of young people of a certain age group participating in tertiary education.

²²³ The baseline projections are used here. For details about the projections and their assumptions, see Eurostat, Population on 1st January by age, sex and type of projection. Online data code: [\[proj_15npms\]](#).

These are the three alternative scenarios for real expenditure on education up to 2030 and 2040 developed here:

- Scenario 1: *No change* in real expenditure compared to the 2014-2016 average;
- Scenario 2: 1% yearly *increase* in real expenditure compared to the 2014-2016 average;
- Scenario 3: 1% yearly *decrease* in real expenditure compared to the 2014-2016 average.

While the starting point of the three scenarios may look similar, the impact on real expenditure per student – based on the Eurostat projections for the school-aged population, which point to a decline thereof in many Member States – would be very different in each of them (Figure 60):

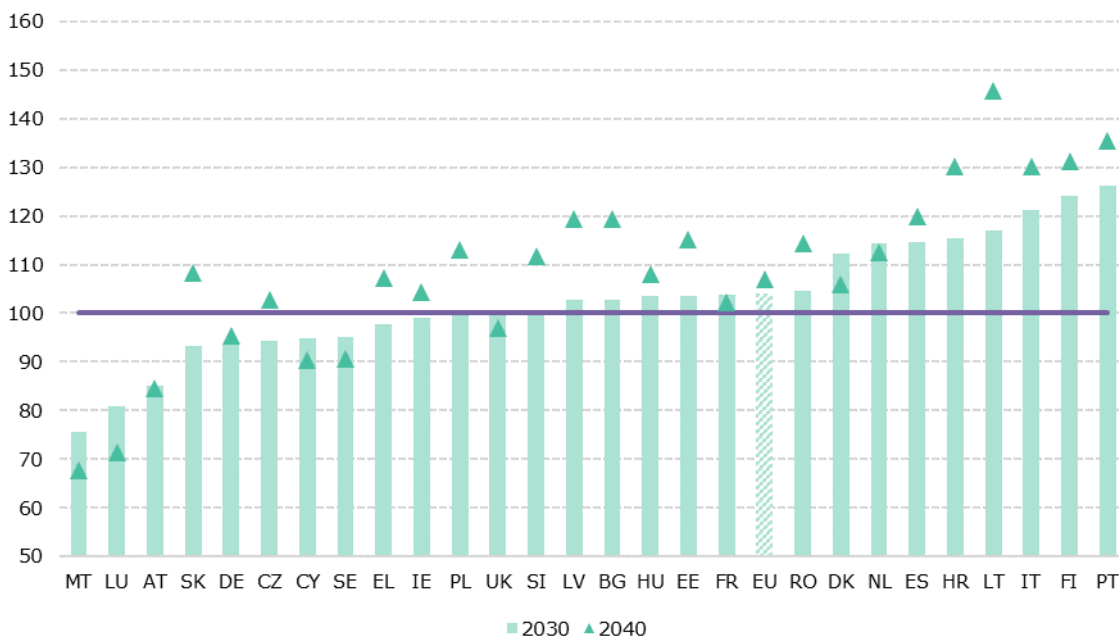
Scenario 1) Expenditure per student would increase in many Member States, especially in the long term, due to declining student numbers.

Scenario 2) Expenditure per student would strongly increase in most Member States. By 2030, it would decrease only in Malta, Luxembourg and Austria, where the impact of rising student numbers would prevail.

