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Education and Training Monitor 2017

Country analysis

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*The manuscript was completed on 15 September 2017.
Additional contextual data can be found online (ec.europa.eu/education/monitor)*

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Introduction

Volume 2 of the Education and Training Monitor 2017 includes twenty-eight individual country reports. It builds on the most up-to-date quantitative and qualitative evidence to present and assess the main recent and ongoing policy measures in each EU Member State, with a focus on developments since mid-2016. It therefore complements other sources of information which offer descriptions of national education and training systems.

Section 1 presents a statistical overview of the main education and training indicators. Section 2 briefly identifies the main strengths and challenges of the country's education and training system. Section 3 focuses on drivers of inequalities in education and measures to promote inclusion, building in particular on evidence from the OECD's 2015 Programme for International Skills Assessment (PISA), as well as recent developments in early school leaving and early childhood education and care. Section 4 looks at investment in education and training. Section 5 deals with policies to modernise school education, covering, inter alia, the teaching profession, digital and language skills. Section 6 discusses measures to modernise higher education. Finally, section 7 covers vocational education and adult learning.

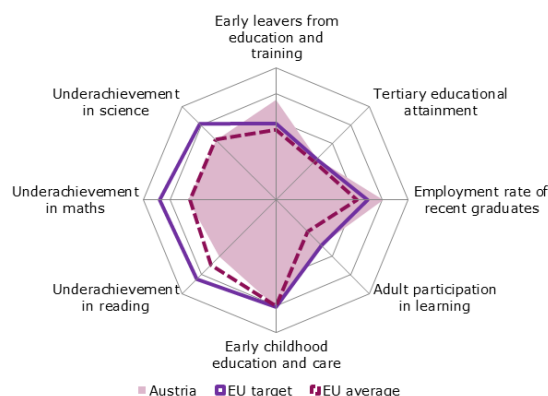
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1. Key indicators

		Austria		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	7.5%	6.9%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	27.1%	40.1%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		93.8% ¹²	95.0% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	19.5% ¹²	22.5% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	18.7% ¹²	21.8% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	15.8% ¹²	20.8% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	89.7%	87.6%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	14.1%	14.9%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	5.0%	5.0% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€9 199	€9 617 ¹⁴	:	: ¹⁴
		ISCED 3-4	€10 467	€10 525 ¹⁴	:	: ¹⁴
		ISCED 5-8	€11 996	€12 407 ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	5.9%	5.5%	11.0%	9.8%	
	Foreign-born	18.4%	14.7%	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	27.5%	42.3%	37.8%	39.9%	
	Foreign-born	25.8%	34.8%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	88.1%	84.9%	69.4%	72.6%	
	ISCED 5-8	93.0%	90.5%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	13.3%	15.3% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	16.2%	19.8% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to highest (outer ring) and lowest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the highest performers visualised by the outer ring) and a minimum (the lowest performers visualised by the centre of the figure).

1. Highlights

- 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 (PISA).
- 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 STEM subjects (HTL). However, it needs more PhD graduates to further sustain its goal of becoming an innovation leader.

2. Tackling inequalities and promoting inclusion

Performance in basic skills has not improved and young Austrians show limited motivation to learn science. Compared to 2012, the proportion of low achievers increased in all three core domains tested in the OECD's 2015 Programme for International Student Assessment (PISA) survey. It is around the EU average in mathematics and science but 3 percentage points (pps.) above average in reading. A higher proportion of girls than boys are low achievers in mathematics and reading, one of the bigger gender gaps among EU countries; it has persisted over time. The proportion of pupils with low achievement across all three domains is above both the EU average and the corresponding proportion in peer countries (Figure 2). Performance in science has worsened over time. The percentage of high performers has decreased, from 10 % to 8 % between 2006 and 2015. In the same period Austria saw a 16 PISA score-point decline in average performance, much bigger than the OECD average fall of 5 points. This suggests a need to improve the teaching of science. The motivation among young Austrians to study science, as measured by PISA, appears to be low.

Austria's early school leaving rate (ESL) reached national and EU targets and continued its steady reduction to 6.9 % in 2016. This is well below the EU average of 10.7 % and the national Europe 2020 target of 9.5 %. Rates between boys and girls differ by only 1.7 pps., one of the smallest gender gaps in the EU. While the rate among the foreign born population has dropped sharply, they are still more than twice as likely to have left school early as natives (14.7 % v 5.5 %).

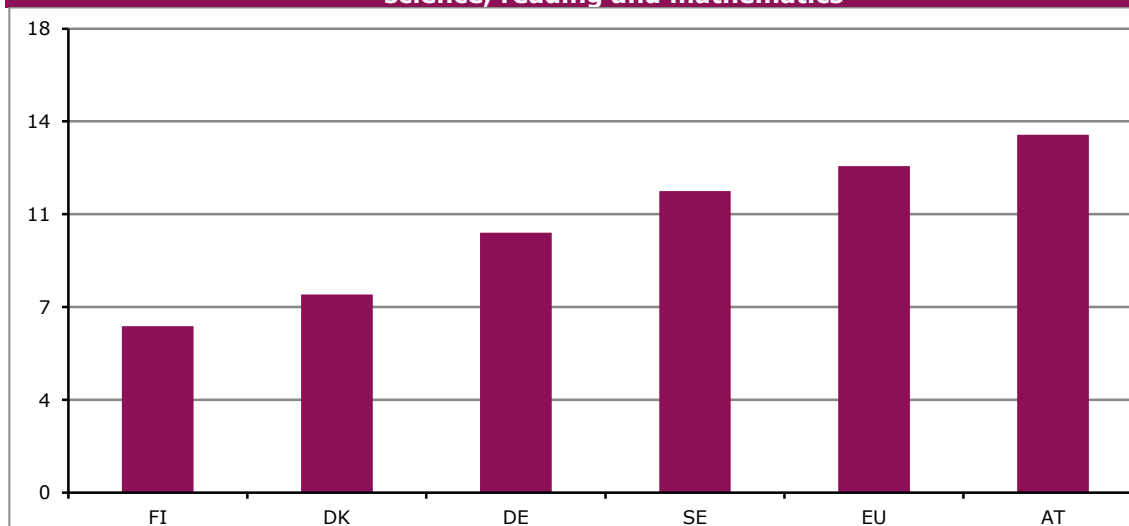
Participation in early education and care (ECEC) is continuously increasing. In 2015 the rate of participation in ECEC of children aged between 4 and the starting age of compulsory education (6) was in line with the EU average (95 % against 94.8 %). 97.2 % of 5-year-olds and 92.7 % of 4-year olds attend ECEC. The number of children under 3 in childcare keeps increasing, reaching 75 % for 3-year-olds in 2015 and 25.5 % for 0- to 2-year-olds, four times more than in 1995 (4.6 %)¹. However, there are still major regional differences between, for example, Vienna (45.1 %), Upper Austria (14.5 %), Styria (13.4 %) and Carinthia (20.6 %), as well as between socioeconomic groups (Statistik Austria 2016a).

The socioeconomic status of parents and their level of education have a greater influence on education outcomes in Austria than in other EU countries. Children of parents with tertiary education (34 % of the PISA sample) are clearly over-represented among top achievers (science 60 %, mathematics 62 %, reading 53 %). In comparison, at most 1 to 2 % of top performers are children of parents who only completed compulsory education. In science 35.1 % of Austrian students from the bottom socioeconomic quartile are low performers but only 1.6 % of top

¹ PISA 2015 Table I.6.7.

performers. This contrasts with those in the top socioeconomic quartile, of whom only 8.5 % are low performers and 16.5% are top performers. Austria saw a 2.2 pps. decline in resilience² among disadvantaged students between 2006 and 2015 (from 28.1 % to 25.9 %). To improve quality, equity and access to education, the Council of the EU issued the following recommendation to Austria under the 2017 European Semester: ‘*Improve the educational achievements of disadvantaged young people, in particular those from a migrant background*’ (Council of the European Union 2017).

Figure 2. Proportion of students showing low achievement across all three domains: science, reading and mathematics



Source: European Commission, DG EAC (2016). PISA 2015: EU performance and initial conclusions regarding education policies in Europe, based on OECD PISA 2015, URL: https://ec.europa.eu/education/sites/education/files/pisa-2015-eu-policy-note_en.pdf.

The gap in performance between non-migrants and migrants remains wide. First-generation migrants trail non-migrants by 82 PISA score points and second-generation migrants only partially catch up with a difference of 63 score points. The impact of socioeconomic status on this performance gap is around the EU average: it reduces underachievement to 57 and 38 PISA score points respectively, equivalent to approximately 2 and 1 years of schooling. Pupils of migrant background are 3.6 times more likely to be low performers in science: adjusting for their socioeconomic background they are still 2.5 times more likely to perform poorly than native-born ones. Students who do not speak the language of instruction at home show a 79 PISA score-point gap in science, equivalent to more than 2 years of schooling. Strengthening language competences in German is a key precondition for improving learning outcomes.

Austria continues to implement measures to foster integration of refugees and migrants.

Asylum applications dropped sharply in the first quarter of 2017. Education measures focus mainly on language learning and induction into schools including through transition classes³. Additional support is provided to teachers, among other means through intercultural teams. The June 2017 integration law makes it compulsory for migrants to attend language and culture/values courses and obliges each asylum seeker to sign a declaration of integration.

Austria continues to segregate pupils with special needs. Many parents choose to put pupils in specialised schools at both primary and lower secondary level but increasingly attempts are made to provide more inclusive education in regular schools, including at post-compulsory levels. Since 2015/16 the Ministry of Education is implementing measures to create pilot regions for integrated schooling⁴. In parallel to special-needs schools, decentralised centres for integration and

² Resilient students in PISA surveys come from disadvantaged backgrounds yet exhibit high levels of school success.

³ Vocational education and training plays a central role; see section 7.

⁴ https://www.bmb.gv.at/schulen/bw/ueberblick/bildungswege_sp.html.

special-needs pedagogy have been set up at regional level⁵. The ratio of migrants in special-needs schools continues to be disproportionately high. In addition, there are continuing gaps in the offer and quality of special-needs education after compulsory school.

3. Investing in education and training

Austria's youth population is likely to grow in the years ahead. A 2015 study forecasts a population increase, assuming immigration continues, which will translate into a 10 % rise in under 20-year-olds from 1.69 million in 2015 to 1.86 million in 2035 (Statistik Austria, 2016b). In 2015, 825 500 people or 9.62 % of the population were aged between 6 and 15 years and subject to mandatory schooling. This proportion will remain pretty stable over time, with 9.67 % predicted in 2030 (OECD 2016a). Some provinces will gain (particularly Vienna) and others will lose population, particularly in the south (Statistik Austria 2016b).

With overall education spending at the EU average, Austria spends less on ECEC and more on primary and lower secondary education. Public education expenditure remained stable at 5 % of GDP in 2015, close to the EU average. General government expenditure as a proportion of total public expenditure increased from 9.4 % in 2014 to 9.6 % in 2015. Implementing ongoing education reforms focused on increasing efficiency could slightly reduce spending needs. Spending per pupil on ECEC is significantly lower than in peer countries. However, Austria spends relatively more on primary and lower secondary education: about one third more than Germany and one fifth more than Sweden. This pattern continues in upper secondary and post-secondary non-tertiary education. Some of these costs are explained by Austria's unique upper secondary professional education, now qualified at ISCED 5, making a full comparison complicated⁶. Austria spends less on academic than on non-academic-oriented lower secondary education. The OECD's Review of School Resources (OECD 2016a) identified per-student spending in general secondary schools (*Neue Mittelschule/Hauptschule*) as comparatively high. Academic secondary schools did not see a spending increase between 2012 and 2013 (OECD 2016a). These data predate the years when the bulk of 'new secondary schools (NMS)' were created.

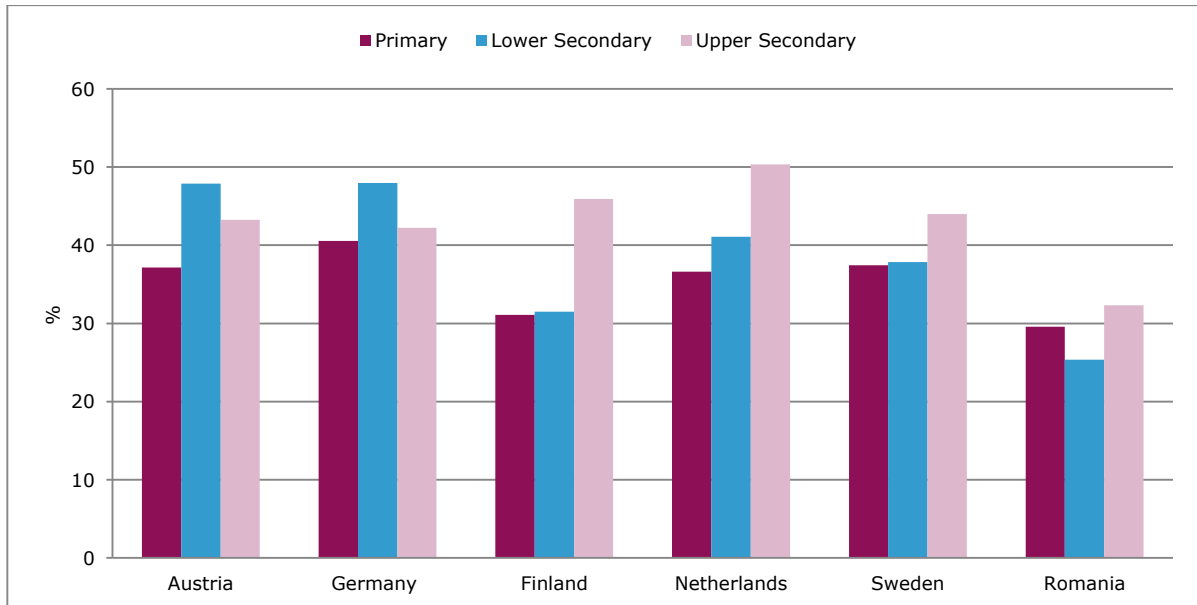
4. Modernising school education

Austria faces the challenge of renewing its teacher population over the next decade. More than 40 % of teachers in secondary education are over 50. Class sizes are smaller than in peer countries (Germany, Finland or Denmark). In PISA 2015 Austria shows an above-average shortage of education staff (as identified by school principals), higher than the Netherlands, Denmark or Finland (OECD 2016d). Austrian teachers earn less than in comparable Member States⁷. They also earn significant less than the EU average compared to other tertiary-educated workers (OECD 2016d).

⁵ See examples of the regional structures: Lower Austria <http://www.lsr-noe.gv.at/index.php/zis.html>; Carinthia <https://www.sonderpaed.at/reg-zentren/>; Styria <http://www.spz.at/>; Vienna <https://www.wien.gv.at/bildung/stadtschulrat/schulsystem/pflichtschulen/sonder-integration.html>.

⁶ Eurostat: [educ_uoe_fini04](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&plugin=1).

⁷ Figures are based on purchasing power parity and in USD, comparing salaries of primary teachers with 15 years experience: Austria: 43 276; Finland: 39 456; Germany: 63 961; Denmark: 52 481; Netherlands: 53 544. Comparisons for lower and upper secondary teachers give similar results.

Figure 3. Distribution of teachers aged 50 or older by school level in 2015


Source: Eurostat (UOE 2015). Online data code: [educ_uoe_perp01](#).

Austria has been making major efforts to improve the use of digital tools in education and to improve digital skills, but so far with limited results. According to the Austrian Education Report 2015 nearly all teachers (90 %) use digital means and the internet for preparing lessons but much less often during the lessons themselves. This is irrespective of their age. The report finds that teachers do not know enough about digital pedagogical methods and that continuous professional training of teachers is not sufficient. In January 2017 Austria adopted a national digital education strategy 'School 4.0 – let's get digital' (Box 1). Apart from digitalisation, important other competences are promoted: Entrepreneurship has been made an underlying principle of education while 'Economic education' and 'consumer education' aim at enabling pupils to actively participate in the Austrian, European and global economy.

Box 1: Austria's digital education strategy 'School 4.0 – let's get digital'

The four pillars of the new digitisation strategy 'School 4.0 – let's get digital' aim to strengthen both the technical know-how of young people and their capacity to critically reflect on online content.

Pillar I education: Primary education will introduce children in a playful way to digital technology and media. The 3rd and 4th grade curricula contain digital basics, which may already be covered in grades 1 and 2 if appropriate. Pupils will have their competences registered in a document (digi.check4). From 5th to 8th grade the curricula contain 2 to 4 hours a week of 'digital basics'. 'Digi.check' verifies competences in 8th grade (competences in information technology using standard programmes, media literacy). An additional aim is to teach pupils to critically reflect on content in social networks and digital media.

Pillar II specifies initial and continued digital training for teachers. A 6 ECTS compulsory and modular training course is to be completed document within 3 years of starting in school. Teachers already in service can do so optionally. A virtual pedagogical institute will support this as well as the introduction of digital skills into the curriculum of primary and lower secondary schools from 2018/2019.

Pillar III concentrates on expanding infrastructure. By 2021 all schools will have broadband and WLAN access, compared to 96 % of federal and 78 % of compulsory schools today. All 86 000 pupils at grade 5 should get tablet computers and all 84 000 pupils at grade 9 laptops, subject to available finances.

Pillar IV promotes and facilitates access to **free digital learning** and **teaching material**. The *Eduthek* will bundle available content and media and make it accessible through one access point. It will contain learning and teaching materials, recommended pedagogical apps and games, and innovative tools for modern teaching.

<https://www.bmb.gv.at/schulen/schule40/index.html>

After a slow start implementation of the 2015 reform is gaining momentum, providing for more autonomy. The first implementation package, adopted in 2016, introduced a better transition between the last compulsory year of early childhood education and the first 2 years of primary school. This new space for cooperation improves the exchange of information between the institutions and makes it easier to provide more tailor-made support to students, in particular language support. Based on assessment of a child's potential at the age of 3.5 years, an 'education compass' will record his/her talents and development needs, including linguistic ones. The second implementation package, adopted in summer 2017, gives schools/school heads more autonomy and will allow administrative clustering of several schools. Class size and group sizes can be determined by schools according to pedagogical and didactical requirements. School heads will be allowed to select their teachers. It will also be possible, if parents and teachers agree by simple majority, to convert a school into a comprehensive school for pupils aged 10-14. The administration of schools and teachers, which is currently split between the federal and regional levels, will change. Regional *Bildungsdirektionen* are created, where the director is nominated by the federal level in agreement with the regional governor. There will be a common data centre, making fully transparent the deployment of teachers in the regions.

Box 2. 'Bridges to the future' project

The project, co-financed by the European Social Fund, aims to encourage young people in need of support to seek training. It fosters dialogue between businesses and actors in the transition from school to work, such as the Chamber of Commerce, the *Schule & Wirtschaft* initiative, school inspectors and job orientation and job centres focusing on 'talent and competences' addressed at regional level to young people in lower secondary schools. This should lead to innovative ways of interaction among them. The project also aims to provide an improved overview of the support measures available.

<http://www.esf.at/esf/projekte/oberoesterreich/>

5. Modernising higher education

The tertiary educational attainment rate has reached the national and Europe 2020 targets and employment rates are high. At 40.1 %, the tertiary educational attainment rate is just above the EU average of 39.1 %. Attainment is more gender-neutral than the EU average: 38.3 % male (EU 34.4 %) compared to 42 % female (EU 43.9 %). However, seven of the nine regions have rates below the EU average. The difference between regions amounts to 14.4 pps., from Vorarlberg with 33 % to Vienna with 47.4% tertiary attainment. In 2015 about one third graduated from short-cycle programmes, mostly the professionally oriented HTL and HAK. Graduates from higher education find work faster, with 90.5 % employed 3 years after graduation. That is 7.7 pps. higher than the EU average and 3.9 pps above the employment rate of upper secondary and post-secondary non-tertiary graduates. To become an innovation leader Austria aims to increase the proportion of science, technology, engineering and mathematics (STEM) graduates (Federal Chancellery 2011).

While the number of students is stable, foreign students continue to increase. The number and distribution of all students across study fields has remained broadly stable over the past 3

years. With 10.2 % of foreign students in 2015, Austria has the EU's second-largest share of degree-mobile students from abroad after Luxembourg⁸. Austrian higher education institutions have adapted their programmes with over 300 study offers in a foreign language, mainly English. Austrian students in principle have free access⁹ to higher education.

Austria is planning to foster access-management-tools to higher education and to limit access, based on a predetermined number of study places. An induction phase created in 2002 to facilitate access to higher education studies was transformed into an introduction and orientation phase. It was integrated into the first study phase as part of a new access management system in a selected number of disciplines¹⁰ from 2013/2014. No major impact on socioeconomic profile was identified. The number of students has continually increased during the last decade, as has the number of graduates. However, resources and teaching staff have not kept pace (European Commission 2016, 2017a). Therefore the move to a fully managed system of access to higher education is combined with the idea of increasing resources to improve quality and effectiveness.

The adoption of a national strategy 'on the social dimension in higher education'¹¹ is a prerequisite for further reform. It is important and complementary to prevent that the envisaged introduction of fully managed access to higher education risks increasing inequality. Study grants have already been increased and the range of recipients enlarged. The strategy is the first comprehensive document aimed at improving access to higher education for less-represented groups. It sets quantitative goals up until 2025¹² and has been formulated in the context of the Bologna process, as well as on the basis of recommendations from the EU. It is embedded in the major strategic reform of the funding system based on a (limited) number of study places. It was formulated with input from stakeholders. It draws on the results of working groups on social security and support of students, non-traditional access, combating dropout and gender equality.

The 'digital roadmap' adopted in 2016 has an important educational dimension¹³. The use of digital technology in higher education is increasing, both in teaching and in the publication sphere. Higher Education Structural Funds (*Hochschulraumstrukturmittel*) will be invested in a new 'e-infrastructure' and to develop a national infrastructure for creating, discovering and sharing open educational resources (OER).¹⁴ Performance-based financing agreements with higher education institutions will provide incentives for increasing digital learning and teaching programmes. Licensing educational content for open use should help it spread to other users¹⁵.

6. Modernising vocational education and training and promoting adult learning

The proportion of upper secondary students (ISCED 3) in vocational education and training remains high, at 69.5 % in 2015 – 22.2 pps. above the EU average. In 2014/2015 about one fifth of graduates came from intermediate technical and vocational schools or higher technical and vocational colleges. While in the former girls dominate with about 60 %, the latter remain gender-neutral (Statistik Austria 2016a). The employment rate of recent vocational education and training (VET) graduates in 2016, at 85.5 %, was higher than the EU average of 75 %. Adult participation in lifelong learning in 2016 was 14.9 %, well above the EU average of

⁸ educ_uoe_mobg03.

⁹ However, for several study areas managed access has already been introduced.

¹⁰ Architecture; biology and biochemistry; informatics; economic studies; pharmaceutical studies.

¹¹ More information: <https://wissenschaft.bmwf.wg.at/bmwf/studium/nationale-strategie-zur-sozialen-dimension/>

¹² The paper identifies three broad goals: (I) more integrative access; (II) preventing dropout and improving results; and (III) optimal framework conditions for policy steering. There are nine 'action lines' which range from improving counselling and information to validating informal and non-formal competences. Higher education institutions and central bodies are invited to focus on social and equity issues.

¹³ <https://www.digitalroadmap.gv.at/en/>

¹⁴ <http://www.openeducation.at/en/home/>

¹⁵ Digital competence training programmes for adult educators and new non-formal and informal education programmes delivered digitally in extracurricular youth programmes as well as parent education are also prioritized under the digital roadmap.

10.8 %. As adult training increases with the level of education, since 2012 the Adult Education Initiative has boosted the participation of people with a lower secondary level qualification to 5.1 % in 2016. Without sufficient funding to meet existing needs, continued success remains in doubt.

The VET system remains an example in Europe and is one of the main national educational pathways, but shows big regional imbalances. One of the most important current challenges is the regional mismatch in apprenticeship-based VET. Vienna and some other regions are facing a lack of apprenticeship places in training companies, while in other regions companies cannot always find the apprentices they are looking for. To address this issue, the Austrian Economic Chamber initiated a 'supra-regional apprenticeship placement' pilot project in cooperation with the employment service and the Federal Ministry of Economy. Austria has adopted several measures to improve skill levels. The recently adopted act on the education and training obligation until the age of 18 (*Ausbildungspflichtgesetz*) provides a framework for upgrading the skills of disadvantaged young people. In addition, plans for standardised types of partial qualifications aim at improving the educational achievement of learners.

VET plays a crucial role in the country's strategy for integrating refugees and migrants. Initiatives aim to address the assessment and validation of skills and the recognition of qualifications gained elsewhere. They also aim to help get refugees and migrants into formal VET. The 'Transition phase at Austrian VET schools and colleges' programme, started in the academic year 2015/2016, is showing some promising results.

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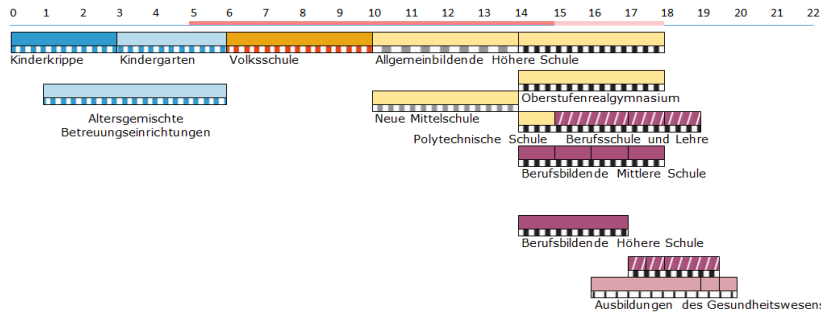
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8. Annex I. Key indicator sources

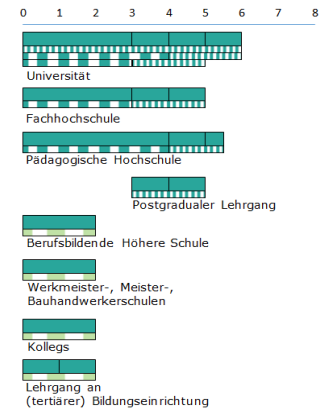
Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. Structure of the education system

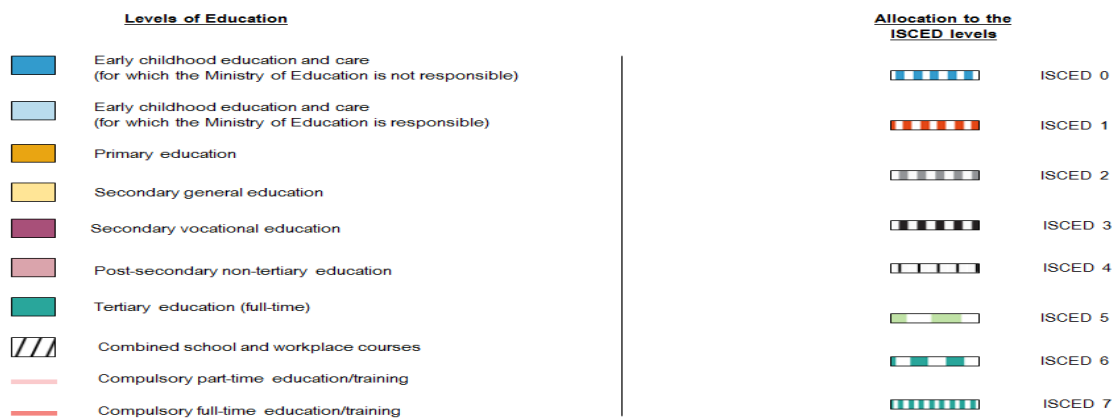
Age of students



Programme duration (years)



Note: *Berufsbildende Höhere Schulen* deliver continuous programmes i.e. 1st to 3rd year followed by 4th and 5th year.



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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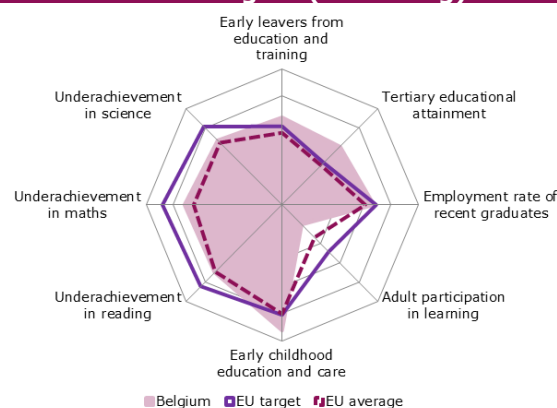
BELGIUM

1. Key indicators

		Belgium		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	11.0%	8.8%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	42.7%	45.6%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		98.0% ¹²	98.0% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	16.1% ¹²	19.5% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	19.0% ¹²	20.1% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	17.7% ¹²	19.8% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	79.1%	81.2%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	6.9%	7.0%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	6.4%	6.4% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€7 895	€7 952 ¹⁴	:	: ¹⁴
		ISCED 3-4	€9 609	€9 665 ¹⁴	:	: ¹⁴
		ISCED 5-8	€11 815	€12 005 ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	9.5%	7.6%	11.0%	9.8%	
	Foreign-born	21.7%	17.8%	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	45.7%	48.2%	37.8%	39.9%	
	Foreign-born	32.5%	36.9%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	71.1%	69.6%	69.4%	72.6%	
	ISCED 5-8	84.4%	87.9%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	6.4%	7.2% ^{15,d}	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	16.1%	16.0% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- Major school reforms are at an early stage: sustained political commitment, supporting teacher engagement and monitoring of results will be key success factors.
- 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.

3. Tackling inequalities and promoting inclusion

The 2017 European Semester country-specific recommendations to Belgium included '*Ensure that the most disadvantaged groups, including people with migrant background¹⁶, have equal opportunities to participate in quality education, vocational training, and the labour market*' (Council of the European Union, 2017).¹⁷

While Belgium has good average educational performance, high inequalities linked to socioeconomic status and wide performance gaps between schools persist. According to the OECD's PISA 2015 survey, the impact of the students' socioeconomic status is particularly strong in Belgium, as shown by the gap in mean PISA scores between higher and lower socioeconomic groups. While the proportion of pupils with low basic skills is below the EU average, levels of underperformance differ between the communities; between educational sectors (vocational education and training (VET) performs worse); between schools with different social makeup; and between migrant and non-migrant pupils. The proportion of low achievers is significantly below the EU average for the German-speaking community (BE de) and below for the Flemish community (BE nl; but has grown strongly since PISA 2012). The proportion is above the EU average in the French community (BE fr). The correlation between low-performing and socioeconomically disadvantaged schools is one of the highest in the EU.

Low performance of pupils with a migrant background is a concern. PISA 2015 shows that 36.9 % of pupils with a migrant background are low achievers and only 2.9 % top achievers, compared with 15 % and 10.5 % respectively for non-migrant students. After compensating for socioeconomic status, migrant background has an impact on PISA outcomes which is above the OECD average at national level but below for BE fr and BE de. The BE nl performance gap for pupils with a migrant background is the highest in the OECD (Universiteit Gent, 2016). The language spoken at home, country of origin and the education level of the mother explain a large part of this. Second generation migrant pupils perform on average only slightly better. Pupils with a migrant background make up a larger share of the school population than the EU average and tend

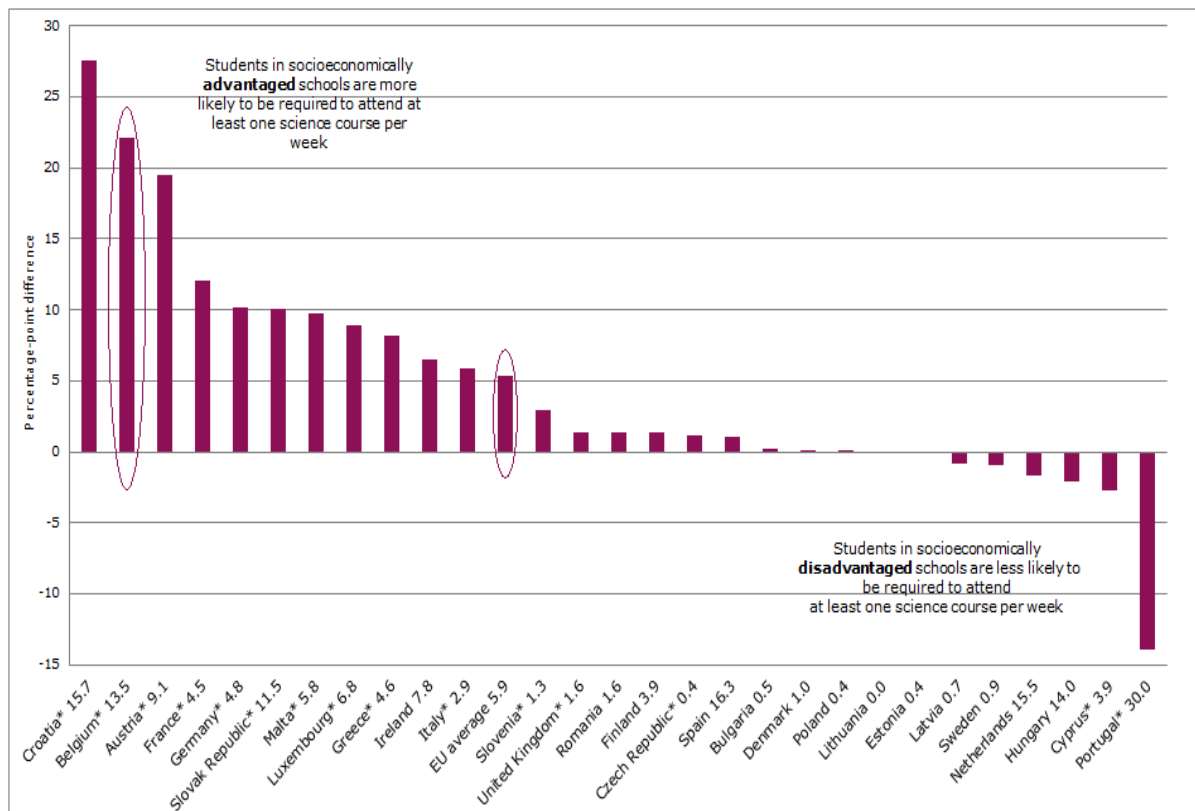
¹⁶ For education, this refers to first generation migrant students born outside BE and second generation students born in BE

¹⁷ More on <http://data.consilium.europa.eu/doc/document/ST-9283-2017-INIT/en/pdf>.

to be concentrated in big cities. The increased number of refugees since 2015 adds to the challenge.

Performance gaps between schools are reinforced by an uneven distribution of experienced teachers. Student/teacher ratios in socioeconomically disadvantaged schools are more favourable, nevertheless, those schools face greater turnover in teaching staff and have difficulties attracting experienced teachers (OECD 2014b, Mc Kinsey 2015). Furthermore, Belgian PISA participants report that the opportunities in STEM, on offer in such schools is limited – a lost opportunity given that a project in Flemish elementary schools has underlined the value of STEM in engaging children from difficult backgrounds (<http://www.stembasis.be>)

Figure 2. Differences in the requirement to attend regular sciences lessons by schools socioeconomic profile. Results based on students' self-reports



Source: DG EAC elaboration on OECD (PISA 2015, Volume II). Online data code: [Table II.2.3](#).

Notes: Statistically significant differences are marked with '*'. The percentage of students who are not required to attend any science course is shown next to the country name. Countries are ranked in descending order of the percentage point difference between students in socioeconomically advantaged and disadvantaged schools who are required to attend at least one science course per week.

The equity challenge could worsen: the projected growth of the school population, among the highest in Europe, will be concentrated in disadvantaged groups, in particular migrants. Projections for population growth¹⁸ and poverty rates¹⁹ in the school population suggest that current disparities between the language communities/regions are likely to increase. Increasing student numbers will take place in a context of shortages in educational infrastructure and teacher shortages (EC, 2017a).

¹⁸ Highest in BE fr for the next decade. The school population is declining in BE de.

¹⁹ Respectively one out of ten, five, four children in Flanders, Wallonia and the Brussels region.

Figure 3 Projected change in the school age population, 2015 – 2040


Note: School age population covers 5- to 18-year-olds. Data displayed follow the main projection scenario assuming a middle fertility scenario.

Source: DG EAC elaboration on Eurostat data. Online data code: [_proj_15npms](#).

In 2016, Belgium reached its Europe 2020 national target on early school leaving (ESL).

At 8.8 % the national rate is below the EU average and the 9.5 % national target, but remains high in the Brussels region. The gender gap is close to the EU average. The gap in the rates for foreign- (17.8 %) and native-born (7.6 %) students is high. The proportion of young people in 2016 not in employment, education or training (NEET, 15-24 years old) at 9.9 %, is below the EU average.

Integrated approaches to further lower the proportion of young people who leave school with no or low qualification are being reinforced.

The share of youngsters leaving school with at most lower secondary qualifications is 11 % (BE nl, administrative data²⁰). The 2016 Flemish discussion paper proposes an approach which integrates the current ESL and truancy action plans. The BE fr school reform discussed in section 5 will also take a multidimensional approach.

Participation in early childhood education is among the highest in the EU, but some social groups participate less.

Participation is almost universal from age 3. But quality of provision varies (Departement Onderwijs en Vorming, 2016) and some groups participate less: children in larger cities; from low-income families; and those, girls in particular, from migrant communities (BE nl, Eurypedia, 2017a). Insufficient infrastructure may hamper access in big cities.

Policy priorities are to boost earlier participation and to improve quality.

Policy measures for 2018/2019 (BE fr, BE nl) focus on compulsory attendance in the year before primary education starts. BE nl has approved a plan to boost participation at earlier ages among low participating social groups. The BE fr school reform proposes an 'initial key competences framework' in 2019/2020 and a EUR 50 million budget to recruit 1 100 pedagogical staff between 2017-2019.

Specific measures target groups or schools with disadvantaged pupils.

Recent and planned measures include: reinforcing pupils' competences in the teaching language, promoting new teaching approaches and closer follow-up of underperforming schools (see section 5). Cooperation with parents from disadvantaged and migrant backgrounds is being encouraged. For new migrant pupils, all communities have increased the capacity of reception classes, the number of language teachers and support budgets. It is unclear whether this is enough to meet needs. In 2017, BE fr will introduce a new funding formula based on pupil characteristics to better support schools with disadvantaged pupils. To improve the social mix in a context of free school choice, BE nl requires

²⁰ No similar indicator for BE fr

all schools since 2012 to reserve places for disadvantaged pupils. First positive results have been observed (Wouters & al. 2015).

Inclusion of students with special educational needs in the mainstream system requires strong support for schoolteams and pupils. The proportion of pupils in special education schools is high. In BE nl since 2015/2016, every child has the right to enrol in a mainstream school, provided this is possible with reasonable adaptations. Implementing this reform fully will take time; first positive results have been observed but not all schools engage fully. Networks supporting teachers, schools and pupils started in 2017/2018 with about 300 additional full-time special education staff. The BE fr school reform foresees measures on inclusive education in 2019.

Inequalities linked to socioeconomic status persist in higher education. National data confirm inequalities in participation linked to families' socioeconomic and academic background and structure (Statistics Belgium, 2015). Studies show that the inequality challenge in higher education will only be solved if there is sustained action across prior levels of education and training.

Gender differences persist. There is little research on how different inequalities — for example on the basis of gender, class, ethnic origin — interact (EC, 2017b). Signs of lower participation in ECEC among girls from a migrant background were noted earlier. Boys are overrepresented in special needs education, VET and among early school leavers. Vocational choices are sex-segregated in secondary and tertiary education. Women outperform men in higher education, but are underrepresented in studies in sciences, mathematics and statistics and overrepresented in health and welfare (OECD, 2017a). The proportion of Flemish female students is increasing in non-university higher education but decreasing at university level; the trend is reversed among men (VR, 2016).

Education seeks to strengthen citizenship and counter violent radicalisation. Recent measures to strengthen citizenship and counter extremism have included: the introduction of education on citizenship; dedicating 2016 to intercultural dialogue (BE de); measures on teaching of Islam including qualification of teachers (BE fr, BE nl) and the second Flemish action plan against extremism.

Box 1: An innovative learning environment to reduce grade repetition in the French community: the pilot project 'Décolâge'

Décolâge ('Take-off project') was selected as part of the 'Laboratory of learning changes' of the OECD's 'Innovative learning environment' (ILE) programme (OECD, 2015a). It aims to reduce grade repetition for children from 2.5 to 8 years, to introduce alternative pedagogical practices and develop collaborative teaching. Repetition rates in BE fr are among the highest internationally.

Décolâge involves five interconnected approaches:

- collaboration between different educational partners;
- development of educational resources based on research;
- networking and stimulating communities of practice;
- self-regulated pedagogy and leadership by partner organisations;
- evaluation and feedback.

In 2014, one out of six schools at (pre)primary levels and about half of the psycho-medico-social centres engaged in the project. The school reform of the French community (see section 5) aims to halve grade repetition by 2030, including by extending the 'Décolâge' project.

4. Investing in education and training

General government expenditure on education as a share of GDP remains one of the highest in the EU. In 2015, it stood at 6.4 %.²¹ With the exception of upper secondary level, expenditure per student in BE fr is lower than in BE nl. Per student spending at pre-primary level is below the EU average and close to it for higher education (HE). The communities (BE fr, BE nl) invest relatively more in upper secondary education due to the many strands and programmes. In HE, the BE fr government approved additional funding of EUR 107.5 million for 2016-2019.

Communities aim to spend better, given budgetary constraints and a growing student population. This includes rebalancing expenditure between education levels, with more attention to pre-primary education; and rationalising the fragmented offer in initial VET. New pedagogical approaches should help reduce costs linked to high repetition rates. The BE fr pluriannual budget for school reform plans a reallocation of resources and for net budget increases (Schyns, 2017). Measures to address infrastructure shortages are a priority for the communities.

5. Modernising school education

Schools perform well on average and on top performers, with however declining trends in top performers. Belgium achieved above average scores in science, mathematics and reading in PISA 2015: BE nl, significantly above the average; BE de, above average and BE fr, just below. But there was a downward trend of top performers in mathematics, especially in BE nl. The share of top performers in BE fr is below average in all three areas and no more than 5 % in science. Disadvantaged groups are very underrepresented among top achievers.

Major schools reforms are at an early stage: sustained political commitment, teacher engagement and monitoring of results will be to success. Communities' school reforms aim to improve equity, basic competences and vocational training. In 2017 the French Community adopted the objectives and budget for a systemic reform covering pupils and competencies, teachers, education provision and governance (Pacte pour un enseignement d'excellence 2015-2030). In 2017, the Flemish government adopted key measures of its master plan for secondary education (2014-2024) which will link to other reforms, notably of attainment targets and of dual education.

Close monitoring of the effects of the reforms on equity, effectiveness and efficiency will be necessary. For example, there are possible consequences for educational inequalities if early tracking in the first stage of Flemish secondary education is not counterbalanced (OECD, 2017b). The feasibility of key measures such as the increase in length of the common curriculum raises questions in BE fr. Monitoring measures are planned for BE fr but not yet known for BE nl.

Measures are being taken to alleviate the administrative burden on schools. The administrative workload of head teachers is high by international comparison. Measures aim to allow them to focus more on their leadership role. The 2015 Tarra operation to lower the administrative burden on Flemish schools led in 2017 to a concrete action plan. In BE fr, recruitment of administrative staff for (pre-) primary schools is a priority for 2017/2018.

Reinforced quality assurance combined with new school governance should help to reduce inequalities between schools. BE fr is overhauling school governance: central steering will be reinforced while schools will have greater autonomy to achieve their agreed objectives. All BE fr schools will establish by 2018/2019 a six-year plan covering pupil performance, school climate, inclusive education, pupil pathways and professionalisation. In 2017/2018, centrally validated tests to be used in the award of Flemish primary school certificates will become part of schools' internal quality assurance systems. Such measures may help set the balance between autonomy and accountability (BE nl, OECD, 2015b) and address concerns about the possible unequal value of qualifications awarded.

²¹ Source: Eurostat, General government expenditure by function (COFOG) database.

Emerging teacher shortages side by side with changing school populations represent a challenge. Communities face shortages of teachers to different degrees (OECD, 2017). While the teacher workforce is relatively young and numbers enrolling in education studies are high, there are difficulties in attracting the most suitable students to the profession, a high exit rate of starting teachers, difficult conditions for early career teachers and specific challenges for VET teachers (BE fr). Teachers will retire later from 2019 onwards; this might help to address shortages but will also bring additional challenges to retrain and reorganise the end of career.

Teacher career reforms and measures to improve working conditions for new teachers are at an early stage. Negotiations on teachers' careers are ongoing (BE nl) or have led to planned reforms (BE fr). In both communities, the results of surveys on teachers' missions and workload are awaited. Reforms are also complicated by the ongoing pension reform. BE fr introduced mandatory support to starting teachers in 2016/2017. Government agreements for 2014-2019 refer to the need to attract qualified teachers to disadvantaged schools, but follow-up measures have not yet materialised.

Teachers' continuous professional development (CPD) needs updating Teachers are not always well prepared or supported to cope with an increasingly diverse school population or to adapt to the digital society. CPD is not well developed, not mandatory (BE nl), and not recognised for career development. Measures to better combine teaching with CPD and in-work training are needed. CPD budgets are modest. Planned measures include increasing days for CPD from 2019 (BE fr).

Reforms of initial teacher education are progressing slowly. The BE fr reform of initial teacher education is expected to enter into force in 2019/2020. It will inter alia increase course length from three to four years for primary and low-secondary education teachers. Ensuring consistency with the planned CPD reform is seen as crucial. The Flemish government adopted in July 2017 a decree whereby higher education institutions become the only providers of teacher training; other measures should follow in 2018.

