



European
Commission



Education and Training Monitor 2017

The Education and Training Monitor is a European Commission Staff Working Document that presents a yearly evaluation of education and training systems across Europe.

The Monitor reports on EU and Member States' performance on the ET2020 benchmarks, and elaborates on policy priorities and initiatives for education systems. Volume 1 of the Monitor provides an analysis from cross-national and thematic points of view. Volume 2 comprises 28 individual country reports.

The report brings together the latest data, technical reports and studies, as well as policy documents, and examples of policy measures from different EU Member States. By doing this, the report contributes to the implementation of the ET 2020 cooperation framework. It is also a tool for educational stakeholders and institutions in Europe to compare their country to other EU Member States, and an occasion for peer learning.

This year's Education and Training Monitor focuses on inequality in education and the important role that education can play in building fairer and flourishing societies. To this aim, Part 1 of Volume 1 offers an insight into equity issues showing a link between educational attainments and social outcomes. In Part 2, progress in reaching EU 2020 education targets are analysed at EU level and in individual Member States. Finally, Part 3 presents policy initiatives at all educational levels that can help tackle inequalities in educational attainments and provide quality education for all.

ec.europa.eu/education/monitor

More information on the European Union is available on the internet (<http://europa.eu>).

Cataloguing data can be found at the end of this publication.

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EU targets for 2020 in education and training

		Current	Target
Headline target	1	10.7 %	Below 10 %
	2	39.1 %	At least 40 %
Other targets	3	94.8 %	95 %
	4	Reading: 19.7 % Maths: 22.2 % Science: 20.6 %	15 %
	5	78.2 %	82 %
	6	10.8 %	15 %

Source: Eurostat (EU-LFS 2016 for 1, 2, 5 and 6; UOE 2015 for 3) & OECD (PISA 2015 for 4). Note: ISCED 0 = early childhood education; ISCED 1 = primary education; 2 = lower secondary education; 3 = upper secondary education; 4 = post-secondary non-tertiary education; 5 = short-cycle tertiary education; 6 = bachelor's or equivalent level; 7 = master's or equivalent level; 8 = doctoral or equivalent level.

EUROPEAN COMMISSION

Education and Training Monitor 2017

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

Foreword

2017 has been a year of celebration – we have marked the 60th anniversary of the Treaties of Rome and celebrated 30 years of one of the European Union's biggest success stories: the Erasmus programme. But 2017 has also been a year of reflection. The European Commission has presented different scenarios to launch a broad debate on the future of Europe.

Building the Europe of tomorrow will require big decisions on a number of challenges: how do we ensure that our economies remain competitive? How do we achieve sustainable long-term growth and create quality jobs, in particular for young people? How do we tackle global issues such as violent radicalisation? How do we build fair and cohesive societies, overcoming division and discord? An effective response to these challenges requires action in many interrelated domains of EU policies. Education has an unequivocal role in addressing all of them.

Indeed, quality education is the foundation for a Europe that is fairer, more inclusive, more resilient and more innovative than today. Across the continent, education systems play a pivotal part in reducing social and economic disparities. Education can help build fairer societies by providing high quality education for all children and young people, independent of their backgrounds, giving all of them equally good chances to lead successful lives. Equipping young people with the right skills not only to find employment, but also to become engaged, independent citizens lays the foundation for sustainable growth and innovation, as well as for inclusive, prosperous societies.

Yet, while education is crucial in mitigating inequality, poor education policies can, in fact, deepen social and economic gaps. Recent international surveys – especially the PISA 2015 results – have shown an urgent need for improvement: the EU has moved further away from meeting the ET2020 benchmark for low achievers in reading, maths and science. Roughly one in five Europeans at the age of 15 does not reach the basic level of competence in one of these three important domains. Hence, more than ever, Europe must put education and training at the top of its political agenda.

For the Commission, this means stepping up support to policy makers and education providers in raising the quality and relevance of education systems in EU Member States. In March 2017, European leaders gathered in Rome to re-affirm their commitment to working towards 'a Union where young people receive the best education and training and can study and find jobs across the continent'.

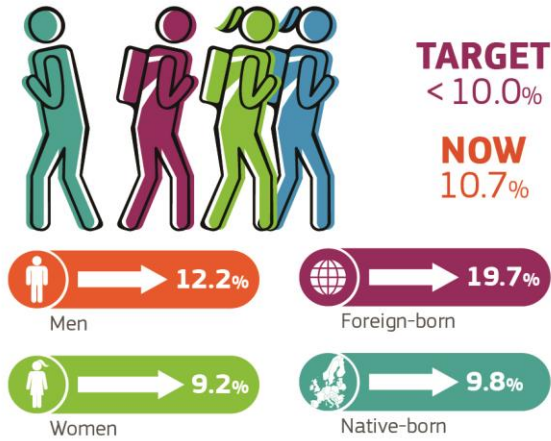
Building on the 2016 New Skills Agenda for Europe, in May 2017, the Commission presented two important political communications on schools and higher education, outlining the critical role of European cooperation in education policies while respecting the subsidiarity principle. We are proposing concrete actions to support education reforms in Member States through identifying good practices and voluntary tools to be put at the disposal of Member States. The Commission is also providing relevant up-to-date evidence and putting it into a policy context, boosting peer learning and joint progress by supplying Member States with a reliable basis for policy options and effective educational reforms. This year's edition of the Education and Training Monitor – the sixth – is a central part of this effort. It presents a relevant, data-rich, policy-oriented comparative analysis of the state of education across the European Union's 28 Member States, which I trust will help drive reform and modernisation further.

Tibor Navracsics

Commissioner for Education, Culture, Youth and Sport

EU targets for 2020 in education

Early leavers from education and training (age 18-24)



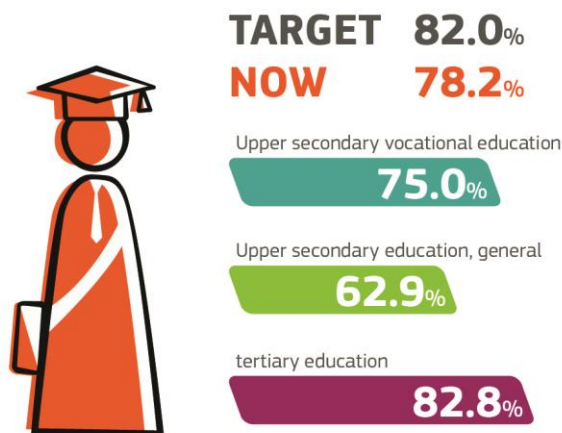
Source: Eurostat (EU-LFS, 2016)

Early childhood education and care (age 4+)



Source: Eurostat (UOE, 2015)

Employment rate of recent graduates



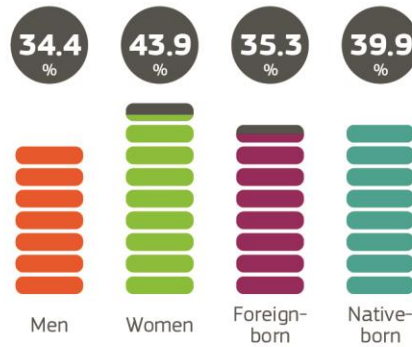
Source: Eurostat (EU-LFS, 2016)



Tertiary educational attainment

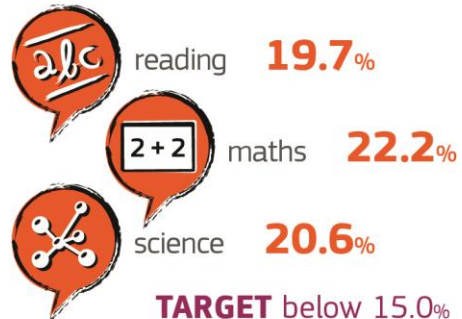
TARGET 40.0%

NOW 39.1%



Source: Eurostat (EU-LFS, 2016)

Underachievement in



Source: OECD (PISA, 2015)



Adult participation in learning



Source: Eurostat (EU-LFS, 2016)

Illustrations: © European Commission

Reading note: See front flap for sources and definitions.

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Summary

Highlights of the cross-country analysis

The lead theme of this year's Monitor is inequality in education and the important role that education plays in building a fairer society. The prime new data source is the 2015 PISA¹ test of 15-year-old pupils with all EU Member States taking part for the first time. PISA, with its rich information about the background of the tested pupils, offers unique insights into the effect that socio-economic background, a migrant background and gender have on attaining the EU benchmark on low achievement in reading, maths and science.

The equity and social cohesion theme also features strongly in the reporting on the remaining EU 2020 education targets (Part 2), the targets relate to:

- early leavers from education and training
- tertiary educational attainment
- participation in early childhood education and care
- employment rates of recent graduates
- adult participation in learning.

Part 3 of the Monitor draws on the recent Commission policy initiatives and offers an analytical underpinning for the development of schools, on how to achieve excellence in teaching and on the agenda for higher education.

Inequality remains a challenge for Europe

Inequality is widely regarded as a threat to social cohesion and the long-term prosperity of our societies. The public debate on social justice has intensified in the wake of the financial crisis of 2008.

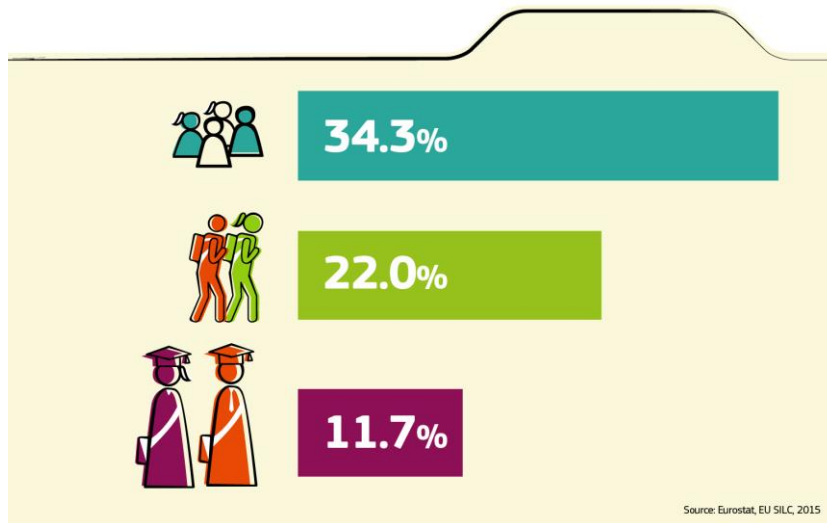
One key feature of inequality is its intergenerational transmission, or the impact of parents' socio-economic position on their children's educational attainment, occupational status, income or health. Education systems have a special role to play in building a fairer society by offering equal chances to everybody, regardless of their background. Offering equal chances to children and youth is more effective when is integrated with the real support for parents and families.

There is a strong association between educational attainment and social outcomes. People with only basic education are almost three times more likely to live in poverty or social exclusion than those with tertiary education. In 2016, only 44.0 % of young people (18-24) who had finished school below the upper secondary level were employed. And in the general population (15-64), unemployment is much more prevalent among those with only basic education (16.6 %) than for the tertiary educated (5.1 %). Furthermore, a higher share of people with tertiary education (80.4 %, according to the 2015 data) perceived their health as 'good or very good', while the rate was much lower among those with only basic education (53.8 %)². Life expectancy grows in line with the level of education too: the education premium can span up to 10 years between the low-qualified and highly qualified (2015 data).

¹ PISA is the OECD Programme for International Student Assessment.

² It has to be said however that age effect also plays a role in this disparity as people with lower educational attainment tend to be older, due to the education expansion in the recent decades.

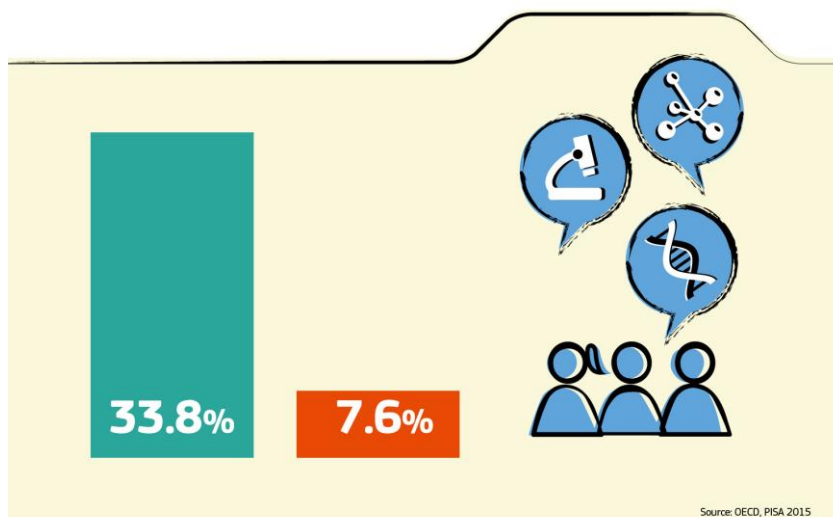
Visual 1 – Rates of 'at-risk-of-poverty or social exclusion' of people aged 18 and over by level educational attainment level, EU-28, 2015



Legend: (i) top, persons with ISCED 0-2 (max. lower secondary education); (ii) middle, persons with ISCED 3-4 (upper-secondary and post-secondary non-tertiary education); (iii) bottom, persons with ISCED 5-8 (tertiary education).

There is ample evidence, particularly from the PISA tests held every 3 years, that children from less privileged social backgrounds perform less well at school than their better-off peers. The difference in the shares of low achievers in PISA between pupils from the bottom and top 25 % segment of the **PISA index of socio-economic and cultural status (ESCS)** is striking. As many as 33.8 % pupils from the bottom 25 % segment do not reach the basic level of competence in science, while only 7.6 % of those among the top 25 % on the ESCS index do not reach that level. These EU aggregates, however, mask significant differences among and within the Member States. They are analysed in further detail in the Monitor.

Visual 2 – Underachievers in science in the bottom and top quartiles of the PISA index of economic, social and cultural status (ESCS), 2015

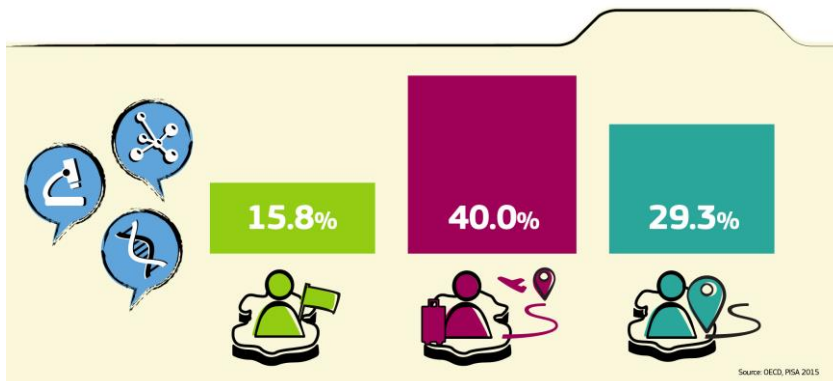


Legend: % PISA underachievers in science in the lowest (left bar) and highest (right bar) quartiles of ESCS PISA index.

While education plays a key role in the integration of migrants, their situation in terms of educational achievement compared to native-born remains disadvantageous. In 2016, 33.9 % of the non-EU-born population aged 30 to 34 held low qualifications (i.e. they had lower secondary education or below), 19.1 percentage points (pp) more than the native-born population. Moreover, people with a migrant background from outside the EU often cumulate several disadvantages at once, e.g. having poor or low-skilled parents, not speaking the local language at home, having access to fewer cultural resources and suffering from isolation and poor social networks in the host country. Young people with a migrant background are also at a greater risk of performing badly at school and of dropping out of school early.

More generally, pupils with migrant background, i.e. either born outside the country (i.e. in another EU Member State or outside the EU) or with foreign-born parents, face difficulties in their schooling, as evidenced by their significantly lower educational performance and attainment compared to the native-born population.

Visual 3 – Underachievers in science by migrant background³, 2015

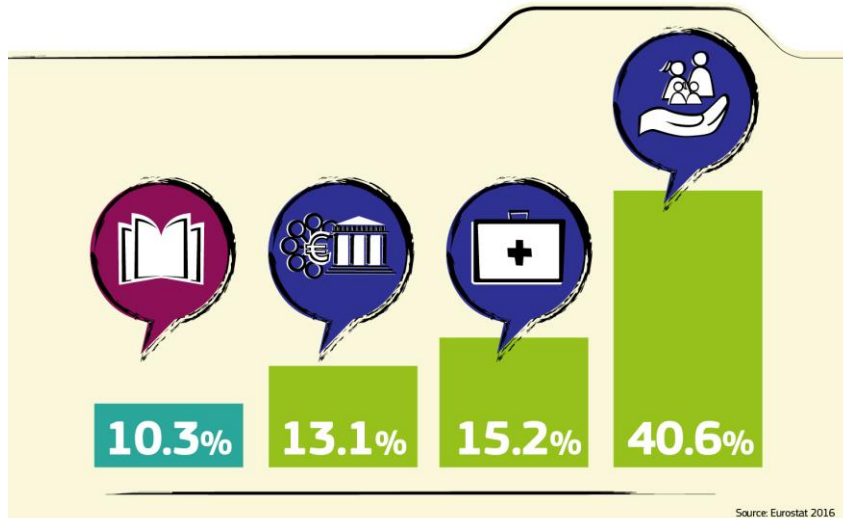


Legend: From left to right, non-migrants, first-generation of migrants and second-generation of migrant students.
Reading note: The percentages show weighted averages of selected EU Member States where the second generation of migrants is above 3 % of students taking part in PISA 2015.

Good education systems require appropriate investment. Treated as a whole, the EU Member States have managed to recover further from the recent financial crisis and have slightly increased spending on education as share of total government spending. The EU average share of education within public spending stood at 10.3 % in 2015, equivalent to EUR 716 billion. Education remains the fourth largest government expenditure item after social protection, health and general public services. The ratio of education spending to GDP stood at 4.9 % in the EU-28 countries in 2015. In recent years this ratio has been stagnant.

³ For the definition of [im]migrant students in PISA, please see Box I.7.1, Chapter 7, Volume I, p. 243, PISA 2015: 'non-[im]migrant students are students whose mother or father (or both) was/were born in the country or economy where they sat the PISA test, regardless of whether the student himself or herself was born in that country or economy; [im]migrant students are students whose mother and father were both born in a country/economy other than that where the student sat the PISA test; 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'.

Visual 4 – Average EU-28 government spending on education, general public services, health and social protection as a percentage of total government spending, 2016



Legend: From left to right, education, general public services, health and social protection.

Progress towards the 2020 targets

In 2016, the EU has continued the good progress of previous years on **early leavers from education and training**. With a current share of 10.7 %, the EU is inching towards the Europe 2020 headline target of below 10 %. However the percentage among foreign-born remains much higher (19.7 %).

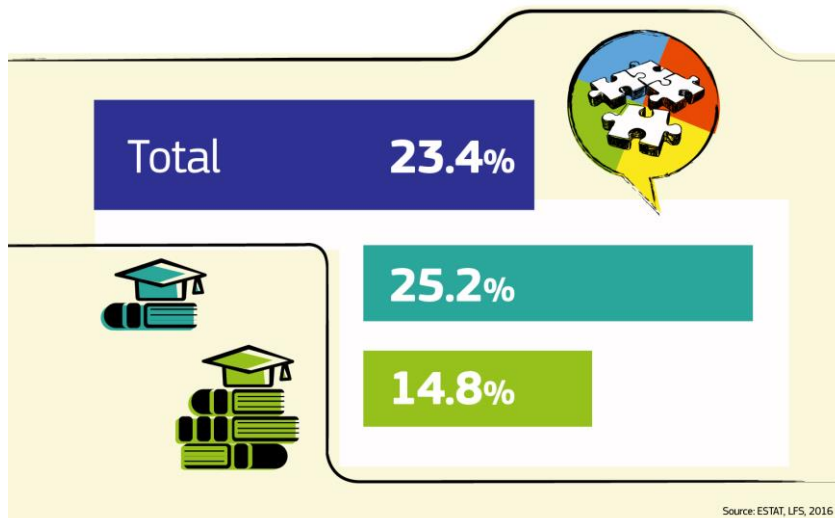
The EU also made slight progress on the headline target for **tertiary educational attainment**. Having reached 39.1 %, the 2020 target of 40 % is now within reach.

The target for **early education and care** participation by the age group above 4 years of age has been practically met, with the EU reaching 94.8 %. Ensuring the high quality and accessibility of day care facilities, as well as on broadening participation among children below the age of 3 to meet the objective of 33 % would be a logical follow-up.

On the other hand, the target on **low achievers in reading, maths and science**, as measured by the PISA 2015 survey, suffered a setback compared with the 2012 survey, which makes the debate on how schools and teaching need to be improved even more timely. The percentage of 15-year-old pupils who failed to reach a basic level of competence in science stood at 20.6 %, up from 16.6 % in 2012.

The **employment rates of recent graduates** target continues to recover from the 2008 crisis and has improved slightly since the previous year, standing now at 78.2 %, not far from the goal of 82 %. However, the differences between the types of graduates are substantial: tertiary diploma holders exceed the target (82.8 %), whereas students who have completed general upper and post-secondary education only are lagging 10.2 pp behind (72.6 %). While the EU has moved closer to the target, the debate should also include the match between jobs and the skills workers possess. The mismatch remains high, particularly among bachelor's diploma holders. This is an incentive for educators to review curricula and education standards, and for students to review their choices of field of study.

Visual 5 – Mismatch between the educational attainment and the occupation, 2016



Source: ESTAT, LFS, 2016

Legend: the shares of people (aged 25-44) with a tertiary (top), a bachelor (middle) and a master diploma (bottom) that have an occupation traditionally requiring a lower level of educational attainment.

As for **adult participation in learning**, there has been practically no progress since the 2015. At 10.8 %, the EU still seems far from the modest target of 15 % of adults participating in formal or non-formal education and training.

Part 2 of Volume 1 of the Monitor contains detailed socio-demographic breakdowns, the evolution over time of progress towards the above benchmarks and a review of the differences between the Member States.

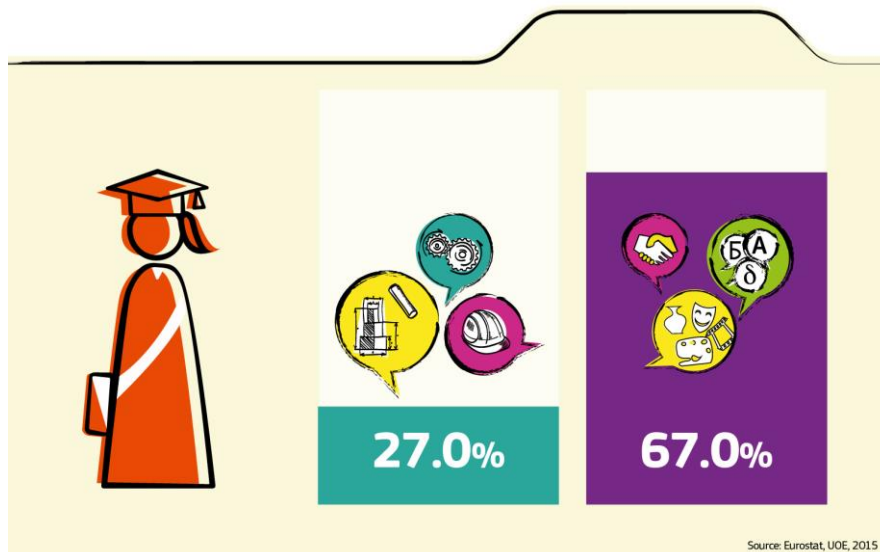
Towards high-quality education for all

The decrease in recent PISA results in basic competences, coupled with fast technological progress and globalisation, have set the context for the debate on how to modernise pre-school day care facilities, schools and universities. These reforms will be analysed further in this Monitor, on three levels:

1. Schools, teachers and governance: How can schools be made more responsive to the changing nature of basic skills required in the modern world, e.g. the growing importance of ICT technologies and multilingualism?
2. How can Europe help its ageing, mostly female and often economically fragile teaching force to turn modern technologies into an asset, to learn how to operate in a multicultural environment and help prevent radicalisation of disenfranchised young people?
3. Making school more participatory by getting parents, the local community and other stakeholders more closely involved, is believed to be an indispensable part of the modernisation of high-quality education for all.

Lastly, girls tend to outperform boys in PISA scores (although the gap has diminished since 2012) and are fewer than boys among the early school leavers from education and training. Women account for just 27 % of engineering graduates but dominate (67 %) among the humanities graduates. This ratio is reflected in science professions where women constitute a 20.2 % minority.

Visual 6 — Percentage of women among graduates in engineering and humanities, 2015



Legend: (i) left bar, engineering, manufacturing and construction; (ii) right bar, arts and humanities.

Highlights of the country analysis

Volume 2 of the Education and Training Monitor 2017 comprises twenty-eight individual country reports, and can be found online (ec.europa.eu/education/monitor). The country reports follow a structure similar to that of Volume 1, but complement the cross-national analysis with country-specific data and information on policy measures and the latest reforms.

- AT** Austria is implementing the reform agenda agreed in 2015: the package on school autonomy, administration and comprehensive schools was adopted in July 2017. While the early school leaving rate fell further in 2016 to well below the European target, performance in basic skills has not improved in international testing. The new strategy on the social dimension of higher education is an important element within the new framework for public funding of universities. Austria will have to replace about half of its teaching force during the next decade. This will require it to attract and train sufficient student teachers, but also provides an opportunity to innovate in pedagogy. Austria has a uniquely strong short-cycle, professionally oriented tertiary education including in science, technology, engineering and mathematics. However, it needs more PhD graduates to further sustain its goal of becoming an innovation leader.
- BE** Major school reforms are at an early stage: sustained political commitment will be needed. Belgium has reached its national early school leaving target. Actions to further lower the numbers leaving school with low or no qualifications are being pursued. The equity challenge is significant, with PISA showing above average performance gaps linked to socioeconomic status and migrant background. The challenge could increase as growth in the school population will be concentrated among disadvantaged groups. New school governance and quality assurance measures should help to better combine autonomy and accountability and reduce inequalities between schools. Teachers' continuous professional development needs improvement. Tertiary attainment is high, but the system is under pressure with rising student numbers. Initiatives seek to address low graduate numbers in science and technology and gender imbalances.
- BG** There is a greater focus on inclusive education in Bulgaria. Authorities plan to revise the funding model in school education to support improvements in equity (by channelling additional resources to disadvantaged schools) and quality. Underachievement in basic skills as measured by PISA remains one of the highest in the EU. This is due to a

combination of educational factors and equity challenges. Authorities have started implementing a new approach to tackle early school leaving. Integrating Roma into the education system remains a challenge, as does Roma school segregation in education. Bulgaria seeks to significantly raise salaries to increase the attractiveness of the teaching profession and counter the fast ageing of teachers. Performance-based funding of higher education seeks to address the challenges of quality and labour market relevance. Bulgaria is making efforts to improve the quality of vocational education and training.

- CY** The share of low achievers in basic skills among 15-year-olds is comparatively high. Cyprus ranks last in the EU in science and mathematics. The gender gap in reading is the highest in the EU. Tertiary attainment is one of the highest in the EU, but tertiary graduates' employment levels are below average, while the share who works in non-graduate level jobs is the highest in the EU. Despite much improved employment levels among VET graduates, measures to improve the attractiveness of vocational education and training have yet to bear fruit or to turn around very low participation levels. The modernisation of school education has advanced in the areas of teachers' continuing professional development and appointment, but lags behind for school and teacher evaluation. Early school leaving and low performance of at-risk students are tackled through dedicated support measures in schools.
- CZ** The employment rate of recent graduates is very high. Inequalities in educational outcomes linked to socioeconomic background are strong and hit the Roma population in particular. The proportion of low achievers in basic skills increased markedly, in particular in science. Teachers' salaries remain relatively low and the teaching workforce is ageing, calling for measures to increase the attractiveness of the profession to talented young people. Tertiary educational attainment has confirmed its rapid increase and implementation of the long-awaited reform of higher education has started.
- DE** The performance of 15-year-olds in science, mathematics and reading is stable overall but remains much lower for students with a migrant background. The influence of socioeconomic factors on educational outcomes has decreased but is still important. Public spending on education remains below the EU average. Financial planning will be confronted with specific challenges including demographic change, school infrastructure, teacher appointments, integration of refugees and inclusion of special-needs students. Participation in early childhood education is almost universal for 4- to 6-year-olds. Improving the supply and quality of early childhood education and care is a priority. Substantial efforts have been made to integrate refugees at all levels of education. However, difficulties in allocating them to appropriate schools in some regions exist. Enrolment and attainment levels in tertiary education are on the rise. Vocational education and training appears less attractive to young Germans, despite the fact that employment prospects for VET graduates remain very good.
- DK** Danish education combines high achievement with good levels of equity and a focus on student well-being. The rate of high-performing students is, however, lower than in other Nordic countries. The Vocational Education and Training reform of 2015 simplified studies and the reform has had some initial positive impact, for instance on transition to higher education. However, reducing dropout rates and attracting entrants from primary school remain major challenges. The 2014 compulsory school (Folkeskole) reform is being implemented. A reform of upper secondary education will start in 2017/2018. Public education budgets have been reduced, but Denmark remains the biggest investor in education in the EU. Tertiary student numbers have doubled since 2008. This has led to a focus on how to better manage student flows and speed up graduation. The transition from study to work is comparatively slow.
- EE** Estonia has a well performing school system. Underachievement in basic skills and the impact of socioeconomic status on student performance are low. Early school leaving remains a challenge, with marked gender differences and geographical disparities. Participation in early childhood education and care remains below the EU average. Teacher salaries have increased significantly and are set to increase further in order to make teaching more attractive and counter the ageing of the teaching workforce.

Tertiary educational attainment is high and growing, but gender gaps persist. The funding model for universities was revised targeting the stability of resources and completion of studies in nominal time. Labour market and skills surveys aim to anticipate future trends and feed changes into the education and training system, thus supporting adjustments in the economy.

- EL** The share of low achievers in science, mathematics and reading as measured by PISA 2015 is above EU average and particularly high among students with a migrant background. Gender and socioeconomic status strongly affect student performance. The tertiary attainment rate is high, but the employment rate of recent graduates remains low and macro-economic skills mismatches persist, leading to a significant outflow of highly skilled people. New policy measures aim at strengthening the quality of school education, but efforts to achieve greater autonomy and efficiency appear insufficient. Greece is making important efforts to provide education to refugee children, but numerous challenges remain with regard to their integration into mainstream education. The reform of vocational education and training is progressing, but there is scope to further increase its attractiveness and boost participation.
- ES** The Spanish Parliament is consulting stakeholders before drafting a proposal for a Social and Political National Pact on Education that would set the terms for a long-lasting education reform. This has put on hold several parts of the Law to improve the quality of education and other pending reforms. Students' abilities as measured by PISA 2015 are stable at around the EU average and early school leaving continues to decrease. However, significant gaps between regions show that progress is uneven across the country. The increase in recruitment of teachers should help address the high levels of interim staff in schools, while reforming the teaching profession is one of the main features of the future pact. The Ministry of Education, Culture and Sport is making significant efforts to prevent violence and bullying in schools. Enrolment in higher education continues to fall and the education offer is very broad and not fully relevant to the job market. University-business cooperation has improved in the field of research and innovation but has yet to address education.
- FI** Reforms to the education system such as the curriculum for the 21st century, the new comprehensive school and the teacher development programme aim to maintain the quality of the education system, while acknowledging the increasing need to address inequalities. In 2016 early school leaving was significantly reduced for the first time in years, with a moderate gender difference. But young people with a migrant background do significantly worse. Finland's performance in basic skills in PISA 2015 continued to slip, but it remains one of the best performing European countries. The education system continues to face public budget cuts. More migration and increasingly divergent educational outcomes in different regions have reduced the homogeneity of educational outcomes.
- FR** Recent education reforms focus on reducing inequalities. New curricula and pedagogical practices have entered into force and 54 000 new teaching posts were created in early stage and 'priority' education. The number of pupils leaving education annually with no qualification has fallen by 30 % between 2009 and 2016. Pupils' performance in basic skills remains strongly linked to their socioeconomic background. Initial teacher education has been reformed, helping to make the profession more attractive, but continuing professional development has not been substantially improved. The tertiary educational attainment rate is high. Vocational education and training has seen important evolutions aiming at improving integration into the labour market for initial VET and improve access to relevant training for continuous VET.
- HR** The very low early school leaving rate is among the main strengths of Croatia's education system. Basic skills have declined and are below the EU average. There are differences in performance linked to socioeconomic status, but the quality of curricula and teaching appear to be the main driver of Croatia's poor performance. Participation rates in early childhood education and care and in adult education are low compared to other EU countries. Despite recent robust economic growth and a more promising labour market situation, low skill levels need to be addressed. The same applies to the

relevance of skills acquired in vocational and higher education. A number of reforms have been prepared in the context of the Strategy for Education, Science and Technology and the associated curricular reform. However, progress in 2017 has been limited.

- HU** A revision of Hungary's national curriculum was launched in 2017 in response to declining performance in PISA 2015. Recent measures on early childhood education and care may contribute to closing performance gaps between pupils from disadvantaged and more privileged backgrounds. A 2017 increase in applications to initial teacher training suggests that recent measures are helping to attract new candidates to the profession. New graduate tracking surveys offer a good insight into the employment situation of recent graduates. Hungary faces skills shortages; responding to these is hampered by low enrolment and completion rates in tertiary education.
- IE** Irish students' basic skills in reading, mathematics and science are high and relatively unaffected by socioeconomic background. Ireland continues to compare very well on education targets for early school leaving and tertiary education attainment. However, inequalities in participation and access are still to be addressed. A phased implementation of reforms at lower secondary level is set to be completed in 2019. These reforms will also inform reviews of upper secondary education. The major reforms of the further education and training and higher education sectors are progressing. Access to higher education remains closely linked to socioeconomic status and there is a need for alternative, more vocationally oriented pathways. Future funding of tertiary education is also a key issue.
- IT** The 2015 school reform has entered into force and could improve learning outcomes as well as increase equity. Although still above the EU average, the early school leaving rate is on a steadily downward trend; participation in early childhood education is almost universal for four- to six-year-olds. Italy's tertiary educational attainment rate for 30- to 34- year-olds is one of the lowest in the EU. The higher education system faces the challenge of ageing and declining teaching staff. The negative trend in higher education funding is being reversed, with additional resources allocated on a selective basis. Transition from education to work is difficult, also for high-qualified people. This is causing an outflow of highly skilled people.
- LT** Depopulation due to demographic trends and emigration is a big challenge for the efficiency of spending in education. In this context, low participation of adults in lifelong learning is a concern. Key challenges in early childhood education and care are to expand participation and to establish a system of external quality assurance. Large disparities between schools in urban centres and rural regions affect funding levels, quality of infrastructure, quality of teaching and, ultimately, educational outcomes. The set-up of the working conditions for teachers is having a negative effect both on the quality of teaching and the supply of young teachers to the profession. The higher education sector is quantitatively strong, but there is evidence of quality and efficiency challenges. These are expected to be addressed by major reforms.
- LU** The PISA performance of 15-year-olds in the 2015 survey was significantly below the EU average in all three components: mathematics, reading and science. Calculated according to national surveys, the early school leaving rate is high and has been on the rise since 2009. An ambitious reform to improve access and quality in early childhood education and care started in September 2016. A number of actions were taken to improve the quality of teaching and support for children with special learning needs. To meet the strong demand for high-skilled workers, Luxembourg has made further adjustments to the 2014 reform of financial aid to students as of September 2016.
- LV** Latvia has made remarkable recent progress in reducing early school leaving and improving basic skills attainment. The new financing model for higher education and the new system of quality assurance are being implemented on schedule. The tertiary educational attainment rate is high, but supplying enough STEM graduates to knowledge-intensive sectors remains a challenge. Vocational education and training is undergoing significant reform, but there is still considerable scope for expanding work-

based learning and updating the curriculum. The gender gap in education is a challenge across the board, with women outperforming men significantly both in qualifications and basic skill proficiency.

- MT** Malta is investing heavily in its education and training system. Despite steady progress, the early school leaving rate is still high and tertiary educational attainment remains low. The reform of secondary education has been launched and could help reduce early school leaving. Transition from education to the labour market is easier than in most other EU countries. Adult participation in learning is relatively low, particularly among the low-skilled.
- NL** The downward trend in early school leaving continued in 2016. Despite good overall school performance, there has been a decline in basic skills and an increase in educational inequality. The school performance and employment situation of young people from an immigrant background remains an important challenge. The Netherlands faces an increasing shortage of teachers. Following the transition from the grant-based system to student loans, enrolments dropped in higher education in 2015 but recovered in 2016.
- PL** Overall educational performance is strong. Poland is one of the best EU performers on early school leavers, tertiary attainment and the general level of basic skills of young people is high relative to other EU countries. Participation in early childhood education and care has increased significantly, but challenges related to the youngest children remain. The primary and lower-secondary school system is to be overhauled from September 2017, in conjunction with a later extension of upper-secondary education. These changes are raising concerns among a number of stakeholders. The government has launched a new higher education reform to improve quality, performance and internationalisation. The labour market relevance of vocational education is still limited, despite recent initiatives. The reform of vocational training starts in September 2017. Scattered adult education policy results in low interest and low participation in education and training compared to the EU average.
- PT** Portugal is making progress in improving educational outcomes, reducing early school leaving and ensuring full public provision of pre-school education for all children aged 3 to 5 years by 2019. Implementation of the 'National Plan to Promote Success at School' — the flagship initiative to prevent school failure — is under way. The number of participating schools has exceeded expectations. Tertiary attainment is improving, but meeting the ambitious national Europe 2020 target will be a challenge. Several measures are under way to help streamline the higher education offer. Promotion of adult education plays a central role in the current education policy, with the aim of addressing the adult population's low level of basic skills.
- RO** Romania is implementing a competence-based curriculum in school education. Plans are underway to train teachers to teach the modernised curriculum. Underachievement in basic skills remains one of the highest in the EU. This is due to educational factors and equity challenges. Access to quality mainstream education is particularly a challenge for students in rural areas and for Roma. Funding for education is low. Early school leaving risks remaining high, with consequences for the labour market and for economic growth. The labour market relevance of higher education is improving, but tertiary educational attainment is the lowest in the EU. Efforts to introduce dual vocational education and training are underway. Adult participation in learning remains very low despite the need for upskilling.
- SE** Sweden invests heavily in education, with general government expenditure on education among the highest in the EU. Sweden has one of the highest tertiary educational attainment rates in the EU and the employment rate of its recent tertiary graduates is very high. School education outcomes have improved after years of deteriorating performance, with particularly strong improvements in mathematics and reading. Inequalities are growing: tackling the increasing performance gap between foreign-born and native students is a challenge. The attractiveness of vocational education and training is being improved.

- SI** With a low rate of early school leaving and a high share of tertiary attainment, Slovenia has a highly educated population and has already met its national targets under the Europe 2020 strategy. High attendance in early childhood education and care provides a strong basis for later success in basic skills. The higher education sector is undergoing reforms which aim to link funding with performance, increase completion rates, encourage internationalisation and strengthen quality assurance. Vocational education is attended by a large number of young people. However, apprenticeships are being reintroduced to engage employers further and help young people make the transition to working life.
- SK** Slovakia is aiming to develop more strategic central steering of education policies. PISA 2015 results showed a decline in basic skills and a high level of inequality, with low achievement strongly linked to socioeconomic background. There are large regional disparities, particularly affecting the Roma community. Teachers are insufficiently paid and their status is low, limiting the attractiveness of the profession. Their continuing professional development is not sufficiently targeted to development needs. Initial teacher education is not clearly focused on preparing for practical teaching. Education continues to be relatively underfunded at all levels. Slovakia's tertiary attainment rate has made substantial progress. Quality assurance of higher education does not yet meet international standards, the sector is insufficiently internationalised and lacks a professionally oriented short-cycle study offer.
- UK** The UK performs comparatively well in most of the Education and Training 2020 indicators. PISA 2015 shows that UK students' basic skills in science, maths and reading are stable since 2006, comparatively high and reasonably equitable. Equity is a principal policy goal across all four parts of the UK, with high levels of debate around policy approaches notably in England. Disparities in school funding are at the centre of the current restructuring of funding for schools in England. Low retention rates in the teaching profession impose a significant strain on teacher recruitment and training and generate high costs. The UK has one of the highest rates of tertiary attainment in the EU.

Part 1

Equity, a challenge for education



1 Equity, a challenge for education

1.1 Education and the inequality debate — an introduction

Key findings

High levels of inequality can be corrosive for social cohesion and economic sustainability. Ensuring equity remains a key challenge for Europe as students from disadvantaged backgrounds fare worse in educational attainment and learning outcomes than their better-off peers.

Education can play a crucial role in equalising opportunities. Offering the same quality education to children from poor socio-economic and migrant backgrounds means that they will enjoy greater chances for successful living. Conversely, unequal education systems aggravate inequality.

A key feature of inequality is its intergenerational transmission, or the impact of parents' socio-economic position on their children's educational attainment, occupational status, income or health⁴.

The following analysis makes extensive use of PISA data. PISA: the Programme for International Student Assessment is a key international educational competence assessment among 15-year-olds that has prompted intensive educational discussions and reforms since its first round in 2000. The 2015 edition was carried out in 72 countries and economies worldwide and — for the first time — in all Member States.

1.1.1 Socio-economic inequality

Inequality has featured prominently in the public debate of the last decade in advanced economies. Recent debates were fuelled by the post-crisis disillusionment with the previous promises about 'trickle-down economics' and the 'rising tide lifting all boats' as well as by ample reports of a widening gap between the rich and poor, as indicated by the European Commission, EU-financed research, the OECD, the International Monetary Fund and the World Bank⁵.

⁴ European Commission (2017). [Employment and Social Developments in Europe 2017](#), Box 3.1. page 102-103.

⁵ See:

- European Commission (2011). [Employment and Social Developments in Europe 2011](#), chapter 2, pp. 65-95.
- European Commission (2013). [Employment and Social Developments in Europe 2013](#), chapter 7, pp. 377-418.
- [GINI – Growing Inequalities' Impacts](#) — a EU funded FP7 research project.
- OECD (2011). [Divided We Stand: Why Inequality Keeps Rising](#).
- Ostry, J. D., Berg, A. and Tsangarides, C. G. (2014). Redistribution, Inequality, and Growth. An IMF Staff Discussion Note.
- Milanovic, B. (2011). The Haves and The Have-Nots: A Brief and Idiosyncratic History of Global Inequality.
- Milanovic, B. (2016). Global Inequality: A New Approach for the Age of Globalization.

Researchers such as R. Wilkinson, K. Pickett, G. Standing, J. Stiglitz or T. Piketty have become emblematic campaigners against inequality. Their widely discussed books and associated advocacy platforms have become influential in steering the public debate⁶.

It has been argued that increasing inequalities may have adverse social, political and economic consequences. Wilkinson and Pickett argue that more unequal societies display worse social outcomes: poorer health, lower education levels, higher violence, higher incidence of teenage pregnancies, lower child well-being. Hence, inequality harms society as a whole.

Standing argues that current trends in inequality are politically untenable as they create a large, frustrated and humiliated underclass of poor people who are potentially vulnerable to radicalisation, lacking career prospects, and who oscillate between short-term, precarious, low-paid and menial jobs.

Stiglitz argues that inequality is disruptive to the economy by destroying the foundation of the market economy, i.e. consumers' purchasing power, hence undermining aggregate demand.

Finally, Piketty sought to demonstrate that the growing inequalities can threaten the democratic order and must be moderated by state intervention.

The academic research on income and wealth distribution by several other economists and sociologists such as T. Atkinson, E. Saez and their projects like the *World Wealth and Income Database*⁷ have offered critics of inequality a solid data underpinning. The research has also put numbers on the inequality increases experienced in the most of the developed economies during the last three and a half decades.

Income inequalities in Member States have been widely analysed. The primary source of European statistics on income inequality is the EU SILC⁸ data collection. The three measures derived from EU SILC designed to capture income inequality are:

- the *Gini coefficient of equivalised disposable income* (Gini), monitored for example through the *Joint Employment Report 2017*;
- the income quintile ratio (S80/S20), monitored for example through the *Social Scoreboard*⁹;
- the *at-risk-of-poverty or social exclusion rate* (AROPE) which is a combined relative and absolute poverty measure developed in the context of the EU 2020 headline target of lifting 20 million people out of poverty and social exclusion by 2020¹⁰.

Rising income inequalities have been a common trend across developed economies. Income inequalities in EU Member States in 2015 have stabilised at a historically high level, after increases between 2010 and 2014. Recently (2014-2015), inequalities as measured by S80/S20 increased most in the countries where they were already high. High inequality levels can reduce the output of the economy and the potential for sustainable growth. Large and persistent inequalities do not only raise concerns in terms of fairness, as they usually reflect a high risk of poverty and social exclusion, but also in economic terms, as they lead to an under-utilisation of human capital. Inter-generational transmission of poverty compounds these negative impacts¹¹.

⁶ e.g.

- Wilkinson, R. G. and Pickett, K. (2009). *The Spirit Level: Why More Equal Societies Almost Always Do Better* and the associated [Equality Trust](#).
- Standing, G. (2011). *The Precariat: The New Dangerous Class* and the related [Basic Income Earth Network](#).
- Stiglitz, J. (2012). *The Price of Inequality: How Today's Divided Society Endangers Our Future*.
- Piketty, T. (2013). *Capital in the Twenty-First Century*.

⁷ [WID.WORLD](#) is an online data base that has evolved from 15 years of income and wealth studies by T. Piketty, E. Saez A. B. Atkinson and F. Alvaredo, following on from pioneering work by S. Kuznets and A. Harrison.

⁸ European Union Statistics on Income and Living Conditions, see Eurostat – [Statistics Explained](#).

⁹ The [Social Scoreboard](#) of the European Pillar of Social Rights.

¹⁰ [Europe 2020 strategy target](#) on the risk of poverty and social exclusion.

¹¹ European Commission (2017). [The Joint Employment Report](#), as adopted by the EPSCO Council on 3 March 2017.

In 2014 the European Commission completed a comprehensive research project called *Gini – Growing Inequalities' Impacts*¹². The project brought together distinguished experts in the field to come up with detailed patterns of the evolution of income inequalities. The picture emerging from this research is nuanced and escapes any easy straightforward answers. Inequalities as measured by the Gini coefficient¹³ have remained by and large within a fairly narrow band. In the decade before 2015 Gini clearly dropped, i.e. inequality decreased, in Poland, Portugal, the UK, Ireland and Slovakia, but rose in Spain, Bulgaria, Denmark, Germany and Cyprus.

Figure 1 – Gini coefficients of income inequality in selected European countries, 2005-2015



Source: Eurostat, EU SILC. Online data code: [ilc_di12]. Figure 1 show only those European countries whose Gini coefficients (of equivalised income after social transfers) decreased or increased over 2 points between 2005-2015. Decreasing inequality (negative variation) are shown above: PL (-5.0 points); PT (-4.1 points); SK (-2.5 points); UK (-2.2 points); IE (-2.1 points). Increasing inequality (positive variations): ES (+2.4 points); DK (+3.5 points); DE (+4.0 points); CY (+4.9 points); BG (+5.8 points). Reading note: data are not available for BG in 2005.

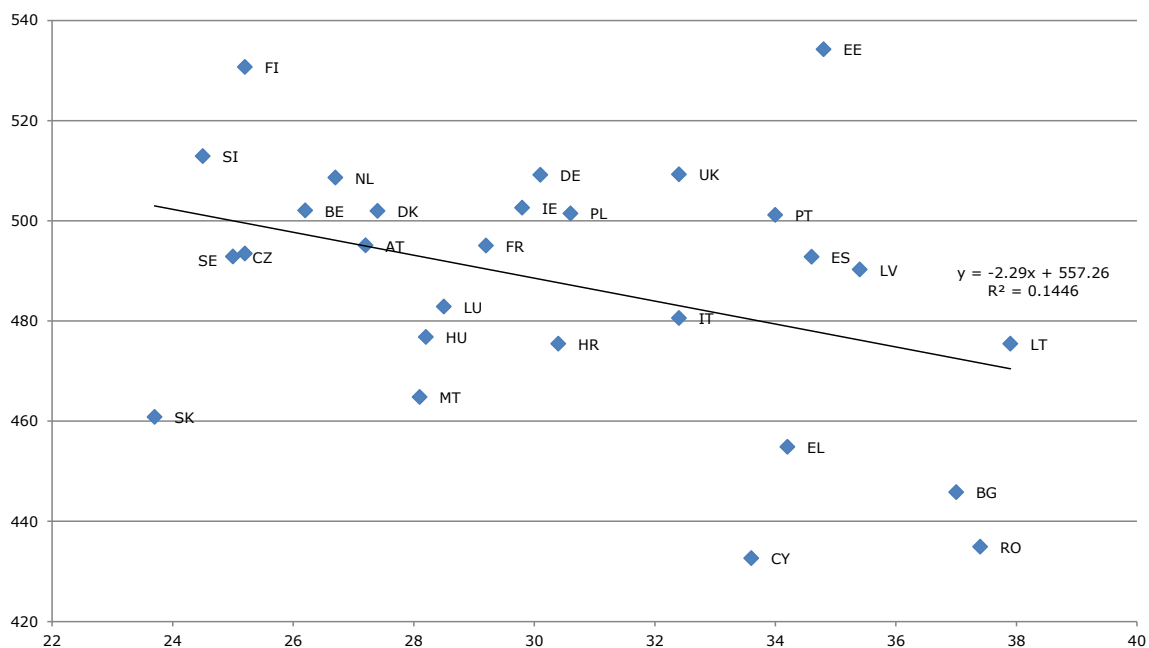
The marked decrease of inequalities in Poland and a slight decrease in Slovakia are manifestation of the long-term success of the transition to a market economy, sustained economic growth and the emergence of the middle class.

¹² The [GINI Project](#), 2014.