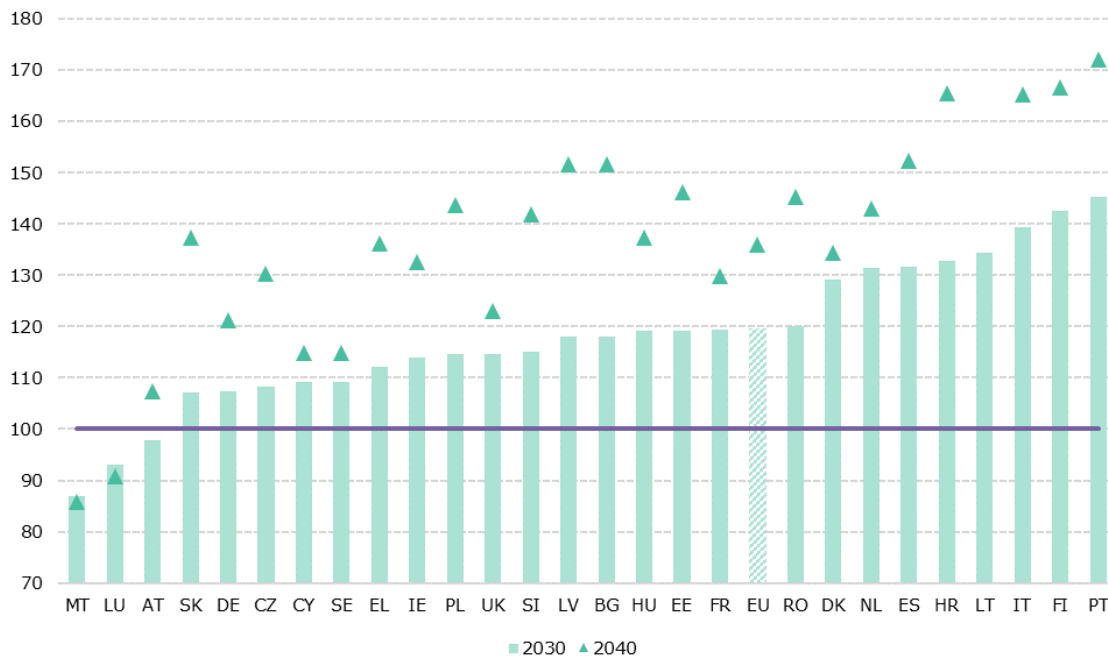
Scenario 3) Here we would see expenditure per student decreasing in most Member States by 2030, except for Portugal, Finland, Italy, Lithuania and Croatia.

Figure 60 – Change in real expenditure per student in school education according to different scenarios (index 2014-16 = 100)

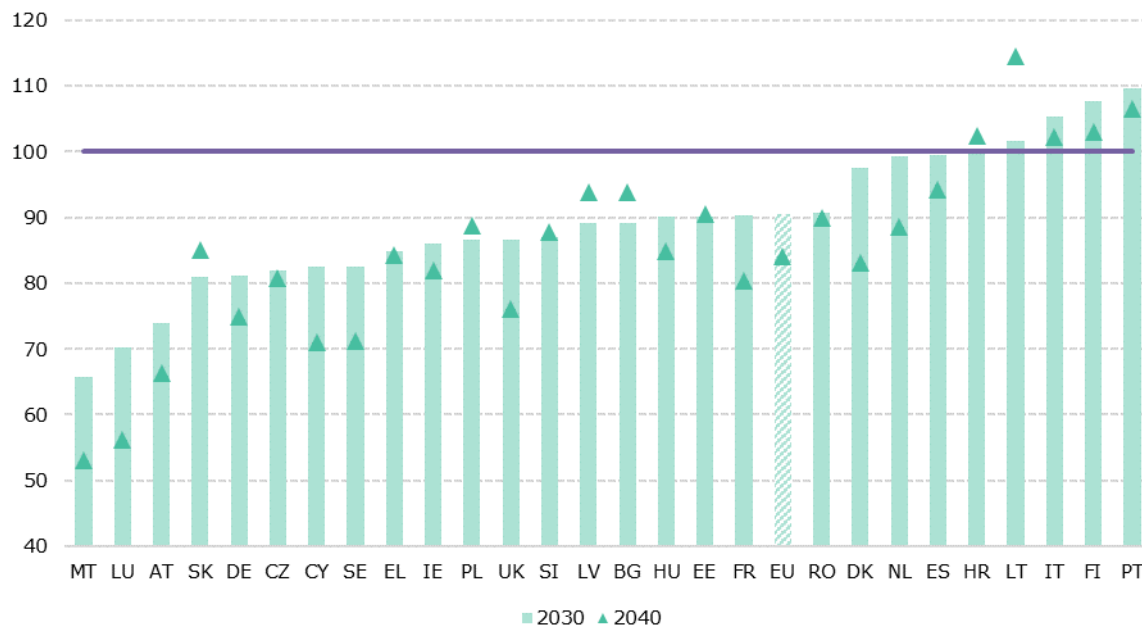
Scenario 1: No change in real expenditure compared to the 2014-2016 average



Scenario 2: 1% yearly increase in real expenditure compared to the 2014-2016 average



Scenario 3: 1% yearly decrease in real expenditure compared to the 2014-2016 average



Source: European Commission, DG EAC, based on Eurostat data, COFOG and population projections. Online data codes: [\[gov_10a_exp\]](#) and [\[proj_18np\]](#).