6. Modernising higher education

In 2016, the tertiary attainment rate jumped to 45.6 %, on track to reach the Europe 2020 national target of 47 %. This represents a 2.9 percentage point increase in one year. National and regional rates²² are above the EU average of 39.1 %. Women outperform men by 50.7 % to 40.4 %, below the EU average gap. The attainment gap between native (48.2 %) and foreign-born students (36.9 %) has grown since 2015. The employment rate of recent tertiary graduates remains above the EU average.

In a context of budget constraints, the higher education system seeks to adapt to steadily rising student numbers from diverse backgrounds. In an open access system, measures seek to maintain a balance between equity, effectiveness and efficiency. Dropout and year repetition rates are high. Degree completion time has increased in BE nl, linked to the introduction of flexible educational pathways. Educational inequalities persist. Measures to improve the transition between secondary and tertiary education (EC, 2016b) have been taken. There is a focus on developing alternative pathways, such as short-cycle programmes in HE by 2019/2020 (BE nl); and an extension of dual learning for bachelor's and master's graduates since 2016/2017 (BE fr, Eurypedia, 2017b).

Shortages of STEM graduates are a concern. Belgium has a low share of graduates in STEM and women are underrepresented (see section 3). This could become a barrier to growth and innovation; scarcities are already emerging for digital skills in certain geographic areas (EC, 2017c).

²² These are: 47.3 % in Flanders, 51.9 % in the Brussels region and 39.6 % in Wallonia.

Measures to address skills shortages are being taken. Labour market forecasts are used in HE planning by BE fr: the 2016 decree extending dual learning in HE focuses on subject areas with shortages and on emerging professions (e.g. in the sustainable economy). In BE nl, the graduate tracking system is being enhanced. Ongoing school reforms plan new curricula to strengthen STEM and digital competences. BE nl is pursuing its STEM action plan (2012-2020) - positive results have been observed but with little impact on girls' participation or among pupils from technical and vocational tracks. New measures focus on the professional development of STEM teachers (BE nl in the EU STEM Coalition 2016).

7. Modernising vocational education and training and promoting adult learning

Enrolment in initial VET is high but work-based learning is low. In 2015, the proportion of upper secondary students (ISCED 3) in vocational education and training (IVET) is, at 59.6 %, well above the EU average of 47.3 %. However, the proportion in work-based learning stands at only 5.9 %. At 73 % in 2016, the employment rate of recent VET graduates is just below the 75 % EU average.

Ongoing reforms aim to increase the quality and relevance of IVET with a focus on dual learning. Early school leavers are overrepresented in VET. Many options lead to a dead end on the employment market. Both BE fr and BE nl aim to rationalise the VET offer. An evaluation of the BE fr 'Qualification by units – CPU' initiative should inform the decision on whether to extend it. All communities pursue the development of dual learning. Pilot projects are preparing implementation of the Flemish reform planned in 2018/2019. Since 2016, sectoral 'dual learning partnerships' are being set-up involving over 5000 companies recognised as quality work places. The 2016 BE fr decree on dual learning also covers adult education and short- cycle programmes.

Measures aim to boost low participation in lifelong learning. At 7 % in 2016, participation is well below the EU average of 10.8 %. The BE fr decree on dual learning aims to reach more people including the disadvantaged. In BE nl, the Emergency Decree of December 2016 aims to provide a broader offer and to increase quality by creating larger training providers in the adult education sector.

Box 2: Better guidance in dual education to prevent dropout — ESF BIDA project,

The ESF project 'Vocational integration through training guidance in dual education!' (BIDA) for the German-speaking community was launched in early 2016 by the Centre for Education and Training (ZAWM). BIDA's goal is to support apprentices at risk of breaking their training contract or who have already dropped out, aiming to get them back into the system. This project is a response to the increasing dropout rate, around 15 %, among apprentices in the first year of training.

The project offers custom-made services e.g. screening of the career plan; analysis of strengths, interests and motivation; coaching in a new career or education path; an individual support and guidance plan. Participation is voluntary. A challenge will be to attract young people who tend to be unaware of their own difficulties, who may shy away from accepting an individual offer of help.

BIDA is conducting the first learning level survey of trainees in dual VET in BE de. All new entrants are tested on their core competences (German and mathematics) and social competences. The project has established cooperation between strategic partners: apprenticeship agencies, teachers, socio-educational services, part-time education institutes, companies, trainers and secondary schools.

The project has already led to two initiatives: a new concept for the intake test; and revision of modular education, a separate form of general education where students work in a block system in small groups on the prescribed educational programme (Cedefop, 2017).

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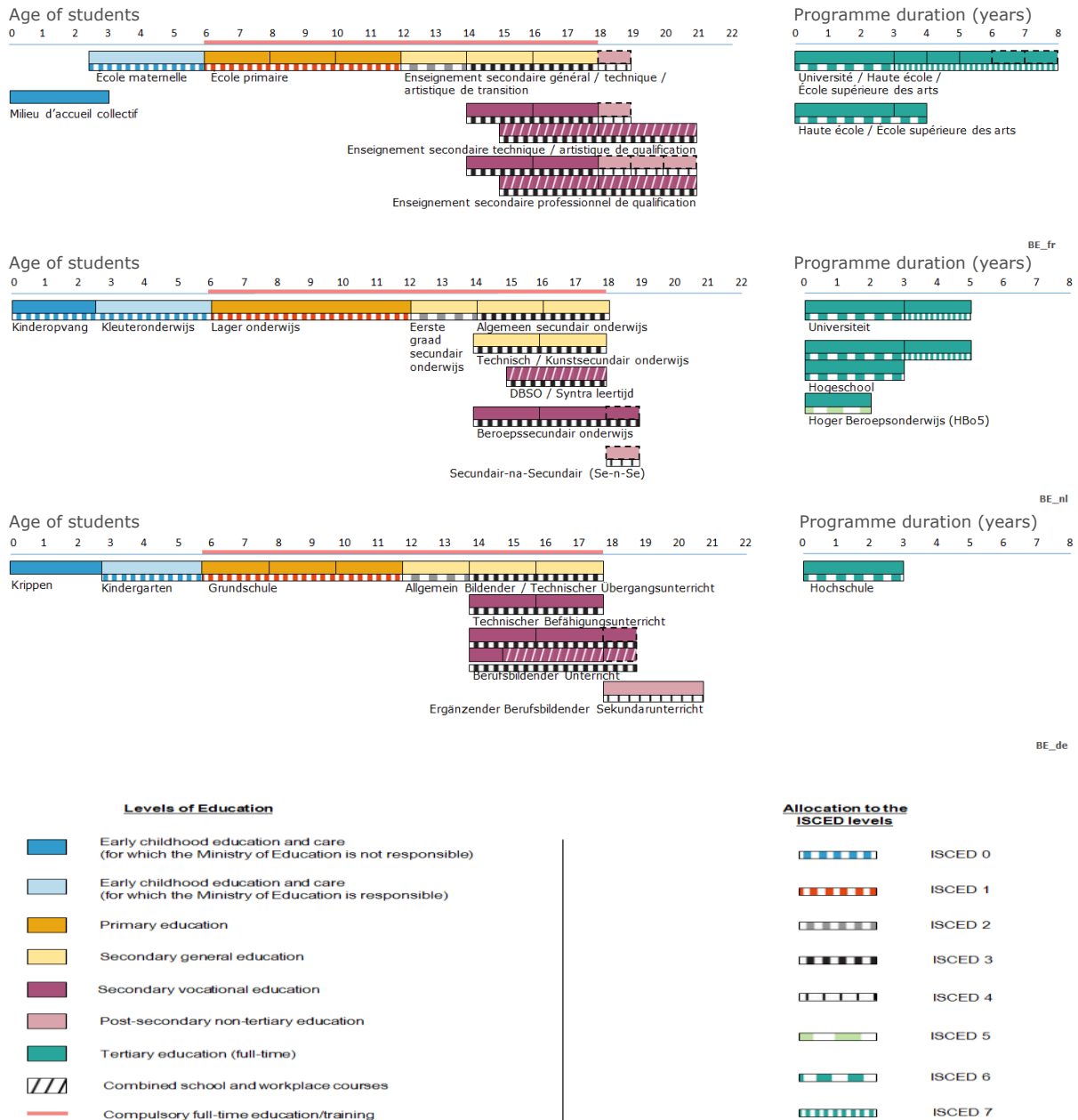
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9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. Structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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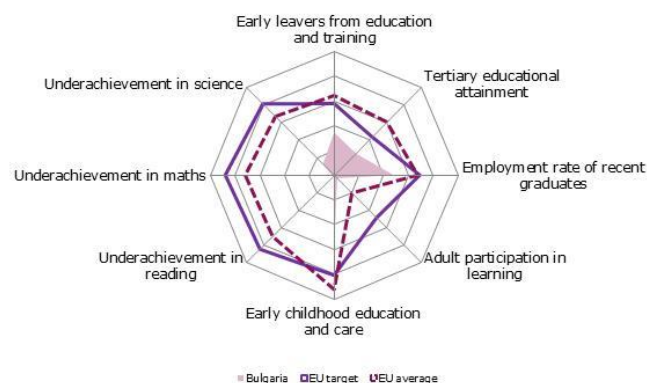
BULGARIA

1. Key indicators

		Bulgaria		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	12.5%	13.8%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	29.4%	33.8%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		87.1% ¹²	89.2% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	39.4% ¹²	41.5% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	43.8% ¹²	42.1% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	36.9% ¹²	37.9% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	67.7%	72.0%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	2.0%	2.2%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	3.7%	4.0% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€2 178	€2 387 ¹⁴	:	: ¹⁴
		ISCED 3-4	€2 293	€2 484 ¹⁴	:	: ¹⁴
ISCED 5-8		€4 104	€4 829 ¹⁴	:	: ¹⁴	
Early leavers from education and training (age 18-24)	Native-born	12.6%	13.8%	11.0%	9.8%	
	Foreign-born	:	:	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	29.4%	33.7%	37.8%	39.9%	
	Foreign-born	:	:	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	54.3%	60.8%	69.4%	72.6%	
	ISCED 5-8	80.0%	78.5%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	3.9% ^e	3.0% ^{15,d}	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	2.7% ^e	3.2% ^{15,d}	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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.
- Bulgaria seeks to significantly raise salaries to increase the attractiveness of the teaching profession and address the ageing of the teaching workforce.
- 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.

3. Tackling inequalities and promoting inclusion

Educational outcomes are strongly linked to socioeconomic background, despite some improvements in equity. The 2015 OECD Programme for International Student Assessment (PISA) survey found low performance was widespread among disadvantaged students. Around 60 % or more of students from the bottom socioeconomic quartile fail to achieve a minimum level of skills in science (59 %), reading (65 %) and mathematics (62.6 %). This is more than three times higher than underachievement within the top socioeconomic quartile²³ – even if underachievement rates for the latter group are high by international comparison. This performance gap is the highest in the EU (42 pp. in science vs 26.2 pp. EU average). It corresponds to more than three years of schooling (108 points in science). The variation in PISA performance explained by socioeconomic status has decreased (16.4 % in 2015, compared to 22.6 % in 2006), suggesting that equity has improved, but is still high (EU average: 14.3 %). The distribution of top-performing students in PISA reflects the same pattern.²⁴ Resilience²⁵ among disadvantaged students is low but improving: 13.6 % of students from the lower quartile were considered resilient in 2015, compared to only 9.4 % in PISA 2006. In addition, socioeconomic status remains a strong predictor of variations in performance between schools, including a large proportion of disadvantaged students in VET (OECD, 2016).

New measures are implemented to tackle early school leaving (ESL). Contrary to the general trend in the EU, the proportion of early school leavers (aged 18-24) is rising: 13.8 % in 2016 compared to the EU average of 10.7 %. In this context, reaching the national Europe 2020 target of 11 % will prove challenging. ESL is very low in cities (2.8 %) but rises to 15.8 % in towns and suburbs and to 30.3 % in rural areas. The high number of dropouts each year is linked to socioeconomic factors, educational difficulties and, increasingly, to emigration²⁶ (which accounts for more than half of drop-outs). Local teams were deployed on the ground as part of an inter-institutional cooperation mechanism to improve school enrolment and retention. The aim is to identify out-of-school children or students at risk of dropout, improve the information exchange

²³ 17 % in science, 18.6 % in reading and 19.9 % in mathematics.

²⁴ Only 0.5 % of disadvantaged students (i.e. bottom quartile of the PISA index of economic, social and cultural status (ESCS)) demonstrated complex skills in science, compared to 7.2 % of advantaged students (i.e. the top socioeconomic quartile).

²⁵ Resilient students are disadvantaged students who beat the odds against them by performing at high levels when compared with students of the same socio-economic status from around the world (OECD, 2016)

²⁶ Annual dropout refers to students who left school during the school year. Dropout due to emigration is not reflected in the rate of early school leaving which corresponds to the age-group 18-24.

between relevant institutions, and improve data collection. Strengthening the link between social assistance benefits and participation in education is also being discussed. Bulgaria is piloting an early warning system to detect children and students at risk-of-drop-out in 50 educational institutions. Several measures funded by the European Social Fund (ESF) that target disadvantaged students are also being implemented.

Increasing participation in high-quality early education and care (ECEC) remains a challenge. At 89.2 % in 2015, the participation in ECEC of children aged between 4 and the compulsory school age (7) remains below the EU target of 95 % and has not increased compared to the previous year. The participation of Roma children in ECEC is improving, but remains low (66 % in 2016 compared to 42% in 2011, according to the European Union Agency for Fundamental Rights (FRA, 2016)). Compulsory 2-year pre-school education can help ensure an equal start for disadvantaged students, but data for the age group 5 (92.1 %) and 6 (86.9 %) shows that participation in ECEC is not universal. This positive impact - if fully implemented- is likely to be particularly strong: in PISA 2015, 8 % of Bulgarian students declared that they speak another language at home. The performance gap between this group and those who speak mainly Bulgarian at home is very large (79 points in science, more than 2 years of schooling). Recently, authorities announced plans to extend compulsory pre-school attendance to age 4.

Poor integration of Roma into the education system is hampering their socioeconomic inclusion. A recent survey found that 67 % of Roma aged 18-24 are early school leavers, with women disproportionately at risk (77 % vs 57 % for men). Compared to the 2011 FRA survey this indicator has somewhat improved (in 2011 ESL was at 85 %), but remains problematic. 65 % of Roma aged 16-24 are not in employment, education or training, while only 26 % of Roma aged 20-64 declared doing paid work (FRA, 2016).²⁷ Segregation in education, partly stemming from residential segregation and the uneven distribution of Roma around the country, adds to the challenge. 60 % of Roma students receive education in schools where all or most students are Roma (FRA, 2016). The creation of separate classes based on ethnicity is prohibited by law, but monitoring remains challenging, including due to the difficulty of collecting data based on ethnicity. Recent measures aim to increase the capacity of educational specialists to work in a multicultural environment and to provide additional curricular training to support students whose mother tongue is not Bulgarian (NRP, 2017).

4. Investing in education and training

Spending on education is increasing but remains relatively low in EU comparison. General government spending on education increased by around 3 % in 2015. It represented 4.0 % of GDP, below the EU average of 4.9 %. Authorities expect it to reach 4.3 % of GDP in 2020, largely reflecting increases in teachers' salaries (MoF, 2017). Data for 2015 show that spending is improving, particularly in pre-school and school education. These investments may help improve participation rates and add to progress in improving quality. Bulgaria's investment in education also increased as a proportion of public spending (by 0.1 pp. to 9.8 %), but remained below the EU average (10.3 %) in 2015.

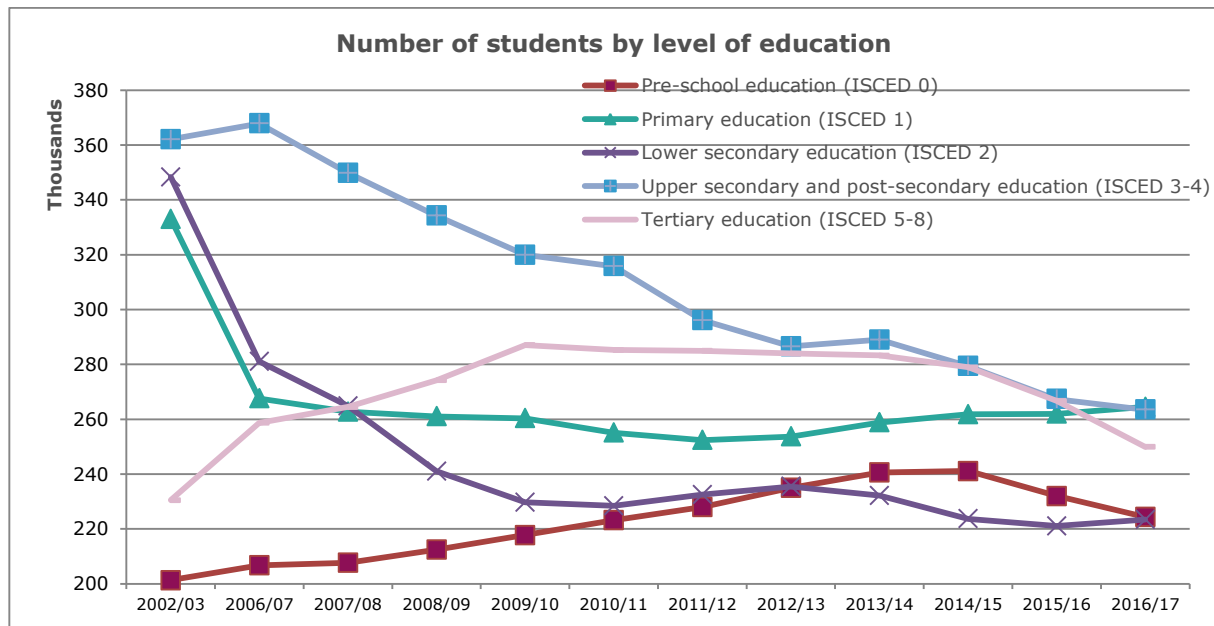
Bulgaria plans to revise the school funding model to help improve equity and quality. The new Education Act strengthens the use of correction coefficients to support disadvantaged schools and pupils. The objective is to add criteria on school performance and quality of education through a system of external evaluation. Poorly performing schools will receive targeted additional funding to improve performance; those performing well will receive additional resources to finance school activities and incentivise teachers. Authorities are working on developing school performance indicators to measure individual school performance and learning outcomes, equity and quality aspects of school performance (including teaching, drop-out and graduation rates), and school's value added assessment.

Improving educational outcomes and equity in the context of demographic decline remains important. In 2016 the number of students had decreased by 17% compared to 2002 and by 11% since 2006 due to low birth rates and emigration. The steepest decline over the last

²⁷ The figures are not fully comparable with Eurostat data on employment and NEETs.

decade was in upper secondary education (-30 %). The number of students in tertiary education increased until 2009 but has been decreasing since then. Over the last five years for which data is available (2012-2016) the total number of students decreased at all levels except for primary education. The new education structure²⁸ triggered a reorganisation of the school network, in particular of small schools in rural areas, increasing the focus on tackling drop-out and ensuring quality education (see Box 1). Countering the ageing of the teacher workforce adds to the challenge.

Figure 2. Number of students in Bulgaria



Source: DG EAC based on data from the National Institute for Statistics and Eurostat.

5. Modernising school education

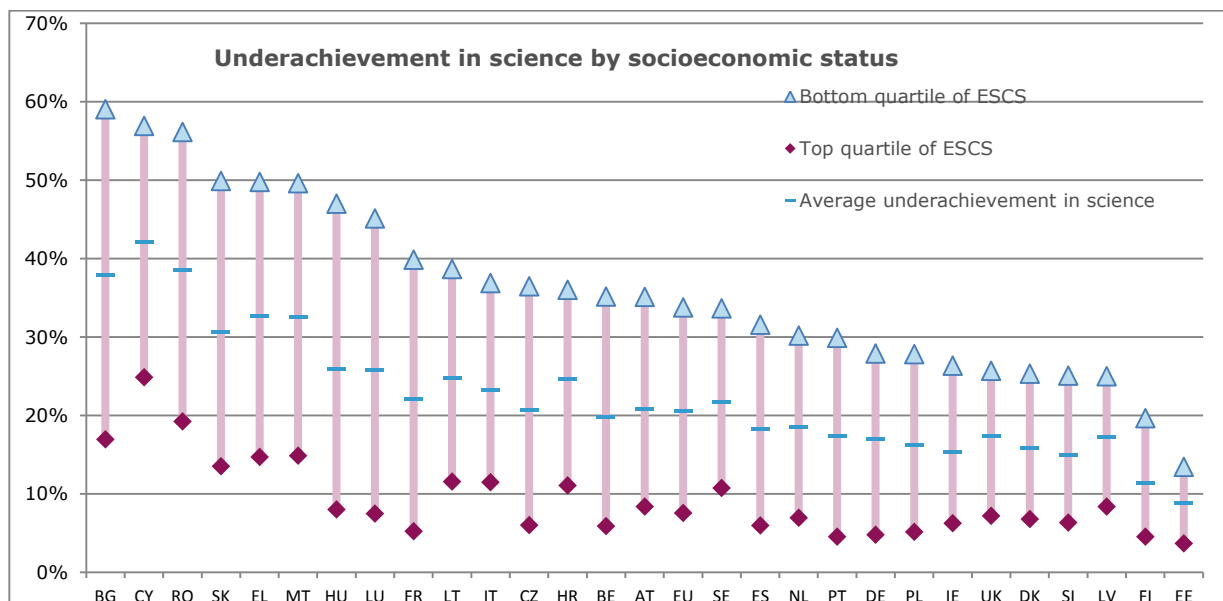
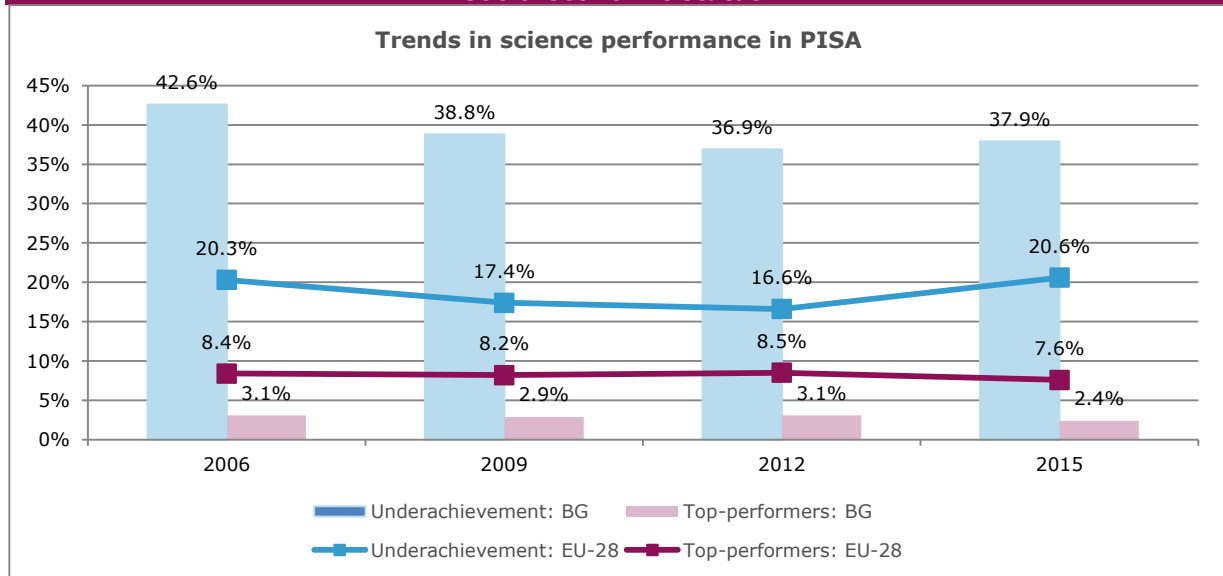
High underachievement in basic skills in PISA 2015 is explained by a combination of educational factors and equity challenges. In all three subjects tested, the proportion of low-achieving students remains one of the highest in the EU. In 2015, underachievement in Bulgaria was around double the EU averages: 37.9 % vs 20.6 % in science, 41.5 % vs 19.7 % in reading and 42.1 % vs 22.2 % in mathematics (OECD, 2016). While underachievement is particularly problematic among disadvantaged students, it is also relatively high across the socioeconomic spectrum. This suggests that socioeconomic status alone cannot explain Bulgaria's overall poor PISA performance: educational factors such as curricula or teaching are at least as important. Against this backdrop, the Council of the EU's country-specific recommendation under the 2017 European Semester calls on Bulgaria to increase the provision of quality mainstream education, in particular for Roma. Successful implementation of the new curricula —currently for grades 1-2 and 5-6, is crucial in this context. It is worth noting that in international surveys that are more targeted towards national curricula, such as the Trends in International Mathematics and Science Study (TIMSS), Bulgarian students score higher than in PISA in international and EU comparison.

In PISA, Bulgaria combines high rates of underachievement with low rates of top-performing students. The proportion of top-performing students in PISA — i.e. able to solve complex problems, is low: 2.9 % in science, 3.6 % in reading and 4.4 % in mathematics. This suggests the need to strengthen excellence, alongside improvement in equity. In PISA 2015, Bulgarian students reported one of the lowest senses of belonging to their school of all participating

²⁸ Lower secondary ending in grade 7, instead of 8 and the introduction of the possibility for schools to allow the completion of the compulsory 10 years of education, including a VET component, locally.

countries, while a large proportion of students reported missing a full day of school in the previous week. 9.1 % of Bulgarian students reported being bullied at least a few times a month, the second-highest proportion among PISA countries (OECD, 2016). The process of organising “innovative schools” piloting innovative teaching methods has started.

Figure 3. Bulgaria’s performance in PISA 2015 in science and underachievement by socio-economic status



Source: European Commission based on OECD 2016.

Note: Countries are ranked in descending order of the proportion of underachievement among students from the bottom quartile of the PISA index of economic, social and cultural status (ESCS).

Increasing the attractiveness of the teaching profession is essential given ageing among teachers. Bulgaria has one of the most rapidly ageing teaching staff in the EU. In 2015, almost 50 % of teachers were aged over 50 (45 % in primary education, 48 % in lower secondary and 49 % in upper secondary); 28 % were aged 55 or more (22 %, 31 % and 31 % respectively),

which means that they will retire in the next few years.²⁹ Even with falling numbers of students, the large number of retiring teachers will need to be replaced. Strengthening initial teacher education to support the inclusive education reform is important. To make teaching careers more attractive, the government has announced plans to double teachers' salaries by the end of its mandate (2021). In September 2017 teacher salaries increased by 15 %.

Box 1: Balancing efficiency, effectiveness and equity in Bulgaria

Bulgaria has managed to improve the cost efficiency of its education spending, but the results for effectiveness and equity were rather mixed. In 2007 Bulgaria introduced sweeping reforms to promote school autonomy and accountability, while supporting learning outcomes and efficiency in spending. The funding model was changed by introducing delegated budgets and unified cost standards (i.e. focused on funding per student with some correction coefficients). Optimisation of the school network — required due to demographic trends — resulted in larger schools, with more opportunities to pool educational resources, enlarge class sizes and attract higher quality teachers. These efficiency measures resulted in savings that allowed for increases in teachers' salaries.

Nevertheless, studies have shown that school closures and consolidation may have exacerbated school dropout (World Bank, 2010), as they particularly affected small rural schools and Roma communities. In the meantime, educational outcomes, as measured by PISA, are still among the lowest in the EU, while the impact of socio-economic status on student performance has declined, but remains considerable.

6. Modernising higher education

Tertiary educational attainment is improving but graduates' profiles by sector show imbalances. With a rate of 33.8 %, Bulgaria is on track to meet its national Europe 2020 target of 36% for tertiary attainment (ages 30-34). The indicator remains below the EU average (39.1 %) but the gap is narrowing. A large gender gap remains: 41 % of women vs only 27.2 % of men aged 30-34 have a tertiary degree. The employment rate of recent tertiary graduates declined to 78.5 % in 2016, and is below the EU average of 82.8 %. This suggests that the labour market relevance and quality of higher education need to be further improved. This is also reflected in high skills mismatch at bachelor level: 35 % of graduates work in a position that would normally not require a higher education degree (EU average: 25 %). The proportion of graduates by sector shows imbalances: in 2015, 50 % of graduates had studied social sciences, business and law (EU average: 33 %), but only 7 % in health-related studies (EU-28: 13 %).

Performance-based funding in higher education seeks to improve labour market relevance and quality. In 2017, 41.5 % of funding to public universities was awarded on the basis of labour market and quality criteria, a proportion set to increase to 60 % by 2020. The recent higher education reform introduced limits on students' enrolment in each university. It did so by introducing coefficients that reflect quality (i.e. accreditation scores) and labour market relevance (i.e. by using administrative data on graduate employment). A list of 32 priority professional fields are prioritised for funding in public universities. They include fields related to science, technology, engineering and mathematics (STEM), in particular ICT and mathematics. An evaluation of the implementation of the strategy for higher education, which introduced this reform, is due by the end of 2017 (NRP, 2017). Considering the reform's focus on STEM and Bulgaria's performance in PISA, improving the quality of upper secondary education and further strengthening career guidance are important. Data from PISA 2015 also show that 27.5 % of Bulgarian 15-year-olds expect a career in science-related occupations (ICT, health and engineering).³⁰ This is one of the highest career expectations in science among EU students. On

²⁹ The retirement age is 61 for women and 64 for men, but the proportion of men in the teaching profession is low.

³⁰ 11.7 % expect to work as health professionals, 8.3 % in ICT and 7.4 % as science and engineering professionals or technicians (OECD, 2016).

the other hand, 47.4 % of students expect to follow a different career path, while 25 % have only vague career expectations.

Addressing future skills shortages is a challenge given emigration and demographic pressures. Estimates by the European Centre for the Development of Vocational Training (CEDEFOP) point to ICT, teaching, health and engineering as the main areas that will face skills shortages in the coming years. This is due to a combination of educational factors (e.g. an insufficient number of graduates in certain professions and slow adaptation of curricula); demographic factors (e.g. the decreasing number of students), and economic factors, including the migration of highly skilled staff. In addition, Cedefop found a mismatch between the increasing demand for high-skilled engineering professionals in emerging sectors and a decrease in supply, with the number of STEM students declining and graduates often lacking job-specific skills (CEDEFOP, 2017).

Demographic decline and the relatively high number of small universities raise efficiency concerns for the network of higher education institutions. Over the course of 5 academic years (2012-2016), the number of students declined by 12 % to 250 000. This reflects demographic factors and the increasing preference of Bulgarians to study abroad. In 2014, the number of Bulgarians studying abroad was equivalent to around 8 % of the entire higher education population, while the proportion of foreign students was 2.5 %. Many universities have difficulties in filling the places they offer. Thus, strengthening the participation by disadvantaged groups in higher education could help counteract demographic trends. Bulgaria has a relatively high number of small universities³¹ - one for less than 5 000 students- which raises some concerns over the efficiency of spending in higher education. In addition, this fragmentation makes it difficult to achieve a critical mass in research. This is particularly the case given the current funding model, which distributes resources widely across public universities and allows the use of research funds for non-core research activities. A peer review notes that *'the fragmented and dispersed Bulgarian higher education and research system would profit from a progressively higher concentration using measures rewarding high quality such as performance-based funding schemes or performance contracts'* (EC, 2015).

Box 2: Bulgarian University Ranking System

The Bulgarian University Ranking System (BURS) was developed in 2010 with support from the European Social Fund. It facilitates student choice and provides authorities with relevant information for policy-making. The ranking system compiles data on more than 100 indicators for all 51 universities accredited in Bulgaria. Indicators reflect different aspects of university activities such as teaching and learning, university environment, welfare and administrative services, science and research, labour market relevance and regional engagement.

Data collected through BURS feeds into the performance-funding model for public universities. The system allows for comparisons and rankings by activities and professional fields (52 in total). BURS also collects administrative data on whether graduates work in positions requiring higher education, and in positions that correspond to their field of study.

<http://rsvu.mon.bg>

7. Modernising vocational education and training and promoting adult learning

The quality and labour market relevance of vocational educational and training (VET) remain a challenge but efforts are being made to improve them. The proportion of VET students out of total upper secondary students (ISCED 3) is above the EU average (52.6 % compared to 47.3 % in 2015), but the employment rate of recent VET graduates is lower (64.2 % compared to 75 %). While some VET schools provide high quality training, a significant part is

³¹ 51 accredited universities in total, of which 37 public and 14 private universities.

mainly an option for low achievers. Only two thirds of VET students graduate with a VET degree (NAO, 2016). Insufficient labour market information hampers adjusting the training content to employers' needs. The amended VET Act of August 2016 confirms apprenticeships as a form of practical training for acquiring professional qualifications, organised as partnerships with businesses. As a result of the introduction of the dual system of vocational training and synchronisation with the VET Act (which entered into force in August 2017) and the amendment of the Labour Code, VET students aged 16 and above can now conclude contracts with employers. From September 2017 all VET schools will conduct training according to new school documentation. Training of trainers/mentors forms part of the scheme launched in 2016 under the VET development strategy. In addition, the implementation of the European Qualification Framework is ongoing.

Participation in adult learning is improving but remains very low. Adult participation in learning increased slightly in 2016 (2.2 %), but remains significantly below the EU average of 10.8 %. Reaching the national target of 5 % is challenging, while the European target of 15 % remains far away. There is insufficient coordination between different actors and programmes in adult learning and the offer does not address the needs of particular groups of learners or the immediate needs of the economic sectors. The legal framework for non-formal and informal learning supports transition to the labour market and progression into education and training. Since March 2015, 35 standards for acquiring professional qualifications were developed (out of 250 planned). Several projects financed by the ESF seek to improve adult learning, including literacy courses for adults.

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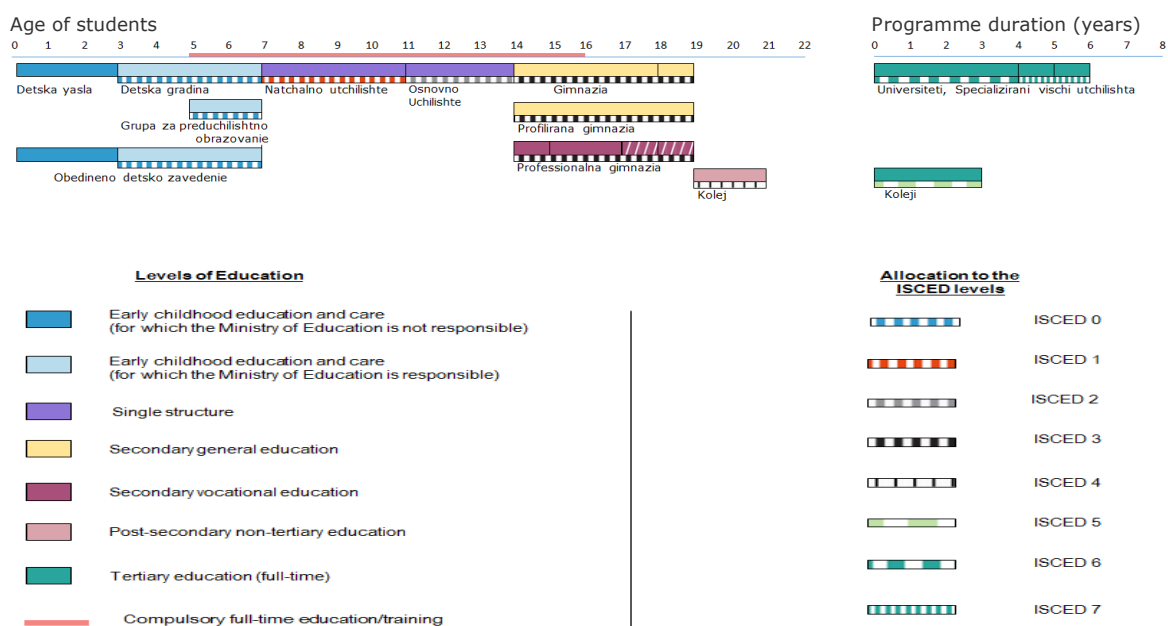
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9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	edu_uoe_mobg03

10. Annex II. Structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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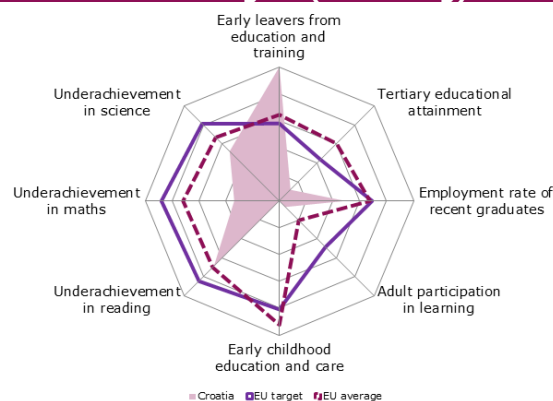
CROATIA

1. Key indicators

		Croatia		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	4.5%	2.8% ^u	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	25.6%	29.5%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		71.7% ¹²	73.8% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	18.7% ¹²	19.9% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	29.9% ¹²	32.0% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	17.3% ¹²	24.6% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	53.8%	72.5%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	3.1%	3.0%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	5.1% ^p	4.7% ^{15,p}	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€3 350	€3 487 ¹⁴	:	: ¹⁴
		ISCED 3-4	€3 196	€3 334 ¹⁴	:	: ¹⁴
		ISCED 5-8	:	€7 979 ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	4.0%	2.7% ^u	11.0%	9.8%	
	Foreign-born	11.5% ^u	:	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	25.9%	30.3%	37.8%	39.9%	
	Foreign-born	22.2% ^u	21.0% ^u	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	50.8%	70.0%	69.4%	72.6%	
	ISCED 5-8	56.4%	74.7%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	0.2%	0.2% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	0.5%	0.3% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- The very low early school leaving rate – lowest in the EU – 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 among the lowest 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.

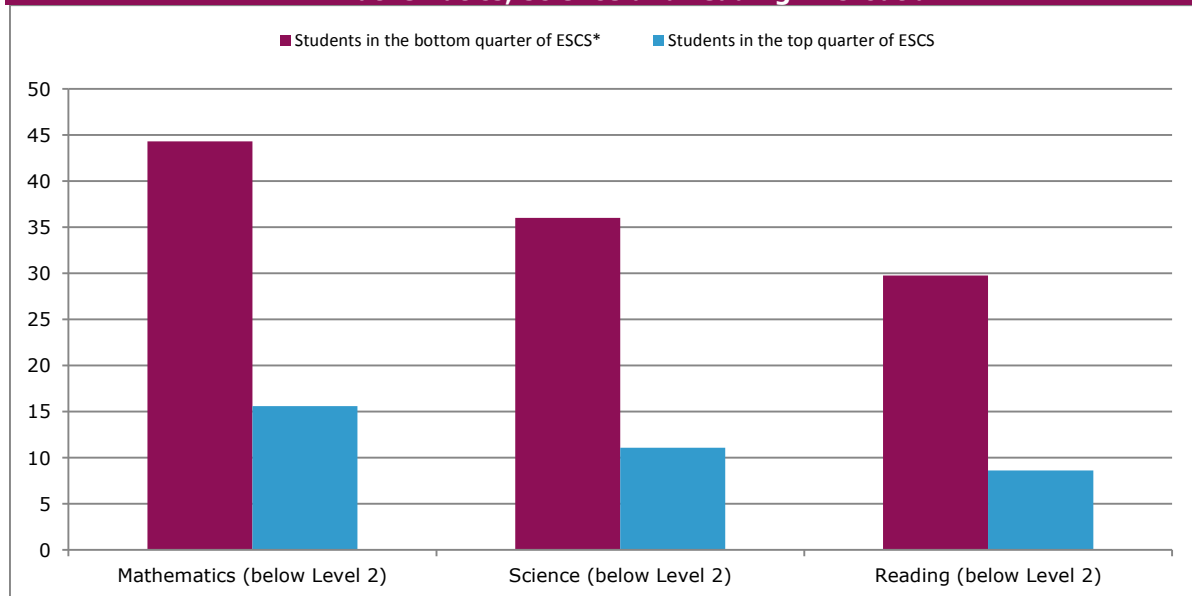
3. Tackling inequalities and promoting inclusion

A large number of pupils have inadequate maths and science skills. In the 2015 OECD Programme for International Student Assessment (PISA) survey of 15 year-olds, Croatia recorded one of the worst results in the EU in science and mathematics. Compared to 2012, the proportion of low achievers increased in both fields, undoing the progress made in the 2009-2012 period (OECD, 2016). Every fourth student lacks a basic level of proficiency in science (24.6 %), compared to the EU average of one in five (20.5 %). In reading, the situation is better: underachievement is around the EU average (19.9 %), but reading skills among boys are significantly lower than among girls (25 % of boys underachieve, against 15.1 % of girls). The gender gap in reading underachievement decreased by 7 %, which is largely a result of a 5.7 % increase in underachievement among girls. The gender gap in science and maths is not significant. The proportion of top-performing students is below 5 %, which may suggest a lack of focus on identifying and supporting talented students.

The use of mathematical skills is a particularly weak point among Croatian students. The PISA survey reveals that approximately every third pupil at age 15 (first year of upper secondary education) has got poor mathematics skills (32 % compared to the EU average of 22.1 %). This is a significantly worse outcome than in reading or science, where the underachievement rate is respectively 19.9 % and 24.6 %. The shortcomings in mathematics also point to later imbalances in the choice of subjects in tertiary education (see section 6).

Inequality is evident in educational outcomes – the knowledge, skills and abilities that pupils acquire – but it is not the main driver of low achievement. Nearly 45 % of pupils from the lowest socioeconomic quartile fail to achieve the basic level of proficiency in mathematics, compared to only 15 % from the top quartile. A similar performance gap is seen in science and reading skills (Figure 2). However, there is little evidence of socioeconomic segregation between schools. Most of the variation in scores comes from variation within the same schools. To significantly improve the overall skills performance, raising the performance of the low achievers from low socioeconomic backgrounds will need to be accompanied by improvements in the general quality of education.

Figure 2. Proportion of underachievement in PISA 2015 for the bottom and top quartile in mathematics, science and reading in Croatia



Source: OECD (PISA 2015). Online data codes: Table 1.6.6a, table 1.6.6b, Table 1.6.6c

* ESCS refers to the PISA index of economic, social and cultural status.

Despite a steady increase over the last decade, the proportion of children in early childhood education and care (ECEC) is one of the lowest in the EU. The latest available data from 2015 show that only 73.8 % of pupils aged between 4 and 6 attended early childhood education. This is well below the EU average of 94.8 %. National data show an increase of 3.2 % in the number of children of any age attending regular ECEC between 2015 and 2016, due to a steady increase in the number of institutions offering places (National Statistics Office, 2017). The 2017 action plan for the implementation of the 2014 Strategy for Education, Science and Technology aims to increase participation in ECEC to 95 % by 2020. This would require further heavy investment in expanding capacity.

Reforms of ECEC are planned but await implementation. A proposal for a new national framework curriculum for pre-school education was developed in 2016 as part of the wider curricular reform, but like the reform itself its adoption has been delayed. The proposal is more detailed than the 2010 national ECEC framework it will replace,³² especially in specifying the competences which children are expected to develop during the compulsory pre-school year. Most complaints received by the Children's Ombudsman in Croatia in the ECEC field, according to its 2016 report, concern three areas:

- the terms and conditions for enrolling children in ECEC;
- the different rules and ways of co-financing ECEC and inequalities of treatment depending on the authority (local or regional) responsible; and
- the inability of parents to enrol children in pre-school education programmes.

Croatia has the lowest early school leaving rate in the EU. Among 18- to 24-year-olds, the rate was 2.8 % in 2016, well below the EU average of 10.7 %. There is a small gender gap of 1.5 %, with boys more likely to leave school without a qualification.

³² http://mzos.hr/datoteke/Nacionalni_okvirni_kurikulum.pdf.

Box 1: Croatian curricular reform at a crossroads

After nearly 3 years of planning the reform of the education system, it is widely accepted that school curricula and teaching methods in Croatia need to be modernised. Declining results in international surveys such as PISA have confirmed this assessment.

A major initiative to address this is the curricular reform launched by the government in 2015. Since then, however, it has remained in the preparatory phase. The reform's objective is to enable pupils and students to learn skills besides facts, and so become better citizens and be more competitive on the labour market.