¹³ The Gini coefficient varies between 0 (equal income distribution) and 1 (total concentration) and assumes values globally from 0.243 in Slovakia to 0.63 in South Africa. Depending on convention, Gini can also be given as 0 to 100 instead of 0 to 1.

With regard to income distribution, a tempting question to ask is whether more equal societies indeed score better in education performance or conversely, whether the countries scoring better in education are more equal¹⁴. Such a question escapes simple answers. Figure 2 and Figure 3 represent one possible attempt to map such a relationship by plotting the Gini coefficients against the mean 2015 PISA scores and the percentage of low achievers in science, respectively. However disappointing for the hypothesis, the image shows no straightforward relationship between equality in income distribution and the education performance of 15-year-olds, as numerous outliers can be seen and counter-examples can be cited to undermine the pattern. For example, in science, similarly high PISA results (Figure 2) were observed in low-inequality Finland and high-inequality Estonia. Similarly, medium-low results were observed in both Slovakia and Latvia, countries occupying two polar opposites in the Gini-inequality spectrum.

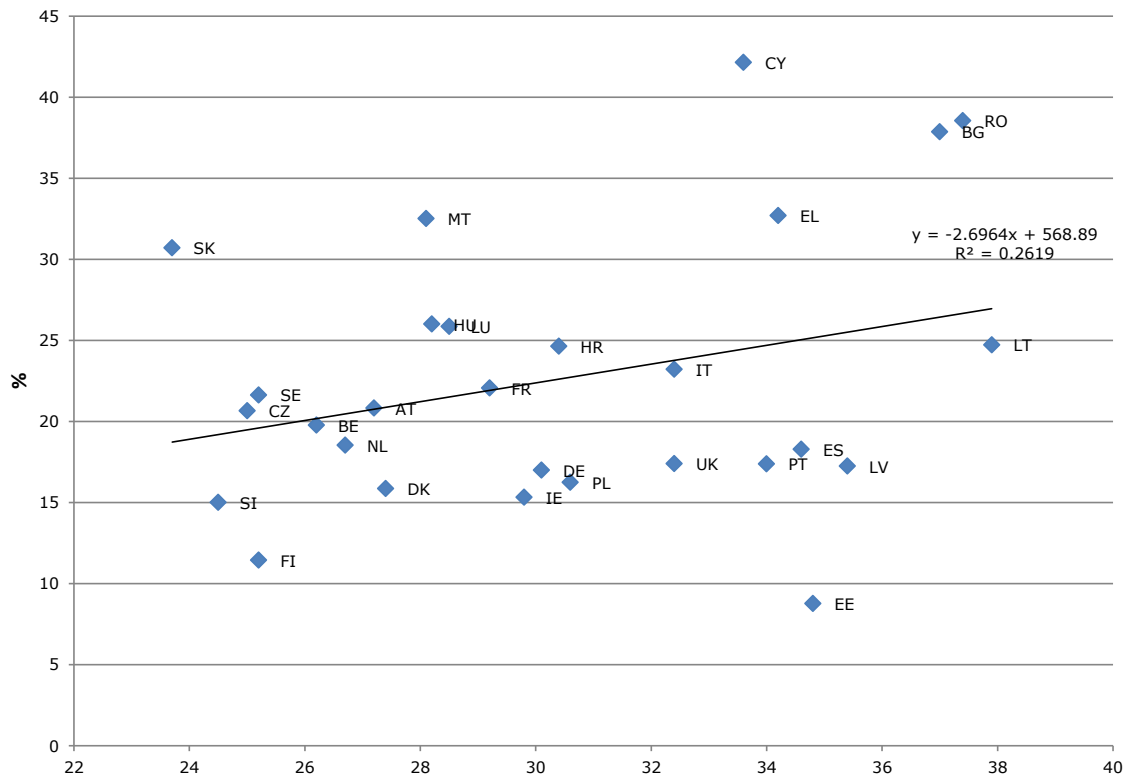
Figure 2 – Gini coefficients of income inequality and mean PISA scores in science, 2015



Source: OECD 2016: PISA 2015 results; EAC computations based on Eurostat data, the Gini coefficient from 2015 based on EU SILC 2015 data.

¹⁴ See also: European Commission (2017). [Employment and Social Developments in Europe 2017, chapter 3](#), and: Coady, C and Dizioli, A. (2017). [Income inequality and Education Revisited: Persistence, Endogeneity, and Heterogeneity](#), and IMF Working Paper, 26 May 2017.

Figure 3 - Gini coefficients of income inequality and percentage of low achievers in PISA in science, 2015



Source: OECD 2016: PISA 2015 results; EAC computations based on Eurostat data, the Gini coefficient from 2015 based on EU SILC 2015 data.

Moreover, comparing the Gini coefficient of income inequality with a country's PISA performance can be regarded as problematic as the two measures relate to different groups of people: Gini characterises income across whole distribution and all age groups, whereas PISA only characterises the population of 15-year-old pupils. Further, comparing an average (PISA scores) and the Gini (a measure of dispersion) can in itself be problematic.

Although the relationship between the level of inequality and social outcomes has proven difficult to demonstrate with existing data, what can be shown is that both within societies and on the individual level, having a better education means better social outcomes in terms of prosperity, health and longevity. Access to quality education for all is, therefore, crucial for promoting equity.

Education occupies a special place in the inequality debate. Differences in educational attainment and status are important markers of inequalities. In turn, unequal educational opportunities potentially weaken social cohesion and, especially, social mobility. Detailed analyses can give indications as to which areas require the attention of policy-makers and policy action. Hence the role of education indicators can serve as a barometer for existing and future inequalities. The following paragraphs describe the influence of education and education inequalities on various key areas of life.

Education affects several quality of life outcomes, e.g. income, self-reliance, social support network, mortality risk, perceived health status and time invested in developmentally enriching activities with children¹⁵.

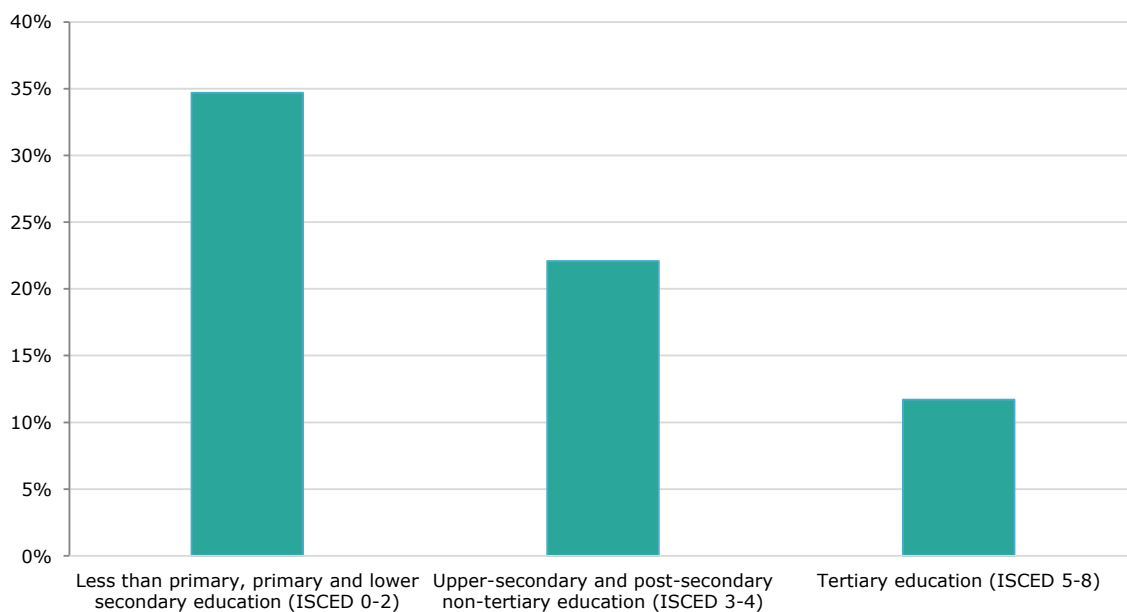
¹⁵ Edgerton, J. D.; Roberts, L. W. and Below, S. von (2012). Education and Quality of Life. , Chapter: Education and the Quality of Life. In Land, K.C., Michalos, A.C. and Sirgy, J., Handbook of Social Indicators and Quality of Life Research pp. 265-296.

1.1.2 Key areas of life affected by education inequalities

1.1.2.1 Education, income and socio-economic status

The level of education has been demonstrated to have a direct impact on an individual's income over his or her lifecycle¹⁶. Figure 4 shows that people without upper secondary education are almost three times more likely to be at risk of poverty, severely materially deprived and/or living in a low work intensity household than those with tertiary education.

Figure 4 — At-risk-of-poverty rate and social exclusion in EU by educational attainment level, 2015



Source: Eurostat, EU SILC. Online data code: [iilc_peps041](#).

Education levels are linked to higher self-rated health rates and lower morbidity rates¹⁷, with the health returns to education being particularly high in disadvantaged families¹⁸. A recent analysis of the 2014 European Social Survey¹⁹ makes a link between high educational attainment and a reduced risk of depression, again particularly for people coming from disadvantaged families.

Across the EU, the perception of being in good or very good health in 2015 was highest among people who had completed tertiary education (80.4 %) while only 53.8 % of those with at most lower secondary education rated their health so highly. Similarly, people with lower education have higher rates of 'self-reported unmet needs for medical examination': In 2015, 4.8 % of those with at most lower secondary education reported unmet needs for medical examination, compared to 2.6 % of those with middle education and only 1.9 % among those with tertiary

¹⁶ Guidetti, G. and Rehbein, B. (2014). Theoretical Approaches to Inequality in Economics and Sociology. A Preliminary Assessment, Transcience Vol. 5, Issue 1.

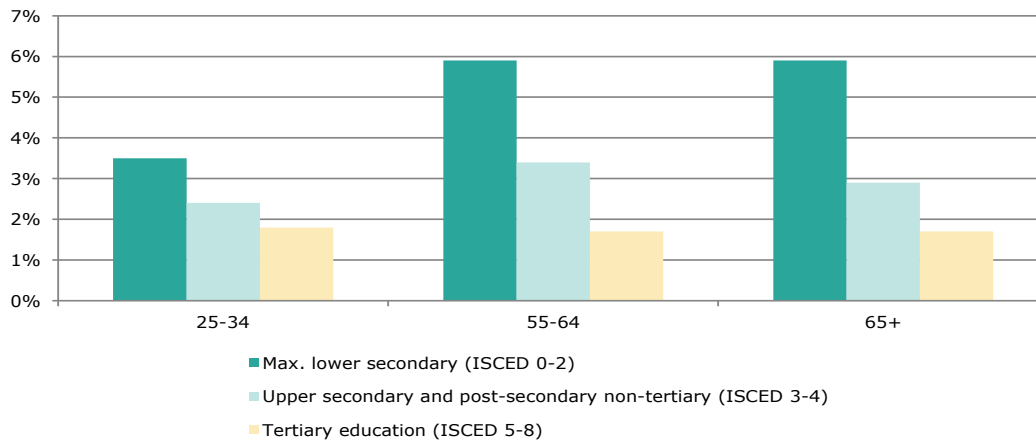
¹⁷ Badley, E. M., Canizares, M., Perryccio, A. V., Hogg-Johnson, S., Gignac, M. A. (2015). [Benefits Gained, Benefits Lost: Comparing Baby Boomers to Other Generations in a Longitudinal Cohort Study of Self-Rated Health](#). The Milbank Quarterly, 93(1), pp. 40-72.

¹⁸ Andersson, M. A. (2016). Health returns to education by family socio-economic origins, 1980–2008: Testing the importance of gender, cohort, and age, SSM — Population Health 2 (2016), pp. 549-560.

¹⁹ Andersson, M. A. and Vaughan, K. (2017). Adult health returns to education by key childhood social and economic indicators: Results from representative European data, SSM — Population Health 3, 2017, pp. 411-418.

education²⁰. This effect holds for all age groups though it is slightly affected by the recent expansion of education which implies that people with low educational attainment are more likely to be old.

Figure 5 – Percentage of people in EU-28 declaring unmet needs for medical examination by age and level of education, 2015

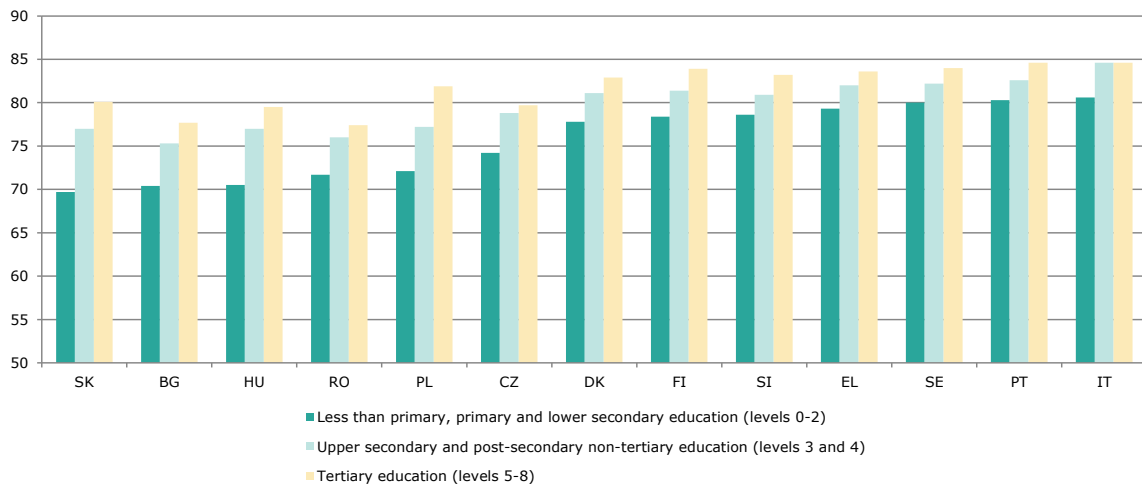


Source: Eurostat, EU SILC, [[hlth_silc_14](#)].

Reading note: The reasons evoked for the unmet needs are: too expensive or too far to travel or waiting list.

Life expectancy grows with education. As Figure 6 shows, the education premium can span up to 10 years between the low- and highly-qualified.

Figure 6 – Life expectancy (in years) by educational attainment level in selected EU countries, 2015



Source: Eurostat, online data code: [[demo_mlexpecedu](#)]

A recent study on health inequalities²¹ argues that the low educated have a higher mortality risk for preventable causes, which are causes sensitive to behaviour change, medical intervention and injury prevention.

²⁰ Eurostat, 2017 data, on 'Self-reported unmet needs for medical examination'. Online data code: [[hlth_silc_14](#)].

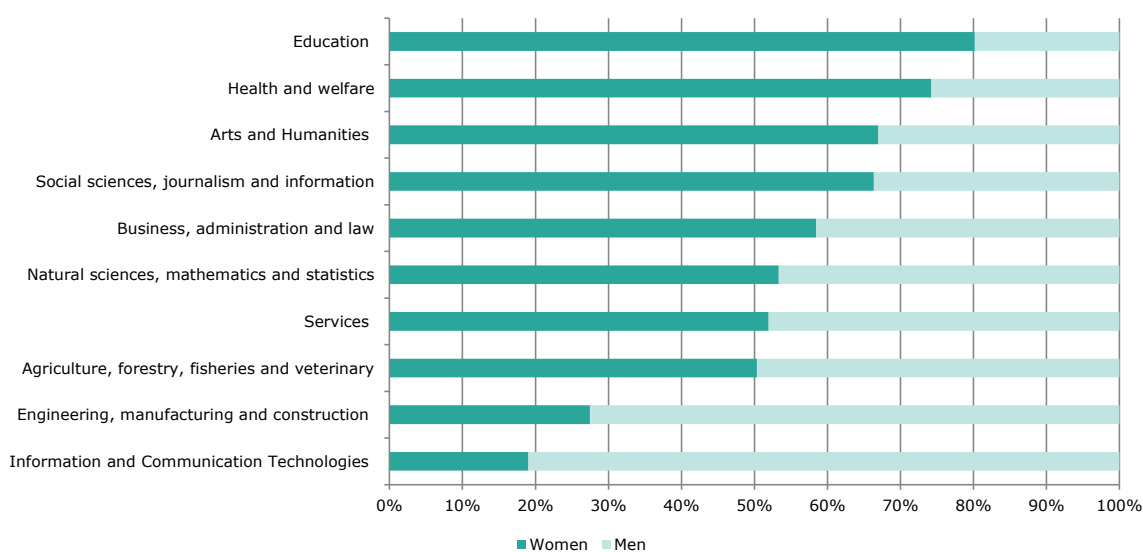
1.1.2.2 Parental background and gender

Recent studies document the psychological barriers to success in higher education among students from weaker socio-economic backgrounds that tend to underestimate their potential²².

A Finnish study showed that children from families with more highly educated parents have higher chances of becoming more qualified and obtaining better paid jobs, with the father's educational status prevailing as the explanatory factor²³. While in infancy, the mother's education better accounts for their children's outcomes, the educational background of fathers accounted more for the outcomes of children in their early adulthood. That could be because parental education is a proxy of family wealth or social status, which equips children with social capital for finding good jobs. The role of education would be to equalise these opportunities.

Gender has long been viewed as one of the key factors influencing educational achievements²⁴. This is clearly demonstrated for the EU Europe 2020 benchmark targets. Male early leavers from education and training are more numerous by 3 pp, while male tertiary educational attainment is lower by 9.5 pp. Moreover, women accounted for 58 % of the 5 million tertiary graduates in 2015. Such clear differences in educational achievement between women and men spill over into the professions chosen by them and therefore have a direct influence on the labour market segmentations seen in many countries, with occupations that are clearly dominated by women and men respectively.

Figure 7 – Distribution of EU graduates in tertiary education by field and sex, 2015



Source: Eurostat, UOE 2015, online data code: [\[educ_uoe_grad02\]](#).

Women predominate in the academic fields of education and training, health, welfare, humanities and arts, while men dominate the fields of engineering, manufacturing and construction and ICT (this pattern being more visible among students than teachers).

²¹ Mackenbach et al. (2015). Variations in the relation between education and cause-specific mortality in 19 European populations: A test of the 'fundamental causes' theory of social inequalities in health. *Social Science & Medicine* 127, pp. 51-62.

²² Marginson, S. (2016). *The Dream Is Over: The Crisis of Clark Kerr's California Idea of Higher Education*, p. 153.

²³ Erola, J., Jalonen, S. and Lehti, H. (2016). [Parental education, class and income over early life course and children's achievement](#). *Research in Social Stratification and Mobility*, Vol. 44, pp. 33-43.

²⁴ For an early reference to gender differences in educational outcomes see Eurydice (2010): 'Gender differences in educational outcomes: Study on the Measures taken and the Current Situation in Europe'. See also: OECD 2014: 'Are boys and girls equally prepared for life?' (based on PISA 2012).

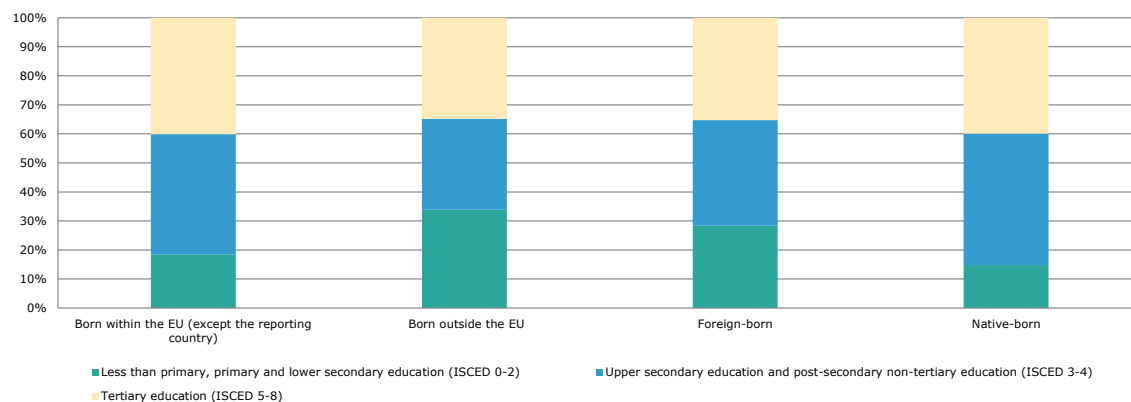
Differences in the choice of academic discipline by young people can partly be attributed to traditional perceptions of gender roles and identities: some fields, especially science and engineering, are regarded as more suitable for men, while other fields of study, especially care-related ones like education or health, are regarded as more appropriate for women²⁵.

Even though the gender education gaps in most EU Member States have reversed in favour of women, both in terms of participation and achievement²⁶, differences between women and men still persists in the labour market²⁷. Despite women succeeding in getting qualifications, their career paths are often impeded by care demands. Women are also more likely to work part-time, and to have shorter or slower careers. They also face a range of barriers to returning to studies or work and are at greater risk of falling into poverty²⁸. Employment rates of men with tertiary education are higher than those of women with the same level of education in all 28 Member States and at the EU level considering people aged 25-54²⁹.

1.1.2.3 Education, migration and social inclusion

Non-EU-born population face difficulties in their schooling, as evidenced by their significantly lower educational performance and attainment than both native-born and EU-born populations³⁰. In 2016, 33.9 % of the non-EU-born population (aged 30-34) had lower secondary education or below, 19.1 pp more than the native-born population (Figure 8). In addition, the education gap among non-EU-born varied across different Member States. In 2016, the highest proportions of non-EU-born people with low education were in Italy (56.0 %), Greece (55.4 %) and Spain (45.9 %). The gaps between the shares of non-EU- and native-born populations with low educational attainment were highest in Italy (50.2 pp), Greece (44.6 pp), Portugal (33.6 pp) and Spain (33.3 pp).

Figure 8 – Educational attainment among different groups of population (aged 30-34) in EU countries by place of birth, 2016



Source: Eurostat, EU Labour Force Survey, online data code: [[edat_lfs_9912](#)].

- ²⁵ Eurydice (2009). [Gender Differences in Educational Outcomes](#): Study on the Measures Taken and the Current Situation in Europe.
- ²⁶ Ganguli, I.; Hausmann, R. and Viarengo, M. (2011). [The Closing of the Gender Gap in Education](#): Does It Foretell the Closing of the Employment, Marriage, and Motherhood Gaps? A Harvard CID Working Paper.
- ²⁷ Roosmaa, E.-V. and Aavik, K. (2016). Gender Gaps in Participation in Adult Learning: Estonia Compared with Other European Countries. In T. Roosalu et al., eds., *Rethinking Gender, Work and Care in a New Europe*. European Commission (2017). [2017 Report on equality between woman and men in the EU](#).
- ²⁸ Lynch, K. and Feeley, M. (2009). [Gender and education \(and employment\): gendered imperatives and their implications for women and men: lessons from research for policy makers](#). A NESSE report for the European Commission.
- ²⁹ Eurostat. Employment rate by sex, age groups, educational attainment level and household composition, 2016. Online data code: [[lfst_hheredty](#)].
- ³⁰ JRC-CRELL (2016). [Equity in Education](#).

Young foreign-born students were at greater risk of leaving education without having completed the upper secondary education level.

Across the EU, children with a migrant background underperform at school, especially when their new country's language is different from the one spoken at home³¹.

Moreover, young foreign-born people cumulate several disadvantages, particularly when they were born outside the EU. This is due in part to the generally lower socio-economic situation of their family and in part to cultural factors. This is why they are at greater risk of leaving education without having completed the upper secondary education level (see 2.2 below). In addition to lower incomes, migrant families also tend to have lower average parental education and tend to lack familiarity with the education system of the host country: on average, therefore, they can provide fewer educational resources at home, are less likely to help their children with homework and their academic success³².

Labour market outcomes are weakest among migrants who arrived as adults with no diplomas or with foreign diplomas whose value is unrecognised or downgraded³³. On average in the EU, the employment rate of migrants with a host-country degree is comparable to that of the native population and 10 pp. higher than that of migrants with a foreign qualification³⁴. Training, which includes language courses, can help migrants secure recognition of their foreign qualifications and eventually enter the labour market³⁵.

Education-based upward mobility helps improve overall social cohesion, integration and civic participation³⁶. Early education and care (ECEC, see 2.1 below) seems to be the critical stage of intervention because of its potential to teach the language and shape attitudes and behaviours that later lead to greater civic participation³⁷. Among children of comparable background, those who attended pre-school in their current OECD host country score better in reading³⁸. A recent study confirmed that a longer time spent in pre-school is associated with better German language skills for Turkish-origin children with low levels of German at home³⁹. Disadvantaged families can face multiple barriers in accessing ECEC services. These are particularly: affordability, availability, distance to service and knowledge about the advantages of participation. In the EU, 3-6 year-old migrant children are only marginally less likely than native-born children to attend ECEC. Cost and accessibility can act as barriers: in OECD countries where ECEC is free, attendance rates are higher than 90% and gaps between the children of migrants and the native-born are negligible⁴⁰.

1.1.2.4 Education and disability

People with disabilities may experience difficulty in accessing education and may suffer segregation. Pupils with a migrant background (e.g. still catching up with the local language after having moved from another country) or low socio-economic status may experience wrong placement in special educational needs (SEN) programmes.

³¹ OECD (2016). [PISA 2015 Results \(Volume I\): Excellence and Equity in Education](#), Table 1.7.5a and Table 1.7.8a.

³² Borgna, C. and Dalit C. (2014). Migrant Achievement Penalties in Western Europe: Do Educational Systems Matter? *European Sociological Review* 30(5), pp. 670–683. OECD (2010). [Closing the Gap for Immigrant Students: Policies, Practice and Performance](#).

³³ OECD/EU (2014). [Matching Economic Migration with Labour Market Needs](#).

³⁴ OECD/European Union (2015). [Indicators of Immigrant Integration 2015: Settling In](#).

³⁵ OECD (2014). [International Migration Outlook](#).

³⁶ Meer, N. and Modood, T. (2016). Muslim-State Relations in Great Britain: An Evolving Story. In R. Mason (ed.) *Muslim Minority-State Relations, The Modern Muslim World*.

³⁷ Macaluso, A. (2016). From Countering to Preventing Radicalization through Education: Limits and Opportunities, The Hague Institute for Social Justice.

³⁸ OECD/European Union (2015). [Indicators of Immigrant Integration 2015: Settling In](#).

³⁹ Hippe, R., Araújo, L., Dinis da Costa, P. (2016). [Equity in Education in Europe](#), a European Commission / JRC / CRELL technical report.

⁴⁰ Klein, O.; Becker, B. (2017). Preschools as language learning environments for children of immigrants. Differential effects by familial language use across different preschool contexts, *Research in Social Stratification and Mobility* 48, pp. 20-31.

⁴⁰ OECD/European Union (2015). [Indicators of Immigrant Integration 2015: Settling In](#).

The UN Convention on the Rights of Persons with Disabilities of 2006, which called for inclusion of children with SEN in mainstream classes⁴¹, continues to be a matter of political debate and its implementation remains a challenge. No common definitions exist and qualification of disabilities is subject to national or sub-national interpretations. Another problem is the vast spectrum of special needs, including different physical limitations but also mental or behavioural conditions, with impediments on the one hand and special gifts on the other. For inclusive education to be successful, classroom may require special facilities or layouts and teachers will require dedicated training.

Box 1: Belgium – Flemish 'M Decree' – inclusion of disadvantaged students

The Flemish 'M-Decree' guarantees the inclusion of children with special needs in the mainstream education. Since September 2015, every child has the right to enrol in a mainstream school whenever this is feasible. Also, parents who disagree with a schools' refusal to enrol their children have the right to appeal to the Student Rights Commission. An update of the definition categories for students with special needs was also put forward. Since May 2017, EUR 103 million per year is being spent to support schools in their efforts to implement the decree. Inclusion of students with special educational needs in mainstream system involves providing strong support to schools and teachers. A key measure, which will be operational from September 2017, consists in 'networks supporting teachers, school teams and pupils'. Children with special needs should benefit from the expertise of around 300 additional full-time staff coming from special education.

By 2012, most EU countries had a large proportion of children in inclusive settings: Ireland, Italy, Portugal and Spain included over 75 % of children with disabilities and SEN in mainstream classes in mainstream schools. Pupils with a migrant background are overrepresented in special education⁴².

1.1.3 Current policy context

Good education underpins inclusive and resilient societies. It is the starting point for a successful professional career and the best protection against unemployment and poverty. It fosters personal development and lays the basis for active citizenship. However, for societies to reap these benefits, high-quality education needs to be a reality for all. Education systems need to be accessible and give equal opportunities to all, irrespective of a person's background, and make it possible for everyone to achieve high-quality outcomes.

Investing in people, and young people in particular, is a top priority for the EU. In the Rome Declaration of 27 March 2017, Member States pledged to work towards '*A social Europe: ...a Union where young people receive the best education and training and can study and find jobs across the continent*⁴³'. The 2017 Commission 'Reflection Paper on the Social Dimension of Europe⁴⁴' and 'Reflection Paper on Harnessing Globalisation⁴⁵' point out that education is among the factors that will increasingly determine our societies' and economies' future. Lifelong education also plays a key role in the 2017 European Pillar of Social Rights: quality and inclusive education, training and lifelong learning are seen as drivers enabling citizens to participate fully in society and successfully manage transitions to the labour market⁴⁶.

In December 2016, the European Commission presented initiatives on 'Investing in Europe's Youth⁴⁷', emphasising the importance of opening up *new opportunities for young people*. Building also on the 2016 'New Skills Agenda for Europe⁴⁸', on 30 May 2017 the Commission

⁴¹ UN convention on [CRPD](#), 2006.

⁴² Burger, K. (2016). Intergenerational transmission of education in Europe: Do more comprehensive education systems reduce social gradients in student achievement? *Research in Social Stratification and Mobility* 44, pp. 54–67.

⁴³ European Council (2017). Rome Declaration, Declaration of the leaders of 27 Member States and of the European Council, the European Parliament and the European Commission, 25 March 2017.

⁴⁴ European Commission (2017). Reflection Paper on the Social Dimension of Europe, COM(2017)206.

⁴⁵ Reflection Paper on [Harnessing Globalisation](#), COM(2017)240.

⁴⁶ See the Commission Communication on Establishing a European Pillar of Social Rights, COM(2017)250 final.

⁴⁷ See the Commission Communication on [Investing in Europe's Youth](#), COM(2016)940 and on [Improving and Modernising Education](#), COM(2016)941.

⁴⁸ See the Commission Communication on [New Skills Agenda for Europe](#), COM(2016)381.

adopted two communications on schools and higher education⁴⁹. The two communications set out the role of European cooperation in education policy and propose concrete actions to support Member States' education reforms. While fully respecting the principle that, wherever possible, decisions must be taken at the level of government closest to citizens, the actions focus on evidence sharing, identifying good practices, and on voluntary tools that Member States can use to further develop their education systems.

EU reporting on education is part of a greater global agenda known as the 2030 Sustainable Development Goals, adopted by the United Nations in 2015, in which education features prominently as Goal 4: 'Ensure inclusive and quality education for all and promote lifelong learning' (further broken down into seven targets and three modes of implementation⁵⁰).

1.2 Understanding inequality patterns in basic skills

Key findings

Reducing low achievement among 15 year-olds remains a challenge. The latest PISA tests show that with 20.6 % of pupils failing science, maths and reading tests at the basic level, the EU has moved further away from the education and training 2020 benchmark of 15 % low achievers by 2020.

Marked gender differences in low achievement levels only exist in reading — with higher shares of low achievers among boys.

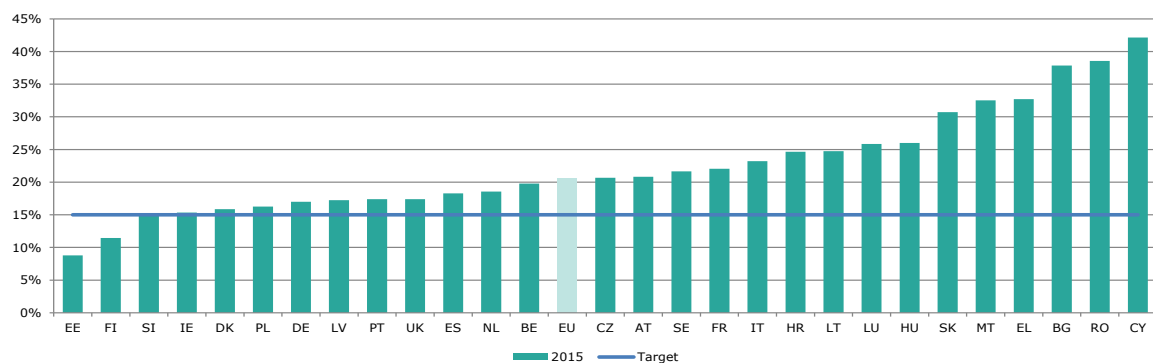
Socio-economic differences persist, with pupils with a migrant background scoring lower.

1.2.1 The EU benchmarks for low achievers in education

One of the benchmarks of the education and training strategic cooperation framework 2020 (ET 2020) calls for reducing below 15 % by 2020 the share of pupils who fail the basic level 2 of the PISA⁵¹ test in reading, mathematics or science.

Substantial shares of 15-year-old pupils do not reach the levels considered basic for normal functioning in society. In 2015, only two Member States (Estonia and Finland) reached the ET 2020 benchmark of low achievers *below* 15 % (Figure 9). The average share of low achievers in science in the EU is 20.6 %, over 5 pp above target.

Figure 9 – Share of low achieving students in science, 2015



Source: OECD (PISA 2015). Reading note: countries are ordered from the lowest to the highest share of low achievers in science.

⁴⁹ See the Commission Communication on School development and excellent teaching for a great start in life [COM\(2017\)248final](#) and on a renewed EU agenda for higher education [COM\(2017\)247final](#).

⁵⁰ See: [United Nations SDG 4](#) and [Eurostat's EU SDG indicators](#).

⁵¹ See the [OECD PISA website](#).

While the proportion of students failing level 2 in science in Estonia and Finland is quite low at 8.8 % and 11.5 % respectively, it is above 30 % in Slovakia, Malta, Greece, Bulgaria, Romania and Cyprus. In Slovenia, it is right at the 15 % target, while in Ireland, Denmark, Poland and Germany it is at or below 17 %. While there is a large spread across the EU (the percentage in Estonia is almost five times lower than in Cyprus), there are still too few Member States close to the 2020 benchmark. The 2015 EU average at 20.6 % was 4 pp higher than in 2012.

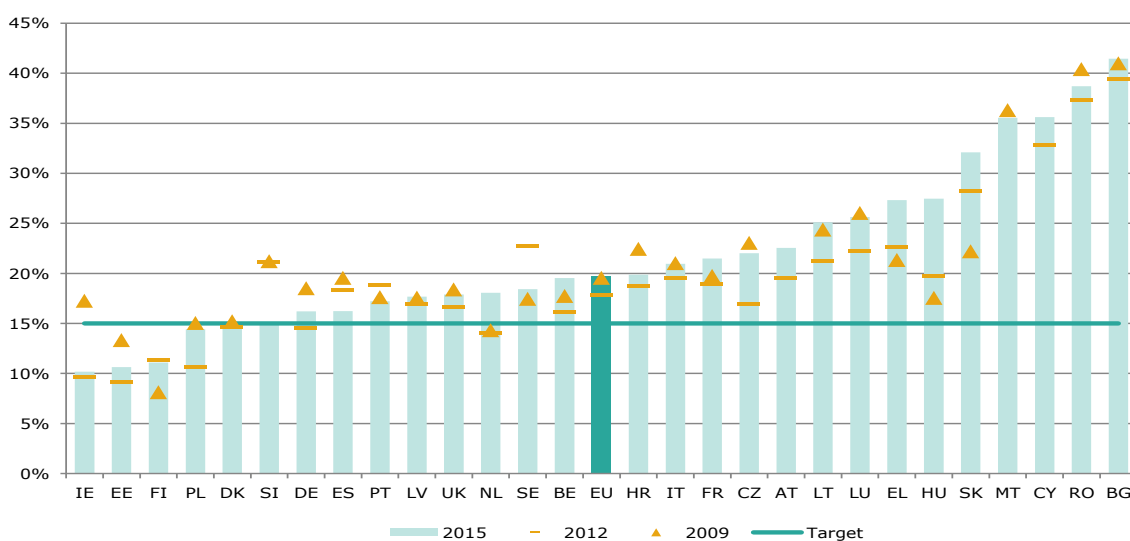
1.2.2 Basic skills for life and work - the EU averages and country breakdowns - evolution over time – since 2009

The average share of low achievers in science in the EU has grown since the benchmark was established in 2009, reaching 20.6 % in 2015, compared to 16.6 % in 2012 and 17.8 % in 2009. This demonstrates that Member States are not making sufficient progress towards reducing the share of low achievers.

Among the three domains, the share of low achievers is largest in mathematics, just like in previous years. In 2015 the figure was almost unchanged at 22.2 % on average, up by only 0.1 pp from 2012 (22.1 %) and only slightly lower than in PISA 2009 (22.3 %).

The EU average for low achievers in reading grew from 17.8 % in 2012 to 19.7 % in 2015, reversing the progress made since 2009 (when it was also 19.7 %). Figure 10 shows that in line with the EU average, most Member States showed higher rates of low achievers in reading in 2015 than in 2012. Contrary to this trend, only four countries improved, recording lower rates of low achievers in 2015 than in 2012: these were Slovenia (-6.0 pp), Sweden (-4.3 pp), Spain (-2.1 pp) and Portugal (-1.6 pp). The largest increases occurred in Hungary (+7.8 pp), the Czech Republic (+5.2 pp), Greece (+4.7 pp), the Netherlands (+4.1 pp), Lithuania and Slovakia (+3.9 pp each), Poland (+3.8 pp), Luxembourg and Belgium (+3.5 pp each), Austria (+3.0 pp), Cyprus (+2.9 pp), France (+2.6 pp) and Bulgaria (+2.1 pp). In comparison to 2009, the greatest progress was achieved by Ireland (17.2 % in 2009, 10.2 % in 2015) and Slovenia (21.2 % in 2009, 15.1 % in 2015). Among the two countries with the highest share of low achievers in reading that participated in all three PISA editions, Romania has partially reversed the improvement it achieved in 2012, whereas in Bulgaria the figure now exceeds that of both 2009 and 2012.

Figure 10 – Progress towards the benchmark of low achievers in reading, 2009-2015



Source: OECD: PISA 2009, 2012, 2015. Countries are ordered from the lowest to the highest shares of low achievers in reading, sorted by 2015. Cyprus did not participate in PISA 2009, data not available for Austria in 2009 and Malta did not participate in PISA 2012.

1.2.3 Performance by gender

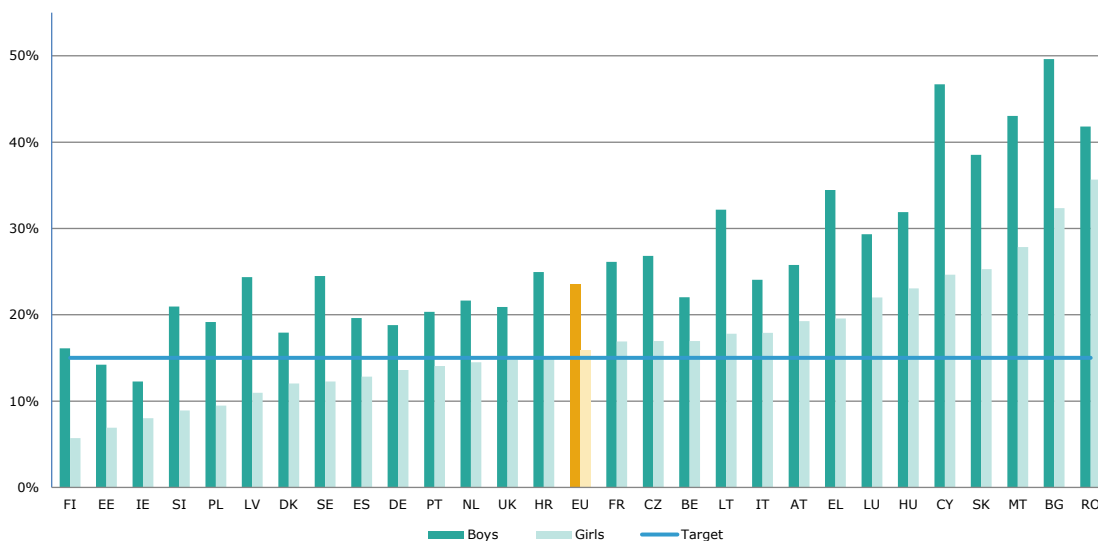
There were no striking differences in PISA 2015 in the share of low achievers in maths and science between boys and girls, with slightly higher shares of boys in most cases.

In reading, girls still outperform boys in all EU countries by a large margin, although the gap between boys and girls in reading has shrunk considerably since PISA 2000. On average, the share of low achievers in reading is 15.9 % among girls and 23.5 % for boys in the EU. While countries have made great efforts to reduce the gender gap and encourage boys to improve their reading skills⁵², the gender gap in reading has in fact shrunk compared to 2012 because the percentage of low achieving girls increased by 3.9 pp, while the percentage of low achieving boys only decreased by 0.2 pp. In other words, the gender gap has shrunk because girls performed worse than in 2012, not because boys performed better.

Box 2: Croatia – textbooks promoting gender equality

Since 2013 Croatian textbooks have been addressing gender issues, while preparing children of both genders for effective and equal participation in all areas of life. The revision of textbooks started from using illustrations of characters of both genders in equal proportions, and using nouns of both grammatical genders, especially in naming professional qualifications, occupations and professions⁵³.

Figure 11 – Share of low achieving boys and girls in reading, 2015



Source: OECD (PISA 2015). Reading note: countries are ordered by girls' performance.

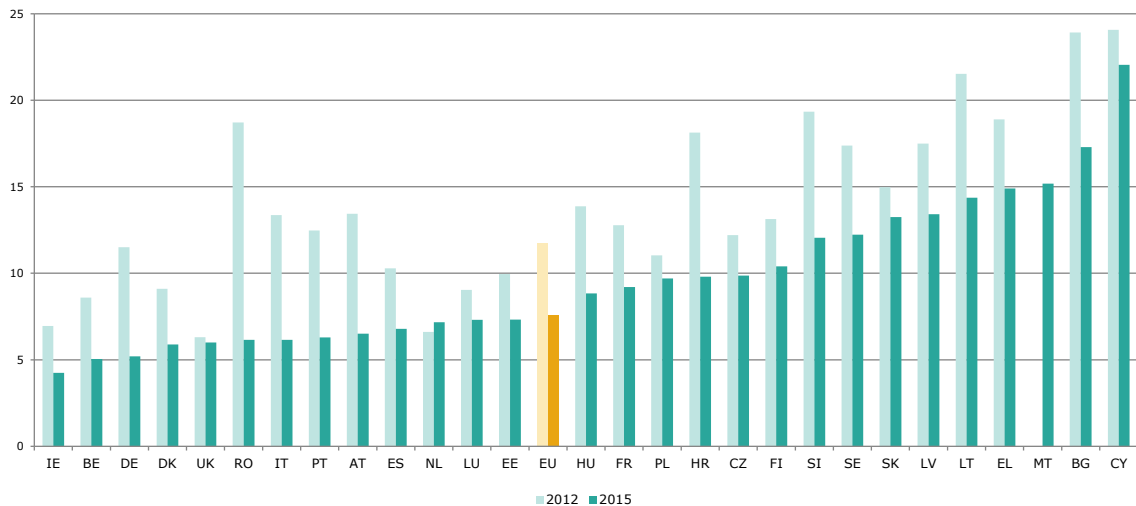
The countries with the largest gender gap are Bulgaria and Cyprus (Figure 11). The gender gap in Bulgaria has shrunk markedly, from 23.9 pp to 17.3 pp, and seems to be on the right track. The countries that show a gender gap below or at 5 pp are Ireland and Belgium.

⁵² PISA 2015 was administered electronically for the first time, prompting a debate as to how it affected the results by gender. The computer test is sometimes believed to have helped boys as they are heavier users of computers and video games. However, the OECD ran experiments showing that only pupils who play one-player video games between once a month and almost every day (but strangely not collaborative online games) (i) perform better in problem solving and maths compared to pupils who hardly ever play the video games and (ii) perform better in these subjects in a computer-based test than in the same test on paper. However, as boys are heavier users of collaborative games, the effect on video games favours girls rather than boys. For details, see: OECD (2015). [The ABC of Gender Equality in Education](#) – Aptitude, Behaviour, Confidence, PISA. Figure 2.6. page 43.

⁵³ European Parliament (2015). [Empowering women through Education: State of Play](#).

All EU countries narrowed the gender gap between 2012 and 2015 (Figure 12), which accounts for a drop at EU level from 11.7 to 7.6 pp. The countries that showed the biggest decrease in their gender gaps between 2012 and 2015 were Romania, Croatia, Austria, Portugal and Slovenia.

Figure 12 – Development of the gender gap for low achievement in reading, 2012-2015 (pp)



Source: OECD (PISA 2012 and 2015). Reading note: Countries are ordered by 2015 gaps between boys and girls (below). The gaps between boys and girls are illustrated as the difference between the share of male low achievers and female low achievers in reading. 2012 data are not available for Malta.

Since detailed analyses using PISA 2015 data are conducted on the basis of performance in the major domain of science, the following descriptions are presented for the underperformance of students in science.

1.2.4 Student performance differences by socio-economic status

Socio-economic status⁵⁴ is one of the main determinants for the acquisition of basic skills and for success in adult life. This strong link has considerable influence both on the individual and on the country-level performance. In many countries, schools could still do more to break the existing patterns of socio-economic advantage, contribute to a more equitable distribution of learning opportunities and outcomes. But there are also countries combining low levels of low underachievement with a limited reproduction of socio-economic patterns.

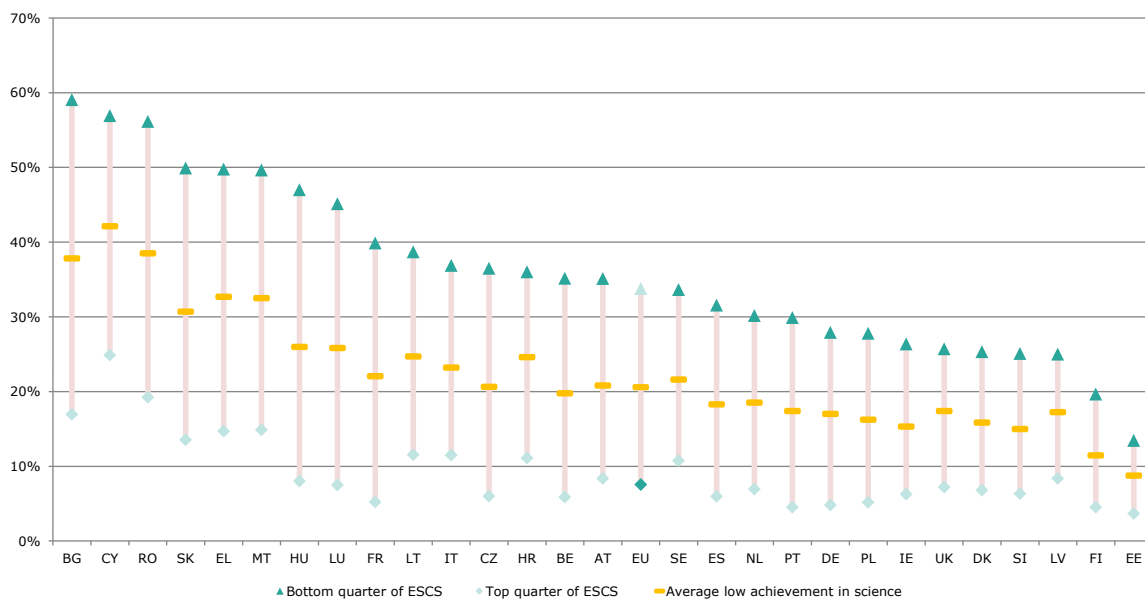
The varying prevalence of low achievers among students with different social backgrounds is shown in Figure 13, which compares the share of low achievers in science in PISA 2015 in the bottom and top quartiles of PISA index of socio-economic and cultural status (ESCS). It is important to note that this comparison includes half of all PISA 2015 students and not just the extreme fringes.

⁵⁴ Under PISA, socio-economic status is a broad concept that summarises different aspects of a pupil, school or system (parental education and occupation, and the number and type of home possessions related to education).

Box 3: Ireland — specific targets for disadvantaged schools

Since May 2005 Ireland has run a programme known as DEIS (Delivering Equality of Opportunity in Schools) aiming at prioritising and effectively addressing educational needs of students from disadvantaged communities⁵⁵. This year 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.

Figure 13 — Low achievement in science by socio-economic status (ESCS), 2015



Source: OECD (PISA 2015). Reading note: Countries are ranked in descending order of the average share of underachievement amongst the bottom quarter of the PISA index of economic, social and cultural status (ESCS).

Several Member States have rather equitable distributions of low achievers across socio-economic groups, with gaps between upper and lower ESCS quartiles below 20 pp: these countries are Estonia, Finland, Latvia, the UK, Slovenia and Denmark.

The EU average share of low achievers in science in the ESCS bottom quartile in the 2015 PISA is 33.8 %, i.e. 26.2 pp higher than top quartile (7.6 %). Several Member States (Bulgaria, Cyprus and Romania) have above 50 % of low achievers among the lowest social quartile; the share is 49.9 % in Slovakia. There is only one Member State where the share of low achievers from the bottom ESCS quartile in science is below the 15 % benchmark: this is Estonia, at 13.5 %.