The main conclusion of this analysis is that even rather small yearly variations in expenditure, when cumulated over 15-25 years²²⁴, may have a strong impact on Member States' expenditure per student. So far, expenditure trends have been largely independent of demographic changes. However, EU countries will have to address some future demographic challenges affecting expenditure on education. Two of these challenges are now very prominent in many countries: how to handle teacher shortages or oversupply of teachers²²⁵; and how to adapt the school network to ensure adequate infrastructure and quality of education. Various policy responses to both challenges have already been put in place. The box below provides some examples of existing measures at country or education system level.

Addressing demographic challenges to expenditure on education

Teacher shortages

The teacher-supply action plan in Ireland

The teacher-supply action plan is part of the 2019 action plan for education launched on 7 March 2019. It contains a range of actions which were developed to address the challenges of recruiting teachers. At primary level, the challenge was recruiting substitute teachers, while at post-primary level, the challenge was recruiting teachers in specific subject areas, such as science subjects, modern languages, Irish and home economics. Consultation with partners and stakeholders has been a central feature of the development of the plan. Actions in 2019 include: a campaign to promote the teaching profession; the development of new four-year undergraduate programmes to train post-primary teachers and students on postgraduate programmes in post-primary priority subject areas; and a recruitment portal for teachers.

See [Action Plan for Education 2019](#) for more details.

Forecasting the teaching workforce in Lithuania

Lithuania's population is declining and the teaching workforce is rapidly ageing. Nearly half of the country's general education teachers are 50 years and older. To address these challenges and anticipate teacher shortages, Lithuania developed a forecasting pilot tool in 2018, with support from the European Commission's Structural Reform Support Programme. The model provides short-term and medium-term forecasts on the teaching workforce. The model takes into consideration changes in pupil numbers; the ageing teaching population; the low graduation rates of initial teacher education students; the low employment levels of initial teacher-education graduates; and other policy changes such as a change in the school system so children start primary education at a younger age. Based on the most likely scenario, the model forecasted that 3 077 teachers who worked in schools in 2018 will retire by 2022. Taking into account drop-out rates and low employment rates, it was forecast that only 126 new teachers were likely to enter schools in 2018/2019. The highest cumulative shortage in the period 2018-2022 was forecast for primary school teachers, which added up to a shortfall of almost 700 teachers. Lithuania is now planning to allocate more resources to support further development of the model to ensure the reliability and comparability of the forecasting results.

Source: Research and Higher Education Monitoring and Analysis Centre (MOSTA) (2018). Forecasting the teaching workforce in Lithuania. Final project report.

²²⁴ In cumulative terms, scenario 2 implies an increase in real expenditure of 15% by 2030 and 27% by 2040 compared to the 2014-2016 average. Conversely, scenario 3 implies a decrease of 13% by 2030 and 21% by 2040.

²²⁵ See Part 1 for more details.

School infrastructure

Public-private partnerships for school infrastructure investments in the Flemish Community of Belgium

In the face of demographic pressures and the need to expand its school network, the Flemish Community of Belgium has attracted private investment through design-build-finance-maintain (DBFM) schemes. With a total investment of €1.5 billion, the public-private partnerships involve the construction of 200 new low-energy facilities, increasing the number of schools by more than 5%. Venture partners that invest in school buildings through the DBFM scheme have to maintain them to an agreed standard for 30 years. In return, school boards pay them a leasing fee, partly subsidised by the public Agency for Educational Infrastructure. At the end of the 30-year leasing period, ownership is transferred to the school boards without any additional costs. DBFM schemes have been successful thanks to the scope of the projects and their effectiveness in supplementing public resources with private equity to create sustainable facilities.