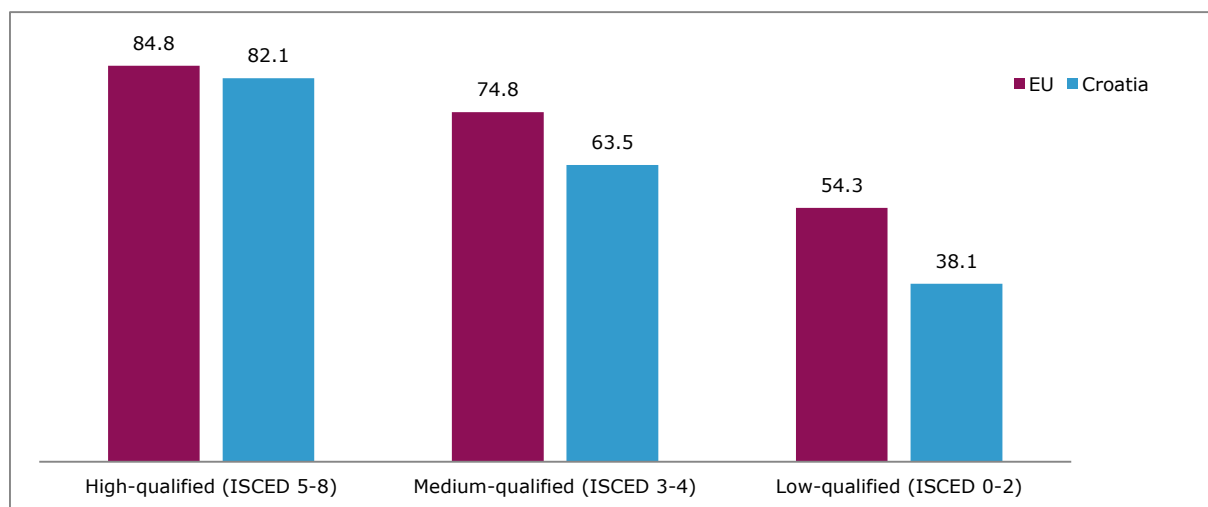
To this end 52 new curricula proposals and 3 methodological handbooks were drafted in order to bring together all previously disconnected aspects of education reform in one coherent whole based on agreed education outcomes. Transversal skills such as learning to learn, entrepreneurship, personal and social development, health, sustainable development, use of information and communication technologies and citizenship education were elaborated in more detail.

However, the political situation since 2015 has contributed to a very difficult context for continuing with the reform. From the outset, the lack of clarity about the timeline and budget for implementation, and uncertainty about the level of commitment to the reform, has led to a loss of momentum which may be difficult to regain.

As a result, the Council of the European Union made the following assessment in the 2017 European Semester process: 'After ambivalent stakeholder reactions, the curricular reform was revised, and implementation has been significantly delayed. The process now needs to continue in line with the original objectives'. The Council issued a country-specific recommendation to 'Accelerate the reform of the education system' (Council of the European Union, 2017).

4. Investing in education and training

The economy is growing again but Croatia still has very poor skills composition. In 2015 and 2016 Croatia's GDP expanded, marking the end of one of the longest and deepest recessions in the EU. Improving labour market conditions have reduced unemployment, although this also reflects a shrinking workforce (through emigration and retirement) and many new temporary jobs. In 2016, 82.1 % of highly educated people aged 25-64 were employed, compared to only 63.5 % of people with at most upper secondary education. The most striking difference with the EU average is for the lower educated: only 38.1 % are employed in Croatia, against the EU average of 54.3 % (Figure 3). The case is strong for investing in and reforming education and training, including adult education, in order to raise the skills levels and make qualifications more relevant to finding employment.

Figure 3. Employment rates by educational attainment level for 25-64-year-olds (2016)


Source: Eurostat (LFS 2016). Online data code: [lfsa_ergaed](#)

Expenditure on education in Croatia increased in real terms in line with GDP growth in 2015. Croatia is in the bottom 10 EU Member States for general government expenditure on education as a proportion of GDP. Education spending was stable between 2014 and 2015 (at 4.7 % of GDP) but the overall trend since 2010 has been downwards (-0.4 pp.). In real terms, public spending increased by 1.6 % between 2014 and 2015, but is 7.5 % below the 2010 level. Education's share of total general government expenditure, at 10.1 %, was close to the EU average of 10.3 % in 2015. Expenditure per pupil in basic education (ISCED 1 and 2) and in upper secondary education (ISCED 3 and 4) is one of the lowest in the EU in terms of purchasing power parity. More positively, expenditure per student in tertiary education is among the highest in the EU in terms of GDP per capita.³³

The increase in the 2017 state budget reflects strategic priorities, but there is a risk of funding not being used due to delays in implementing the curricular reform. The state budget for education for 2017 has been increased sharply, by 14 % in absolute terms, compared to 2016. The budget for implementing the curricular reform has been doubled. The funding for each school that will be involved in the experimental implementation of the reform is now approximately EUR 300 000. The budget for the national teacher training agency has also increased, by 25 %, so that it can train teachers to prepare for and implement the curricular reform. However, due to delays in implementing the reform, these budgets are currently not being used.

5. Modernising school education

Teaching qualifications are currently a major focus. Adopting a national qualification standard for teachers in primary and secondary schools from February 2016 (National Council for Education, 2016) is now one of four priorities on the education reform agenda. The framework is drafted in line with the methodology of the Croatian Qualification Framework and identifies eight units of learning outcomes that apply to all primary and secondary teachers, regardless of their academic specialisation.³⁴ Another expert working group drafted a set of occupational and qualification standards for school headmasters and developed a model for regularly evaluating and relicensing school leaders to keep their skills up to date. The timetable for implementing the two models has yet to be decided.

³³ Annual expenditure on educational institutions per pupil/student based on full-time equivalent, by education level and programme orientation [educ_uoe_fini04].

³⁴ The eight units are: proficiency in the academic discipline; child-centred pedagogical and teaching competences; assessment and evaluation competences; organisation of the learning environment; effective collaboration with school, family and community; awareness of the education context (education and school system, laws); communication and social skills; and lifelong learning and continuous professional development.

Box 2: Croatian e-Schools – a model for digitalising schools on a national scale

The e-Schools project (2014-2022) has a budget of EUR 180 million. 85 % of its funding comes from EU funds (European Regional Development Fund and European Social Fund) and 15 % from national and local budgets. The project's goal is to increase the level of 'digital maturity'³⁵ in 60 % of Croatian primary and secondary schools by 2022.

The project's pilot phase, running from autumn 2015 to February 2018, includes implementing ICT in the teaching and administrative processes of 10 % of all primary and secondary schools. This aims to address a relatively low level of digital maturity of Croatian schools: an initial evaluation in the pilot found that 80 % of schools were 'digital beginners'. Participating schools receive support to achieve digital maturity and to prepare the strategic documents, plans and policies for systematically integrating ICT into their work. Based on the pilot, a strategy for national roll-out between 2019 and 2022 is being developed.

Achievements so far have included:

- developing the framework for digital competences;
- evaluating levels of digital maturity in pilot schools;
- publishing criteria and recommendations for developing material for required reading in schools (e-Lektire);
- training staff and teachers in 151 pilot schools, starting September 2016;
- equipping around 7 000 staff with tablets or laptops by end-2016;
- launching field support teams in January 2017 to help schools in their transition;
- publishing 170 out of 240 learning scenarios by September 2017. These are a type of lesson preparation through which teachers can acquire the skills to integrate digital educational materials, digital tools and new learning methods into their educational practices;
- signing a contract for the supply of network equipment and development of local IT networks in pilot schools; and
- signing a contract for the supply of digital educational content.

The project is progressing on schedule and changing the pilot schools significantly. It is also having a spillover effect on the behaviour of publishers who are now exploring ways of publishing books in a digital and more interactive format. Furthermore, the project is stimulating the development of digital educational content. Another positive consequence is the creation of new teacher training courses at the national teacher training agency.

<https://www.e-skole.hr/en/>

6. Modernising higher education

The growth in tertiary graduates has slowed, and the employment rates of recent graduates have not recovered to pre-crisis levels. Tertiary educational attainment in Croatia has been on an upward trend for the last decade but started levelling off in 2014. The proportion of 30- to 34-year-olds with tertiary education in 2016 was 29.5 %, significantly below the EU average of 39.1 % and Croatia's national 2020 target of 35 %. In 2008, 86.3 % of people who had finished tertiary education within the previous 1-3 years found employment, but in 2016 this share was significantly lower at 74.7 %. It was also well below the EU average of 82.8 %. The unemployment rate of tertiary graduates has dropped from its 2013 peak of 11.3 % to 7.8 % in 2016 but it is still the fourth highest rate in the EU for this group after Spain, Cyprus and Portugal. However, tertiary graduates enjoy a significant premium over non-tertiary graduates in terms of lower risk of unemployment (Eurostat, 2016).³⁶

³⁵ Digitally mature schools are defined in Croatia as having 'a systematic approach to the use of ICT and digital educational content in teaching, in a supportive environment with adequate resources' https://www.carnet.hr/e-schools/digital_maturity_of_schools.

³⁶ Unemployment rate among upper secondary graduates is 14.6 % and among primary/lower secondary graduates is 17.4 %.

Significant efforts are being made to improve the relevance of higher education, but the effects are still limited. The Croatian qualifications framework (CROQF) continues to be the principal instrument for aligning higher education with the needs of the labour market. Of 25 planned sectoral councils representing social partners and stakeholders from the same number of economic sectors, nearly all had been appointed by July 2017. Eight had started work, 14 will start meeting in autumn 2017, while the remaining three are yet to be established. Evaluations of 147 new standards of occupation and 174 standards of qualifications developed by consortia of higher education institutions are expected. After evaluation they will be entered into the CROQF Register and serve as models for updating the content of study programmes. Two major calls for proposals financed by the European Social Fund – on the next phase of the CROQF project and on internationalising higher education programmes – will support future improvements.

The development of professional higher education studies may be hampered by the latest legislative developments. Following a ruling by Croatia's Constitutional Court, the CROQF's legal basis had to be changed to address universities' criticisms that professional degrees' are classified on the same level (level 7) as academic degrees. The national policy is that professional degrees should confer high-level skills through a practice-oriented form of applied studies. In practice, however, there have been concerns over the quality of some professional degrees. Draft amendments to the CROQF Act that offered two alternative possibilities for relating professional to academic qualifications were put on public consultation, attracting a very large number of responses (1850) with divided opinions. A final proposal, based on the consultation, was issued by the Ministry of Education in September 2017 and while it limits the professional studies' access to doctoral programmes, they are kept at the same level.

7. Modernising vocational education and training and promoting adult learning

The high but declining number of students will affect the VET landscape in Croatia. The proportion of upper secondary students (ISCED 3) in Croatia in vocational education and training (VET) fell slightly in 2015 to 70.4 %, which is still well above the EU average of 47.3 %. Over two thirds of all upper secondary students enrolled in VET at the beginning of the 2015/2016 school year (SEECEL, 2017). The significant and sustained drop in overall enrolment in the context of demographic decline has primarily affected industrial and crafts schools; if this trend continues it could threaten the sustainability of the 3-year VET track. Croatia topped the EU-28 in the increase of the employment rate of recent VET graduates in 2016 at 70.3 % (up from 45.7 % in 2015), but this was still below the EU average of 75 %.

The strategy for developing VET has been adopted, but implementation is difficult. The 2016-2020 programme and action plan for developing the VET system, adopted by the government in 2016, set out a number of priorities. These include improving the overall quality of VET by promoting and improving models of work-based learning; developing the system of quality assurance; improving the professional development of teachers; and increasing the mobility and employability of students; and supporting internationalisation and the mobility of students and teachers. The programme should also lead to the development of new vocational curricula. In addition, the agency for VET and adult education is participating in an Erasmus+ project (2016) aiming at creating support mechanisms for quality assurance in VET and developing a self-evaluation model for schools. Implementation of the European Quality Assurance in Vocational Education and Training (EQAVET) 2016-2017 Strategic Plan is part of the project.

On the sidelines of the VET reform, there is experimentation with introducing a dual VET system³⁷. Research into the attitudes of vocational schools and companies to introducing a dual education system (SEECCEL, 2017) showed a high level of readiness (schools 72.3 %, companies 79.7 %) to participate in such a scheme. Both schools and companies have expressed a clear need for mentor training. Under Croatia's bilateral cooperation with Switzerland, started in June 2015, support will be provided for VET schools and for promoting work-based learning.

Adult learning is the weakest link in the Croatian education system, but a planned new law should introduce improvements. Average monthly adult participation in learning remained low at 3.0 % in 2016, well below the EU average of 10.8 %. In digital skills Croatia remains below the EU average, with 27.9 % of individuals having no digital skills, 17.4 % low skills, 21.3 % basic skills and 33.3 % above-basic skills (European Commission, 2017). This led the Council of the EU to make a recommendation to Croatia under the 2017 European Semester to 'Improve adult education, in particular of older workers, the low-skilled, and the long-term unemployed' (Council of the European Union, 2017). A draft new law on adult education, aiming to address these challenges, was developed in August 2016, but progress in its adoption has since stalled. The new law has two objectives for adults: to develop key competences for lifelong learning and to obtain qualifications by acquiring new skills. The 2016-2020 lifelong career guidance strategy aims among other things at raising participation in adult learning through guidance, counselling and offering upskilling opportunities, particularly to the unemployed. Under an Erasmus+ project the Education Ministry is developing a new basic adult education curriculum based on the key competences concept.

8. References

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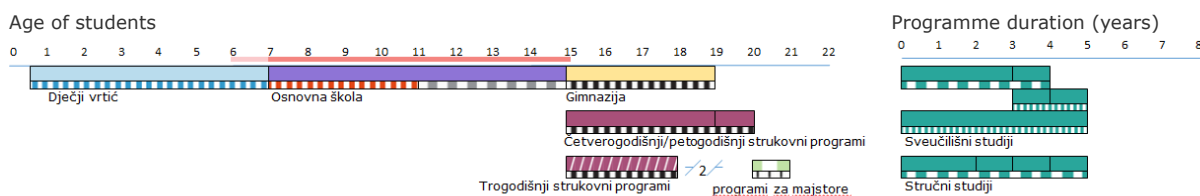
SEECCEL (2017) *Analysis of the Current Status of the Apprenticeship Scheme in Croatia: Strengthening the Capacities of the Chambers and Partners to Help SMEs to Engage in Apprenticeship*, published in February 2017. <http://www.hgk.hr/documents/seecel-reportfinalreviewed58e5fad85b0fe.pdf>

³⁷ The reform is building upon the 2004 experience of JMO - Jedinstveni model obrazovanja (JMO) - (Integrated educational model) for regulated craft vocational courses.

9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	edu_uoe_mobg03

10. Annex II. Structure of the education system



Note: Start of primary education (ISCED 1) depends on child's birthday. Children born between January and April start primary school in calendar year in which they turn 6, those born from April to December when they are 7 years old.



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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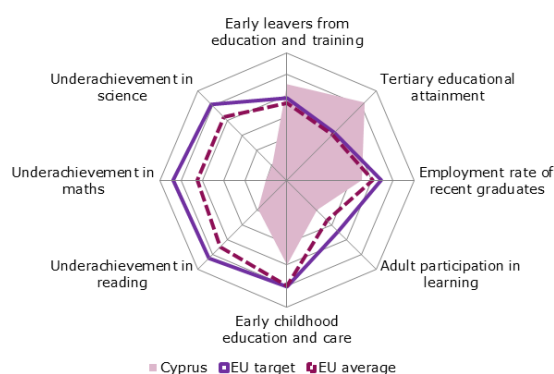
CYPRUS

1. Key indicators

		Cyprus		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	9.1%	7.7%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	47.8%	53.4%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		83.8% ¹²	89.6% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	32.8% ¹²	35.6% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	42.0% ¹²	42.6% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	38.0% ¹²	42.1% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	62.1%	73.3%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	7.2%	6.9%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	6.5%	5.7% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€8 589	€8 420 ¹⁴	:	: ¹⁴
		ISCED 3-4	€10 188	€10 058 ¹⁴	:	: ¹⁴
		ISCED 5-8	€10 667	€9 584 ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	7.2%	4.6%	11.0%	9.8%	
	Foreign-born	16.4%	18.2%	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	54.2%	61.6%	37.8%	39.9%	
	Foreign-born	36.5%	37.3%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	48.3%	59.0%	69.4%	72.6%	
	ISCED 5-8	64.9%	76.4%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	14.6%	14.2% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	4.6%	4.0% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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.

3. Tackling inequalities and promoting inclusion

Low achievement in basic skills among 15-year-olds is a major concern. Cyprus has the highest share of low achievers in science (42.1 %) and mathematics (42.6 %) in the EU and ranks third worst in reading skills (35.6 %) according to PISA 2015 (European Commission 2016). Overall, Cyprus' rate of low achievers is the second worst in the EU (see Figure 2 below). The share of top performers in science, the area on which the 2015 PISA focused, is also low at 1.6 % compared to the EU average of 6.8 %.

Major performance gaps exist between different social groups; the gender gap in reading skills is the highest in the EU. Cyprus has the largest gender gap (22.1 pps.) between low-achieving boys and girls in reading among the EU-28 countries. The gaps between boys' and girls' performance are lower in science (over 10 pps.) and maths (3.5 pps.) but have widened in each. Low performance in science is general across socioeconomic groups: Cyprus has one of the EU's highest shares of low achievers among students from the bottom social quartile and the highest share in the top quartile. Differences between migrants and non-migrants remain significant, although they are less pronounced in science, with second-generation migrants outperforming non-migrants (OECD 2016a). In response to the PISA results, the Ministry of Education (MoEC) has set up a committee to analyse the performance of Cyprus' students with the aim of implementing an action plan to improve educational outcomes in the next school year.

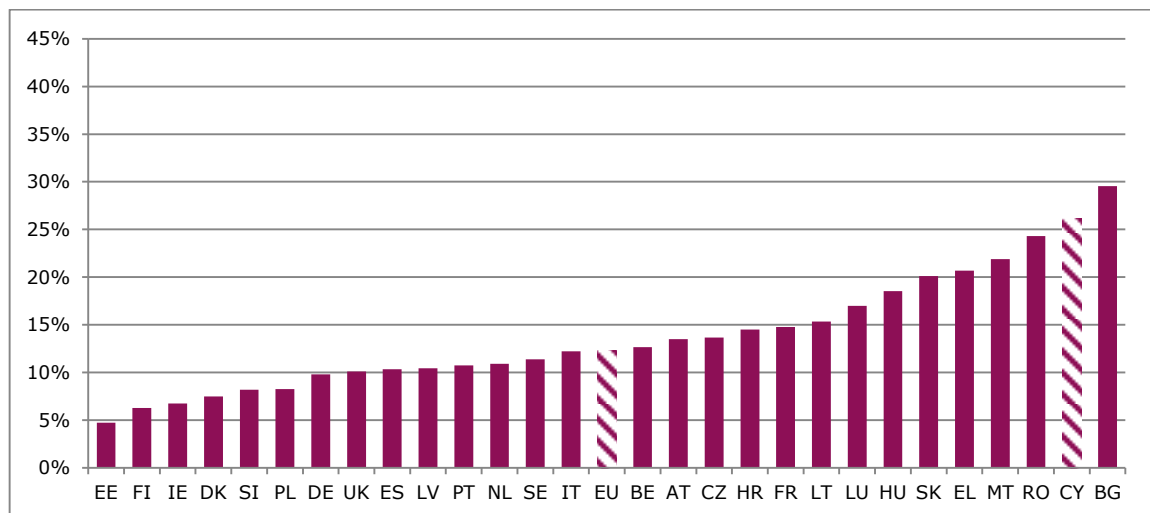
Early school leaving (ESL) is below the EU target, but remains a risk especially for students from a migrant background. Cyprus' ESL rate has been consistently below both the EU 2020 and the national target of 10 %, reaching 7.7 % 2016. However, the situation is less positive for male and foreign-born students. The rate among males is 11.4 %, well above the rate of 4.3 % for females. For people with a migrant background, the rate of 18.2 % contrasts sharply with that of 4.6 % for native-born students. To prevent school failure, the ESF co-funded 'Actions for social and school inclusion' programme supports disadvantaged students at all education levels by combatting low performance, social exclusion and early school leaving. The programme is being

implemented in 89 schools and will be extended to 96 schools covering 15 % of the student population in the 2017/2018 school year³⁸.

The growing numbers of recently arrived refugees highlight the need for measures to integrate migrants in education. Cyprus has traditionally been a country with high rates of both emigration and immigration; in 2015, about 20 % of residents were foreign-born, with 13 % from EU Member States and 7 % from non-EU countries³⁹. Almost half of the 3 000 asylum applicants in 2016 were from Syria (ECRE 2016). Children with refugee or protected status are not recorded separately; however 117 unaccompanied minors were accounted for in 2016⁴⁰.

Several measures are under way to integrate migrants and newly arrived refugees. Based on the 2016 policy document on the 'Integration of Children with a Migrant Background into the Cypriot Education System', an action plan is being rolled out in 2016-2018. Measures include mapping the migrant student population, measures for reception, transition and inclusion of migrants, anti-discrimination, teacher training, diagnosis of migrants' learning needs, teaching Greek as a second language and evaluation.

Figure 2. Share of low achieving students in all three domains: science, reading and maths



Source: European Commission, DG EAC (2016). "PISA 2015: EU performance and initial conclusions regarding education policies in Europe", based on OECD PISA 2015, URL: https://ec.europa.eu/education/sites/education/files/pisa-2015-eu-policy-note_en.pdf.

Note: Countries are ordered from the lowest to the highest share of low achievers in science, reading and maths.

³⁸ <http://www.paideia-news.com/index.php?id=109&hid=25760>

³⁹ Eurostat data for 2015.

⁴⁰ Data from MoEC.

4. Investing in education and training

Cyprus maintains a high level of spending on education. In 2015, Cyprus spent 5.7 % of GDP on education, the same share as the year before and above the EU average of 4.9 %. The share of total government expenditure on education has decreased⁴¹, but at 14.2 % continues to exceed the EU average of 10.3 %. In primary and secondary education, Cyprus' spending per student is among the highest in the EU. This however does not translate into educational outcomes comparable to those of countries that spend similar amounts per student. Spending per student in Cyprus follows an upward trend through the successive education levels up to secondary and post-secondary education, which received the most funding in 2014 compared to other levels of education. In tertiary education, spending per student fell marginally below that of upper secondary education in 2014⁴².

Demographic changes will affect the composition of the population. While at present the population is much younger than the European average, with a median age of 37 years⁴³, Cypriot society is projected to age much faster in the coming years, with the median age rising sharply to 50.4 years in 2050 (Vienna Institute 2016). This shift is apparent in statistical projections of the number of young people in education, which will follow a downward curve in the future⁴⁴.

Cyprus' education system needs to adapt to an ageing population. The sharpest demographic decline is projected in the group of children aged 5⁴⁵. Over the next 10 years this population group is expected to shrink by 4 % and by 2037 by 17 %, calling for medium-term policy responses on infrastructure and teacher supply. The number of children at primary and secondary school age (7-14 years) is estimated to shrink by 6 % and 9 % respectively. For those aged 15-19 and potentially entering vocational education and training (VET), post-secondary or tertiary education, numbers are set to decrease by 10 % in the next 10 years and by 15 % in the next 20 years. Against the background of an ageing population, these developments present significant challenges for the system's ability to prepare Cypriots for a rapidly changing social and professional environment and to ensure adaptable lifelong learning opportunities. Integrated reform measures at all levels can help meet those challenges.

Employability is on the rise for all qualification levels but remains below the EU average. Unemployment and in particular youth unemployment continue to be high, despite signs of improvement as the economy recovers. More recent graduates from tertiary education were employed in 2016 than the year before, but at 76.4 % their employment rate remains below the EU average of 82.8 %. Employment levels of upper secondary graduates have risen to 50.6 %, but are still considerably below the EU average of 62.9 %. The employment rate of VET graduates has increased by 17.1 pps. since 2014 (see Figure 3), and now stands at 72 % compared to 75 % for the EU. This confirms the value of a strong VET sector for Cyprus' economic recovery. The share of young people (aged 15-24) not in employment, education or training (NEET) continues to be high at 15.9 % compared to the EU average of 11.5 %. Support for NEETs is provided through targeted counselling as well as a new youth entrepreneurship programme⁴⁶.

⁴¹ With the exception of 2014, when it was 11.8 %, the highest level of spending was in 2015, at 16.1 %.

⁴² Eurostat data 2014 (ISCED 0 – 3933.9; ISCED 1-2 - 8420.4; ISCED 3-4 10,057.6; ISCED 5-8 - 9584.1) all in PPS and expressed in EUR.

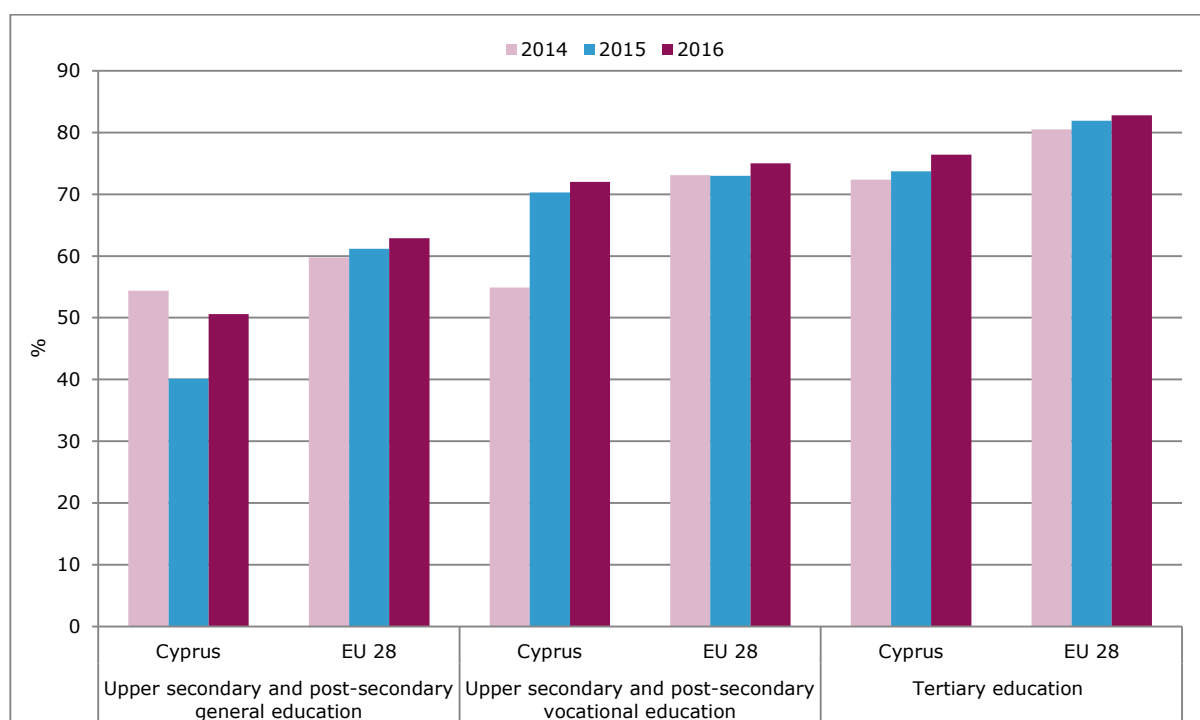
⁴³ Data for 2015.

⁴⁴ Eurostat data.

⁴⁵ Compulsory education starts at 4 years and 8 months.

⁴⁶ Both initiatives are ESF co-funded.

Figure 3. Employment rate of recent graduates (aged 20-34 having left education 1-3 years before reference year) by different educational levels



Source: Eurostat (LFS 2014 -2016). Online data code: [edat_lfse_24](#)

5. Modernising school education

Legislation has been introduced to modernise upper secondary education. In February 2017 Parliament approved the new 'Regulations for the Functioning of Secondary General Schools' and on the separation of the school leaving exam and the university entrance exam. The changes, to be implemented as of school year 2018/2019, include:

- examinations at the end of each semester instead of each school year;
- provision of learning support at the end of each semester;
- alternative forms of student assessment such as portfolio or project work.

As of 2017/2018, stricter rules on student absences apply; justified absences cannot exceed more than 120 teaching periods⁴⁷ per year.

Important steps to modernise the teaching profession have been made, but not all areas progress equally. Implementation of the new system of teacher appointments (see Box 1) started in 2017. As part of the 'professional learning' (PL) initiative piloted in 2015, all schools were asked to develop and implement an action plan for the continuing professional development of their teachers in the 2016-2017 academic year. In a second phase, selected schools took part in an intensive PL programme. While almost all targeted secondary schools participated in the programme, participation levels for primary schools were much lower than envisaged due to resistance from teachers' unions. There is no link so far between PL and the evaluation of teachers.

The reform of teacher evaluation has not advanced further. The social dialogue between the Ministry and stakeholders to reform the teachers' evaluation system has not progressed significantly. The aim is to modernise the current system, in place since 1976, to provide for internal and external evaluation and to promote transparency and meritocracy. The need to further

⁴⁷ One teaching period consists of 40 minutes, and a school day has seven teaching periods on average. No more than 70 consecutive absences are allowed.

advance the reform efforts in the education system was also the subject of a country-specific recommendation (CSR)⁴⁸ to Cyprus in the 2017 European Semester.

Language learning starts earlier. English is studied in primary education by all students and instruction time was increased between 2011 and 2016. Language learning has been extended to some schools of pre-primary education, starting as early as 3 years of age. At secondary level, instruction time for the second foreign language (French) has been reduced, with the option to replace it by additional English lessons instead (European Commission 2017d). At upper-secondary level, students can choose one of six foreign languages.

Several measures are under way to address the digital gap. Only 43 % of Cypriots have basic digital skills, compared with 54 % of Europeans on average; Cyprus also has one of the highest shares of people who have never used the internet (26 %) (European Commission 2017b). Currently Cyprus has the lowest rate in the EU of people with advanced skills and development in ICT⁴⁹ (European Commission 2017b). This poses a challenge for labour-market needs in an area where demand is growing already (Government of Cyprus 2017). Provision of digital resources for all subjects is planned and a training website for teachers has been set up⁵⁰. As of 2017, training for and certification in the European Computer Driving Licence (ECDL) is offered free of charge to all students in lower secondary education as well as to soldiers, the unemployed and people with disabilities (Government of Cyprus 2017).

Box 1: Start of new teacher appointment system

After 30 years in the making, one of the most important reforms in the Cyprus education system started to be implemented in 2017. Teachers, who are appointed as civil servants, were until now hired based on the time they had been on the waiting list for candidates. This sometimes resulted in a gap of several years between graduation and appointment, particularly in certain subjects.

In 2015, legislation was passed to make teacher appointment more competitive. The first teacher candidates to be hired under the new system were called in May 2017 to apply for competitive exams in the autumn. The specification tables for the exams in primary, general secondary and vocational education as well as accompanying reading material and sample test items have been published online (Ministry of Education and Culture 2017).

The result of the exam will count for up to 50 % towards the final score for appointment, other criteria being professional experience, degree(s), the year of application and the completion of military service. Exams are planned every 2 years and can be repeated indefinitely.

Resistance from teachers' unions to the new measures has mainly focused on the status of candidates already on the list who are working as substitute teachers. A transition phase of 10 years has been agreed, during which candidates from both systems will be hired (50% from each system). Candidates with previous service of 30 months receive contracts of indefinite duration until they are appointed civil servants.

The reform's two main goals are: to make the teaching profession more attractive and to improve educational outcomes. By shortening the delay between graduation and appointment, the government hopes to attract the brightest and most motivated candidates to the profession, who will in turn ensure better learning outcomes. Considering the importance of teachers for students' performance (OECD 2016b), the reform is an important step towards improving educational outcomes.

<http://diorisimoi.moec.gov.cy/index.php/el/>

⁴⁸ The 2017 CSR 5 for Cyprus contains the following passage: '[...] Complete the reform of the education system to improve its labour market relevance and performance, including teachers' evaluation. [...]' (Council of the European Union 2017), more on <http://data.consilium.europa.eu/doc/document/ST-9287-2017-INIT/en/pdf>

⁴⁹ Measured by the aggregated score of IT specialists and science, technology, engineering, and math (STEM) graduates.

⁵⁰ <http://www.schools.ac.cy/>

6. Modernising higher education

Tertiary educational attainment remains at the high level of recent years. At 53.4 %, the overall rate of tertiary attainment is one of the highest in the EU and has by far surpassed the national target of 46 %. Big differences, however, exist between men and women and for foreign-born graduates. For women, tertiary attainment has constantly risen since 2010 to reach a new all-time high of 62.1 % in 2016⁵¹. For men, attainment decreased again since 2014, reaching 43.7 % in 2016. A large attainment gap of 24.3 pps. separates native-born from foreign-born students, the latter's attainment rate standing at 37.3 % in 2016. Cyprus has one of the highest shares of graduates in social sciences, business and law (42 %) in the EU and the lowest share in natural sciences, mathematics and statistics (3 %).

Skills mismatches for tertiary education graduates persist. A higher share (40.7 % in 2015) of tertiary graduates (ISCED 5 or 6) than in any other EU Member State work in jobs that require lower skills than their educational attainment (European Commission 2017a). While economic needs, personal choice and temporary arrangements may in part explain this phenomenon, the dimension remains significant in terms of appropriate use of human and financial resources.

Quality assurance of higher education is under way. The Agency for Quality Assurance and Accreditation of Higher Education has become affiliated to the European Association for Quality Assurance in Higher Education (ENQA) with a view to becoming a full member. The Agency has so far accredited approximately 120 study programmes. Programmes are accredited for 5 years and improvement suggestions are provided by the Agency to programmes that fail accreditation. Institutional accreditation has commenced: so far, four out of seven post-secondary schools of technical vocational education and one private institute of tertiary education have undergone the process. None of Cyprus' universities has done so.

University business cooperation will improve. A ministerial decision issued in July allows public universities in Cyprus to participate in or set up businesses, organizations, cooperatives, with the aim of exploiting the academic research results. The decision is an important step in bringing the public universities closer to the local economy and increases the potential for new jobs.

7. Modernising vocational education and training and promoting adult learning

Participation in vocational education and training (VET) remains far below the average EU level, despite a slight increase. The proportion of upper secondary students (ISCED 3) in Cyprus in VET slightly increased in 2015 to 15.6 %, but still remains far below the EU average of 47.3 %, despite favourable employment prospects for VET graduates (see Figure 2).

The transformation of the VET system into an attractive educational pathway for young students has continued. There are numerous ongoing actions to reform secondary technical and vocational education (STVE) and to further develop post-secondary institutes of VET (PSIVET). An apprenticeship scheme provides second-chance education, especially to dropouts and NEETs. Actions in this area include:

- the introduction of new fields of study and specialisations;
- revision of the curricula;
- the upgrading of internships and apprenticeships for young NEETs;
- the classification of the PSIVET programmes at Level 5 of ISCED (being taught at public schools of tertiary vocational education and training).

⁵¹ Compared to 48.9 % in 2010.

Transition rates from VET into employment have improved, in particular for post-secondary VET. To further improve participation in VET, the capacity of vocational schools will be increased, notably by building a new VET centre in Larnaca and by adding new facilities in Paphos and Nicosia. In addition, in order to build up the interest of employers in upper secondary VET, the authorities are putting in place cooperation with associations of employers and manufacturers active in the field of post-secondary VET. Despite these important steps forward, further efforts are needed to improve the image and attractiveness of apprenticeships among both employers and young people and to make secondary VET more labour-market relevant.

A system to forecast employment and skills needs should help the VET system to adapt to future labour-market requirements. Such forecasts are based on macroeconomic prognoses and make it possible to estimate both additional demand and replacement demand by sector. These are carried out by the Cypriot Human Resource Development Authority. The authority predicts the top recruiting sectors by 2024 to be tourism, energy, healthcare, education, the green economy and ICT (Human Resource Development Authority 2015). Sectors on the decline will be finance, public administration, defence and some sub-sectors of manufacturing.

Adult participation in learning in Cyprus remains low and continued efforts are necessary to upgrade adults' skills. In 2016 the figure for this area was 6.9 %, below the EU average of 10.8 % and decreasing from 7.5 % in 2015. In addition, the participation of low-skilled people in adult learning is one of the lowest in the EU. To systematise adult training, the Human Resource Development Authority will develop 80 new professional qualifications standards and revise the 72 existing ones. A public consultation was carried out to determine which professions will develop new professional qualifications standards based on the priorities of the economy. In 2017 the national qualification framework of Cyprus was referenced to the European Qualifications Framework.

A national action plan aims at a more modern and flexible programme of formal second-chance education for adults. In January 2017 an ad hoc committee submitted a report including specific suggestions on the planned reform of the operational framework of second-chance schools. Challenges remain in relation to:

- the integration and efficiency of the adult learning governance structures;
- the development of mechanisms for validating non-formal and informal learning (see Box 2);
- the systematic training of trainers involved in adult education;
- more broadly, the need to boost participation in adult learning (in particular among low-skilled adults).

Box 2: ESF funded project: Validation system for non-formal and informal learning

Between 2014 and 2020 an ESF-co-funded project will establish a validation system for non-formal and informal learning. The overall budget is EUR 1.4 million, with EUR 219 125 earmarked to be spent in 2017. The project intends to:

1. map the current situation in Cyprus regarding non-formal and informal education through bibliographic research and interviews;
2. draw up a national action plan following the analysis of best practices, identification of needs and consultation with relevant stakeholders;
3. implement a pilot phase focused on adult education, youth and volunteers;
4. evaluate the pilot with a view to full implementation of the system.

The project's aim is to enable individuals to validate the knowledge, skills and abilities participants have acquired through non-formal and informal learning. With this validation, they will acquire qualifications that they can use in their careers and in continuing their formal education.

<http://enimerosi.moec.gov.cy/mobile/ypp4253>

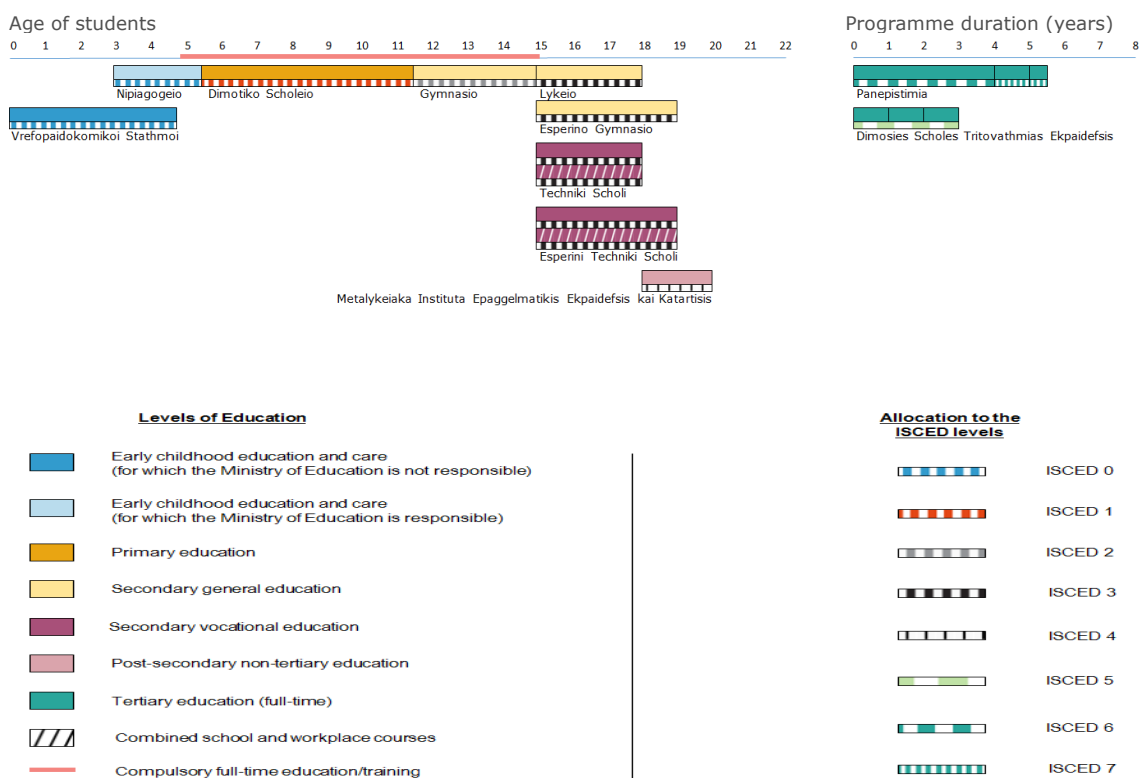
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9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. The structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
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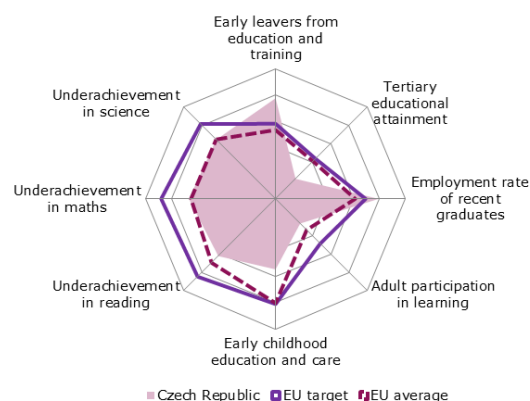
CZECH REPUBLIC

1. Key indicators

		Czech Republic		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	5.4%	6.6%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	26.7%	32.8%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		86.1% ¹²	88.0% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	16.9% ¹²	22.0% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	21.0% ¹²	21.7% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	13.8% ¹²	20.7% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	80.4%	86.7%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	10.0%	8.8%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	5.1%	4.9% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€4 526	€4 729 ¹⁴	:	: ¹⁴
		ISCED 3-4	€5 297	€5 620 ^{14,d}	:	: ¹⁴
		ISCED 5-8	€7 430	€7 639 ^{14,d}	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	5.4%	6.6%	11.0%	9.8%	
	Foreign-born	9.1% ^u	10.8% ^u	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	26.3%	32.7%	37.8%	39.9%	
	Foreign-born	36.0%	33.4%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	75.4%	87.2%	69.4%	72.6%	
	ISCED 5-8	85.6%	86.3%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	7.4%	7.5% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	9.6%	8.7% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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.

3. Tackling inequalities and promoting inclusion

The socioeconomic background of students impacts strongly on their educational performance. According to the 2015 Programme for International Student Assessment (PISA) results, the proportion of 15-year-old low achievers is around the EU average in science (21 %) and mathematics (22 %) and somewhat higher in reading (22 %) (OECD, 2016a). The proportion of low achievers increased significantly since 2012 in science (by 6.9 pps. compared to an EU average increase of 4 pps.) and reading (by 5.1 pps. compared to an EU average increase of 1.9 pps.). This deterioration in science was one of the highest among participating countries. The Czech Republic shows one of the largest gaps in the proportion of low achievers in science between the bottom and top quarters of the socioeconomic index of the PISA student population (30.5 pps. compared to an EU average gap of 26.2 pps.).⁵² The Czech Republic also showed one of the largest — and increasing — differences between schools on the basis of socioeconomic status.⁵³ This may be linked to the selectivity of the school system and the early tracking of students which takes place at the age of 10-11, sometimes earlier. The OECD has confirmed that early streaming reinforces the impact of socioeconomic background on educational outcome inequalities (OECD, 2016b). The Czech ratio of pupils to teachers in primary education (19) is among the highest in the EU, which is likely to make it more difficult for teachers to offer individual support to poorly performing pupils.

There is a high rate of school segregation affecting Roma, who are directed to 'practical' schools with lower learning standards. While the proportion of Roma pupils attending 'practical' schools has declined in recent years and the proportion attending mainstream education has risen,⁵⁴ 30 % of Roma children still attend a school where all or most pupils are Roma (FRA, 2016). Only 45 % of 15- to 18-year-old Roma attend education corresponding to their age and only 67 % of the same age category attend education at all (corresponding figures for the overall population are 81 % and 96 %). In 2014, the European Commission launched infringement proceedings against the Czech Republic concerning discrimination against Roma children in education, in breach of Directive 2000/43/EC on Racial Equality.

Recruiting more Roma teachers who could serve as role models could help improve the educational outcomes of Roma pupils. But the likelihood that a significant number of Roma young people

⁵² The percentage of low achievers among the bottom quarter on the socioeconomic index is 36.5 %, compared to 6 % in the top quarter. Conversely, the proportion of high achievers among the bottom quarter is 1.4 %, compared to 17.6 % in the top quarter. Source: OECD, 2016a.

⁵³ The difference in science performance between schools associated with a one-unit increase in the mean school's PISA index of economic, social and cultural status is one of the largest among participating countries. The OECD average variance between schools is 30 % while it is 44 % in the Czech Republic.

⁵⁴ The latest information received from the Ministry indicates that, in 2015/2016 22.2 % of Roma were in practical schools/classes while their proportion in mainstream education had risen by 3 pps. since 2014/2015.

achieve sufficient grades to qualify for teacher education at third level is small (Ecorys for the European Commission, 2016). Programmes to train and recruit teacher assistants from the Roma community exist.

Implementation of the inclusive education reform started in September 2016. The reform aims at gradually increasing the participation of children with special needs (including socially disadvantaged children) in mainstream education by granting them a legal right to individual support measures.⁵⁵ Measures implemented to date cover curricula and counselling services to assess pupils' needs for support measures. There was extensive training and awareness-raising among teachers and school heads on the benefits of inclusive education, and also among the general population. The Ministry has launched a European Social Fund-supported call for schools to apply for additional funding for support staff (such as special teachers, school psychologists, counsellors) to implement the new legislation. Only a limited number of pupils have benefited from the reform in its first year of implementation and a close monitoring of its impact, including on segregation, will be essential. While an ESF-supported project will collect data on how the reform shapes the perception of inclusion, there is so far no independent study of its impact. Long-term success will partly depend on sustainable national funding for the support measures in mainstream schools, as well as good systematic initial education and continuing professional development for teachers on teaching diverse groups (also see European Commission, 2016).

The national participation rate in early childhood education and care (ECEC) increased to 88 % in 2015, still below the 94.8 % EU average. The 13.4 % participation rate of children below 3 remains among the lowest in the EU, far below the 33 % Barcelona target for 2020.⁵⁶ However, this partly reflects long parental leave entitlements. Effective coordination to match supply and demand is made difficult as responsibility is shared between central, regional and local levels of government (Institute for Democracy and Economic Analysis, Economic Institute of the Czech Academy of Sciences, 2016).