The spread between the top and bottom ESCS quartiles varies greatly. Compared to the 26.2 pp. EU average, it is especially large in Bulgaria (42.1 pp) and above 35.0 pp in Luxembourg, Hungary, Romania, Slovakia and Greece. However, the gaps in low achievers between the richer and poorer ESCS quartiles are also relatively high in France (34.6 pp), the Czech Republic (30.5 pp) and Belgium (29.3 pp). These three countries have a rather wide dispersion around their average performance, as they keep the rate of low achievers very low among students from the higher ESCS quartile. In fact, 18 out of 26 Member States attain rates

⁵⁵ European Commission/EACEA/Eurydice (2016). [Structural indicators for monitoring and education and training systems in Europe – 2016](#): Eurydice Background Report to the Education and Training Monitor 2016.

of low achievers below 10 % among their upper ESCS quartiles (Hungary, Luxembourg, France, the Czech Republic, Belgium, Austria, Spain, Luxembourg, Portugal, Poland, Germany, Ireland, Denmark, Slovenia, the UK, Latvia, Finland and Estonia).

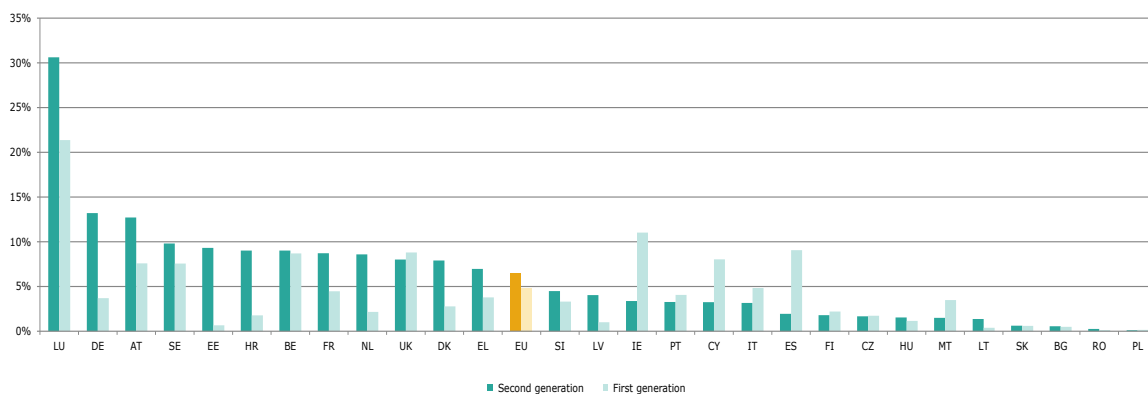
Addressing the role played by the socio-economic factor on different groups of students or in different regions and schools within one and the same country may be the key to reducing the level of underachievement in the EU. However, there is also a large socio-economic gap between different Member States: countries like Romania and Bulgaria exhibit levels of overall poverty and inequality which are significantly worse than in the rest of Europe. In fact, some countries appear to be caught in a vicious downward spiral because the unattractive living prospects at home lead to an exodus of the best and brightest students. In countries facing economic and social hardships, tackling underachievement may require a concerted effort that involves a variety of actors and resources that go well beyond the sphere of education.

1.2.5 Student performance differences by migrant background

Before looking at the differences between Member States regarding the education performance of students with a migrant background⁵⁶, it is important to note that the shares of these students vary considerably between the different countries (Figure 14).

Students with a migrant background can belong to any of the following two categories. The first-generation migrant students are foreign-born students whose parents were also foreign-born (foreign here means outside the country, it could be e.g. in another EU country or outside the EU). The second-generation migrant students were born in the country of assessment but their parents are foreign-born.

Figure 14 — Percentage of 15-year-old students with a migrant background, 2015



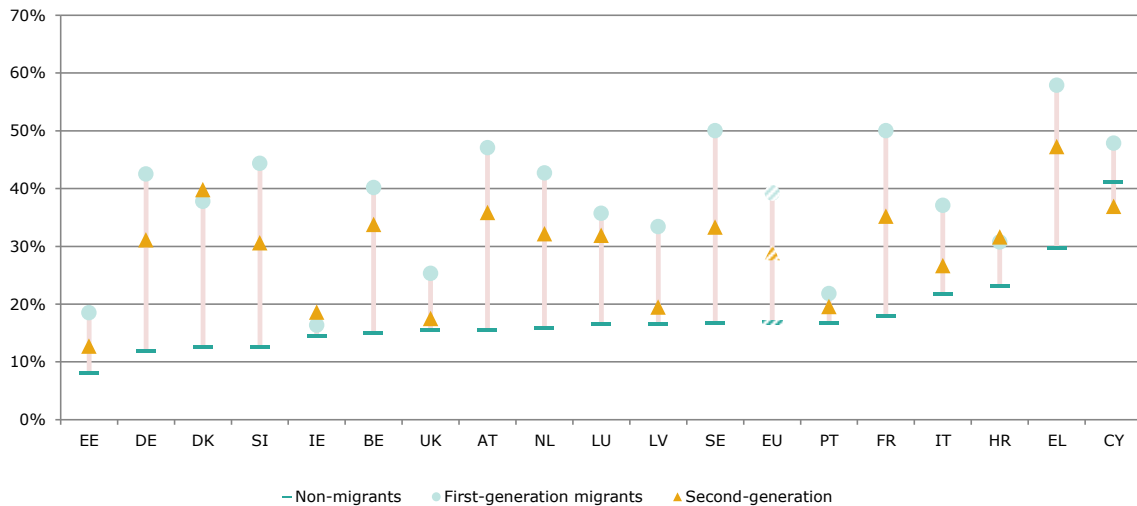
Source: OECD (PISA 2015). Second generation students: children of migrants who have been born in the host country; first generation students: those who were born outside the country. EU average is based on the entire population of 15-year-olds.

In Luxembourg, 30.6 % of 15-year-olds are second-generation and 21.4 % are first-generation migrant students, which means that more than half of the student population has a migrant background. However, these rates are considerably lower in the other Member States. In many eastern European countries especially, but also in Malta, Finland and Spain, the shares of *second-generation students* lie below 3 % of the student population. The shares of first-generation students make up less than 3 % in many eastern European countries, but also in the Netherlands, Denmark and Finland.

⁵⁶ Here, the large influx of refugees and asylum seekers into some Member States since 2015 is not yet taken into account.

In all 18 Member States with shares of second-generation migrant students above 3 % (Figure 15), the science skills of students with a migrant background lag behind those of non-migrant students. Second-generation students generally perform better than first-generation migrants.

Figure 15 — Share of low achievers in science by migrant background, 2015



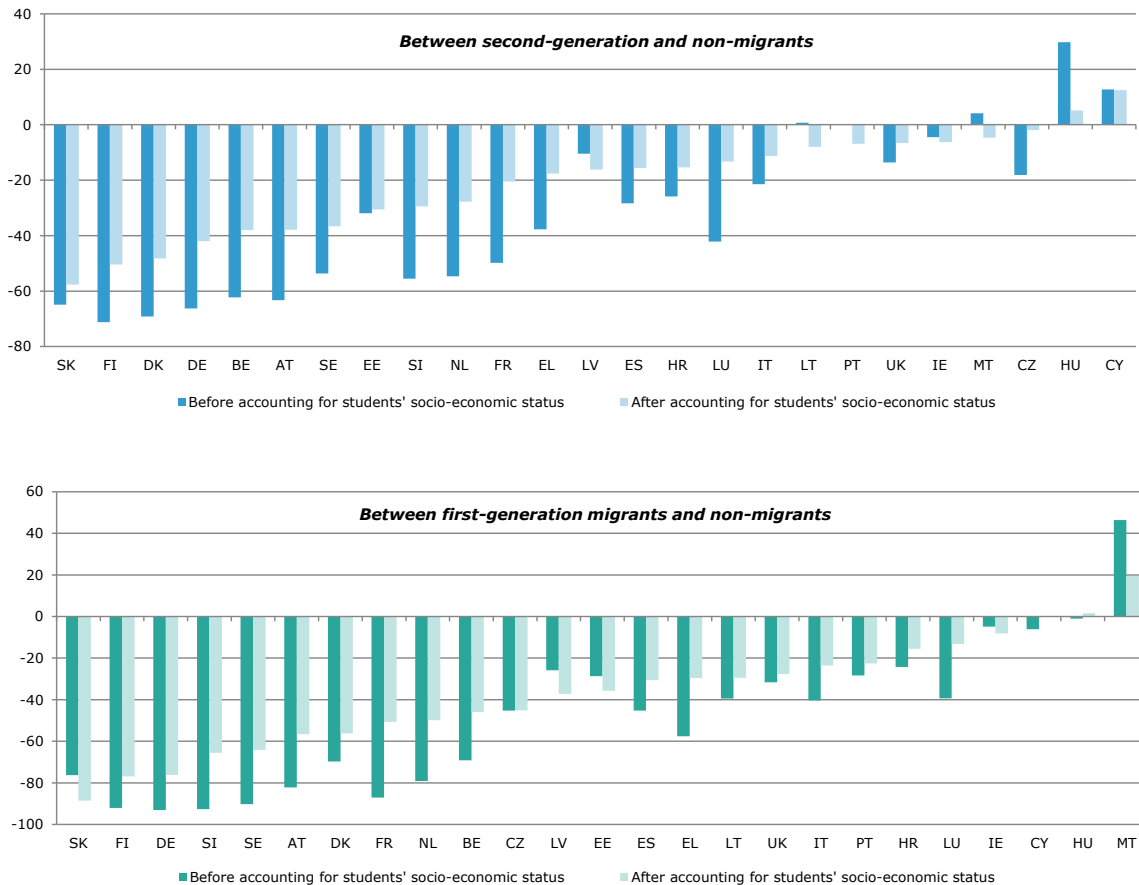
Source: OECD (PISA 2015). Reading note: countries are ordered by the performance of non-migrant students. The EU average is based only on the results of the countries included in this figure.

In almost all Member States shown here, the difference in the shares of low achievers between first-generation migrant students and their non-migrant peers is quite large. This gap is between 25 and 33 pp in Sweden, the Netherlands, France, Denmark, Belgium, Greece, Denmark, Austria and Slovenia. In all Member States with more than 3 % second-generation migrant students, the share of low achievers among second-generation students is lower than among first-generation students. This shows (for most Member States but not all) that being born in the country of the assessment as a second generation of migrants is an advantage compared to moving there as a child or young person. Obviously, learning the language helps, as does familiarity with the country and its education institutions, but it is not sufficient to reach the same levels as children without a migrant background. In several Member States, the difference between second generation and natives is not significant (Portugal, Latvia and the UK).

But there are also Member States where the difference in the share of low achievers among first or second-generation students is very small compared to non-migrant students: these are Ireland, Portugal and, to a smaller extent, the UK. Here, migrants may have an advantage due to differences in the prevalent types of migration, students' countries of origin and their command of languages spoken in the host country⁵⁷.

⁵⁷ OECD (2016). [PISA 2015 Results \(Volume I\): Excellence and Equity in Education](#), Table 1.7.2

Figure 16 – Difference in mean PISA scores in science between first- and second-generation migrant and non-migrant students, 2015



Source: OECD (PISA 2015). Reading note: countries are ordered after accounting for students' socio-economic status. Data are not available for Bulgaria, Poland and Romania.

The performance of students with a migrant background is strongly correlated with their economic, social and cultural status (the PISA ESCS index). Figure 16 shows difference in the mean-score in science between students depending on their migrant status.

Since many migrant students come from a low-ESCS family, when adjusted for socio-economic status, the disadvantage for students with a migrant background drops in almost every Member State. The exceptions are Latvia and Ireland when second-generation migrant students are considered, and Slovakia, Latvia, Estonia and Ireland, where the disadvantage for first-generation migrant students increases when their socio-economic status is taken account. In Hungary, Cyprus, Malta and, to a lesser extent, Lithuania, second-generation migrant students actually achieve higher science performance than non-migrant students and this (positive) difference is reduced, and becomes negative in Lithuania and Malta, when controlled for their (privileged) social background. Similarly, first-generation migrant students perform better than non-migrant students in Malta. The most striking message emerging from this picture is, however, the size of the lighter columns: even after accounting for socio-economic status, migrant students still have a substantial disadvantage in science skills outcomes⁵⁸.

⁵⁸ For a detailed and nuanced study of the influence of the cultural capital of the family on the school performance of children in France, see Caille, J.P., Cosquéric, A., Miranda, E., Viard-Guillot, L. (2016).

Education plays an important role not only in delivering cognitive skills and labour market-relevant skills, but also in developing understanding and respect of the common fundamental values; it thus contributes to social cohesion and inclusion. The integration of children with a migrant background into mainstream education systems can be supported by different intervention strategies such as:

- access to early childhood education and care;
- language support (and multilingual approaches to education);
- learning support that is tailored and sustained;
- professional development for teachers and school leaders to better deal with diversity;
- recognition of qualifications;
- supporting parental involvement;
- adapting school curricula;
- tackling school segregation⁵⁹.

By promoting the early integration of children with a migrant background, all social groups will have better chances to benefit from diversity and various cultural backgrounds.

Digital technologies may, in theory, help reducing the socio-economic gap in educational outcomes, by enabling access to additional learning resources and facilitating pedagogical strategies that could be beneficial to disadvantaged students (i.e. those from low socio-economic backgrounds). There is however little empirical evidence on whether the association between the use of digital technologies and students' achievement is different across students' socio-economic statuses. A recent study using PISA 2015 data from 25 European Member States⁶⁰ has shed some light on this issue. The results show a positive association between disadvantaged students' achievements and the use of ICT outside of school for schoolwork and for general purposes, but only among those who use ICT less intensively. Similar results are found for students from non-disadvantaged backgrounds, but disadvantaged students are the ones that would particularly benefit from using ICT more intensively outside of school for general purposes. On the other hand, medium-intensity and high-intensity users of ICT (irrespective of their socio-economic status) typically would not gain from using ICT still more intensively⁶¹.

Box 4: Portugal — initiatives promoting the inclusion of students with a migrant background

The package 'Specific educational measures regarding the reception and inclusion of students with a migrant background into Portuguese schools' (*Medidas educativas específicas relativas ao acolhimento e inclusão de alunos migrantes nas escolas portuguesas*) targets pupils aged 6 to 18 and aims at full integration of migrant students into the Portuguese educational system. The project covers measures and procedures on equivalence of qualifications obtained abroad, or lack of proof of prior education. Tutor support for integration into the Portuguese curriculum as well as activities on Portuguese language and culture are under development. In addition, educators and teaching staff have been provided with an educational tool known as 'More than numbers' (*Mais do que números*). Portugal also developed a broader social inclusion programme — the 'Choices Programme' (*Programa Escolhas*), currently in its sixth edition (2016-2019) — which focuses on: (1) integration into the school system and non-formal education; (2) vocational training and employment; (3) improvement of communities and citizenship; (4) digital inclusion: accessibility, development and certification of ICT skills; (5) entrepreneurship and development⁶².

[La réussite scolaire des enfants d'immigrés au collège est plus liée au capital culturel de leur famille qu'à leur passé migratoire](#), INSEE.

⁵⁹ JRC-CRELL (2016). [Equity in education](#).

⁶⁰ Cyprus, Malta, Romania and Scotland did not answer the ICT Familiarity Questionnaire.

⁶¹ European Commission (2017). [Digital technologies and learning outcomes of students from low socio-economic background: An Analysis of PISA 2015](#), a report by the Joint Research Centre (JRC).

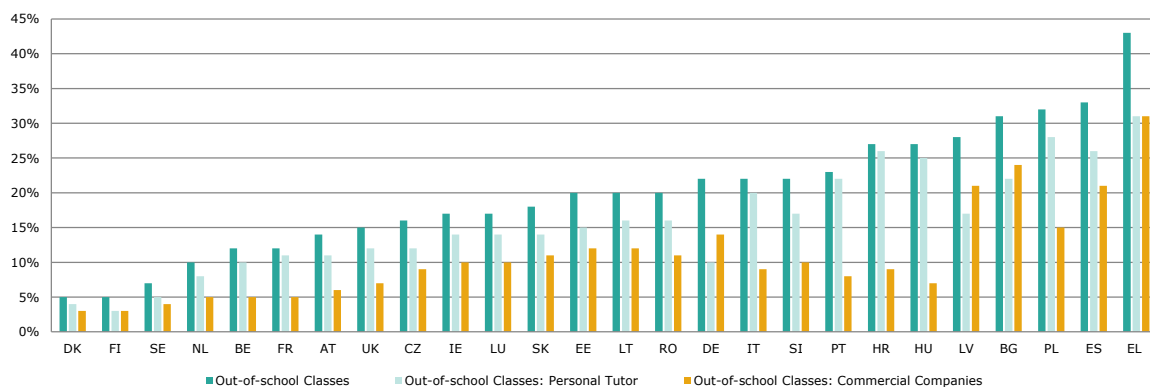
⁶² Herzog-Punzenberger, B. (2016). [Successful integration of migrant children in Member States: Examples of good practices](#), NESET II ad hoc question 1/2016. See also [Programa Escolhas](#).

1.2.6 The phenomenon of private tutoring

The fragmentary data available⁶³ hint at a rise in private paid tutoring, in which children from richer backgrounds are privileged. This 'shadow education' refers to private supplementary tutoring of subjects that are part of core mainstream curricula (such as mathematics, language or science), helping good students to get even better (enrichment) or helping lower attaining pupils to catch up (remedial). By contrast, tutoring beyond regular school curricula (e.g. learning a musical instrument or specialised sport classes) is not considered as shadow education and therefore not treated in this section. Students in southern and central and eastern Europe are more likely to take enrichment, rather than remedial, out-of-school classes. The reverse is true for northern and western Europe.

There is evidence of an upward trend in the participation rate. Several studies⁶⁴ show a steady increase of shadow education rate in the ISCED 3 from 38 % in 1998 to 53 % in 2010 across the EU. A similar increase was observed in Ireland, from 32 % in 1994 to 45 % in 2003. In Cyprus, the ISCED 1-3 participation rate increased by 11 pp from 2004 to 2006. In Austria, for ISCED 1-3 it rose from 20 % in 2010 to 24 % in 2015, but fell again to 20 % in 2016.

Figure 17 – Participation in shadow education by type of provider, 2012



Source: OECD PISA 2012; calculations by Bukowski (2017).

The data for participation in shadow education are more complete than for the cost of it. Figure 17 presents the share of secondary school students who reported out-of-school time spent with a paid tutor in the PISA 2009 and 2012 surveys. There is a significant variation in the participation rate among the Member States. It is the most widespread among southern, central and east European countries and the least in western and northern Europe. Consistently across the two PISA waves, Greece, Poland, Latvia and Spain are at the top, with participation rates in 2012 between 27 % and 45 %. At the bottom of the ranking are the Nordic countries Denmark, Sweden and Finland, with the 2012 rates smaller than 8 %. Commercial companies cover a

- ⁶³ Bukowski, P. (2017). Shadow education, a study for DG EAC. (upcoming).
 Bray, M. (2007). [The shadow education system: private tutoring and its implications for planners](#), UNESCO International Institute for Educational Planning.
- ⁶⁴
- Boguszewski, R., M. Feliksiak, M. Gwiazda and J. Kalka (2014). Młodzież o sobie: wartości, obyczajowość, grupy odniesienia, in *Młodzież 2013*, a study by Fundacja Centrum Badania Opinii Społecznej (p. 106–153), [in Polish].
 - Smyth, E. (2009). Buying your way into college? Private tuition and the transition to higher education in Ireland, *Oxford Review of Education*, 35(1):1–22.
 - Lamprianou, I. and Lamprianou, T. (2012). Charting Private Tutoring in Cyprus, in M. Bray, A.E. Mazawi and R.G. Sultana, ed, *Private tutoring across the Mediterranean*.
 - Feistritz, G, ed. (2010–2016). AK-Studie: Nachhilfe: bundesweite Elternbefragung. Studienbericht, Wien: Institut für empirische Sozialforschung GmbH.

smaller part of the market than private tutors in most countries except Greece, Bulgaria, Latvia and Finland⁶⁵.

The past decade has witnessed an emergence of a new form of shadow education — internet-based tutoring. As estimated by research firm Global Industry Analysts, online learning is an industry worth globally around USD 100 billion⁶⁶. Online platforms improve the matching between students and tutors, while internet fora reduce information asymmetries, and voice and video transmitting technologies make distance education possible. It might also mean that commercial companies will expand to dominate private tutoring in future, as they can take advantage of network effects and have greater resources to create e-learning platforms and organise massive open online courses.

1.3 Investing in education to promote equity

Key findings

There is no simple relation between expenditure and equity in education systems as the amount of resources spent is less important than how they are used. The lack of a clear pattern, however, does not imply that expenditure has no influence on students' performance. Children and young people from disadvantaged backgrounds benefit more than proportionally from public support to education.

In 2015, public expenditure on education in the EU moved further up the recovery path after the protracted contraction in the wake of the economic crisis, increasing by 1 % in real terms year-on-year. However, eight Member States still reduced their education budget from the previous year. The EU average public expenditure on education has remained stable in recent years at around 10 % (2015: 10.3 %).

In the EU, about 60 % of education budgets are spent on the personnel, while nearly 8 % are invested, essentially in infrastructure. The biggest proportion of public budgets goes into the funding of secondary and post-secondary non-tertiary education (40 %), followed by pre-primary and primary education (31 %) and tertiary education (16 %).

This section dissects the total of EUR 716 billion spent in 2015 by EU governments on education and training⁶⁷. Appropriate funding is essential for the good performance of education systems: although increasing resources does not, on its own, significantly improve education systems' performance, the level of spending on education does affect educational outcomes, in particular of children and young people from disadvantaged backgrounds as it can reduce socio-economic differences between pupils from poorer and more affluent families⁶⁸.

Education in Europe is predominantly funded by public budgets. Data on public spending on education can be analysed using different indicators depending on the purpose of the analysis⁶⁹. The ratio of public expenditure on education to GDP portrays the absolute public effort put into education in relation to the productive capacity of the country, while the ratio to total public

⁶⁵ The rates for 2009 are larger, but this is rather an artefact of the specific question from the PISA 2009, which might also cover free in-school, but outside-school-time classes. That could explain why in 2009 the UK was among the top-10 countries, but in 2012 among the bottom 10.

⁶⁶ Global Industry Analysts Inc. (2016). [Private Tutoring – A Global Strategic Business Report, Press Release](#).

⁶⁷ In this chapter education covers the whole function 9 of the COFOG classification. It includes initial vocational training and excludes adult learning. Overall, there is lack of data on financing adult learning.

⁶⁸ See, for example, Hanushek, E. A. and Woessmann, L. (2015). *The Knowledge Capital of Nations: Education and the Economics of Growth*.

⁶⁹ See, for example, JRC-CRELL (2013). [Public financing of education in EU countries: A cross-country systematic analysis](#).

expenditure measures the relative effort compared to other areas of public spending⁷⁰. The two ratios, however, only partially reflect discretionary decisions as they incorporate spending constraints linked to exogenous or non-discretionary factors such as demographic change and salary adaptations. A better metric of the resources actually available to teachers and schools is expenditure per student. This is used here for comparing countries (using purchasing-power standards — PPS) and different education levels⁷¹.

1.3.1 Does money matter in education?

A first possible step to gauge the influence of public spending on the performance of the education system is to look jointly at the percentage of low and top achievers in PISA 2015 and at expenditure per student⁷².

Since the individual accumulation of knowledge and build-up of competences through education is incremental, we use the cumulative spending per student over their school life up to age 15. As discussed in chapter 1.2., the percentages of low achievers are relevant to both quality and equity because a well performing education system should reduce the share of low achievers (i.e. compensating for any kind of disadvantage) and nurture high achievers, rather than creating a trade-off between the two goals of 'equity' and 'excellence'. Figure 18 below presents the percentage of low and high achievers in science⁷³ in the 2015 PISA test and the cumulative expenditure per pupil between 2004 and 2015 (in PPS)⁷⁴, i.e. between age 4 and 15 of the average student taking the test⁷⁵.

⁷⁰ In economic terms, if preferences for revenue allocations and the production and cost functions were the same for all countries, then education spending per student should be proportional to per capita GDP.

⁷¹ An alternative to PPS - not used here - would be to divide expenditure to GDP ratio by GDP per capita.

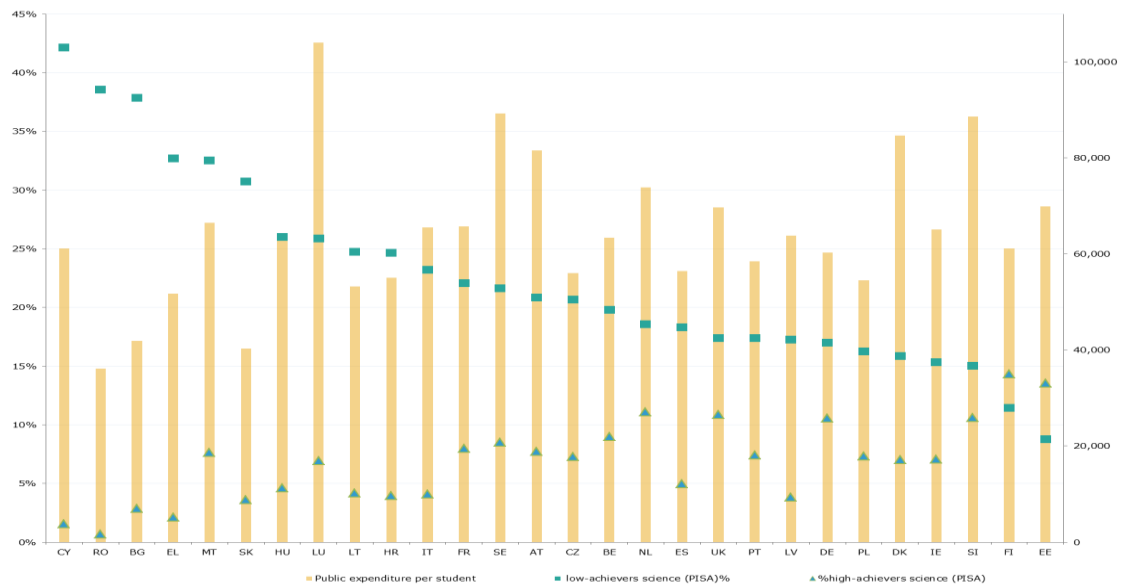
⁷² Expenditure per student is computed using data on the composition of expenditure by function of government (COFOG) and not using administrative data from the UNESCO, OECD and Eurostat database (UOE) collection. The reason is that COFOG data are more timely, consolidated across government sectors and expressed in accrual terms. For more details about the differences between the two data collections see for instance JRC-CRELL (2013). [Public financing of education in EU countries: A cross-country systematic analysis](#).

⁷³ PISA 2015 mainly focused on science performance therefore we use this domain to illustrate skills outcomes.

⁷⁴ As with any expenditure area, international comparisons are sensitive to exchange rates and the price index used. See e.g. ECON Analysis (2004). [International comparisons of education expenditure](#).

⁷⁵ In most EU countries, over 9 children out of 10 go to (pre-)school from age 4; the PISA test is taken by pupils aged between 15 and 3 months and 16 and 2 months who are enrolled in school and have completed at least 6 years of education.

Figure 18 — Cumulative expenditure per pupil (EUR PPS, right-hand scale); Percentage of low and high achievers in PISA 2015 science (left-hand scale)



Source: European Commission (Directorate General for Education, Youth, Sport and Culture (DG EAC)), based on Eurostat's general government finance and national accounts statistics and PISA 2015 Online data code: [[gov_10a_exp](#)] and [[nama_10_gdp](#)]. Countries are ordered by decreasing order of % low achievers.

Reading note: Cumulated expenditure per student in each Member State is obtained as follows: the numerator sums the annual public expenditure (COFOG [[gov_10a_exp](#)]) in the levels of education applicable to each year of education of a student between age 4 and 15 (i.e. ISCED 0.2, 1, 2 or 3), transformed in purchasing power standards (year-specific PPS for government consumption expenditure); the denominator sums the total number of students in each education level for that age range (JOE tables [[educ_enr1tl](#)] and [[educ_uoe_enra02](#)]). When students of the same age (e.g. 12) can be enrolled in different ISCED level (e.g. 1 or 2), the modal level has been taken for both students and expenditure.

Unsurprisingly, the two performance indicators to a certain extent mirror each other: countries with the largest share of high achievers tend to also have a small share of low achievers (e.g. Estonia, the Netherlands and Belgium) and the other way round (Cyprus, Romania, Greece, Bulgaria and Croatia). The countries with the smallest percentage of low achievers are also among those with the largest percentage of top performers. Estonia and Finland are, in particular, the only countries to have a greater percentage of high than low achievers.

Figure 18 shows that quality educational outcomes are not being achieved with a very low level of spending (Bulgaria, Slovakia and Romania). At the same time, at similar levels of spending, countries differ substantially in their performance; vice-versa, at comparable levels of performance in terms of percentage of low achievers, countries differ in the level of spending, e.g. between Hungary and Slovakia and between Belgium and Sweden or Finland and Denmark.

Other reference measures could be taken to assess equity. With reference to how financing resources are distributed, equity can be conceptualised as 'horizontal equity', 'vertical equity' and 'equity of opportunity'.

'Horizontal equity' looks at whether students in 'equal' background situations receive equal resources. In practice, the reference unit receives the same amount of resources. This concept is easy to define, even though respecting taxpayers' preferences might result in a different level of services, especially in federal states. However, it is not very useful for policy purposes as it is very rare for students to have exactly the same background situation.

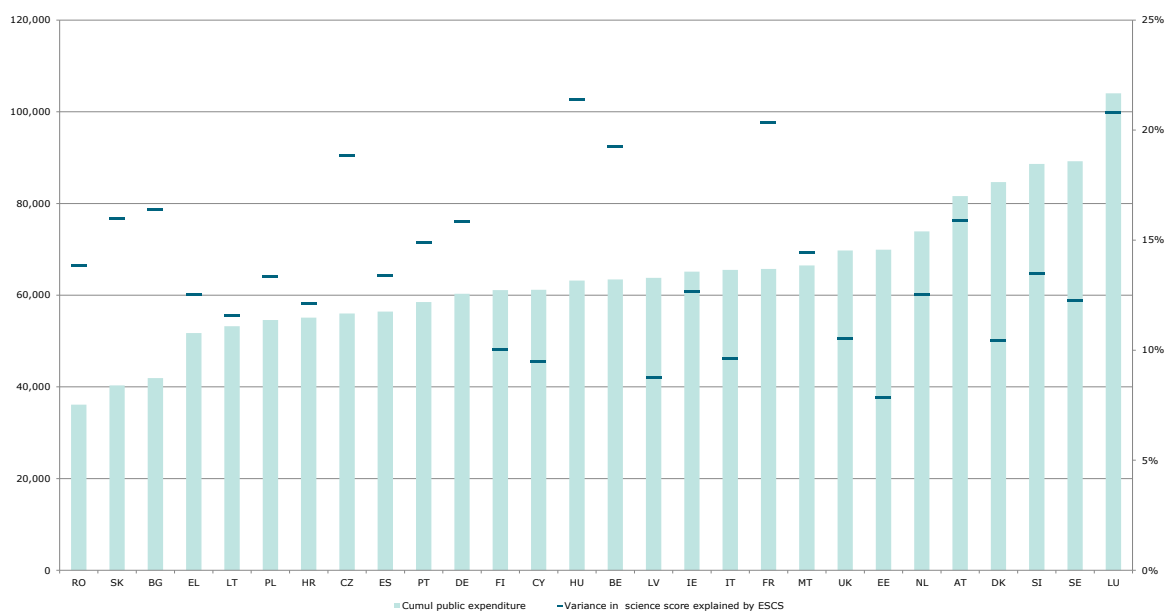
'Vertical equity' focuses instead on differentiating financing according to different needs. The issue in this case is identifying what situation qualifies for additional support: normally, socio-economic background, disabilities or limited language proficiency are taken into account. However, it is difficult to estimate the additional resources needed.

Finally, 'equity of opportunities' refers to the general idea that all students should have an equal chance to succeed, one that does not depend on circumstances outside the control of the child. This last definition is the most relevant for the analysis carried out in this chapter.

Measuring equity of opportunities requires taking into account the relevance of the socio-economic background of the child on performance levels. PISA results have consistently shown that socio-economic disadvantage often leads to poor performance in school, as illustrated in chapter 1.2. There are several possible measures of this link. One is the interquartile difference in performance by socio-economic status discussed in chapter 1.2. Another, also computed by the OECD, is the strength of the relationship between performance and socio-economic status⁷⁶.

Figure 19 illustrates the variance of science score explained by socio-economic background (strength of gradient) against the background of the cumulated public expenditure per student used also in the previous graph. Again, no clear pattern emerges. A simple association between the two variables cannot possibly capture the complexity of the relation. The specificities of national education systems and, more in general, the homogeneity of the population, the average student's performance, should be taken into account. Broadly speaking, at lower levels of spending the influence of the socio-economic background is stronger. However, the highest levels of influence of the socio-economic background are also associated with relatively high levels of spending (HU, FR, BE) suggesting a stronger influence of the schooling system's characteristics on student's performances. Vol II might offer specific insights on single countries.

**Figure 19 – Cumulative Expenditure per pupil (EUR PPS right-hand scale)
Variance of science score explained by socio-economic background (left-hand scale)**



Source: European Commission (Directorate General for Education, Youth, Sport and Culture (DG EAC)), based on Eurostat's general government finance statistics and OECD PISA 2015. Online data code: [\[gov_10a_exp\]](#) and [\[nama_10_gdp\]](#). Countries are ordered by cumulative public expenditure. The PISA index of economic, social and cultural status (ESCS) combines students' responses on their parents' occupations and educational attainment, and their reports on the cultural possessions and educational resources available in the students' home.

Reading note: Cumulated expenditure per student in each Member States is obtained as follows: the numerator sums the annual public expenditure (COFOG [\[gov_10a_exp\]](#)) in the levels of education applicable to each year of education of a student between age 4 and 15 (i.e. ISCED 0.2, 1, 2 or 3), transformed in purchasing power standards (year-specific PPS for government consumption expenditure); the denominator sums the total number of students in each education level for that age range (UOE tables [\[educ_enr11t\]](#) and [\[educ_uoe_enra02\]](#)). When students of the same age (e.g. 12) can be enrolled in different ISCED level (e.g. 1 or 2), the modal level has been taken for both students and expenditure.

⁷⁶ See chapter 6 of OECD (2016). Excellence and equity in education - PISA 2015 results – vol. I

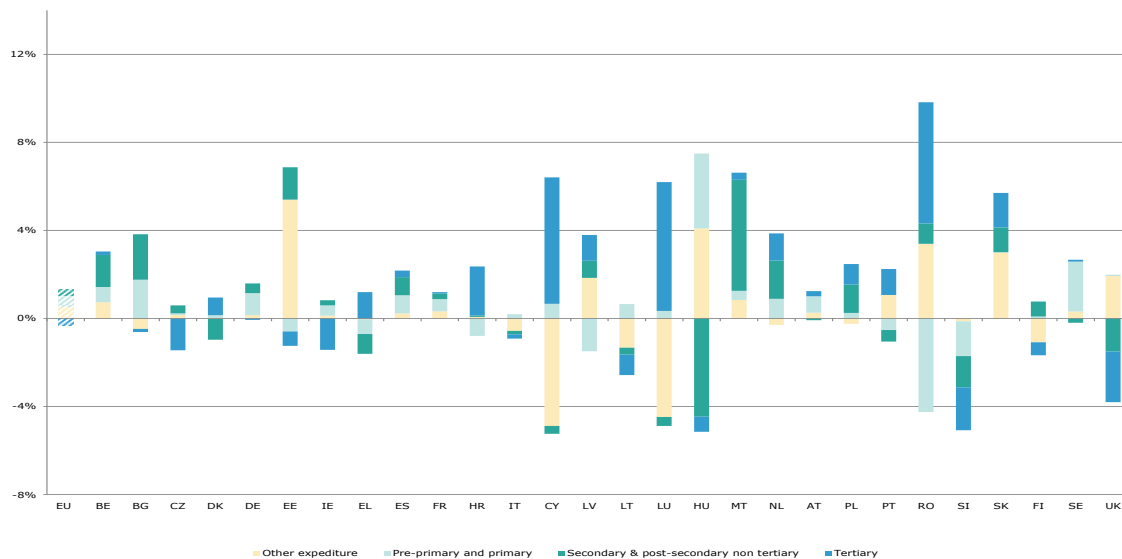
1.3.1.1 Spending on education in 2015

In 2015, the EU average public expenditure on education registered an annual increase of 1 % in real terms, consolidating the increase of the year before. About two thirds of Member States recorded a rise; four of them (Estonia, Malta, Romania and Slovakia) saw an increase greater than 5 %, albeit starting from different levels. By contrast, eight Member States (the Czech Republic, Ireland, Greece, Finland, Italy, Lithuania, Slovenia and the UK) reduced their spending on education in 2015 compared to 2014. As a percentage of GDP, the biggest spenders are Denmark (7.0 %), Sweden (6.5 %) and Belgium (6.4 %).

As a percentage of total public expenditure, education spending in 2015 stood (on average) at 10.3 %; Latvia, Lithuania and Estonia were the only three countries that devoted over 15 % of their budget to education. At the other end of the scale, the lowest ratios were observed for Greece (7.8 %), Italy (7.9 %) and Romania (8.6 %), also in line with a lower-than-average spending as percentage of GDP (4.3, 4.0 and 3.1 % respectively).

Figure 20 shows the contribution of each education level to the real change in education expenditure between 2014 and 2015. The total change in real terms is displayed in Figure 21, in the first panel. In most countries, primary and secondary education plays a major role in determining the total change, also given its relative weight, although in some countries the contribution of tertiary education is significant. This is the case in Croatia, Cyprus, Luxembourg and Romania among the countries recording an annual growth of public expenditure in education, and in the Czech Republic, Ireland, Slovenia and the UK among those reducing spending⁷⁷.

Figure 20 – Contribution by education level to the real annual growth of public expenditure, 2015



Source: DG EAC, based on Eurostat's general government finance and national accounts statistics. Online data code: [\[gov_10a_exp\]](#) and [\[nama_10_gdp\]](#). Reading note: secondary education includes also post-secondary non-tertiary education. Real growth is calculated as the change over the previous year of total expenditure of general government on education, valued at constant prices using the implicit deflator for the final consumption of the general government.

⁷⁷ Section 1.3.3 presents the detailed breakdown of total public expenditure on education by level.

Figure 21 – Public expenditure on education, 2015 (%)

	Year-on-year real change*				As a share of total public expenditure				As a share of GDP			
	2012	2013	2014	2015	2012	2013	2014	2015	2012	2013	2014	2015
EU	-1.7	-0.6	1.6	1.0	10.3	10.2	10.3	10.3	5.0	5.0	5.0	4.9
BE	0.6	1.6	1.8	3.0	11.2	11.5	11.5	11.9	6.2	6.4	6.3	6.4
BG	-3.1	3.3	12.0	3.2	9.7	9.8	9.7	9.8	3.3	3.7	4.1	4.0
CZ	-0.8	2.3	3.6	-0.9	11.3	12.0	12.1	11.8	5.0	5.1	5.1	4.9
DK	3.4	0.4	5.5	0.0	12.0	12.3	12.9	12.8	7.0	6.9	7.1	7.0
DE	-1.4	1.0	0.3	1.5	9.5	9.6	9.5	9.6	4.2	4.3	4.2	4.2
EE	5.4	-5.1	-5.0	5.6	16.0	15.6	14.8	15.1	6.3	6.0	5.7	6.1
IE	-4.4	-3.2	4.7	-0.6	12.7	12.5	12.8	12.4	5.3	5.0	4.8	3.7
EL	-3.8	0.4	-4.8	-0.4	8.2	7.3	8.7	7.8	4.5	4.6	4.4	4.3
ES	-6.3	-3.3	0.6	2.2	8.7	9.0	9.1	9.3	4.2	4.1	4.1	4.1
FR	0.9	0.9	1.1	1.2	9.7	9.6	9.6	9.6	5.5	5.5	5.5	5.5
HR	-1.7	4.8	-7.7	1.6	10.4	10.5	9.8	10.1	4.9	5.1	4.7	4.7
IT	-1.9	0.2	-0.3	-0.7	8.0	8.1	7.9	7.9	4.1	4.1	4.0	4.0
CY	-6.9	4.2	-10.8	1.2	14.5	15.7	(11.8)	14.2	6.1	6.5	5.7	5.7
LV	2.8	0.2	5.5	2.3	15.5	15.5	15.7	16.2	5.7	5.7	5.9	6.0
LT	1.8	0.3	-4.0	-1.9	16.1	15.8	15.5	15.4	5.8	5.6	5.4	5.4
LU	3.1	-3.4	2.6	1.3	13.1	12.4	12.5	12.4	5.8	5.4	5.3	5.2
HU	-5.9	3.7	14.0	2.3	9.7	9.3	10.4	10.3	4.7	4.6	5.1	5.2
MT	4.2	3.5	4.8	6.6	13.5	13.7	13.4	13.3	5.8	5.8	5.6	5.5
NL	-2.5	-1.5	0.5	3.6	11.7	11.7	11.7	12.0	5.5	5.4	5.4	5.4
AT	0.6	0.9	-0.7	1.2	9.8	9.8	9.4	9.6	5.0	5.0	5.0	5.0
PL	-0.7	-0.4	3.7	2.2	12.6	12.4	12.5	12.6	5.4	5.3	5.3	5.2
PT	-11.5	-4.0	-0.3	1.2	12.7	12.5	11.8	12.4	6.2	6.2	6.1	6.0
RO	-27.5	-5.7	9.0	5.6	8.0	7.9	8.7	8.6	3.0	2.8	3.0	3.1
SI	-1.2	2.3	-4.5	-5.0	13.3	(10.9)	12.1	11.6	6.5	6.5	6.0	5.6
SK	-0.9	-1.5	6.3	5.7	10.0	9.5	9.8	9.3	4.1	4.0	4.1	4.2
FI	-2.9	-1.1	-0.4	-0.9	11.5	11.1	11.0	11.0	6.4	6.4	6.4	6.2
SE	-0.4	0.3	2.3	2.5	12.6	12.5	12.8	13.0	6.5	6.6	6.6	6.5
UK	-2.3	-3.0	4.2	-1.8	12.4	12.0	12.3	12.0	5.7	5.4	5.4	5.1

Source: DG EAC, based on Eurostat's general government finance and national accounts statistics. Online data code: [gov_1Tassaem_0a_exp] and [nama_10_gdp]. Reading note: '()' = 'total public expenditure' includes one-off significant expenditure in support of the financial sector; * = year-on-year change of total expenditure of general government on education, valued at constant prices using the implicit deflator for the final consumption of the general government. Data for the Netherlands, Croatia, Finland, Spain and the EU are provisional

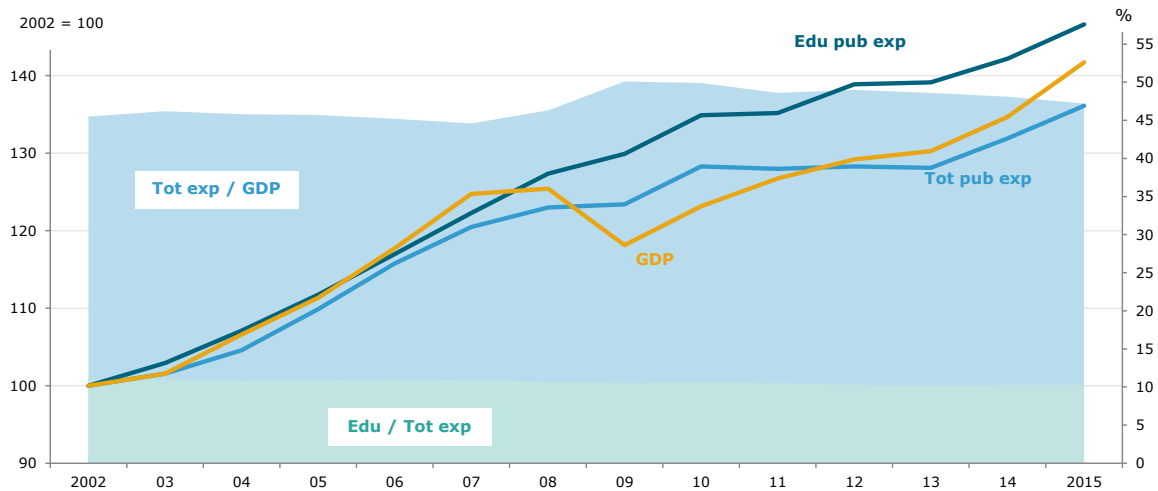
To sum up, education's share in public expenditure is an indication of a government's commitment to the sector in comparison to other policy areas. In almost two-thirds of Member States this share is greater than the EU average. On the other hand, some large economies such as Germany, France and Italy invest relatively little public money in education, pulling down the average share of spending at EU level. Germany in particular again received a country-specific recommendation to 'accelerate public investment at all levels of government, especially in education, research and innovation'.

1.3.1.2 Evolution of spending on education in the period 2002-2015

Expanding the period of observation and looking at the years between 2002 (the first year of available data for all EU countries) and 2015, we see nearly uninterrupted growth in education expenditure for the EU as a whole (*blue line* in Figure 22), similarly to total public expenditure (*light blue line*), whereas GDP dropped during the crisis (*orange line*).

The share of public expenditure on GDP increased somewhat throughout the period (+1.7 pp, *light blue area*), driven particularly by social and health expenditure (see also Figure 23), while the share of education in total public expenditure declined (-0.8 pp, *light green area at bottom*).

Splitting the whole period in two sub-periods, before and after the economic crisis, we observe that from 2002 to 2007 public spending (including on education) grew broadly in sync with GDP. In 2008, total public expenditure started to increase as a share of GDP, due to both a sharp drop in GDP and increased countercyclical spending. This resulted in public spending on education decreasing as a percentage of total public expenditure from 10.9 % in 2007 to 10.3 % in 2015.

Figure 22 — Key trends in GDP, education and total expenditure, 2002-2015


Source: DG EAC elaboration on Eurostat's general government finance statistics. Left axis: current prices in EUR, converted into index numbers (2002=100). Right axis: ratio of government total expenditure to GDP and ratio of government expenditure in education to total government expenditure. Online data code: [\[gov_10a_exp\]](#) and [\[nama_10_gdp\]](#).

Spending decisions are clearly not entirely discretionary: exogenous elements play a role. For example, a significant part of public spending — as large as education spending in the most indebted EU governments — goes to interest payments on public debt. The ratio between spending on education and total expenditure excluding interest (what is called 'primary expenditure') is 0.5 pp higher on average, generally even higher in countries with a high debt. This ratio on primary expenditure highlights more precisely the share of education on total discretionary public spending.

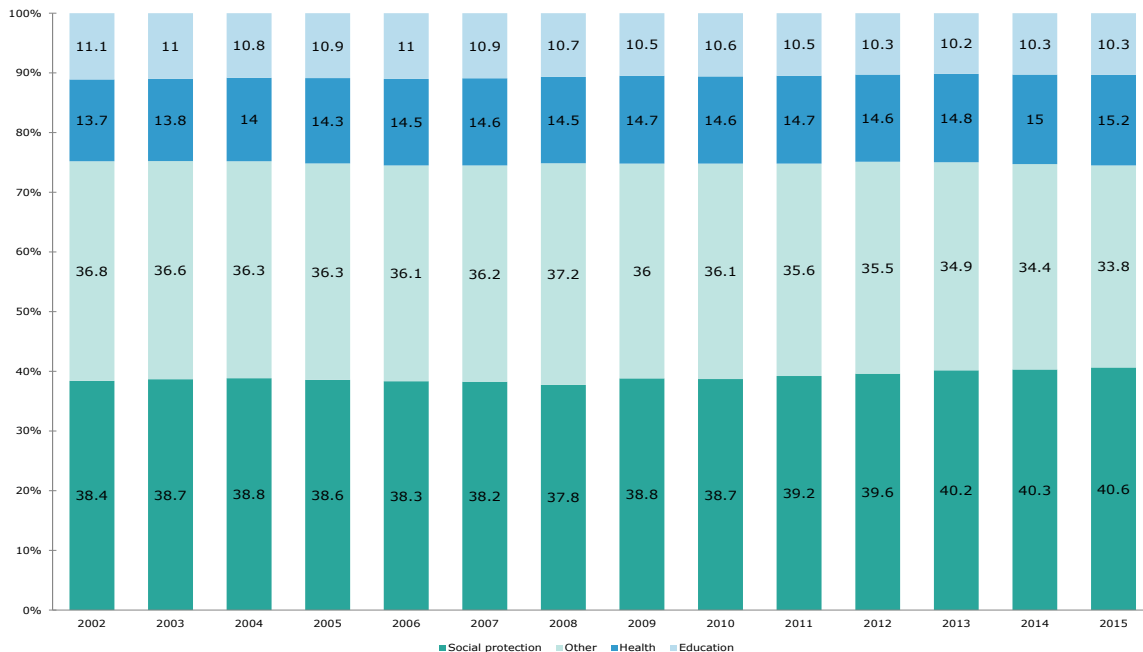
Demographic change also influences the ratio of education expenditure to total public spending: indirectly, due to the increase driven by entitlements on pensions and healthcare and, more directly, via the number of students. By contrast, education systems typically are quite rigid and adapt slowly to long-term demographic change and trends in enrolment. The total number of students for the EU-28 decreased by almost 1.9 million, i.e. -1.7 %, between 2002 and 2015. Changes in some countries were much sharper: Latvia (-28.6 %), Lithuania (-26.1 %) and Poland (-19.8 %) registered the sharpest decline in percentages of students, while Ireland, Denmark and Luxembourg registered the biggest increases (27.6 %, 25.6 % and 24.1 % respectively). Obviously, the impact on the EU average varies considering the difference in the size of the (student) population. However, there is not a simple linear relation between a decreasing student population and expenditure on education or spending needs⁷⁸. Spending may also be affected by, for example, actions to raise inclusiveness besides access, new pedagogical approaches and different kinds of learning support. Participation rates (in all non-mandatory types of education) also have an impact and might depend on exogenous variables such as the economic cycle, with booms being known for luring students away from education and training.

To explore further the priority given to education over other spending functions (taking into account that some spending functions are more sensitive to the economic cycle), it is worthwhile looking at the distribution of public expenditure by COFOG functions to check how the different areas of public expenditure evolved against each other.