See [National Reform Programme 2019](#) for more information.

Clustering as part of school network consolidation in Portugal

In 2005, Portugal started a consolidation process to address the school network's inefficiency and regional inequalities. Within a decade, Portuguese educational authorities closed 47% of the country's public schools, most of them primary schools in rural areas. To address the problem of inefficiency and regional inequalities, the Ministry of Education began by cooperating with local governments and school executive boards to close down underperforming schools with fewer than 20 students and above-average annual repetition rates in 2005/2006. Even though the consolidation efforts were legally mandated, their implementation required the agreement of the municipalities, school leaders and parents that the changes would improve the learning experience of affected students. As part of the consolidation process, nearly all public schools (98%) were re-organised into clusters comprising schools from one or more education levels under a single administration. Several features of the reform contributed to the success of the reorganisation. Firstly, the reform was guided by a clear vision and criteria that specified which schools should close and what they would be replaced with. Secondly, it was recognised that parents needed to be convinced of the reforms' benefits for them and their children, so incentives, including free transport, were provided. Thirdly, municipalities supported cluster leaders in assuming their new responsibilities.

Source: OECD (2018). Responsive School Systems. Connecting Facilities, Sectors and Programmes for Student Success.

Part 5

Annex



5. Annex: Additional tables

Figure 61 – Early childhood education and care: legal framework and starting ages, 2018/2019

| | Universal legal entitlement to ECEC | Starting age of | |
|--------|-------------------------------------|-----------------|------------------------------|
| | | Compulsory ECEC | Compulsory primary education |
| BE fr | 2y 6m | | 6 |
| BE de | 3 | | 6 |
| BE fl | 2y 6m | | 6 |
| BG | | 5 | 7 |
| CZ | 3 | 5 | 6 |
| DK | 6m | | 6 |
| DE | 1 | | 6 |
| EE | 1y 6m | | 7 |
| IE | | | 6 |
| EL | | 4 | 6 |
| ES | 3 | | 6 |
| FR | 3 | | 6 |
| HR | | 6 | 7 |
| IT | | | 6 |
| CY | | 4y 8m | 5y 8m |
| LV | 1y 6m | 5 | 7 |
| LT | | 6 | 7 |
| LU | 3 | 4 | 6 |
| HU | | 3 | 6 |
| MT | | | 5 |
| NL | | 5 | 5 |
| AT | | 5 | 6 |
| PL | 3 | 6 | 7 |
| PT | 4 | | 6 |
| RO | | | 6 |
| SI | 11 m | | 6 |
| SK | | | 6 |
| FI | 9 m | 6 | 7 |
| SE | 1 | 6 | 7 |
| UK-ENG | 3 | | 5 |
| UK-WAL | 3 | | 5 |
| UK-NIR | | | 4 |
| UK-SCT | 3 | | 5 |

Source: European Commission/EACEA/Eurydice (forthcoming). Structural Indicators for Monitoring Education and Training Systems in Europe – 2019.

Note: abbreviation 'y' means years, m means months. A universal legal entitlement to ECEC exists when every child of a certain age has an enforceable right to benefit from ECEC provision. FR: Compulsory ECEC at age 3 starting 2019/2020.

Figure 62 – Early childhood education and care: selected quality aspects, 2018/2019