Entitlement to ECEC is increasing but the number of places remains insufficient. A 2016 law made the last year of ECEC compulsory for 5-year-olds and will give entitlement to a place to children aged 4 in 2017, then 3 in 2018 and later on to children aged 2. It also announced revised educational plans for ECEC. However, on the entitlement to a place for children under 5, the wording of the law is ambiguous - the right is subject to places being available. Municipalities have responsibility for ensuring places but they often have limited staff resources to deal with such issues. The lack of reliable data on the future level of demand for places makes it more difficult to ensure that there will be sufficient supply for the new law to fully enter into force. According to a survey by the Association of Towns and Municipalities, a number of municipalities may have difficulties accommodating all pupils under the new law.⁵⁷ The Czech School Inspectorate affirms that schools will not be ready to enrol 2-year-olds from 2020 (Czech School Inspectorate, 2016). Gathering data on the number of parents who intend to register their children below the age of 5 would be needed to prepare the construction and enlargement of facilities where needed. The fund for the development of the capacities of kindergartens and primary schools will continue to fund projects to increase and modernise capacity in pre-school and primary school education during 2017 and 2018, with co-financing from the European Regional Development Fund. With a view to supporting an earlier return of mothers to the labour market, EU funds continue to co-finance projects of child groups set up by companies, NGOs and other providers, under the responsibility of the Ministry of Labour and Social Affairs. New micro-nurseries for children from the age of 6 months are being piloted (European Commission, 2017).

⁵⁵ For more information on the reform, see box 1 below and European Commission, 2016.

⁵⁶ Source: Eurostat, table educ_uae_enrp07.

⁵⁷ <https://www.novinky.cz/veda-skoly/421130-povinne-prijimani-deti-do-materskych-skol-obce-potrapi-nejvic-v-okoli-prahy.html>.

Box 1: Early childhood education and care and inequalities in educational outcomes

The latest estimation of participation of Roma children in ECEC indicated that only about 34 % participate from the age of 4 (FRA, 2016). This is problematic given the positive impact that participation in ECEC has on future educational outcomes (OECD, 2016a). This low participation rate is explained by: economic reasons, insufficient provision, age and number of siblings, parenting styles and cultural factors.⁵⁸ The 2016 amendment to the Education Act includes the extension of compulsory education to the last year of pre-school from September 2017, with the aim of increasing the overall participation rate and reducing inequalities. EU funds support new capacity. There has been a wide debate on the benefits of extending compulsory education in a country with a generally low participation in ECEC, often due to parental choice. Some studies have concluded that this would be costly and would not increase participation among the disadvantaged. The legal right to opt for home schooling may lower the positive impact for those disadvantaged families who would choose to do so, both in terms of academic preparation for primary education and of inclusion. Work with parents and municipalities is essential to optimise the actual participation of disadvantaged children in ECEC from an early age as possible. Accompanying measures to ensure that there is no (hidden) financial cost for families linked to sending the children to ECEC is also key. The ESF supports projects to promote the participation of the socioeconomically disadvantaged in ECEC and in informal pre-school centres in inclusive settings. Teacher training is also being provided, as well as outreach to families, awareness-raising and educational activities for parents. Volunteering by parents in these settings is encouraged.

While still below the 10.7 % EU average, the early school leaving rate continued its increase to 6.6 % in 2016. Contrary to recent falls in most EU countries, the early school leaving rate has risen steadily. It started from a low of 4.9 % in 2010, quickly surpassing the 5.5 % national target for 2020 and continued climbing over the last three years. The estimated proportion of Roma children who leave school early remains very high at 72 %, which significantly impacts their future labour market performance (FRA, 2016). This negative trend and the very high proportion among Roma call for close monitoring and possibly new preventive measures, such as teacher training to identify pupils at risk and to help prevent dropout through adapted pedagogical methods and work with concerned stakeholders. The recent increase in the rate may also be attributed partly to the entry into force of the end-of-upper secondary education state examination (Maturita) (Office of the Government, 2017). However, this is not in line with an analysis showing that most early school leavers study in programmes that do not lead to the Maturita and that they leave school at an early stage (Trhlíková, 2012).

Box 2: EU funds to support inclusive education

In October 2016, the Ministry of Education, Youth and Sports announced the second call for projects for municipalities involved in the 'Coordinated approach to socially excluded areas.' It promotes inclusive education in socially excluded areas and supports nursery, primary and secondary schools to promote individual integration. The call stresses awareness-raising activities aimed at the public and supports the development of platforms and workshops for various education stakeholders. It includes activities to support students in their transition between levels of education and to increase cooperation between family, educational staff and social and health services. EUR 16.65 million are being allocated to the call.

⁵⁸ Čada, K. (2014). Romští žáci v předškolním vzdělání. (Manuscript).

4. Investing in education and training

General government expenditure on education as a share of GDP decreased by 0.2 pp. in 2015 to 4.9 %, which is the EU average. Annual expenditure per student in 2013 was much lower than OECD averages at all levels of education, largely due to low teacher salaries (OECD, 2016c). The biggest differences were for primary and tertiary education students.

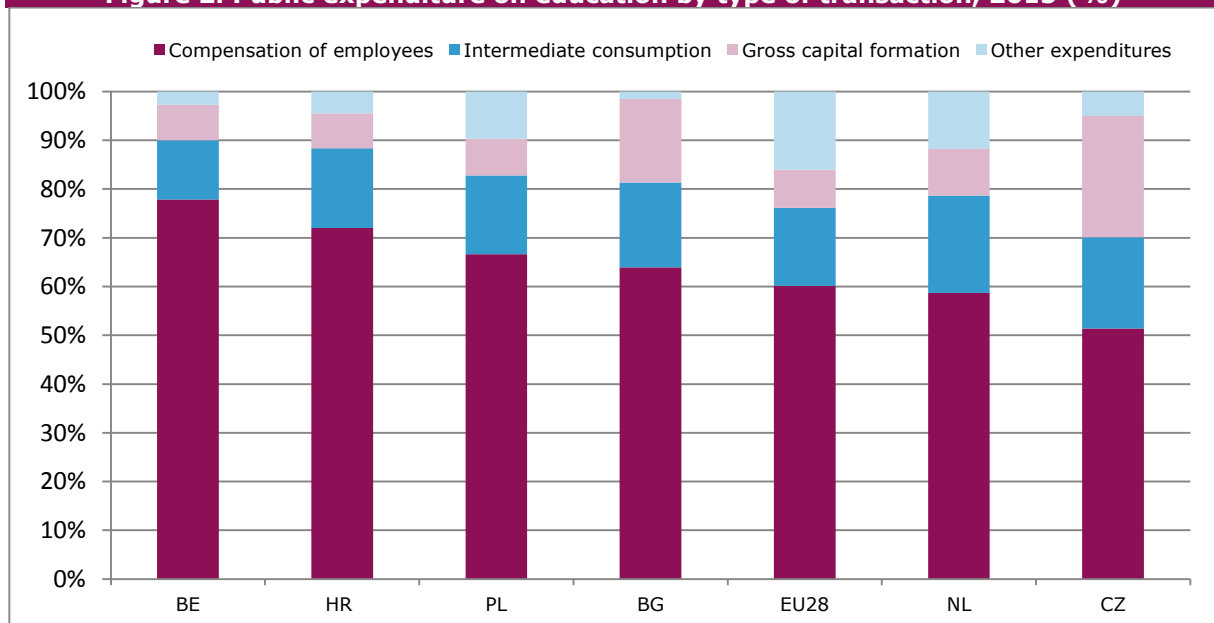
In spite of increases in recent years, teachers' salaries remain comparatively very low. In 2014, teachers in primary and secondary education earned less than half of the salaries of other workers with similar educational levels (OECD, 2016 c). Furthermore, career salary progression is relatively flat. Figure 1 shows that the share of 'compensation of employees' in total public expenditure on education was much lower in the Czech Republic than the EU average. In September 2016, teachers' salaries were increased by 8 % and the time needed for new teachers to get to the second pay level was shortened. The government increased teacher salaries again by 15% as of November 2017 in reaction to a strike alert, while it increased wages for other public sector employees by 10%.

Employment rates remain higher than the EU average for graduates from all education levels, except for the low-skilled. In spite of their small proportion in the Czech labour force (with Lithuania the smallest in the EU), the low-skilled have a very low employment rate. This suggests a need for more effort to reverse the recent increase in early school leaving as well as to upskill the population with the lowest qualification levels.

The funding of school and pre-school education and after-school centres will be reformed, to shift from per capita funding to funding based on the total number of hours taught. This 2017 reform will start in 2018/2019. The objectives are to reduce current regional differences in funding levels; to offer more stability in the funding of schools; to adapt the funding and school networks to regional and local specificities; and to improve the labour market relevance of vocational education and training. The reform has been generally well received by public schools.

The present level of resources may not be sufficient for the recent reforms to make a real impact in the coming years. Future developments are uncertain ahead of the autumn 2017 general elections. Both the previous government and the Chamber of Deputies support an increase in funding for education by 1 pp. of GDP by 2020 (Ministry of Education, Youth and Sport, 2017).

Figure 2. Public expenditure on education by type of transaction, 2015 (%)



Source: DG EAC elaboration on Eurostat's general government finance statistics (2015). Online data code: [gov_10_a_exp](#).
Note: data for EU average is provisional.

5. Modernising school education

The decentralisation of school education initiated with the 2001 White Paper on education offered opportunities for innovation and more participation of stakeholders; it also brought difficulties linked to fragmented governance (also see section 3 above). The increased responsibilities for school leaders that were part of this reform were not supported with appropriate training (European Commission/EACEA/Eurydice, 2017a). The Strategy for Education Policy 2020 aims at improving governance. The OECD recommends basing school leadership appraisal on a robust assessment of school progress against central quality criteria (OECD, 2016d). The activities of the Czech School Inspectorate are increasingly directed along these lines, focusing on pedagogical practices and links between internal and external evaluation (Office of the Government, 2017). An ESF-supported project to improve evaluation was launched to extend the use of the 'quality school model' and to disseminate good school practices.

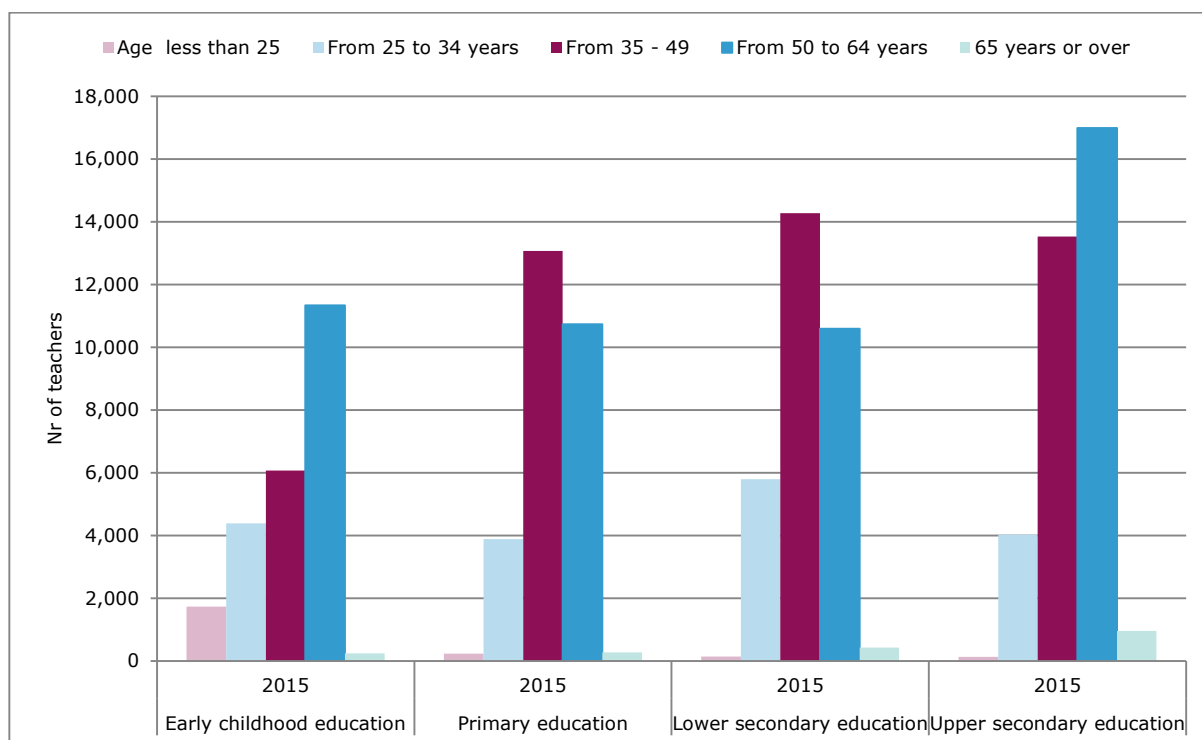
As stated in section 3, PISA 2015 showed that basic skills levels are close to the OECD average in mathematics and science but below average in reading. The 2015 Trends in International Mathematics and Science Study, TIMSS (IEA, 2015) for fourth-graders confirmed the improvement in results already observed in 2011, with science results which are improving and above average. This would suggest that recent improvements in basic skills in fourth grade are not confirmed for pupils aged 15 tested in PISA (see section 3 above) at this stage.

The attractiveness of teaching and its prestige remain low. According to Cedefop (2016), 'studying at a pedagogical faculty is a second choice for those who failed at entry exams to other fields of study' (also see section 4 above). The teacher workforce is ageing. Demographic projections show more children entering primary and lower secondary education in the years to come. The system contains a large proportion of older teachers (see figure 2 below), making it urgent to recruit more new teachers. A survey among secondary school graduates showed that only a quarter of those entering pedagogy studies are determined to teach, mainly due to the low salaries. Only 40 % of pedagogical faculty graduates start teaching while a large proportion of young teachers leave the profession shortly after starting (Ceska Skola, 2017). Furthermore, there are risks concerning the quality of teaching: a survey among upper secondary students showed that those intending to enter pedagogical studies were among those obtaining the lowest results in a test on general academic prerequisites (SCIO).

A long-awaited new career system for teachers was due to be adopted in 2017 but the legal procedure has not been completed. The new system would aim to improve the quality of teaching and increase the attractiveness of the profession (European Commission, 2016). If adopted, it will link continuing professional development (CPD), career and remuneration. New teachers will benefit from systematic support — previously the Czech Republic has been among the few Member States without a structured induction programme for new teachers. This could help reduce the high proportion who quickly leave the profession. Teachers performing specialised tasks such as coordinator of school internal evaluation or mentor for CPD will be rewarded financially.

The first full scale new unified entrance examination to upper secondary schools was realised in 2017. It aims to improve the quality of education and is supported by a number of stakeholders (see also European Commission, 2016). However, some stakeholders fear the new examination could hamper inclusiveness and reduce school autonomy on curricula.

Figure 3. Number of teachers by age group and education level in 2015



Source: Eurostat (2015). Online data code: educ_uoe_perp01.

6. Modernising higher education

The tertiary education attainment rate continued its rapid rise, reaching 32.8 % in 2016 and surpassing the 32 % national target for 2020. The gap with the 39.1 % EU average has narrowed. The proportion of graduates with a short-cycle or bachelor's degree remains relatively low. Tertiary education pays off strongly in terms of employment and wages. The 86.3 % employment rate of higher education graduates is among the highest in the EU and tertiary-educated Czechs earned almost twice as much on average as those with only upper secondary education (OECD, 2016c). The ratio of students to teachers and academic staff in higher education is among the highest in the EU.⁵⁹ The completion rate for bachelor's or equivalent programmes remains low at 37 %.

The Ministry of Education carries out ad hoc graduate tracking surveys.

The Czech Republic is currently implementing the 2016 higher education reform. The aim is to raise standards of accreditation and internal quality assurance and to give more autonomy to institutions that have a functioning internal quality assurance system. A new independent National Accreditation Authority has been set up and new accreditation standards defined. The Authority intends to involve students in the evaluation of study programmes and in the accreditation process.

Measures to increase grants to students in need and the number of profession-oriented programmes are likely to promote greater social diversity of tertiary education students and further increase the attainment rate. Another objective of the reform is to support the diversification of programmes offered, increasing profession-oriented programmes. This will involve amending the funding system to reward institutions with diversified profiles (Office of the Government, 2017). Fewer than 1 % of students currently receive a social scholarship while about 13 % receive a merit-based scholarship (European Commission/EACEA/Eurydice, 2016).

⁵⁹ Source: Eurostat, table educ_uoe_perp04, 2015.

7. Modernising vocational education and training and promoting adult learning

The proportion of upper secondary students in vocational education and training (VET) in 2015 was 73.2 %, the highest in the EU (47.3 % average) and 87.2 % of recent VET graduates were employed in 2016, also well above the EU average (75 %). Adult participation in learning increased slightly in 2016 but remained below the EU average of 10.8 %. While the unemployment rate is the lowest in the EU, analysis by the Ministry of Labour and Social Affairs nevertheless points to a mismatch between the demand and supply of skills, with shortages of suitable workers in some sectors and professions and a surplus in others.

The Strategy for Education Policy until 2020 envisages promoting partnership between schools and employers. The aim is to ease graduates' transition from school to the labour market, to increase the proportion of students in professionally-oriented programmes at tertiary level and to expand the offer of continuing vocational education and training for adults (CVET). Since 2016, there is a standard procedure for contractual relationships between employers and vocational students with the aim of encouraging employers to ensure quality standards in their practical training.

More attention is given to CVET to ensure sufficient opportunities to reskill the working age population. National vocational qualification standards have become the reference point for accrediting CVET programmes and recruiting qualified employees in occupations that face skills shortages. Sector councils have ensured input from employers, mapped labour market oriented certificates not included in the national qualifications register and helped prepare a proposal for the recognition of competences acquired and certified outside of the vocational register.

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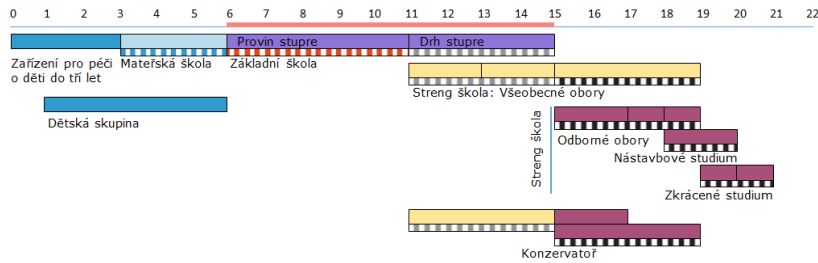
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9. Annex I. Key indicator sources

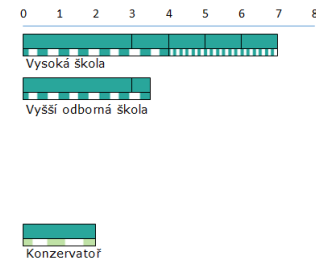
Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. Structure of the education system









Age of students











Programme duration (years)



Levels of Education

-  Early childhood education and care (for which the Ministry of Education is not responsible)
-  Early childhood education and care (for which the Ministry of Education is responsible)
-  Single structure
-  Secondary general education
-  Secondary vocational education
-  Post-secondary non-tertiary education
-  Tertiary education (full-time)
-  Compulsory full-time education/training

Allocation to the ISCED levels

-  ISCED 0
-  ISCED 1
-  ISCED 2
-  ISCED 3
-  ISCED 4
-  ISCED 5
-  ISCED 6
-  ISCED 7

Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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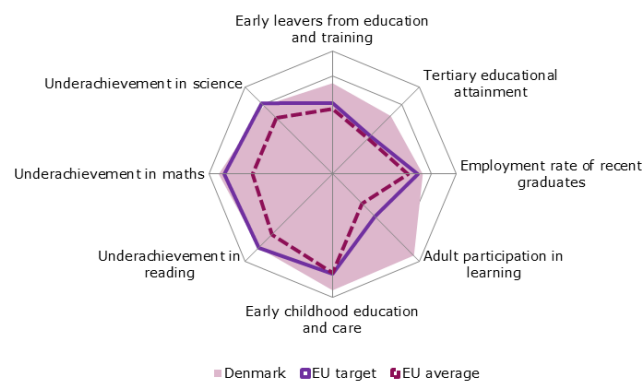
DENMARK

1. Key indicators

		Denmark		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	8.0%	7.2%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	43.4%	47.7%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		98.0% ¹²	98.5% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	14.6% ¹²	15.0% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	16.8% ¹²	13.6% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	16.7% ¹²	15.9% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	81.9%	83.9%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	31.4%	27.7%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	6.9%	7.0% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€8 475	€8 587 ¹⁴	:	: ¹⁴
		ISCED 3-4	€7 687	€7 730 ¹⁴	:	: ¹⁴
		ISCED 5-8	:	: ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	8.0%	7.2%	11.0%	9.8%	
	Foreign-born	8.8% ^u	7.9% ^u	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	44.2%	45.1%	37.8%	39.9%	
	Foreign-born	37.6%	59.8%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	79.0%	80.8%	69.4%	72.6%	
	ISCED 5-8	84.3%	86.4%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	7.4%	6.7% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	18.1%	18.5% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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 (VET) 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.

3. Tackling inequalities and promoting inclusion

Denmark continues to be among the best performing EU countries in early school leaving. The early school leaving rate for 18-24-year-olds continued to decline, from 8 % in 2013 to 7.2 % in 2016. This is well below the EU average of 10.7 % and the national Europe 2020 target of 10 %. Boys drop out about 1.4 times more often than girls, slightly above the EU average (1.3 times). In 2016, foreign-born children left school by 0.7 pp. more than native-born children (7.2 %), a much lower difference than the EU average (19.7 %).

School educational outcomes are above the EU average, both in terms of performance and equity and show comparatively less social variation. According to OECD's 2015 Programme for International Skills Assessment (PISA) survey, Denmark's mean performance improved in mathematics by 11 PISA score points (511) compared to 2012, while remaining broadly stable in reading and science⁶⁰. These results are above the EU and OECD averages. The proportion of low achievers in basic skills among 15-year-olds is significantly lower than the EU average (16 % in science, 15 % in reading and 14 % in mathematics). Denmark does not have widely differentiated educational outcomes: gender gaps and the impact of socioeconomic status on performance are among the lowest in the EU (OECD 2016b). Inequality decreased significantly in all three subjects tested in PISA 2015⁶¹ i.e. science, mathematics and reading. Educational outcomes are relatively evenly distributed, with a relatively small difference in science scores between pupils in the top and in the bottom quarter⁶².

The situation of students from a migrant background is a concern, but is better than in other EU countries. In PISA 2015 the proportion of low achievers in science was 0.9 pp. lower than in 2012; however, it was still much higher in 2015 for foreign-born (28.2 %) than for native students (14.8 %). 23.5 % of foreign-born students in mathematics and 25.6 % in reading were low achievers, in both cases a gap of around 11 pps relative to native-born students. This shows a substantial narrowing of the gap in mathematics between 2012 and 2015, but little progress in reading. The mean performance in science of migrant students in 2015 trailed 69 points behind non-migrant students. Socioeconomic status plays a role: within similar social cohorts the difference for non-migrant students drops to 18 points, similar to other Nordic countries. First- and

⁶⁰ Performance improved in science and reading by 4 PISA score points, to 502 and 500 PISA score points respectively.

⁶¹ See for instance PISA sub-indicator 5 for low achievement in science (-23.8 %), in mathematics (-23.1 %) and in reading (-20.4 %) and Table I.6.17.

⁶² This indicator compares the performance of students with the most advantaged and most disadvantaged socioeconomic background. It varies from 76 pps. in Latvia to 125 pps. in Luxembourg.

second-generation migrant students continue to show marked performance differences even when their background has been accounted for.

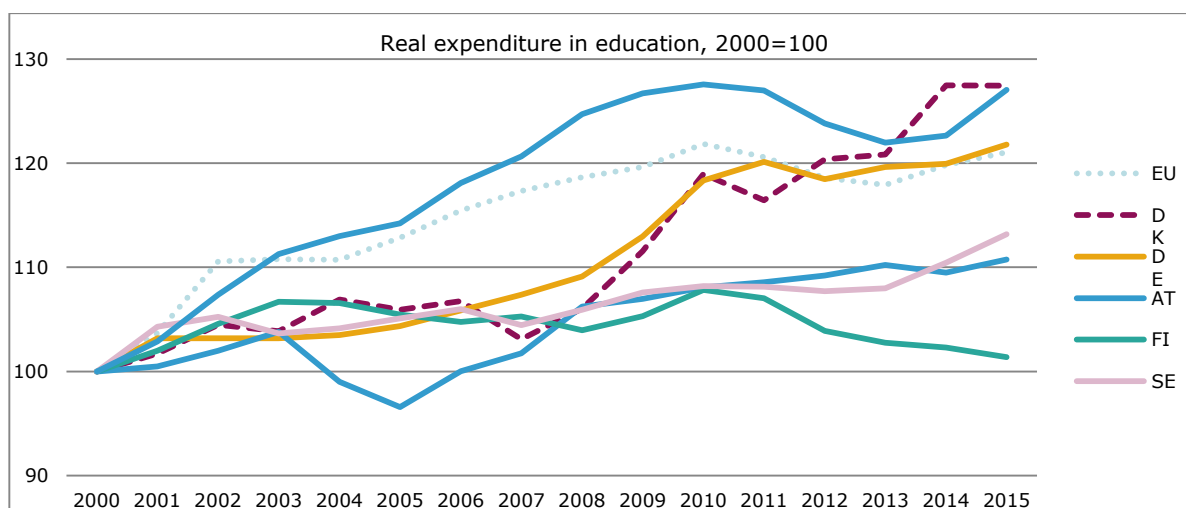
Participation in early childhood education and care (ECEC) is almost universal and is widely and highly appreciated. The participation rate stood at 98.6 % in 2015 for the age of four or older. The participation rates of foreign-born and native children in this age group are almost identical, but younger children from a migrant background, participate less. Recent research identified refugees with young children needing improved awareness of the benefits of early childhood education (Bjørnholt 2016). The sector concentrates on creating a warm, caring and respectful environment for children and emphasises play and supporting social, personal, language and mathematical development with active involvement of parents. A political agreement has been reached for a programme to strengthen cognitive, social and motor skills through better training of teachers and by increasing parental involvement.

Integration of young people from a migrant background and of recently arrived refugee children into the education system remains important. The tripartite agreement between the Danish Government and social partners on labour-market integration (March 2016) allows municipalities to increase the number of refugees in reception classes from 12 to 15, especially if the pupils have the same language background. The number of reception classes has marginally increased from 24 in 2006 to 28 in 2015. Recent legislation allows integration of foreign-born young people into compulsory school education up to the age of 25 (Ministry of Education 2016). If refugees are considered ready for the labour market, they can participate in a scheme of combined work placement and labour-market training, including learning Danish.

4. Investing in education and training

Denmark remains one of biggest investors in education in the EU but saw also a significant increase in the number of students. General government expenditure on education as a proportion of GDP was 7.0 % in 2015 (compared to an EU average of 4.9 %). This is only 0.2 pp. less than in the previous year. Expenditure on education as a share of total public expenditure was 12.8 % in 2015, a 0.1 pp. decrease compared to 2014, with the EU average at 10.3 %. In real terms, expenditure has continued to increase after a dip both in 2007 and in 2011 (Figure 2).

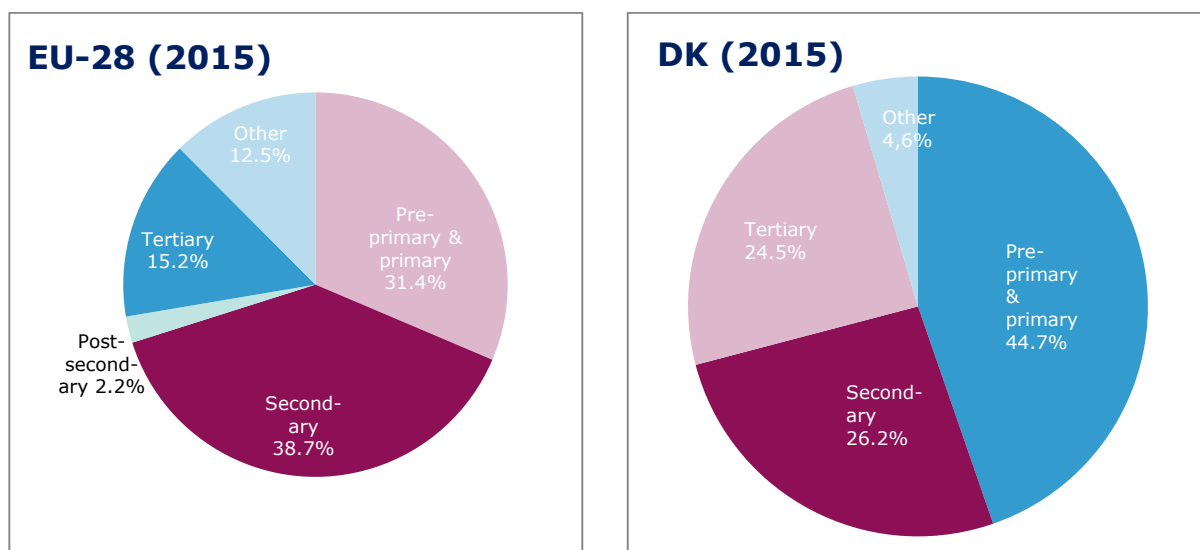
Figure 2. Increase of real public expenditure in education



Source: DG EAC elaboration on Eurostat's general government finance statistics (2000–2015). Online data code: [gov_10a_exp](#).

Denmark faced an increase in the number of students between 2005 and 2015 and spent more than other countries in pre-primary and primary education. The total number of pupils/students rose by 16.4 % over 2005-2015, accompanied by a 20 % increase in real expenditure over the same period. According to an OECD analysis of 2013 public and private spending data in PPP per capita, Danish spending on all education levels is about a third higher than the EU-22 average, but below countries like Austria and Sweden. Denmark spends 44.7 % of its total education spending in pre-primary and primary education, 13.3 pps. more than the EU average. At secondary education, it spends 12.5 pps. less, partly reflecting a slightly different trend in the school-age population than in other EU or OECD countries⁶³. Denmark spends 9.7 pps. more than average at tertiary level, in part explained by a generous study grant system for all.

Figure 3. Distribution of public expenditure by education level, 2015



Source: DG EAC elaboration on Eurostat's general government finance statistics (2015). Online data code: gov_10a_exp.

The Danish Government continues to pursue greater efficiency in spending and schools with lower socioeconomic status get more resources. Education reforms during recent years had the goal of increasing efficiency. The 2016 Budget Act introduced budgetary cuts across the education sector in line with the rest of the public sector. The funding system of compulsory school (*Folkeskole*) aims to ensure that all schools have the funding they need through an equalisation mechanism which compensates municipalities that have less fund-generating power. Schools with less favourable socioeconomic ratios thus tend to get more funding. The OECD sees an untapped potential for exchange of good practices and for peer learning among municipalities on how to further increase efficiency (OECD 2016e).

5. Modernising school education

PISA 2015 analysis on science shows that Denmark's science teachers are well qualified.

Although science teachers are better qualified than in most other member states, there is practically no tradition of organising science-related extracurricular activities and there is a weak link between science competitions offered at schools and results in science. PISA 2015 shows that Danish science teaching supports students to answer questions and demonstrate ideas, but, compared to other Nordic countries, puts less emphasis on classroom discussion.

⁶³ The number of children aged 6 to 10 fell sharply between the beginning of the 1990s and the middle of the decade but increased again steeply between the mid-1990s and 2005, climbing above the 1990 levels. Since then numbers have seen a slow decline.

The school environment shows mixed characteristics and school leaders are more important and free than in other countries. Schools enjoy high autonomy in making adaptations. Implementing the 2014 'compulsory school reform' (*Folkeskole reform*) requires improving the feedback and learning culture focused on student learning, in order to ensure improved educational outcomes (OCED 2016c). School leaders are more important and autonomous than in other countries. They have an above-average responsibility for school resources: less than in the Netherlands and Sweden, but more than in Finland. School boards have a comparatively high influence on the curriculum. School principals have a key role in assessment policies (more than in Finland, much less than in the Netherlands) and for admission (similar to the Netherlands, much less than in Finland and Sweden). However, the OECD identifies a clear need for school heads to receive more training and support to enable them to benefit fully from this freedom (OCED 2016d). School truancy increased between 2012 and 2015 (7 pps. compared to 5pps. at OECD level, 3pps. in Austria and the Netherlands, 2 pps. in Sweden and 26 pps. in Finland). The proportion of students skipping a whole day is at the OECD average, but higher than in the Netherlands, Sweden and Austria. Missing school appears to have a significant impact on results in science. Testing is extensively used and standardised testing is comparatively frequent. Achievement data are posted publicly: this is broadly in line with comparable countries.

Denmark is increasing foreign language teaching, while the well-being of students is at the centre of education. Denmark is among the countries that have increased foreign language teaching at primary level: learning a second foreign language is now compulsory, and this is continued in upper secondary academic education but not in vocational education and training. Denmark is one of only two countries that prepare future teachers in initial teacher training for their role in facilitating the integration of students from migrant backgrounds (Eurydice 2017). The national survey on the well-being of students⁶⁴, published in June 2017 (Ministry of Education), showed an increase in social well-being, particularly for older pupils. But the indicator measuring support and inspiration through teachers showed a decline.

Recent reforms aim at improving school outcomes and raising academic standards. Denmark has a tradition of basing school reforms on a broad political and societal consensus. The 2014 *Folkeskolereform* involving a large circle of stakeholders had three main goals:

- 1) challenge all students to reach their full potential;
- 2) decrease the impact of socioeconomic background on educational outcomes;
- 3) increase trust and student well-being through respect for professional knowledge and practice in school (Danish Government 2017).

Implementation of education reforms is closely monitored. The first report on the implementation of the reform, published in spring 2016, indicates that the majority of municipalities have delegated responsibility for implementation to their schools, and that the implementation process is characterised by a high degree of mutual trust. In recent survey by the Association of Danish Municipalities indicates all municipalities report progress in developing a more varied and motivating school day. Two in three municipalities are engaged in a major transformation of the school day (European Commission 2017a). Evaluation of the *Folkeskolereform* between 2014 and 2016 has shown a reduction of socioeconomic impact, including for particularly disadvantaged groups (Danish Government 2017).

Teachers complain about a lack of time to prepare classes and pupils increasingly consider school days too long. 86 out of 98 municipalities have implemented training measures for teachers. A survey by the Danish Union of Teachers showed that five out of six teachers feel that they have insufficient time to prepare classroom lessons. Analysis by the Danish National Centre for Social Research compares the well-being of school children before and after the reform came into force. They conclude that in 2016 65 % of students showed high interest in the courses taught, a small improvement over 2014, i.e. before the reform, when the figure was 63%. However, 82 % of students agree that the school day is too long, as opposed to only 46 % in 2014 (SFI 2016).

⁶⁴ <https://www.uddannelsesstatistik.dk/grundskolen/sider/indhold/Nationale%20mål%20-%20Trivsel.aspx>

Box 1: Reform of upper secondary education

The reform of upper secondary education was adopted by Parliament in November 2016 to be implemented as of 2017/2018. The reform aims to raise academic standards and to provide a solid preparation for higher education. Improved learning in mathematics and natural sciences is an attempt to reverse the trend of decreasing numbers of students choosing these subjects, and to address the increased number of upper secondary graduates needing to take supplementary courses in these subjects to meet entry requirements for tertiary education studies. As part of the reform, DKK 400 million (EUR 53.8 million) is being allocated in the period 2017-2024 for continuing professional development of teachers and upper secondary school heads (Leffland (2014), European Commission (2017a)).

<http://english.oim.dk/media/18649/danmarks-nationale-reformprogram-2017-uk-150617.pdf>

6. Modernising higher education

Denmark's tertiary attainment is among the highest in the EU and graduates have good employment opportunities. The last decade witnessed an increase of 30-34-year-olds with a tertiary degree by nearly 10 pps. to 47.7 % in 2016, in line with peer EU countries. As everywhere else except Germany, more women than men attain tertiary education: the gender gap of 13.6 pps. in 2016 was higher than the EU average of 9.5 pps. The proportion of foreign-born graduates increased even more than for native-born, to 59.8 % in 2016, thus 14.7 pps larger than that of native graduates. The employment rate of recent higher education graduates is, at 86.4 % in 2016, well above the EU average of 82.8 %. However, recent growth in third-level participation may be happening in 'less employable' subject areas. A recent analysis by the Ministry for Higher Education shows that in the period 2007-2014 there were numerous study programmes where recent graduates had substantially higher than average unemployment rates (Ministry of Education, 2014a). In February 2017, 17 % of those who graduated in 2016 were unemployed 1 year later, with graduates from humanities being affected in particular (Akademikerne 2017).

According to Cedefop the composition of the labour force is expected to change dramatically by 2025. A 10.4 pps. rise in higher qualifications means that close to half of the population (48.8 %) will be in this category in 2025 (Cedefop 2015), very high compared to the EU average (38.2 %) ⁶⁵. There will be a drop in the share of the population of 8.8 pps. holding medium qualifications (30.3 %) and of 1.6 pps among those with low qualifications (13.8 %).

Denmark is managing student flows better, strongly increasing student and graduation numbers. Having doubled the number of tertiary education students since 2008 and having traditionally experienced a slow transition from study to work in certain subject fields, Denmark has recently sought to better manage the flow of students. The government identified the following new aims for the higher education sector, to be discussed and implemented with stakeholders:

- 1) better match with the labour market, aiming for at least 60 % of graduates to be employed in the private sector;
- 2) a well-educated labour force: at least 50 % of 30-year-olds will have completed tertiary education, with at least 60 % of these graduating in the allotted degree time;
- 3) faster integration into the labour market for new graduates, with the same employment rate as the overall population;
- 4) higher quality and stronger learning outcomes in higher education;
- 5) better access to good education in all regions.

⁶⁵ In contrast to other countries where the percentage of lower qualifications is expected to shrink more significantly (Austria: 14.5 % and Finland: 11.5 %) in Denmark this group is expected to still account for a fifth (with 20.9 %), markedly more than the EU average of 13.8 %.

The previous government's action to adjust student intake and direct students towards areas with better employment prospects seems to have had a negative impact on enrolments. Enrolments dropped by 1 % from an all-time high in 2015, but more sharply in academic than applied programmes. Registrations for humanities decreased on the previous year by 26 %. One of the most pronounced falls was a 38 % drop in new students for design programmes, an area where employment of graduates is a particular challenge. By contrast, engineering (BA and MA) increased by 14 %, medicine by 9 % and building management by 6 %.

7. Modernising vocational education and training and promoting adult learning

The vocational education and training sector struggles to attract enough students. In Denmark, the proportion of upper secondary students (ISCED 3) in vocational education and training (VET) was 42.5 % in 2015, lower than the EU average of 47.3 %. At 80.7 %, the employment rate of recent VET graduates exceeds the EU average of 75 % (2016). In 2016/2017, only 18.5 % of young people applying for upper secondary education had VET as a first choice. In the Danish Profilemodel, 30% are expected to receive a VET qualification. This number counts also all those who do not come directly from primary school, including the 18-24 year olds and adults, which represent the largest group of students in vocational education. The difficulty in attracting young people into VET is leading to a significant shortage of skilled workers, which could ultimately lead to slower economic growth. According to a study, Denmark could lack 70 000 skilled workers by 2025.

A major reform of VET was implemented in 2015. The aims are: to attract more students; to increase completion rates; and to challenge every learner to reach his/her full potential. Entry requirements were strengthened, accompanied by the offer of a 10th grade vocational programme to help students achieve the minimum grades required in maths and Danish. The structure of VET has been simplified, progression routes into higher education and training improved and support for upskilling of VET teachers and trainers strengthened. While dropout rates have been reduced, the proportion of young people applying has not increased. While the majority of qualified students usually succeed in finding an internship, some parts of the labour market still do not offer enough apprenticeship places. The government and social partners agreed in 2016 on a plan to increase by 10 000 the number of apprenticeship places in occupations with good employment prospects, not long ago to allow for an evaluation.

With 27.7 % adult learning participation in 2016, Denmark ranks among the top performers in the EU. Despite overall very high participation rates, highly qualified adults participate twice as much as the low qualified. The reform of vocational education for adults introduced in 2015 needed to be adjusted in 2017 due to some structural challenges since admission numbers after the initial reform had declined by up to 20 %.

Efforts have focused on strengthening the participation of the low skilled in adult learning. New targeted economic support has been put in place, and adults above the age of 25 can participate in more tailor-made programmes adjusted to their prior education and training experience. In response to the stricter entry requirements for VET, a new pilot programme for unskilled adults in the Copenhagen region aims to enhance their competences in maths and Danish in addition to building personal skills and guidance for further education and training. An evaluation of the programme showed good results for skills progression and the transition into VET programmes.

Box 2: 'Youth in Growth' helps finding a sense of purpose and belonging

Young welfare recipients in the Danish towns of Hjørring, Broenderslev and Frederikshavn benefited from a project running from 2010 to 2014 that raised their levels of education and increased their employability.

Youth in Growth, with a total budget of EUR 2 415 935 and co-financed by ESF, helped 400 young people aged between 18 and 25. The project's on-the-job training "tasters" enabled the young people to get a feel for different training options and improved their personal and social skills needed to prosper in life.

Coordinators provided individual supervision and monitored participants as they undertook their programmes. The relationship between coordinator and young person proved to be crucial. Coaching addressed specific individual problems and helped to develop new, more constructive types of behaviour. In addition, group activities gave the young people a sense of belonging and taught them how to cope in social situations.

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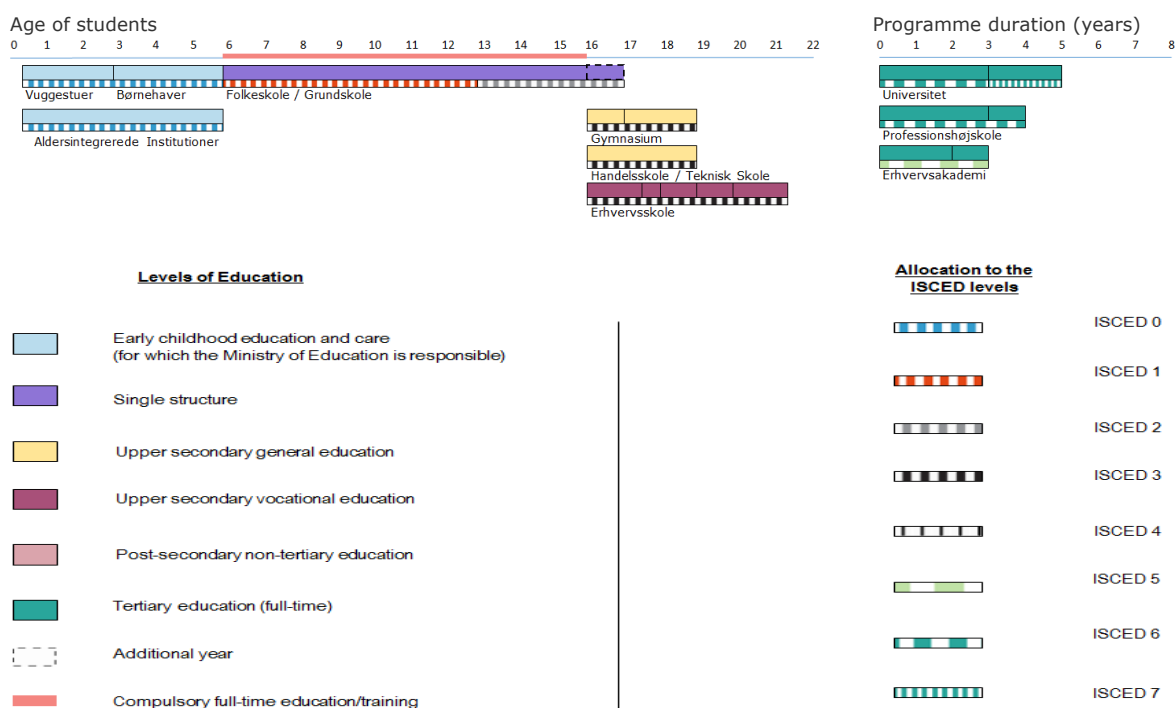
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9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. The structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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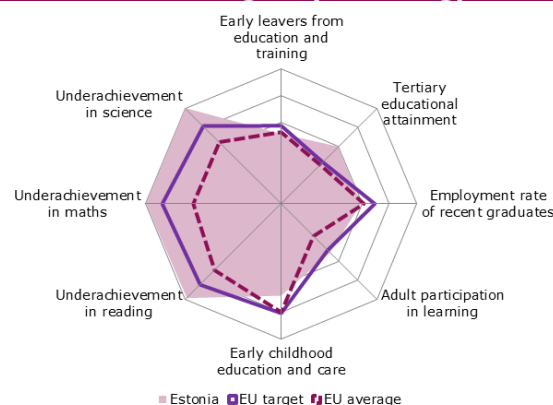
ESTONIA

1. Key indicators

		Estonia		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	9.7%	10.9%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	42.5%	45.4%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		90.0% ¹²	91.6% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	9.1% ¹²	10.6% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	10.5% ¹²	11.2% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	5.0% ¹²	8.8% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	76.8%	77.1%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	12.6%	15.7%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP		6.0%	6.1% ¹⁵	5.0%	4.9% ¹⁵
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€5 237	€5 028 ¹⁴	:	: ¹⁴
		ISCED 3-4	€4 526	€5 184 ¹⁴	:	: ¹⁴
		ISCED 5-8	€8 566	€8 986 ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	9.7%	10.9%	11.0%	9.8%	
	Foreign-born	:	:	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	41.4%	45.3%	37.8%	39.9%	
	Foreign-born	61.8%	46.5%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	68.0%	78.7%	69.4%	72.6%	
	ISCED 5-8	85.5%	75.5%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	1.2%	3.1% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	5.0%	6.3% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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 address 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.