Figure 23 shows that while education expenditure represented 10.3 % of total public expenditure in 2015, i.e. 0.8 pp less than in 2002, health expenditure increased by 1.5 pp and social protection spending rose by 2.2 pp. On the other hand, the remaining categories (public services, defence, public order and safety, economic affairs, environment, housing and community amenities and recreation, culture and religion) decreased by 3.0 pp.

⁷⁸ For more details on funding mechanisms see the Eurydice report [Financing schools in Europe](#), 2014.

Figure 23 — Public expenditure by government function, EU, 2002-2015



Source: DG EAC based on Eurostat's general government finance and national accounts statistics (COFOG). Online data code: [[gov_10a_exp](#)]

1.3.2 Categories of education spending

Public expenditure on education can be split into four categories of transactions:

- 1) 'compensation of employees' including gross salaries and social contributions for teaching and non-teaching staff⁷⁹;
- 2) 'intermediate consumption', which comprises 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);
- 3) 'gross capital formation', which includes investment in acquiring fixed assets and durable goods (such as computers) and buildings; the loss of value suffered by fixed assets in the course of production is also included (the dividing line between intermediate consumption and capital formation is in some cases a matter of convention);
- 4) 'other expenditure' which for simplicity covers the residual variety of transactions, including subsidies in the form of transfers to households and payments to private schools.

The main budget item is 'compensation of employees'. Data for 2015 (Figure 24) confirm that this item accounts for 60 % of education spending in the EU on average, ranging from over 75 % in Belgium, Greece, Italy and Cyprus to less than 45 % in the UK⁸⁰. Its share is stable over time: it represented 61.9 % of total expenditure on education in 2002. Despite pay cuts or freezes for public employees in some European countries as a result of the economic crisis, a recent Eurydice report on teachers' salaries⁸¹ shows that over the last 7 years, minimum statutory salaries have increased or remained at about the same level in real terms in most

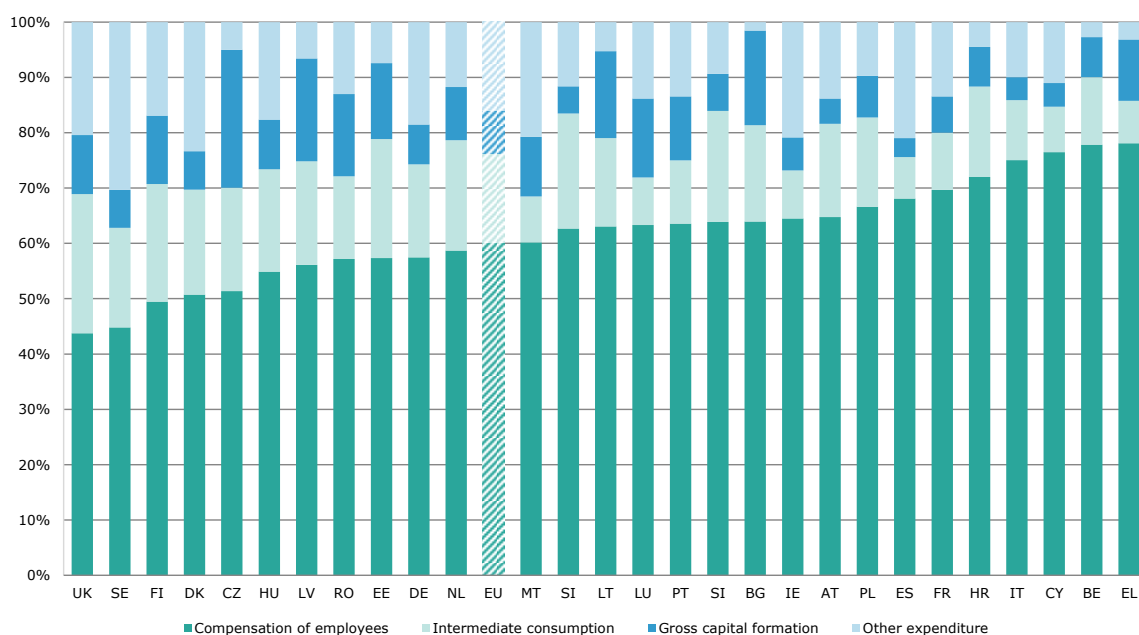
⁷⁹ See JRC-CRELL (2015). [Teacher Costs](#).

⁸⁰ Sweden also seems to spend a small share of the budget on compensation of employees. However about 20 per cent of Swedish schools are independent but financed by government grants. As a consequence, salaries paid to teachers in these schools are registered under 'other expenditure'.

⁸¹ European Commission/EACEA/Eurydice (2016). [Teachers' and School Heads Salaries and Allowances in Europe – 2015/16](#). Also for an overview on methodologies for the collection and calculation of teacher costs see Dinis da Costa, P. and Araujo, L. (2015). [Teacher Costs, a JRC/CRELL technical briefing](#).

European countries⁸². The increase was higher than 15 % in Bulgaria, the Czech Republic, Estonia, Lithuania and Hungary (secondary education) and in Slovakia and Sweden (upper secondary education). However, real statutory salaries are slightly below 2009 levels in Malta, Slovenia, Finland and the UK, and significantly below in Ireland and Greece (although the initial levels in Ireland and Greece were high).

Figure 24 – Categories of public education spending, 2015



Source: DG EAC elaboration on Eurostat's general government finance statistics. Online data code: [\[gov_10a_exp\]](#). Reading note: Data for EU-28 average, Spain, Croatia, Netherlands and Finland are provisional. Countries are ordered by increasing share of compensation of employees.

The second biggest item is 'intermediate consumption', which ranges between 7.5 % in Spain and 25.1 % in the UK, while the EU average stands at 16.0 %. This item was 14.3 % of total expenditure in 2002. Grants to government-supported private institutions usually take the form of subsidies (accounted for under 'other') but can also be booked as intermediate consumption when the public authority purchases an educational service from a private provider; this may explain the higher weight of this item in some Member States.

'Gross capital formation' represented almost 8 % of total education expenditure at EU aggregate level, down from 8.2 % in 2002. It accounted for less than 5 % of total education spending in five Member States (Spain, Italy, Cyprus, Austria and Slovakia) and for more than 15 % in Bulgaria, the Czech Republic, Latvia and Lithuania.

The item 'other expenditure' is a residual covering a large variety of transactions including subsidies, social benefits, transfers to households and payments to private schools. Its importance reflects the organisation of education provision, and it usually increases in line with reliance on the private (mostly non-profit) sector. For this reason, the share of this item varies widely between countries. It is above 20 % in Denmark, Ireland, Spain, Malta, Sweden and the UK, but around 5 % in Belgium, Bulgaria, the Czech Republic, Greece, Croatia and Lithuania. Its share as a proportion of total public expenditure on education has increased slightly since 2002 (+0.3 pp).

⁸² The analysis intends to show the impact of the crisis on teachers' purchasing power. The level of salaries in 2009, their evolution from 2002 to 2009 and increases in absolute terms are not considered.

Box 5: Denmark – supporting participation in education by subsidising transport to school

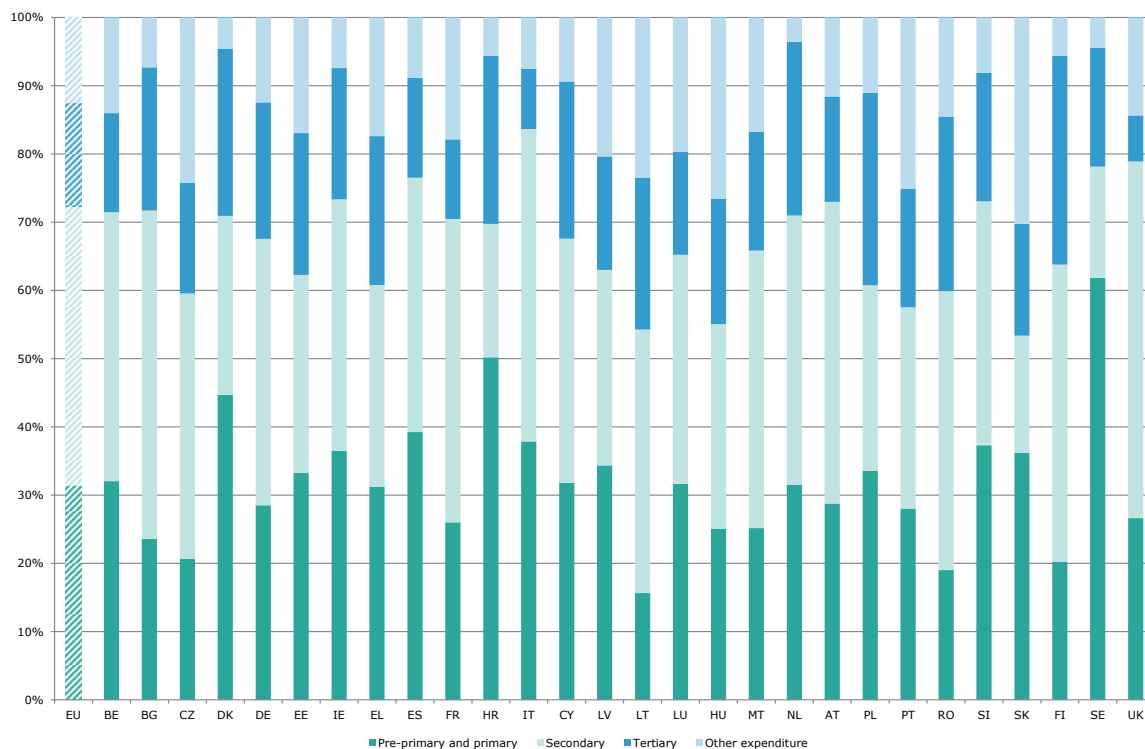
In Denmark, school segregation has been tackled with different measures. For instance, bus services have been provided to migrant children in different districts so that migrant children are distributed across districts. In Copenhagen in particular, extra funding is provided by the city so that schools in disadvantaged areas are improved. The aim is to encourage non-migrant parents to enrol their children, thus helping foster diversity in school and mutual understanding of different backgrounds⁸³.

1.3.3 Spending on education by level

Additional insights on education expenditure come from the breakdown by level of education. The bulk of expenditure is at school level, which includes all of compulsory schooling and thus most of the typical number of years spent in education. In 23 Member States this level accounts for more than 60 % of total expenditure, with a peak at over 80 % in Italy (Figure 25). Tertiary education accounts for more than 15 % of the total in 23 countries, reaching a high of 30.5 % in Finland. A low share is a sign of under-investment in the sector (Italy) or of the significant role of private funding.

'Other expenditure' includes various items such as education not classified by level, 'ancillary services' to education (such as student housing, school transport, meals), and R&D on education. The weight of this residual group of items on total education spending varies from around 4 % in the Netherlands to over 30 % in Slovakia. This might be due to a different treatment across countries of some of the above items, e.g. R&D, under which some countries recorded the bulk of their overall expenditure on R&D, instead of spreading it across government functions (i.e. industry, health, environment, etc.).

Figure 25 – Public expenditure by education level, 2015



Source: Eurostat's general government finance statistics. Online data code: [gov_10a_exp] and [nama_10_gdp]. Reading note: Secondary education also includes the post-secondary non-tertiary education.

⁸³ EU Agency for Fundamental Rights (2017). [Together in the EU: Promoting the participation of migrants and their descendants](#).

Progress on the EU benchmarks in education



2 Progress on the EU benchmarks in education

2.1 Participation in early childhood education and care

Key findings

Participation rates in ECEC are on the rise in the EU. The ET 2020 benchmark to reach 95.0 % of participation from the age of 4 was practically met in 2015 (94.8 %).

While in most Member States over 90 % of children in this age group participate in ECEC, Croatia, Slovakia and Greece still have attendance rates below 80 % (73.8 %, 78.4 % and 79.6 % respectively), and another five countries stand below 90 % (Finland, Romania, the Czech Republic, Bulgaria, Cyprus).

The 2015 EU average ECEC <3 participation has risen markedly from 2012 and stands at 30 %, but many countries are still far from the 33.0 % Barcelona objective.

The EU average masks significant cross-country differences besides the different participation patterns (below or above 30 hours per week).

Europe needs better data on ECEC quality, covering both structural and process quality, as well as better measurements of ECEC cognitive and non-cognitive outcomes.

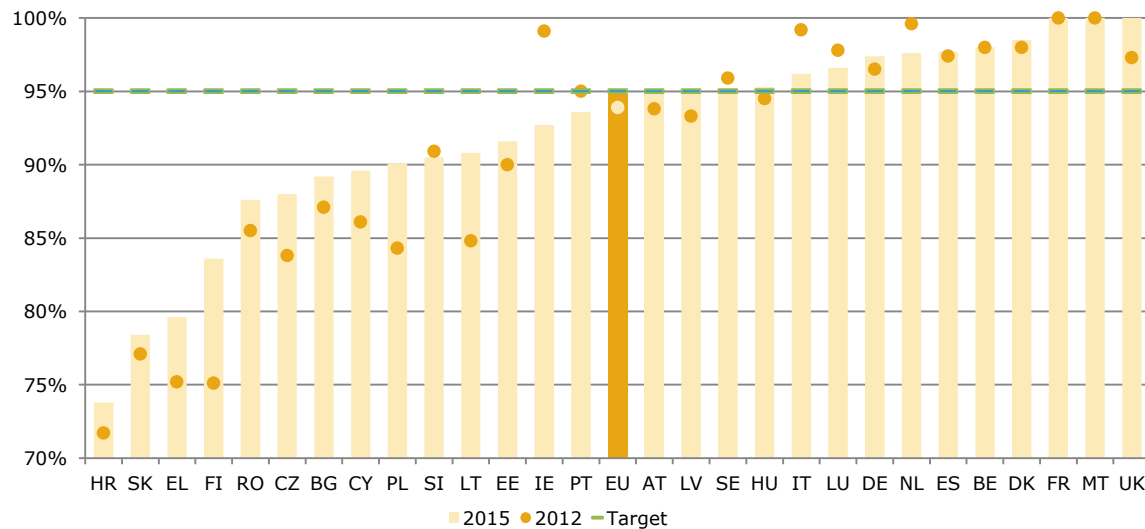
Participation rates in ECEC⁸⁴ are on the rise. In 2015, the EU average ET 2020 rate of ECEC attendance for children between 4 and the starting age of compulsory school stood at 94.8 %, meaning that the 95.0 % target had practically been attained (see Figure 26). Some 14 countries already had participation rates above the target. Since 2012, the participation rate has increased (+1 pp) in most Member States, even in the two countries with the lowest participation rates i.e. Croatia and Slovakia, which increased by 2.1 and 1.3 pp respectively. A substantial improvement can be observed in Lithuania (+6.0 pp)⁸⁵. On the other hand, there were falls in participation rates in Ireland (-6.4 pp), and, to a lesser extent, in Italy (-3.0 pp)⁸⁶.

⁸⁴ ECEC refers to any regulated arrangement that provides education and care for children from birth to compulsory primary school age — regardless of the setting, funding, opening hours or programme content — and includes centre and family day-care; privately- and publicly-funded provision; pre-school and pre-primary provision.

⁸⁵ The improvement in Finland (+8.5 p.p.) is mainly due to a change in definition between the two ISCED classifications. The inclusion of 'Family day care' in ISCED 0 explains the change over time.

⁸⁶ In the Netherlands data for 2015 are based on registry data only, while data for 2012 were partly estimated. This change might explain the decrease of 2.0 percentage points in the indicator.

Figure 26 — Participation in ECEC of children between 4 and the age of starting compulsory ISCED 1, 2012-2015



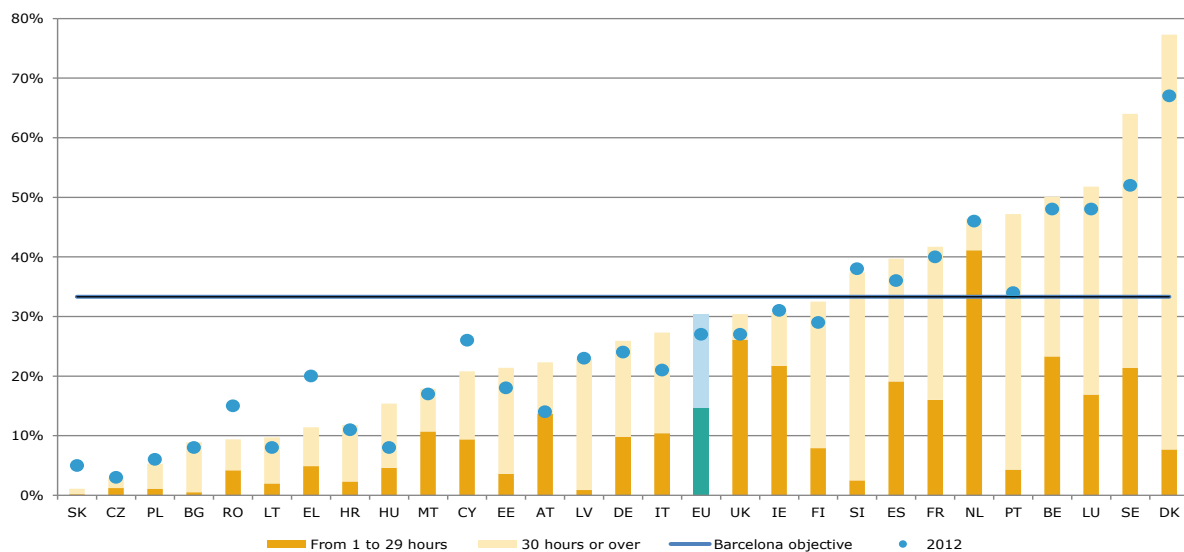
Source: Eurostat (EU-UOE; 2015 and 2012). Online data code: [[educ_uae_enra10](#)] for 2015 and [[tps00179](#)] for 2012. FI: Data for 2015 include family day care.

The EU also aims to reach the Barcelona target of providing childcare to at least 33 % of children below the age of 3 by 2020⁸⁷. The indicator measures the percentage of children aged 0-2 cared for in formal structures, adding up to attendance below and above 30 hours per week. Compared with the previous available year (2012), the EU average participation of children below 3 in ECEC⁸⁸ increased from 27 % to 30.3 % in 2015, therefore still below the target of 33.0 % at EU level. The EU average hides, however, significant variations among Member States, with nine countries already exceeding the target (Denmark, Sweden, Luxembourg, Belgium, Portugal, the Netherlands, France, Spain and Slovenia) and three very close to it at above 30% (Finland, Ireland and United Kingdom), while eight countries are largely below the target at less than 15% (Slovakia, Czech Republic, Poland, Bulgaria, Romania, Lithuania, Greece and Croatia). Significant differences in attendance patterns below or above 30 hours per week are also visible across countries, as shown in Figure 27. Finally, participation rates have decreased significantly from 2012 in several countries (Greece, Cyprus, Romania and Slovakia). Greece had the greatest decrease (8.6 pp), while the figure remained practically stable in Poland, Bulgaria, Croatia, Malta, Ireland, Slovenia and the Netherlands. Enrolments of young children in ECEC increased substantially (from 10 to 13.2 pp) in Portugal, Denmark and Sweden.

⁸⁷ The 33.0 % target originally referred to 2011. In March 2011, Member States reaffirmed their commitment to the Barcelona targets in the European Pact for Gender Equality (2011-2020).

⁸⁸ The Barcelona target for participation of children below 3 refers to 'formal childcare', including care at day centres without educational content. In contrast, the ET 2020 ECEC benchmark counts participation of children between 4 and the age for compulsory education and covers programmes officially classified in formal education. The Monitor uses 'ECEC' for both indicators as education and care should not be formally distinguished in early years. The two indicators are also based on different data sources, namely the Barcelona target refers to SILC data and the benchmark refers to UOE data. For a description 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](#). JRC Technical Report JRC102774.

Figure 27 – Participation in formal childcare of children below 3 years of age, 2012-2015



Source: Eurostat (EU-SILC; 2015). Online data code: [\[ilc_caindformal\]](#)

Participation of children in ECEC, particularly in the lower age groups, is influenced by the following factors:

- cultural patterns and parental leave legislation;
- availability of places and flexible arrangements meeting the practical needs of parents (opening hours);
- costs;
- parents' perception of quality.

For an analysis of the factors influencing the quality of ECEC see Section 3.1. Disadvantaged families can face multiple barriers⁸⁹ in accessing ECEC services, particularly affordability, availability, distance to service, limited opening hours and lack of knowledge about advantages of participation. According to PISA 2015 data, students in socioeconomically advantaged schools had attended pre-primary school about 4 months longer than students in disadvantaged schools. In Croatia, Lithuania and Poland the figure was actually at least one more year. Finally, geographical inequalities are also relevant. Access to ECEC programmes is more limited in rural areas. In many Member States, rural schools are also more likely to have a less socioeconomically advantaged student body, experience staff shortages and have a lower proportion of qualified teachers⁹⁰.

2.2 Early leavers from education and training

Key findings

The share of early leavers (ESL⁹¹) continues to fall, with a growing number of countries that have reached the ET 2020 target and their own national targets. The ESL share is lowest for women, while non-native people and young people in rural areas show higher ESL rates.

⁸⁹ European Commission (2017). Working lives: the foundation of prosperity for all generations. Employment and Social Development in Europe 2017.

⁹⁰ OECD (2016). [Policies and practices for successful schools](#). PISA 2015 Results (Volume II).

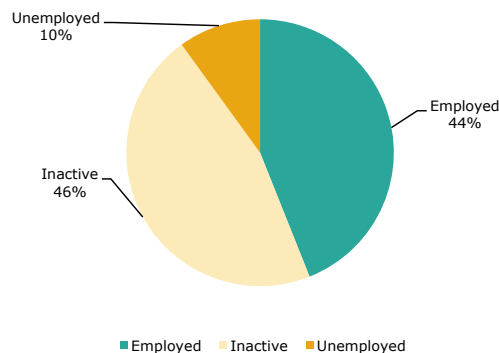
⁹¹ The terms early school leavers and early leavers from education and training are used interchangeably in this document.

In modern society, upper secondary education is considered the necessary minimum for full participation in society, and a condition for further education and for finding a job with sufficient income⁹². Education has also many non-monetary benefits both for the individual and society: e.g. better health, lower crime, environmental awareness and social participation⁹³.

This priority is established in an ET 2020 benchmark⁹⁴ that aims to reduce the share of young people (aged 18–24) in the EU having completed lower secondary education at most and not being in further education or training to less than 10 % by 2020. This goal is also part of the Europe 2020 headline target on education⁹⁵.

This commitment confirms the strong emphasis the European institutions place on promoting minimum levels of education for all and making sure that every young person in Europe has the chance to succeed in life.

Figure 28 – Employment of the early leavers from education and training, 2016



Source: Eurostat, EU-Labour Force Survey 2016, special extraction.

Over the next few years, achieving this target may become particularly challenging in countries that have received large numbers of migrants. Many of the children will have been out of formal schooling for considerable periods, may have had little formal schooling, or will have received their education in a different language.

Box 6: Malta – Reducing early school leaving

The Maltese Ministry of Education has been working with the country's public employment service *Jobsplus* and other bodies in order to reduce early school leaving. The aim is to identify and help early school leavers who may be interested in finding employment. In 2016, a number of vulnerable or low-achieving students were contacted by different institutes encouraging them to pursue post-secondary education or employment. Tailor-made guidance programmes will be launched throughout the school year 2017/2018 so that potential early school leavers in all state colleges are assisted in their educational path. Vocational and hands-on programmes will be established so that education is made more relevant to employment⁹⁶.

⁹² OECD (2016). [Education at a Glance](#), Table A5.1, A5.2. and Table A6.1.

⁹³ Psacharopoulos G. (2015). Non-monetary benefits of education. an answer by EENEE (European Expert Network on Economics of Education) to Ad Hoc Question 1/2015. See also extensively Section 1.1. of this Monitor.

⁹⁴ Council conclusions of 12 May 2009 on a strategic framework for European cooperation in education and training ('ET 2020'), (2009/C 119/02).

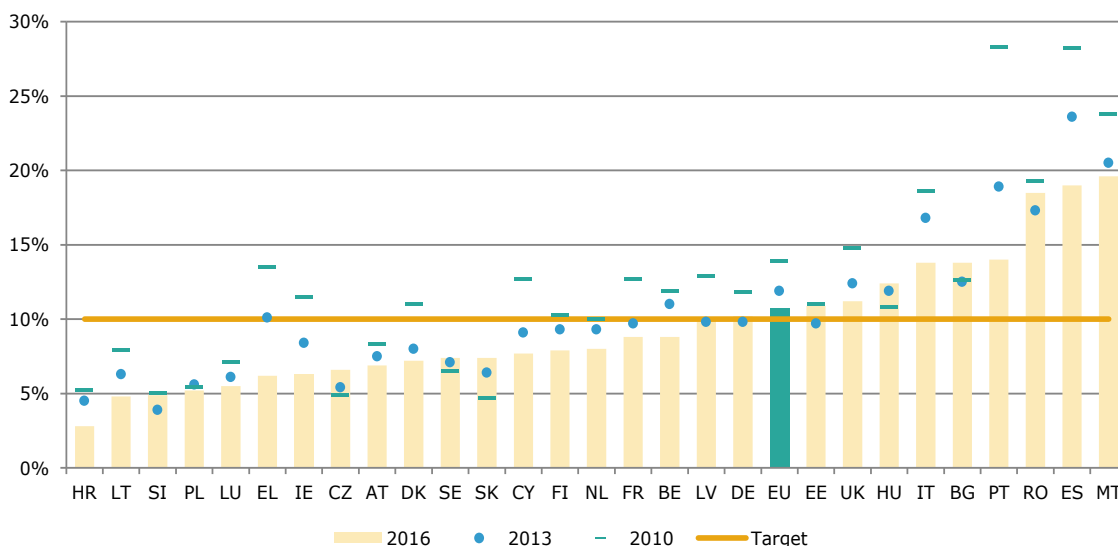
⁹⁵ See the Commission Communication on EUROPE 2020 A strategy for smart, sustainable and inclusive growth, [COM\(2010\)2020final](#).

⁹⁶ The Malta 2017 European Semester [national reform programme](#).

2.2.1 ESL target - development over time

Figure 29 shows the remarkable success that has been achieved since the benchmark and headline targets have been adopted: the EU average share of early leavers went down continuously from 13.9 % in 2010 to 10.7 % in 2016 (with 11.9 % in 2013). Thus, the EU is well on track to reach this target in 2020. With the exception of Bulgaria, the Czech Republic, Hungary, Sweden and Slovakia, this broad success is mirrored in most Member States, where shares of early leavers have gone down over time as well. The greatest reduction since 2010 has been achieved by Portugal, now at 14.0 %, followed by Spain at 19.0 % since 2010 — when the targets were agreed on these two countries had the highest shares of early leavers (Portugal: 28.3 %, Spain: 28.2 %). There was also remarkable success in Greece, where in 2016 the share was 6.2 %, well below the target. The other 16 Member States that have already reached the target for 2020 in 2016 are Croatia, Lithuania, Slovenia, Poland, Luxembourg, Ireland, the Czech Republic, Austria, Denmark, Sweden, Slovakia, Cyprus, Finland, the Netherlands, France and Belgium, with Latvia (10.0 %), Germany (10.2 %) and Estonia (10.9 %) very close to the target.

Figure 29 — Early leavers from education and training, 2010-2016



Source: Eurostat, EU Labour Force Survey, 2010-2016, online data code: [\[edat_lfse_14\]](#).

Reading note: break in time series for Germany, Spain, Croatia, Malta and Sweden and low reliability for Croatia in 2005; break in time series for Bulgaria, Germany, Croatia, the Netherlands, Poland, Romania and the UK in 2010, the Czech Republic, France, Netherlands and Poland in 2013; Denmark in 2016; data from Croatia have low reliability in 2016. The data on early leavers from education and training for HR should not be compared with data from before 2014 since under ISCED 1997 the qualification acquired upon successful completion of 'vocational courses based on basic education' is reported at ISCED level 3, not at ISCED level 2 as in ISCED 2011.

Looking at groups of countries, a first set started out with major challenges and then improved substantially, though those countries are still not close to reaching the target (Portugal, Spain, Malta and Italy). A second group of countries had constant rates above the target (Romania, Bulgaria and Hungary). On the other side, a larger third group of countries has reached the target or is close to it (the UK, Greece, Latvia, France, Cyprus, Belgium, Denmark, Ireland and Denmark). Finally, an even larger group was already below the target and managed to remain below 10 % over time (Netherlands, Austria, Lithuania, Luxembourg, Sweden, Poland, Croatia, Slovenia, the Czech Republic and Slovakia). Finland is also in this group, but at one point almost lost its position among them, being slightly above the target (at 10.3 %) in 2010. Estonia is fairly constant around 10 %.

This remarkable success proves that the efforts⁹⁷ have had noticeable effects in almost all Member States. However, in some countries the decision of young people to remain in school longer might be related to the economic crisis and restricted chances on the labour market, which provides greater incentives to achieve higher levels of education.

Box 7: Germany – fostering diversity in schools and reducing early school leavers through improving teachers competences

Germany has since March 2015 been promoting the advantages of ethno-cultural diversity. The joint recommendation 'Teacher education for a school of diversity' (*Lehrerbildung für eine Schule der Vielfalt*) published by the Standing Conference and the German Rectors' Conference (HRK) on social inclusion addressed many facets of diversity. The recommendation covers different abilities as well as 'particular initial conditions', e.g. language, social living conditions, cultural and religious orientation, gender, and special abilities and talents. Germany also introduced the 'Action Framework for Reducing the Number of Early Leavers from Education and Training', which calls for the overall improvement of the knowledge and skills of teachers. This involves tackling the pedagogical and psychological foundations of teaching and learning through initial teacher education. This includes training in analysing students' competences, developing adapted forms of learning assessment and providing individually tailored learning support⁹⁸.

2.2.2 ESL gaps within Member States

ESL rates show gender differences: overall in the EU, young women have a lower rate of early school leaving and higher rates of educational attainment than young men.

The ESL gender gap has remained almost constant at 3 pp, with young men showing higher rates of early leavers from education and training (at 12.2 %) than young women (at 9.2 %), though both rates decreased slightly since 2015, when they stood at 12.4 % for men and 9.5 % for women. Women met the target in 2014. Women also have lower rates than men in almost all Member States. Only in Bulgaria and Romania are they slightly higher, by 0.2 and 0.3 pp respectively.

Figure 30 – Early leavers from education and training by sex and migrant status, 2016 (%)

	Total	Males	Females	Native-born	Born within the EU	Foreign-born Born outside the EU	Born within or outside the EU
EU	10.7	12.2	9.2	9.8	17.5	19.4	19.7
BE	8.8	10.2	7.4	7.6	16.0	18.9	17.8
BG	13.8	13.7	13.9	13.8	:	: ^u	: ^u
CZ	6.6	6.6	6.6	6.6	10.4 ^u	11.2 ^u	10.8 ^u
DK	7.2	8.5	5.9	7.2	: ^u	8.8 ^u	7.9 ^u
DE	10.2	10.9	9.4	8.2	:	:	23.1
EE	10.9	14.3	7.4	10.9	: ^u	: ^u	: ^u
IE	6.3	7.8	4.6	6.5	7.0 ^u	: ^u	5.2
EL	6.2	7.1	5.3	5.5	16.5 ^u	18.5	18.1
ES	19.0	22.7	15.1	16.1	36.6	31.9	32.9
FR	8.8	10.1	7.5	8.2	16.1	16.3	16.3
HR	2.8 ^u	3.5 ^u	2.0 ^u	2.7	:	: ^u	: ^u
IT	13.8	16.1	11.3	11.8	26.1	31.4	30.0
CY	7.7	11.4	4.3	4.6	13.6 ^u	22.1	18.2
LV	10.0	13.7	6.2	10.1	:	: ^u	: ^u
LT	4.8	6.0 ^u	3.6 ^u	4.8	:	: ^u	: ^u
LU	5.5	6.8	4.2 ^u	4.1	9.2 ^u	: ^u	8.5
HU	12.4	12.9	11.8	12.4	: ^u	: ^u	: ^u
MT	19.6	23.1	15.8	19.5	:	: ^u	: ^u
NL	8.0	10.1	5.8	7.9	6.4 ^u	9.0	8.3
AT	6.9	7.7	6.0	5.5	7.2 ^u	20.4	14.7

⁹⁷ For the list of actions see [European Toolkit for Schools](#).

⁹⁸ European Commission/EACEA/Eurydice (2016). [Structural indicators for monitoring and education and training systems in Europe – 2016](#). Eurydice Background Report to the Education and Training Monitor 2016.

PL	5.2	6.4	3.9	5.2	: ^u	: ^u	: ^u
PT	14.0	17.4	10.5	14.0	: ^u	15.0	14.3
RO	18.5	18.4	18.7	18.6	:	:	:
SI	4.9	6.7	3.1: ^u	4.4	:	18.0 ^u	15.6 ^u
SK	7.4	7.6	7.2	7.4	:	:	:
FI	7.9	9.0	6.9	7.6	: ^u	13.8 ^u	15.1 ^u
SE	7.4	8.2	6.4	5.9	14.1	15.4	15.2
UK	11.2	12.8	9.5	11.5	14.2	5.5	9.4

Source: Eurostat, EU Labour Force Survey, 2016, online data codes: [edat_lfse_14] and [edat_lfse_02]. Notes: '^u' = low reliability due to small sample size; ':' = data either not available or not reliable due to very small sample size; 'd' = definition of national target follows a different measurement of the indicator. Note that the total share of foreign-born ('born within or outside the EU') includes data on Germany while the two shares of early leavers born within and outside the EU do not. This difference explains why the former is higher than both other shares.

ESL rates also vary strongly by migrant background. In most countries, people⁹⁹ with a migrant background face additional difficulties in school (see section 1.1.2.3) and terminate their education prematurely more often. The reverse is true only in few countries: Ireland and the UK (as in previous years), as well as Portugal. ESL rates of native- and foreign-born show no difference in Denmark and the Netherlands. Their ESL rate is almost twice as high in the EU overall (19.7 % for foreign-born vs 9.8 % for native-born people), about the same ratio as in Belgium, the Czech Republic, Spain, Finland and France; the difference is even more pronounced in Austria, Germany, Greece, Italy, Slovenia, Cyprus and Sweden, where about three times as many foreign-born young people leave school early, compared to the native-born.

Some countries have data on ESL rates of EU- and non-EU foreign-born young people. These show that non-EU foreign-born young people have higher rates of leaving school early than those who were born in an EU Member State; the exceptions here are Spain, where non-EU foreign-born people have a lower share of ESL than the EU-born (although both at high levels, 31.9 % and 36.6 % respectively) and the UK, which has a very low ESL rate for non-EU foreign-born people (5.5 %) and considerably more than double that rate among EU-born people (14.2 %). In most other countries for which this distinction is available, the shares of EU- and non-EU foreign-born early school leavers are similar. The rates of ESL are much lower for EU-born people in Cyprus (13.6 % EU vs 22.1 % non-EU) and Austria (7.2 % EU vs 20.4 % non-EU).

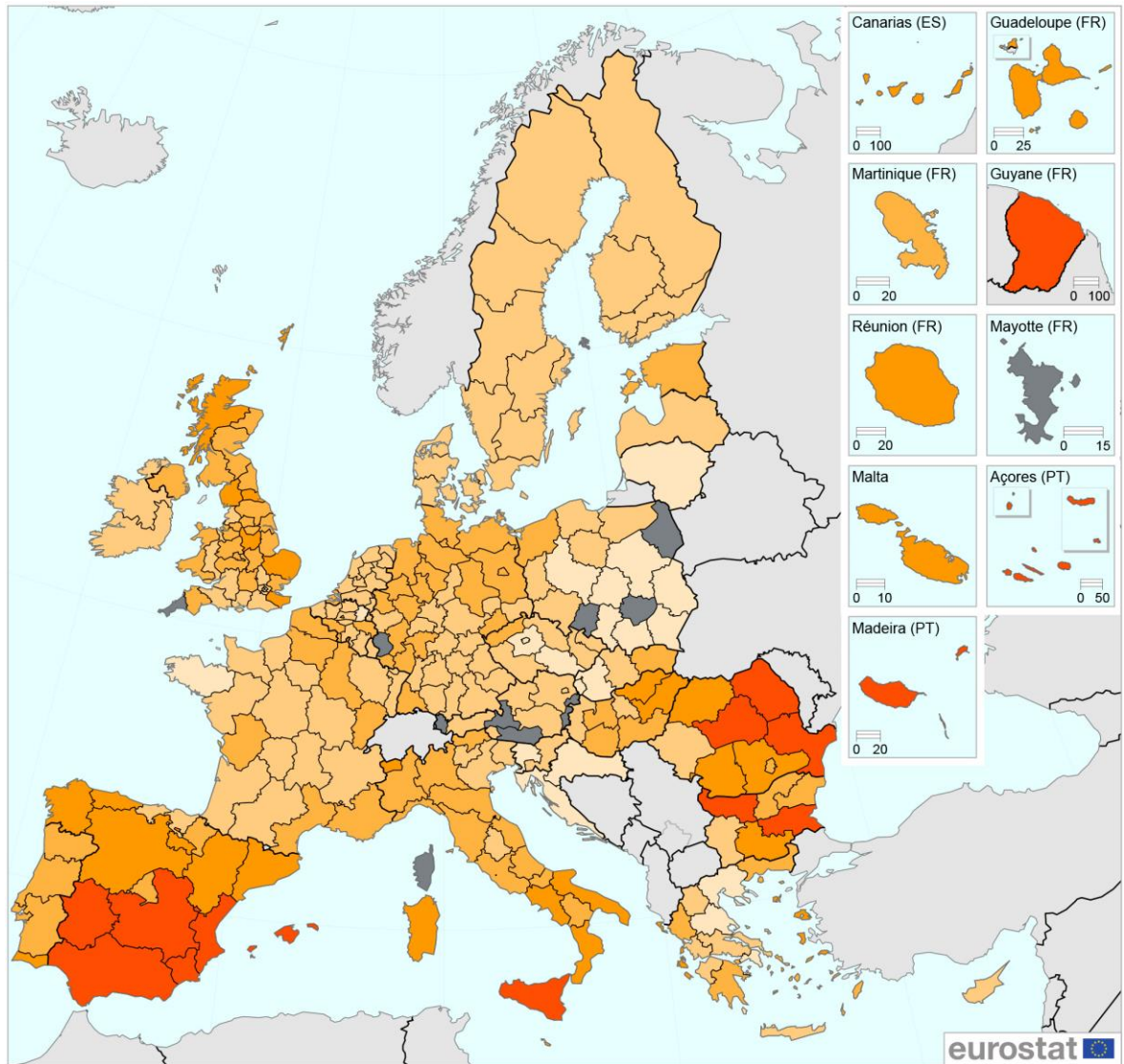
It can be concluded that the situations in the Member States are quite distinct with respect to migration patterns, language requirements, similarities and dissimilarities between receiving and sending countries, qualifications of migrants, and many more aspects.

All Member States other than the UK have set their own national goals for ESL rates, taking into account the situation in their countries when the ET 2020 benchmark was agreed upon; they range from 16 % for Italy to 4 % in Croatia. Some 15 Member States (Belgium, Denmark, Ireland, Greece, France, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Netherlands, Austria, Slovenia, Finland) have met their national targets — three more than in 2015 (Belgium, Netherlands and Finland) — thus confirming sustained progress towards the 2020 target.

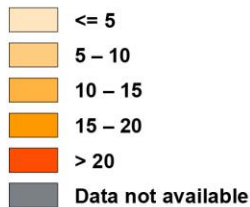
Regional disparities are pronounced in several countries. As illustrated in Figure 31, in 2016, there are a few NUTS 2 regions with ESL rates over 20 % e.g. Southern Spain, Mallorca; Sicily; the Azores and Madeira in Portugal; rural regions of Romania and Bulgaria; and in French Guyana (highest of all NUTS at 36.7 %). All these countries also have at least one NUTS 2 region where the ESL share is below 10 %, so there is an especially strong diversity within them. In general, the ESL rates tend to be higher in rural or former industrial regions. On the other hand, in some countries the ESL is below or around 10 % throughout: Denmark, Estonia, Ireland, Cyprus, Croatia, Finland, Sweden, Austria and Poland.

⁹⁹ Flisi, S.; Meroni, E. C.; Vera Toscano, M. E. (2016) [Educational outcomes and immigrant background](#).

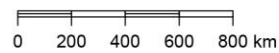
Figure 31 — Early leavers from education and training (18-24) by NUTS 2 regions, 2016 (%)



Legend:



Administrative Boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — IMAGE, 30/06/2017



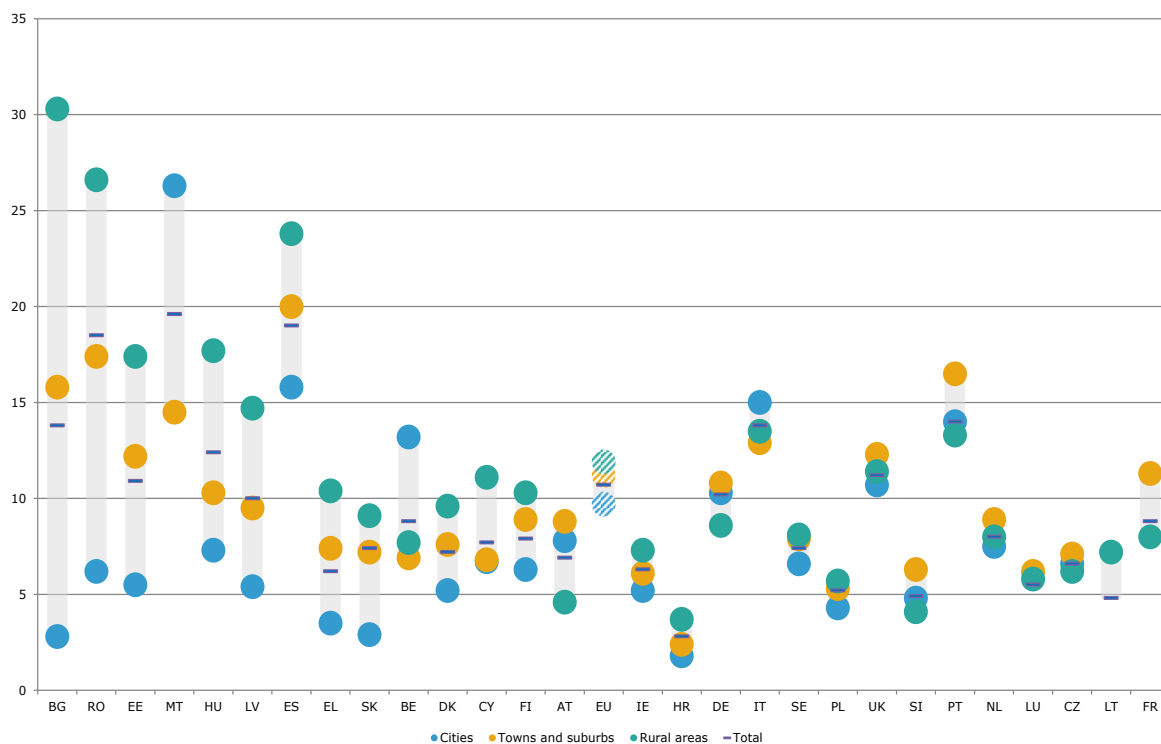
Source: Eurostat, EU Labour Force Survey, 2016, online data code: [[edat_lfse_16](#)]

The long-term decline of the early school leaving rate is a positive trend. However, it does not necessarily mean that reforms in school education have been able to provide more young people with attractive and promising learning pathways¹⁰⁰.

A closer look at the regional variations of ESL rates according to the degree of urbanisation¹⁰¹, with regions classified as cities, towns and suburbs, or rural areas, reveals remarkable patterns. Certain groups of countries seem to face very similar local challenges in reducing the number of early school leavers.

In the EU-28, the lowest proportion of early leavers was reported in cities. The average rate is 9.7 % but cities in Bulgaria, Croatia, Slovakia and Greece score especially well. In the towns and suburbs of the EU the proportion of early leavers rose to 11.2 %, while it was higher still in rural areas, at 11.9 %. However, as illustrated in Figure 32, there is not only a substantial difference across Member States when it comes to the ESL gap between cities, towns and suburbs and rural areas: Member States with a large ESL gap seem to have more a rural problem e.g. most obviously Bulgaria, whereas Member States with a small ESL gap like France and Portugal face more of a problem in towns and suburbs.

Figure 32 – Urban – rural divide in early leavers from education and training, 2016



Source: Eurostat, EU Labour Force Survey, 2016, online data code [[edat_lfse_30](#)], ranking by size of urban-rural gap.

Seven out of the 10 Member States with the largest urban-rural ESL gap belong to the group of countries that joined the EU in 2004 and 2007. In addition, six out of these seven have a very strong rural backlog, illustrated most prominently by the case of Bulgaria, where the ESL rate in rural areas is more than 10 times worse than in cities. All of these six Member States (Bulgaria, Romania, Estonia, Hungary, Latvia and Slovakia) are located in central and eastern Europe. PISA 2015 results show that the overall low performance in skills, competences and equity coincides with large urban-rural ESL gaps.

¹⁰⁰ European Commission (2014). [Employment and Social Developments in Europe 2014](#), p.114.

¹⁰¹ The degree of urbanisation classifies local administrative units (at LAU2 level) as cities, towns and suburbs, or rural areas, based on a combination of geographical contiguity and minimum population thresholds applied to 1 km² population grid cells. More details on the [methodology](#).

At the other extreme, the message that the data tells is less evident. However, in seven out of the 10 Member States with the smallest urban-rural ESL gap, towns and suburbs score the worst while rural regions score relatively well. Evidently, these findings call for diversified policy measures adapted to the different local challenges Member States are facing. While Member States with a large urban-rural ESL gap will need to ensure that rural areas catch up, Member States with a small urban-rural ESL gap will need to avoid a situation where towns and suburbs lag behind.

2.3 Tertiary educational attainment

Key findings

Higher educational attainment has progressed significantly since 2010, bringing Europe within 1 pp of the Europe 2020 headline target of 40 %. However, the spread between the countries has not narrowed and there are large differences in the attainment rates of the native-born and foreign-born. Also, the gender gap continues to increase.

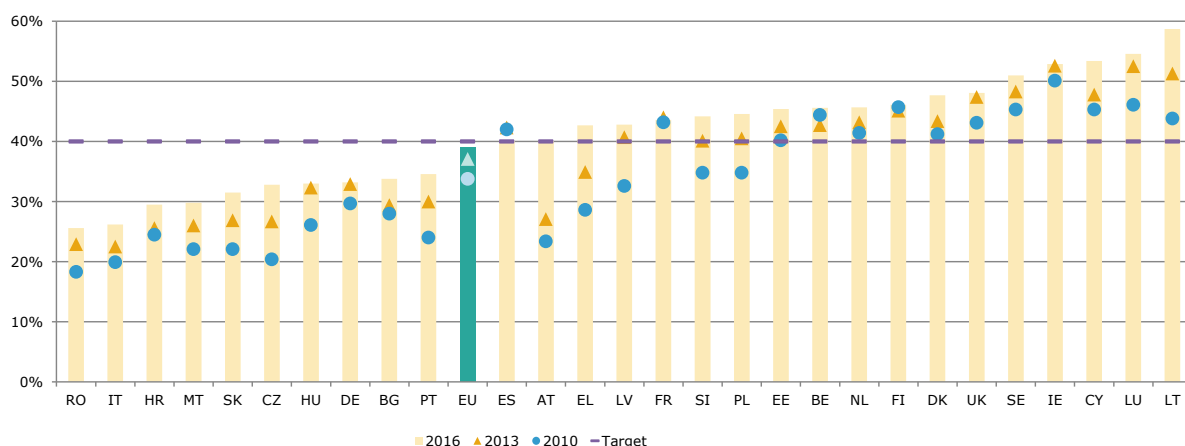
The mass expansion of higher education and therefore the likely achievement of the 2020 target has provided for a policy shift to quality in higher education.

2.3.1 The 2020 benchmark on higher education within reach

The EU has seen a continuing expansion of higher education within the last two decades. In 2016 it is within 1 pp of reaching the Europe 2020 headline target of 40 % by 2020. The EU's considerable progress in raising tertiary educational attainment becomes even clearer when measured since the beginning of the benchmarking period in 2010.

The tertiary attainment rate currently stands at 39.1 %, up 0.4 pp in the past year alone, and up more than 5 pp since 2010 (Figure 33). Some 18 Member States are above the 40 % target (Belgium, Denmark, Estonia, Ireland, Greece, Spain, France, Cyprus, Lithuania, Latvia, Luxembourg, Netherlands, Poland, Slovenia, Finland, Sweden and the UK). Since 2010, the tertiary attainment rate has risen in all Member States, most notably in the Czech Republic, Portugal, Greece, Latvia and Lithuania (by more than 10 pp). The sole exception is Spain, where it has fallen by 1.9 pp.