| | 1. Staff | | 2. Curriculum or educational guidelines | 3. Language programmes offered as targeted support | 4. Parent support | |
|--------|---|---|---|--|-----------------------------|---------------------------|
| | 1.1. At least one staff member with has a tertiary qualification in education | 1.2. CPD professional duty or necessary for promotion | | | 4.1. Home-learning guidance | 4.2. Parenting programmes |
| BE fr | ■ | ● | ● | ■ | | ■ |
| BE de | ■ | ■ | ■ | ■ | | ● |
| BE fl | ■ | ● | ● | ■ | | |
| BG | ● | ■ | ■ | ■ | | ■ |
| CZ | | ■ | ■ | ■ | | |
| DK | | | ● | ● | | |
| DE | ● | | ● | ● | ● | ● |
| EE | ● | ● | ● | ● | | ● |
| IE | | | ● | | ● | |
| EL | ● | ■ | ■ | ■ | | |
| ES | ■ | ■ | ● | ● | | ● |
| FR | ● | ● | ● | ■ | ● | ● |
| HR | ● | ● | ● | ● | | ● |
| IT | ■ | ■ | ■ | ■ | | |
| CY | ● | ■ | ■ | | | ■ |
| LV | | ● | ● | ● | | |
| LT | ● | ● | ● | ● | ● | ● |
| LU | ■ | ● | ● | ● | | |
| HU | ■ | ● | ● | ■ | | For under 3s |
| MT | | ■ | ● | ■ | ● | ● |
| NL | ■ | | ■ | ● | | |
| AT | | ● | ● | ● | ■ | ● |
| PL | ■ | ■ | ■ | ■ | ● | |
| PT | ● | ■ | ■ | ● | | |
| RO | | ● | ● | ■ | | ● |
| SI | ● | ● | ● | ● | ● | ● |
| SK | | ■ | ■ | ■ | | |
| FI | ● | ● | ● | ● | | |
| SE | | | ● | ● | | |
| UK-ENG | ■ | ● | ● | ● | ● | ● |
| UK-WAL | ■ | ● | ■ | ● | ● | ● |
| UK-NIR | ■ | ● | ■ | ● | ● | ● |
| UK-SCT | | ● | ● | ● | ● | ● |

Source: European Commission/EACEA/Eurydice (forthcoming). Structural Indicators for Monitoring Education and Training Systems in Europe – 2019.

Note: ■ = children aged 3 years or older²²⁶; ● = the entire ECEC phase (from birth to the start of compulsory education).

1. Tertiary qualification in education = minimum 3 years ISCED 6.

2. CPD refers to continuing professional development.

²²⁶ ■ refers to children aged 2 years or older in France, 2.5 years or older in Belgium (fr and fl) and to children aged 4 years or older in Greece, the Netherlands and Liechtenstein.

Figure 63 – Early leavers from education and training: summary table, 2018/2019

| | 1. National data collection on ELET based on a student register | 2. Policies for increasing the flexibility and permeability of education pathways: | | | 3. Policies for language support for students with a different mother tongue |
|--------|---|--|---|---|--|
| | | 2.1. Providing alternative education and training pathways | 2.2. Facilitating transitions within education and training systems | 2.3. Recognising skills and/or qualifications | |
| BE fr | ● | ● | ● | ● | ● |
| BE de | | | ● | ● | ● |
| BE fl | ● | ● | ● | ● | ● |
| BG | ● | ● | | | ● |
| CZ | ● | ● | ● | ● | ● |
| DK | ● | ● | | | ● |
| DE | | ● | ● | | ● |
| EE | ● | ● | | | ● |
| IE | ● | ● | | | ● |
| EL | ● | ● | ● | | ● |
| ES | | ● | ● | ● | ● |
| FR | ● | ● | ● | ● | ● |
| HR | ● | | ● | ● | ● |
| IT | ● | ● | ● | ● | ● |
| CY | ● | ● | ● | | ● |
| LV | ● | ● | ● | ● | ● |
| LT | ● | ● | ● | ● | ● |
| LU | ● | ● | ● | ● | ● |
| HU | ● | ● | | | |
| MT | ● | ● | ● | ● | ● |
| NL | ● | ● | ● | | ● |
| AT | ● | ● | ● | | ● |
| PL | ● | ● | | ● | ● |
| PT | ● | ● | ● | ● | ● |
| RO | | ● | ● | ● | ● |
| SI | | ● | ● | ● | ● |
| SK | | ● | ● | | ● |
| FI | ● | ● | ● | ● | ● |
| SE | ● | ● | ● | ● | ● |
| UK-ENG | ● | ● | ● | | ● |
| UK-WAL | ● | ● | ● | | ● |
| UK-NIR | | ● | ● | | ● |
| UK-SCT | ● | ● | ● | ● | ● |

Source: European Commission/EACEA/Eurydice (forthcoming). Structural Indicators for Monitoring Education and Training Systems in Europe – 2019.