3. Tackling inequalities and promoting inclusion

The impact of socioeconomic status on student performance is low and achievement in basic skills is high. According to the 2015 OECD Programme for International Student Assessment (PISA), the proportion of Estonian 15-year-olds who fail to reach a minimum level in basic skills is the lowest in the EU in science (9 %) and mathematics (11 %), and the second lowest in reading (11 %). Gender gaps are among the lowest in the EU.⁶⁶ In addition, underachievement among students from the bottom socioeconomic quartile (13.5 %)⁶⁷ and the gap in underachievement between students from the bottom and top socioeconomic quartiles (9.8 pp.) are the lowest in the EU. Resilience⁶⁸ among disadvantaged students is high. Top achievement among disadvantaged students is the third highest in PISA, while the percentage of variation explained by socioeconomic status is small at 7.8 % compared to 14.3 % in the EU (OECD, 2016a). These figures show that the Estonian education system is both equitable and effective.

The performance gap in PISA between Estonian and Russian mother tongue students remains important. In PISA 2015, the performance gap between Estonian and Russian-speaking students is 44 score-points in science, which corresponds to more than one year of schooling (MoER, 2016b). The proportion of students completing basic education at Russian-medium schools who achieved at least an intermediate level of proficiency (i.e. B1)⁶⁹ in Estonian is increasing steadily (64 % in 2015 from 56 % in 2011), but remains below the 2020 target of 90 %.⁷⁰ There are plans to improve the teaching of Estonian as a second language in kindergarten, including through additional training for teachers (NRP, 2017b). Evidence shows that Estonian language immersion classes are effective in supporting language development, with 90 % of students reaching the required B1-level at the end of basic education (MoER, 2016c).

Early school leaving (ESL) remains a challenge. The proportion of early school leavers aged 18-24 decreased to 10.9 % in 2016, compared to 12.2 % the year before. This is close to the EU average (10.7 %), but still above Estonia's Europe 2020 national target of 9.5 %. The gender gap remains significant: 14.3 % of men aged 18-24 were early school leavers in 2016, compared to

⁶⁶ There are minimal differences in achievement between boys and girls in science and mathematics. The gap in reading performance is declining as a result of better results for boys (MoER, 2016a).

⁶⁷ This is in fact the lowest among all 72 countries participating in PISA.

⁶⁸ Resilient students are those from the bottom quartile of the PISA index of economic, social and cultural status (ESCS) who beat the odds against them and perform at high levels when compared with students of the same socio-economic status from around the world (OECD, 2016a)

⁶⁹ According to the common European framework of reference for languages.

⁷⁰ Ministry of Education and Research (MoER, 2016c).

7.4 % of women in the same age-group. ESL is particularly high in Central Estonia and in rural areas. Dropout rates in basic education are relatively low (0.3 % in 2016). However, dropout rates in the first year of upper secondary vocational education and training (VET) remain relatively high, but have decreased in recent years — down to 22.4 % in 2016 from 28.5 % in the peak year of 2011. Career counselling and increasing the attractiveness of VET to tackle dropout are also being pursued (NRP, 2017b). Extending the number of years of compulsory education (which starts at age 7 and ends with graduating from basic education or turning 17) is being discussed.

Efforts are underway to increase participation in early childhood education and care (ECEC), which remains below the EU average. 91.6 % of Estonian children aged 4-compulsory school age (7 years old) were enrolled in ECEC in 2015. This is below the national target of 95 % and the EU average of 94.8 %. In Estonia it is compulsory for municipalities to guarantee (at the request of parents) a place in ECEC for children starting from the age of 1.5, but shortages of places and facilities exist, in particular for the age-group 1.5 – 3, and mainly in urban areas. According to Eurostat, 5.3% of children aged 0-2 were enrolled in ECEC in 2015. Enrolment was 61.2 % for children aged 2 and 86.9 % for children aged 3. Authorities plan to create an additional 3 200 places (the equivalent of 5 % of the total number of children in ECEC in 2016⁷¹) by 2020 with the support of the European Regional Development Fund (ERDF) and the European Social Fund (ESF). 558 places were already created in 2016.

4. Investing in education and training

Spending on education is traditionally high. In 2015 general government expenditure on education accounted for 6.1 % of GDP (+0.4 pp. more than the previous year), significantly above the EU average of 4.9 %. This marks a 5.6 % annual increase in real terms. Spending on education is also high as a proportion of total government spending (15.1 % compared to the EU average of 10.3 % in 2015).

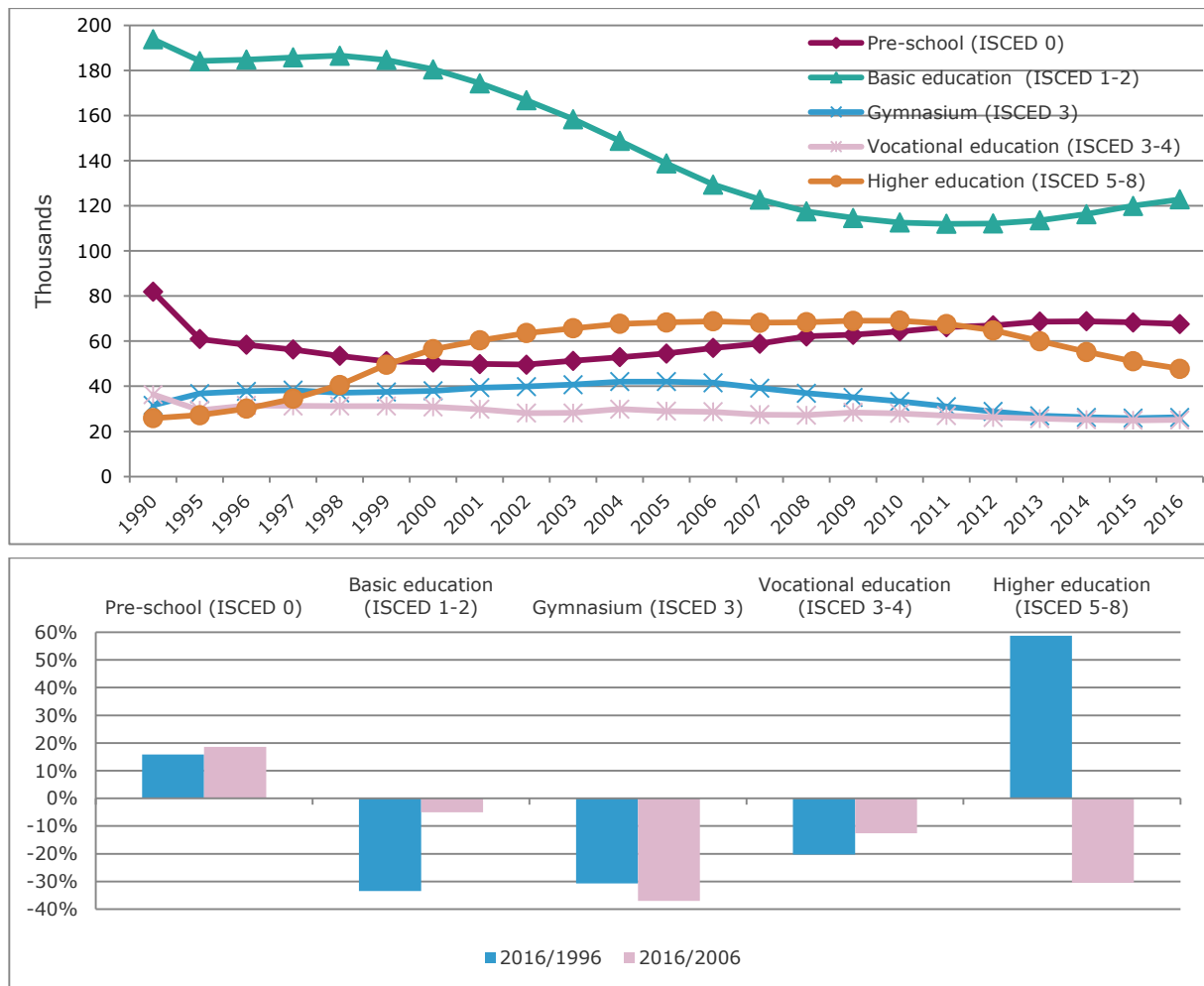
The impact of demographics is different across levels of education. Estonia's school population has been through demographic changes since the '90s, due to lower birth rates and emigration. The impact is being felt today in particular at general upper secondary and tertiary level (see Figure 2). In 2016⁷² the number of students in gymnasiums (ISCED 3) was 37 % lower than a decade earlier, and 12 % lower in vocational education (ISCED 3-4). In higher education, the number of students increased steadily from the '90s until 2010, but has dropped by more than 30 % since. More recently, an increase in birth rates and changing migration flows⁷³ have been reshaping some of the previous trends. The number of children in pre-school education increased steadily from 2002 until 2014, but is expected to fall slightly (Statistics Estonia, 2016). Overall, in 2016 there were 18 % more students enrolled in pre-school compared to a decade earlier. The sharp decline in basic education (ISCED 1-2) — which started at the end of the '90s — was reversed in 2012.

Estonia is taking measures to increase the efficiency of spending, but adjusting to demographic trends requires further coordination of resources and responsibilities. In 2015, Estonia started to re-centralise general upper secondary schools (gymnasiums) to address concerns over the slow and incomplete adjustment by municipalities to demographic trends and to ensure quality, in particular in small schools. The aim is to establish state-owned schools and reduce the number of gymnasiums operated by municipalities. So far, 12 out of the 24 planned state-owned gymnasiums (offering grades 10-12) are operational, of which seven with the support of ERDF. Three additional gymnasiums are expected to become operational by September 2018. Incentives were put in place for authorities reorganising their school network, which includes discontinuing the provision of general upper secondary education, agreeing to establish state gymnasiums, merging or restructuring basic schools). The local administration reform is expected to have an impact on the school and pre-school network.

⁷¹ A 2015 report estimated the unmet need of places at 2 300 for ages 1-6, based on requests by parents (National Audit Office).

⁷² Latest data available.

⁷³ Net migration has been positive since 2015.

Figure 2. Trends in the number of students by level of education


Source: DG EAC elaboration of data from Statistics Estonia. Online data codes: *ESG03* and *ES01*.

5. Modernising school education

The proportion of top performing students in PISA is increasing. PISA 2015 shows that 13.5 % of Estonian students demonstrated high-complexity skills in science and 11.1 % in reading – an increase compared to previous PISA rounds (OECD, 2016a). The proportion of top performers in mathematics remained broadly stable at 14.2 %. These figures are among the highest in the EU, and above OECD averages. Estonia's Lifelong Learning Strategy sets national targets for the proportion of top performing students to be attained in the PISA 2018 round. The target for reading (10 %) has already been reached. The others are 16 % for mathematics and 14.4 % for science.

In the context of a rapidly ageing teaching workforce, Estonia is taking measures to increase the attractiveness of the profession. With nearly half of Estonian teachers aged over 50, Estonia has one of the fastest ageing teaching workforces in the EU. Increasing salaries has been high on the political agenda in recent years. Teacher salaries have increased by around 50 % between 2011 and 2016 – above the Estonian average. The aim is for teachers' salaries to reach at least the same level as the average salary of higher education graduates (i.e. 120 % of the average national wage) by 2020, compared to 107 % in 2015 and 95 % in 2011. The minimum school teacher salary will be raised to EUR 1 050/month from autumn 2017, while the average teacher salary will increase to EUR 1 300/month. In addition, local authorities were offered

additional funding from the State to bring the average salaries of pre-school teachers⁷⁴ to at least 80 % of the minimum salary in general education by September 2017. A further increase to 85 % was announced for 2018.

The attractiveness of the teaching profession remains low. Indicators related to the proportion of young teachers, gender patterns and entry into the teaching profession have not improved in recent years. Reports show that teachers feel their work is not valued by society and that teacher training programmes are only able to attract upper secondary graduates with low exam scores. Teaching is considered stressful and low-paid. Teachers also reported lack of feedback and support from mentors, and insufficient cooperation with other teachers and parents (MoER, 2016d). Several measures are underway to address these concerns, including support for initial teacher education and continuous professional development financed by ESF. In 2017 universities revised admission requirements for teacher education programmes to engage more motivated students.

There is a greater focus on digital learning and developing entrepreneurship at all levels, including in schools. Digital learning is addressed in various aspects of education, including changes to the national curriculum, providing students and teachers with the necessary digital tools, including in teacher education, as well as creating and implementing assessment models to assess digital competences. A self-assessment tool on digital capacity for schools is being piloted. In addition, an entrepreneurship model is to be developed at all levels of education. At the end of 2016, 26 % of all general education schools, 61 % of vocational education schools and 68 % of higher education establishments were already participating in this programme (NRP, 2017b).

Box 1: Estonia's success in school education

Estonia's success can be explained by a mix of policy measures and the overall societal context, which places great value on education. Estonian schools have considerable autonomy, including decisions about school finances, education priorities, and implementation of the curricula. Over time, the curricula were revised to emphasise problem-solving and critical thinking. Several measures were taken to ensure equity and inclusiveness. These include free schools meals, counselling and personalised support for weaker students. Tracking into different educational pathways takes place later than on average in the OECD (at 15 or 16 compared to 14).

In addition, investments targeted at Russian-language schools seek to close the performance gap between Estonian- and Russian-speaking students, including through Estonian language immersion classes implemented in kindergartens and schools. Joining the language immersion programme is voluntary for both educational institutions and children's families. 26.3 % of kindergarten children and 20.3 % of Russian-speaking students in basic schools are participating in language immersion classes.

6. Modernising higher education

Tertiary educational attainment is high and growing, but low completion rates persist. In 2016 tertiary attainment among those aged 30-34 was 45.4 % (a slight 0.1 pp. increase over 2015), above the EU average of 39.1 % and the Europe 2020 target of 40 %. Although declining, the gender gap in higher education remains significant (38.8 % for men and 52.4 % for women). While the level of tertiary attainment has traditionally been high in Estonia, the attainment rate of future generations is likely to decrease if the current completion patterns persist: only half of bachelor's students actually graduate (OECD, 2016b). The proportion of foreign students increased to 8 % in the academic year 2015/2016 (nationally-set target: 10 %).

⁷⁴ Currently the salary of pre-school teachers varies a lot among local governments: from EUR 470 to EUR 1 000/month.

The new funding system provides for more stability of resources, while performance indicators target the timely completion of studies. In January 2017 Estonia significantly revised its funding model, shifting from mainly performance-based funding to 80 % baseline and 20 % performance funding. The revision was decided because the previous model risked creating sudden fluctuations in funding in the specific national context (Mihkel Lees, 2016). Among performance criteria, the proportion of students graduating within the nominal time has the biggest weight (35 %), putting pressure on universities to increase student motivation and opportunities to graduate on time. Other criteria include: proportion of graduates employed or continuing to master's or doctorate (20 %), proportion of students accepted to fields of responsibility (15 %), foreign students (10 %), revenues from educational activities (10 %), and mobile students (10 %).

Estonia set up a forecasting tool to anticipate labour market and skills needs, including forward planning for education and training. Following the 2016 pilot, OSKA started reviewing Estonia's economic sectors and making recommendations for the education and training system. OSKA recommendations were embedded in performance criteria in higher education and are expected to be followed up in VET education (see Box 2). After recovering from the crisis, the employment rate of recent tertiary graduates dropped to 75.5 % in 2016, compared to 86.1 % in the previous year. Although the rate is below the EU average (82.8 %), the drop does not appear to have been triggered by factors in the labour market, nor in the education sector.⁷⁵ Although the statistics on graduates by fields of study are close to EU averages, including in STEM-related fields (see Figure 3), the actual number of graduates per 1 000 inhabitants is one of the lowest in the EU. Since 2013 Estonia has been using administrative data to track graduates from higher education and VET.

Box 2: Estonia's system of labour market monitoring and future skills forecasting (OSKA)

OSKA is a forecasting tool to anticipate labour market and skills needs developed with the support of the ESF. OSKA conclusions and recommendations are based on expert panels that include representatives of trade associations and employers, educational institutions and the public sector.

Economic sectors are analysed in-depth once every five or six years, with monitoring in the following years. A general report on changes in labour requirements, labour market developments and trends over the next 10 years is prepared annually.

Sectors reviewed in 2016 include accounting, forestry and timber, ICT, manufacturing of metal products and social work. Ongoing reviews include construction, energy and mining, healthcare, manufacturing of chemical products, agriculture and food, as well as transportation and logistics. For 2018 a review of tourism, education, human resources, textile, trade and water supply sectors are planned.

Specific recommendations include:

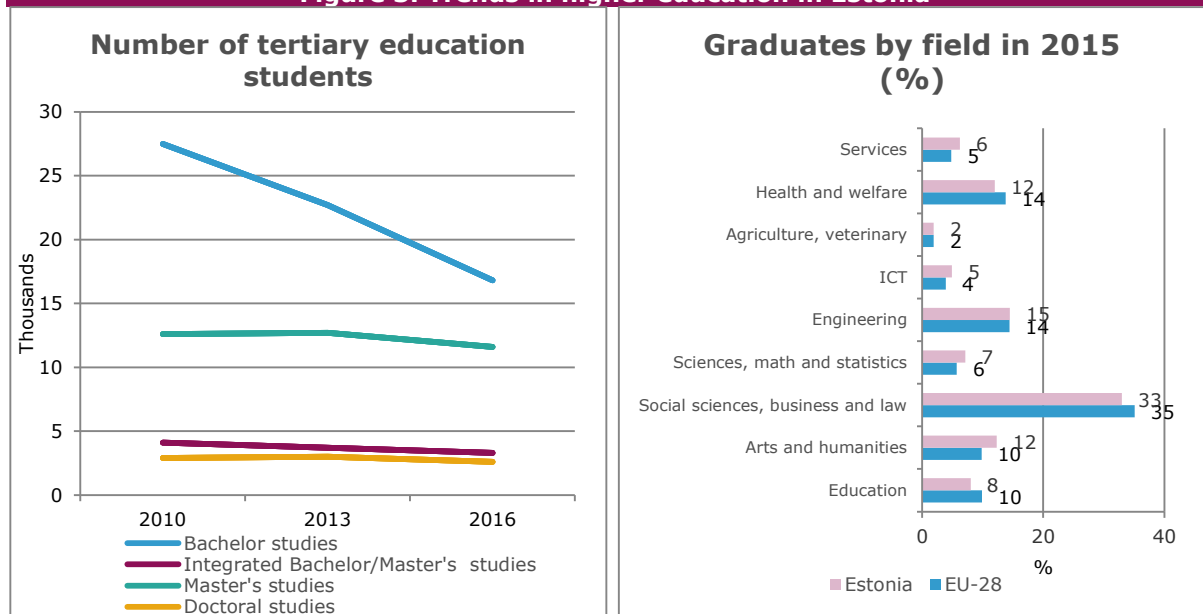
- Abolishing the clear distinctions between bachelor's-level study curricula and professional higher education, and creating the opportunity for learners to choose between academic or applied courses in the third year of study;
- Increasing the number of ICT professionals by a factor of 1.5 by 2020, in particular by ensuring a completion rate of at least 70 %;
- Reducing the number of places in VET for accountants and reducing dropout at master's level;
- Adjusting the number of study places for machine-tool operators in degree courses and decreasing the training volume of operators of conventional metalworking machine tools.

<http://oska.kutsekoda.ee>

⁷⁵ This may be linked to sampling.

Private investment in R&D has increased but remains low⁷⁶ and academia-business cooperation is improving, but needs to be further strengthened. Besides these two challenges –highlighted in the 2017 Country Specific Recommendations, the Estonian R&I system also faces other barriers: low efficiency of public R&I spending, shortage of skills, insufficient prioritisation of research and innovation investment and lack of entrepreneurial discovery process. Recent measures to address these challenges include support to public research organisations for applied research and the development of products in cooperation with businesses in areas addressed by the smart specialisation strategy ('NUTIKAS'). These also include changing the baseline funding formula of research institutions to provide incentives for public and private sector contract research and the 'ADAPTER' platform, launched as a one-stop shop for companies willing to engage in research with universities. Doctoral studies in cooperation with enterprises and support for businesses to participate in technology development centres and clusters are being implemented. Finally, the 'RITA' programme has enabled the creation of specialised civil servant profiles in line ministries to help deliver R&D priorities closer to business needs in smart specialisation areas (European Commission, 2017).

Figure 3. Trends in higher education in Estonia



Source: DG EAC elaboration of data from Statistics Estonia. Online data code: *ESG03* and Eurostat online data code: *educ_uoe_grad03*.

7. Modernising vocational education and training and promoting adult learning

Estonia is making efforts to address the challenges of low attractiveness of VET and skills mismatches. The proportion of upper secondary VET students increased slightly in 2015 to 35.7 % (EU average 47.3 %). The employment rate of recent VET graduates (82.1 % in 2016) was well above the EU average of 75 %. The main challenges include: the low level of participation in apprenticeship training, the high drop-out rate from initial VET programmes, and skills mismatches. ESF-funded projects seek to increase the low level of participation in work-based learning, supporting the first groups of apprentices in upper secondary VET (study length 3.5 years) and piloting of apprenticeship in higher education (study length 3 years). In addition, OSKA recommendations are to be used in curriculum development, career counselling, and planning of VET. Changes to the tracking system into upper secondary general and VET are also being discussed.

⁷⁶ 0.69 % of GDP in 2015

Adult participation in learning is at its highest, with a rate of 15.7 %, and is over the EU 2020 target of 15 %. Participation in adult learning is increasing and is well above the EU average (10.8 % in 2016). The national target set under the Lifelong Learning Strategy 2020 is 20 %. Some challenges remain, in particular with regard to access to learning for disadvantaged groups. Participation by prior level of education shows that only 5 % of low-skilled Estonians took part in adult learning in 2016, compared to 10.9 % for medium-skilled and 25 % for those highly skilled. Other challenges include lack of impact evaluation of adult learning and the lack of incentives for employers to offer training and retraining among their workforce, particularly for disadvantaged adults. Several measures to raise awareness about adult learning were taken, including a communications campaign, a satisfaction survey and an online test for adults to test their skills and receive feedback.

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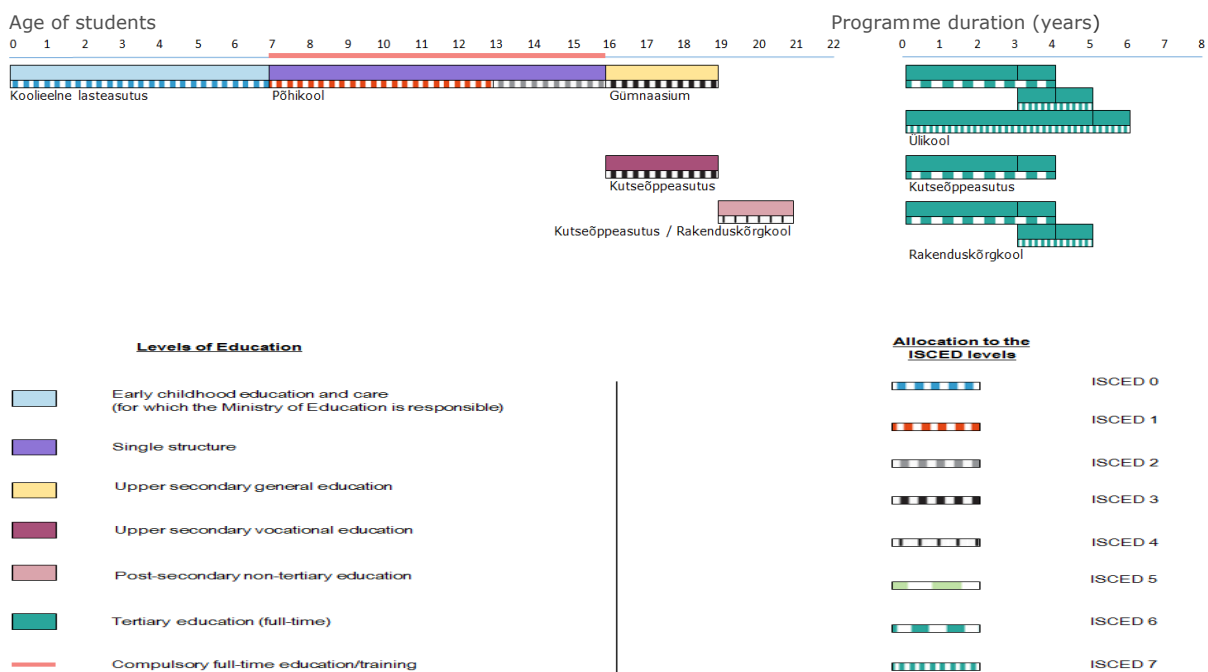
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9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. Structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg; Publications Office of the European Union.

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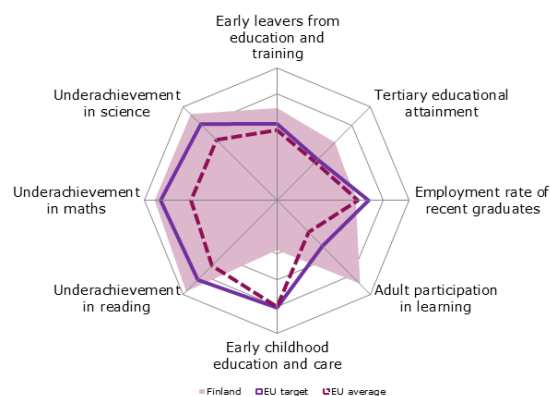
FINLAND

1. Key indicators

		Finland		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	9.3%	7.9%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	45.1%	46.1%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		75.1% ¹²	83.6% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	11.3% ¹²	11.1% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	12.3% ¹²	13.6% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	7.7% ¹²	11.5% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	79.8%	77.4%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	24.9%	26.4%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP		6.4%	6.2% ¹⁵	5.0%	4.9% ¹⁵
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€7 512	€7 675 ¹⁴	:	: ¹⁴
		ISCED 3-4	€6 502	€6 396 ¹⁴	:	: ¹⁴
		ISCED 5-8	€13 223	€13 065 ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	8.9%	7.6%	11.0%	9.8%	
	Foreign-born	17.4% ^u	15.1% ^u	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	46.4%	47.8%	37.8%	39.9%	
	Foreign-born	32.7%	32.3%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	75.9%	75.5%	69.4%	72.6%	
	ISCED 5-8	85.7%	80.4%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	5.1%	5.6% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	8.9%	10.4% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor). For ECEC there is a break in the time series between 2012 and 2015. 2012 family day care not included. 2015 family day care included."

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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.

3. Tackling inequalities and promoting inclusion

Finland has a generally well performing education system. Early school leaving rates had remained largely unchanged at about 9 % since 2012. They are below the national and Europe 2020 target of 10 %, but nevertheless are considered a particular national challenge. The 1.2 pps. reduction to 7.9 % in 2016, the largest since 2008, suggests that recent counselling and support measures were successful. The rate for boys is 1.3 times higher than for girls, broadly in line with the EU average. Foreign-born young people show much higher rates than natives (15.1 % against 7.6 %).

Educational outcomes remain among the best in the EU, but have continued to decline, in particular in science and mathematics. According to the 2015 OECD Programme for International Student Assessment (PISA) survey, the decrease in the mean score in science between 2006 and 2015 amounted to about one school year (32 points). Nevertheless, Finland scored second among EU countries behind Estonia in science and mathematics and remains the best performer in reading. Compared to 2006, the proportion of low achievers in science has nearly trebled, while the proportion of top performers⁷⁷ dropped by about a third. The proportion of low achievers increased in both mathematics and reading and that of top performers shrank in mathematics. Only the share of top performers in reading remained relatively unchanged⁷⁸. The proportion of low achievers now stands at 11 % in science and reading, and at 14 % in mathematics, still among the lowest in the EU in all three tested fields.

The influence of socioeconomic background on educational outcomes is weaker than in other comparable countries except Estonia. In Finland, 10 % of the variation in science performance can be explained by students' socioeconomic status, compared to 19 % in Belgium and 16 % in Austria and Germany. Differences in performance within and between schools remain rather small. 18.9 % of pupils from the lowest socioeconomic quartile are low achievers, against 4.6 % from the highest quartile. Conversely, 24.5 % of pupils from the highest socioeconomic quartile are top performers, compared to 6.5 % from the lowest quartile. Girls outperform boys in all fields. Low achievement in reading is three times higher among boys than girls (15.7 % compared to 5.7 %). The increased rate of low performance noted in mathematics and science results entirely from the poorer performance of boys.

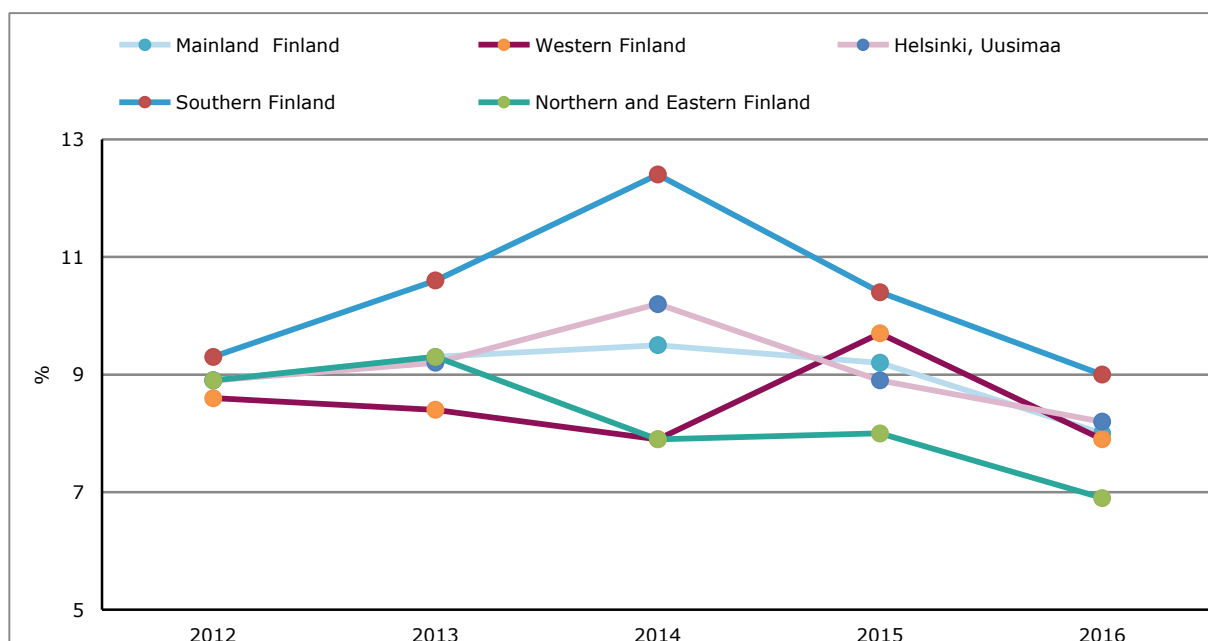
⁷⁷ Students at or above proficiency Level 5 in PISA tests are the best performers, while students at or below Level 2 are poor performers.

⁷⁸ The share of high achievers in science shrank by 6.6 pps. between 2006 and 2015, one of the largest reductions among OECD countries. The share also diminished in mathematics between 2012 and 2015, by 3.6 pps., but in reading remained stable between 2009 and 2015. The proportion of low performers increased in science by 7.4 pps. (2006-2015), and by 3 pps in reading and 5.6 pps. in mathematics, both between 2009 and 2015.

The foreign-born do much worse in education, as do certain regions. The immigrant population in schools remains comparatively small (1st/2nd generation represented 2.2% and 1.8% respectively PISA in 2015). However, the achievement gap between migrant and non-migrant students is the most significant in the EU (83 points) and the third largest when adjusted for socioeconomic status (65 points). Within the literacy programme for immigrants, a new training module engaging adult education institutions and broadening available training was created in mid-2017. Low achievement in PISA 2015 also showed differentiation by region, with the Helsinki metropolitan area achieving better results than other parts of the country. For all subjects Western Finland does worse by up to 37 points (or about one school year) compared to the best performing Helsinki metropolitan area (National Report PISA 2015).

Participation in early childhood education and care (ECEC) for the very young is higher than average but comparatively low for older children. For children under 3 years old, Finland has just reached the Barcelona target of 33 %, better than the EU average. Most participants in ECEC stay more than 30 hours per week. For those between 4 years old and the compulsory school age, Finland is among the countries with the lowest participation rates, 83.6% in 2015.

Figure 2. Early leavers from education and training (age 18-24) in regions of Finland



Source: Eurostat (LFS 2012 -2016). Online data code: [edat_lfse_16](#).

The government is taking measures to increase quality in education and to halt the increase in inequality, but budgets have reduced. New curricula at all education levels update learning to face the changed environment of the 21st century. The new teacher education development programme follows multiple goals. By upgrading teachers' competences and carrying out research on maintaining a high quality of teaching, Finland aims to continue to attract the best to become teachers. Innovative learner centred pedagogics facilitate collaboration among teachers, supported by well-trained school leaders. The new comprehensive school initiative aims to give educators the ability to teach the new curriculum in a way that inspires students'. (Box 1). However, all in all, the lack of a clear understanding of the causes of increasing inequality in Finnish education is the main current challenge. Measures will in particular have to address the concentration of poor performance among boys and migrants.

Box 1: The new comprehensive school programme

The programme, with a budget of EUR 90 million in 2016, aims to make Finland the leading country for modern learning and inspiring education by 2020. The programme has three strands: teacher education, innovative pedagogy and local experimentation.

New comprehensive schools should create networks involving parents and other schools. Engaging the whole school community aims to generate a variety of local practices, allowing the best ones to be shared nationally and internationally. The vision for these new schools has been developed by experts and is to be introduced in 2017.

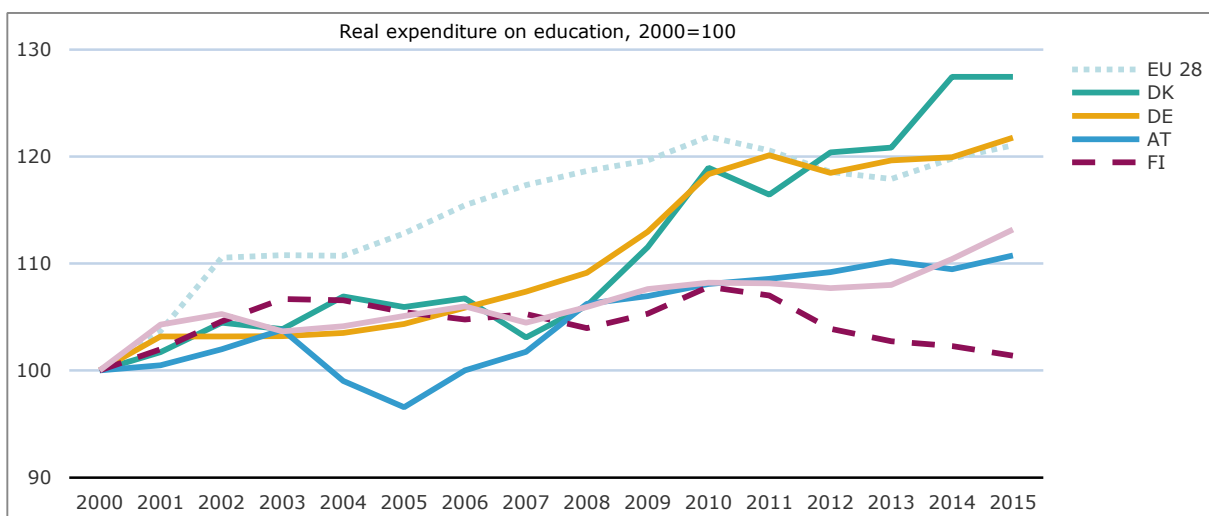
Based on the findings in a teacher forum, initial teacher education and continuing professional development will be amended in the teacher education development programme. Training will be better adapted to the actual skills and development needs of teachers and school heads. It will be supplemented by digital online content and mechanisms fostering more collaboration among teachers.

A selection of concrete innovative educational approaches is being tested from the bottom up. Results will be synthesised by the Finnish National Agency for Education. All comprehensive schools will be given tutor teachers to support their peers in new (digital) learning methods and collaborative teaching. EUR 7.5 million has been earmarked in 2016 to train and support 2 500 tutor teachers.

4. Investing in education and training

Education expenditure has declined in recent years, albeit from a comparatively high level. In 2015 general government expenditure on education was among the highest in the EU as a proportion of GDP (6.2 %), and close to the EU average as a proportion of total general government expenditure (11 %). Finland has seen a continuous reduction in education expenditure in real terms since 2010 (Figure 3); savings of over EUR 650 million per year (i.e. 5 % of total education spending) are envisaged until 2020. Budget cuts in education between 2016 and 2019 will be equivalent to 1.2 % of GDP. Finland's population is projected to grow by 4 % by 2030: the number of children under 7 will diminish by nearly 4 % while school-age young people (ages 7-18) will increase by 1.5 %. By 2022, there will have been an increase of 3 % in numbers at compulsory school age, after which there will be a small decline until 2040.

Figure 3. Comparative development of general government expenditure on education



Source: Eurostat (COFOG 2000 - 2015). Online data code: gov_10a_exp.

There are ongoing funding cuts in higher education. For the period 2017-2019 transfers to higher education institutions are being cut by EUR 75 million annually. In 2017 a special pharmacy tax compensation going to the Universities of Helsinki and of Eastern Finland was removed, resulting in their state funding reduced by EUR 30 million. Financial aid to students will be reduced in the same period by EUR 47 million, 96 million and 81 million in successive years. A recent study underlined the important contribution universities make to the economy with up to EUR 14.2 billion gross value added for the Finnish economy⁷⁹. The recent midterm review of the government programme announced EUR 105 million additional funds for education and research without, however, really reversing the longer term downward funding trend. A continued negative trend in spending in education risks undermining competitiveness (European Commission 2017).

5. Modernising school education

The school system is highly decentralised, giving teachers a high degree of autonomy.

There is strong school leadership and a strong role of local authorities compared to other countries. In curriculum development, Finnish teachers have the highest autonomy among European countries. School leaders and local authorities have the main responsibility for school resources and to approve students' admission to school. Teachers, under the leadership of principals and with some involvement from both local and national authorities, determine student assessment policies (OECD 2016b).

Finland has comparatively low teaching time. With about 600 hours teaching time annually in lower secondary education in 2014, a figure more or less unchanged since 2000, Finnish contact hours are comparatively low: within the EU, only Flanders (Belgium), Poland and Greece are lower. Teaching hours per year are also much more evenly distributed across levels of education, without negative effect on educational outcomes (OECD 2016a).

Teachers are well educated and research-minded. Teachers are trained in eight universities by educators most holding PhDs and actively engaged in research. Teaching is a popular profession and only a fraction of initial applicants are admitted to training⁸⁰. All teacher graduates are qualified at master's level. The age of teachers in Finland is evenly spread⁸¹. Teachers earn practically the same as other tertiary educated workers (OECD 2016a). Internationally, they earn less after 15 years of service Finnish primary, lower and upper secondary teachers earned less than their Danish, Dutch or German peers.

Municipalities organise induction and professional development of teachers. Teachers and municipalities are supported by the Finnish Network for Teacher Induction. This collaborative network promotes a peer group mentoring model known as *'verme'*, which allows for continuous reflection on what constitutes good teacher performance. Education providers also organise continuing professional development, with different sources of funding. There is a large disparity in days of participation (Lintuvuori et al., 2014)⁸². TALIS 2013 identified the following weaknesses:

- a lack of pedagogical leadership;
- few personal study plans for teachers;
- weak collaboration and networking among teachers.

The Finnish Teacher Development Programme is a key element of current reforms. Published in October 2016, it was developed with stakeholder involvement through the Teacher Education Forum and aims via a range of actions to maintain the excellence of Finnish teachers. Another key element is the ongoing curriculum reform at all educational levels, preparing students to acquire competences needed in the 21st century (Box 1).

⁷⁹ The country's 14 universities contribute 6 % of economic added value, employing around 136 000 people. Each euro spent generated benefits of EUR 7.76, while each university job indirectly supports more than four others elsewhere. The study calculated that a 10 % reduction in universities' core funding could result in the Finnish economy losing 16 900 jobs and EUR 1.8 billion (BIGGAR Economics, 2017).

⁸⁰ The University of Helsinki, for instance, accepted only 8 % of its applicants in 2016.

⁸¹ About a third is over 50 years old in primary (30 %) and lower secondary (30 %) schools and a little older in upper secondary school (45 %).

⁸² The disparity reaches also across age groups and geographical regions, latest data from 2016. <https://vipunen.fi/en-gb/>

6. Modernising higher education

Tertiary attainment is high. The rate stands at 46.1 %, above the Europe 2020 target and representing a 0.6 pp. increase on the previous year. Finland has a higher share of graduates in IT (7 %), engineering (17 %) and health (19 %), and considerably fewer in social sciences (25 %) than the EU averages. The employment rate of tertiary graduates continues to decline slowly in 2016 by 0.7 pps. to 80.4%, lower than the EU average of 82.8 %.

Higher education institutions are invited to become more productive and internationally-oriented. The performance of the higher education sector is seen as being constrained by governance shortcomings. The government has outlined policies to reduce the fragmentation of the sector, encouraging higher education institutions to collaborate more. Departmental consolidation within institutions has led to progress in teaching, but strengthening the quality of research remains a significant challenge. Although there has been growth in the number of international staff, Finland's science and education systems still need to become more international and better connected to international networks. A 2016 evaluation found that university reforms had triggered a significant structural and cultural change in the way universities are led (OECD 2017a).

The government is developing a long term vision while modernisation measures continue. A highly participatory process has been launched to define the objectives for Finnish higher education and research until the year 2030. Performance agreements are being used to drive greater productivity and to shape restructuring: the 2017 funding model allots a weighting of 39 % to education; 33 % to research performance and 28 % to broad areas like strategic orientation. In addition, the reduction in the number of higher education institutions – which have reduced from 48 in 2009 to 37 today continues: three leading institutions in Tampere recently agreed to merge. The drive to change is supported by international observers (European Commission 2017, OECD 2017c).

The Academy of Finland is instrumental in streamlining the strategic orientation of universities. It has been given funding of EUR 50 million to distribute to higher education institutions. According to a review carried out by internationally renowned rectors, these plans are a basis for the distribution of funds. The Ministry of Education and Culture has prepared an international higher education and research policy (OECD 2017a). Continuing to have a very well performing general education and reversing recent developments, notably in science (see Section 2), are seen as preconditions for generating good results in higher education and research (OECD 2016a).

There is still further room for improvement on skills at both under- and post-graduate levels and to match them better to the needs of the labour market. Finland has a well-developed and recently updated system of skills forecasting combining qualitative and quantitative methods⁸³. Nevertheless, businesses express concerns that higher education programmes are too narrowly focused. In addition, skills provided through doctoral education are not sufficiently aligned with labour-market needs: this is reflected in the fact that Finnish industry employs relatively few PhD holders compared to comparable EU countries. Other significant hurdles relate to difficulties in moving between study programmes and universities; and the long time it takes students to graduate (OECD 2017a). Curriculum reform in higher education aims to strengthen learning of generic skills. Bachelor-level studies are being made more generic and suitable for several careers. Specialisation should, increasingly, happen at master's level. The University of Helsinki, with its 'Big Wheel' reform, aims to clarify the three-tier educational structure by moulding Bachelor's degree programmes into broad-based education modules that exceed subject, unit and faculty boundaries. This reduces at the same time the number of programmes.

⁸³ A new forum organised by the Ministry of Education and Culture and the National Agency for Education replaces the national education and training committees in anticipating skills demand. Nine groups address different vocational fields, drawing on inputs from employers, employees, other stakeholders and experts.

Box 2: 'Graduate tracking in Finland'

Polytechnics and universities in Finland are developing graduate career tracking through three nationwide ESF-supported projects. The objectives of the three projects (AMKista uralle -From UAS to Career, LATUA and Töissä.fi) are to:

- develop career tracking systems of higher education institutions in order to meet diverse information needs
- support the systematic use of knowledge in higher education institutions and career guidance
- establish career tracking for higher education and ensure data coverage and comparability

The projects will provide comprehensive and up-to-date information on career outcomes of graduates.

Uraseurannat: <http://uraseurannat.wordpress.tamk.fi/>

7. Modernising vocational education and training and promoting adult learning

The proportion of upper secondary students (ISCED 3) in Finland in vocational education and training (VET) slightly increased in 2015. It is now 71.3 %, well above the EU average of 47.3 %. The 77.1 % employment rate of recent VET graduates in 2016 was higher than the EU average of 75 %. Adult participation in learning is one of the highest in the EU, having increased continuously from 2000 to 2016, to 26.4 % (EU average:10.8 %). Almost 20 % of vocational students are in programmes that combine work and school based training⁸⁴. Work-based learning opportunities such as apprenticeship schemes are being increased in traditional vocational training. Students are also older: about 81 % of all apprenticeship students are over 25 years of age. In 2015 about 55 % of apprentices were women, and their proportion is growing, with, for instance, over 69 % of women in the age group 55-59⁸⁵.