Figure 33 – Tertiary educational attainment 2010, 2013, 2016 and EU target level



Source: Eurostat, EU Labour Force Survey, online data code [edat_lfse_03]

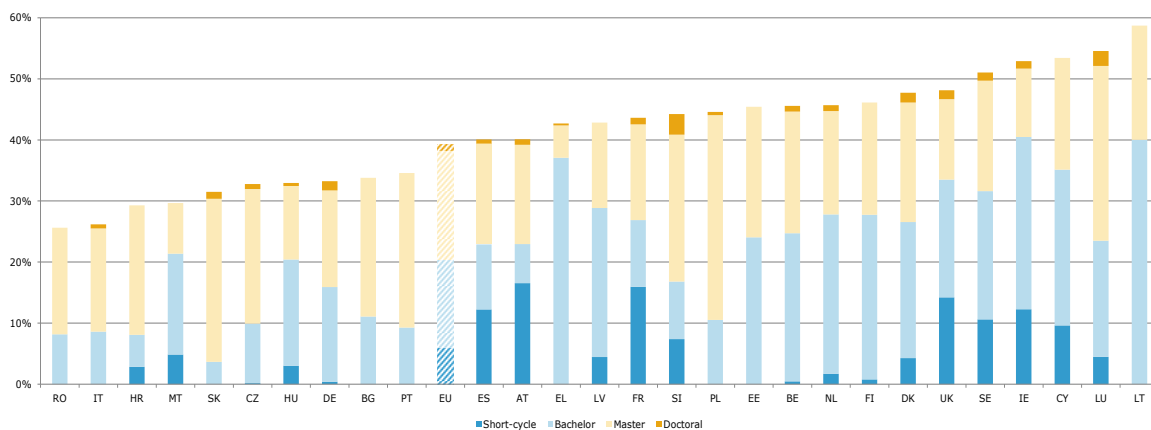
Reading notes: The indicator covers the share of the population aged 30-34 years having successfully completed tertiary education (ISCED 5-8). Break in series in 2011 for the Czech Republic, Malta, the Netherlands, Portugal, Slovakia and the UK, in 2013 for France and the Netherlands, in 2015 for Luxembourg and in 2016 for Denmark. Luxembourg: 2016 data unreliable because of low sample size. The data on tertiary educational attainment for Austria should not be compared with data from before 2014 since under ISCED 1997 the qualification acquired upon successful completion of higher technical and vocational colleges is reported at ISCED level 4, not at ISCED level 5 as in ISCED 2011.

Figure 34 shows that the distribution of students by level of qualification varies considerably between Member States. In half of the Member States a significant proportion of their population with tertiary education attainment qualified with short professional degrees. The largest proportions of 30-34 year-olds with short-cycle degrees are in Sweden, Spain, Ireland, the UK, France and Austria, all of which have rates above 10 %.

Also, the ratio between bachelor's and master's degrees varies considerably across Member States. In some countries, master's graduates are more prevalent than bachelor's graduates in the 30-34 year-old cohort, (Italy, Romania, Slovakia, the Czech Republic, Croatia, Portugal, Bulgaria, Austria, Spain, Poland, France, Slovenia and Luxembourg), while in others it is the other way around (the Netherlands, Finland, Denmark, the UK, Cyprus, Sweden, Ireland, Greece, Malta, Germany, Hungary, Belgium, Lithuania, Latvia and Estonia). In a relatively small number of countries, there is a significant population of people with doctorates (only in Luxembourg and Slovenia do people with a doctorate make up more than 2 % of the overall population).

The prevalent programmes at bachelor's level (three-year qualifications) are general university programmes (which can be followed by a master's degree) and more technical qualifications programmes (IT, economics and engineering), as well as initial teacher education.

Figure 34 – Tertiary educational attainment, age group 30-34 by level of qualification, 2016



Source: Eurostat, EU Labour Force Survey, 2016, special extraction.

Reading note: The indicator covers the share of the population aged 30-34 years having successfully completed tertiary education (ISCED 5-8), broken down by level of qualification. Country notes: small, and therefore unreliable, sample sizes for short-cycle attainment have been included in bachelor's attainment for Estonia, Italy, Poland, Romania and Slovakia. Small, and therefore unreliable, sample sizes for doctoral attainment have been included in master's attainment for Bulgaria, Cyprus, Estonia, Lithuania, Latvia, Portugal, Romania and Finland. Low reliability of data for doctoral attainment in Austria, the Czech Republic, Greece, Hungary and Luxembourg.

2.3.2 A widening gap in tertiary attainment across Member States

The gap between leading and lagging countries has not narrowed since 2013 — in fact, it has slightly increased (see Figure 33). In 2013, there were 30 pp of difference in attainment levels between Italy and Ireland; by 2016 this had increased to 33 pp (between Lithuania 58.7% and Romania 25.6%).

Migrant status and gender show patterns of inequality. Nearly 44 % of 30-34 year-old women already had a tertiary qualification in 2016, ranging from 68.8 % in Lithuania to 27.4 % in Romania — in fact, only in Germany do men have a higher attainment rate than women. Overall, there is nearly a 10 pp gap between women and men at EU level. The difference is highest in Latvia, Slovenia and Lithuania, where the rate for men is 20 pp lower than for women (see Figure 35).

Figure 35 – Tertiary education attainment by sex and migrant status age group 30-34, 2016 (%)

	Total	Females	Males	Native	Born within the EU	Foreign-born Born outside the EU	Born within or outside the EU
EU	39.1	43.9	34.4	39.9	40.1	34.9	35.3
BE	45.6	50.7	40.4	48.2	51.7	28.7	36.9
BG	33.8	41.0	27.2	33.7 ^u	: ^c	: ^u	: ^u
CZ	32.8	38.7	27.2	32.7	38.9	22.6 ^u	33.4
DK	47.7	54.6	41.0	45.1	70.8	55.4	59.8
DE	33.2	33.0	33.4	34.0	:	:	30.7
EE	45.4	52.4	38.8	45.3	: ^u	45.7 ^u	46.5
IE	52.9	58.5	46.6	50.5	48.7	73.0	58.4
EL	42.7	48.8	36.2	46.5	26.8 ^u	10.2	12.3
ES	40.1	46.6	33.5	44.8	28.6	20.2	22.4
FR	43.6	48.8	38.1	44.3	50.6	36.2	39.1
HR	29.5	36.7	22.4	30.3 ^u	48.0 ^u	17.8 ^u	21.0 ^u
IT	26.2	32.5	19.9	29.5	13.2	13.5	13.4
CY	53.4	62.1	43.7	61.6	39.1	35.5	37.3
LV	42.8	56.1	30.1	42.0	: ^u	62.7	62.4
LT	58.7	68.8	48.1	58.2 ^u	: ^u	: ^u	: ^u
LU	54.6	56.5	52.7	50.9	56.5	59.6	57.2
HU	33.0	39.6	26.4	33.2 ^u	29.6 ^u	: ^u	25.3 ^u
MT	29.8	32.4	27.4	29.3	:	33.3 ^u	35.4
NL	45.7	49.7	41.7	48.2	41.0	29.4	32.4
AT	40.1	42.0	38.3	42.3	41.3	29.6	34.8
PL	44.6	53.9	35.6	44.6 ^u	: ^u	48.1 ^u	50.7 ^u
PT	34.6	41.6	27.3	35.1	36.7	25.7	29.2
RO	25.6	27.4	23.9	25.6 ^c	:	: ^c	:
SI	44.2	55.3	33.6	46.8 ^u	: ^u	19.0 ^u	19.2 ^u
SK	31.5	39.4	24	31.5 ^u	: ^u	: ^u	: ^u
FI	46.1	54.4	38.4	47.8	31.0 ^u	33.0	32.3
SE	51.0	59.2	43.4	51.9	66.7	44.5	49.2
UK	48.1	50.3	45.9	45.6	47.2	61.4	54.7

Source: Eurostat, EU Labour Force Survey, online data code [\[edat_lfs_9912\]](#). Reading notes: 'u' = low reliability due to small sample size; ':' = data either not available or not reliable due to very small sample size; 'c' = confidential.

There is also a difference in tertiary educational attainment between the native- and foreign-born¹⁰². On average in the EU, the age group 30-34 has a 4.6 pp. higher tertiary attainment rate for native-born than for foreign-born people, but the gap may be wider at the national level, reaching 34 pp. in Greece, for example. This gap is lower but still sizeable in Slovenia, Cyprus, and Spain. On the other hand, in Latvia, Denmark, the UK, Ireland, Poland, Luxembourg and Malta the pattern is reversed: the foreign-born population in those countries has significantly higher tertiary attainment rates than the native-born one. This reflects visible differences in migration patterns across Europe (both out- and in-flows), with some countries either successfully attracting and retaining foreign people with high skill levels (or not retaining tertiary-qualified natives) and others attracting a lower-skilled population¹⁰³. In this respect, it is interesting to note that the proportion of high educated is slightly higher among those who are born in other EU-countries than those who are native, indicating that many of those who move within the union has attained higher education.

The expansion of higher education and the likely fulfilment of the tertiary attainment benchmark by 2020 means that EU policy has refocused on improving quality in higher education. The focus is now on:

- the mismatches between the knowledge and skills Europe needs and the skills it has;
- the persistent and growing social divisions in student intake and the perceived detachment of academia from society;
- improving how different components of higher education cooperate.

¹⁰² Flisi, S.; Meroni, E. C.; Vera Toscano, M. E. (2016) [Educational outcomes and immigrant background](#).

¹⁰³ E.g. Poland attracts a workers from Ukraine, Belarus for jobs traditionally requiring lower qualifications.

The third of the issues listed above relates to the fact that funding, incentive and reward mechanisms in higher education are not always configured to reward good teaching and research, innovation, social inclusion and engagement. Cooperation with schools, vocational providers and adult learning is often limited. Section 3.3 provides more evidence on these issues¹⁰⁴.

2.4 Recent graduates on the labour market, vocation education and training (VET) and work-based learning

Key findings

The employment rates of recent graduates have improved in most of the EU. Higher education offers the best employability.

Despite relatively good labour market outcomes for VET, the number of students enrolling in initial VET has been falling in most countries since 2013, only in five EU Member States their number increased, notably in Spain and the Netherlands.

The employment success of the people completing VET with their field of study with the highest employment ratio being in engineering, manufacturing and construction (79.4 %).

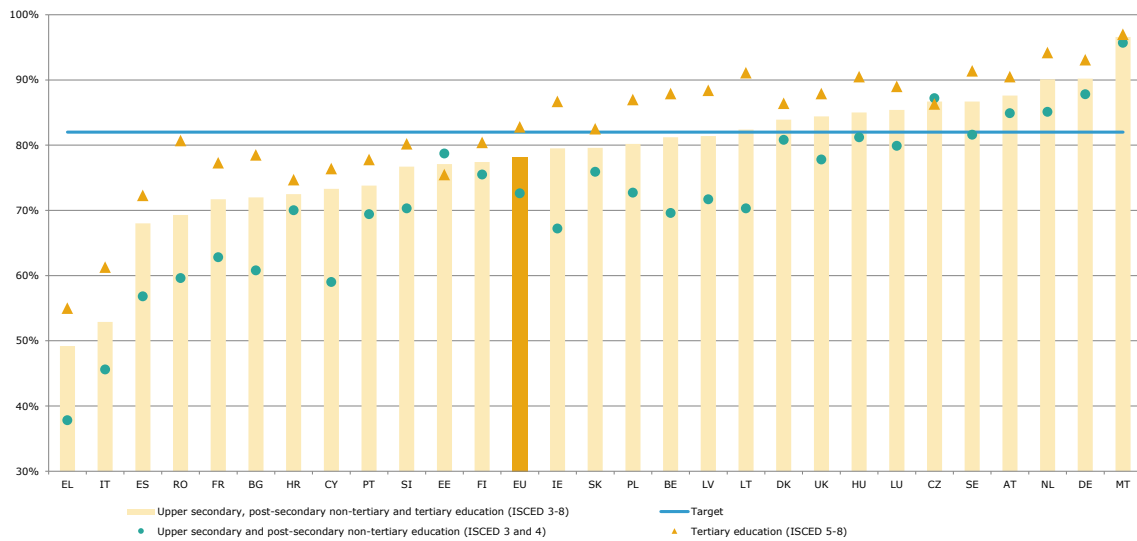
Initial VET may be less attractive compared to the tertiary education due to a less positive image of occupations it leads to.

2.4.1 Graduate transition from education to work

Difficult transitions from education to work can have long-term negative effects both for the individual and for the welfare system. For many countries, helping recent graduates find the right job after graduation is a policy priority. Along this line, the EU adopted in 2011 a benchmark on graduate employability: 82 % of recent graduates from upper secondary to tertiary education, aged 20-34, who are no longer in education and training, should be in employment by 2020¹⁰⁵. Although progress has been made, the employment rate of recent graduates in the EU still falls short of the target: from 75.4 % in 2013, it has risen to 78.2 % in 2016.

¹⁰⁴ See the Commission Communication on a renewed EU agenda for higher education COM(2017)247final.

¹⁰⁵ The indicator is defined as the 'employment rate of 20 to 34 years-olds, who graduated from ISCED 3-8 1 to 3 years earlier and who are no longer in education or training'.

Figure 36 — Employment rate of recent graduates by ISCED level, 2016


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

Reading note: Countries are ordered by employment rate of upper secondary and post-secondary non tertiary graduates.

Countries furthest from the benchmark are Greece, with an employment rate of 49.2 % and Italy (52.9 %). In both countries, the situation improved on 2013 — up from 40.0 % and 48.5 % respectively. However, other countries have made even more significant improvements — most notably Croatia from 53.8 % to 72.5 %, Cyprus from 62.1 % to 73.3 % and Hungary from 74.2 % to 85.0 %. At the same time, the situation has deteriorated in three countries — most significantly in France (from 76.3 % to 71.7 %), but also in Finland (from 79.8 % to 77.4 %) and Austria (from 89.7 % to 87.6 %).

Employment rates for recent graduates by ISCED level offer a more nuanced picture. The employment rate of recent graduates from tertiary education (ISCED 5-8) grew from 80.7 % in 2013 to 82.8 % in 2016, and therefore surpassed the overall benchmark value for the first time.

By contrast, the employment rate of recent graduates completing a medium level of education is still well below that threshold, despite increasing from 69.4 % in 2013 to 72.6 % in 2016, with a number of countries displaying employment rates above the 82 % benchmark, (Malta, the Netherlands, Germany, Sweden, Hungary, Austria, the Czech Republic and Estonia), and some countries with rates below 70 % (Cyprus, Romania, Bulgaria, France, Ireland, Portugal and Belgium). Only two countries (Italy and Greece) have rates below 50 %, following their overall very low employment rates.

2.4.2 Initial VET (IVET)¹⁰⁶

In 2015, there was a fall in the absolute number of IVET students and their share on the total of students in upper secondary education. The overall number of IVET students in the EU stood at 10.3 million in 2015, a drop of around 500 000 (4.7 %) compared with 2013. This downward trend was evident in the four countries (United Kingdom, Italy, Germany and France) with the largest VET student population, which account for more than 50 % of all EU VET students. Therefore, the relative share of VET students is estimated to have decreased from 48.9 % in 2013 to 47.3 % in 2015. The UK registered the most marked fall in absolute numbers of the IVET student population — by almost 200 000, while in five EU Member States (the Netherlands, Spain, Finland, Luxembourg and Cyprus) their numbers increased — most notably in the Netherlands.

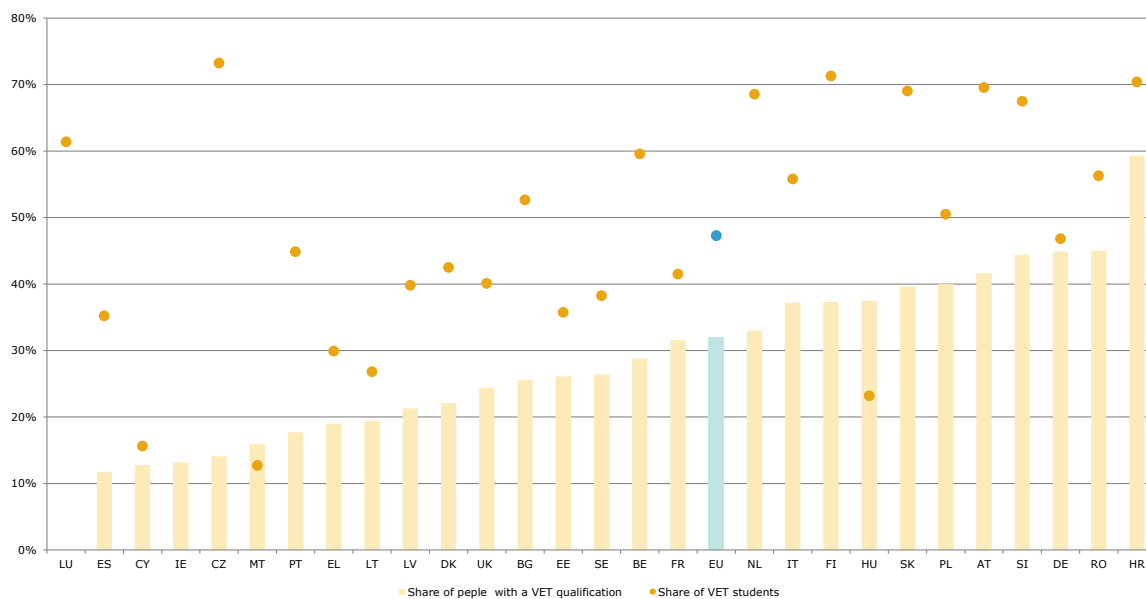
¹⁰⁶ Continuing vocational education and training is covered in section 2.5.

IVET can be an effective educational pathway because it offers the opportunity to choose between: (i) directly entering the labour market after completion of education; and (ii) continuing studying, since many IVET programmes allow access to higher education¹⁰⁷. Across countries there are considerable differences in the propensity of VET graduates to choose one of these two options.

Figure 37 compares the share of VET students against the share of young adults with upper secondary or post-secondary non-tertiary VET as the highest qualification out of the total population with either upper-secondary or post-secondary non-tertiary education (ISCED 3-4).

The discrepancy between the two groups approximates the different propensity of students to enrol in higher education VET after completing VET (at the same time influenced by the upper secondary VET (together with different drop-out rates from VET and higher education programmes). In the Czech Republic, Finland, the Netherlands, Belgium, Bulgaria, Portugal, Denmark, Latvia and Spain, the share of those young people with upper secondary VET qualifications in the total population is substantially smaller than enrolment rates in VET. This implies that the majority of VET students at upper-secondary level probably continue their education at higher level. Conversely, in Croatia, Romania, Poland, Germany and France, VET enrolment corresponds more closely with the share of VET graduates in the overall population, which seems to imply that most VET students enter the labour market directly after completing their VET studies.

Figure 37 — The share of students in upper-secondary VET, 2015 and the share of people aged 20-34 with a VET qualification, 2016



Source: Eurostat, UOE, 2015 and EU Labour Force Survey, 2016. Online data codes: [[educ_uoe_enrs05](#)] and [[edat_lfs_9914](#)].

Reading note: In Ireland vocational programmes are not applicable. Data on the share of people with a VET qualification in Luxembourg are not available and data on the share of VET students in Greece in 2015 are tentative. Countries are ordered by the share of people with a VET qualification. The 'share of enrolled VET students' indicates the share of students enrolled in upper secondary (ISCED 3) programmes who take vocational programmes out of total student population. The 'share of people with a VET qualification' indicates the share of young people who have an ISCED 3-4 vocational qualification as their highest level qualification successfully completed out of the total population of those aged 20-34.

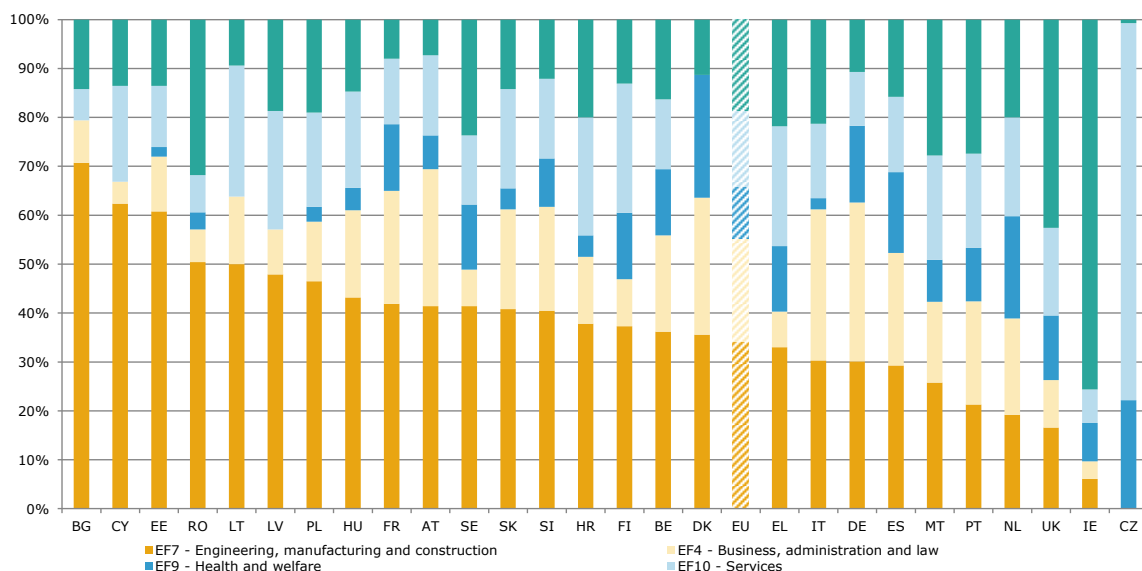
¹⁰⁷ See the 2016 [Education and Training Monitor](#).

In countries with well-functioning VET and labour market systems, it is reasonable to start working right after upper secondary VET. Young adults choosing this option perform well in the labour market. However, not all fields of education and training are equally well placed to ensure good labour market outcomes. According to data in Figure 38, the most popular fields for vocational education and training are engineering, manufacturing and construction — accounting for 34.2 % of all VET graduates, followed by business, administration and law, with 21.1 % of all VET graduates. Graduates from services are 15.5 % of the VET graduate population and those with a health and welfare background account for a further 10.5 %. The remaining fields comprise the remaining 18.7 % of the VET graduate population.

There are, however, substantial differences across countries. For example, in Bulgaria the absolute majority (70.7 %) of VET students complete courses in engineering, manufacturing and construction programmes, while similarly high numbers (around 50 % of all VET qualified population) are found in Cyprus, Estonia, Romania, Lithuania, Latvia and Poland. Ireland is another specific case, where very few VET students have their highest qualification at the upper secondary or post-secondary non-tertiary level with a VET orientation. Most VET students in Germany and Italy have graduated from business, administration and law programmes, while Denmark and Austria also have a substantial share of VET qualified from these fields. Health and welfare programmes are popular among VET qualified people in Denmark (25.1 %), and to a lesser extent the Czech Republic (22.2 %) and Netherlands (20.9 %).

VET programmes in field of services are a more distinctive feature of eastern and central Europe, and besides the Czech Republic, also popular in Lithuania (26.8 %), Latvia (24.2 %) and Slovenia (24.1 %), as well as in Croatia (24.1 %), Finland (26.4 %) and Greece (24.5 %). The UK is a specific case as it has a large number of programmes (and 42.6 % of graduates) outside the four main fields of study that are overall most prevalent in the EU.

Figure 38 — Distribution of young people with VET qualification at upper-secondary and post-secondary non-tertiary level by field of study, 2015

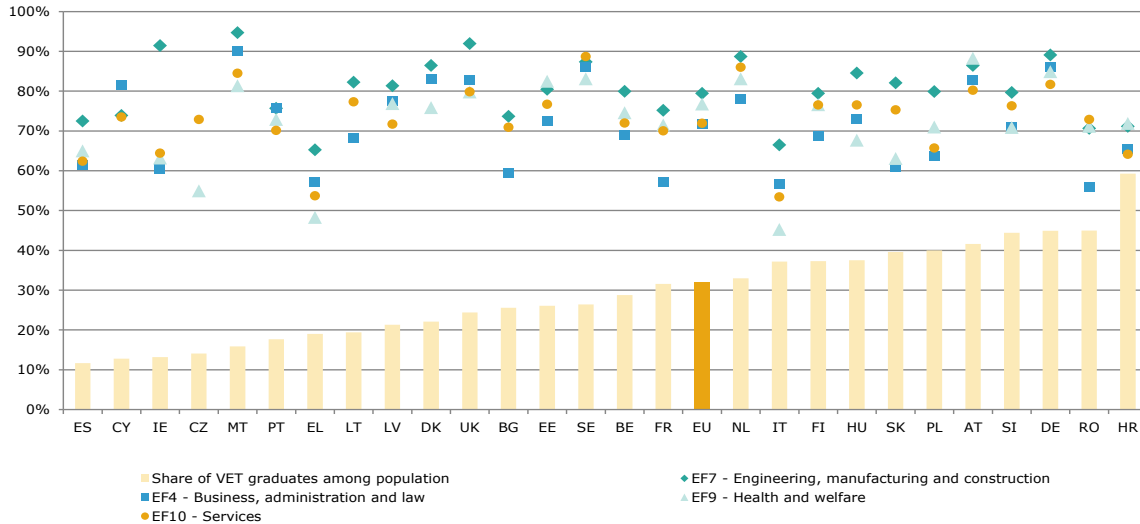


Source: Eurostat, EU Labour Force Survey, special extraction.

Reading note: Data are not available for: EF9 graduates for Cyprus, Lithuania, Latvia and Bulgaria; EF10 graduates for Denmark; EF4 and EF7 for Czech Republic.

The employment success of VET graduates differs with their field of study: in the EU-28 the highest employment ratio is among VET graduates in engineering, manufacturing and construction (79.4 %), followed by graduates in health and welfare (76.7 %). The other two most popular fields lag behind in employment rates: services have an employment rate of 71.9 %, while for business, administration and law the figure is 71.8 %.

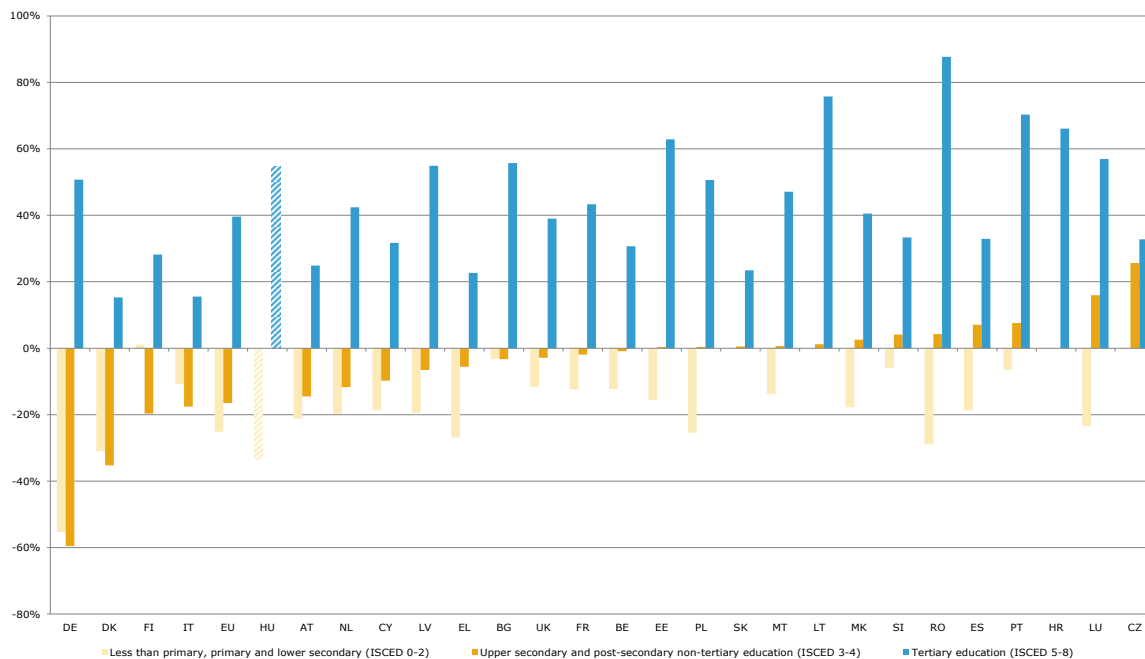
Figure 39 – Employment ratios of young adults (20-34) with a VET qualification at upper-secondary or post-secondary non-tertiary level by field of study, 2016



Source: Eurostat, EU Labour Force Survey, online data code [edat_lfs_9914] and special extraction. The employment ratio data are not available for: EF7 and EF4 graduates for the Czech Republic; EF9 graduates for Cyprus, Latvia and Bulgaria; EF10 graduates for Denmark.

Besides employment ratios, wages represent the other main reason for the attractiveness of different education pathways (Figure 40).

Figure 40 – Wage premium by educational attainment over work income of 20-34 olds with a medium VET, 2015



Source: Eurostat, EU SILC, 2015, special extraction 'Work income variable by educational attainment'.

Reading note: data sorted by the difference of work income between graduates with a medium-level general education and graduates with a medium-level vocational education. A low level of education includes qualifications at ISCED 0-2; medium-level education includes qualifications at ISCED 3-4 and a high level of education includes qualifications at ISCED 5-8. Data are not available for Ireland. Data are not reliable for Croatia for ISCED 0-2 and ISCED 3-4 with general orientation; Hungary for ISCED 3-4 with general orientation; Lithuania for ISCED 0-2; Slovakia for ISCED 0-2.

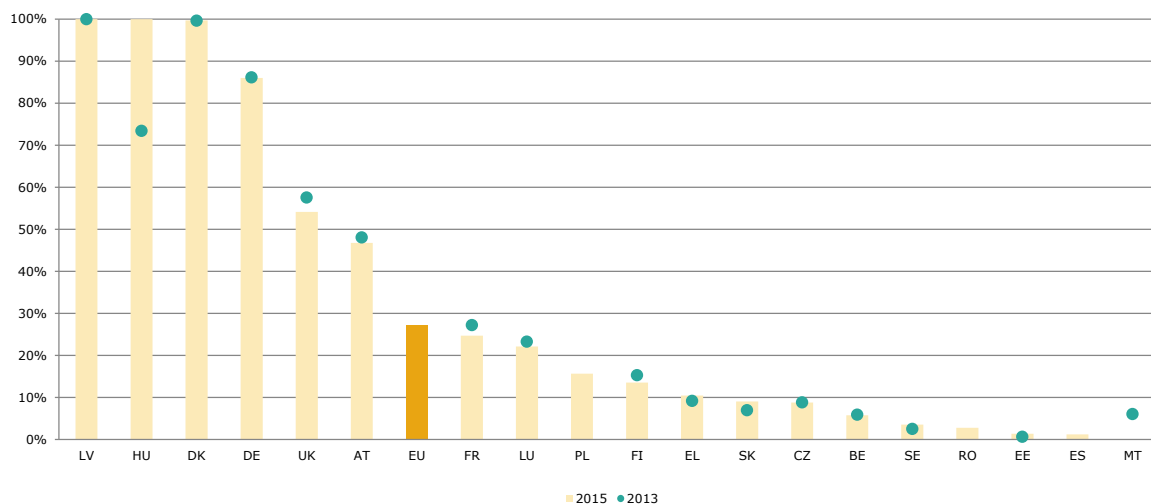
The wage premium for a medium-level (ISCED 3-4) vocational qualification compared with the medium-level general qualification varies from 59.5 % in Germany to a negative wage premium of 25.6 % in the Czech Republic (though this country is a special case as most VET graduates continue into higher education and very few enter the labour market directly after obtaining a medium-level qualification). Young people with a vocational qualification earn 25.1 % more than those with only a low level of education (ISCED 0-2), 16.5 % more than those with a medium-level qualification with a general orientation and 39.6 % less than those with a high level of education (ISCED 5-8). However, this finding does not hold in some countries: in Finland and Bulgaria those with a VET qualification have salaries similar to people without a medium-level general qualification.

2.4.3 Work-based learning and apprenticeships

One of the key characteristics of the VET system that facilitates students' smooth transition to employment and success on the labour market is the integration of work-based learning in vocational education and training programmes. In 2015, there were around 2.8 million students enrolled in combined work- and school-based systems in the EU.

Apprenticeship-type schemes are widespread across the EU¹⁰⁸. However, their organisation differs significantly across the Member States. For instance, Austria, Denmark, France and Germany have a system of company-led apprenticeships in which apprentices are employees with a work contract and paid for their productive work. In Estonia and Finland in-company training is organised through the VET providers (schools or training centres), with different contractual, remuneration and compensation arrangements. The Netherlands and Spain have combinations of these systems.

Figure 41 – Share of upper secondary VET students enrolled in combined work- and school-based programmes, 2015



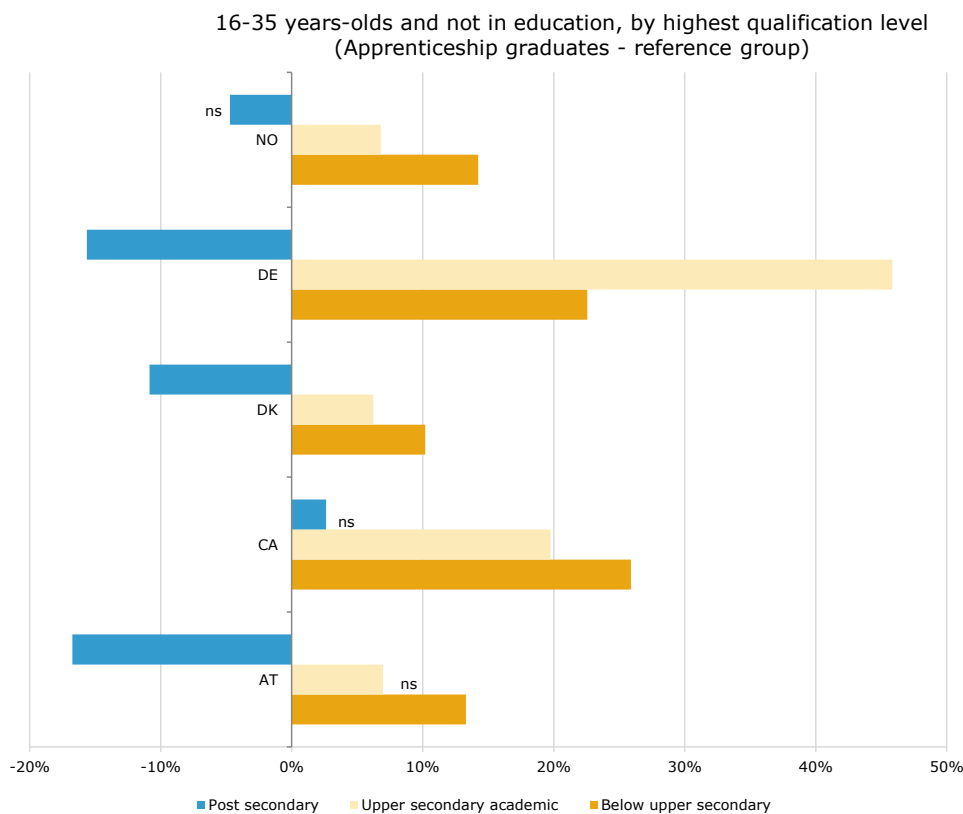
Source: Eurostat (UOE, 2015 [[educ_uoe_enrs04](#)]). Combined school and work-based programmes are programmes in which less than 75% of the curriculum is presented in the school environment or through distance education. Data for the EU, Poland, Romania and Spain are not available for 2013 and for the Netherlands for both years. 2014 data for Greece. Italy, Bulgaria, Croatia, Cyprus, Ireland, Lithuania, Portugal and Slovenia: not applicable.

Figure 41 shows that between 2015 and 2013, there was little change in the prevalence of combined work- and school-based programmes. In many countries the share of students attending such programmes fell – e.g. in the UK, France, Luxembourg and Finland. A noticeable increase was only registered in Hungary, potentially due to changes in structure of trainings.

¹⁰⁸ See DG EAC (2012). [Apprenticeship supply in the Member States of the European Union](#), an IKEI study for the European Commission.

A recent OECD paper¹⁰⁹ analyses the employment outcomes of apprentices on the costs and benefits of work-based learning systems, using PIAAC data (Figure 42). In terms of employment chances, apprenticeship graduates are more likely to be employed than people without an upper secondary diploma and have similar chances to those with a general upper secondary diploma; they have, however, a lower likelihood of finding employment than those with higher qualifications. In terms of salaries, apprentices do earn more than young adults without an upper secondary diploma and those with a general upper secondary diploma (which is often meant to be a transitional qualification towards higher education and therefore not directly relevant to the labour market). Apprenticeship graduates on average earn less than young adults with higher level qualifications.

Figure 42 – Wage premium of apprenticeship graduates



Source: OECD (2012), *Survey of Adult Skills, (PIAAC)*.

Reading note: Coefficients from the ordinary least squares (OLS) regression of log hourly earnings. Coefficients adjusted for numeracy performance, age, gender and firm size. Wage outliers were dropped, namely wages above the 99th percentile and wages below the first percentile. Post-secondary and tertiary programmes include programmes at ISCED 4 A and B, ISCED 5 and ISCED 6 level. 'Upper-secondary academic' refers to upper secondary (ISCED 3 longer than 2 years) and short post-secondary programmes (ISCED 4C) that are not vocational. 'ns': result is not statistically significant (p-value > 0.05).

¹⁰⁹ Kuczera, M. (2017). *Striking the right balance: Costs and benefits of apprenticeship*, OECD Education Working Papers, No. 153.

2.5 Adult participation in learning

Key findings

Continued learning throughout life is necessary to keep up with rapid, social and technological change.

The modest ET 2020 target calls for at least 15 % of 25-64 year-olds to participate in learning¹¹⁰.

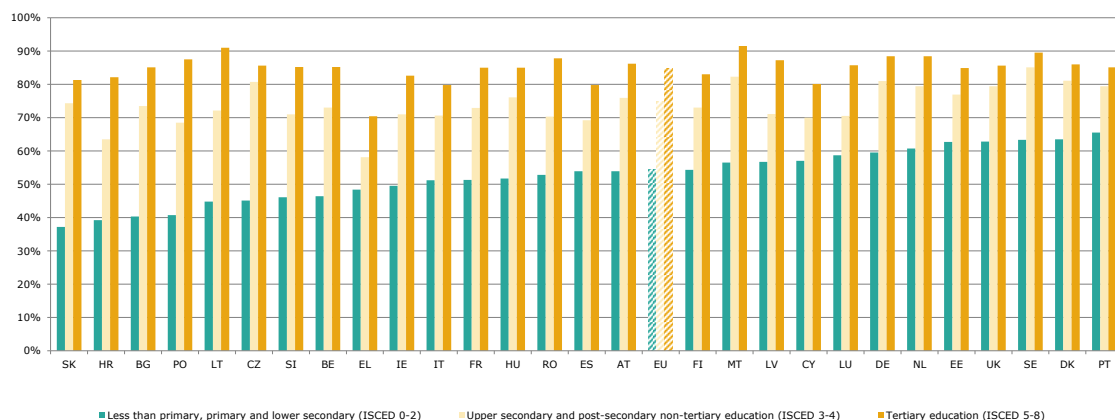
At 10.8 %, the EU remains over 4 pp below the target, with the rate of participation practically unchanged since 2015.

2.5.1 Skills, education and labour market outcomes

The level of education and training attained is one of the key predictors of long-term success in the labour market – the likelihood to be employed, the amount of salary and the quality and social attractiveness of the job. This link has often been explained by the fact that more education and training provides broader and better knowledge, which is then rewarded by employers. Indeed, the PIAAC has shown, at least for the particular skills measured in the survey – notably literacy and numeracy – that higher skills are linked both to higher education levels and better employment outcomes. Education systems differ in their capacity to deliver those skills – in some cases to such an extent that someone completing an upper secondary school in one country acquires the same skills of a tertiary graduate in another country¹¹¹. Investigating the link between skills and labour market success would therefore offer interesting insights. However, the information available at the moment is very limited and therefore the level of educational attainment remains the primary point of reference in measuring human capital. As a result, it is still the best measure to explain differences in labour market and social outcomes between individuals.

There are large differences from country to country in terms of the educational attainment of the adult population. Moreover, although in all countries a higher education level leads to better labour market outcomes, there are substantial differences in those outcomes. These differences are largely driven by the economic situation in each country, the differences in industrial profiles (which demand different skills), and in education systems' effectiveness in providing graduates with qualifications, knowledge and skills attractive for the labour market.

Figure 43 – Adult (25-64) employment rates by education level, 2016



Source: Eurostat, EU Labour Force Survey, [[lfsa_ergaed](#)].

¹¹⁰ The indicator refers to persons aged 25 to 64 who stated that they received education or training in the in the four weeks preceding the survey (the EU Labour Force Survey).

¹¹¹ OECD (2013) [OECD Skills Outlook 2013: First Results from the Survey of Adult Skills](#).

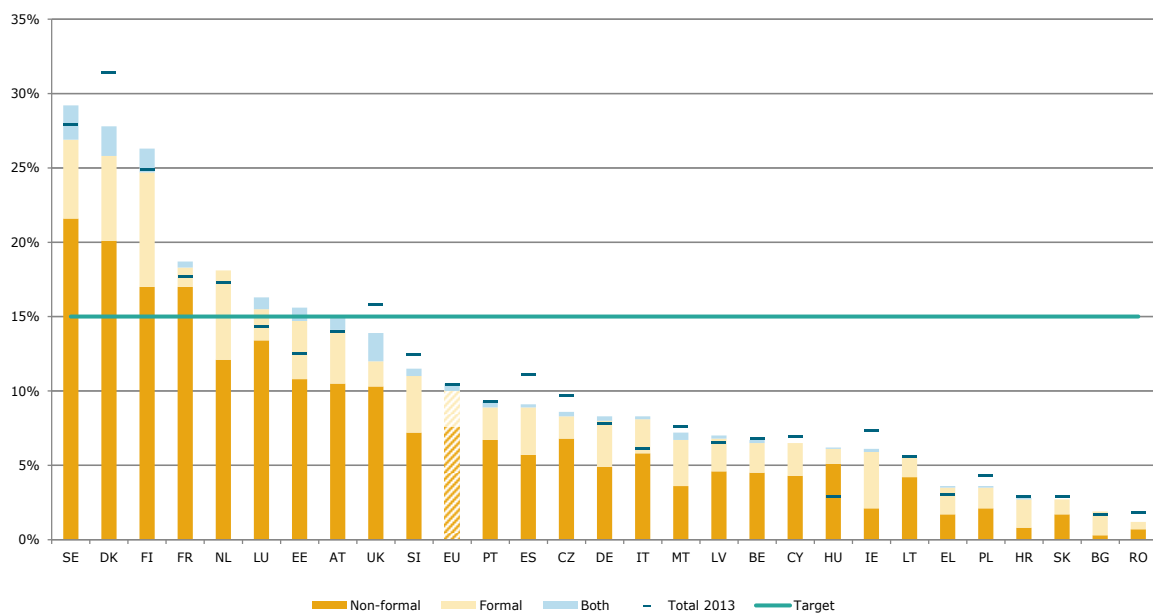
Figure 43 demonstrates that employment rates of adults with high educational attainment are quite similar across countries, while employment rates of those with medium-level and particularly with low-level formal qualifications show much more diversity.

2.5.2 Adult participation in learning – performance in the ET 2020 benchmark

In 2016, adult participation in learning stood at 10.8 % (a mere 0.1 % up from 2013) with rates by level of education practically unchanged: 4.2 % (4.5 % in 2013) among the low-qualified, 8.8 % (8.8 % in 2013) among the medium-qualified and 18.6 % (19.0 % in 2013) among the highly qualified¹¹².

Figure 44 shows that in all countries the majority of adult learning is non-formal.

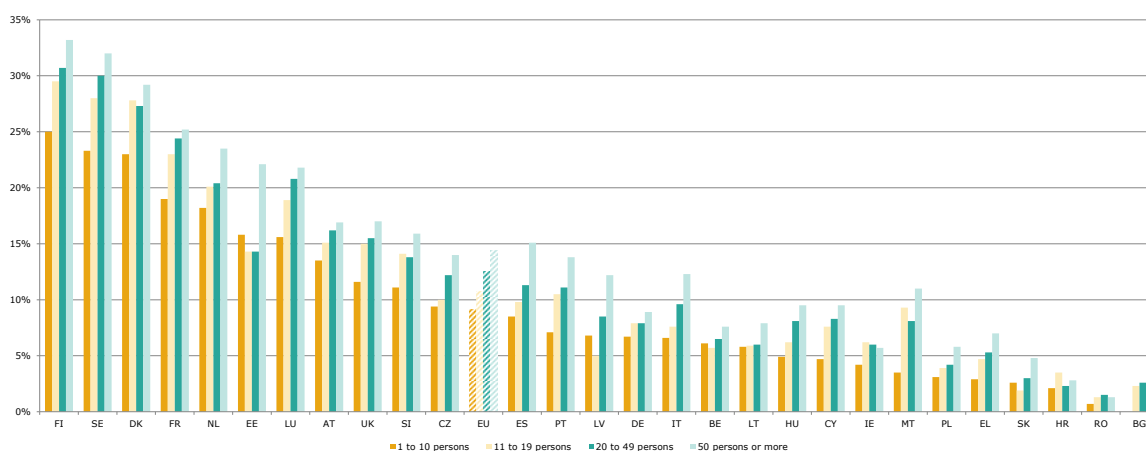
Figure 44 – Participation in adult learning (ET 2020 benchmark) by different types of learning, 2016



Source: Eurostat, EU Labour Force Survey 2016, special data extraction. Data about both types of learning are not available for Cyprus, Lithuania, Slovakia, Bulgaria and Romania and with low reliability for Croatia, Hungary and Latvia.

Access to learning also depends to a certain extent on the size of the employer. The rate of participation in learning by employer size is presented in Figure 45. However, differences within countries in terms of access to learning opportunities by company size are of very similar scale. In other words, the share of adults having participated in training in the previous 4 weeks is between 5 and 10 pp larger in large companies than the corresponding share in very small companies, and slightly larger in countries with overall higher rates of adult learning participation.

¹¹² Although the benchmark is stable in the last year of monitoring and over the longer term, its value varies considerably in some countries from year to year. These changes, mainly upwards of about one-and-a-half times or even three times, are seen mainly in the field of non-formal education. Such rapid growth has occurred in the majority of countries where participation exceeds the EU average.

Figure 45 — Adult learning participation rates by the size of employer, 2016


Source: Eurostat, EU Labour Force Survey 2016, special extraction. Note: 1 to 10 persons not available for Bulgaria and with low reliability for Croatia, the Netherlands and Romania.

These differences are therefore likely to be driven not by different participation rates by employer size within countries, but rather by the different learning environments *across* countries that incentivise or inhibit adult learning provision for both large and small employers.

Numerous factors can influence those between-country differences. These include:

- the scope and provision of obligatory health and safety training courses;
- the presence of training funds and other collective arrangements to promote learning;
- obligatory training leave regulations or available training leave rights by the employees;
- the overall industrial, technological and cultural environment (E.g. the reluctance of employers to hire elderly workers can also hinder the motivation to engage in lifelong learning¹¹³).

All these elements influence employers' and individuals' choices, and the potential rate of returns of participating in or providing training.

2.6 Learning mobility

Key findings

Learning mobility in higher education has increased greatly over the last years in the EU and worldwide and there is a relatively large influx of non-EU students.

Within the EU, a disproportionately high number of higher education business, administration and law students are mobile, compared to students from other fields. In particular, students in education are relatively less mobile.

Some countries maintain significant barriers to student mobility both for vocational and higher education. These are often a lack of easily accessible and transparent information, administrative and institutional barriers, high costs and uncertain recognition of qualifications/learning outcomes.

¹¹³ See, OECD (2017). [Economic Survey of Belgium](#).

2.6.1 The EU and world map of learning mobility

Student mobility benefits acquisition of transversal skills, including communication, foreign language proficiency, and entrepreneurship¹¹⁴. The enrolment of tertiary foreign students in the EU was an estimated 0.8 million in 1975. It grew considerably from 1990 until 2010 (from an estimated 1.3 million to around 4.4 million, but has since then levelled off at around 4.6 million in 2015¹¹⁵).

In 2011, Member States agreed on EU benchmark indicators for initial vocational and higher education mobility¹¹⁶. For vocational education and training, the target is that at least 6% of young people with vocational qualification would have had a period of learning abroad. However, until now no regular data is available for learning mobility in VET. An evaluation of a first pilot collection (through a household survey) concluded that a household survey is not the best vehicle for capturing IVET mobility, as it would require very big samples with high costs, but with no guarantee for reliable quality data for the EU target¹¹⁷.

The higher education mobility benchmark aims to see at least 20 % of higher education graduates take part in a period of higher education-related study or training (including work placements) abroad, by 2020. However, the data to underpin this benchmark are only available on a partial basis, as indicated in the recent Commission progress report. Firstly, 'credit mobility' data, which refer to graduates who have spent part of their studies abroad, are not yet available on a comparable basis across Europe. Such data will only become available in the first half of 2018¹¹⁸. Secondly, 'degree mobility' data (where a student completes a degree abroad) cover only some of the destination countries of students from the EU (e.g., there are no data on EU students graduating in the US). Figure 46 shows that 3.1 % of EU students in 2015 enrolled in higher education institutions in EU member states other than their own or in the US. Student mobility data are more readily available than data on the graduate population (on which the EU benchmark is defined).

Data availability also influences what can be reliably said about the volumes of mobility flows. Traditionally, the number of foreign students in higher education was seen as a proxy for mobile students and graduates. However, citizenship is a legal term which is defined differently from one country to another and it does not necessarily identify persons who move abroad for study purposes. These differences lead to different definitions of the term 'foreign student'. In practice, the mobile student population is normally smaller than the number of foreigners studying in a country, but it also includes nationals returning to their home country after studying abroad. Member States have agreed on a common definition of a 'degree mobile student/graduate' to be published in 2018. It is defined as the country where the upper secondary diploma was awarded or the best national estimate.

Figure 46 shows the percentage of mobile students between Member States based on incoming and outgoing flows as well as the flows from and to the US. The US is the single biggest receiver of students from abroad in the world; however, as a share of the student population, the EU as a whole receives nearly double (8.3 % as compared to 4.6 %). These are mobile students registered by the countries where they study.

¹¹⁴ A. Schellinger, ed. (2017). [Brain drain – Brain gain European Labour Markets in Times of Crisis](#). Brooks, R. M. (2017). [Understanding the higher education student in Europe](#). Compare: A Journal of Comparative and International Education. pp. 1-18.

¹¹⁵ See OECD (2017). [Education at a Glance](#), indicator C4, Box C4.2. See also [UNESCO's Institute of Statistics](#) for world-wide data on mobility.