Figure 64 – Early leavers from education and training: summary table 2, 2018/2019

| | 4. Policies encouraging the inclusion of ELET in ITE and/or CPD | 5. Education and career guidance in schools, ISCED 2 and 3* | 6. Policies to help early leavers re-enter the education and training system: | | |
|--------|---|---|---|------------------------------------|----------------------|
| | | | 6.1. Second chance education | 6.2. Education and career guidance | 6.3. Youth guarantee |
| BE fr | ● | ● | ● | ● | ● |
| BE de | ● | ● | ● | | |
| BE fl | ● | ● | ● | ● | ● |
| BG | | ● | ● | ● | ● |
| CZ | | ● | ● | ● | ● |
| DK | | | | ● | |
| DE | ● | ● | ● | ● | ● |
| EE | ● | ● | ● | ● | ● |
| IE | ● | ● | ● | | |
| EL | | ● | ● | ● | ● |
| ES | ● | ● | ● | ● | ● |
| FR | ● | ● | ● | ● | ● |
| HR | | | ● | ● | ● |
| IT | ● | ● | ● | | ● |
| CY | | ● | ● | ● | ● |
| LV | ● | ● | ● | ● | ● |
| LT | | ● | ● | ● | ● |
| LU | ● | | ● | ● | ● |
| HU | ● | ● | ● | | ● |
| MT | ● | ● | ● | ● | ● |
| NL | ● | | ● | ● | ● |
| AT | ● | ● | ● | ● | ● |
| PL | | ● | ● | ● | ● |
| PT | ● | ● | ● | ● | ● |
| RO | | ● | ● | ● | ● |
| SI | ● | ● | ● | ● | ● |
| SK | | ● | ● | | |
| FI | | ● | ● | ● | ● |
| SE | ● | ● | ● | ● | ● |
| UK-ENG | | | ● | ● | |
| UK-WAL | | | ● | ● | |
| UK-NIR | | | ● | ● | |
| UK-SCT | | ● | ● | ● | ● |

Source: European Commission/EACEA/Eurydice (forthcoming). Structural Indicators for Monitoring Education and Training Systems in Europe – 2019.

Note: * Education and career guidance provided both as a compulsory part of the curriculum **and** by school guidance services in lower and upper secondary education.

Figure 65 – Tertiary educational attainment: summary table on higher education, 2018/2019

| | 1. Quantitative targets for widening participation and/or attainment of under-represented groups | 2. Monitoring of socioeconomic background of students | 3. Recognition of informal or non-formal learning in entry to higher education | 4. Completion rates as a required criterion in external QA | 5. Performance-based funding mechanisms with a social dimension focus |
|--------|--|---|--|--|---|
| BE fr | | ● | ● | ● | |
| BE de | | | | ● | |
| BE fl | ● | ● | ● | | ● |
| BG | | ● | | ● | |
| CZ | | | | | |
| DK | | ● | ● | | |
| DE | | ● | ● | ● | |
| EE | | | | ● | |
| IE | ● | ● | ● | ● | ● |
| EL | ● | | | | |
| ES | | ● | ● | ● | ● |
| FR | ● | ● | ● | ● | ● |
| HR | | ● | | ● | ● |
| IT | | ● | ● | ● | ● |
| CY | ● | | | | |
| LV | | | | | |
| LT | | ● | ● | ● | |
| LU | | | ● | | |
| HU | | ● | ● | | |
| MT | ● | ● | ● | | |
| NL | ● | ● | | | |
| AT | ● | ● | | | ● |
| PL | | ● | ● | ● | ● |
| PT | | | ● | ● | ● |
| RO | ● | ● | | ● | ● |
| SI | | | | ● | |
| SK | | | | | |
| FI | | ● | ● | | |
| SE | | ● | ● | | |
| UK-ENG | ● | ● | ● | ● | ● |
| UK-WAL | ● | ● | ● | ● | ● |
| UK-NIR | | ● | ● | ● | ● |
| UK-SCT | ● | ● | ● | | |

Source: European Commission/EACEA/Eurydice (forthcoming). Structural Indicators for Monitoring Education and Training Systems in Europe – 2019.