Vocational education and training in Finland will undergo a comprehensive reform. In June 2017 the government adopted a new act on VET with the aim to better respond to current and future changes in the labour market, to be implemented as of 2018. A key element is to shift from the current supply-oriented to a demand-driven approach. Consolidating VET for young people and adults in a single entity with its own governance, regulation system and financing model should render it more efficient and effective⁸⁶. A new funding model is to be introduced, against the background of significant spending cuts: according to some estimates, vocational schools will suffer an additional cut of EUR 190 million in funding starting from 2017. The new funding model will focus on improving effectiveness by, for example, decreasing dropout rates. It risks to reduce access in certain regions. The reform introduces individualised pathways. These lead either to a full qualification or to a supplementary skill set, for both young people and adults already in working life. More flexible tracks should make it easier in particular for adult students to combine studies and work. Recognising existing skills of students should speed up their access to employment. The new Finnish national qualifications framework (NQF) is also a key development⁸⁷. Digital learning environments and new approaches to pedagogy (e.g. modern simulators) will have a larger role. Current plans include also increasing learning at workplaces and the creation of a new learning agreement model.

⁸⁴ Most programmes have some work-based learning that is not captured by Eurostat data since they do not meet the conditions of the ESTAT indicator.

⁸⁵ There are slightly more men than women among apprenticeship students under 20.

⁸⁶ Reducing the number of institutions in a vast country could, however, increase the risk of inequality by increasing the distances between peoples' residence and their training places.

⁸⁷ The Finnish NQF and other competence modules entered into force on 1 March 2017. It classifies qualifications, syllabi and other modules of the education and qualifications system into eight levels based on requirements. The framework helps describe the knowledge, skills and competences provided by different qualifications, syllabi and competence modules in a unified manner, thus furthering international mobility, cooperation and education export as well as recognition of Finnish qualifications abroad.

VET helps to integrate refugees and migrants. While the number of immigrants and refugees fell after its sharp increase of 32 500 in 2015, about nine times more than in 2014⁸⁸, larger immigration flows have clear implications for the training sector. The recognition of immigrants' skills and competence-based qualifications is being accelerated in cooperation with educational institutions⁸⁹. The Ministry of Education and Culture will provide EUR 20 million to subsidise vocational education and training for immigrants under a targeted programme to facilitate their swift labour-market integration. It combines language studies with vocational studies and could facilitate the recognition of immigrants' competences.

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⁸⁸ Equivalent to 10 % of the total number of immigrants and refugees already in Finland.

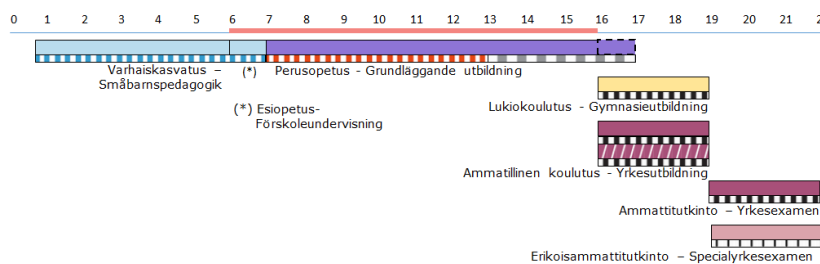
⁸⁹ The Ministry web page: Maahanmuuttajien koulutuspolut ja integrointi – kipupisteet ja toimenpiteet [Integration of refugees and education paths – challenges and measures]
http://www.minedu.fi/OPM/Julkaisut/2016/maahanmuuttajien_koulutuspolut_integrointi.html

9. Annex. Key indicator sources

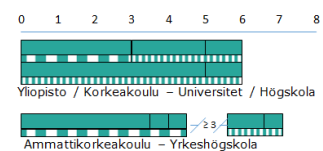
Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. Structure of the education system

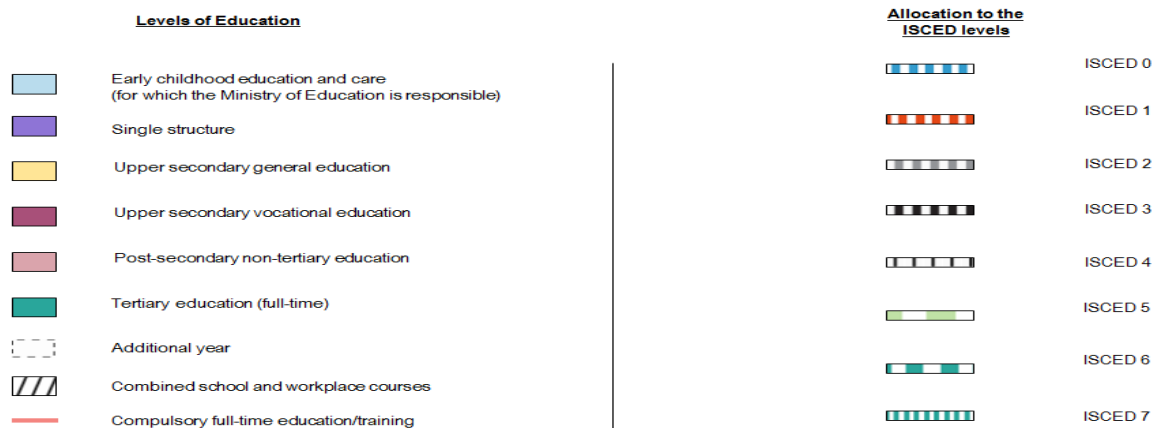
Age of students



Programme duration (years)



Note: Students can join ISCED 4 programmes at different ages.



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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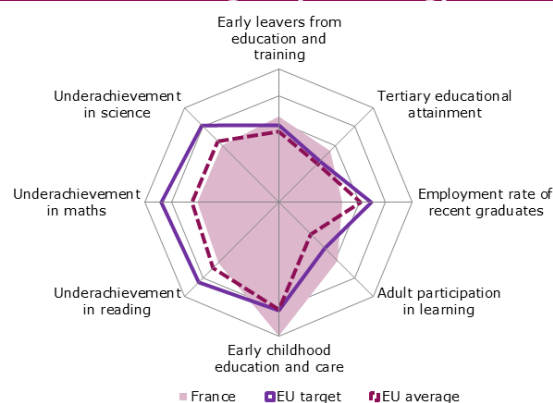
FRANCE

1. Key indicators

		France		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	9.7%	8.8%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	44.0%	43.6%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		100.0% ¹²	100.0% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	18.9% ¹²	21.5% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	22.4% ¹²	23.5% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	18.7% ¹²	22.1% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	76.3%	71.7%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	17.8%	18.8%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	5.5%	5.5% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€6 213	€6 355 ¹⁴	:	: ¹⁴
		ISCED 3-4	€9 991	€10 109 ¹⁴	:	: ¹⁴
		ISCED 5-8	€11 952	€12 013 ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	9.1%	8.2%	11.0%	9.8%	
	Foreign-born	18.0%	16.3%	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	44.8%	44.3%	37.8%	39.9%	
	Foreign-born	38.7%	39.1%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	68.2%	62.8%	69.4%	72.6%	
	ISCED 5-8	82.1%	77.3%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	:	: ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	:	: ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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.⁹⁰
- 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 (VET) has seen important evolutions aiming at improving integration into the labour market for initial VET and improve access to relevant training for continuous VET.

3. Tackling inequalities and promoting inclusion

France faces wide performance gaps in basic skills linked to pupils' socioeconomic background. According to the 2015 Programme for International Student Assessment (PISA) survey, the proportion of 15-year-old low achievers is slightly above the EU average in all three fields surveyed (OECD, 2016a). National data confirm strong inequalities in reading and writing (MEN, 2016a). According to PISA 2015, performance in science and mathematics is average in France, while results in reading are somewhat above average (OECD, 2016a).

There are large performance gaps in PISA 2015 between the lower and upper socioeconomic quartiles. The gap is 34.6 pps. compared to an EU average gap of 26.2 pps. (see figure 1 below).⁹¹ Socioeconomic segregation between schools is high⁹², often reflecting residential concentrations of people with socioeconomic difficulties and/or migrant background. The performance gap between non-immigrants and first-generation immigrants is quite large (with, respectively, 18% and 50% of low achievers, and 9% and 1.5% of top performers). Socioeconomic status accounts for a larger share of this gap than in most other Member States.

Disadvantaged students tend to be steered more towards initial VET. There is a strong polarisation of outcomes: while students in general and technological upper secondary education achieve much better results than the OECD average, the performance of those in VET or still in lower secondary education when tested — due to grade repetition which occurs more often for disadvantaged children⁹³ — is much lower than the OECD average (DEPP, 2016c).

Inequalities increase at lower secondary level (CNESCO, 2016a). The CNESCO – created to evaluate the school system – recommends that all new schools should have objectives related to the social mix (CNESCO, 2017).

⁹⁰ Criteria used to classify schools cover the proportions of disadvantaged socio-professional groups, of pupils benefiting from a needs-based scholarship, of those living in sensitive urban areas and of those having repeated a grade in primary education.

⁹¹ The percentage of low achievers among the bottom quarter on the socioeconomic index is 39.9 % compared to 5.2 % in the top quarter. Conversely, the proportion of high achievers among the bottom quarter is 2 %, compared to 18 % in the top quarter (OECD, 2016a).

⁹² In 2015, 10 % of the lower secondary schools concentrated more than 62.7% of students with disadvantaged background (DEPP, 2016a).

⁹³ Note that this has reduced strongly recently (DEPP, 2016b).

France has the lowest percentage of students expressing the view that they belong in school (40.9 % against the OECD average 73 %) (OECD, 2016b). According to the survey, the sense of belonging is reduced by students' perception of negative relationships with teachers which may reflect insufficient teacher preparation to deal with difficult students and classroom environments.

Teachers in priority education tend to be younger, less experienced and less likely to be permanent appointees (OECD, 2015). While no data exists on the proportion of teachers from a migrant background, qualitative evidence from interviews suggests it is significantly below the high proportion found in the learner population (Ecorys for the European Commission, 2016). More such teachers could play a positive role model. Academic under-performance and the lack of financial resources needed to enter higher education (including teacher education) are seen as the main barriers preventing people from a migrant background from entering the profession.

Numerous measures to reduce inequalities have been adopted. 54 000 additional teaching posts have been created since 2013, while extra time was allocated for collaborative teaching in priority education. From September 2017, the maximum number of pupils per class in grade 1 was reduced by half (to 12) in 'strengthened' priority education REP+. This will be extended to REP and grade 2 in 2018 (MEN, 2017b). Other measures have included: new curricula and pedagogical methods; strengthening participation in early childhood education and care for 2-year-olds (MEN, 2016b); and local pilot actions to increase the social mix in lower secondary education (see section 5 below). The statutory conditions and training of school psychologists were strengthened (MEN, 2017a).

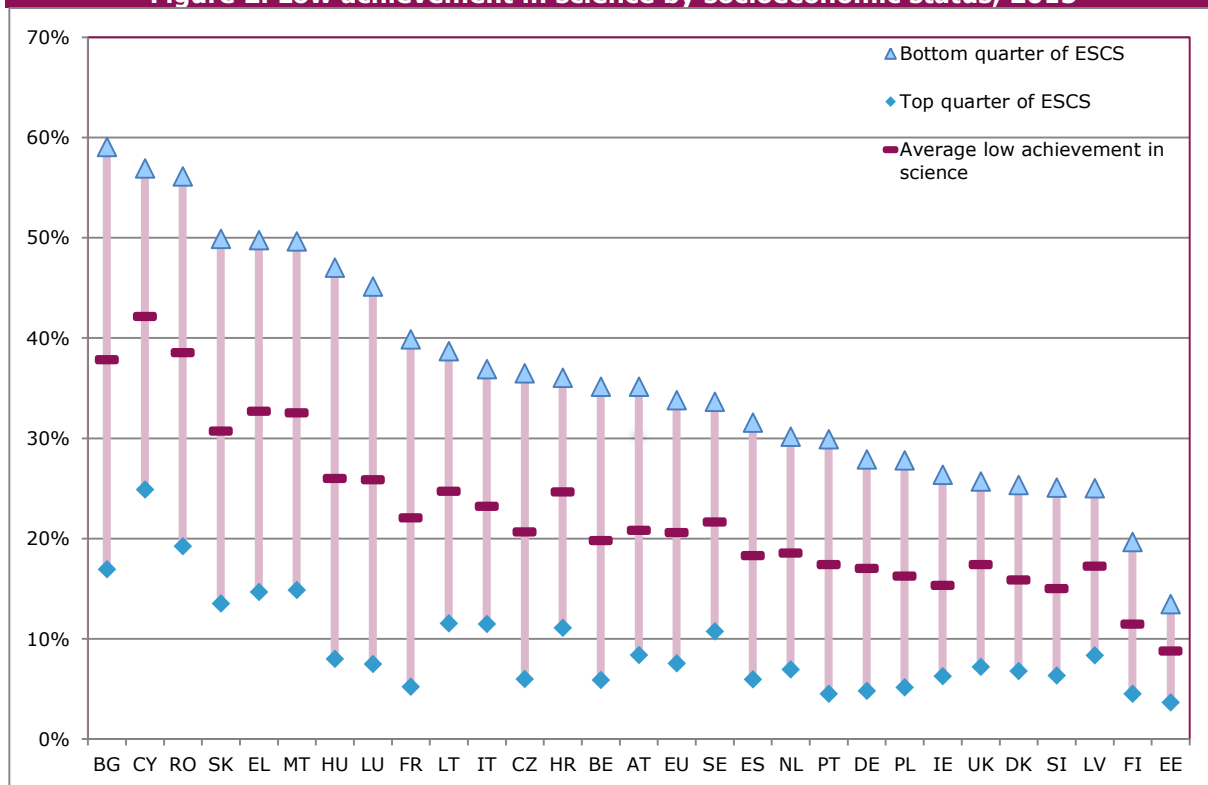
The above-mentioned CNESCO report acknowledges the value of moves to more individualised teaching/support. However, it considers that reforms were not sufficiently based on research, piloting or evaluation and that it will be essential to ensure continuing professional development of teachers (CPD) to implement the new approach.

The new government launched the so-called 'homework done' scheme, enabling lower secondary education students to do their homework at school from September 2017, at no cost, under qualified supervision (MEN, 2017b). This is likely to reduce inequality in education outcomes.

Participation in early childhood education and care (ECEC) remains low for 2-year-olds (11.5 % in 2015) (DEPP, 2016d). In priority education, nearly 21 % of such children participate. 100 % of children aged between 4 and the starting age of compulsory education participated in ECEC in 2015. Current priorities are to increase participation of children aged 2, with ongoing awareness-raising of the benefits of participation from a young age (MEN, 2016c).

A comprehensive reform mobilising all players has reduced the early school leaving rate to 8.8 % in 2016, below the 9.5 % Europe 2020 national target (MEN, 2017c). A national indicator, related to the number of pupils leaving education without at least a professional or upper secondary diploma, also shows a very positive trend, with a decrease from 140 000 in 2009 to less than 100 000 in 2016. Measures to reduce ESL include: cooperation between schools and other stakeholders; strengthening dialogue with parents; staff training in ESL prevention; the possibility for a pupil to be credited with passing grades achieved in case of exam failure, in order to encourage them to remain in education; and broader efforts to integrate vulnerable populations, including people with a migrant background. A recent measure enables young adults aged 16-25 who left school without a certificate or qualification to return to education or training: in 2015/2016, more than 26 000 early school leavers did so. The European Social Fund contributes to reducing ESL (see box 1 below).

The proportion of higher education students benefiting from needs-based grants is relatively high (Eurydice, 2016). These grants further increased in number and amount in 2016/2017 and now support 37 % of students. The comparatively low tuition fee has not been increased (MESRI, 2017a). The best performing 10 % of students at upper secondary education are offered places in selective institutions (MEN, 2016d).

Figure 2. Low achievement in science by socioeconomic status, 2015


Source: European Commission, DG EAC (2016). "PISA 2015: EU performance and initial conclusions regarding education policies in Europe", based on OECD PISA 2015, figure 3.8, URL: https://ec.europa.eu/education/sites/education/files/pisa-2015-eu-policy-note_en.pdf.

Note: countries are ranked in descending order of the average share of underachievement among the bottom quarter of the PISA index of economic, social and cultural status.

Box 1: The European Social Fund helps to fight early school leaving in France

The national ESF operational programme 2014-2020 for mainland France allocated EUR 58 million to support reducing ESL, a priority of the 2012-2017 government. Prevention activities funded include: training of pedagogical staff; individualised support; 'educational alliances' of schools and external partners to support youngsters; and improved guidance.

In addition, national and regional operational programmes funded by the Youth Employment Initiative support measures to reach out to early school leavers and to provide them with appropriate qualifications, notably through apprenticeships.

4. Investing in education and training

The initial 2017 budget included an additional EUR 3 billion for education. In 2015, general government expenditure on education as a proportion of GDP remained at 5.5 %, above the 4.9 % EU average.⁹⁴ In a context of rationalisation of overall government spending, education has remained a priority. The initial 2017 budget included increases of EUR 850 million for higher education and EUR 814 million for teacher salary increases (Prime Minister, 2017). The new government reduced these amounts. The 'Future Investment Programmes' aim to anticipate future challenges by promoting excellence, innovation and cooperation. The third Programme, launched in

⁹⁴ Source: Eurostat, General government expenditure by function (COFOG) database.

early 2017 with a EUR 10 billion budget, will dedicate a third of its funding to education and research (Commissariat Général à l'Investissement, 2016).

12 662 additional posts for schools and pre-schools are to be created in 2017, in particular in priority education, plus 1 000 teaching posts for higher education institutions (Prime Minister, 2017). This will partially rebalance spending per pupil towards earlier education levels, which are comparatively under-funded despite recent improvements (European Commission, 2016).

Demographic projections foresee a 14 % increase in higher education student numbers between 2015 and 2025 (MENESR-SIES, 2017 and European Commission, 2016). The 2017 White Paper on Higher Education and Research calls for an additional EUR 10 billion in public expenditure on higher education over the next 10 years (MENESR, 2017) to meet this increase (+40 000 in 2017) and to improve the quality of teaching and learning.

5. Modernising school education

Continuous professional development (CPD) of teachers is neither used well nor recognised (see box and figure 2 below). According to the 2013 OECD Teaching and Learning International Survey, the proportion of French teachers undertaking CPD is comparatively low (OECD, 2014). Evaluations of teaching quality within schools are less frequent in France than in other countries (OECD, 2016a).

Teachers' salaries remain below the wages of tertiary-educated workers (OECD, 2016c). The widest gap is for primary teachers. Salaries will increase between 2017 and 2020 to improve the attractiveness of the profession — in particular in priority education. Funding for CPD will also be increased (Prime Minister, 2017).

A new common core of knowledge, skills and culture was translated into new curricula for primary to lower secondary education from September 2016; reform of lower secondary education was initiated. The latter introduced new interdisciplinary teaching methods, weekly individualised support, more time for teachers for collaborative work and increased pedagogical autonomy. All teachers and school heads concerned were offered training and support. The new government introduced some flexibility to increase school autonomy, including the re-introduction of bilingual teaching and Latin or Greek in those schools wishing to do so (MEN, 2017b). As a counterpart to increased autonomy, the Ministry announced more frequent evaluations.

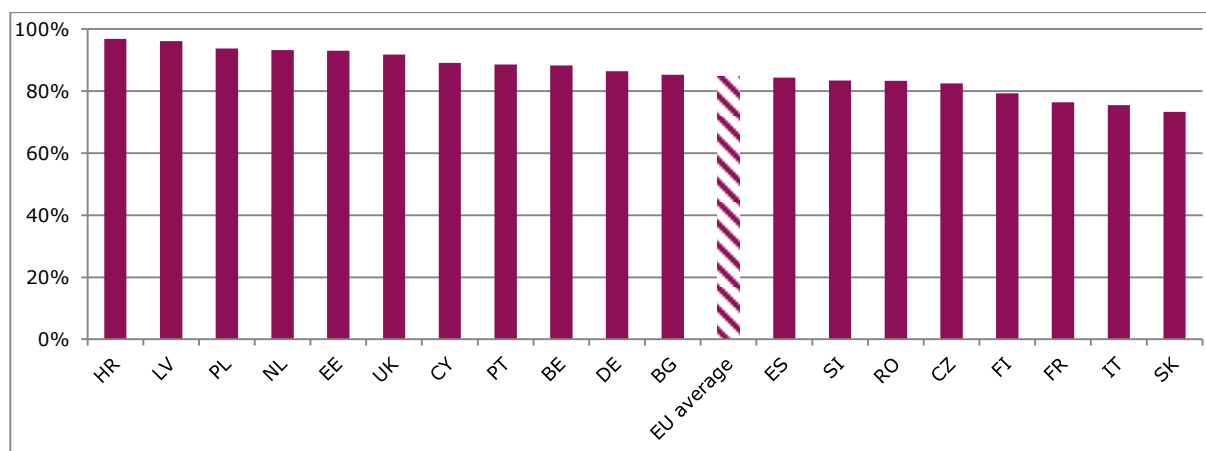
Measures to reform upper secondary education are awaited.

A so-called citizen reserve was created, made up of volunteers who will assist teachers with educational projects, in particular linked to secularism and citizenship education.

The parliamentary committee monitoring implementation of the 2013 school reform acknowledged the consistency of the new measures and the strong involvement of teachers, school leaders and inspectors (Comité de suivi, 2017). It welcomed efforts towards a more individualised teaching. It pointed to the risks linked to rapid implementation and expressed concerns about the evaluation of the new curricula. Appropriate teacher training in evaluation of competences is needed.

The Digital School Plan remains high on the agenda. It aims to provide schools with equipment and digital education resources. Currently, 25 % of lower secondary schools are considered to be equipped; the objective is to reach 50 % by September 2017 (Prime Minister, 2017). Teacher training has continued and an online platform offering resources for digital teaching methods was further developed. Parliament concluded that it will be essential to evaluate teachers' needs (Comité de suivi, 2017).

The numerous recent reforms were implemented rapidly and will need time to show their full benefits. Furthermore, implementation is uneven across the country; impact evaluation will be essential.

Figure 3. Proportion of lower secondary education teachers undertaking CPD, 2012


Source: OECD TALIS 2013. Online table: 4.6.

Note OECD, TALIS 2013 results, *An international perspective on teaching and learning*. 'Proportion of lower secondary education teachers who undertook some professional development activities in the 12 months preceding the survey'

Box 2: Reforming initial teacher education and continuing professional development

Initial teacher education (ITE) was reformed in 2013. Future teachers must complete a bachelor's programme followed by a two-year master's programme: the MEEF, 'Master Métiers de l'Enseignement, de l'Éducation et de la Formation.'

32 colleges ('Ecoles Supérieures du Professorat et de l'Éducation' ESPEs, integrated in groups of universities) were created to deliver ITE at master's level and to offer continuing professional development (CPD) for teachers.

The first master's year is dedicated to classes and classroom observation, followed by the competitive exam to enter teaching. Successful students continue into the second year as paid 'trainee teachers'; they alternate theoretical education in the ESPE with work as a teacher in a school, while also writing a thesis. Upon successful completion of their master's degree, they become a teacher, an adviser for education or a professional in other education and training roles.

While trainee teachers in their second master's year are supported by tutors, this is rarely the case for beginning teachers. Digital support is offered by the Institut Français de l'Éducation (CNESCO, 2016b). The CNESCO recommends a well-structured induction period for beginning teachers during their first two years of practice (CNESCO, 2017), in line with EU policy guidelines.

A recent evaluation of ESPEs shows positive elements such as an increased attractiveness of pedagogical studies and in particular the alternating approach to learning (IGEN/IGAENR 2016). Interestingly, 25 % of laureates of the 2015 competition for primary education were seeking to change from another profession (CNESCO, 2016b).

Currently, CPD is obligatory for primary education teachers (18 hours/year, half of it either partly or entirely through distance learning in digital format). There is no obligation for participation in CPD for secondary education teachers. The committee monitoring implementation of the school reform recommends strengthening CPD beyond topics linked to the implementation of reforms (Comité de suivi, 2017). The role of the ESPEs in CPD needs to be strengthened and their pool of trainers and resources needs to be increased.

The Court of Auditors regrets that teacher participation in CPD is low both by international comparison and compared with other civil servants (Cour des Comptes, 2015 and 2017). It also regrets that CPD is mainly used to implement reforms rather than to improve human resources: CPD should be better linked to actual staff needs and based on research. Stakeholders point to the strong disparity in offer between regions.

New professional pathways, careers and remuneration system applying to all civil servants were launched in January 2017 to be implemented progressively by January 2019. They are likely to further improve the attractiveness of teaching. A new professional evaluation framework is being set up to strengthen feedback to teachers, together with a single, linear, more regular and transparent career progress through up to three grades. This is likely to encourage secondary teachers to participate in CPD.

6. Modernising higher education

The French tertiary education attainment rate of 30- to 34-year-olds was 43.6 % in 2016, well above the EU average of 39.1 %. In 2015 France was 0.8 percentage points below its initial national target of 50 % of 17- to 33-year-olds attaining higher education by 2017.⁹⁵ This has now been re-set to 60 % (MESRI, 2015). French graduates are far more likely to have a short-cycle diploma (ISCED 5) than their EU peers (Vol.1 figure 30).

The proportion of holders of a vocational upper secondary diploma entering higher education has more than doubled since 2000 (DEPP, 2016d), contributing to an improvement in the social make-up of higher education students (see section 3 above). A very significant proportion of them entered short profession-oriented tertiary programmes ('Sections de Techniciens Supérieurs').

Completion rates in bachelor's programmes remain comparatively low: less than 40 % of students who enter complete the programme within four years (DEPP, 2016d). Completion rates vary widely according to the type of upper secondary diploma held: from nearly half among those with a general upper secondary diploma down to 6 % for those with a vocational diploma. The ratio of students to teaching staff in bachelor's programmes is one of the highest among OECD countries (OECD, 2016c).

Higher education is being reformed on several fronts. The reforms launched in 2013 target student achievement, rationalisation, digital developments and improving the attractiveness of the teaching profession (European Commission, 2016). The consolidation of institutions has continued. Measures to be implemented from September 2017 include: abolition of selective transition to the second year in master's programmes; and a guarantee that all bachelor graduates can continue to master's studies.

Improving students' employability remains a priority. Contrary to the EU average which recovered from 2015, the employment rate of recent French tertiary education graduates has continued its fall since 2011, down to 77.3 % in 2016 (the EU average was 82.8 %). However, 90% of 2013 graduates from 'Diplôme universitaire de technologie' and 92% of those with a vocational bachelor degree were in employment 30 months after graduating (DEPP 2017b). An increasing proportion of higher education students in all types of institutions and programmes go through apprenticeships or traineeships (DEPP, 2016d).

Entrepreneurship education and innovation are supported through the 'Pépité' scheme. Entrepreneurship and innovation are being incorporated into teaching of students in all fields. The national status of 'student-entrepreneur' was created for students engaged in a start-up project (MESRI, 2017b) and the number of beneficiaries is increasing.

The January 2017 law on equity and citizenship makes the validation of knowledge, skills and competences acquired through non-academic activities with a citizenship involvement dimension compulsory. Implementation started in September 2017.

⁹⁵ For details on this indicator see: https://www.performance-publique.budget.gouv.fr/sites/performance_publique/files/farandole/ressources/2015/rap/html/DRGPGMOBJINDPGM150.htm

A new programme was launched in early 2017 to welcome migrant scientists (PAUSE). Funded by the Ministry of Higher Education, Research and Innovation, it allocates an initial EUR 1 million in grants to higher education institutions for their integration (Collège de France, 2017).

7. Modernising vocational education and training and promoting adult learning

The proportion of upper secondary students (ISCED 3) in vocational education and training (VET) decreased slightly in 2015 to 41.5 %, below the EU average of 47.3 %. The employment rate of recent ISCED 3 VET graduates in 2016 was 64.8 %, also lower than the 75 % EU average. Adult participation in learning is quite high at 18.8 % in 2016, well above the 10.8 % EU average; it is only 7.5 % for low-skilled adults having attained not more than ISCED 2.

The 2017 European Semester country-specific recommendations to France included the following: *'Improve access to the labour market for jobseekers, in particular less-qualified workers and people with a migrant background, including by revising the system of vocational education and training.'* (Council of the European Union, 2017).⁹⁶

Employment rates of VET graduates at all levels are increasing after three years of decrease or stagnation. This is positive for the attractiveness of the sector. Moreover, half of VET graduates are hired under permanent contracts and half of apprenticeship graduates are recruited by the companies in which they completed their apprenticeship (DEPP 2017a).

The previous government sought to tackle the fall in the number of VET students, including the creation of the so-called 'Parcours Avenir' aimed at better informing young people about educational and professional opportunities. The 2016 Labour Act plans that the employability of initial VET sections will be made public. A monthly financial incentive of EUR 200 (for four months) will be paid in 2017 to VET graduates from a disadvantaged socioeconomic background to support their job search. A decree to reform work placements and a quality label was introduced in 2016 (Qualéduc).

To support the employability of apprentices, a network of regional apprenticeship ambassadors (company CEOs) was launched in 2016. Following several measures, apprenticeship figures have stabilised at 405 000, with a rising share of tertiary graduates.

For adult learning, the Personal Training Account initiated under the 2014 VET reform allows individuals to acquire up to 150 hours of training (up to 400 for low-qualified people). It may also be used for skills assessments, validation, support for entrepreneurship, as well as for a new 'vocational basic skills' certificate (CléA) designed to empower low-qualified adults on the labour market. Latest figures indicate that 4.7 million eligible active adults (close to 20 % of the total) had opened an account and over 1 million had undertaken training.

Ways to acquire qualifications have been made easier. The 2014 reform introduced the notion of 'skills blocks' (covering vocational and transversal skills and knowledge) as a solution for securing pathways and making them more flexible. Vocational qualifications are composed of learning outcome units structured progressively in blocks. The latter may be validated to facilitate step by step acquisition of full qualifications.

⁹⁶ More on <http://data.consilium.europa.eu/doc/document/ST-9295-2017-INIT/en/pdf>.

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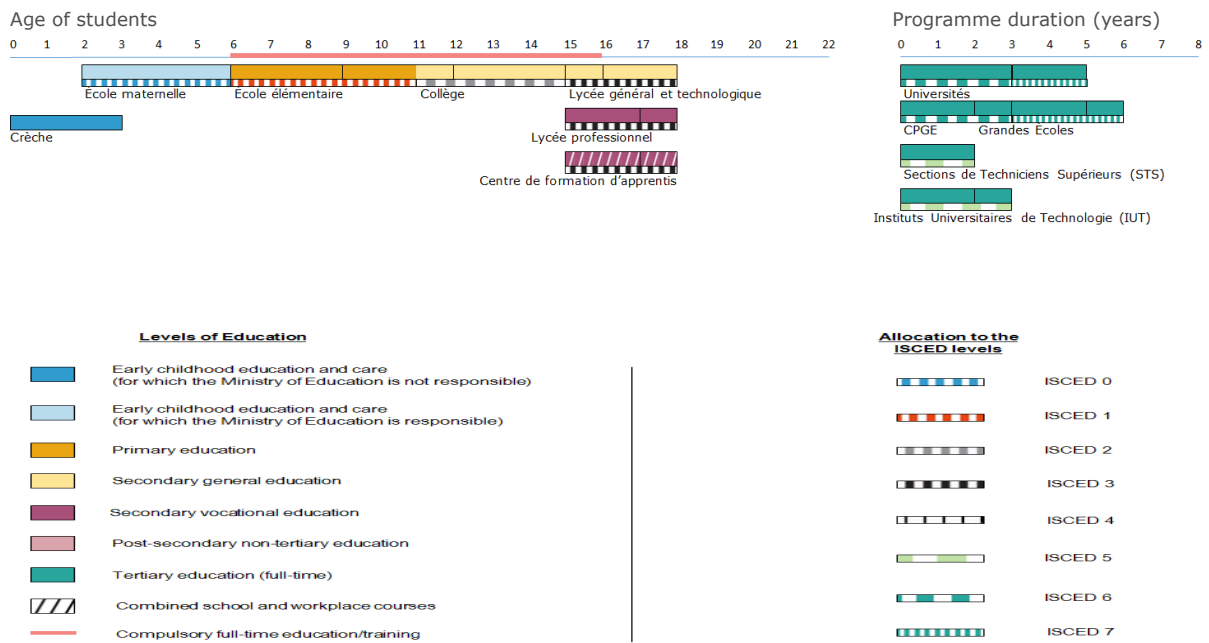
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9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. Structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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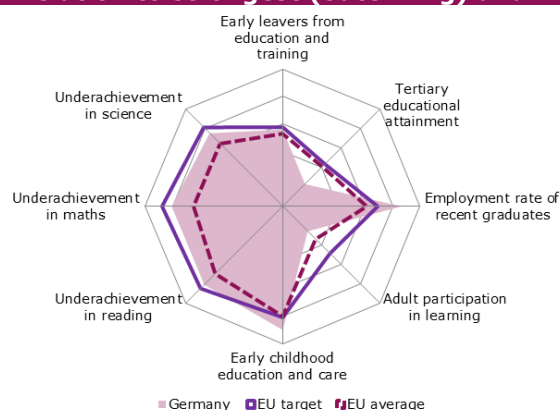
GERMANY

1. Key indicators

		Germany		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	9.8%	10.2%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	32.9%	33.2%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		96.5% ¹²	97.4% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	14.5% ¹²	16.2% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	17.7% ¹²	17.2% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	12.2% ¹²	17.0% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	89.7%	90.2%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	7.9%	8.5%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	4.3%	4.2% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€6 826	€7 190 ¹⁴	:	: ¹⁴
		ISCED 3-4	€9 214	€9 529 ¹⁴	:	: ¹⁴
ISCED 5-8		€12 469	€12 639 ¹⁴	:	: ¹⁴	
Early leavers from education and training (age 18-24)	Native-born	8.6%	8.2%	11.0%	9.8%	
	Foreign-born	19.5%	23.1%	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	34.1%	34.0%	37.8%	39.9%	
	Foreign-born	28.7%	30.7%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	86.5%	87.8%	69.4%	72.6%	
	ISCED 5-8	94.1%	93.1%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	3.3%	3.2% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	10.0%	10.8% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. On tertiary education attainment, Germany includes post-secondary education (ISCED 4) in the measurement of progress towards its national Europe 2020 target. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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 (VET) appears less attractive to young Germans, despite the fact that employment prospects for VET graduates remain very good.

3. Tackling inequalities and promoting inclusion

Educational outcomes are stable overall but vary between different groups. The 2015 OECD Programme for International Student Assessment (PISA) survey shows the proportion of low achievers increased by almost 5 percentage points (pps) in science, by almost 2 pps. in reading and remained almost unchanged in mathematics compared to 2012. A wide performance gap exists between non-migrants (11.8 %) and first-generation migrants (42.2 %): second-generation migrants only partially close the gap (31.1 %) (European Commission 2016a).

The impact of socioeconomic status on performance has decreased but is still significant. The share of top performers in the highest social quartile is above the OECD average in all areas tested, while the share of weak performers in that group is below average. In science, the difference in the rate of low achievers between the lowest and highest social quartiles is 23 pps, equivalent to a difference of almost 3 years of schooling⁹⁷. These results mark an improvement in the equity of the education system since PISA 2006 (OECD 2016b). However, a national survey highlights regional differences within Germany with little progress in lessening the influence of socioeconomic factors on educational success since the first study (IQB 2016).

Early school leaving (ESL) is close to the Europe 2020 target. Germany's ESL rate was 10.2 % in 2016, slightly above the national Europe 2020 target of 10 %, which it had reached in 2013. Foreign-born students are almost three times more likely to leave school early than native students (23.1 % and 8.2 % respectively).

Provision of additional places in early childhood education and care (ECEC) remains a top priority. In 2015, 4- to 6-year-olds' participation in ECEC was 97.4 %⁹⁸. Almost all children from the age of 3 attend childcare facilities while participation in ECEC is markedly lower for under 3-year-olds, especially among socioeconomically disadvantaged and migrant groups, but also in West Germany compared to East Germany (Autorengruppe Bildungsberichterstattung 2016). Legislation passed in April 2017 provides EUR 1.1 billion for 100 000 additional places, in response to the high demand for places for under 3-year-olds, which currently exceeds the supply by approximately 10 %. (Autorengruppe Bildungsberichterstattung 2016).

⁹⁷ The difference between mean scores equals 103 score points; a score difference of 38 points is associated with 1 year of schooling.

⁹⁸ Eurostat data.

Measures are being taken to improve the quality of ECEC. In November 2016 the government and the federal states agreed a common strategy to improve ECEC quality and ensure sustainable financing. Common quality standards cover child-staff ratios, staff training and management. A 'quality development law' is under preparation. To further incentivise quality, the government has launched a new prize for ECEC to be awarded from 2018 to five early childhood centres⁹⁹.

While the number of newly-arrived migrants has fallen, integrating the large number of young refugees is a long-term challenge. The total number of newly-arrived migrants fell in 2016 to an estimated 280 000 (BAMF 2017b), from over 1 million in 2015. The majority of asylum seekers are under 30, with a considerable proportion aged 0-4¹⁰⁰ (BAMF 2017a). Unaccompanied minors make up a substantial share, with almost 36 000 applying for asylum in 2016. To get refugees into work and education Germany has focused strongly on VET. The Integration Act of 2016 gives refugees easier access to work, vocational training and universities (BAMF 2017c).

Regional differences exist in migrants' access to schooling. The right to schooling is managed differently throughout Germany, ranging from no restrictions regarding legal status to a requirement to be registered with a local authority no later than 6 months after arrival.¹⁰¹ In some cases, a waiting time of up to 1 year has been reported for refugee children, with unaccompanied minors aged 16 and 17 often not being offered any schooling (FRA 2017). Refugee children who have access to schooling can be put into regular classes right away — in practice usually after introductory courses or coupled with support measures, which eases the transition into mainstream schooling (Koehler 2017).

Getting refugees into education requires additional financial efforts. It is estimated that an extra EUR 316 to 421 million are needed just to provide ECEC to children who arrived in 2015. Similarly, increased funding — between EUR 0.8 and 1.1 billion — will have to be made available for primary and lower secondary schools (Autorengruppe Bildungsberichterstattung 2016). In higher education, the government is spending EUR 100 million on around 450 integration initiatives at 162 institutions, ranging from legal advice to competency assessment, language training and practical support¹⁰². A dedicated website¹⁰³ informs refugees about studying in Germany. A new German Centre for Integration and Migration Research will be created in Berlin by end 2017.

Including special-needs students poses challenges. Inclusive educational practices are increasingly applied in both general and vocational education. In ECEC, 70 % of children with special needs attend mainstream groups (Autorengruppe Bildungsberichterstattung 2016). In primary and secondary education, 38 % of children with special educational needs were in mainstream schools in 2015 against 14 % in 2005, albeit with big regional differences¹⁰⁴. Children needing learning support represent the biggest group in mainstream schools, followed by those with social and emotional development support needs (KMK 2016c and KMK 2016d). Regional and school-type differences, adequate funding and support for schools and teachers are the main issues in the debate. An opinion poll of teachers in spring 2017, commissioned by the federal union for teachers, identified several shortcomings: in teacher training, permanent provision of special-needs pedagogues, support by multi-professional teams and school buildings with disabled access (Forsa 2017).

⁹⁹ <http://www.deutscher-kita-preis.de/>.

¹⁰⁰ 78 192 children in that age group or 10.8 % of asylum seekers in 2016.

¹⁰¹ For more detailed information see: <http://landkarte-kinderrechte.de/>

¹⁰² <https://www.bmbf.de/de/hochschulprogramme-fuer-fluechtlinge-verlaengert-3425.html>.

¹⁰³ <https://www.study-in.de/refugees/>.

¹⁰⁴ <https://www.aktion-mensch.de/themen-informieren-und-diskutieren/bildung/zahlen-und-fakten.html>.

4. Investing in education and training

Spending on education remains below the EU average. In 2015 government expenditure on education amounted to 4.2 % of GDP, compared to 4.9 % across the EU¹⁰⁵. For education and research combined, spending remained at 9.1 % of GDP (Federal Ministry for Economic Affairs and Energy 2017), below Germany's own national investment target of 10 %, to be met by 2015. The education proportion of total government expenditure stood at 9.6 % while the EU average was 10.3 % in 2015. In terms of expenditure per student Germany improved slightly, ranking seventh in the EU¹⁰⁶. The need to increase public investment in education was addressed in a country-specific recommendation to Germany in 2017 European Semester (Council of the European Union 2017)¹⁰⁷.

New distribution of funding and responsibilities will support schools. In June 2017 constitutional changes entered into force which reorganised financial relations between the central government and federal states. From 2020 the government will provide the states with support of almost EUR 10 billion per year. In the education sector, support by the central government will focus on investments in school infrastructure in financially weak municipalities (Federal Ministry for Economic Affairs and Energy 2017).

Germany's population is on the rise. After years of demographic decline, Germany's population is growing again, reflecting both a higher fertility rate and the arrival of migrants. Eurostat projections based on 2015 population figures¹⁰⁸ show clear growth patterns even without taking into account the most recent large migrant inflows which reinforce the upward trend.

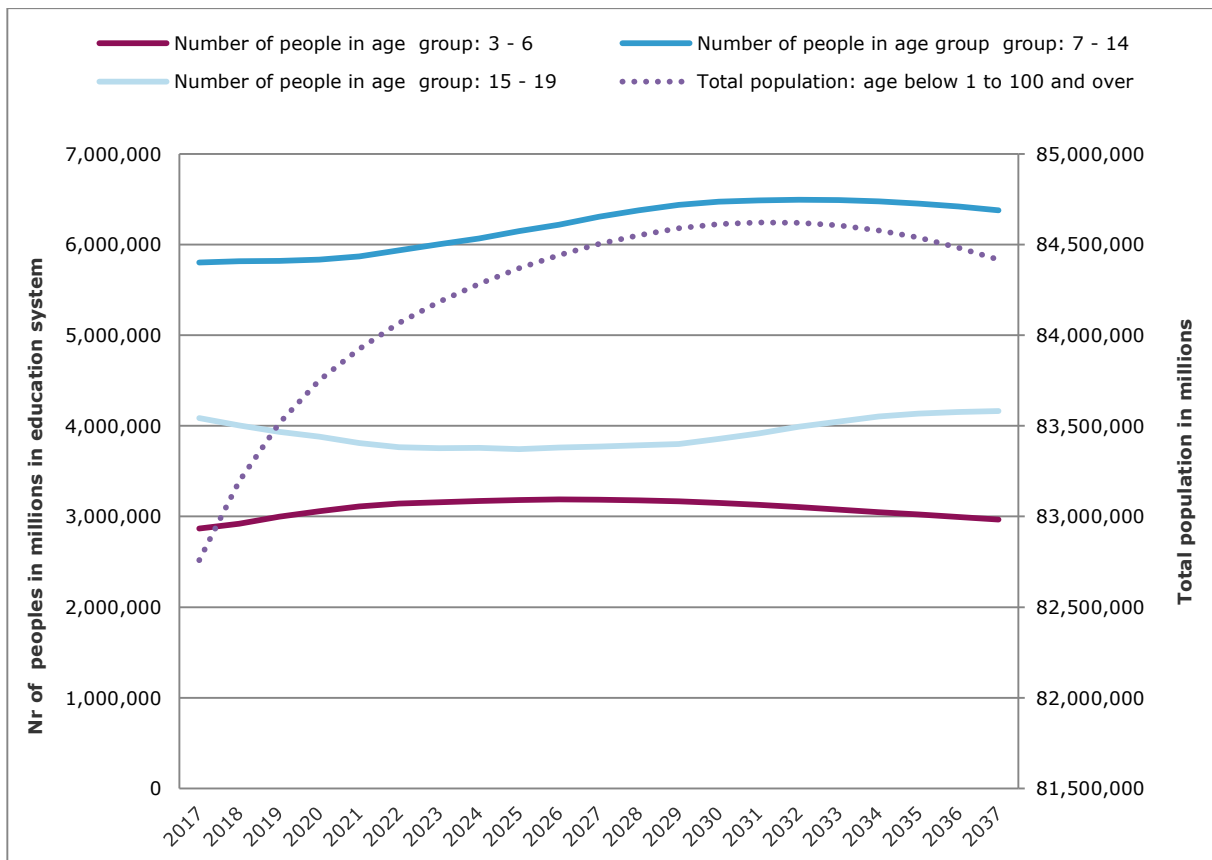
The population increase poses challenges for the education sector. For the lower age groups which impact on pre-primary, primary and lower-secondary education, growth of between 8 and 10 % is expected over the next 10 years. Based on 2015 projections, the number of those aged 15-19 potentially entering VET, post-secondary and tertiary education is estimated to shrink by 8 %. However, in 20 years' time numbers will exceed current levels. Taking into account the recently arrived refugees, this may happen even earlier. Demographic change poses significant challenges for the education system. Additional expenditure for school buildings and teachers could amount to EUR 4.7 billion annually (Klemm; Zorn 2017). Of particular concern are significant regional disparities: western Germany is seeing increasing numbers of primary school students and slightly decreasing numbers of upper secondary students, while in eastern Germany the situation is reversed.

¹⁰⁵ Complete comparability of public education expenditure can however not be achieved because of the different organisation of work-based components in VET in different Member States, where (private) expenditure by companies in Germany is considerable.

¹⁰⁶ Eurostat data 2014, all in PPS. With an amount of EUR 8 616 for ISCED levels 2-8 DE comes after LU, AU, UK, SE, NL, BE.

¹⁰⁷ The text reads '*Accelerate public investment at all levels of government, especially in education, research and innovation, and address capacity and planning constraints for infrastructure investments*'. See <http://data.consilium.europa.eu/doc/document/ST-9296-2017-INIT/en/pdf>.

