

Education and Training Monitor 2017

Executive summary

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Highlights of the cross-national analysis
Highlights of the country analysis





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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.

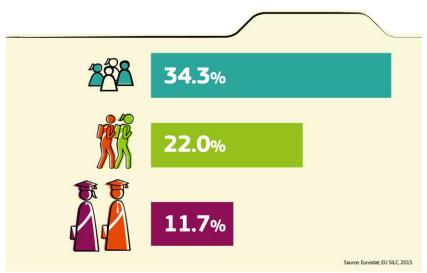
There is a strong association between educational attainment and social outcomes. People with only basic education are almost three times more likely to live in poverty or social exclusion than those with tertiary education. In 2016, only 44.0 % of young people (18-24) who had finished school below the 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).

PISA is the OECD Programme for International Student Assessment.

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.



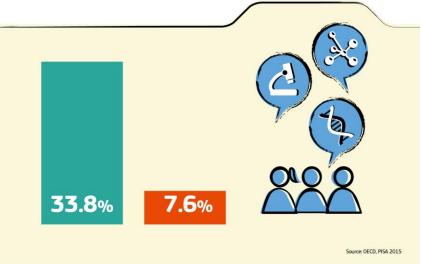
Visual 1 — Rates of 'at-risk-of-poverty or social exclusion' of people aged 18 and over by level educational attainment level, EU-28, 2015



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

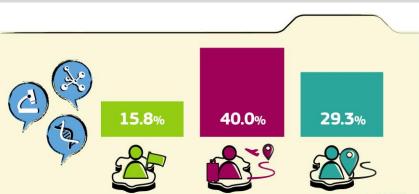


Legend: % PISA underachievers in science in the lowest (left bar) and highest (right bar) quartiles of ESCS PISA index.



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.

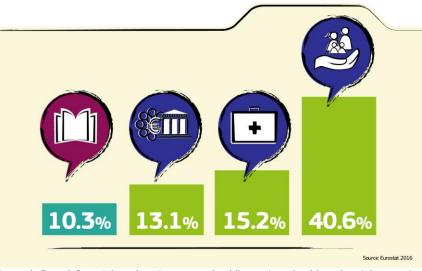
Good education systems require appropriate investment. Treated as a whole, the EU Member States have managed to recover further from the recent financial crisis and have slightly increased spending on education as share of total government spending. The EU average share of education within public spending 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.

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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 %).

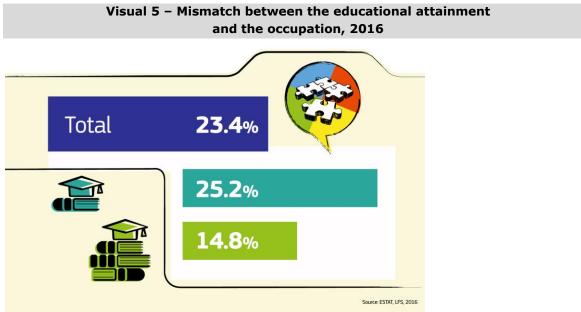
The EU also made slight progress on the headline target for **tertiary educational attainment**. Having reached 39.1 %, the 2020 target of 40 % is now within reach.

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.





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.



in engineering and humanities, 2015 **27.0**% **67.0**%

Visual 6 — Percentage of women among graduates

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.

- 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.
- 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.
- 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.
- 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.

- 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.
- 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.
- IF 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.
- 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.