Figure 66 – Underachievement in reading, maths and science: summary table on achievement in basic skills, 2018/2019

| | 1. National tests in compulsory education | | | 2. Recent national reports on achievement | | | 3. Use of performance data in school evaluation | 4. Guidelines on underachievement as a topic in Initial Teacher Education | | | 5. Additional resources by top-level authorities to schools with disadvantaged students |
|--------|---|---|---|---|---|---|---|---|---|---|---|
| BE fr | R | M | S | R | M | S | ● | R | M | S | ● |
| BE de | | | | R | M | S | ● | R | M | S | ● |
| BE fl | | M | | R | M | S | ● | R | M | S | ● |
| BG | R | M | S | R | M | S | ● | | | | ● |
| CZ | | | S | R | M | | ● | | | | ● |
| DK | R | M | S | R | M | S | ● | R | M | S | |
| DE | R | M | S | R | M | S | ● | R | | | ● |
| EE | R | M | S | R | M | S | ● | R | M | S | ● |
| IE | R | M | S | R | M | S | ● | R | | M | ● |
| EL | | | | R | M | S | | | | | ● |
| ES | R | M | S | R | M | S | ● | R | M | S | ● |
| FR | R | M | S | R | M | S | ● | R | M | S | ● |
| HR | | | | R | M | S | | | | | |
| IT | R | M | | R | M | | ● | | | | ● |
| CY | R | M | | R | M | S | | R | M | S | ● |
| LV | R | M | S | R | M | | ● | | | | ● |
| LT | R | M | S | R | M | S | ● | R | M | S | ● |
| LU | R | M | | R | M | | ● | R | M | S | ● |
| HU | R | M | | R | M | | ● | R | M | S | |
| MT | R | M | S | R | M | S | ● | R | | M | ● |
| NL | R | M | S | R | M | S | ● | | | | ● |
| AT | R | M | | R | M | | ● | R | M | S | ● |
| PL | R | M | S | R | M | S | ● | R | M | S | ● |
| PT | R | M | S | R | M | S | ● | | | | ● |
| RO | R | M | S | R | M | S | ● | | | | |
| SI | R | M | S | R | M | S | | | | | ● |
| SK | R | M | | R | M | | | R | M | S | ● |
| FI | R | M | S | R | M | | | | | | ● |
| SE | R | M | S | R | M | S | ● | R | M | S | ● |
| UK-ENG | R | M | | R | M | S | ● | R | M | S | ● |
| UK-WAL | R | M | | R | M | S | ● | R | M | S | ● |
| UK-NIR | R | M | | R | M | S | ● | R | M | S | ● |
| UK-SCT | R | M | | R | M | S | ● | R | | M | ● |

Source: European Commission/EACEA/Eurydice (forthcoming). Structural Indicators for Monitoring Education and Training Systems in Europe – 2019.

Note: 'R' = reading; 'M' = mathematics; 'S' = science.

Figure 67 – Transition from education to the labour market: summary table on graduate employability, 2018/2019

| | 1. Regular labour market forecasting used systematically | 2. Required involvement of employers in external QA | 3. Requirements OR incentives for work placements for all students | 4. Career guidance for all students in HEIs | 5. Regular graduate surveys used systematically |
|--------|--|---|--|---|---|
| BE fr | ● | ● | | ● | ● |
| BE de | | ● | ● | | |
| BE fl | | ● | | ● | ● |
| BG | ● | ● | ● | ● | ● |
| CZ | | ● | | ● | |
| DK | | ● | | ● | ● |
| DE | | ● | | ● | ● |
| EE | ● | ● | ● | ● | ● |
| IE | ● | | | ● | ● |
| EL | ● | ● | | ● | |
| ES | | ● | ● | ● | |
| FR | ● | ● | ● | ● | ● |
| HR | | ● | | | ● |
| IT | ● | ● | ● | ● | ● |
| CY | | | | ● | |
| LV | ● | ● | | | |
| LT | ● | ● | ● | ● | |
| LU | | | | ● | |
| HU | | ● | | ● | ● |
| MT | | ● | ● | ● | |
| NL | ● | ● | | ● | ● |
| AT | | ● | | ● | ● |
| PL | ● | ● | | ● | ● |
| PT | | ● | | ● | |
| RO | | ● | ● | ● | ● |
| SI | | ● | | ● | |
| SK | | | | ● | ● |
| FI | ● | | | ● | |
| SE | ● | ● | | ● | ● |
| UK-ENG | ● | | | ● | ● |
| UK-WAL | ● | | | ● | ● |
| UK-NIR | ● | | | ● | ● |
| UK-SCT | ● | | | ● | ● |