¹⁰⁸ Population on 1 January 2015.

Figure 2. Population projection in Germany for different age groups (2017-2037)


Source: Eurostat (Population projection 2017-2040). Online data code: [proj_15npms](#)

5. Modernising school education

The longer duration of upper secondary education has been restored in two more federal states. The reform of 2004/2005 on the duration of *Gymnasium* education shortened secondary education from 9 to 8 years. This reduced the school leaving age from 19 to 18 and brought Germany closer to international norms. Since then, however, parental and teacher criticism of student stress and loss of education quality have triggered a gradual reversal of the reform. Two more federal states, North-Rhine Westphalia and Bavaria, are preparing to re-introduce the longer duration. The revision reinstates differences in schooling time especially between western and eastern states, which retain the 8-year programme.

All-day schools have been expanded but significant regional and school-type differences exist. To improve learning conditions and to support better work-life balance, Germany has continuously increased the proportion of all-day education offers in various types of schools since 2002. Yet regional differences range from 97.4 % of schools in Saxony to 35.8 % in Bavaria. Almost 40 % of all pupils participated in all-day schools at end-2015, most in the so-called open structure, where afternoon attendance is voluntary (KMK 2016a). Integrated forms with compulsory afternoon programmes are implemented with big regional differences and are criticised for their insufficient additional instruction time, financial support and personnel (Klemm; Zorn 2016).

Digital competences will be strengthened. The level of digital skills among Germans has constantly increased over recent years, especially among young people. While 67.5 % of all Germans possess basic digital skills, 87.6 % of those aged 16-24 do so (European Commission 2017)¹⁰⁹. As part of a comprehensive digital policy (see box 1), the federal states adopted a strategy on 'Education in the digital world' in December 2016. This contains binding actions and concrete targets to adapt curricula, learning environments, learning processes and teacher training to digital change (KMK 2016b).

Renewing and diversifying the teaching force pose challenges. Teachers in Germany, at both primary and secondary levels, are on average among the oldest in the EU. 45 % are aged 50 or above, compared to 35 % in the rest of the EU. The necessary replacement of retired teachers has already led to supply gaps in some regions (KMK 2013). To solve the problem, more and more career changers are being accepted into the profession, often without prior pedagogical training but with tailored accompanying support after they take up teaching¹¹⁰. Shortages in specific subject areas pose a substantial challenge (KMK 2013). Students with a migrant background are less likely to become teachers: only 6 % of them opt for a teaching career compared to 12 % of non-migrant students (European Commission 2016b).

Box 1: Digital change in education

Several education initiatives are under way as part of the 'Digital agenda'. This was adopted by the federal government in 2014 to formulate strategic goals for digital change across all societal areas and to serve as a platform for comment and exchange with citizens.

The Ministry of Education and Research presented its digital strategy in October 2016, which includes the DigitalPakt#D. This ties the offer to invest EUR 5 billion over 5 years in digital infrastructures for general and professional schools to the commitment by the states to put digital education into practice¹¹¹. To further boost digital skills among young people, a 'Youth Informatics Competition' was launched for school students of all ages. This will complement the existing basic informatics certificate for children and the ambitious federal competition in informatics.

In the VET sector, the federal government has started the Berufsbildung 4.0 which aims: to identify the impact of digital change on qualification requirements and - if necessary - develop recommendations for regulatory action; to support inter-company vocational training centres in the procurement of digital equipment, machines, facilities and software; and to fund innovative approaches for the use of digital media in VET.

To support digital change with research, the government will establish an internet institute in Berlin based on a consortium of five universities and two research institutes. Its mandate is to conduct interdisciplinary research on the ethical, legal, economic and social aspects of the internet and digitalisation. In addition, the Einstein Center Digital Future, a public-private partnership also located in Berlin, will create 50 professorships in the field of digitalisation to foster innovative, interdisciplinary research.

https://www.digitale-agenda.de/Webs/DA/DE/Handlungsfelder/5_BildungForschung/bildung-forschung_node.html

¹⁰⁹ See DESI key indicators analysis.

¹¹⁰ Estimates find that this concern up to 10 % of all teachers hired in 2016, and in some federal states as much as one third of newly hired primary teachers (<http://www.bdk-gymnasien.de/entschliessungen-pressemitteilungen/pressemitteilung-der-bdk-zur-lehrerversorgung-an-den-deutschen-schulen.html>).

¹¹¹ https://www.bmbf.de/pub/Bildungssoffensive_fuer_die_digitale_Wissensgesellschaft.pdf.

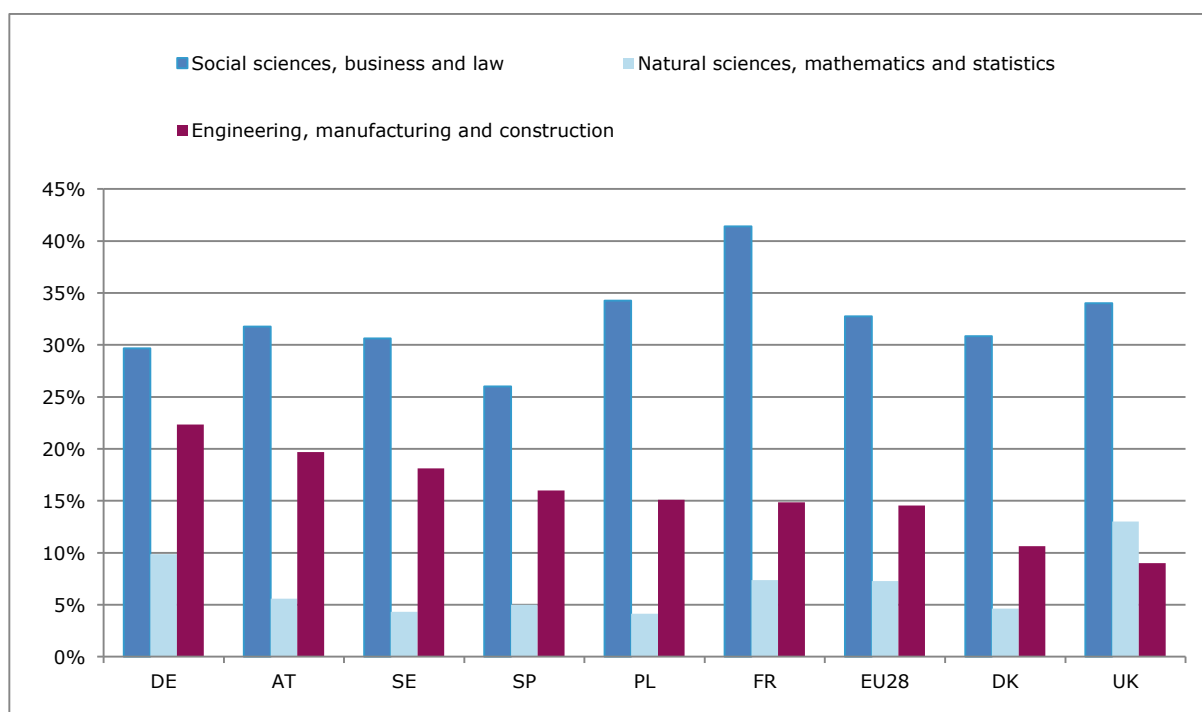
6. Modernising higher education

University education is becoming more widespread but is more difficult to accomplish for students with a migrant background. The rate of people obtaining a tertiary degree has more than doubled since 2000, reaching 33.2 % in 2016. This is still below the Europe 2020 target of 40%.¹¹² There is no difference in attainment rate between men (33.4 %) and women (33 %) and only a marginal difference for foreign-born students (-3.3 pps). However, students with a migrant background face much bigger hurdles to complete their studies: they experience dropout rates of 43 % versus 29 % for the non-migrant student population (Ebert; Heublein 2017).

Higher education is closely linked to social background and faces changing demands. Upward mobility, i.e. young people earning tertiary degrees whose parents attained lower levels of education, is lower in Germany than the OECD average. This might be partially explained by the traditionally strong prevalence of VET (OECD 2016a). While the growing number of entrants into higher education (at the expense of VET education) is not universally considered a positive development (some dismiss it as an 'academisation craze'), higher education itself is changing. More and more institutions offer practical experience during studies to meet students' clear and growing preference in this regard (BMBF 2017b).

Germany has the EU's highest share of graduates in engineering, manufacturing and construction. At 22 %, Germany has more graduates in this field than any other Member State, well above the EU average of 15 % (see figure 3). Germany is also above the EU average for graduates in natural sciences, mathematics and statistics¹¹³. Over-qualification of university graduates relative to the jobs they hold is lower than in most EU member states. Nevertheless, almost one fifth of university graduates are in jobs that require skills below their education level (European Commission 2017).

Figure 3. Graduates by field of studies in 2015



Source: Eurostat (UOE, 2015). Online data code: edic_uoe_grad02.

¹¹² The national target of 42%, which includes ISCED level 4 qualifications, has however been passed and has now reached 46.8 % (Federal Ministry for Economic Affairs and Energy, 2017).

¹¹³ Eurostat data 2015.

Supplementary financial support for excellent research and teaching has been extended.

The Excellence Initiative which supports top-level research at universities will from 2018 provide EUR 533 million annually for 'excellence clusters' and 'excellence universities'. In addition, the Quality Pact on Teaching in Higher Education, established in 2010 with a budget of EUR 2 billion over 10 years, will be continued until 2020 with higher education institutions receiving EUR 820 million in additional funds for a range of measures. These include training for university staff coupled with special incentives for teaching commitment, conferences and workshops on best practices and networking (Federal Ministry for Economic Affairs and Energy 2017).

The quality assurance system in German higher education is being reorganised. In February 2016 large parts of the accreditation system were ruled unconstitutional¹¹⁴. Consequently, state education ministers presented a draft treaty between the federal and state levels which redefines the distribution of tasks and responsibilities¹¹⁵. One of the main innovations in the planned system concerns the future role of (private) accreditation agencies. They will undertake programme and quality management systems' evaluations and propose decisions to the (state-funded) Accreditation Council, which has the final say. It is envisaged that the treaty will come into force at the end of 2017.

7. Modernising vocational education and training and promoting adult learning

Employment rates for VET graduates continue to be high but fewer people are choosing this education path. The proportion of Germany's upper secondary students (ISCED 3) who are in VET slightly decreased in 2015 to 46.8 %, just below the EU average of 47.3 %. The employment rate of recent VET graduates in 2016, at 90.1 %, was markedly higher than the EU average of 75 %.

Despite its long and successful tradition, participation in VET is decreasing. In 2016, the number of unfilled apprenticeship positions reached a new record high of 43 500. At the same time 20 600 applicants did not find a suitable apprenticeship, pointing to a significant mismatch in qualifications and at sectoral and regional levels (BMBF 2017a). One factor behind this is the reduced number of small businesses offering vocational training. This is mostly due to a lack of suitable candidates in the past as well as the lower number of young people and their increased preference for tertiary education. Regarding young refugees, most are still in preparatory programmes or have just recently started an apprenticeship.

Several measures are being implemented to increase the attractiveness of VET. Extensive efforts are being made to better advertise the VET system. These involve in particular orientation and information campaigns at secondary schools (see also box 2), measures to attract higher education dropouts and improvements in VET training, for example, by placing a stronger focus on trainees gaining experience abroad.

Adult learning is below the EU average and needs to focus on the low-skilled. Adult participation in learning remained at 8.5 % in 2016, practically unchanged and below the EU average of 10.8 %. A major challenge lies in drawing in the low-skilled and unskilled, the long-term unemployed and older people. In Germany 7.5 million adults — many of them in employment — lack basic reading and writing skills (Grotlüschen 2016). The national decade for literacy and basic education was launched in November 2016 to improve literacy of low-skilled individuals and promoting basic skills. The Federal Ministry of Education and Research is investing EUR 180 million in it. Legislation on continuous professional training in force since August 2016 is to improve access for the low-skilled and long-term unemployed to a continuing vocational education and training (CVET) qualification. Since 2016 a new 'upward mobility student loan' for job-related VET gives financial support to those preparing for more than 700 types of qualifications, regardless of age.

¹¹⁴ Decision: 1 BvL 8/10.

¹¹⁵ <https://www.kmk.org/aktuelles/artikelansicht/akkreditierungsstaatsvertrag-der-kmk-sichert-groesstmoeegliche-qualitaet-von-studiengaengen-und-mobilitaet-fuer-studierende.html>.

Box 2: ESF project to facilitate transition into labour market

The Berufseinstiegsbegleiter (BerEB) — ‘career start coaches’ — programme helps young people who are expected to have difficulty obtaining a lower secondary school degree (Hauptschulabschluss) to get into vocational education and training.

Coaches support students individually and continuously to help them attain a school leaving degree, get orientation for their choice of job profile and start vocational training. Measures start up to 2 years before leaving school and continue for up to 6 months after the start of vocational training, and in difficult cases even up to 24 months.

The programme, which runs until 2022, has funding of EUR 1 million, of which 50 % comes from the European Social Fund. Between 2014 and 2019 the programme aims to support roughly 113 000 participants at 3 000 schools.

<http://www.esf.de/portal/DE/Foerderperiode-2014-2020/ESF-Programme/bmas/2014-11-17-Berufseinstiegsbegleitung.html>

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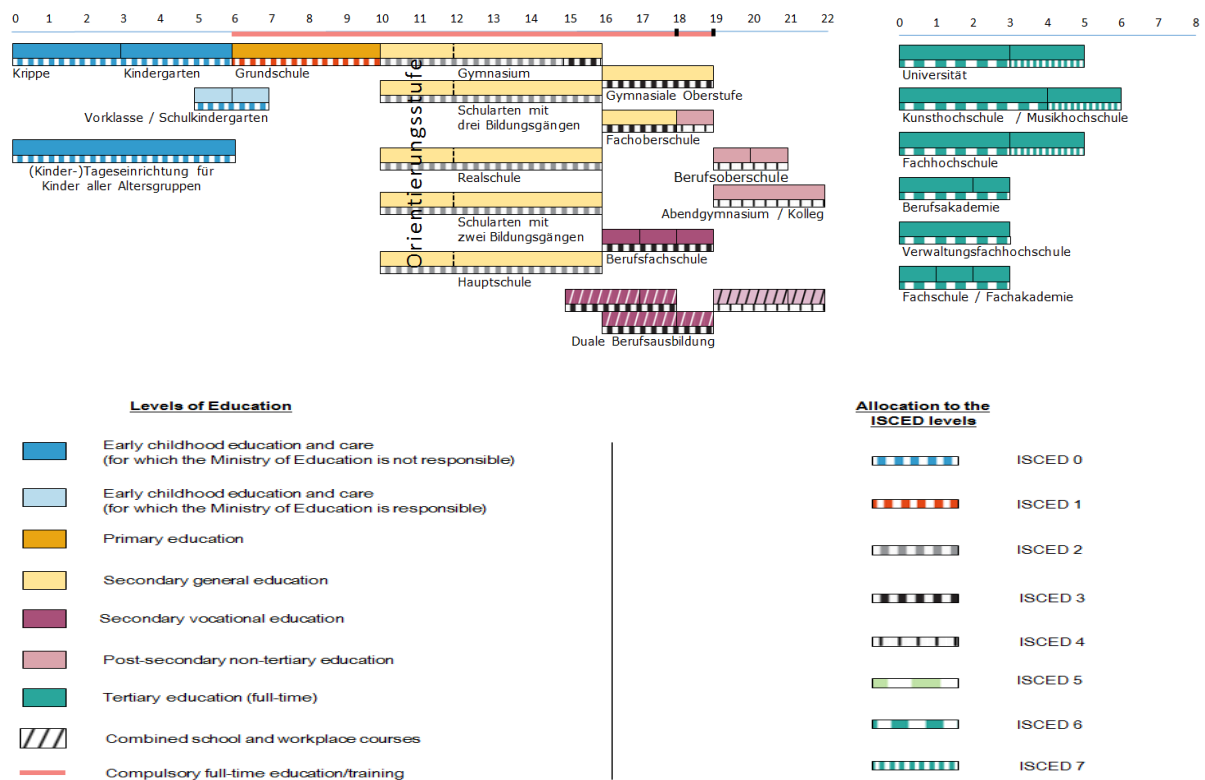
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9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. The structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg; Publications Office of the European Union.

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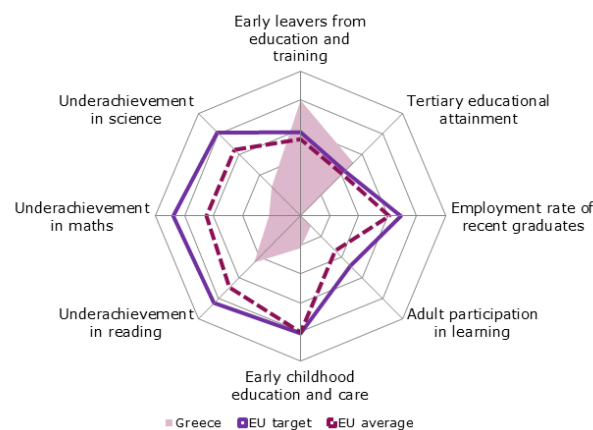
GREECE

1. Key indicators

		Greece		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	10.1%	6.2%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	34.9%	42.7%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		75.2% ¹²	79.6% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	22.6% ¹²	27.3% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	35.7% ¹²	35.8% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	25.5% ¹²	32.7% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	40.0%	49.2%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	3.2%	4.0%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	4.6%	4.3% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	:	: ¹⁴	:	: ¹⁴
		ISCED 3-4	:	: ¹⁴	:	: ¹⁴
		ISCED 5-8	:	: ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	7.5%	5.5%	11.0%	9.8%	
	Foreign-born	35.7%	18.1%	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	38.2%	46.5%	37.8%	39.9%	
	Foreign-born	11.8%	12.3%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	29.7%	37.8%	69.4%	72.6%	
	ISCED 5-8	45.4%	55.0%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	:	: ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	:	: ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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.

3. Tackling inequalities and promoting inclusion

Poor educational outcomes are a matter of concern. The results of the Programme for International Student Assessment (PISA) 2015 show that the particularly high share of low achievers in mathematics remained practically unchanged at 35.8 % in 2015. In science, 32.7 % of 15-year-olds were low achievers, an increase of 7.2 pps. since 2012. The rate of low achievers in reading increased by 4.7 pps. to 27.3 %.

Wide performance gaps exist between different social groups. Gender differences are especially pronounced in reading, where girls outperform boys by 14.9 pps. The share of low achievers among foreign-born students is particularly high, notably in science (57.9 %) – there is a wide performance gap of 21.4 pps. between native and foreign-born students. There are also questions of equity in the very high concentration of low achievers in science within the lowest quartile of the PISA index of economic, social and cultural status (49.8 %) which is 35.1 pps. higher than among the top quartile. Another concern is the comparatively low share (18%)¹¹⁶ of resilient students – i.e. those coming from the bottom socioeconomic quartile who perform at high levels when compared with students of the same socio-economic status from around the world.

Early school leaving has reduced further, yet differences between native and foreign-born population are significant. Early school leaving decreased by 1.7 pps. in 2016 and is, at 6.2 %, among the lowest in the EU, well below the national Europe 2020 target of 10 % (see figure 2.). While the gender gap is small (1.8 pps.), differences between regions and between native and foreign-born students are pronounced. Among foreign-born students early school leaving has more than halved since 2012, but remains, at 18.1 %, more than triple that of native-born students (5.5 %).

School dropout rates vary according to school type and region. A large share of the migrant student population enters vocational education and training (VET), the sector marked by the highest school dropout rate¹¹⁷ (11 %) according to data collected by the Institute of Educational Policy's (IEP) school dropout observatory (see figure 2.).¹¹⁸ Eastern Macedonia and Thrace, a region with significant minority and migrant populations, records the highest dropout rates in the

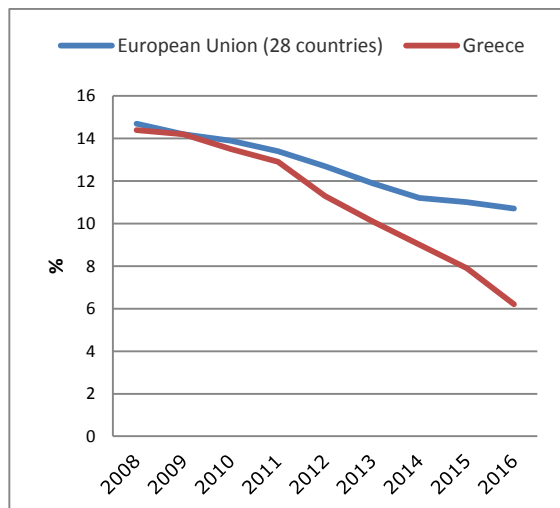
¹¹⁶ Only CY, BG and SK have lower rates.

¹¹⁷ While school dropout and ESL are related, dropout refers exclusively to people leaving school without any qualification whereas ESL includes people with qualifications up to ISCED level 2.

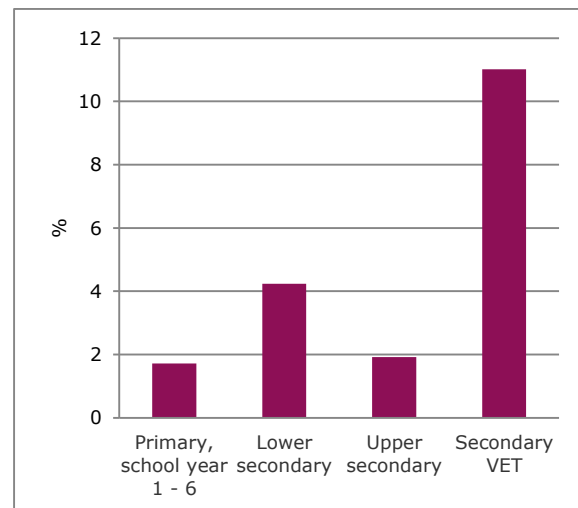
¹¹⁸ IEP shows 11 % for secondary vocational schools compared to the next higher rate of 4.2 % for lower secondary (general) schools.

country. High dropout rates for upper secondary schools can also be observed in the Cycladic and Ionian islands, reflecting seasonal work opportunities in the tourism sector (European Commission 2014).

Figure 2. Early leavers from education and training age (18 - 24), in Greece and EU (left) and dropout rate per school type in Greece 2016 (right)



Source: Eurostat (LFS 2008 - 2016). Online data code: [edat_lfse_14_](#)



Source: MySchool information system (January 2017), IEP school dropout observatory.

Participation in early childhood education remains below EU average. The share of children as of 4 year olds in early childhood education and care (ECEC) was estimated at 79.6 % in 2015.¹¹⁹ This is considerably below the EU average of 94.8 %. An increase can be expected if the government lowers the compulsory age for pre-school attendance from 5 to 4 years as announced.¹²⁰

The ECEC sector faces major challenges on access, provision and quality assurance. ECEC provision for up-to-4-year-olds remains fragmented, resulting in a large dependence on home-based arrangements (Resa 2016). While a demanding recruitment process in the public sector and the existence of a national curriculum for compulsory pre-school education ensure some quality control, the same is not true for public and private day care centres (i.e. those catering to children up to 5 years old). Teacher training and monitoring of the quality of pedagogical/educational activities is limited and evaluations have been frozen (Resa 2016).

Efforts are being made to improve participation of Roma in education. To advance schooling for disadvantaged groups (see box 1), in 2016 the Ministry of Education, Research and Religious Affairs (MoE) launched a 'Programme for the Integration and Education of Roma Children,' co-funded by the EU structural funds. The programme focuses on improving access and participation of Roma children in early childhood education and care, their systematic schooling in primary and secondary education and the re-integration of early school leavers.¹²¹ Despite obligatory school attendance for all children of compulsory school age, attendance by Roma children in this age group was estimated at only 69 % in 2016. School segregation, reflecting the concentration of Roma in particular districts, remains a problem. Almost half (48 %) of Roma children aged 6-15 attend schools where all or most of their classmates are Roma (FRA 2016).

¹¹⁹ National data record an even lower participation at 76.4 % (KANEP 2017).

¹²⁰ In the three year plan (see box.1).

¹²¹ <http://www.minedu.gov.gr/news/24365-11-10-16-programma-gia-tin-entaksi-kai-ekpaidefsi-ton-paidion-roma>.

Box 1: Education of refugee children

For a large number of recent refugees, Greece has been a transit country. While in 2015 alone, 817 175 refugees crossed the border into Greece, around 62 000 are residing in the country in 2017. Integrating refugees, both with permanent and temporary status, has become a pressing issue. The first reception structures for the education of refugees (DYEPs)¹²² opened in October 2016 for children up to 15 years of age residing in refugee accommodation centres (RACs) and other accommodation arrangements. The Aegean islands, which bear the brunt of the refugee crisis, are excluded from the operation of DYEPs on the grounds that they host refugees only temporarily.

Latest estimates count over 20 000 refugee children in Greece of which 48 % are of school age (4-15 years) and 12 % in pre-school age (Ministry of Education, 2017). During the school year 2016/2017, 111 DYEPs provided courses mostly on school campuses near RACs during after-school hours. Courses covered Greek as a foreign language, English, mathematics and information and communication technologies, as well as physical education and art. A wide range of material for teaching refugee children has been made available online by the IEP.¹²³ Education is provided by temporary teachers who are employed half-time; by March around 2 600 children in 145 classes were schooled in DYEPs. In addition, non-formal education is offered by NGOs. An estimated 2 000 children are schooled in mainstream education.

While the response to the need to educate refugee children came rather late following the eruption of the crisis in 2015, it has been comparatively flexible and fast since then. The school years 2016/2017 and 2017/2018 are transitional years to gradually integrate refugee children into the regular education system. Challenges to achieving that goal include ensuring sufficient provision of teacher training, catering for children at pre-primary age and for those above 15, ensuring links between DYEPs and the local community so as not to further isolate refugee children, resolving education needs for refugees on islands, and responding to low school attachment among refugees.

<https://www.minedu.gov.gr/tothema-prosfigiko-m>

4. Investing in education and training

The education system continues to struggle with a low level of public funding.

Government expenditure on education was 4.3 % of GDP in 2015, down from 4.4 % in 2014 and 4.6 % in 2013 and below the EU average of 4.9 %. A marked decrease is also visible in the share of education spending relative to total government expenditure which went from 8.7 % in 2014 to 7.8 % in 2015, the lowest among EU Member States.

Private households bear a large part of the education bill. According to national data, the low level of public spending is partially compensated by an increased level of private spending, which for secondary education has almost reached the same level as public spending according to some estimates¹²⁴ (KANEP 2017). This raises questions of equity especially with regard to the expenditure going to shadow education, whose share of private education expenditure exceeded 40 % in 2014 (KANEP 2017). In February 2017 a cross-party committee on the economics of education was formed to assess the actual financial costs of the education system from pre-school to university and to identify areas for improvement, including the cost of potential changes.

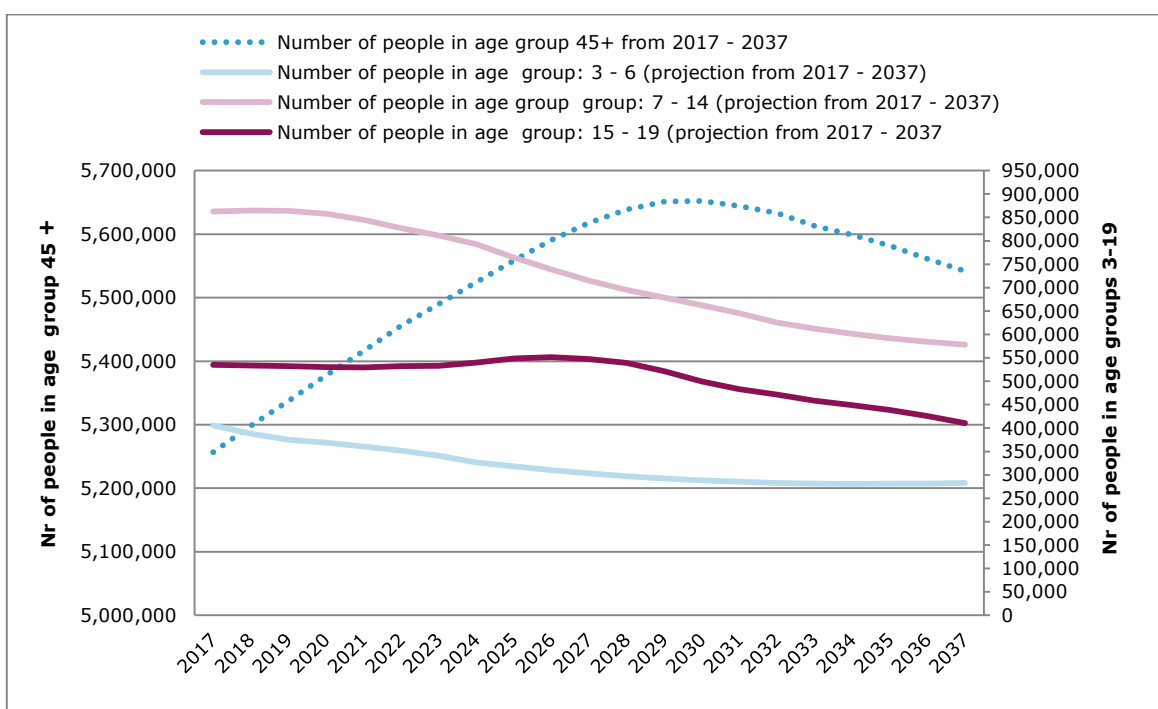
¹²² By Joint Ministerial Decision (JMD) 180647/GD4 /2016 published in FEK 3502/2016/B/31-10-2016.

¹²³ <http://iep.edu.gr/el/component/k2/content/5-ekpaidefsi-prosfigyon>

¹²⁴ In 2014.

Major demographic changes will affect the education system at all levels. By 2050 Greece's population is expected to have fallen by 14.5 % compared to today. The median age is estimated to rise from 43.4 to 52.8, 5 years more than the projected EU average¹²⁵ (VID 2016). Within the next 10 years the number of children aged 5 (starting age for compulsory schooling) is expected to decrease by 27 %.¹²⁶ In the same period, the share of school children aged 7-14 will decrease by more than 17 %. While by 2027 a slight increase is estimated for those finishing compulsory education and potentially entering VET, post-secondary or tertiary education (age group 15-19), over a 20 year horizon a 23 % decrease compared to 2017 is projected. These projections highlight both challenges and opportunities for rationalisation at different levels and adapting to the changing composition of society including through provision of lifelong learning opportunities.

Figure 3. Projection of population change in Greece in different age groups (2017-2037)



Source: Eurostat (Population projection from 2017 - 2040). Online data code: [proj_15npms](#).

Employment levels of recent graduates have increased but remain very low. Against the background of the persistent economic crisis, overall unemployment continues to be the highest in the EU at 23.6 % in 2016, with youth unemployment (age 15-24) at 47.3 %. Despite an increase compared to 2015, the employment rate of recent tertiary graduates (ISCED 5-8) in 2016 was, at 55 %, the lowest among the EU-28 and far below the EU average of 82.2 %. The pattern is similar for upper- and post-secondary graduates (ISCED 3-4): their employment rate increased slightly to 37.8 %, but remains by far the lowest within the EU. At 22.2 % in 2016 the share of young people (aged 15-29) not in employment, education or training was higher only in Bulgaria.

¹²⁵ Estimate refers to EU-28.

¹²⁶ Eurostat data.

5. Modernising school education

The procedure for appointing school leaders has changed. In March 2017 the Supreme Court ruled unconstitutional the practice of electing school leaders by secret ballots of teachers. In response, a new law in May abolished this method, but still allows for their opinion to be sent anonymously and taken into account for appointments by the Regional Education Councils. It is unclear what weight the teachers' opinion has in the process.

New efforts to establish an evaluation culture in schools are encouraging but lack measures for comparability and accountability. Greece has committed to self-evaluation of school units and school leaders as stipulated in the three year plan (see box 2). This is an important step forward to re-establish the evaluation culture after all such measures were frozen in 2014. However, objective and universal assessment criteria to build comparability and accountability do not yet exist. At present, self-evaluation for school units provides for the teaching staffs to set goals at the beginning of the school year, which are then revisited at the end. There is no obligation to publish results or for follow-up. While voluntary self-improvement and collective decision-making by teachers are important trust-building measures, evaluation needs to cover teachers themselves and to include comparable assessment criteria, external involvement and support measures such as continuing professional development.

The all-day school model is to be extended to all primary schools. The government announced the extension of the all-day school model to all primary schools from the beginning of school year 2017/18. Access is specifically targeted to disadvantaged groups, including refugee children. It remains to be seen if the initiative will raise participation in all-day programmes (which is estimated at around 20 % currently), since compulsory education in the all-day model ends at lunchtime (13.15).

Several policy measures aim to strengthen the role of schools as the primary education provider. One of the planned measures is to reduce the maximum number of students per class to 22, even though Greece already has a pupil/teacher ratio lower than the OECD average¹²⁷. The possible gain in educational outcomes is not clear (OECD 2016c). The revision of curricula focuses on problem solving and understanding; new curricula for religious education and history have been developed; changes to languages and natural sciences are planned for 2017. The aim to improve education provision in school is closely associated by the government with an attempt to cut down on after-school shadow education.¹²⁸ The same aim underpins the planned upgrade of the last two years of upper secondary education (see box 2).

Box 2: Three year plan on education

In May 2017 Greece issued a three year plan for education as laid down in the second Supplemental Memorandum of Understanding for Greece of the European Commission, ECB and IMF.¹²⁹ The plan serves as a roadmap for reforms in all areas of education and provides an indicative timetable for implementation in the period 2016-2019.

Horizontal issues the government identified as priorities for the coming years are: the gradual increase in digital opportunities at all education levels; refugee education; and the development of an evaluation programme for all education structures.

For **school education** (primary and secondary) the plan pledges: to rationalise the current system and make it more efficient; to ensure pedagogical autonomy of schools and alleviate their bureaucratic burdens; to evaluate school units; and to improve teacher training. One of the most ambitious measures envisages that graduation from the 'New Lyceum' (upper secondary school) will serve as the basis for university admission and that the Panhellenic university entrance exams will be abolished.

¹²⁷ For primary education the OECD average was 15 in 2014 and 9 in Greece.

¹²⁸ Announcement by Prime Minister Tsipras in May 2017.

¹²⁹ Adopted in July 2017. https://ec.europa.eu/info/sites/info/files/smou_final_to_esm_2017_07_05.pdf.

Measures in **vocational education and training and adult learning** refer to: new curricula for secondary vocational education institutes (IEK); greater mobility and easier university access for VET students; tracking of VET graduates; provision of more apprenticeships; and a new self-financed scheme of adult education programmes.

The objective in **higher education** is: the creation of a 'Single Area for Higher Education, Research and Innovation' by fostering inter alia cooperation and staff mobility between higher education institutes (HEIs) and research centres; establishing a Greek research and innovation institute; and creating Regional Academic Councils to link HEIs and independent research institutes at regional level.

<https://www.minedu.gov.gr/news/28206-19-05-17-to-trietes-sxedio-gia-tin-ekpaidefsi-plaisio-katefthynseon-kai-protaseis>

6. Modernising higher education

More people get academic degrees, but qualifications often do not match labour market realities. Tertiary graduate attainment rose by 17 pps. from 2008 to 42.7 % in 2016, above both the EU 2020 target of 40 % and the national benchmark of 32 %. The steep increase, however, mainly reflects the deep employment crisis as young people postpone labour market participation. A large proportion (40.2 %) of 25-34 year-old higher education graduates are employed in jobs below their educational attainment level (CEDEFOP 2017).

Due to the adverse economic and social conditions and the lack of opportunities Greece faces a serious outflow of highly skilled people. In 2015 109 351 people left Greece, almost twice as many as those who arrived, thus continuing the trend of net emigration due to the economic crisis. Recent emigration is markedly different from earlier emigration waves that consisted mainly of low-educated emigrants (Labrianidis 2016). Between 2008 and 2013, of the almost 223 000 people aged 25-39 who emigrated (Lazaretou 2016), 88 % were graduates from Greek universities, 60 % held post-graduate degrees from either Greek or foreign institutions and 11 % PhDs, mostly from foreign institutions. This happened in a context where the share of post-graduate degree holders is much lower in Greece than in other OECD countries (Lazaretou 2016).¹³⁰ Thus, the high emigration rate of post-graduates is especially critical, since it further reduces the human potential for innovation and (technological) development as drivers of economic growth.

Major changes are planned in higher education. A new law on higher education, passed in August 2017, abolishes the University Councils set up in 2011 in an effort to introduce an element of external checks and balances. The law reintroduces restrictions to law enforcement forces being allowed on campuses and establishes an integrated 5-year master's degree, which is moving away from the Bologna three-cycle system. To improve equal access, tuition fee waivers on economic grounds in post-graduate programmes are envisaged. Regional Academic Councils are introduced as advisory bodies to facilitate exchange between academia, business and the local community.

Quality assurance in higher education has progressed, albeit slowly, and is planned to be reinforced. ADIP, the Hellenic Quality Assurance and Accreditation Agency, has been a full member of the European Association for Quality Assurance in Higher Education (ENQA) since 2015. While ADIP completed external evaluation of all HEI departments in 2014, progress on institutional evaluation and accreditation of undergraduate study programmes is slow. For the evaluation of post-graduate programmes the new law on higher education introduces Scientific Advisory Committees, consisting of external members — either professors of other universities, including foreign academics, or senior staff from research centres. To ensure smooth and integrated progress, synergies between ADIP and the proposed new evaluation structures need to be ensured.

¹³⁰ One in ten in Greece against one in two in OECD countries.

7. Modernising vocational education and training and promoting adult learning

Participation in and the attractiveness of VET should be strengthened. The proportion of upper secondary students (ISCED 3) in VET is stable at around 30 %, far below the EU average of 47.3 %. The employment rate of recent VET graduates remains much lower than the EU average of 75 %, albeit having increased to 40.7 % in 2016. On continuous VET provision, stronger links to labour market needs are required. The skills needs forecasting system, for which a legal framework has been established, needs to be implemented; the image of and access to VET need to be further strengthened; and quality and continuous professional development of VET teachers and trainers needs to be improved. Further upgrading and expansion of apprenticeships (see box 3) and work-based learning opportunities should be envisaged. In order to renew the VET system, the MoE approved Quality Frameworks for Study Programmes of Vocational Education and Training as well as for the Implementation of Apprenticeships in Enterprises.

Higher participation in lifelong learning is encouraging, but still much lower than the EU average. Adult participation (aged 25-64) in learning rose slightly to 4 % in 2016, the highest over the last six years, but still far below the EU average of 10.8 %. Inequalities in participation linked to educational level and employment security remain; efforts to raise awareness about adult education opportunities should be better targeted.

Measures are underway to train low-skilled adults. The government has launched an initiative to promote the short-term employment of unemployed people through public programmes at municipal level. This initiative also aims to improve adults' skills as it will include a training module, namely digital skills, and elements of social entrepreneurship. A further incentive for adult upskilling will be provided through the Social Solidarity Income (KEA). This new government welfare programme requires all adults up to 45 years of age, who have not completed their compulsory education, to enrol in a second chance school in their municipality, as a prerequisite for participation in KEA.

Box 3: ESF funds for post-secondary school year – apprenticeship class

Launched by the Ministry of Education in March 2017, this ESF-funded programme supports 1 200 secondary vocational lyceum (EPAL) graduates from seven specialties, aged 18-24 and not in employment, education or training. Participants will have the opportunity to upgrade their educational qualifications and obtain work experience. The programme lasts for nine months leading to a qualification at EQF level 5. It combines a seven-hour laboratory course of specialisation in the competent EPAL and/or lab centre (once a week) and the 'Workplace Education Programme – Apprenticeship at work' in public or private companies (28 hours/four days per week). During the latter, the apprentice receives a salary of 75 % of the legal minimum wage and full insurance coverage.

<http://www.minedu.gov.gr/texniki-ekpaideusi-2>

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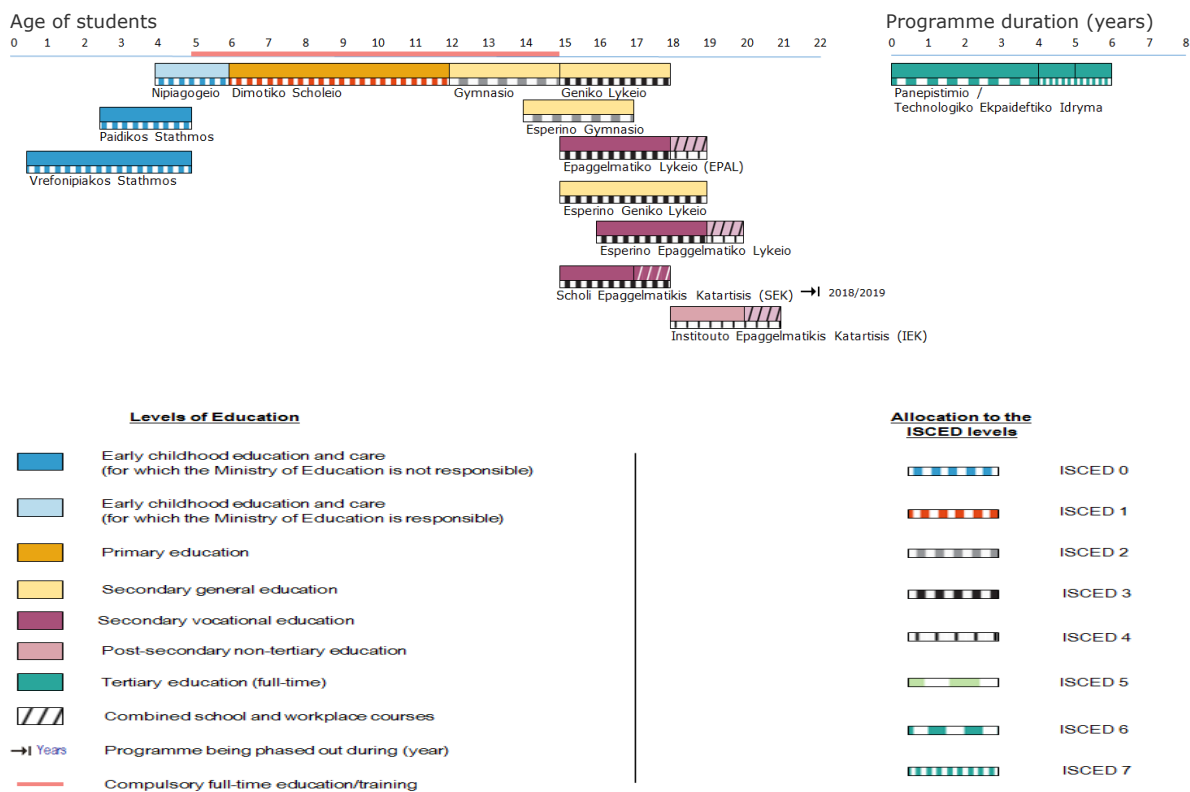
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9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. Structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
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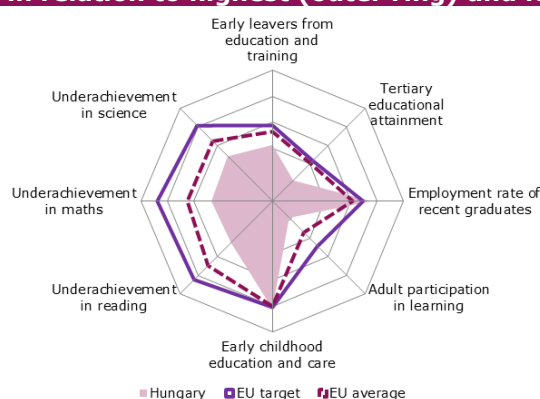
HUNGARY

1. Key indicators

		Hungary		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	11.9%	12.4%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	32.3%	33.0%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		94.5% ¹²	95.3% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	19.7% ¹²	27.5% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	28.1% ¹²	28.0% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	18.0% ¹²	26.0% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	74.2%	85.0%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	3.2%	6.3%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	4.6%	5.2% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€3 481	€2 837 ¹⁴	:	: ¹⁴
		ISCED 3-4	€3 253	€6 087 ¹⁴	:	: ¹⁴
ISCED 5-8		€7 370	€6 399 ¹⁴	:	: ¹⁴	
Early leavers from education and training (age 18-24)	Native-born	11.9%	12.4%	11.0%	9.8%	
	Foreign-born	:	:	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	32.1%	33.2%	37.8%	39.9%	
	Foreign-born	41.0%	25.3%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	64.8%	81.2%	69.4%	72.6%	
	ISCED 5-8	85.4%	90.5%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	2.8%	3.0% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	7.0%	8.1% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to highest (outer ring) and lowest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

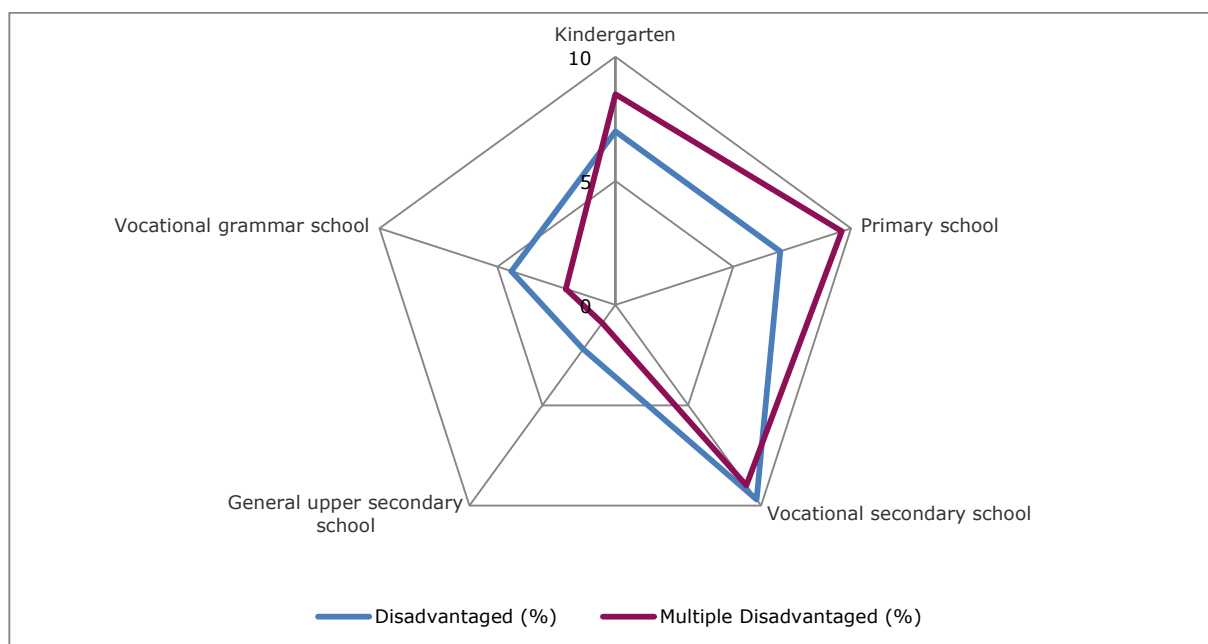
2. Highlights

- 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.