¹¹⁶ The Commission [Progress Report on a Learning Mobility Benchmark](#). COM(2017)148 final. For an overview of inward and outward mobility in the EU, see European Commission/JRC (2015). [Learning Mobility Technical Report](#).

¹¹⁷ COM(2017) 148 final, 30.3.2017: 'Progress Report on a learning mobility benchmark'.

¹¹⁸ [Commission Regulation on statistics on education and lifelong learning No. 912/2013](#).

Figure 46 – Degree mobility of students within the EU, to the US and the World, 2015

	Outward to Member States		Outward to the US		Inward from Member States		Inward from the rest of the world		Total inward	
		%		%		%		%		%
EU	523 613	2.8	52 943	0.3	523 613	2.8	1 038 112	5.5	1 561 725	8.3
BE	11 312	2.2	872	0.2	28 314	5.6	28 139	5.6	56 453	11.2
BG	21 442	7.7	1 043	0.4	4 886	1.8	6 958	2.5	11 844	4.2
CZ	11 064	2.8	705	0.2	26 453	6.7	15 262	3.9	41 715	10.5
DK	3 034	1.0	926	0.3	21 616	6.9	10 648	3.4	32 264	10.3
DE	90 031	3.2	7 137	0.3	62 632	2.3	148 224	5.3	210 856	7.6
EE	3 478	6.3	185	0.3	1 640	3.0	1 219	2.2	2 859	5.2
IE	13 289	6.2	987	0.5	4 098	1.9	11 717	5.5	15 815	7.4
EL	31 558	4.8	2 072	0.3	14 317	2.2	14 091	2.2	28 408	4.3
ES	25 826	1.7	4 864	0.3	22 900	1.5	33 819	2.2	56 719	3.6
FR	52 966	2.2	6 528	0.3	41 120	1.7	198 289	8.2	239 409	9.9
HR	4 264	2.6	532	0.3	344	0.2	477	0.3	821	0.5
IT	48 339	2.6	4 208	0.2	20 169	1.1	70 250	3.8	90 419	5.0
CY	24 036	64.7	409	1.1	3 186	8.6	3 330	9.0	6 516	17.5
LV	4 564	5.3	271	0.3	2 280	2.7	2 975	3.5	5 255	6.1
LT	9 931	7.1	297	0.2	860	0.6	4 115	2.9	4 975	3.5
LU	9 409	136.4*	85	1.2	2470	35.8	693	10.0	3 163	45.9
HU	9 136	3.0	708	0.2	10 104	3.3	11 603	3.8	21 707	7.1
MT	1 110	8.4	30	0.2	470	3.6	351	2.7	821	6.2
NL	11 213	1.3	1 844	0.2	46 621	5.5	39 568	4.7	86 189	10.2
AT	14 015	3.3	830	0.2	47 918	11.2	19 773	4.6	67 691	15.9
PL	20 154	1.2	1 318	0.1	6 544	0.4	37 444	2.2	43 988	2.6
PT	8 776	2.6	888	0.3	2 889	0.9	13 999	4.1	16 888	5.0
RO	29 085	5.4	1 155	0.2	6 716	1.2	16 357	3.0	23 073	4.3
SI	2 250	2.6	211	0.2	1 061	1.2	1 293	1.5	2 354	2.7
SK	30 630	16.6	348	0.2	8 198	4.4	2 678	1.5	10 876	5.9
FI	7 898	2.6	595	0.2	4 258	1.4	18 884	6.2	23 142	7.7
SE	10 431	2.4	4 294	1.0	8 940	2.1	17 732	4.1	26 672	6.2
UK	14 372	0.6	9 601	0.4	122 609	5.3	308 224	13.2	430 833	18.5
US	32 024	0.2	n.a.	n.a.	52 943	2.8	875 227	4.5	907 251	4.6

Source: Eurostat (UOE, table [educ_uae_mobs02], [educ_uae_enrt02]), and OECD, *Education at a Glance 2017*, Indicator C4. EU totals calculated by DG EAC. EL: 2014, only Bachelor data. DE and ES: only Bachelor and Master levels. 'n.a.' = not applicable.

Note: all percentages use the number of students in the country of origin (for outward mobility)/destination (for inward mobility) as the denominator; for the EU this is the number of students enrolled in total. Figure 46 covers degree mobile students.

Reading note: 2.8 % of students within the EU are studying in another EU Member state whereas 0.3 % are studying in the US. 5.5 % of mobile students within the EU come from the rest of the world; half of these students (0.5 million) study in the UK or in FR.

* In LU, there are more students studying outside LU (with LU origin) than students enrolled in LU for a tertiary degree. Main destination countries of LU students are DE (38.1 %), BE (20.5 %), FR (14.5 %), UK (11.7 %) and AT (9.3 %).

Figure 46 highlights the differentiated picture of non-EU student mobility across the EU. Over a third of mobile students in the EU come from Asia, although they are mostly concentrated in Germany, Ireland and the UK. Chinese are the most prevalent, but there are also many South Korean and Japanese students. In the UK, there are more than 90 000 Chinese students (3.9 % of the UK student population), compared to the US, where there are more than 290 000 Chinese students which represent 1.5 % of the American student population. Slightly more than a third of mobile students come from other EU Member States, while there are fewer than 1 % of American students in the EU. Some Member States receive by far most of their mobile students from outside the EU borders than from inside. The patterns are sometimes based on historical and language bonds. For example, France receives many students from Africa and Spain from Central- and South America. More recently, Poland has received increasing numbers of students from Eastern Europe beyond EU's border (e.g., Ukraine and Moldova).

Many EU Member States have also traditionally received students from their neighbours. For example, Belgium accommodates a number of mobile students from France; Slovaks study in large numbers in the Czech Republic, and many Germans go to the Netherlands or to Austria to study. The UK receives by far the highest number of students from the EU (5.3 % of total students enrolled in the UK or nearly 123 000 students), although this is less than half of those coming to the UK from the rest of the world.

A study on the issue of emigration in Slovakia published in early 2017¹¹⁹ concluded that migration has cost the country about 300 000 inhabitants (ca. 5 % of the total) over the past 15 years. Amongst those leaving, young people aged up to 30 constitute the largest group, further exacerbating the demographic and ageing population outlook. Out of recent university graduates, more than 10 % have left; the proportion of emigrants is especially pronounced amongst graduates of medicine and in the technical fields, among which up to 22 % leave.

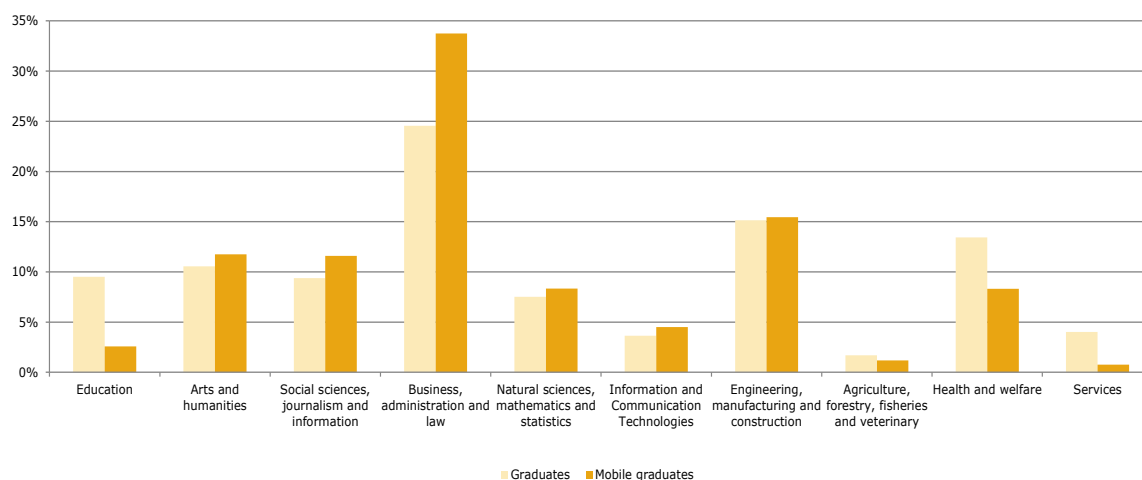
Outward intra-EU student mobility can now also be examined (Figure 46, columns 1 and 2). Notably Luxembourg and Cyprus have big student populations outside their country; in the case of Luxembourg there are more students with Luxembourgish origin enrolled abroad than in Luxembourg itself.

Finally, the numbers also demonstrate who are the net receivers and providers of students within the EU. In fact, most countries are net providers, particularly countries from the east and south of the EU (with a few exceptions). The net receivers are fewer and concentrated in the north and west of the EU e.g. Denmark, Austria, the Netherlands and the UK, but also Hungary.

2.6.2 What do mobile students study?

The study choices of mobile students reflect to some extent the choices made by the national populations; see Figure 47 (as well as section 3.3.2).

Figure 47 — Percentage of graduates and mobile graduates by field of education in the EU in 2015



Source: Eurostat (UOE, [[educ_uae_grad02](#)] and [[educ_uae_mobg01](#)]), EU totals calculated by DG EAC.

Reading notes: PL: only Bachelor level (definition differs). ES, NL: Bachelor and Master level. No data for EL, FR and IT.

Within the EU, relatively more business, administration and law students are mobile compared to other fields of study (more than 33 % of the mobile student population); this is also relatively more than the nearly 25 % which this field takes up overall of students.

By contrast, of those students who are travelling abroad for their studies, there are relatively fewer studying education, health and welfare and service subjects.

2.6.3 Is learning mobility becoming easier?

There is relatively little research on the outcomes of student mobility beyond EU-funded studies, which are at the forefront of documenting the mainly positive effects of student mobility. On the other hand, the Eurostudent survey results clearly demonstrate the main obstacles to becoming

¹¹⁹ SK Ministry of Finance (2017). [Odliv mozgov po slovensky](#).

a mobile student¹²⁰. Cost is the main obstacle, but other barriers are language, recognition of qualifications, a lack of flexibility in organising study time and lack of information¹²¹.

The progress of national administrations to put in place an environment which encourages learning mobility is documented in the 'Mobility Scoreboard' for higher education, published by the Commission in 2013 and 2016¹²².

Figure 48 – Selected Mobility Scoreboard indicators

	Portability of grants			Percentage of higher education institutions using ECTS	Recognition of qualifications		
	Full	Partial	No		Yes	Maybe	No
BE fr			✓	100%		✓	
BE de	✓ ^b			100%		✓	
BE nl	✓ ^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		✓ ^d		100%			✓
IT		✓ ^d		100%			✓
CY	✓ ^a			100%			✓
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- England		✓ ^d		National system, ECTS compatible			✓
UK- Wales		✓ ^d		National system, ECTS compatible			✓
UK- Northern Ireland		✓ ^d		National system, ECTS compatible			✓
UK- Scotland	✓ ^b			National system, ECTS compatible			✓
Total	14	15	4		4	7	22

Source: Adapted from Eurydice: Mobility Scoreboard: Higher Education Background Report, December 2016.

Reading notes:

Portability of student grants and/or loans

- Yes** a) Full portability or b) portability of domestic student support measures – grants and/or loans – for credit and degree mobility, but with some restrictions.
- Partial** Credit portability c) without restrictions and d) with restrictions related to geography (country limitations), and/or types of programme, and / or field of study or time. No degree portability or not all major support measures with degree portability.
- No** No portability: public grants and/or loans are only provided if students study in the home country.

¹²⁰ See European Commission/EACEA/Eurydice (2015). [The European Higher Education Area in 2015: a Bologna Process Implementation Report](#), Section 7.2.3.

¹²¹ See also [MORE2](#) specifically for mobility at doctoral level (ISCED 8): EURAXESS's policy library regarding mobility of researchers and obstacles: [EURAXESS - Researchers in Motion](#) is a pan-European initiative, backed by the European Union and its Member States, supporting researcher mobility and career development, while enhancing scientific collaboration between Europe and the world.

¹²² See [The Education and Training Mobility Scoreboard](#).

Recognition of qualifications for learner mobility

<i>Yes</i>	All higher education qualifications issued in other EHEA countries are recognised on an equal level with qualifications in the home country.
<i>Maybe</i>	Automatic Recognition takes place with a subset of European countries; for other countries specific procedures are in place for recognition.
<i>No</i>	There is no automatic recognition at system level.

Despite the significant quantitative progress in student mobility, the Mobility Scoreboard for higher education reveals that the environment for learning mobility still varies greatly between Member States, with significant barriers remaining in terms of information, cost, language and recognition of qualifications.

Although almost all Member States have a nationwide strategy that includes elements of information and guidance, only around half have centralised web portals providing practical information and guidance on the scholarships available and how to access them. Initiatives on transparency, quality assurance, validation and recognition of skills and qualifications are critical measures to facilitate students' mobility.

The Mobility Scoreboard shows how funding opportunities, including the portability of national grants and loans, are limited in many Member States. However, some make at least some of their major domestic grants (the German- and Dutch-language education systems of Belgium, Estonia, France, Cyprus, Luxembourg, Slovenia, Finland and Sweden) and/or loans (Estonia, Cyprus, Latvia, Luxembourg, the Netherlands, Portugal, Slovakia, Finland and Sweden) fully portable, meaning that students can take them abroad without any restrictions (see Figure 48). Other Member States have more restrictive policies on the portability of national grants. These include restrictions on the countries where students can use their grants (e.g. portability within the European Economic Area only) or limits on the length of time spent abroad. Such restrictions may discourage students from applying to study abroad and thus hinder mobility.

For the recognition of learning outcomes within credit mobility, the middle column in Figure 48 focuses on the European Credit Transfer and Accumulation System (ECTS), a tool that has been developed to fulfil a central role in designing, measuring and evaluating learning outcomes. ECTS is basically a transparency instrument providing comparative measures across institutions and borders that indicate how the learning outcomes have been counted towards the final qualification for students, including mobile students. Research shows that it is widely used in Europe, but not always in a coherent way, with considerable variation in how workload and learning outcomes are evaluated. Efforts have been made in recent years to ensure a more consistent use of ECTS, with a new users guide published by the European Commission in 2015 and adopted by the ministers responsible for higher education in Europe at the Yerevan Conference in May 2015¹²³.

Figure 48 shows the percentage of higher education institutions that are using the ECTS system. There are no systems reporting fewer than 75 % of their higher education institutions using ECTS. However, a number of systems use the ECTS system in conjunction with a national credit system. Further analysis confirms a mixed picture, highlighting a somewhat patchy and inconsistent use of the ECTS system in Europe. This reflects the dual reality that systems may not use ECTS as a primary credit system, and that they may consider that it is not a high priority to evaluate if it is correctly used. However, many higher education systems have made good progress and formalised ECTS points, which are externally quality assured. In these cases, quality assurance agencies evaluate how ECTS is implemented, and may focus on some or all of the key issues for learner mobility. Overall, this confirms that much needs to be done to improve the use of ECTS.

The last three columns of Figure 48 reveal that in Europe we are still far from a situation where automatic recognition of higher education qualifications taken in another country is a reality. Indeed, in 22 education systems there is no possibility for automatic recognition. More positively, there are four countries/education systems (Belgium's Dutch-speaking education system, Malta, Poland and Sweden) that practice automatic recognition under certain

¹²³ The 2015 ECTS Users Guide.

circumstances for all 47 Bologna/European higher education countries and a further seven where automatic recognition concerns a subset of these countries¹²⁴. It is also a positive finding that, among the countries where automatic recognition is not possible, the vast majority have implemented some of the recommended key measures of good practice in recognition.

The Commission and CEDEFOP also published a mobility scoreboard for initial vocational education and training at the end of 2016; a scoreboard which to a large extent is built on the same methodology as the one developed for higher education. It documents the progress of national administrations in developing conditions favourable to IVET learning¹²⁵.

Recent data suggest that EU Member States' performance in encouraging mobility in initial VET is contrasted. Using the Erasmus+ information as well as some cases of other national or international mobility programmes, countries have put in place an environment which in several respects appears mobility-inductive. In the area of *information and guidance*, all Member States have structures and web services for accessible quality information and (in some cases just emerging or planned) guidance structures. Guidance¹²⁶ seems to be lacking in the Flemish Community of Belgium, Croatia, Hungary, Italy, Lithuania, Poland, Portugal and Romania.

In 25 Member States, cross-European *partnerships and networks* between VET institutions and enterprises to promote learners mobility are in place, along with the *funding* to support learners' (and often teachers') mobility. Financial and non-financial support to companies and VET institutions involved in organising mobility projects is also provided. Only in the Flemish and German-speaking Communities of Belgium, Greece and Ireland may part of these elements be lacking.

In 23 Member States educational settings are in place to prepare learners to future mobility already from the early stages of education, through foreign languages and digital skills training. However, systematic linguistic and/or digital preparation of IVET learners may be limited/lacking in the Flemish Community of Belgium, Croatia, Ireland and the Netherlands. Quality in organising mobility stays is ensured in the majority of countries. In 17 Member States learners receive pre-stay linguistic preparation; processes to monitor the course of the stay abroad are in place; learners are provided with convenient and affordable facilities for housing, catering and transport; and feedback is collected from participants upon their return, to allow improving the next round of activities. Exceptions may be the Flemish Community of Belgium, Denmark, Iceland and Ireland, where either policies or systematic procedures in this area seem to be lacking. Belgium, Bulgaria, France, Luxembourg, the Netherlands, Romania and Slovenia organised structured and systematic procedures for the stay, although improvements in some of the abovementioned quality aspects seem to be possible.

Portability is ensured in most countries. Only in Belgium, Croatia, Estonia, Ireland, Slovakia, Slovenia and the United Kingdom is portability not possible.

There are other aspects on which achievements appear limited EU-wide. Most countries lack differentiated actions targeted at supporting the mobility of disadvantaged IVET learners. Only Croatia, Finland, Germany, Latvia and Lithuania have good records in this area. Mechanisms to mainstream mobility experience into the initial and continuing training of educational staff, and measures to reward the commitment of educational staff to organising mobility activities could also be reinforced. There is also room for progress as regards recognition of the learning outcomes acquired abroad. Finally, in several countries, administrative and institutional barriers to mobility remain.

¹²⁴ As an example, the [BENELUX Decision of 18 May 2015](#) established automatic generic recognition of Bachelor and Master Degrees among the 5 education systems of the Benelux (Belgium de, Belgium fr, Belgium nl, the Netherlands, and Luxembourg).

¹²⁵ [The mobility scoreboard for initial VET](#).

¹²⁶ Guidance as defined in this review includes helping learners clarify their interests and values, identify their skills, reflect on their experience, understand the options available to them, formulate plans, and accordingly make decision on mobility.

Towards high quality education for all



3 Towards high quality education for all

Part 1 above focused on the role of education in fighting inequalities and promoting social inclusion. Part 2 of this volume reviewed the EU's and Member States' progress on the different education benchmarks agreed by Member States for 2020. This part of the Monitor examines policy levers to provide quality education for all, in light of existing evidence.

Effective policy action in education can mitigate the impact of adverse macroeconomic trends or life events. For example, by increasing proficiency in basic and labour market relevant skills, education can boost individuals' chances of finding a good job. By taking the appropriate measures on a sufficient scale, education can favour the integration of newly arrived young migrants or young people with a migrant background into society and employment. The organisation of the school system and its key elements (access to education, provision of quality education, funding and governance of the system) can significantly affect the social and economic outcomes in a given country. This part of the Monitor surveys all education levels — pre-primary education, school education and tertiary education — to illustrate the main challenges that education systems in the EU face, and the possible policy responses.

3.1 Quality education needs to start early in life

Key findings

Early childhood education and care (ECEC) is key for good functioning of education systems and social infrastructure. Evidence shows that ECEC is beneficial for cognitive skills, language development and academic achievement as well as social and emotional skills, with effects lasting into later childhood, adolescence and adult life.

Only high-quality early childhood education and care can deliver positive outcomes for children's well-being and competences. However, access to high-quality early childhood education and care is still a challenge and quality varies greatly within and between countries.

Lack of quality is often linked to staff inadequate qualifications, initial training and limited opportunities for professional development.

3.1.1 Understanding and maximising the impact of early childhood education and care (ECEC)

High-quality early childhood education and care (ECEC) (see also Section 2.1 above) lays the foundation of an effective and equitable education system.

Evidence¹²⁷ shows that ECEC is beneficial for cognitive skills, language development and academic achievement as well as social and emotional skills, with effects lasting into later childhood, adolescence and adult life. It has a particularly positive impact for children with migrant backgrounds¹²⁸, and disadvantaged children, such as the Roma, and can play a significant role in breaking the cycle of inter-generational transmission of disadvantage¹²⁹. Finally, investing in early childhood education and care reduces the need for higher levels of

¹²⁷ For a comprehensive review on the effect of ECEC, see: Utrecht University and CARE consortium (2017). [CARE: Curriculum Quality Analysis and Impact Review of European ECEC](#).

¹²⁸ Bennett, J. et al (2012), [ECEC for children from disadvantaged backgrounds: findings from a European literature review and two case studies](#).

¹²⁹ There is large evidence that childcare availability (and use) reduces the negative impact of motherhood on employment outcomes.

spending at later stages of education, when the costs for closing the gaps between high and low performance of learners are higher¹³⁰.

Participation in ECEC has increased¹³¹, but supply and access to high-quality provision remain a challenge. This is particularly problematic for children under the age of 3 and especially for disadvantaged children, including Roma children, who benefit more from attendance. For them, the benefits are stronger at an early starting age and increase with length of attendance. Quality of ECEC is, however, a clear determinant of outcomes. In fact, there have been studies pointing to potential negative effects of long hours, poor quality provision and unstable care settings, particularly at a very early age¹³².

While EU countries display a certain amount of homogeneity in the provision of primary and lower secondary education, the offer of ECEC is characterised by a greater variation in financing, participation rates, starting age, quality and duration of programmes and organisation (see next section for details on the organisation of ECEC provision).

Participation, affordability and quality remain unevenly distributed within and between countries. In several Member States the demand for publicly-subsidised ECEC for the youngest children exceeds the supply; deficits in quality are often linked to inadequate qualification of staff and limited opportunities for professional development¹³³.

Improving the quality of ECEC is about enhancing everyday interactions between ECEC staff and children, including their educational content and the overall socioemotional climate. In ECEC, only warm and responsive interactions with clear educational goals spur positive outcomes. For this reason, out of all the quality domains, staff qualification appears to have the most significant impact on children's learning outcomes¹³⁴. In the discussion over quality in ECEC, the area of interactions and classroom activities, or *process quality*, is distinguished from *structural quality*, which refers to aspects such as the legal framework for access to ECEC, training/qualification of ECEC staff, children-to-staff ratio and group size, health and safety regulations, and provision of educational guidelines. High *structural quality* is a necessary condition to ensure high-quality processes, but it is not sufficient on its own. The EU ECEC quality framework aims to support Member States in achieving high levels of both structural and process quality.

Finally, the transition between ECEC and primary school needs to be well managed in order to preserve the beneficial impact of ECEC in later stages of schooling and development.

Box 8: Germany – improving quality ECEC across the country

In Germany, clear efforts to improve quality in ECEC have taken place. In 2014 a working group with members from federal states, the ministry and local authorities was established to discuss common implementation targets for quality in ECEC and its financing. In 2017, the country considerably stepped up investment in ECEC by providing 100 000 additional places in early childcare facilities and adding EUR 1.1 billion to the special fund for childcare roll-out. The initiative also plans extra funding to hire specialists for linguistic development to work in centres with a special language focus (*Sprachkitas*). In addition, a 'quality development law' is currently under discussion, focusing among other things on an increase in trained personnel, strong leadership and free-of-charge participation. The law will recognise the different strengths and needs of federal states, so that each state can then choose from a pool of quality measures those that are most appropriate for central funding. In addition, the government will agree on individual targets with each federal state. Reporting by the federal states and qualified monitoring are planned to implement the law. A new working group has also been created to ensure sufficient provision of qualified ECEC personnel.

¹³⁰ Cunha, F. et al. (2006). Interpreting the Evidence on Life Cycle Skill Formation, in *Handbook of the Economics of Education*, Vol. 1.

¹³¹ Under Education and Training 2020, the Council set an EU benchmark requiring that at least 95 % of children from the age of 4 to compulsory school age participate in ECEC. In 2014, the EU-wide participation rate was 94.3 % (see Section 2.1).

¹³² Research evidence on the impact of attendance under the age of 3 on emotional development is non-conclusive and there is no clear case for full-day or half-day attendance patterns. See e.g. UNICEF (2008). [The child care transition](#), Innocenti report card no.8.

¹³³ European Commission/EACEA/Eurydice (2014). [Policy Brief Early Childhood Education and Care](#).

¹³⁴ DG EAC (2011). [Competence Requirements in Early Childhood Education and Care](#).

3.1.2 Organisation of ECEC provision

There are two main governance models of provision: unitary (or integrated) and split systems¹³⁵.

Unitary systems offer ECEC to all children of pre-school age in a single phase, and in settings catering for the whole age range, usually under the responsibility of the ministry of education¹³⁶. This type of organisation usually offers higher quality services¹³⁷ because it allows the governing body to have a clear focus on child development, learning and well-being. Unitary systems apply educational guidelines covering the entire ECEC phase through an integrated curriculum and well-defined pedagogical practices. They are also often linked to a legal entitlement to ECEC or free ECEC provision. Finally, unitary systems demand higher staff qualifications (usually tertiary-level) for educators working with children of all ages and offer them better working conditions. This kind of system is in place in a minority of countries (Germany, Finland, Italy, Latvia, Luxembourg, Sweden, Slovenia, the UK-England)¹³⁸. However, there seems to be a trend towards integration, with the recent reforms of the split systems in Luxembourg and Italy¹³⁹.

In most European countries, ECEC is split into two different phases according to the age of children:

- early childhood programmes, generally targeted at children aged 0 to 2 years (ISCED 0.1);
- pre-primary education for children between 3 and the starting age for primary education (ISCED 0.2).

In these systems, the responsibility for ECEC governance, regulation and funding is generally divided between different authorities. Moreover, conditions of access and the requirements for staff qualifications may also differ between the two ISCED levels. Such systems usually also require different staff qualification levels for the two phases.

3.1.3 Recent reforms in access to ECEC

Almost all education systems guarantee a legal entitlement to ECEC provision or make provision for compulsory ECEC participation, with the exception of Ireland, Italy¹⁴⁰, Romania, Slovakia and part of the UK (Northern Ireland)¹⁴¹.

Some countries make 1 or 2 years of pre-school education compulsory, notably Bulgaria (at the age of 5), Greece (5), Croatia (6), Cyprus (4 years and 8 months), Latvia (5), Lithuania (6), Luxembourg (4), the Netherlands (5), Austria (5), Poland (6), and Finland (6). Hungary is the only country where the entire ISCED 02 period is compulsory, and compulsory ECEC starts at the age of 3¹⁴².

In 2016, Poland, Portugal and Finland implemented reforms of the legal framework for access to ECEC. Poland revoked a reform lowering the age of primary education: this meant that the starting age of compulsory primary education was raised from 6 to 7, with the result that the

¹³⁵ See, for example, European Commission/EACEA/Eurydice (2015). [Early Childhood Education and Care Systems in Europe. National Information Sheets – 2014/15.](#)

¹³⁶ OECD (2016). [Education at a Glance.](#) European Commission/EACEA/Eurydice (2015). [Early Childhood Education and Care Systems in Europe. National Information Sheets.](#) EACEA/Eurostat (2014). [Key Data on early Childhood Education and Care in Europe.](#)

¹³⁷ Bennett J. (2011). Early Childhood Education and Care Systems: Issue of Tradition and Governance. In: Tremblay RE, Boivin M, Peters RDeV, eds. Bennett J, topic ed. Encyclopedia on Early Childhood Development [online].

¹³⁸ European Commission/EACEA/Eurydice (2016) Structural indicators for monitoring education and training systems in Europe.

¹³⁹ OECD (2017) Starting Strong, Key OECD Indicators on ECEC.

¹⁴⁰ Italy's long tradition of providing ECEC services, combined with the socio-cultural value attached to this sector, nevertheless ensures very high participation for over 4 year olds.

¹⁴¹ In Northern Ireland, (primary) education is compulsory from age 4.

¹⁴² European Commission/EACEA/Eurydice (2016). [The Structure of the European Education Systems 2016/17: Schematic Diagrams.](#) Eurydice Facts and Figures.

compulsory last year of ECEC currently applies to 6 year olds. Nevertheless, Poland is continuing its reform lowering the legal entitlement to ECEC. Since September 2017 the State guarantees a place in ECEC for all children aged 3 free of charge. For the 2016/2017 school year Portugal introduced a legal entitlement to ECEC from age 4 and plans to extend the place guarantee for 3 year olds. In contrast, Finland, which previously guaranteed ECEC full-time for all children when they reach 9 months, has, since August 2016, restricted universal legal entitlement to 20 hours per week. The full-time entitlement remains for children whose parents are working or studying. A child is also entitled to full-time ECEC if it is necessary due to his or her development, support needs or family circumstances.

In EU countries with available data, more than three out of four children are enrolled in public institutions at pre-primary education level. In contrast with primary education, the private sector plays a very large role in some countries, with implications on access and affordability. Private-for-profit and private non-profit organisations are both present in this area and in some cases are publicly subsidised. In almost all systems private and public settings need to comply with the same rules. In split systems, private self-financed ECEC is more present for children under 3. Private institutions for pre-primary education play a significant role in Ireland, where almost all children attend ECEC in private institutions, in Germany, where fewer than 40 % of children attend pre-primary education in public institutions, and in Portugal, Belgium (under 2.5 years old) and the UK (under 3 years old), where about half of the children population attending ECEC do so in private institutions¹⁴³.

In recent years, the UK and Ireland have invested in guaranteeing free provision of ECEC; Romania introduced cash-conditional coupons to support participation in ECEC for disadvantaged children, while Bulgaria supported participation by providing for free transport. Bulgaria also introduced new provisions for the continuing professional development of ECEC educators, and both Malta and Luxembourg reformed their bilingual education in ECEC. Other tools receiving policy attention and reform efforts are quality frameworks and self-assessment tools for ECEC institutions. For example, Ireland adopted an action plan on school-age childcare (ages 4-12), while Italy took steps to strengthen accountability of schools and ECEC settings based on self-assessment back in 2015. Initially, schools received a set of data and self-assessment reports to fill in. School teams had to identify areas for improvement and targets for the following years. In the 2016/2017 school year, these self-assessments had to be complemented by external experts' reports for up to 10 % of the schools.

As discussed in Section 3.1.1, staff qualification, professional development and practices are central to quality ECEC. There are 11 EU education systems that require at least one staff member in ECEC settings to have a tertiary qualification in education science¹⁴⁴ for the entire ECEC phase. By contrast, 15 countries require this only for groups of children aged 3 or older. This requirement is not in force in the Czech Republic, Denmark, Ireland, Latvia, Austria and Slovakia, in addition to part of the UK (Scotland). Almost all EU countries made continuing professional development a professional duty or necessary for promotion for staff working with children aged 3 or older for all staff, or for specific groups of staff (the only exceptions are Denmark, Ireland, and Sweden).

There are variations in education systems concerning the proportion of teaching staff to teaching assistants. Assistants or teacher-aides in ECEC exceed 28 % of the ECEC workforce in Romania and Denmark and about 50 % in France, Latvia, Slovenia and the UK. By contrast, they are a minor part of staff in Poland (2 %). Several other EU countries have no data on the share of assistants in the country. ECEC assistants have fewer possibilities for qualification and professional development than core practitioners. Data on their background, competences, gender and socio-demographic characteristics are scant. For those countries heavily relying on teacher-aides, investing in raising the profile of in-service assistants may be a means of improving ECEC quality¹⁴⁵.

¹⁴³ Indicator C2 in OECD (2017). [Education at a Glance](#).

¹⁴⁴ In Sweden, at least one staff member in ECEC centres must have a higher education degree though either in education science or in social services.

¹⁴⁵ Discussion on teaching assistants based on NESET II (2016). [Professionalisation of Childcare Assistants in Early Childhood Education and Care \(ECEC\): Pathways towards Qualification](#). Denmark and France

3.2 School education

Key findings

Many Member States have a teacher population which is predominantly female, relatively old and quite often working part-time.

Educational levels of teachers differ across Member States and, although initial teacher education is being reformed across Europe, in some countries the minimal qualification to teach is still below bachelor's level. Salary levels are diverse across EU Member States and have evolved differently since 2010, but teachers are generally paid less than other tertiary-educated workers.

Possible policy options for making school systems more effective, equitable and efficient are:

- suitable governance mechanisms;
- balanced and coordinated strategies for allocating resources;
- effective and accountable school autonomy;
- quality assurance.

A key school modernisation priority is promoting language learning. This involves improving the quality of language teaching and increasing resources for it.

3.2.1 The challenge of modernising schools

Today most European school systems face — to a varying degree — the following three challenges:

- 1) weakness in competence development;
- 2) insufficient social equity;
- 3) the pace of technical and digital change.

3.2.1.1 Weaknesses in competence development

The latest PISA results show that one in five pupils have insufficient reading, mathematics and science skills (see also Section 1.2.1 above). These young people are likely to face significant, lifelong obstacles to social inclusion and employability. The share of pupils achieving good results in Europe is relatively low; even the best-performing Member States are outperformed by students in fast advancing Asian countries¹⁴⁶.

It is a well-established goal of EU education policy to offer all young people the chance to develop the full range of key competences. For schools, this requires also a change in the way learning happens, e.g. by linking learning with real life experience. The European Commission is currently revising the 2006 Recommendation on key competences for lifelong learning, which defined eight key competences: communication in the mother tongue; communication in foreign languages; mathematical competence and basic competences in science and technology; digital

¹⁴⁶ provide good examples of adapted pathways towards qualification and training for low-qualified professionals; Slovenia provides a good example of investment in CPD for all staff. European Commission (2016). [PISA 2015: EU performance and initial conclusions regarding education policies in Europe](#). The share of low achievers went up between 2012 and 2015 in science from 16.6 % to 20.6 % and in reading from 17.8 % to 19.7 %; in mathematics the figure stagnated at around 22 %. The top performers in science are 24 % in Singapore and 15 % in Japan. No EU Member State matches this performance.

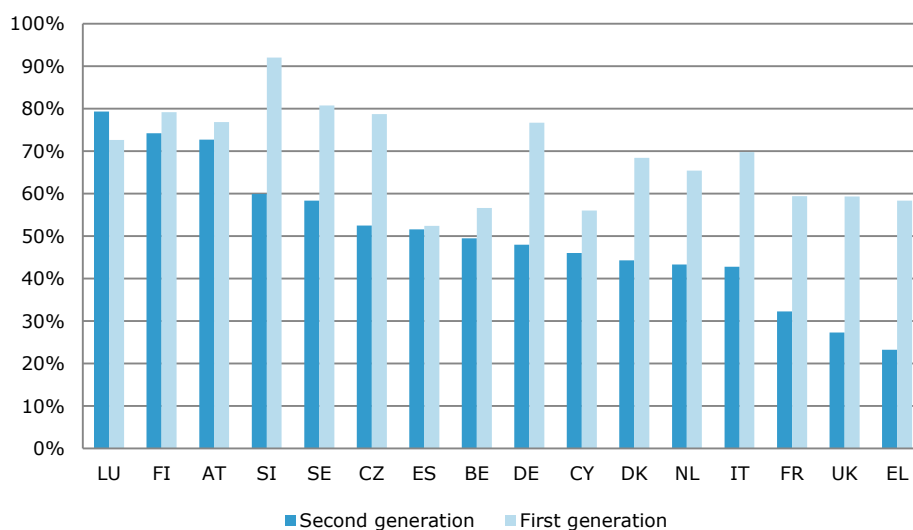
competence¹⁴⁷; learning to learn; social and civic competences; sense of initiative and entrepreneurship¹⁴⁸; cultural awareness and expression.

3.2.1.2 Insufficient social equity

As the Commission stated in its recent 'Reflection paper on harnessing globalisation¹⁴⁹', robust social and education policies are key to ensuring resilience and a fair distribution of wealth. Yet current school education does not seem to sufficiently promote social equity. PISA data reveal that educational achievements greatly depend on pupils' socio-economic background, their migrant status, their level in the language of instruction and whether they have special educational needs. For example, in some cities and regions, a significant share of school pupils does not speak the language of instruction at home (see Figure 49). Newly arrived migrant children in particular need targeted language support to better integrate into school. Some Member States face difficulties in providing pupils with disabilities access to inclusive, quality education¹⁵⁰.

Another dimension of inclusiveness is that schools must be safe places for teachers and pupils. 4 % of pupils, roughly one per class, report that they are hit or pushed around by other students. Evidence shows that bullying, cyberbullying, discrimination, exclusion and violence lower performance at school¹⁵¹.

Figure 49 — % of PISA 2015 test participants with migrant background speaking at home a language different from the language of instruction



Source: OECD, PISA 2015.

¹⁴⁷ JRC (2017). [DigComp 2.1: The Digital Competence Framework for Citizens with eight proficiency levels and examples of use.](#)

¹⁴⁸ JRC (2016). [EntreComp: The Entrepreneurship Competence Framework.](#)

¹⁴⁹ European Commission (2017). Reflection paper on harnessing globalisation of 10 May 2017, COM(2017)240final.

¹⁵⁰ United Nations, Committee on the Rights of Persons with Disabilities (2015). [Concluding observations on the initial report of the European Union](#), CRPD/C/EU/CO/1 of 2 October 2015.

¹⁵¹ OECD (2016). [PISA 2015 Results in Focus.](#)

3.2.1.3 The pace of technological and digital change

The pace of technological and digital change has a profound effect on our economies and societies and schools need to respond to this new reality. Many of today's school children will end up working in job types that do not even exist yet. It is no longer sufficient to equip young people with a fixed set of skills or knowledge; they also need to develop the ability to cope with change, as well as shape the world around them. When used properly, digital technologies can enrich learning experiences and support development beyond digital competences. Yet currently only a quarter of European school children are taught by digitally confident teachers¹⁵². Digital technologies can support communication and cooperation in and between schools and enhance the participation of pupils and their families in school life¹⁵³. In addition, as emphasised in the 'Reflection Paper on the Social Dimension of Europe', education systems need to modernise to promote creativity and critical thinking, including an entrepreneurial mind-set¹⁵⁴. Society is becoming increasingly mobile and digital, and the challenge of providing the right blend of 'soft' skills (particularly entrepreneurship and robust digital skills) is already a reality, with 71 % of all jobs requiring at least some level of digital skills¹⁵⁵.

Box 9: France – primary and secondary school teachers

France is supporting the use of collaborative practices and networking to support primary and secondary schools with disadvantaged children, who usually face challenging circumstances. Primary school teachers are given some 9 days of their statutory teaching time for collaborative projects, whereas secondary school teachers are allowed up to 10 % of their time for similar purposes. The development of innovative teaching practices in education is also covered under the framework law on education. New cooperative projects carried out in schools are eligible for reimbursement on the basis of time spent¹⁵⁶.

In order to tackle these challenges, action is warranted at three levels: the school, the teaching staff, and system governance. The first challenge is briefly summarised just below, while the other two are analysed in further depth subsequently.

At school level, cooperation in a broad sense helps schools to enrich learning, improve the school climate and better support young people to develop the competences they need. This includes cooperation with local services, community organisations, businesses and universities, but also cooperation inside schools. Young people at risk of dropping out of education benefit from close cooperation with social services or youth workers. Early interaction with career guides, entrepreneurs and academics helps young people to prepare for future employment and further studies¹⁵⁷. Education in different subject areas, such as science or sport, benefits from the collaboration of other education providers, business and civil society¹⁵⁸. However, not all schools seem to have sufficient local support or cooperation among their own teachers, non-teaching staff, pupils and parents¹⁵⁹.

Learner achievement, inclusiveness and equity all increase when a whole school approach is applied¹⁶⁰. In this approach, the whole school, together with external stakeholders and the local community, engage in a process to improve school quality. The 'European Toolkit for Schools' and the 'School Education Gateway' online platforms are available on a voluntary basis to all

¹⁵² European Commission (2013). [Survey of Schools: ICT in Education Benchmarking Access, Use and Attitudes to Technology in Europe's schools](#).

¹⁵³ European Commission (2015). [Being young in Europe today - digital world](#).

¹⁵⁴ [Reflection Paper on the Social Dimension of Europe](#), COM(2017) 206.

¹⁵⁵ CEDEFOP (2016). [The Great Divide: Digitisation and digital skills gaps in the EU workforce', ESJsurvey Insights, No. 9](#).

¹⁵⁶ ET 2020 Working Group on Schools Policy (2015). [Shaping career-long perspectives on teaching: A guide on policies to improve Initial Teacher Education](#).

¹⁵⁷ [INCLUDE-ED; European Lifelong Guidance Network](#).

¹⁵⁸ European Commission (2015). [Science Education for Responsible Citizenship](#).

¹⁵⁹ RESL.eu – [Reducing early school leaving in Europe](#).

¹⁶⁰ European Commission (2015). [A whole school approach to tackling early school leaving](#).

European schools, supporting peer exchange and helping to improve methods of organisation and governance, teaching practices and learning experiences¹⁶¹.

This European Commission is also developing a whole school approach for the integration and use of digital technologies based on a model designed by the EC Joint Research Centre¹⁶². The digital school SELFIE is an online self-reflection tool which is being developed to help schools in Europe assess how they use digital technologies for innovative and effective learning. The tool is currently in a pilot phase and will be finalised and made available to schools across Europe from early 2018. SELFIE will allow schools to take a snapshot of where they stand in their use of digital technologies, taking on board views of teachers, students and school leaders. This self-assessment process can help start a dialogue with school leaders, teachers and students on potential areas for improvement. SELFIE will allow also a school to monitor its progress over time¹⁶³.

3.2.2 A snapshot of the teaching workforce in the EU

The teacher workforce in the EU has a skewed profile, being predominantly female and relatively old. However, teaching is a highly visible profession where young people benefit from a diverse teaching force with a range of role models (this will also help fight stereotypes), and where working for equal access to the profession is a matter of equity. EU Member States cannot afford to limit the pool of candidates for teaching by effectively excluding a large share of the population and wasting potential talent (especially in light of staff shortages and a decline of interest in teaching careers)¹⁶⁴.

The teaching workforce in primary, lower and upper secondary schools in the EU is made up of 5 million people¹⁶⁵. This group is constituted predominantly of women (about 72 % of the total workforce). Men are overall under-represented in teaching, with a low rate particularly in primary education (15 % at EU level and stable since 2010), and a significantly higher rate at upper secondary level (nearly 40 % at EU level). As shown in Figure 50 below, in some countries the rate of male teachers at primary level is lower than 10 %. In some of these countries (Lithuania, Slovenia, Hungary, Italy) this has been the case for some years.

At country level there are only a few countries (such as the Czech Republic, Estonia, the UK and Sweden) which saw a significant increase in the proportion of male teachers in primary education from 2010 to 2015. Most Member States are experiencing a slow, gradual decrease in the number of male teachers.

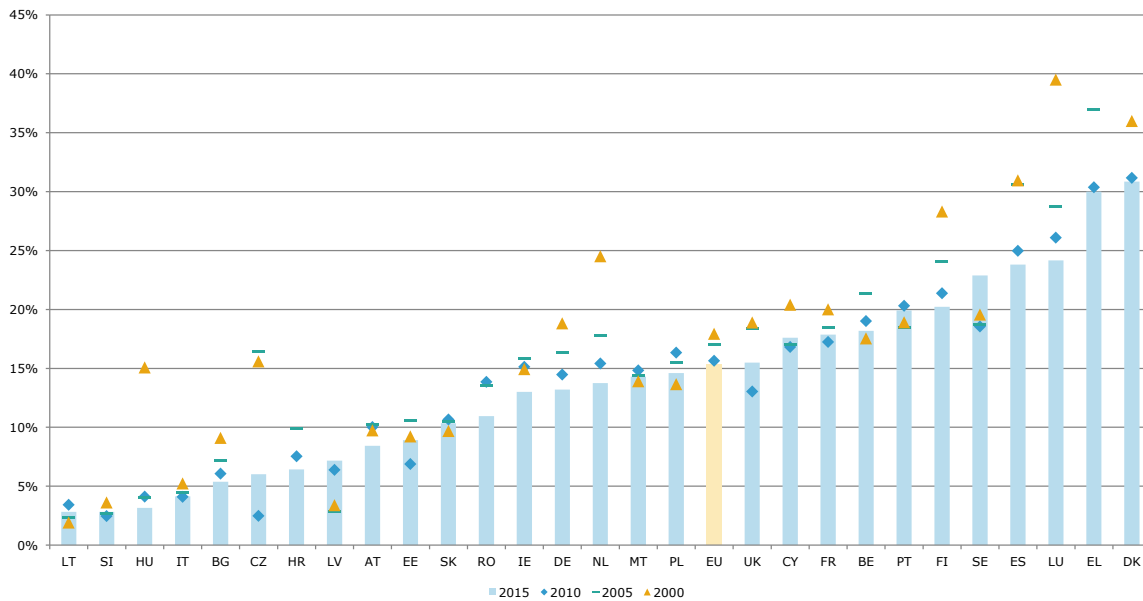
¹⁶¹ [European Toolkit for Schools](#).

¹⁶² European Commission, Joint Research Centre, [DigCompOrg](#) Framework.

¹⁶³ European Commission, Joint Research Centre, [SELFIE, a self-assessment tool for digitally capable schools](#).

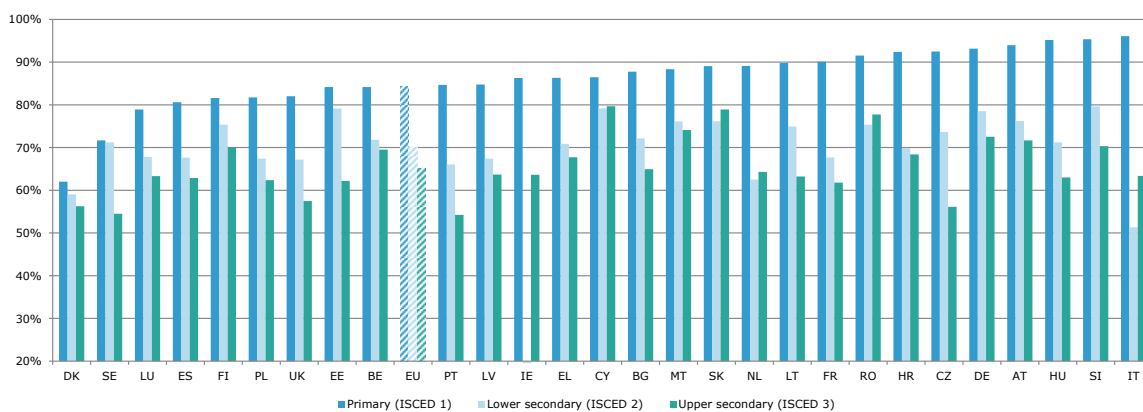
¹⁶⁴ See: DG EAC ([Study on the Diversity within the Teaching Profession](#) with Particular Focus on Migrant and/or Minority Background. An ECORYS study for the European Commission.

¹⁶⁵ Eurostat UOE personnel data, reference year 2015, counting teachers in primary (2.16 million), lower secondary education (1.94 million) and upper secondary general education (0.86 million), online data code [[educ_uoe_perp01](#)].

Figure 50 — Male teachers in primary education, 2000-2015


Source: Eurostat (UOE, tables [educ_uoe_perp01](#) and [educ_pers1d](#)). Denmark: 2014 data, Greece: 2012 data. EU total calculated by DG EAC for 2000, 2005 and 2010. The data are ranked from lowest to highest in 2015.

The gender imbalance is larger in the youngest age group at each education level but gets gradually lower with higher levels of education. In particular, at EU level, 84 % of primary education teachers younger than 30 years old are women. In eight countries (Romania, Croatia, the Czech Republic, Germany, Austria, Hungary, Slovenia and Italy) this rate exceeds 90 %. The imbalance is smaller among younger teachers at upper secondary level: at EU level 65 % of teachers at this level are women.

Figure 51 — Share of women among teachers aged less than 30 at different education levels, 2015


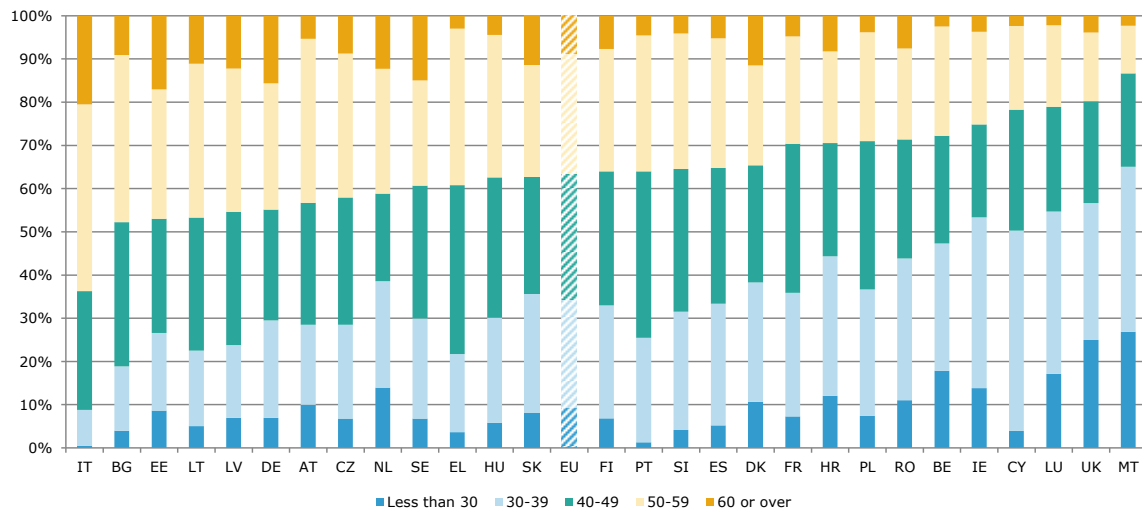
Source: DG EAC, based on Eurostat data (UOE, 2015). Online data code: [\[educ_uoe_perp01\]](#). 2014 data for Denmark. Data about the share of teachers at lower secondary level are not available for Ireland in 2015. Countries are ordered from the lowest to the highest share of female teachers at primary level.