Source: European Commission/EACEA/Eurydice (forthcoming). Structural Indicators for Monitoring Education and Training Systems in Europe – 2019.

Figure 68 – Learning mobility: summary table on learning mobility, 2017/18

| | Portability of grants and/or loans | | | Percentage of higher education institutions using ECTS | Automatic recognition of qualifications | | |
|--------|------------------------------------|----------------|----|--|---|---------|----|
| | Full | Partial | No | | Yes | Partial | No |
| BE fr | | | ● | 100% | | ● | |
| BE de | ● ^b | | | 100% | | ● | |
| BE fl | ● ^a | | | 100% | ● | | |
| BG | | | ● | National system, ECTS compatible | | | ● |
| CZ | | ● ^c | | 75%-99% | | ● | |
| DK | ● ^b | | | 100% | ● | | |
| DE | ● ^b | | | 75%-99% | | | ● |
| EE | | ● ^c | | 100% | | | ● |
| IE | ● ^b | | | 75%-99% | | | ● |
| EL | | | ● | 100% | | | ● |
| ES | | ● ^d | | 100% | | | ● |
| FR | ● ^b | | | 75%-99% | | | ● |
| HR | | ● ^c | | 100% | | | ● |
| IT | | ● ^c | | 100% | | | ● |
| CY | ● ^a | | | 75%-99% | | | ● |
| LV | | ● ^d | | National system, ECTS compatible | | | ● |
| LT | | ● ^d | | 100% | | | ● |
| LU | ● ^a | | | 100% | | ● | |
| HU | | ● ^c | | National system, ECTS compatible | | | ● |
| MT | | ● ^d | | 100% | ● | | |
| NL | ● ^b | | | 100% | | ● | |
| AT | ● ^b | | | 100% | | | ● |
| PL | | ● ^c | | 100% | ● | | |
| PT | | ● ^d | | 100% | | | ● |
| RO | | | ● | 100% | | | ● |
| SI | ● ^a | | | 100% | | | ● |
| SK | | ● ^c | | 100% | | ● | |
| FI | ● ^a | | | National system, ECTS compatible | ● | | |
| SE | ● ^a | | | National system, ECTS compatible | ● | | |
| UK-ENG | | ● ^d | | National system, ECTS compatible | | | ● |
| UK-WAL | | ● ^d | | National system, ECTS compatible | | | ● |
| UK-NIR | | ● ^d | | National system, ECTS compatible | | | ● |
| UK-SCT | ● ^b | | | National system, ECTS compatible | | | ● |

Source: European Commission/EACEA/Eurydice (forthcoming). Structural Indicators for Monitoring Education and Training Systems in Europe – 2019.

Explanation to Figure 68:

| Portability of student grants and/or loans | |
|---|--|
| Yes | Portability of all available domestic student support measures (grants and/or loans) for both credit and degree mobility, a) without restrictions b) with some restrictions related to geography (country limitations), and/or types of programme, and/or field of study or time period. |
| Partial | Portability for credit mobility c) without restrictions d) with restrictions related to geography (country limitations), and/or types of programme, and / or field of study or time. No portability for degree mobility or not all major support measures with portability for degree mobility. |
| No | No portability: public grants and/or loans are only provided if students study in the home country or are portable only in exceptional cases (no equivalent programme is available in the home country). |
| Automatic recognition of qualifications | |
| Yes | All higher education qualifications issued in other EHEA countries are recognised on an equal level with qualifications in the home country. |
| Partial | Automatic recognition takes place with a subset of European countries; for other countries specific procedures are in place for recognition. |
| No | There is no automatic recognition at system level. |