Some 36.5 % of teachers are 50 or older, whereas the youngest cohorts below 40 make up more than 30 %. However, this age pattern is not common everywhere, as Figure 52 shows. In Malta and the UK, around 25 % of teachers are below 30, while the share of teachers aged 60 or more is 2.3 % and 3.9 % respectively. By contrast, 63.7 % of teachers in Italy are more than 50 years old (and 20.5 % are more than 60 years old), making Italy the EU country with by far the oldest teaching population. Countries with a high share of teachers who will be retiring in

the next years may find themselves facing shortages of teachers. Hence, raising the attractiveness of the teaching profession to educate young teachers is a central recommendation of EU policy in this area¹⁶⁶.

Given this situation, it is also necessary to closely monitor the development of the school-aged populations and with that adjust the teacher population over time. Forward planning linking demographic developments in the student population with planned teacher supply is common in the large majority of European countries¹⁶⁷.

Figure 52 – Age groups of teachers (ISCED 1-3), 2015



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

Reading note: Denmark: 2014 data. Ranked from highest to lowest percentage of teachers aged 50 and more.

Working part-time is another common characteristic of the teacher population in many Member States. 'Part-time' as measured here is defined as educational personnel employed for less than 90 % of the normal or statutory working hours of educational personnel in the same job or role at the given level of education¹⁶⁸. As shown in Figure 53, there is a wide spread across Member states and educational levels in the proportion of teachers working part-time. Overall at EU level, more teachers work part-time in upper secondary education (29 %) than in primary education (23.6 %). In comparison, at EU level around 17% of the active workforce works part-time.

At primary level, more than 40 % of teachers in the Netherlands, Germany and Luxembourg work part-time, whereas less than 10 % do so in mainly southern and eastern European countries such as Portugal, Croatia, Italy, Hungary, Slovenia, Cyprus, Malta, Romania and Bulgaria. This picture differs somewhat at upper secondary level, where more than 50 % work part-time in the United Kingdom, but also in Croatia, the Netherlands and Estonia. In many countries (Estonia, Belgium, the United Kingdom, Poland, Lithuania, Portugal, Croatia, Italy, Hungary and Slovenia) there are significantly more teachers working part-time at upper secondary level than at primary level¹⁶⁹.

The reasons for teachers working part-time are less well documented at an international comparative level and only some tentative issues appear. It may reflect a tradition for part-time work as in the Netherlands where close to 40% of the active population works part-time. Many workers also work part-time in the UK, Ireland, Germany and Denmark (between 20 and 25%),

¹⁶⁶ See Section 3.1 of COM(2017)248final.

¹⁶⁷ See Eurydice (2013): 'Key data on teachers and school leaders in Europe' chapter B (figure B1) and (2014): 'The Teaching Profession in Europe' Section 5.1 (Figure 5.1).

¹⁶⁸ UOE manual, volume I, section 2.6.

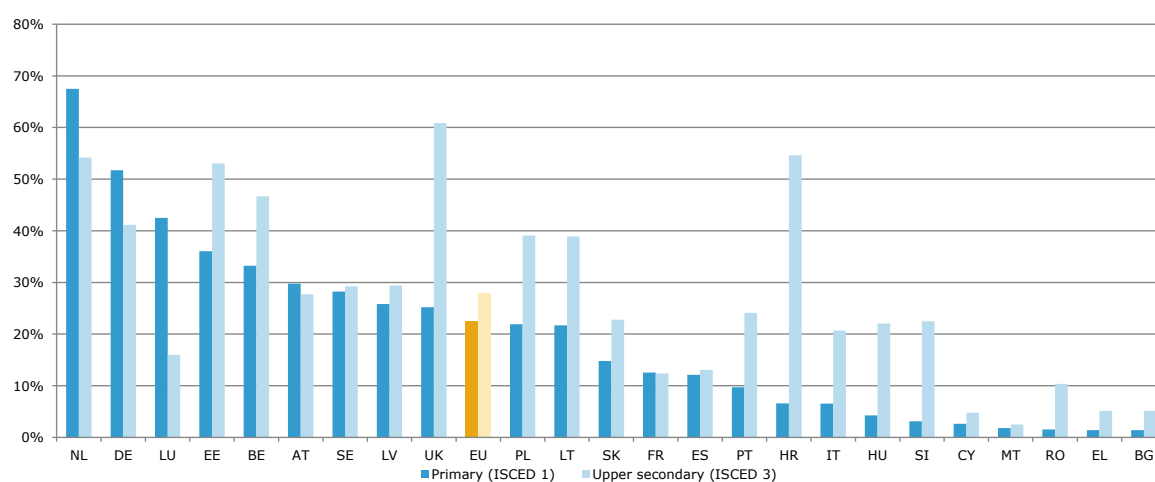
¹⁶⁹ The common OECD-Eurydice data collection on instruction time focuses on the statutory number of teaching hours per year. See Education at a Glance, indicator D4.

whereas working part-time is much more seldom in predominantly Eastern and South-Eastern European countries (less than 9% in Estonia, Slovenia, Latvia, Lithuania, Poland, the Czech Republic, Slovakia, Croatia, Hungary, - and less than 4% in Romania and Bulgaria).

For the teacher profession, a high degree of part-time working could in some places suggest that teachers have taken up an offer of flexibility. This may help make teaching attractive in the light of, for example, family obligations, but could potentially be a problem for the system if taken up by too many.

In other systems part-time working is a reflection of oversupply/underemployment. For example, in Lithuania there is an oversupply of teachers and scarce teaching hours are distributed among serving staff.

**Figure 53 – Teachers working part-time
in primary and upper secondary education, 2015**



Source: Eurostat, UOE table [[educ_uoe_perp02](#)].

Reading note: Data not available for Czech Republic, Denmark, Ireland and Finland. Countries ranked from highest to lowest share of part-time teachers in primary education.

Depending on the definition, part-time working may also reflect potentially precarious situations where teachers have to take on several 'part-time' jobs at different schools (such situations may not be captured by aggregate statistics). This could be the case for upper secondary education, where teachers have a higher subject specialisation, which could potentially make it more difficult for them to obtain full hours.

3.2.3 Helping teachers to provide quality teaching

Teaching takes place in complex and challenging environments. To counter early school leaving and poor performance and ensure the best start in life for all learners, it is a priority to support excellent teachers and school leaders and to ensure that their careers are attractive¹⁷⁰. The policy approach needed is one where selection of teacher candidates, teacher education, induction and continuing professional development all support the quality and professionalism of teachers.

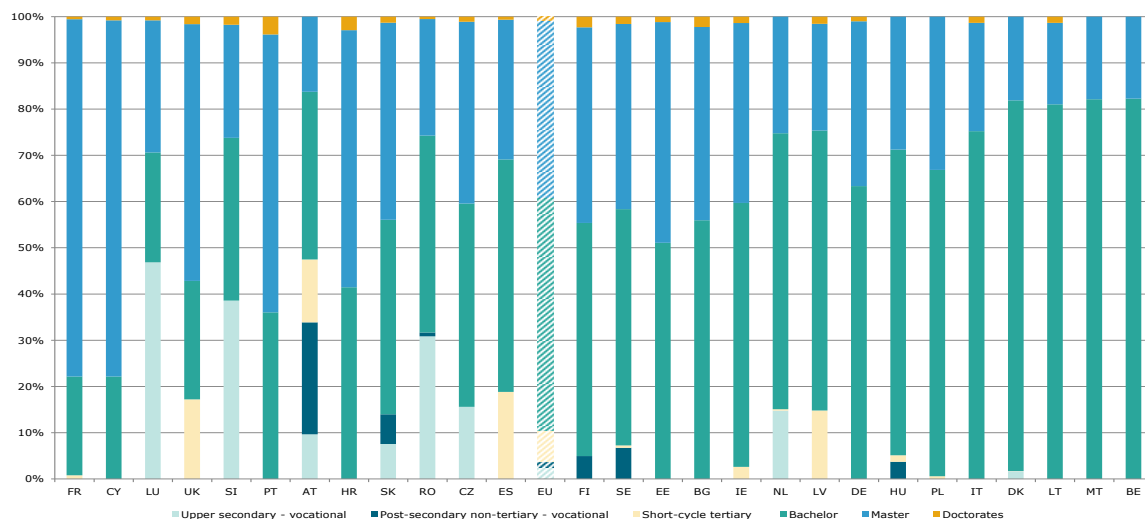
¹⁷⁰ See the Commission Communication on [school development and excellent teaching for a great start in life](#), COM(2017)248final.

Some 90 % of ISCED 2 teachers are satisfied with their job. Fewer than 10 % regret having become a teacher and fewer than one third of them 'wonder whether it would have been better to choose another profession'. Furthermore, 72 % of EU teachers say that the advantages of the profession clearly outweigh the disadvantages. Teachers' job satisfaction can be linked to the declared 'active participation in decisions' and a 'collaborative school culture' at their school. However, these high job satisfaction figures contrast with only 19 % who regard their profession as valued in society, with large differences across the EU. As many as 59 % of teachers in Finland, 49 % in Cyprus and 46 % in Belgium – Flemish community) think that 'the teaching profession is valued in society', in contrast with as few as 5 % in Sweden, France and Slovakia at the other end of the spectrum¹⁷¹.

In some education systems (e.g. Estonia, Sweden, the Netherlands and Finland, and more recently also Malta), teacher education has a strong research and evidence-based component that allows teachers to reflect on and co-create innovative and more successful teaching practices. Part of teacher education is to study for collaborative work and career-long professional development for dealing with diversity in the classroom¹⁷² and for using digital technologies with confidence.

Evidence shows that in 2015 many graduates with a degree in education qualify at different educational levels across Europe, as shown in Figure 54 below. Significant shares of potential new teachers in the Czech Republic, Slovakia, Luxembourg, Romania, the Netherlands, Slovenia and Austria graduate with a degree at upper secondary or post-secondary level. These graduates with a degree at upper secondary could, for example, be trained as teaching assistants, who support qualified teachers in different levels of education (as is the case in the Netherlands). So these graduates qualify, in most cases, to teach in pre-primary or primary (teachers without subject specialisation). In Spain, the UK, Latvia (pre-primary school teachers) and Austria many teachers graduate with a short degree (normally 2 years) in teaching. At the same time, teachers in Cyprus, France, Croatia, Portugal and in the Czech Republic and the UK predominantly have a degree at master's level when they qualify in education/teaching¹⁷³.

Figure 54 – Graduates in education by level of education, 2015



Source: Eurostat ([educ_uoe_grad02](#)).

Reading note: Greece: not available. Ranked from lowest to highest up to and included Bachelor degree level.

¹⁷¹ DG EAC (2014). The Teaching and Learning International Survey (TALIS) 2013 – Main findings from the survey and implications for education and training policies in Europe.

¹⁷² DG EAC (2017). [Preparing teachers for diversity - The role of initial teacher education](#) – a PPMI report for the European Commission.

¹⁷³ Figure 54 shows graduates in the field of education; depending on education system, these might qualify directly for teaching in schools or would need additional teaching/pedagogical training (which could take place in a school environment). More detailed information can be found in 'Key Data on Teachers and School Leaders in Europe', 2013.

Initial teacher education has shown to be most effective when pedagogical theory is combined with subject knowledge and sufficient classroom practice¹⁷⁴. Most Member States have mandatory professional training, including in-school placements, as part of initial teacher education¹⁷⁵, although length and organisation vary, as does the autonomy education institutions have over its implementation. Additionally, some evidence suggests that secondary school teachers receive less professional training than their peers teaching at primary level¹⁷⁶.

Teachers often require special support during the early stages of their careers when they start working as teachers. Induction schemes that combine professional, social and personal support (including mentoring) help novice teachers develop competences and resilience. This has been shown to enhance the quality of teaching and reduces costly dropout from the profession¹⁷⁷. However, there is great variety in how induction training is organised across European countries. Regulations on compulsory induction schemes and compulsory mentoring support for fully qualified first-time teachers can be found in only about half of EU education systems¹⁷⁸.

In a number of Member States, participation in continuing professional development (CPD) remains low or poorly focused i.e. there is a mismatch between teachers' stated needs in terms of CPD priority themes and the CPD they actually participate in. Involving schools and teachers in identifying CPD themes and areas might help meet the demand and make CPD more relevant to teachers' needs¹⁷⁹.

Without being the only factor at play, teachers' remuneration plays a key role in attracting people to the profession and retaining them once they have started work. Looking at the broader picture of financing education, compensation of employees represents the single largest item of public expenditure in education, accounting for 60 % of the average education expenditure in EU countries in 2015, and exceeding 70 % in Croatia, Italy, Cyprus, Belgium and Greece (see also Section 1.3 above).

¹⁷⁴ OECD (2014). [TALIS 2013 Results: An International Perspective on Teaching and Learning](#).

¹⁷⁵ OECD (2017). What do we know about teachers' selection and professional development in high performing countries PISA in Focus 70 (OECD March 2017).

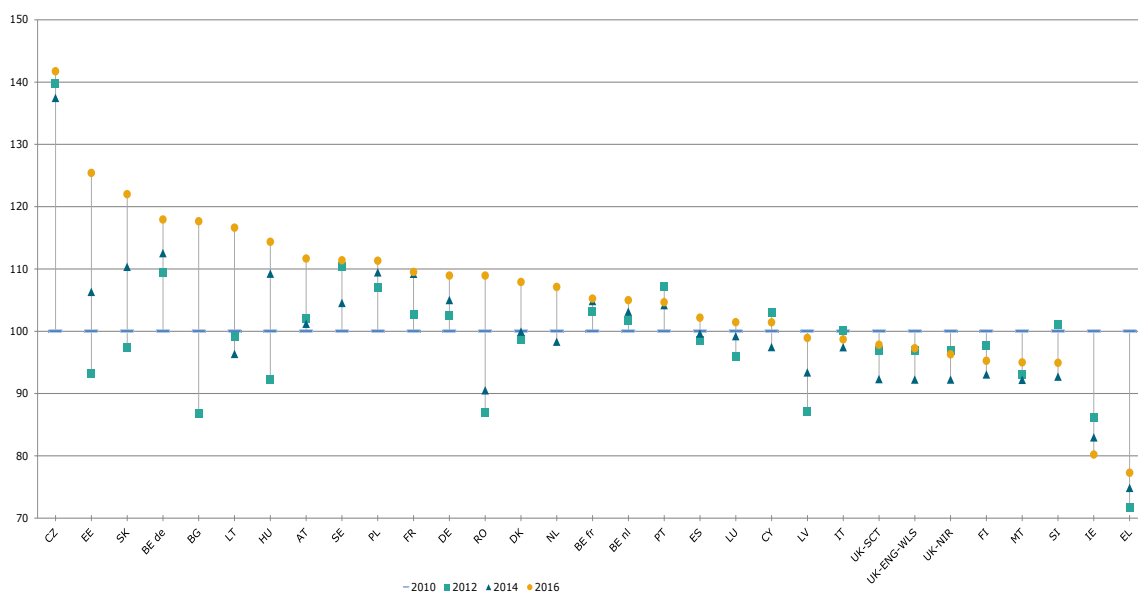
¹⁷⁶ EACEA (2015). [The Teaching Profession in Europe: Practices, Perceptions, and Policies](#) and Key data on Teachers and School Leaders in Europe 2013.

¹⁷⁷ European Commission (2010). [Developing coherent and system-wide induction programmes for beginning teachers: a handbook for policymakers](#), SWD (2010) 538 final.

¹⁷⁸ European Commission/EACEA/Eurydice (2015). [The Teaching Profession in Europe: Practices, Perceptions, and Policies](#). Around 60 % of beginning teachers surveyed in TALIS said that they took part in an induction programme, see OECD 2014 'TALIS 2013 Results'.

¹⁷⁹ European Commission/EACEA/Eurydice (2015). [The Teaching Profession in Europe: Practices, Perceptions, and Policies](#).

Figure 55 — Changes between 2010 and 2016 in teachers' minimum statutory salaries in constant prices in public primary schools, 2010 to 2016, 100=2010



Source: Based on figure 2 in ['Teachers' and head masters' salaries and allowances in Europe 2015-2016'](#) Eurydice 2016¹⁸⁰. Note: data for Croatia not available, 2012 data for the Netherlands not available and 2014 data for Bulgaria not available. Ranked from highest to lowest increase from 2010 to 2016. The data covers primary education (ISCED 1). '2010' means school year 2009/2010, '2012' is school year 2011/2012 etc.

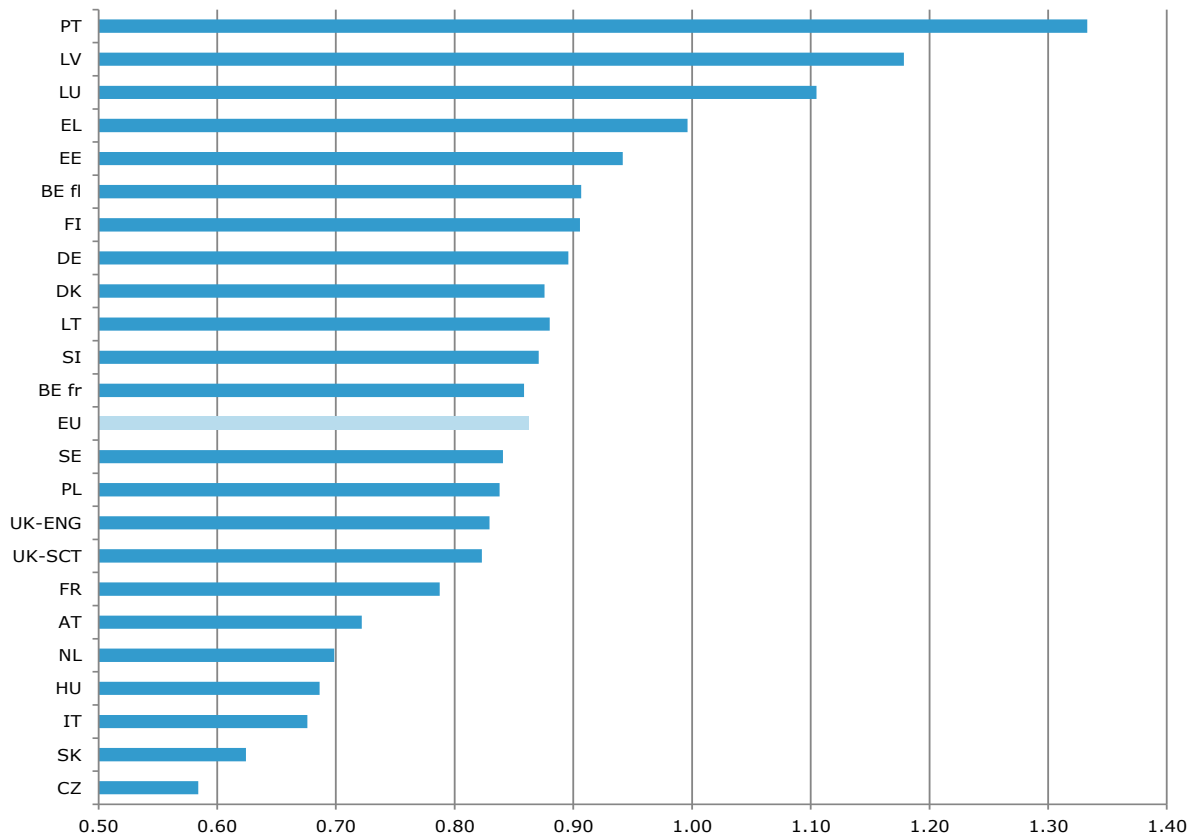
Teachers' pay was cut or frozen in a number of EU countries in 2008 and the years after. However, in recent years pay started increasing again in many countries. Figure 55 above shows that many teachers, particularly those in central and eastern European countries, have experienced salary increases since 2010 or 2012 (the Czech, Estonia, Slovakia), whereas teachers in Ireland and Greece particularly had more significant and prolonged overtime pay cuts (the minimum statutory salaries were in 2016, below 80 % of their value in 2010).

In some Member States, teaching risks losing out to other professions in the competition for the best talents. In general, teachers earn less than the average for tertiary-educated workers and the gap is wider in lower educational levels. In the countries for which data are available, teachers in primary education earn about 86 % of what tertiary-educated professionals/workers earn (Figure 56 below). This share is 88 % in lower secondary education and 94 % in upper secondary¹⁸¹. Comparing Figure 55 above and Figure 56 below, it is apparent that recent salary increases happened in countries where the level is relatively lower than for tertiary-educated workers, as in the case of the Czech Republic, Slovakia, Hungary, Austria and France. For teachers in Greece who have experienced significant salary decreases, the level is still comparable to the overall level for tertiary-educated workers. e.g. Some teachers have a comparatively better level and have experienced little change over time. This is the case in Portugal and Luxembourg.

¹⁸⁰ The minimum statutory salary is the annual gross statutory salary received by a teacher holding the minimum qualifications required at a specific education level at the start of their career. Here, the figure is presented in PPS and rebased to 2010 prices.

¹⁸¹ OECD (2017). [Education at a Glance](#).

Figure 56 — Actual salaries of all teachers, relative to earnings for full-time, full-year workers with tertiary education, 2015



Source: OECD, Education at a Glance 2017, [table D3.2a \(extract\)](#).

Reading note: the EU value is a non-weighted average of available countries covering primary education (ISCED 1). Germany and Finland: 2014 data. The ratio consists of the annual average salaries (including bonuses and allowances) of teachers in public institutions relative to the wages of workers with similar educational attainment (weighted average) i.e. wages of full-time, full-year workers with tertiary education.

The attractiveness and prestige of the teaching profession does not depend on salaries only. Other factors that matter are:

- career structures, appraisal and feedback implementation;
- opportunities for professional development;
- teachers' professional collaborative practices;
- in general, the working conditions and climate in individual schools¹⁸².

Box 10: Sweden — initial teacher education for multiculturalism

Sweden has introduced new concepts into initial teacher education, such as multicultural, intercultural, bilingual and multilingual or mother tongue education¹⁸³. The Swedish National Agency developed a programme of continuous professional development called 'Boost for Reading', which has this year been extended to pre-school teachers, at a cost of 6 million SEK. The initiative aims at strengthening the role of pre-schools in education and improving the teaching of the Swedish language to children whose mother tongue is not Swedish. It offers new tools and methods in teaching both writing and reading skills, based on collaborative learning. An overall amount of 224 million SEK will be allocated to the programme between 2017 and 2019.

¹⁸² OECD (2014). [TALIS 2013 Results: An International Perspective on Teaching and Learning](#).

¹⁸³ DG EAC (2017). [Preparing Teachers for Diversity: the Role of Initial Teacher Education](#). A PPMI report for the European Commission.

The overall quality of teaching affects both the schooling experience of students and their performance outcomes. Professional collaboration among teachers is positively associated with greater satisfaction with the school in which they teach¹⁸⁴, and better student performance in science¹⁸⁵. Creative learning environments start from developing collaborative attitudes in future teachers, and among institutions of teacher education. Collaboration among in-service teachers works best when there is:

- a level of autonomy for teachers;
- support for local collaboration;
- support for action research as a mode of collaboration;
- adequate and cost-effective investment in collaboration;
- distributed leadership¹⁸⁶.

In terms of teaching practices, a detailed analysis of how teaching and learning strategies relate to student performance in mathematics shows that to achieve the best results, teachers should mix teacher-directed with student-oriented strategies for all students, the former being more effective in helping students solve easy mathematical tasks, and the latter better suited to get success with complex mathematical tasks. In addition, good classroom management and disciplinary climate were found to be directly related to what and how teachers can teach, and exposure to pure mathematics proved to have a stronger positive impact on mathematics performance than exposure to applied mathematics¹⁸⁷.

Supporting schools not only means supporting teachers but also school leaders. Effective school leadership positively affects student achievement, teaching quality and staff motivation. However, in some Member States, school leadership positions are considered unattractive¹⁸⁸. Leading a school typically comes with a demanding mix of tasks linked both to management and instruction. In addition, increased school autonomy has led to more responsibility for school leaders in many countries. This allows school leaders to re-organise classroom time and approaches, stimulate school development and share responsibilities among a wider group of staff. However, these changes require appropriate resources and support¹⁸⁹. The recruitment, preparation and professional development of school leaders should be a focus for policy-makers in Member States, as also identified by the Commission and the suggestions for improving the evidence base. Another policy focus should be reaching a common understanding of how school leaders can best be supported¹⁹⁰.

Participation of school leaders in continuing professional development is associated with greater use of active instructional and distributed leadership. Across OECD countries, it is relatively common that distributed leadership involves other school staff than the school leader. On the other hand, involvement of students, parents and guardians still seems to be relatively rare. However, a stronger focus on distributed leadership can foster a greater sense of purpose in schools, create a culture of shared responsibility, and ultimately enhance teacher-student relations too¹⁹¹.

¹⁸⁴ OECD TALIS 2013 data presented in European Commission/EACEA/Eurydice (2015). [The teaching profession in Europe. Similar findings are presented in: Isac, M. M., Dinis da Costa, P., Araújo, L., Soto Calvo, E. & Albergaria, P. \(2015\). Teaching Practices in Primary and Secondary Schools in Europe: Insights from large-scale Assessments in Education](#), a European Commission/JRC/CRELL science and policy report.

¹⁸⁵ OECD (2017). [What do we know about teachers' selection and professional development in high-performing countries?](#) PISA in Focus 70.

¹⁸⁶ ET 2020 Working Group on Schools Policy (2014-2015). [Shaping Career-Long Perspectives on Teaching. A guide on policies to improve initial teacher education](#).

¹⁸⁷ OECD (2016). [Ten questions for mathematics teachers... and how PISA can help answer them](#).

¹⁸⁸ European Commission (2012). [Supporting the Teaching Professions for Better Learning Outcomes](#), SWD(2012)374 final.

¹⁸⁹ VO-raad/EFEE/ETUCE (2015). [Professional Autonomy, Accountability and Efficient Leadership and the role of employers' organisations, trade unions and school leaders](#).

¹⁹⁰ Communication from the Commission (2017). [School development and excellent teaching for a great start in life](#), COM(2017)248final.

¹⁹¹ OECD (2016). [School Leadership for Learning: Insights from TALIS 2013](#).

3.2.4 Autonomy and quality assurance

Beyond teachers and school leaders, other aspects of school governance that can make school systems more effective, efficient and equitable are school funding, school autonomy and quality assurance in education¹⁹².

A major recent trend has been towards decentralisation and increased school autonomy over the curriculum, staff management and development, or over the use of financial resources. The benefits of greater school autonomy depend on the capacity of schools to plan and manage their own development effectively, as well as on how accountable they are to parents, local communities and education authorities¹⁹³. PISA results show that school autonomy leads to better basic skills achievement when coupled with accountability¹⁹⁴.

The interplay between school autonomy and accountability calls for strong but flexible quality assurance systems¹⁹⁵. While quality assurance systems vary greatly across Europe, countries share several common policy challenges and opportunities. These include:

- setting goals and measuring progress for education systems and student learning;
- designing quality assurance for education systems that are increasingly decentralised and multi-levelled;
- supporting and encouraging dialogue and a culture of trust among education stakeholders;
- ensuring transparency of quality assurance data while also avoiding the pressure resulting from 'high-stakes' approaches;
- prioritising human and financial resources.

Quality assurance systems encompass mechanisms that are both external and internal to schools. The various mechanisms should complement and reinforce each other, e.g. through links between external school inspections and school self-evaluations, to provide complementary insights for supporting learning and teaching and for school and education system development¹⁹⁶.

High-stakes testing for quality assurance purposes can have unintended consequences¹⁹⁷. Quality assurance should provide multiple measures of school and student performance to help ease the high stakes associated with high-visibility school evaluation and student assessments. School climate and learners' well-being should be also considered. Qualitative data can give added meaning to quantitative data and support broader stakeholder understanding. Schools and local stakeholders need to invest in capacity building focusing on identifying the most appropriate tools and indicators to monitor learner progression and school development, develop a shared understanding on how to interpret data (including from external quality assurance mechanisms), and adapt strategies in areas identified for improvement.

¹⁹² See the Commission Communication on [school development and excellent teaching for a great start in life](#), COM(2017)248final.

¹⁹³ OECD (2017). [OECD Reviews of School Resources: The Funding of School Education](#). Hanushek, E.A., Link, S. and Woessmann, L. (2013), Does school autonomy make sense everywhere? Panel estimates from PISA, *Journal of Development Economics*, Vol. 104, pp. 212-232.

¹⁹⁴ OECD (2016), [PISA 2015 Results in Focus: Policies and Practices for Successful Schools](#).

¹⁹⁵ ET2020 Working Group Schools interim report on Quality assurance for school development, April 2017.

¹⁹⁶ European Commission (2015). [Comparative study on quality assurance in EU school education systems – policies, procedures and practices](#).

¹⁹⁷ Rothstein, R., Jacobson, R. and Wilder, T. (2008). *Grading Education: Getting Accountability Right*.

Sahlberg, P. (2011). *Finnish lessons*.

Burns, T., Köster, F. and Fuster, M. (2016). [Education Governance in Action: Lessons from Case Studies](#), OECD, chapter 5: Ensuring accountability in education.

3.2.5 Multilingualism in school education

The EU is committed to promoting foreign language education from a very early age¹⁹⁸. Proficiency in more than one language is recognised as essential to strengthen employability within the EU¹⁹⁹ and as a critical key competence for active citizenship²⁰⁰. There is also a strong link between language competences and literacy, which opens the way to the acquisition of other key competences.

Language proficiency is at the heart of the ambition to ensure equity in education. Considerable resources are invested into teaching two or more languages in schools across Europe, but not all learners acquire the competences that will help them realise their full potential, even in the language of schooling. In this section, we briefly examine the increasing linguistic diversity in schools, the support measures in place to help newly arrived migrants integrate rapidly into mainstream education, the variety in foreign-language teaching offered in schools and the professional requirements on language teachers.

Official state languages are usually languages of schooling. However, regional, minority or non-territorial languages can also be the main language of instruction. The prevalence of non-European languages both among newly arrived and resident migrants has brought diversity and challenges to educational systems. The number of students in Europe whose mother tongue is different from the language of schooling is growing. For example, between 2006 and 2015, in Belgium, Germany, Greece, Ireland and Slovenia, the share of first-generation of migrants who mainly speak a language different at home from that of the PISA test increased by between 13.7 and 34.5 pp²⁰¹. This creates a need for additional support for both students and teachers on how to learn and work in multilingual classrooms.

There are several countries where bilingual models have been in use for over 50 years, and consistent positive effects have been reported in numerous research studies. However, it is important to stress that benefits typically become apparent after 5 to 7 years as this is the time that non-native speakers generally need to reach academic language proficiency²⁰².

Recent evidence indicates that the following measures can improve the language competence of children who do not master the language of schooling:

- supplementary education in and outside school in the language of the country of region where they live, including help with homework, language learning and mentoring during activities;
- immersion in mainstream classrooms with support from specialists and teachers who have the competences and experience to tailor teaching to children in the classroom who do not have the same level of competency in the language of instruction;
- developing their mother tongue competences²⁰³.

Almost all countries provide additional classes in the language of schooling to migrant students, and more than a third of European education systems provide personalised teaching or an individual curriculum. In several education systems, teaching assistants may be available in class. The Czech Republic, Germany, Austria, Slovenia, Finland and Sweden provide mother-tongue tuition or bilingual subject teaching to migrant students²⁰⁴.

Across Europe, English is the foreign language learned by most pupils during primary and secondary education²⁰⁵. More than 90 % of students study English in at least one education

¹⁹⁸ [The conclusions of the Barcelona European Council of 15-16 March 2002.](#)

¹⁹⁹ Araújo, L., Dinis da Costa, P., Flisi, S., Soto Calvo, E. (2015). [Languages and employability, a European Commission/JRC/CRELL report.](#)

²⁰⁰ Council [Conclusions on multilingualism and the development of language competences](#), 2014.

²⁰¹ OECD (2017). [PISA 2015 Results Excellence and Equity in Education – Volume I](#), Table 1.7.2.

²⁰² Herzog-Punzenberger, B., Le Pichon-Vorstman E. and Siarova, H. (2017). [Multilingual Education in the Light of Diversity: Lessons Learned](#), a NESET II report for the European Commission.

²⁰³ European Commission (2015). [Language teaching and learning in multilingual classrooms.](#)

²⁰⁴ [Eurydice \(2017\). Key data on Teaching Languages at School in Europe – 2017 Edition.](#)

²⁰⁵ Ibid.

level in most European countries and at the EU level, with 79.4 % (in 2014) of children learning English during primary education²⁰⁶. French is the second most taught foreign language in Europe. At EU level, 33.8 % of pupils learn French in lower secondary education and 23 % (in 2014) in general upper secondary education. French is the most commonly studied foreign language in English-speaking countries. Foreign languages other than English, French, German or Spanish are rarely learned. At EU level, only 2.9 % (2014 data) of general upper secondary students learn Italian, and 2.8 % (2014 data) learn Russian.

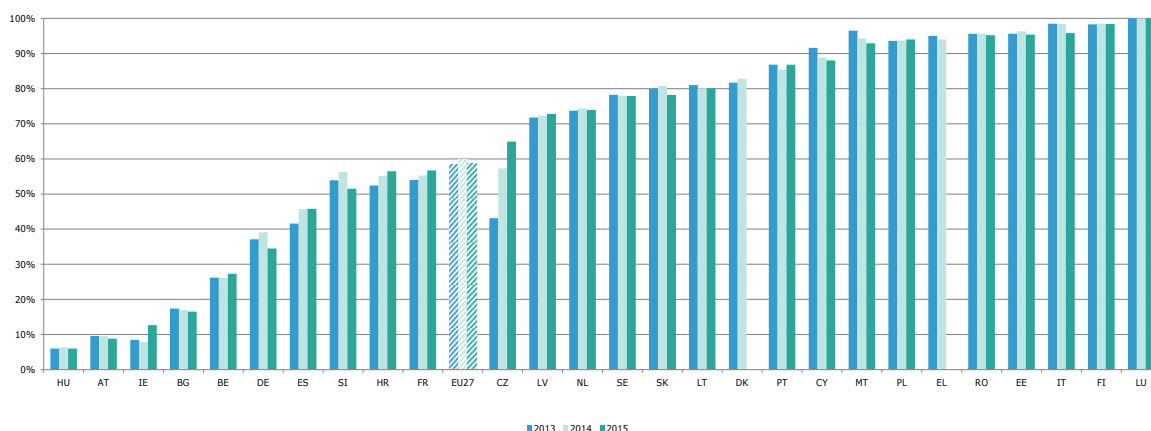
In general, the composition of foreign language learning is more diverse in upper secondary education than in lower secondary education. This is partly because some students, especially those on vocational pathways, do not study any languages and partly because there is a greater variety of foreign languages available to study.

Member States have made some efforts to promote foreign language education in the last decade but the situation is very varied and reflects somewhat low ambitions. Over the period 2005 to 2015, several countries managed to increase the proportion of lower secondary students who were learning two foreign languages. The proportion of students at lower secondary level learning two or more foreign languages increased from 46.7 % in 2005 to 59.7 % in 2014 in the EU. However, the trends in Member States from 2013 to 2015 seem to be stagnating, with the EU average slightly decreasing to 58.8 % between 2014 and 2015. Despite strong incentives to prioritise the expansion of language learning. Most of the Member States, as well as the EU average, showed little change (see Figure 57). Compared to 2003, a second foreign language is now compulsory for all students from the last years of primary education in Greece and Denmark (as of 2015), and from the beginning of lower secondary education in the Czech Republic, France, Italy, Malta and Poland. The Czech Republic can showcase a marked increase (although from a low level) in the percentage of students at lower secondary level learning two or more foreign languages for the period 2013-2015.

This trend hides differences between Member States. More than 90 % of students in lower secondary education learn two foreign languages in eight Member States (Estonia, Greece, Italy, Luxembourg, Malta, Poland, Romania and Finland). In contrast, the figure is below 20 % in five countries: in Belgium's French-language education system there is no provision for a second foreign language at lower secondary level; in Ireland and Hungary, learning a second language is not compulsory at lower secondary education; and in Bulgaria and Austria, learning a second language only becomes compulsory in upper secondary education. In some countries, learning two languages is an entitlement rather than an obligation (Belgium's French-language education system, Spain, Croatia, Slovenia and Sweden). Finally, the share also reflects the different starting grade of the second language learning, like in France where the second foreign language is taught to all ISCED 2 students, but only starting from grade 8 (grade 7 from 2016 onwards).

²⁰⁶ Eurostat, UOE, online data code: [\[educ_uae_lang_01\]](#).

Figure 57 — Percentage of pupils in lower secondary schools being taught at least two foreign languages, 2013 - 2015



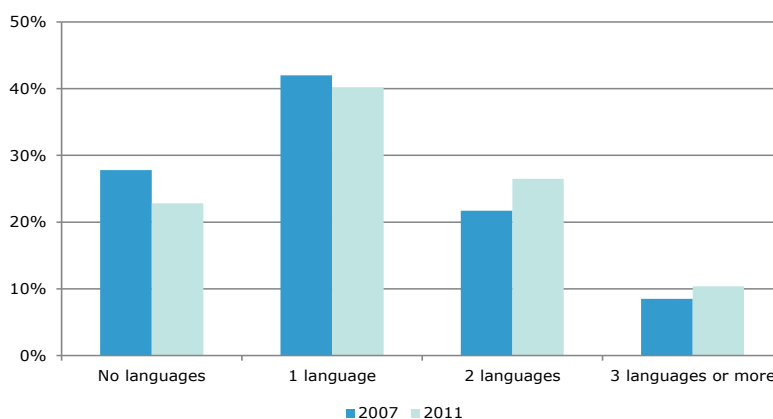
Source: Eurostat (UOE). Online data code: [\[educ_uae_lang02\]](#).

Reading notes: Data are not available for the UK. 2015 data series are not available for Denmark and Greece. Countries are ordered from the highest to the lowest share of pupils in lower secondary schools being taught at least two foreign languages in 2015.

The situation is different for students in vocational education and training (VET). At EU level (2014) only 34.5 % of upper secondary VET students learned two or more languages, compared to almost half of the students in general education. In ten countries, at least 90 % of general education students learn two or more foreign languages, whereas this is the case for VET students only in Romania.

The lack of progress is illustrated by a persistently high percentage of people aged 25-34 saying that they don't know any foreign languages as shown in Figure 58²⁰⁷.

Figure 58 — Number of foreign languages known, age 25-34. EU average

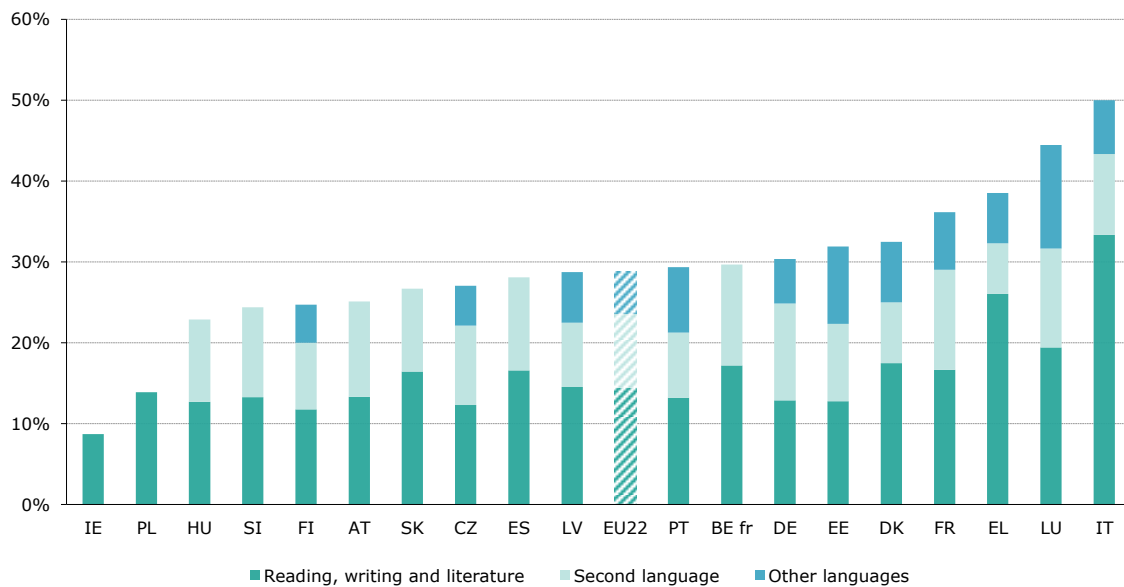


Source: Eurostat, Adult education survey 2007 and 2011. Online data code: [\[edat_aes_I22\]](#). Notes: the 2007 data are not available for Ireland, Luxembourg and the Netherlands. The UK data not available for 2011. Data are self-reported knowledge.

²⁰⁷ For more information about the language knowledge data from the 2011 Adult Education Survey, please see: Araújo, L., Dinis da Costa, P., Flisi, S., Soto Calvo, E. (2015). [Languages and employability, a European Commission/JRC/CRELL report.](#)

The time devoted to language learning in school education is important to promote multilingualism in the EU. Even if students are learning a foreign language from a younger age compared with a decade ago, the amount of instruction time is still only modest²⁰⁸. At lower secondary education in the EU, the four countries with highest proportion of compulsory instruction time devoted to all types of language learning (first language/language of instruction, second language and other languages) are Italy, Luxembourg, Greece and France.

Figure 59 – Instruction time per subject as a percentage of total compulsory instruction time in general lower secondary education, 2016



Source: OECD (2016), *Education at a Glance 2016: OECD Indicators*. Table D1.3b.

Reading note: not applicable to the Flemish community, the Netherlands, Sweden and the UK. Data are not shown because the category does not apply for: Ireland ('Second language' and 'Other language'); Belgium fr, Hungary and Slovakia ('Other language'). Data for Poland for both categories 'Second language' and 'Other language' are not available.

These data indicate a positive overall trend in access to languages from an early age, an increased focus on support in the language of schooling, and recognition of a variety of first languages/mother tongues in classrooms. However, the level of ambition for linguistic competency across Europe still falls short of the objective of two foreign languages, as set by the European Council in Barcelona 2002.

Teachers' qualifications are crucial for fostering students' language skills. Across Europe, generalist and specialist teachers share the responsibility for teaching languages in *primary education*. In most education systems with central recommendations on the degree of specialisation of teachers, generalist teachers teach foreign languages in primary education. In some cases, teachers will need to justify their foreign language competence either by taking a dedicated course in their initial teacher education or by taking a proficiency test. In other systems, authorities recommend that both generalist and specialist teachers teach foreign languages. Some systems recommend that foreign language teachers should all be specialists. In most Member States, foreign language teachers at lower and upper secondary levels are subject specialists, with a huge variety among Member States in the specifications needed. In general, either a bachelor's degree or a master's degree with language specialisation is compulsory to teach foreign languages at secondary level.

²⁰⁸ Eurydice (2017). [Key data on Teaching Languages at School in Europe](#) – 2017 Edition.

Teaching in multilingual and multicultural classes requires a complex set of skills. However, only a quarter of the European countries have central recommendations or requirements for teachers working with students from migrant backgrounds, who do not master the language of schooling. Only in Austria and Denmark does initial teacher education systematically prepare all prospective teachers for their role in facilitating the integration of students from migrant backgrounds²⁰⁹.

Only slightly more than half of foreign language teachers (56.9 %) have travelled abroad for professional purposes during initial teacher education or while in service. Those who have done so show a higher mobility than teachers of other subjects. EU funding is a large source of financial support for foreign language teachers who go abroad for professional purposes. In 2013, 26.1 % of foreign language teachers who reported that they had already been abroad for professional purposes had done so with funding from an EU programme, such as Erasmus+²¹⁰.

3.3 Tertiary education

Key findings

The employability of recent graduates reveals the labour market fit of their studies. Despite the cyclical character of job opportunities, the higher education sector has a responsibility to ensure the labour market relevance of the skills offered.

Employment rates of recent tertiary education graduates in the EU, which were hit by the crisis, started increasing again after 2014 (80.5 %) and reached 82.8 % in 2016. While still far from the pre-crisis level of 86.9 %, the rates are 0.9 pp higher than in 2015.

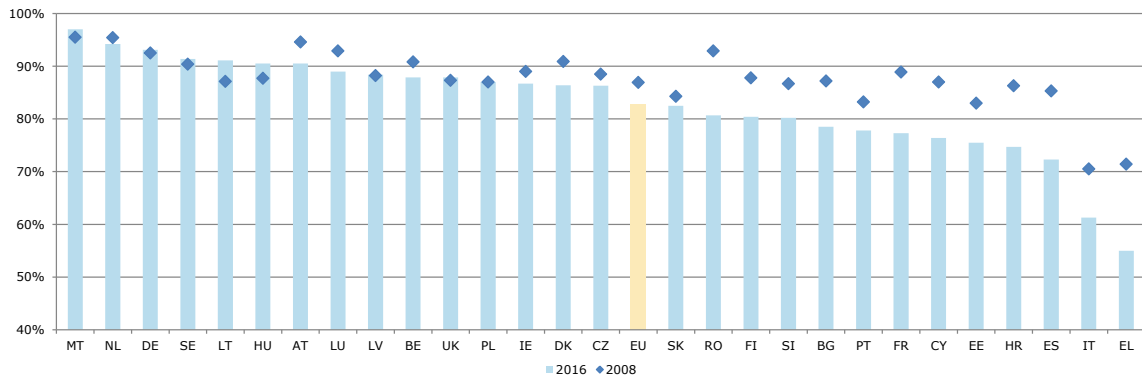
3.3.1 Employment outcomes of higher education

Recent graduates' success in finding employment is a major source of information about the labour market relevance of the education system and the subject studied. The main challenge for higher education is to ensure that the resulting qualifications enable graduates to find employment. Another challenge is to ensure that the employment they find matches their qualifications.

Employment rates for newly qualified tertiary graduates fell in the wake of the 2008 crisis (Figure 60). Afterwards, rates started increasing again, and reached 82.8 % in 2016. While this is still far from the pre-crisis level of 86.1 %, it is still 0.9 pp higher than in 2015 alone. Over the period of the crisis, the convergence in graduate employment rates between Member States disappeared, with the poorest-performing countries seeing much larger falls in employment rates than the top-performers, as the former were hit hardest by the cyclical labour market effects of the crisis. Rates in many southern European countries, including Greece, France, Spain, Cyprus, Croatia and Romania decreased by more than 10 pp, but also Italy and Bulgaria have significantly lower employment rates in 2016 than in 2008. This contrasts with countries such as Malta, Germany, Sweden, Lithuania, Hungary, Latvia and the UK which have, in 2016, relatively high employment rates for new graduates and very slightly higher rates than in 2008.

²⁰⁹ Eurydice (2017). [Key data on Teaching Languages at School in Europe](#) — 2017 Edition

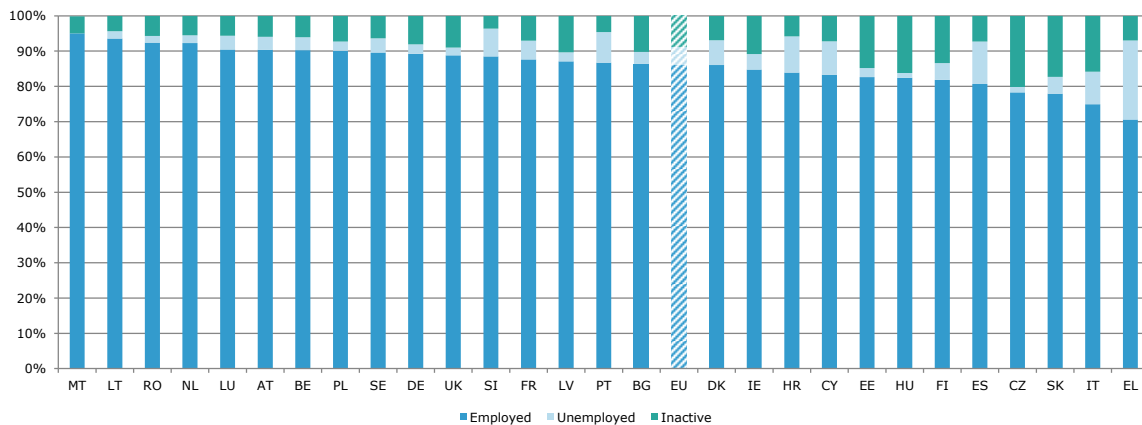
²¹⁰ Eurydice (2017). [Key data on Teaching Languages at School in Europe](#) — 2017 Edition.

Figure 60 – 2008-2016 employment rates of recent tertiary education graduates


Source: Eurostat, EU Labour Force Survey [[edat_lfse_24](#)].

Reading note: the indicator shows the employment rate of graduates (ISCED 5-8) aged 20-34 who graduated 1 to 3 years before the reference year and who are not currently enrolled in any further formal or non-formal education or training. Countries are ordered from the highest to the lowest employment rate in 2016.

Figure 61 shows that the employment rate for 30- to 34-year-olds with completed tertiary education, who for the most part have been available for the labour market for several years, is largely over or close to 90 % of this population. However, more than 20 % of this population in Greece, and 10 % in Spain and Croatia are unemployed; while in Italy, Slovakia, the Czech Republic, Estonia and Hungary relatively large sections of this population are inactive (neither working, nor available for or seeking employment).

Figure 61 – Employment status of the 30-34 year-old tertiary education holders, percentage, 2016


Source: Eurostat, EU Labour Force Survey (special extraction). Countries are ordered from the highest to the lowest share of employed with a tertiary qualification. Note: Unemployed not available for Malta and all categories with low reliability for Luxembourg.

Although employment outcomes for graduates respond to economic cycles and are the result of labour market conditions, the higher education sector also bears responsibility for ensuring that the programmes on offer are relevant to the labour market. This requires policy action such as:

- reforming curricula for developing work-relevant knowledge and skills;
- embedding problem-based learning, group work and presentations in studies (i.e. more practically-oriented learning);
- promoting work-based learning through traineeship and apprenticeship programmes.

3.3.2 Distribution of students by subject areas

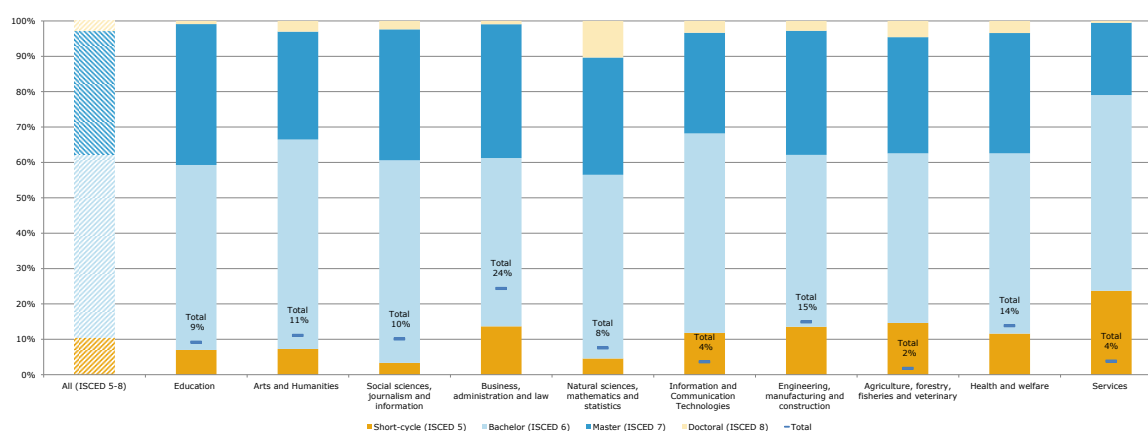
Europe's needs for high-level skills can be addressed by increasing the number of enrolments in fields of study that prepare students for jobs where shortages exist or are emerging. In many Member States there is unmet demand in STEM fields, medical professions and teaching²¹¹.

What people choose to study in higher education depends on a combination of personal motivation, good guidance and the availability of attractive learning and career options. Opportunities on the labour market ultimately depend on the broader economic and production context, but education and training have a key role to play in providing not only skills and qualifications, but also information (see Figure 75 in the Annex). The structural indicators on graduate employability show that nearly all EU Member states provide career guidance to higher education students.

Around 12 % of tertiary graduates in EU in 2015 have a short-cycle degree (max. 2 years) mainly with a professional focus. More than half qualify with a bachelor's degree and 34 % with a master's degree. Graduates of doctoral programmes make up nearly 3 % of the graduate population. This breakdown changes relatively little across the different fields of education.

However, there are a couple of interesting facts worth noting: firstly the high percentage of doctorates in natural sciences (10.6 %), which is a key area for a competitive and knowledge-based economy. Secondly, there are relatively few masters' graduates for ICT, another area of importance in post-industrial societies.

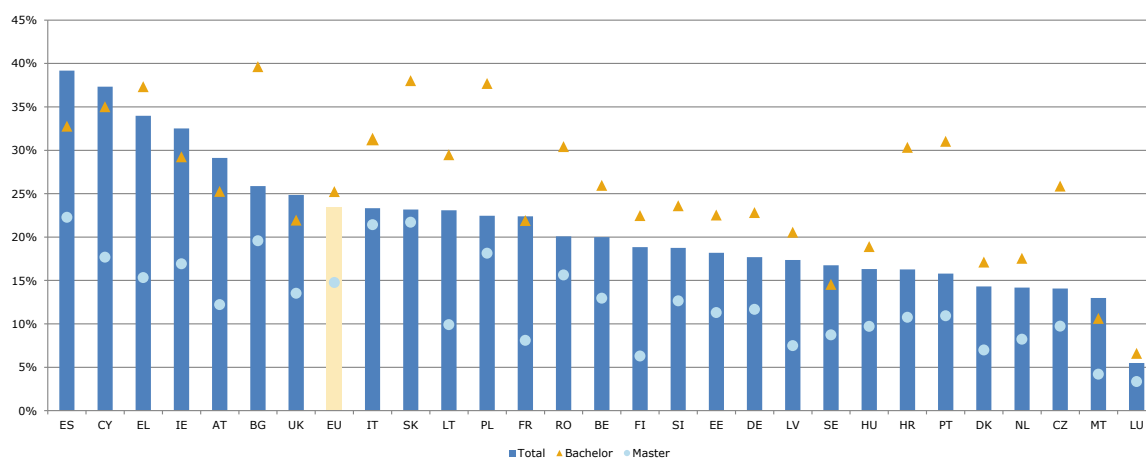
Figure 62 – Share of EU tertiary graduates by field of education and tertiary educational level, 2015



Source: Eurostat (UOE [educ_uoe_grad02]).

Overall, 1 out of 4 graduates in tertiary education qualifies with a degree in business, administration or law. These are, in general, degrees which can be used for employment in both private and public sector occupations and which in terms of specialisation goes from professions as lawyers to generalists as political science or economists. Engineering, manufacturing and construction graduates make up 15% of graduates across the EU; graduates which are often employed in the private sector. Health and welfare, with 14% of graduates, covers medical doctors as well as nurses and other, in general specialised, health professions traditionally employed in the public sector within EU Member states.

²¹¹ See the Commission Communication on a renewed EU Agenda for Higher Education, [COM\(2017\)247final](#).

Figure 63 – Qualification-occupation mismatch, 2016


Source: Eurostat, EU-Labour Force Survey 2016, special extraction.

Reading note: the indicator shows the share of 25- to 44-year-olds with tertiary education attainment with an occupation traditionally not requiring a tertiary education qualification. This comprises clerical support workers, service and sales workers, skilled agricultural, forestry and fishery workers, craft and related workers, plant and machine operators and assemblers, and elementary occupations. Low reliability for the master level in Malta²¹².

For some time there have been concerns that people qualified with a tertiary educational degree are working in jobs that would not typically require a tertiary qualification. Across the EU, 23. % of the employed graduates from tertiary education work in occupations that would traditionally be viewed as not requiring tertiary education. (see Figure 63). The occupational mismatch is particularly strong in Spain, Cyprus, Greece and Ireland, all at more than 30 %.

At bachelor's level the EU level qualification mismatch concerns 25.2 % of employed graduates, with the proportion falling to less than 15 % for graduates holding a master's-type qualification. All Member States have a greater degree of mismatch at bachelor's level than at master's level (which in nature is a more specialised education). The pay-off of a higher educational qualification is, however, remarkably different across EU countries. In Greece, Slovakia, Bulgaria and Poland, the mismatch concerns more than 35 % of employed graduates at bachelor's level. The gap between bachelor's and master's levels is equal or greater than 20 % in Bulgaria, Greece and Portugal and close to 20 % in Lithuania, Croatia and Poland. The gap is lowest in Luxembourg, Sweden, the United Kingdom, Hungary, the Netherlands and Italy. However, whereas Luxembourg, the Netherlands and Sweden have an overall low level of qualification mismatch, this is not the case for Hungary, the United Kingdom and Italy.

While the data used to generate these proportions are not perfect, they highlight potential problems in the functioning of the labour markets. Individuals working in jobs below their qualifications may become less satisfied with their jobs, may earn less, be more prone to change jobs and in the long run will be more likely to lose competences by not using them²¹³. The data therefore provide a basis for labour market actors (i.e. employers and other social partners) to give feedback to education authorities and institutions on what requirements they have for employing new graduates. They are also an important reminder to the whole higher education sector of the need to stay in touch with labour market demands, and of the need to communicate thoroughly about new study programmes so as to create demand for them. For example, the Bologna process has been highly successful in restructuring the whole European Higher Education Area into 4 levels: short-cycle courses, bachelor's, master's and doctorate levels. However, there is less transparency on practical implementation and the high mismatch for bachelor's graduates may indicate that the demand for graduates with a bachelor's degree has not followed the formal introduction of this educational qualification. An alternative

²¹² Isac, M. M., Dinis da Costa, P., Araújo, L, Soto Calvo, E. & Albergaria, P. (2015). Teaching Practices in Primary and Secondary Schools in Europe: Insights from large-scale Assessments in Education.

²¹³ See European Commission (2014). [Employment and Social Developments in Europe 2014](#), chapter 2.

explanation is that the (shorter) bachelor programmes and degrees are still seen as a transitional degree after which people continue at master's level.

A full picture of occupational mismatch is difficult to capture for a number of reasons. Firstly, the 2012 PIAAC survey showed that there is a substantial difference between qualifications and qualifications mismatch²¹⁴. Graduates with a high-level qualification do not necessarily have high-level skills in the relevant context. Secondly, as stated above, labour market characteristics affect mismatches and require their own policy intervention²¹⁵. And thirdly, both supply and demand differ within countries, between sectors and occupations, and across time, which makes it difficult to anticipate trends. The newly launched a pilot European 'graduate tracking' action is intended to provide more concrete evidence on the transition between higher education and the labour market. In this sense, Member States will eventually have a more solid evidence base for decreasing qualifications mismatches (see next section).

3.3.3 Policy action to address the needs of the labour market

With a plethora of choices and often difficult transitions between education types and levels or between education and work, individualised career guidance is imperative throughout the whole student lifecycle. However, this career guidance is rarely informed by regular labour market forecasting or graduate tracking surveys. By providing evidence-based assessments of the changes expected in the structure of the labour market and skills requirements, labour market forecasts help to build a picture of the world for which current and future higher education students are being prepared. Yet only around half of the countries conducting regular labour market forecasts make efforts to take their results into account in higher education planning at the central level (Belgium's French-language education system, Ireland, France, Italy, Latvia, Lithuania, Finland, Sweden and the UK)²¹⁶.

One example of such evidence-based assessments is graduate tracking – i.e. collecting quantitative information on the employment situation and career development of graduates from specific programmes. This is increasingly common in HEIs (higher education institutions) and countries are quickly adopting to better data exploitation possibilities (for example in the Spain and the Netherlands)²¹⁷. However, the actual use of information stemming from graduate tracking, whether for career guidance or for the adjustment of study programmes, remains limited. Only nine Member States make systematic efforts to use the information from regular graduate tracking surveys (Belgium²¹⁸, Denmark, Estonia, Ireland, Italy, Poland, Slovakia, Sweden and the UK).

Another way to increase the relevance of programmes is to embed work-based learning across higher education. Evidence shows that students who participated in practical training before graduation are more likely to find jobs than those without relevant work experience²¹⁹. Only a few EU education and training systems provide incentives to their HEIs to include work placements in all education programmes (the German-speaking part of Belgium, Estonia, Spain, France, Italy, Lithuania and Romania). Traditionally emphasised only in professionally-oriented HEIs, work placements would also strengthen the relevance of academically-oriented higher education institutions.

²¹⁴ See JRC-CRELL (2014). [Occupational mismatch in Europe: understanding overeducation and overskilling for policy making](#).

²¹⁵ Examples are active labour market policy measures and enterprise investment in human resource management and recruitment.

²¹⁶ European Commission/EACEA/Eurydice (2016). [Structural Indicators for Monitoring Education and Training Systems in Europe – 2016](#).

²¹⁷ Rather than the regular tracking assessed here, much of this graduate tracking is of a more ad hoc nature, as shown by a feasibility study for setting up a Europe-wide [graduate survey](#).

²¹⁸ Except for the German-speaking part of Belgium, which conducts regular surveys at the regional level but does not subsequently use the information systemically.

²¹⁹ JRC-CRELL (2012). [The employability of young graduates in Europe](#).

Member States acknowledge the need for strengthened dialogue between their HEIs and labour market actors. Such two-way communication is needed to improve mutual understanding of the types of knowledge, skills and competences required in the real economy and the capacity and mission of higher education²²⁰. In most Member States, there are formal requirements to involve employers in external quality assurance, one of key mechanisms through which education authorities can encourage HEIs to boost the employability of their graduates.

3.3.4 Aspects of equity in higher education

This section shows evidence, which has traditionally been linked to policy concerns regarding equity in higher education. These concerns are reflected in the recent Commission Communication on the renewed agenda for higher education²²¹. The policy concerns relate to providing the right qualifications and avoiding mismatches for the labour market, while also building inclusive and connected higher education systems. In the Communication, the priority areas focus on admission systems to higher education, on providing the right conditions for students of different socio-economic backgrounds to succeed and on securing an equal gender distribution of graduates by subject. The quality of teachers and teaching in higher education is a central issue underpinning these priority issues.

It is well-documented that the selection of students into tertiary education is somewhat skewed in the sense that it reproduces societies' already existing socio-economic structures and therefore does not further mobility across socio-economic groupings. The indicator which is often used to illustrate this is the parents' educational attainment level of students enrolled in higher/tertiary education. More equal access, participation in and graduation from higher education would mean a better reflection of the general population characteristics. Instead, evidence shows that European societies largely reproduce patterns of the parental generation with higher education students predominantly having parents with higher education degrees.

The evidence has been repeatedly shown in Eurostudent results by providing the shares of students with and without parents who have attained higher education. The evidence shows that in 2013 across the EU there are very different rates of students with high level educated parents; from a large majority (64% or more) in Denmark, Germany, Finland, Latvia and Lithuania to less than 30% in Italy and Malta²²².

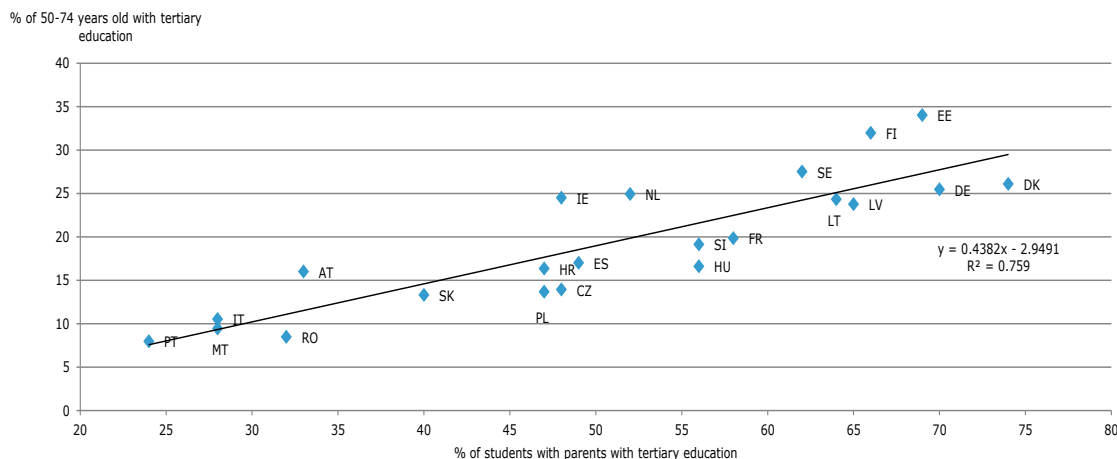
These shares do not in themselves provide evidence on an unbalanced recruitment into higher education. This only becomes apparent when the figures are compared to the general population figures for different socio-economic groupings (here again exemplified with parental level of education). There is a high correlation (0.8) between the current higher education student population whose parents have a higher education and the general population with tertiary education attainment aged 50-74 (so the parental generation).

²²⁰ While it is important for HEIs to respond to labour market needs, it is equally important for employers to recognise the wider function of higher education, which is to provide students with a well-rounded education for the long term (and not just immediate business needs).

²²¹ See the Commission Communication on a renewed EU agenda for higher education [COM\(2017\)247final](#).

²²² [Eurostudent](#) is a data collection on the study and living conditions of tertiary education students in European countries. The data cited here are from the 2012-2015 Synopsis table. A3.2.

Figure 64 – Correlation between:
- the percentage of students having parents with tertiary education and
- the percentage of the 50-74-year-olds with tertiary educational attainment, 2013



Sources: Eurostudent Synopsis 2012-2015 (table A3.2) and EU Labour Force Survey [lfsa_pgaed]. Spain and Portugal: 2010 data.

Reading note: There is a high correlation between the percentage of students in tertiary education with parents who have a tertiary level education and the population 50-74 years old with a tertiary educational attainment.

This means that the possibility for children born to the generation of 50 to 74 years old who have a tertiary level education to equally attend and graduate from higher education is high.

The overrepresentation of students in tertiary education whose parents have also followed a high level education can be illustrated by comparing this population to the general population who have a tertiary level attainment; in this case the population aged 25-64 years old is used; it is normally the population ages with the highest employment and activity rates.

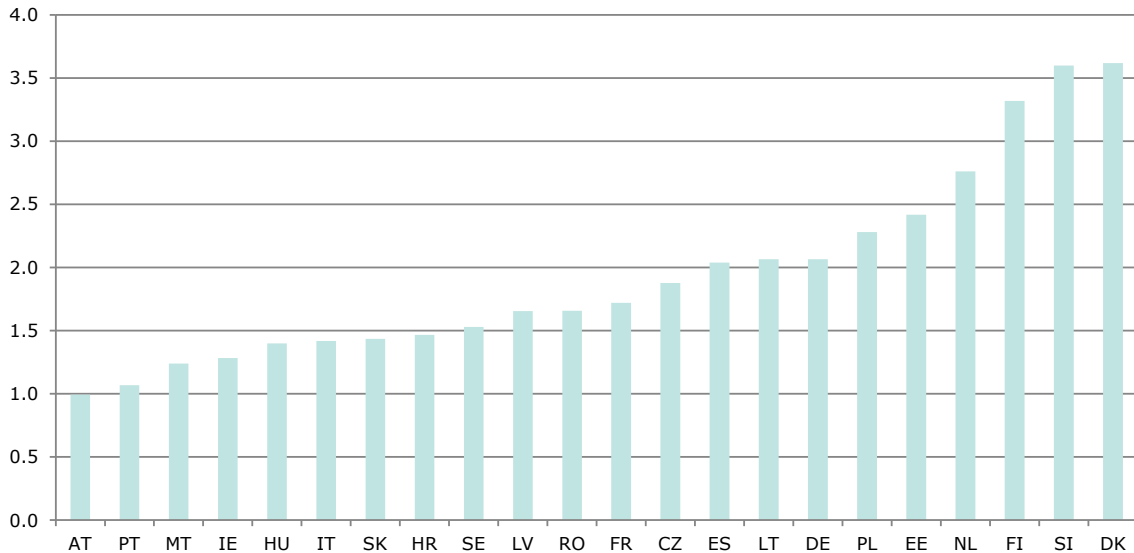
Figure 65 shows these ratios with very different levels across European countries; from Austria which, as the only country, has a higher education student population which reflects the characteristic of the active population (a ratio of 1) to Denmark and Slovenia (but also the Netherlands and Finland) where there are more than 3 times more students in tertiary education with high level educated parents compared to the tertiary attainment level in the population.

If these ratios are interpreted as expressing how equity is reflected in higher education then equity exist in Austria as tertiary level enrolment reflects society's level of tertiary education whereas Denmark and Slovenia have more skewed tertiary level student populations where students of high level educated parents are overrepresented. There are no European countries which 'correct' the overrepresentation of students with higher level educated parents by enrolling relatively more students where the parents have not attained higher education.

The evidence above is also confirmed in most recent Eurostudent data²²³ indicating that recruitment into higher education has not changed significantly across European countries for many years.

²²³ Forthcoming Eurostudent 2016-2017 data (March 2018).

Figure 65 – Ratio of the percentage of students having parents with tertiary education to the percentage of population 25-64 with tertiary education, 2013



Sources: Eurostudent Synopsis 2012-2015 (table A3.2) and EU Labour Force Survey [lfsa_pgaed]. Spain and Portugal: 2010 data.

Reading note: In Austria, the percentage of tertiary level students whose parents have a tertiary education attainment is the same as in the population aged 25-64 years old whereas in Denmark there are 3.6 times more tertiary level students whose parents have a tertiary education attainment level compared to the population aged 25 to 64 years old.

Box 11: Poland – increasing social responsibility of HEIs and scientific institutions

In Poland a new strategy has been announced for science and higher education. One of the initiatives, Science For You (*Nauka dla Ciebie*), includes a set of initiatives to increase the social responsibility of HEIs and scientific institutions, as well as the public dissemination of science. The programme includes 'science buses' – a fleet of buses equipped with scientific labs, which will cruise around the country with professional trainers trained by the Mikołaj Kopernik Science Centre in Warsaw. In 2017 the science buses will visit at least 400 schools across the country.

3.3.4.1 Admission systems to higher education

The tertiary education study admission systems have recently been analysed across European countries in relation to their main characteristics and the outcomes of higher education²²⁴. The systems can broadly speaking be divided into how open/closed they are in terms of allowing students from many/all pathways to enter higher education as well as where the decision is taken, be it through exams at upper secondary level (e.g. high school diploma / baccalaureate / Abitur / Matura) or if the higher education institutions themselves can select their students. The results show 4 main types of admission systems for EU Member states as illustrated in Figure 66.

²²⁴ 'Study on the impact of admission systems on higher education outcomes Volume I Comparative Report', DG EAC, European Commission (2017). Contract EAC-2015-0470.

Figure 66 – A typology of admission systems for higher education in EU Member States

Streaming	Selection	HEIs cannot select their students with additional criteria (in normal circumstances)	(Nearly all) HEIs can select their students with additional criteria
	At least one pathway through the school system does not lead to a qualification enabling higher education entry (to some part of the system)		<i>Type 1: Selection by schools (normally at upper secondary level)</i> AT, BE, DE, DK, HU, IT, LU, NL, PL, SI
In general, all pathways may lead to higher education entry (in some part of the system)		<i>Type 3: Least selection</i> EL, FR, IE, MT, SE	<i>Type 2: Selection by HEIs</i> BG, CY, EE, FI, LT, LV, PT,

Source: European Commission/ DG EAC (2017). Study on the impact of admission systems on higher education outcomes Volume I Comparative Report.

Reading notes:

Selection: The degree to which higher education institutions can select their students.

Streaming: The degree to which pathways at school level stream students for higher education admission. Only direct routes were considered in the typology²²⁵.

Type 1: Streaming at school level, higher education institutions cannot (normally) influence selection.

Type 2: All pathways at school level lead to higher education but higher education institutions can add additional selection criteria.

Type 3: Most open systems: all pathways at school level lead to higher education and higher education institutions can normally not add additional selection criteria.

Type 4: Most restrictive systems: streaming at school level and higher education institutions can add additional selection criteria.

Figure 66 (rows) above shows how open education systems are in accepting students at tertiary educational level. Half of the EU admission systems (15) have streaming at lower education levels (upper secondary and/or post-secondary) which do not lead to higher education. The other half of the countries are more open in the sense that all paths can (in principle) lead to entrance to higher education.

The level of autonomy, which higher education institutions have in selecting their students, is a further potential barrier for students to overcome before they secure a study place. Half of the EU admission systems allow higher education institutions to set the conditions for choosing their students. Nearly all institutions can select with additional criteria – e.g. universities can organise further assessments but can also base their decision on school exit results including the grades for some disciplines/exams taken at the end of upper secondary education. Within the EU the systems in the Czech Republic, Croatia, Spain, Romania, Slovakia and the United Kingdom combine constraints in pathways with giving high autonomy to institutions to choose their students. However in half of the Member States (15) the higher education institutions have low autonomy in selecting their students but restrictions are imposed in the pathways to higher education. In most cases this would mean that students are guaranteed a place once they obtain the qualifying exam/exam marks. The most open systems are found in France, Greece, Ireland, Malta and Sweden where open pathways are combined with, so to speak, no autonomy for institutions to choose their students²²⁶.

²²⁵ Most educational systems have at least some alternative / second chance routes, but the share of students benefiting from these is generally low.

²²⁶ See also European University Association: [The University Autonomy Tool](#) which scores universities in 29 education systems according to 4 dimensions of autonomy: organisational, financial, staffing and academic.

The case studies in the report document an important demand from student side to improve the information, advice and guidance available on higher education admission systems as the study choices are many and often built up in complex structures. The complexity of the systems is perceived to have a social bias where students from disadvantaged backgrounds find it harder to reach satisfactory study choices. The study provides some tentative conclusions on how these different admission systems influence the outcome of tertiary education through an analysis of the types described in Figure 66. These show that equitable admission systems are those with the least selection mechanisms, - but these also tend to have lower completion rates and higher levels of unemployment for graduates (so relatively lower efficiency and effectiveness). On the other hand, streaming at school level (type 1) shows lowest entry rates but also low rates of unemployment and in growth of employment mismatches.

EU policies in this area encourage flexible pathways to higher education. So-called alternative pathways, which can also value work experience, are often part of more open higher education systems. Likewise, re-entering higher education as an older student would often be easier, e.g. through the possibility of studying part-time or/and taking the course in the evening. Such options give working students the necessary possibilities for upgrading their skills; - a prerequisite often underlined as a condition for flexible and fluid labour markets. The 'renewed EU higher education agenda' therefore launches an initiative to support HEIs in developing and implementing integrated institutional strategies for inclusion and study success from admission to graduation. The initiative includes guidance to support institutions in reviewing and adapting their existing practices²²⁷.

3.3.4.2 The untapped potential: women and STEM subjects

The subsection above shows how institutional environments can shape the supply of students to higher education systems. This subsection focuses on the demand side and the study choices students make.

Figure 67 – Percentage of female STEM students in tertiary education, 2015

	Total	Natural sciences, mathematics and statistics	Information and Communication Technologies	Engineering, manufacturing and construction	STEM
EU	54.3	49.7	17.8	26.0	31.4
BE	55.9	38.8	7.7	21.6	23.2
BG	54.6	61.2	32.7	26.0	32.5
CZ	57.3	56.1	14.4	30.1	33.2
DK	57.1	52.5	19.0	28.3	33.0
DE	47.9	45.5	19.5	20.8	27.4
EE	58.8	59.0	25.5	28.2	33.7
IE	50.5	48.6	16.9	15.9	27.4
EL	48.7	42.1	30.5	26.9	31.0
ES	53.1	48.5	13.4	25.8	28.1
FR	54.5	42.2	14.3	25.8	30.8
HR	56.5	61.5	21.7	26.8	31.4
IT	58.3	57.3	17.5	32.5	37.2
CY	56.8	71.0	27.2	28.6	36.6
LV	59.6	62.6	21.8	27.5	30.3
LT	57.6	56.2	12.2	22.5	26.2
LU	51.0	44.7	14.2	16.1	24.4
HU	54.5	49.8	20.2	22.8	26.6
MT	55.9	52.5	17.6	20.6	31.6
NL	52.4	39.8	9.1	19.0	23.3
AT	53.2	46.6	15.8	24.4	28.8
PL	59.0	66.3	14.0	35.9	36.8
PT	53.3	56.0	18.3	26.4	32.0
RO	53.7	61.3	28.2	31.6	35.7
SI	58.2	59.7	14.7	25.6	31.6
SK	59.6	62.0	11.7	26.7	33.3
FI	53.6	50.7	16.9	20.2	24.4
SE	57.7	50.9	28.6	30.7	34.4
UK	56.1	52.3	17.1	20.7	36.8

Source: Eurostat (table [educ_uoe_enrt03](#)). Percentages and EU totals for each field of education calculated by DG EAC. Ireland and Greece: 2014 data. Italy: short-cycle tertiary education not included

²²⁷ Communication on a renewed agenda for higher education (COM(2017)247 final, see section 2.2.

Figure 67 above shows that women select some subjects much less often than men, particularly ICT and engineering. Overall, in the EU women make up 54.2 % of tertiary education students, and are a majority of students in every EU Member State except Germany and Greece. However, in 2015 only 31 % of students studying STEM subjects were women. A recent Microsoft study concludes that in countries with low female STEM study participation, girls lose their earlier interest in STEM careers at the decisive age of 16 due to the lack of positive role models, masculine domination of STEM teaching, lack of practical experience in the field and widespread doubts in one's chances of succeeding in STEM as a woman²²⁸.

The country breakdown shows wide differences between Member States; the rate ranges from 23 % in Belgium and the Netherlands to 37-38 % in Cyprus, Italy, Poland and the UK. The detailed data by field of education demonstrates that the gender distribution is close to equal in natural sciences, mathematics and sciences, whereas relatively few women study information and communication technologies (computer science) 17.8 % at EU level and only slightly more study engineering, manufacturing and construction (26 %).

The percentage of women studying STEM subjects has hardly improved over time, even though education policies have been focusing on the issue for more than a decade. In 2005, the EU rate stood at 30 %, while country figures have hardly moved since 2000.

Box 12: Italy – addressing gender equality and promoting women in STEM in primary and secondary schools and at university

In 2016 The Ministry of Education, University and Research, in collaboration with the Italian Department for Equal Opportunities, established the *STEM Month – Women want to count*. The initiative, which involved all Italian schools in various events and initiatives throughout the month of February, targets primary and secondary school students and aims at promoting STEM among girls, fighting gender stereotypes and discrimination, and guaranteeing women's access to more highly-paid professions. A number of stakeholders, from research institutes to companies to foundations, organised with the support of the Department of Equal Opportunities summer camps for the study of mathematics, science, computer science and coding. Also, the Italian Government implemented the *Transforming Institutions by Gendering contents and Gaining Equality in Research* Project (TRIGGER). The project, which involves five universities from the Czech Republic, France, Italy, the UK and Spain, addresses gender inequalities in science and aims to achieve a comprehensive integrated model. Each university will implement different integrated actions so that the overall working environment for female workers is improved²²⁹.

These patterns of study choice match the PISA 2015 results²³⁰ about future career expectations. They show that on average across OECD countries, boys and girls are almost equally likely to expect to work in a science-related field. Some 25 % of boys and 24 % of girls expect to be working in a science-related occupation when they are 30. But the fields are different: on average across OECD countries, boys are more than twice as likely as girls to expect to work as engineers, scientists or architects (science and engineering professionals), while 4.8 % of boys, but only 0.4 % of girls expect to work as ICT professionals. By contrast, girls are almost three times as likely as boys to expect to work as doctors, veterinarians or nurses.

The current patterns of study choice, and women's and men's career expectations, are concrete manifestations which higher education systems can work with if they want to steer student choice in the light of labour market opportunities for fresh graduates. Across the EU there is more and more focus on qualifications mismatches, including potential bottlenecks in certain occupations such as ICT jobs.

²²⁸ Quoted on the basis of [Mädchen können durch weibliche Vorbilder und mehr Praxis für MINT-Disziplinen begeistert werden](#), in: Bildungs Spiegel Fachportal für Weiterbildung und Personalentwicklung (2017) – based on a Microsoft study by KRC Research (2017). [The When & Why of STEM Gender Gap](#).

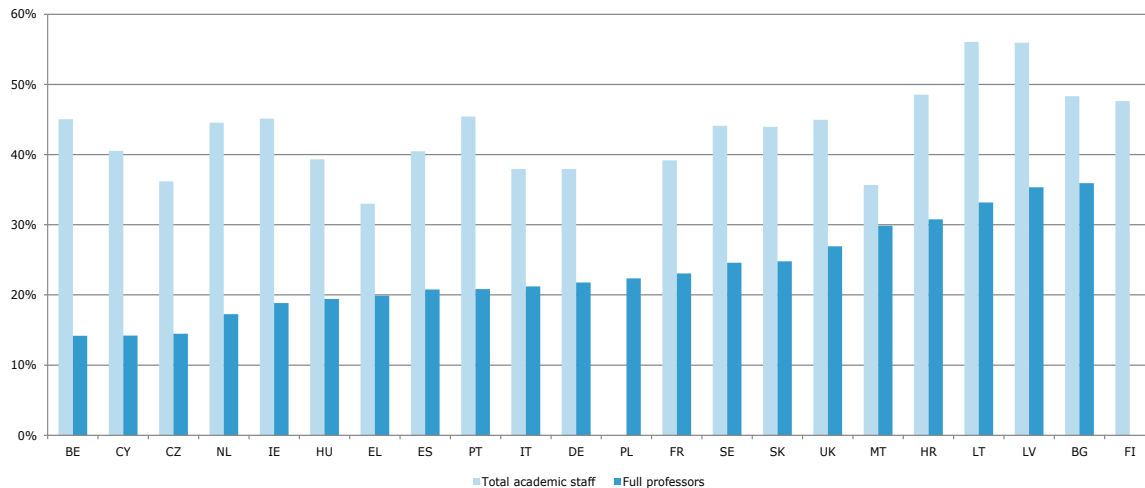
²²⁹ CORDIS (2016). [Periodic Report Summary 1 – TRIGGER \(TRansforming Institutions by Gendering contents and Gaining Equality in Research\)](#).

²³⁰ OECD(2016). [Excellence and Equity in Education](#), PISA 2015 Results (Volume 1) – see chapter 3.

3.3.4.3 Women and careers in higher education institutions

The previous two subsections provide a glimpse of how supply and demand interact in balancing higher education student intake and work-related expectations across the EU. This subsection looks briefly at the staff situation in higher education institutions as well as the more formal regulatory environment governing equal opportunities.

Figure 68 – Share of women among total academic staff and professors, 2014



Source: European tertiary education register (ETER). No data for Austria, Denmark, Estonia, Luxembourg, Romania and Slovenia. No data on the share of women among total academic staff in Poland and among full professors in Finland.

Figure 68 shows, for countries with available data, that women form the majority across total academic staff in only a couple of countries (Latvia and Lithuania), while otherwise men dominate in the academic world, in particular for the academic staff ranked as 'professors'. The share of women professors is below 36 % in all countries with available data (highest in Croatia, Latvia, Lithuania and Bulgaria) and lowest in Belgium, Cyprus and the Czech Republic, with fewer than 17 %. This points to the unused potential for achieving further academic excellence, which could be tapped by focusing on recruitment procedures and career advancement in higher education systems.

Box 13: Austria – promoting technology and science among young girls

Since 2001, Austria has hosted an annual event called 'Girls Day'. It targets 10- to 16-year-old girls, aiming to promote a wide range of careers, but with a strong focus on technology. In 2015 the 'MINI' version of the event took place. The event targeted girls aged between 4 and 6, since studies suggest that experiences and opportunities in kindergarten have greater potential to influence one's choices in the future. Participants had the opportunity to experience technical and scientific phenomena²³¹. In addition, the Austrian Public Employment Service has been actively promoting vocational/educational training and careers, and atypical professions for girls and women.

This is an issue which policy-makers have been aware of for some time. Laws have been put in place to regulate the formal environment for recruitment and thus try to balance gender differences better in the academic world. Figure 69 shows that 15 EU education systems have regulations on equal opportunities, which affect recruitment procedures in higher education, while 20 education systems have initiated policy measures to prevent or limit gender differences in academic ranks. There seems, however, not to be any close relationship with the current level of women staff in higher education institutions bearing in mind that such structural changes have significant time lags (professors are normally appointed for life)²³².

²³¹ DG Justice and Consumers (2015). [Report on equality between men and women](#).

²³² European Commission/EACEA/Eurydice (2017). [Modernisation of Higher Education: Staff](#). Chapter 3.

Figure 69 – I: Existence of top-level authority regulations on equal opportunities affecting recruitment procedures, 2015/16
II: Existence of wide policy measures or initiatives aiming at preventing or limiting gender differences in academic ranks, 2015/16

	BE fr	BE de	BE nl	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT
I: Yes/no	0	0	0	1	1	1	1	0	1	0	1	1	0	0	0	0	1
II: yes/no	1	0	0	0	0	0	1	0	1	0	1	1	0	0	0	0	0

	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK-ENG	UK-WLS	UK-NIR	UK-SCT	Total
I: Yes/no	1	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	20
II: yes/no	1	0	1	1	1	0	0	0	0	0	1	1	1	1	1	1	15

Source: Adapted by DG EAC from Eurydice (2017). Modernisation of Higher Education: Staff. Chapter 3²³³.

²³³ See the Commission Communication on *School development and excellent teaching for a great start in life* [COM\(2017\)248final](#) and on a *renewed EU agenda for higher education* [COM\(2017\)247final](#).

Annex



4 Annex: Additional tables

Figure 70 – Percentage of underachievement in science, maths and reading by sex, 2012-2015

	Science				Maths				Reading			
	2012	2015			2012	2015			2012	2015		
	Total	Total	Boys	Girls	Total	Total	Boys	Girls	Total	Total	Boys	Girls
EU	16.6	20.6	20.7	20.4	22.1	22.2	21.2	23.2	17.8	19.7	23.5	15.9
AT	15.8	20.8	19.2	22.4	18.7	21.8	18.8	24.8	19.5	22.5	25.8	19.3
BE	17.7	19.8	19.1	20.5	19.0	20.1	18.9	21.2	16.1	19.5	22.0	17.0
BG	36.9	37.9	41.6	33.7	43.8	42.1	43.4	40.6	39.4	41.5	49.6	32.3
CY	38.0	42.1	47.3	37.0	42.0	42.6	44.3	40.9	32.8	35.6	46.7	24.6
CZ	13.8	20.7	20.9	20.5	21.0	21.7	22.1	21.3	16.9	22.0	26.8	17.0
DE	12.2	17.0	15.9	18.1	17.7	17.2	15.1	19.3	14.5	16.2	18.8	13.6
DK	16.7	15.9	15.7	16.0	16.8	13.6	12.9	14.2	14.6	15.0	17.9	12.0
EE	5.0	8.8	9.9	7.6	10.5	11.2	12.1	10.4	9.1	10.6	14.2	6.9
EL	25.5	32.7	36.0	29.2	35.7	35.8	36.9	34.6	22.6	27.3	34.5	19.6
ES	15.7	18.3	18.4	18.2	23.6	22.2	20.4	24.0	18.3	16.2	19.6	12.8
FI	7.7	11.5	14.5	8.2	12.3	13.6	15.7	11.2	11.3	11.1	16.1	5.7
FR	18.7	22.1	23.3	20.8	22.4	23.5	23.8	23.1	18.9	21.5	26.1	16.9
HR	17.3	24.6	24.7	24.6	29.9	32.0	30.0	33.9	18.7	19.9	25.0	15.1
HU	18.0	26.0	26.4	25.6	28.1	28.0	27.2	28.7	19.7	27.5	31.9	23.1
IE	11.1	15.3	15.7	14.9	16.9	15.0	14.1	15.8	9.6	10.2	12.3	8.0
IT	18.7	23.2	21.5	24.9	24.7	23.3	20.7	25.8	19.5	21.0	24.1	17.9
LT	16.1	24.7	26.9	22.5	26.0	25.4	26.7	24.1	21.2	25.1	32.2	17.8
LU	22.2	25.9	25.6	26.1	24.3	25.8	24.9	26.7	22.2	25.6	29.3	22.0
LV	12.4	17.2	20.0	14.5	19.9	21.4	23.0	19.9	17.0	17.7	24.4	11.0
MT		32.5	35.2	29.8		29.1	30.7	27.5		35.6	43.0	27.9
NL	13.1	18.5	19.3	17.8	14.8	16.7	17.2	16.2	14.0	18.1	21.7	14.5
PL	9.0	16.3	16.4	16.1	14.4	17.2	16.0	18.5	10.6	14.4	19.2	9.5
PT	19.0	17.4	17.7	17.1	24.9	23.8	23.4	24.2	18.8	17.2	20.3	14.1
RO	37.3	38.5	40.1	37.0	40.8	39.9	39.9	40.0	37.3	38.7	41.8	35.7
SE	22.2	21.6	23.4	19.8	27.1	20.8	22.0	19.6	22.7	18.4	24.5	12.3
SI	12.9	15.0	16.2	13.7	20.1	16.1	16.1	16.1	21.1	15.1	21.0	8.9
SK	26.9	30.7	31.9	29.5	27.5	27.7	27.6	27.9	28.2	32.1	38.5	25.3
UK	15.0	17.4	17.5	17.3	21.8	21.9	20.6	23.2	16.6	17.9	20.9	14.8

Source: OECD, (PISA 2015). EU weighted average calculated by DG EAC. Reading notes: 2012 data for Malta are not available.

Figure 71 – Employment rates of recent graduates by level of education

	2013			2016		
	Total – All ISCED 2011 levels	Medium – (ISCED 3-4)	High – (ISCED 5-8)	Total – All ISCED 2011 levels	Medium – (ISCED 3-4)	High – (ISCED 5-8)
EU	75.4	69.4	80.7	78.2	72.6	82.8
BE	79.1	71.1	84.4	81.2	69.6	87.9
BG	67.7	54.3	80.0	72.0	60.8	78.5
CZ	80.4	75.4	85.6	86.7	87.2	86.3
DK	81.9	79.0	84.3	83.9	80.8 ^b	86.4 ^b
DE	89.7	86.5	94.1	90.2	87.8	93.1
EE	76.8	68.0	85.5	77.1	78.7	75.5
IE	73.0	55.9	82.8	79.5	67.2	86.7
EL	40.0	29.7	45.4	49.2	37.8	55.0
ES	59.9	40.9	66.8	68.0	56.8	72.3
FR	76.3	68.2	82.1	71.7	62.8	77.3
HR	53.8	50.8	56.4	72.5	70.0	74.7
IT	48.5	41.0	57.0	52.9	45.6	61.3
CY	62.1	48.3	64.9	73.3	59.0	76.4
LV	78.2	70.9	84.1	81.4	71.7	88.4
LT	75.5	63.2	84.6	82.4	70.3	91.1
LU	79.1	71.4	83.8	85.4	79.9	89.0
HU	74.2	64.8	85.4	85.0	81.2	90.5
MT	92.1	90.7	93.1	96.6	95.7	97.0
NL	86.0	80.3	90.7	90.1	85.1	94.2
AT	89.7	88.1	93.0	87.6	84.9	90.5
PL	73.2	62.8	81.3	80.2	72.7	87.0
PT	67.8	64.1	72.0	73.8	69.4	77.8
RO	67.2	55.0	77.2	69.3	59.6	80.7
SI	73.8	61.8	79.3	76.7	70.3	80.2
SK	70.3	63.1	76.7	79.6	75.9	82.5
FI	79.8	75.9	85.7	77.4	75.5	80.4
SE	84.9	80.2	89.9	86.7	81.6	91.4
UK	83.8	78.1	87.8	84.4	77.8	87.9

Source: Eurostat (EU-LFS, 2013-2016). Online data code: [\[edat_lfse_24\]](#). Reading note: The indicator shows the employment rate of graduates (ISCED 3-8) aged 20-34 who graduated 1 to 3 years before the reference year and who are not currently enrolled in any further formal or non-formal education or training. The indicator is broken down by level of education: medium (ISCED 3-4) covers upper-secondary and post-secondary non-tertiary education and high (ISCED 5-8) covers tertiary education. Break in time series for Denmark.

**Figure 72 – Early leavers from education and training (ESL)
a selection of structural indicators, 2016/2017**

	1. National data collection on ESL 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 & training pathways	2.2. Facilitating transitions within education & training systems	2.3. Recognising skills and/or qualifications	
BE fr	●	●	●	●	●
BE de			●	●	●
BE nl	●	●	●	●	●
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-England	●	●	●		●
UK-Wales	●	●	●		●
UK-Northern Ireland		●	●		●
UK-Scotland	●	●			

Source: European Commission/EACEA/Eurydice, 2017. Structural indicators for monitoring education and training systems in Europe 2017, internal note. Please see [European Commission/EACEA/Eurydice, 2016. Structural Indicators for Monitoring Education and Training Systems in Europe – 2016. Eurydice Background Report to the Education and Training Monitor 2016](#) for definitions and further country information.

Figure 73 – Early leavers from education and training (ESL)

	4. Policies encouraging the inclusion of ESL in ITE and/or CPD	5. Education and career guidance in schools, ISCED 2 and 3*	6. Policies to support early leavers re-enter the education & training system:		
			6.1. Second chance education	6.2. Education and career guidance	6.3. Youth guarantee
BE fr	●	●	●		●
BE de	●		●		
BE nl	●	●	●	●	
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-England			●	●	
UK-Wales			●	●	
UK-Northern Ireland			●	●	
UK-Scotland		●		●	●

Source: European Commission/EACEA/Eurydice, 2017. Structural indicators for monitoring education and training systems in Europe 2017, internal note. Please see [European Commission/EACEA/Eurydice, 2016. Structural Indicators for Monitoring Education and Training Systems in Europe – 2016. Eurydice Background Report to the Education and Training Monitor 2016](#) for definitions and further country information.

Figure 74 – Summary table on higher education

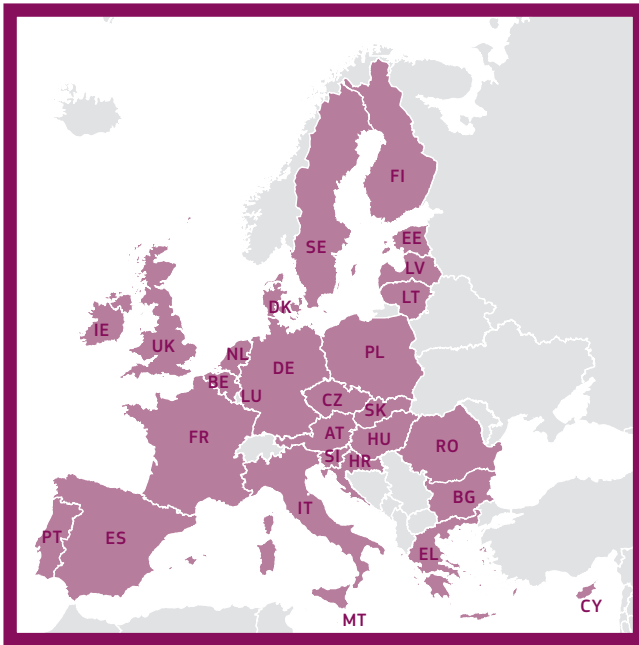
	1. Quantitative targets for widening participation and/or attainment of under-represented groups	2. Monitoring of socio-economic background of students	3. Recognition of informal or non-formal learning in entry to higher education	4. Completion rates as a required criterion in external QA	5. Performance-based funding mechanisms with a social dimension focus
BE fr		●	●	●	
BE de				●	
BE nl	●	●	●	●	●
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-England	●	●	●	●	●
UK-Wales	●	●	●	●	●
UK-Northern Ireland		●	●	●	●
UK-Scotland	●	●	●		

Source: European Commission/EACEA/Eurydice, 2017. Structural indicators for monitoring education and training systems in Europe 2017, internal note. Please see [European Commission/EACEA/Eurydice, 2016. Structural Indicators for Monitoring Education and Training Systems in Europe – 2016. Eurydice Background Report to the Education and Training Monitor 2016](#) for definitions and further country information.

Figure 75 – Summary table on graduate employability

	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 nl		●		●	●
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-England	●			●	●
UK-Wales	●			●	●
UK-Northern Ireland	●			●	●
UK-Scotland	●			●	●

Source: European Commission/EACEA/Eurydice, 2017. Structural indicators for monitoring education and training systems in Europe 2017, internal note. Please see [European Commission/EACEA/Eurydice, 2016. Structural Indicators for Monitoring Education and Training Systems in Europe – 2016. Eurydice Background Report to the Education and Training Monitor 2016](#) for definitions and further country information.



AT	Austria	FR	France
BE	Belgium	HR	Croatia
BE fr	Belgium – French speaking community	HU	Hungary
BE nl	Belgium – Dutch speaking community	IE	Ireland
BE de	Belgium – German speaking community	IT	Italy
BG	Bulgaria	LT	Lithuania
CY	Cyprus	LU	Luxembourg
CZ	Czech Republic	LV	Latvia
DE	Germany	MT	Malta
DK	Denmark	NL	Netherlands
EE	Estonia	PL	Poland
EL	Greece	PT	Portugal
ES	Spain	RO	Romania
EU	European Union	SE	Sweden
FI	Finland	SI	Slovenia
		SK	Slovakia
		UK	United Kingdom
		UK-ENG	England
		UK-NIR	Northern Ireland
		UK-SCT	Scotland
		UK-WLS	Wales

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accompanied by

28 individual country reports

&

a set of contextual indicators

&

online visualisation tools

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CEFR	Common European Framework of Reference for Languages
COM	Communication of the European Commission
CPD	Continuing professional development
CRELL	Centre for Research on Education and Lifelong Learning (JRC)
DG EAC	Directorate-General for Education and Culture, European Commission
DG EMPL	Directorate-General for Employment, Social Affairs and Inclusion (European Commission)
EACEA	Education, Audiovisual and Culture Executive Agency (European Commission)
ECEC	Early childhood education and care
ECTS	European credit transfer and accumulation system
EENEE	European Expert Network on Economics of Education
EHEA	European Higher Education Area
EQAVET	European Quality Assurance for Vocational Education and Training
ESF	European Social Fund
ET 2020	The EU's strategic framework for European cooperation in education and training
EUROPE 2020	The EU's ten-year jobs and growth strategy
EUROSTAT	Statistical office of the European Union
GDP	Gross Domestic Product
HEI	Higher education institution
ICILS	International Computer and Information Literacy Study (IEA)
ICT	Information and Communication Technology
IEA	International Association for the Evaluation of Educational Achievement
IPTS	Institute for Prospective Technological Studies (JRC)
ISCED	International Standard Classification of Education
ITE	Initial teacher education
JRC	Joint Research Centre (European Commission)
LFS	EU Labour Force Survey (Eurostat)
MOOCs	Massive Online Open Courses
NEET	Not in employment, education or training
NESET II	Network of Experts on Social Aspects of Education and Training
OECD	Organisation for Economic Co-operation and Development
OER	Open Educational Resources
OJ	Official Journal of the EU
PIAAC	Programme for the International Assessment of Adult Competencies (OECD)
PIRLS	Progress in International Reading Literacy Survey (IEA)
PISA	Programme for International Student Assessment (OECD)
PPS	Purchasing Power Standard
QA	Quality assurance
SILC	EU statistics on income and living conditions
STEM	Science, technology, engineering and mathematics
SWD	Staff Working Document of the European Commission
TALIS	Teaching and Learning International Survey (OECD)
TIMSS	Trends in International Mathematics and Science Study (IEA)
UNESCO	United Nations Educational, Scientific and Cultural Organization
UOE	Common data collection of the UNESCO Institute for Statistics, OECD and Eurostat
VET	Vocational education and training