3. Tackling inequalities and promoting inclusion

PISA 2015 showed declining educational performance on several fronts. In the OECD's 2015 Programme for International Student Assessment (PISA), performance in reading and science worsened significantly compared to 2012. Hungary saw the EU's highest increase in the share of low achievers in science, while more than one in four pupils did not meet the basic required level in reading or mathematics. Results in mathematics remained below the OECD average. The impact of pupils' socioeconomic background on education outcomes is the strongest in the EU. The impact of school type on outcomes is very significant, reflecting early selection in secondary education (Educational Authority 2017). From the three types of secondary school, pupils of vocational schools (*szakiskola*)¹³¹ - which have the highest concentration of disadvantaged pupils (Figure 2) - performed particularly poorly in PISA (Educational Authority 2016a). The Trends in International Mathematics and Science Survey (TIMSS) for 2015 shows that similarly wide achievement gaps already exist by the 4th grade of primary education. In its 2017 European Semester country-specific recommendations, the Council of the EU recommended that Hungary take measures to improve education outcomes and to increase the participation of disadvantaged groups, in particular Roma, in inclusive mainstream education (Council of the European Union 2017).

¹³¹ In 2016/2017 this type of schools was renamed as 'vocational secondary school' (*szakközépiskola*).

Figure 2. Proportion of disadvantaged and multiple disadvantaged pupils, 2015/2016 (%)


Source: Central Statistical Office (KSH), Education data 2015/2016.

In 2016, the early school leaving (ESL) rate increased to 12.4 %, above the EU average of 10.7 %. While ESL has been decreasing steadily across the EU, it has not fallen in Hungary since 2010. One factor is child poverty (European Commission 2017), which decreased somewhat in 2015 but is still very high (36.1 % in Hungary against an EU average of 26.9 %). Especially since the lowering of the compulsory school-leaving age from 18 to 16 in 2012, disadvantaged young people are increasingly likely to leave school to take jobs that require no qualifications. Their income under the public work scheme is below the minimum wage but still substantially higher than the family allowance if they stay at school. The school financing system was changed in 2013, with funding no longer based directly on pupil numbers. In November 2016 the government adopted an action plan to reduce ESL and introduced mandatory data collection on pupils' progress at school, which feeds into a digital early warning and pedagogical support system.

Recent interventions in early childhood education and care may help in levelling differences by the start of the school age. As performance gaps appear at early ages, lowering the age of compulsory participation in kindergarten from age 5 to 3 as of 2015/2016 is a positive step, likely to improve children's later performance at school. 95.3 % of children between the ages of 4 and 6 participate in early childhood education and care (ECEC). Roma participation is 91 %, close to the national average and the highest in the region (FRA 2016). The provision of free kindergarten, school meals and text books to disadvantaged pupils has been extended substantially since 2015/2016. The teacher career model was extended in 2016 to ECEC staff having completed higher education. This is likely to boost the quality of provision and increase the appeal of degree programmes in ECEC.

Early tracking increases selectiveness and the risk of disadvantaged pupils being separated from their peers. Grouping into different educational tracks can start as early as age 10¹³². According to the 2016 national survey, the competence level of pupils at grade 10 in vocational secondary schools was on average lower than the competence level of 6th graders and showed no progress in grades 9 and 10. This reflects the concentration of low-performing pupils in such schools (Educational Authority 2017a) and the limited capacity of this school type to counterbalance the socio-economic disadvantage that large numbers of their pupils face (Civil

¹³² At age 14, pupils are tracked into different types of upper secondary schools based on their performance. The best-performing secondary schools typically combine lower and upper secondary education and admit pupils already at the age of 10 or 12.

School Education Platform 2016). Enrolment data show over-application especially to the well-performing 6- and 8-year upper secondary schools. The entry exam to these schools is highly competitive and goes beyond the content of the curriculum in its focus on the application of content: pupils' results appear to depend heavily on whether or not they have received additional lessons (see also section 5). This worsens the already substantial 'opportunity gap' between privileged and disadvantaged families.

Separation of disadvantaged pupils, including Roma, has accelerated in the last decade.

Increasing residential separation and the effect of parental choice on local school enrolment policies have resulted in the education system becoming ever more segregated on ethnic grounds. Despite the state taking over the management of all public schools from municipalities in 2013 with the aim of levelling inequalities, most Roma children still attend schools where all or most children are Roma (FRA 2016). ESL is more than six times higher (59.9 %) among Roma than among non-Roma (8.9 %) ¹³³. Although successful pedagogical models for inclusive education have been developed in Hungary, the number of schools using them is limited. In May 2016, the European Commission launched infringement proceedings against Hungary over discrimination against Roma children in education in breach of the EU Directive on equal treatment irrespective of racial or ethnic origin ¹³⁴. Proposals to address this issue have since been adopted by Parliament and came into force in July 2017.

Announced changes will modify assessment for pupils with learning and behavioural difficulties and change teacher qualification requirements in special education.

In May 2017, the government submitted an amendment to the law on school education that would reduce the exemption of pupils with learning or behavioural difficulties from assessment from 2018. In the opinion of the universities providing qualifications for special education (ELTE 2017) and the Association of Special Education Teachers (MAGYE 2017), exempting pupils with learning or behavioural difficulties from assessment would make it necessary to provide appropriate support for their cognitive development to help them keep pace with their peers. This condition is unlikely to be met in the short term given the current shortages of special education teachers ¹³⁵. This may increase the risk of the pupils concerned leaving school early.

4. Investing in education and training

General government expenditure on education as a proportion of GDP was 5.2 % in 2015, above the EU average of 4.9 %.

Education absorbed 10.3 % of total public expenditure, in line with the EU average. These figures include the use of EU funds in the sector. All schools whose buildings were previously owned and managed by municipalities were taken over by the state in 2017, with municipalities paying a 'solidarity contribution' to the central budget to support school education.

Skills shortages are comparatively high in Hungary.

Surveys report that businesses in certain sectors face increasing labour shortages. According to the European Business Survey, the share of industry firms reporting that labour is a 'factor limiting production' has increased significantly since 2013 (surpassing 50 % in 2016) and is now the highest in the EU (European Commission 2016). The supply of skilled labour is further reduced by high rates of emigration (Hungarian Academy of Sciences 2016). Since 2008, emigration has increased significantly, notably to Germany, Austria and the United Kingdom (OECD 2016a). According to a youth survey of 2016, one in three young people (aged 15-29) are planning to study or work abroad, naming higher wages as the main reason (Társadalomkutató 2016).

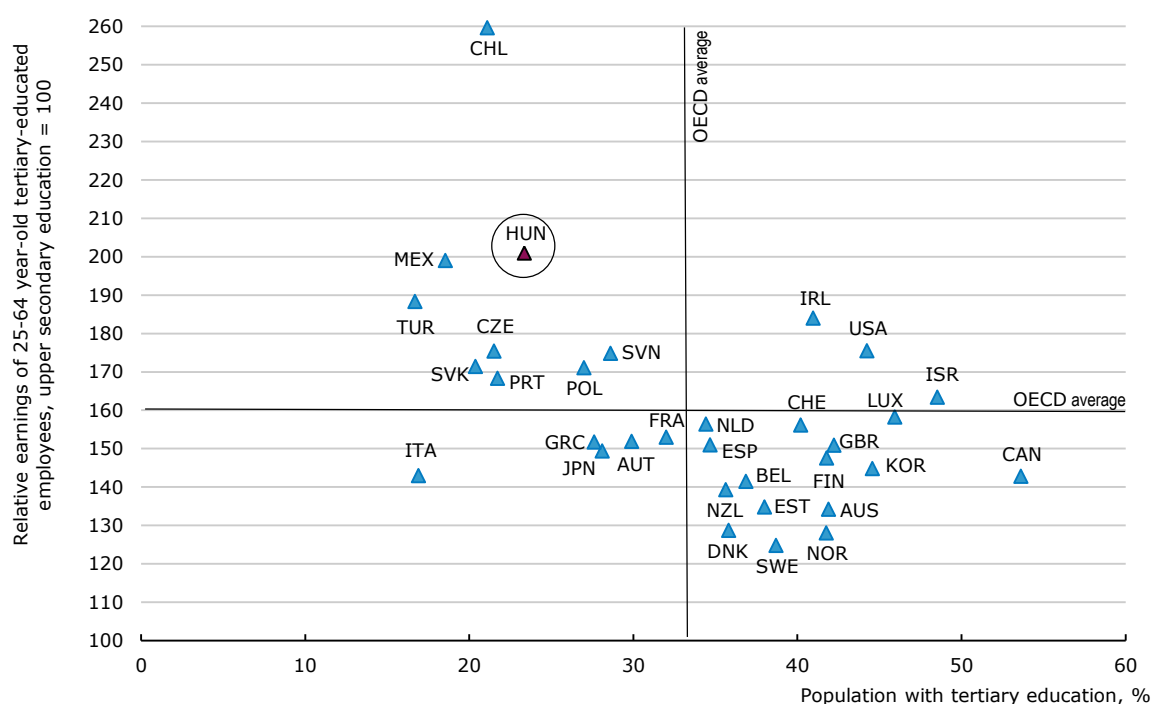
¹³³ Source: 2015 Labour Force Survey.

¹³⁴ Directive 2000/43/EC.

¹³⁵ According to a public announcement of the Ministry of Human Capacities of September 2016, in 2015 some 9 000 special education teachers provided development support for 584 000 pupils.

Responding to the skills shortage is hampered by low enrolment and completion rates in tertiary education. The tertiary educational attainment rate for 30-to 34-year-olds stood at 33 % in 2016, below the EU average of 39.1 %. There has been a decline in application and enrolment numbers for tertiary programmes since 2010 which can only be partially explained by demographic changes¹³⁶. Dropout rates have been declining but remain high especially in undivided¹³⁷ and bachelor programmes (36-38 %)¹³⁸. Reflecting skills shortages, adults who have tertiary education enjoy one of the highest wage premia in the OECD (Figure 3). Government measures announced will provide financial relief for young graduate mothers (student loan waiver and extension of duration of maternity leave) may over time help motivate more young women to complete tertiary education.

Figure 3. Hungary's room to further expand tertiary education remains ample



Source: OECD (2015), Education at a Glance 2015, Tables A1.3a and A6.1a. URL: <http://dx.doi.org/10.1787/888933349569>.

Note: Tertiary education includes short cycle tertiary, bachelor's, master's, doctoral or equivalent degrees. Data on educational attainment refers to year 2014 or latest available year.

5. Modernising school education

School autonomy has increased in certain areas since 2016. Since January 2013 school salaries had been paid directly from the state treasury, and operational costs by either the school maintaining authority (KLIK) or the municipality. In January 2017 responsibility for maintenance of schools previously held by municipalities was taken over by the state. The re-named central maintaining authority (Klebensberg Centre) was complemented by 58 district-level centres. The related 2016 amendment of the act on school education returned to school heads some of their former powers of decision, while primary schools were given freedom to deviate from the framework curriculum by up to 20-35 % of content¹³⁹. The Institute for Educational Research and Development made recommendations for alternative syllabi, allowing teachers to adjust

¹³⁶ While the number of 18-year-olds sank by 17 % from 2010 to 2015, the number of applicants dropped by 24 % in the same period.

¹³⁷ An undivided one-tier programme leads to a master's degree with no bachelor level. e.g.: law, medicine, forest engineering and teacher training.

¹³⁸ http://www.kormany.hu/download/c/9c/e0000/Fokozatvaltas_Felsooktatasban_HONLAPRA.PDF

¹³⁹ Ministerial decree (EMMI) 23/2016 [30.08.] on amending decree n°51/2012 [21.12.] on the order of approving and publishing framework curricula.

programmes to pupils' individual needs. These steps may contribute to improving learning outcomes: PISA showed that pupils' performance in science improves where school heads exercise more autonomy over resources, curriculum and other school policies (OECD 2016b).

A revision of the national curriculum was launched in 2017 in response to the declining performance in PISA 2015. The most recent PISA survey showed declining performance in all assessed areas and particularly weak problem-solving skills - Hungarian pupils performed significantly worse in problem-solving than pupils in other countries with similar overall performance. This suggests that teaching and the national curriculum are too focused on knowledge and not on its application (OECD 2016a), (see the related discussion in section 3 on the entry examination to upper secondary schools). In response, the government has launched a revision of the national curriculum, to be finalised by end-2017 and implemented from September 2019.

The number of applicants for initial teacher education rose in 2017 but teacher shortages are still acute. Teacher salaries have been raised in recent years but are still 30 % lower than those of other tertiary graduates (OECD 2016c). Students in teacher training are entitled to a scholarship on condition that they work for a time at a public school after graduation. Following teacher protests in early 2016, the government revised some administrative burdens linked to the new inspection system and teachers' compulsory self-evaluation. The number of teachers eligible to be promoted to a higher category in the career model was increased for 2017 and 2018¹⁴⁰. Teachers less than 7 years from retirement were allowed to move automatically to the next category from 2017. The increased number of applications in 2017 suggests that this combination of measures has helped attract new candidates to the profession.

6. Modernising higher education

A shrinking pool of applicants to higher education is likely to further restrain tertiary attainment rates. The employment rate of recent tertiary graduates is 90.5 %, significantly higher than the EU average of 82.8 %, reflecting strong demand for high skilled workers. The tertiary educational attainment rate among 30- to 34-year-olds (33 %) is significantly lower than the EU average (39.1 %). The gap between female and male rates (13.2 percentage points) is significantly higher than the EU average (9.5 pps.). Between 2009 and 2016, the number of pupils successfully passing the upper secondary school leaving exam (*érettségi*) dropped by 24 % (Central Statistical Office 2016), a much bigger fall than the decrease in the school population. The higher education strategy adopted in 2014 set the objective of increasing entry and outcome requirements. Accordingly, the minimum number of points needed for entry was gradually increased to 260 in 2014 and 280 in 2015. A higher-level upper secondary school leaving exam (*emelt szintű érettségi*) has become mandatory for entering several programmes and a foreign language certificate of proficiency level B2 will be needed for all but short-cycle tertiary programmes from 2020. The foreign language requirement is likely to further reduce the already shrinking pool of applicants, as not all pupils obtain a B2 level certificate by the end of secondary education. The Ombudsman found that the language requirement would need to be accompanied by a greater allocation of human and other resources to language teaching to avoid infringing constitutional rights (Ombudsman 2017). To support participation in language exams, the Government¹⁴¹ made the fees of the first successful B2 level exam reimbursable.

Higher education institutions are to adjust their curricula to the revised national qualifications standards by September 2017. Following a revision of qualifications, a new Qualifications Register was adopted in 2015¹⁴². The learning requirements and outcomes for qualifications listed in the register were defined in line with the Hungarian Qualifications Framework (HuQF) in August 2016¹⁴³. These new standards describe the name and credit value of each programme, its learning outcomes, the study areas and the specific requirements for traineeship, the final thesis and foreign language skills. These learning requirements and outcomes apply to all higher education institutions wishing to offer a qualification. As a next step, higher education institutions must adjust their curricula to the new standards and introduce them from September

¹⁴⁰ https://www.oktatas.hu/pub_bin/dload/pem/2017_2018_evi_minositesi_keretszamok_kozlemany.pdf

¹⁴¹ 1516/2017. (VIII. 14.) Government Decree

¹⁴² 139/2015. (VI. 9.) Government decree.

¹⁴³ 18/2016. (VIII. 5.) EMMI decree.

2017. To encourage learning mobility, a 2015 regulation¹⁴⁴ made a mobility window compulsory in all new bachelor and master programmes from 2019/2020.

In April 2017 the act on higher education was amended with the declared purpose of tightening the conditions under which foreign higher education institutions can operate.

The amendment stipulates, among other things, that any foreign institution outside the European Economic Area that grants degrees in Hungary must operate in its country of origin and be governed by a bilateral agreement between the two states. The stated rationale of the amendment was to strengthen quality assurance.

The Graduate Tracking System (*Diplomás Pályakövető Rendszer*)

A graduate tracking system was developed to gather information about the employability of tertiary graduates. The aim is to inform applicants to degree programmes about career prospects and to make it easier to adapt degree programmes to the jobs market. The System contains two modules. The first, the Administrative Data Integration module, links together the administrative registers of the Higher Education Information System and the Student Loan Centre with other public registers, e.g. for tax, social security health and labour.

The methodology and central elements of the second, survey module were developed with partial funding from the European Social Fund. In addition, several higher education institutions were given funding to develop their own tracking systems, based on a standardised methodology. The Educational Authority carries out surveys regularly on graduates' careers 1, 3 and 5 years after graduation.

According to the latest 2015 survey (Educational Authority 2016b):

- 21 % of recent graduates had started further tertiary programmes;
- 11 % had participated in a mobility period during their studies;
- 28 % were planning to work abroad in the next 5 years; and
- 44 % were already in a full time job when they graduated.

Respondents found work on average within 4 months of graduating and 79 % of graduates in employment held a position matching their study profile to some extent.

The new regulation¹⁴⁵ on funding of higher education institutions uses graduate employment data as a performance criterion which can affect 10 % of an institution's total funding. As employability depends not only on the quality and job relevance of studies but also on labour market conditions, care is needed in using employability to determine so significantly the funding allocation. Other performance-based funding systems for higher education tend to use a wider range of criteria more directly linked to the education process.

7. Modernising vocational education and training and promoting adult learning

The employment rate of recent vocational education and training (VET) graduates, at 84.4 %, is well above the EU average of 75 %, but shows a wide gap between the two types of VET. The proportion of upper secondary students in VET was 23.2 % in 2015, below the EU average. VET in Hungary has two regular pathways: vocational secondary school (*szakközépiskola*) for less academically inclined students and vocational grammar schools (*szakgimnázium*) with a higher element of general education. Vocational training provides practical workplace training focused on the world of work. General education content is limited; this, together with the concentration of children of low socioeconomic status in this type of school, explains their heavy deficit in basic skills measured in PISA. This is further reflected in the high dropout rates: in 2014 vocational secondary schools accounted for nearly half of all drop-outs

¹⁴⁴ 87/2015. (IV. 9.) Government decree.

¹⁴⁵ Government decree 389/2016 (XII. 2.).

(Fehérvári 2015) but only 21 % of the whole school population. Their graduates face high unemployment rates, difficulties in finding a job and wages 25 % lower than for other secondary school graduates (Hajdu et al. 2015). Starting vocation-specific subjects as early as 14 years without laying the broader foundations of basic skills leaves little room to later switch studies, either horizontally or to a higher track. In addition, weak basic skills reduce graduates' adaptability to changing labour market needs, leading to an increasing wage gap over time with general education graduates (Hajdu et al. 2015). Adult participation in learning (6.3 %) is significantly lower than the EU average (10.8 %).

In December 2016, the government published the new content requirements, with effect from the May 2017 exams, for the composite professional component of the upper secondary school leaving exam of vocational grammar schools Under the previous system, pupils in vocational grammar schools needed to pass exams in five subjects: four compulsory plus one optional. Depending on their future study plans, the optional subject could either be a vocational subject or another subject needed for their entry to higher education. Under the new regulation, they have to pass a composite exam covering a series of vocational subjects and, if they wish to enter higher education, a sixth subject corresponding to their desired study field. This puts them at a disadvantage compared to their peers in general upper secondary education: the latter are examined in only five subjects and also receive many more teaching hours in science subjects. Student and teacher organisations protested against the immediate application of the regulation, citing the law according to which changes in matura regulations should allow them at least 2 years to prepare.

Bridging the Digital Gap

The EDIOP programme (July 2017 to October 2020) has funding of EUR 78 million. It aims to digitally upskill disadvantaged adults in employment age (16-65), through training and motivating them to use IT tools and IT facilities. By August 2017, some 76,923 adults have already benefited from the training and facilities. The objective is to reach 260,000 people altogether. The IT courses are referenced to the digital levels of Europass.

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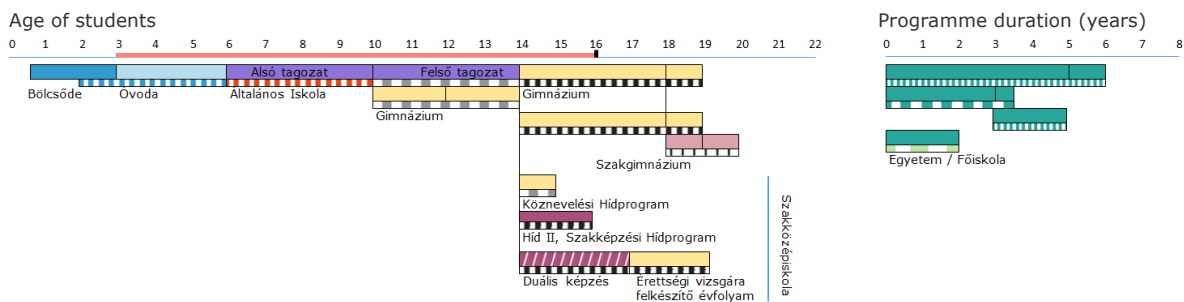
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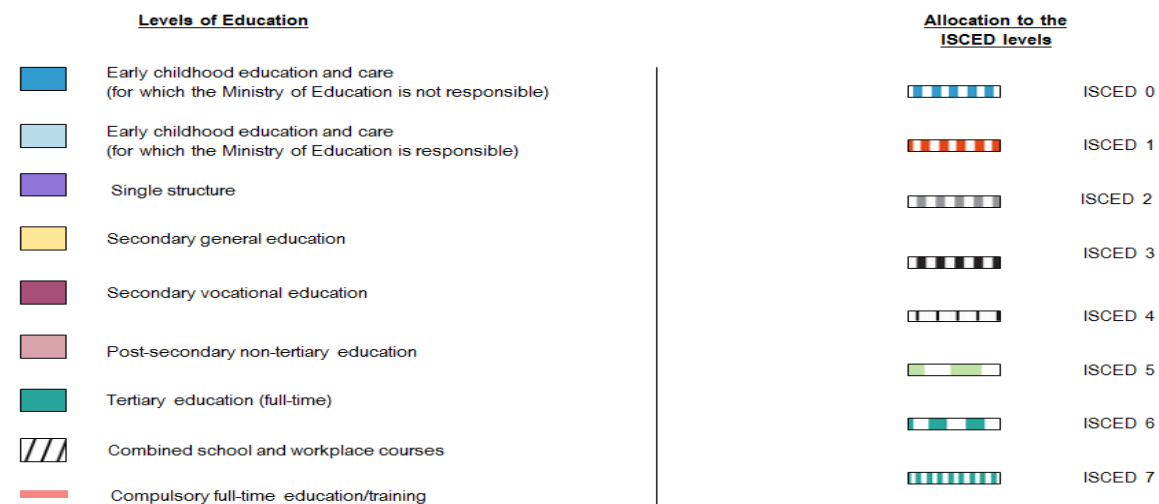
9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	edu_uoe_mobg03

10. Annex II. Structure of the education system



Note: HÍD II may start in grade 7; HÍD I may start in grade 9 but the theoretical starting age is 14 in both cases.



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
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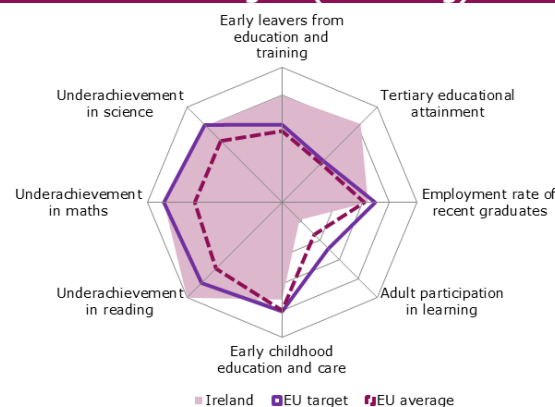
IRELAND

1. Key indicators

		Ireland		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	8.4%	6.3%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	52.6%	52.9%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		99.1% ¹²	92.7% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	9.6% ¹²	10.2% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	16.9% ¹²	15.0% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	11.1% ¹²	15.3% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	73.0%	79.5%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	7.6%	6.4%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	5.0%	3.7% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€6 552	€6 339 ¹⁴	:	: ¹⁴
		ISCED 3-4	€8 859	€8 042 ¹⁴	:	: ¹⁴
		ISCED 5-8	€10 536	€10 348 ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	8.0%	6.5%	11.0%	9.8%	
	Foreign-born	10.4%	5.2%	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	51.7%	50.5%	37.8%	39.9%	
	Foreign-born	54.7%	58.4%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	55.9%	67.2%	69.4%	72.6%	
	ISCED 5-8	82.8%	86.7%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	4.6%	5.5% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	9.3%	16.9% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS, 2016) and OECD (PISA, 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

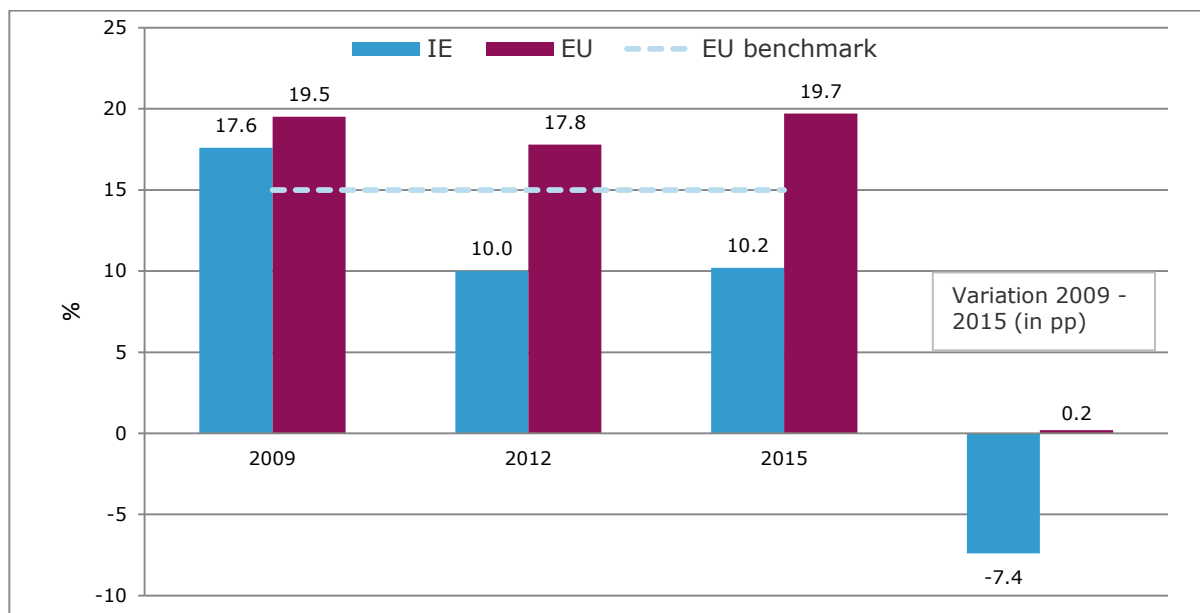
- Irish students' basic skills in reading, mathematics and science are high and relatively unaffected by socioeconomic background.
- Ireland continues to compare very well on education targets for early school leaving and tertiary education attainment. However, inequalities in participation and access 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.

3. Tackling inequalities and promoting inclusion

For basic skills Ireland has maintained a very good performance, especially in reading, ranking high among the EU-28. In the OECD's 2015 Programme for International Student Assessment (PISA) survey, Ireland improved slightly in mathematics compared with previous results. In science, it remained above the EU and OECD averages, but with a significant drop from 2012 (ERC, 2016a). The proportion of low achievers (see Figure 2) is the smallest in the EU in reading (10 %) and among the smallest in maths (15 %) and science (15 %). In addition the impact of socioeconomic status on performance is relatively limited (OECD, 2016b). Gender gaps are among the smallest in the EU in all three test domains (European Commission, 2016). There is a performance gap between non-immigrants and both first- and second-generation immigrants (OECD, 2016c). Furthermore, recent research has highlighted the continuing insufficient levels of educational attainment among the traveller community (Watson et al., 2017). The Action Plan for Education 2017 sets ambitious targets to improve mathematics performance in PISA. These call for maintaining the proportion of low achievers below 10 % while increasing the share of top performers to the level of the OECD average by 2025 (DES, 2017)¹⁴⁶. It also recognises that policies are needed to strengthen the capacity of school leaders and teachers to address the growing linguistic and cultural diversity among students from an increasingly varied immigrant background (Eurydice, 2017).

¹⁴⁶ In PISA 2015, 9.8 % of the students surveyed in Ireland were top achievers in mathematics (level 5 or above), against the OECD general average of 10.7 % (OECD, 2016b).

Figure 2. Progress towards meeting the Benchmark of low achievers in Reading, 2009-2015



Source: DG EAC elaboration on OECD PISA, 2009-2015 figures. Online data code: [table I.4.2c](#).

The favourable trend in basic skills is also reflected in other international and national surveys. The results of the latest Trends in International Mathematics and Science (TIMSS) study show improved performance in science and mathematics at primary level and in science at secondary level (ERC, 2016b). In October 2016 the Department of Education and Skills (DES) published *Standardised Achievement Tests: An Analysis of the Results at Primary School Level* for 2011/2012 and 2012/2013. The report shows that in literacy (in English) and numeracy, as well as in the Irish language, schools are reporting performance above what could be normally expected based on past results (DES, 2016a).

On early school leaving Ireland is continuously improving its performance, but disparities remain at local level. The share of early leavers fell to 6.3 % in 2016, well below the Europe 2020 national target of 8 % and the EU average of 10.7 %. Ireland has made important progress, effectively halving the rate since 2009. No major gap is visible between native- and foreign-born students. There is, however, a persistent gap between girls (4.6 %) and boys (7.8 %). The 2017 National Reform Programme highlights the renewed '*Delivering equality of opportunity in schools*' (DEIS) initiative (DES, 2017a) in disadvantaged areas (see box 1 below). It also points to the need to improve retention rates in the most socioeconomically disadvantaged schools (Irish Government, 2017), which continue to lag considerably in 'educational outcomes' (Smyth et al., 2015). The proportion of 15- to 24-year-olds not in employment, education or training is 13.0 %, slightly above the EU average of 11.5 % in 2016.

Box 1: The renewed '*Delivering equality of opportunity in schools*' (DEIS) programme in disadvantaged areas

The revision of the existing DEIS programme is an ambitious initiative promoting equity and access. It sets new targets for school completion and participation in higher education. These include improving school completion rates in DEIS schools to bring them to the national average of 92 % by 2025 from 82 % at present.

The revised programme also includes the goal to 'improve the progress of learners at risk of educational disadvantage or learners with special educational needs'.

The renewed DEIS initiative is to be implemented from September 2017.

<http://www.education.ie/en/Schools-Colleges/Services/DEIS-Delivering-Equality-of-Opportunity-in-Schools-/>

Despite high participation in early childhood education and care (ECEC), its accessibility, affordability and full-time provision remain problematic. The ECEC participation rate in Ireland was 92.7 % in 2015 against the EU average of 94.8 %. Attendance fell by 5.4 pp percentage points (pps.) since 2013, and the availability and cost of full-time provision are still problematic. The quality of ECEC is supported by *Síolta*, the national quality framework for the sector, and by *Aistear*, a curriculum framework published by the National Council for Curriculum and Assessment (NCCA)¹⁴⁷. In August 2016, a National Collaborative Forum for the sector was created. This facilitates engagement with stakeholders on issues of concern and on policy and delivery. There have been important changes to the minimum qualifications required for staff in the sector, and a reorganisation of the inspection system for pre-schools in order to help children with disabilities fully participate. From December 2016 all staff working directly with children must hold at least a level 5 qualification ('major award in early childhood care and education'). More funding is available to services where the pre-school leader has a pre-school award in ECEC at level 7 on the national qualifications framework and the assistants have achieved a minimum level-5 award.

Funding for early-years education has increased considerably. Additional funding of EUR 121.5 million was allocated in 2017 for early-years care and education, a substantial 35 % increase from 2016 (Irish Government, 2017). This will provide a universal childcare subsidy and secure a targeted childcare subsidy at a tapering hourly rate where net family income is less than EUR 47 500 (Eurydice, 2017). While there is growing acknowledgement of the importance of the transition from pre-school to primary education (NFER, 2014), this is not yet fully recognised at national policy level. Drawing on recent research and policy and consultation documents, the NCCA has presented proposals on the structure and organisation of primary education which place greater emphasis on the transition from pre-school (O'Kane, 2016). It will be important to monitor the impact of recent policy developments, particularly in terms of delivery of the DEIS programme¹⁴⁸.

4. Investing in education to address demographic and skill challenges

Public spending on education in Ireland is progressively recovering to its pre-crisis level. The proportion of general government expenditure on education relative to GDP in Ireland fell to 3.7 % in 2015, compared to 4.9 % in the EU. However, this was in the context of an anomalous 27 % rise in measured GDP that year¹⁴⁹. In 2015 education accounted for a stable 12.4 % of general government expenditure, against 10.3 % for the EU. According to Eurostat, the (pre-) primary sector received 36.5 % of public spending in 2015, followed by secondary (35.8 %) and higher education (19.3 %). In the light of emerging labour market skills shortages, priority is also given to strengthening the system of further education and training (see also section 7).

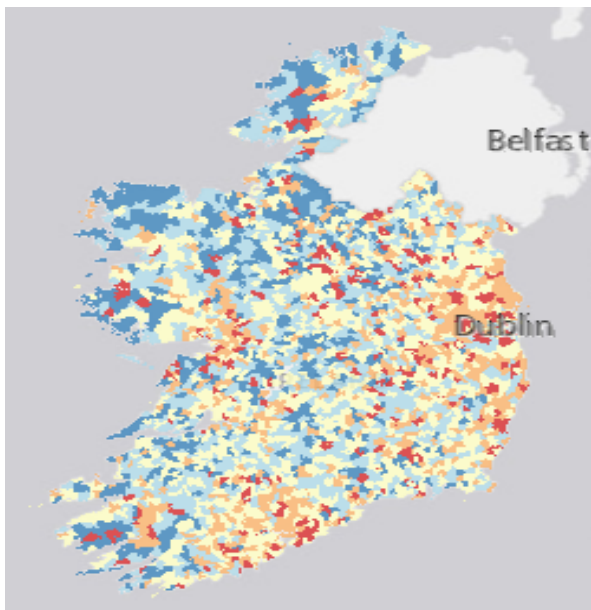
Expenditure on education in Ireland should be considered in the context of demographic patterns. Ireland faces large increases in pupil numbers at primary and secondary level in the immediate future. Birth rates have increased significantly and pupil numbers at primary level are expected to peak in 2018/2019. At post-primary level, enrolment is expected to increase until 2025. The current demographic peak is passing through the school system; the number of students enrolled at all ISCED levels rose by 5.2 % between 2013 and 2015. Primary enrolment is set to reach its highest level in absolute terms by 2018 and secondary level enrolment will do so by 2025 before declining. There is therefore a temporary need for additional teachers until pupil numbers decline again (Connors et al., 2016). There will be wide regional disparities (CSO, 2017)¹⁵⁰, as in the 'heat map' below which shows growing areas in shades of red. Changing demographics therefore have significant implications for educational expenditure between 2017 and 2027.

¹⁴⁷ See www.siolta.ie and http://www.ncca.ie/en/Curriculum_and_Assessment/Early_Childhood_and_Primary_Education/Early_Childhood_Education/Framework_for_early_learning/

¹⁴⁸ Resources for special educational needs, access to higher education and other initiatives, particularly for socioeconomically disadvantaged children, notably those from the traveller community.

¹⁴⁹ After partially adjusting for this exceptional increase in GDP one could estimate effective public spending on education in Ireland at ca. 4.7-4.8 % of GDP in 2015, i.e. broadly unchanged from 2014.

¹⁵⁰ More on www.cso.ie



Map; general population change in % by electoral divisions, based on national Census in 2011 and in 2016 (CSO 2017). Red shading represents the degree of increase in population and blue shading the degree of decrease.

Ireland has an ambitious infrastructure investment plan for education at all levels. Capital investment in education at all levels is again on the rise since 2015-2016. A six-year construction programme for 2016-2021 was announced in November 2015 as part of a EUR 2.8 billion schools capital investment plan which will provide 62 000 additional school places by 2022. Annual expenditure on higher education is expected to increase by EUR 17 million between 2017 and 2020, by EUR 21 million between 2021 and 2022 and by EUR 26 million between 2023 and 2027. At present the 2016-2021 Capital Plan for Higher Education provides EUR 150 million in state funding, to be supplemented by EUR 200 million in public-private partnerships (PPP). Under the PPP process 23 schools have been built and 10 more are envisaged. The process has also delivered two fully operational higher education facilities. A further major project involving the consolidation of one of the state's largest higher education institutes is also planned (Eurydice, 2017).

5. Modernising school education

Ireland's main strategic mid-term policy-steering instrument is the Action Plan for Education 2016-2019. This major policy tool was published in September 2016 and provides for the development of an updated literacy and numeracy strategy. The Report of the Interim Review of the National Strategy on Literacy and Numeracy (2011-2020) was published in March 2017. The plan identifies a range of programmes and targets to be achieved. It sets new targets to improve the performance of students in basic skills. It also aims to increase participation in higher level maths in the Junior Certificate to 60 % by 2020 (from 55 % now), and in the Leaving Certificate to 30 % by 2020 (DES, 2016b). Concerns have been raised over its lack of implementation mechanisms (ESRI, 2017).

Ireland is focusing on the teaching profession and the financing of new teacher positions. In the 2017 budget extra teaching posts were announced, to be put in place from September 2017. The intention is to address surging enrolment, partially remedy cuts in guidance and other staffing made during the recession and to support school principals and support teachers in the context of junior cycle reform (Eurydice, 2017). An additional EUR 2.7 million was announced in September 2016 (of which EUR 0.9 million for the 2016 calendar year) to promote innovative approaches and increase access to initial teacher education programmes for travellers, disabled people and other under-represented groups (Irish Government, 2017). It is meant to provide role models and greater diversity and inclusion across all education and training sectors. However, a review of entry requirements to initial teacher education (*Entry to Programmes of Initial Teacher Education*) by the Economic and Social Research Institute (ESRI), published in

November 2016, indicates there is little evidence to justify changing entry criteria (ESRI, 2016). More generally, primary and secondary teachers alike have raised concerns over the two-tier pay system (with lower pay levels for new entrants), the erosion of middle management support and the excessively administrative nature of their work (Darmody, M. and E. Smyth, 2016).

The modernisation of curricula is being phased in. The new language curriculum is being phased into primary schools for pupils up to 2nd class: changes to the oral strand with effect from September 2016 and to reading and writing from 2017/2018. On continuous teacher development, the professional programme for teachers and school leaders is under way. A revised language curriculum for pupils in 3rd to 6th class is also under development. The NCCA is undertaking a consultation on the primary curriculum more broadly. This will conclude in 2017, after which further consultation on a new outline curriculum will take place in late 2017 and 2018 (NCCA, 2017). At secondary level students began studying the new English programme in 2014 (Darmody, M. and E. Smyth, 2017). New programmes in science and business studies began in September 2016. Irish, modern languages and visual art will start in 2017 and the remaining subjects will be phased in over 2018-2019. In the 2017 budget, 550 additional teaching posts were announced to help implement these reforms. In addition, as part of the 2017 Action Plan for Education (DES, 2017), computer science is to be rolled out as a 'leaving certificate' subject from September 2018. The NCCA is currently developing the content and design of the new subject (NCCA, 2016).

New measures are promoting the inclusion of vulnerable students in education. The resource allocation model for providing support to students with special educational needs emerged from wide-ranging stakeholder consultations. The 2017 budget makes provision for a further resource item for teachers and extra special needs assistants from September 2017. The National Council for Special Education continues to engage in ongoing research to inform future practice. Finally, a study of the experiences of post-primary students with special needs was published in 2016 (Banks, J. et al., 2016).

6. Modernising higher education

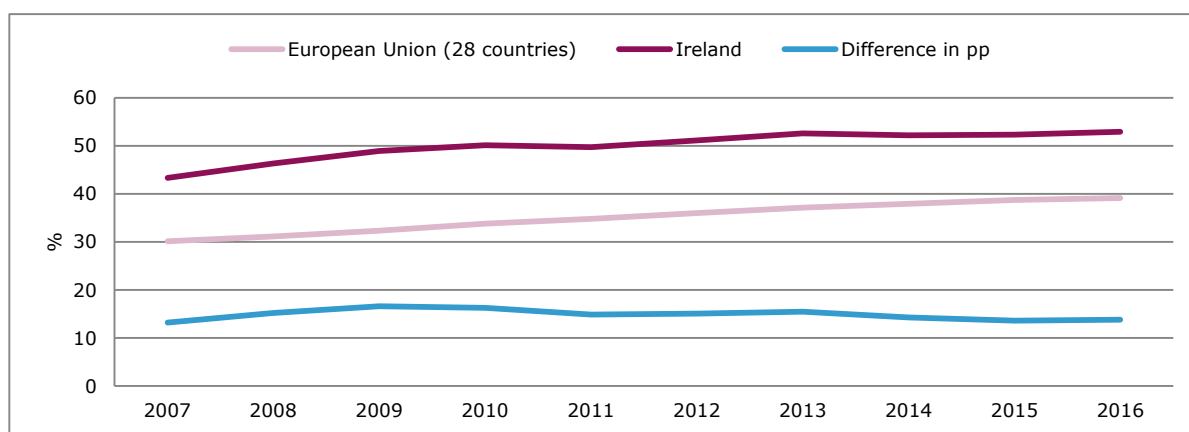
Ireland ranks near the top of the EU on tertiary attainment and has an ambitious national target for 2020. Ireland ranks fourth in the EU in 2016 on tertiary attainment rates. The proportion of 30- to 34-year-olds with higher education was 52.9 % in 2016, well above the EU average of 39.1 % (see Figure 3). The national target for 2020 is 60 %, which is quite ambitious. There is a clear gender gap, with women (at 58.5 %) outperforming men (at 46.6 %). Interestingly, migrant students have a higher attainment rate (58.4 % in 2016) than native-born students (50.5 %). The employability of tertiary graduates is also improving. In 2016 the employment rate of recent graduates increased by 3.3 pp. from the previous year to reach 86.7 %, against the 82.8 % EU average. Irish students are very mobile in pursuing their studies, with a rate of 8.4 % for ISCED 5-8 students, up from 6.2 % in 2013. This is especially true at masters (16.9 % in 2015) and doctoral level (22.1 % in 2015).

... but there are concerns about equity and access to higher education. High enrolment in tertiary education reflects to some extent the lack of alternative pathways and the relative undervaluing of vocational routes (McCoy et al., 2014). This has potential implications for the sustainability of the higher education sector, particularly given its funding needs given the expansion in student numbers (HEA, 2015). The 2017 Irish National Reform Programme also highlights that completion rates vary considerably, depending on the field of study (Irish Government, 2017). A new programme for access to higher education ('PATH'), announced in April 2017, will develop pathways for people from under-represented groups to become teachers (DES, 2017). It addresses students from socioeconomically disadvantaged backgrounds, students with disabilities and members of the traveller community. The programme has modest funding of EUR 2.4 million¹⁵¹. Finally, the reinstatement in the 2017 budget of the postgraduate maintenance grant for the most disadvantaged students favours greater access and equity in third-level education.

¹⁵¹ See http://www.education.ie/en/Press-Events/Press-Releases/2017-Press-Releases/PR1_7-04-17.html

Funding of higher education is gradually increasing. A recent assessment by the Higher Education Authority (HEA, 2016) highlights increasing risks to the sustainability of the higher education system. This is particularly due to past reductions in investment and in capital renewal as well as increases in student numbers. The 2017 budget provided an increase of 4 % for higher education. The DES also announced that it had started to develop a sustainable and predictable multiannual funding model for higher and further education and training. This involves increased employer and exchequer contributions from 2018 (Irish Government, 2017). The Minister for Education and Skills is due to make an announcement on the possible rise in the student contribution by September 2017.

Figure 3. Tertiary educational attainment (age 30-34) in Ireland and EU (%)



Source: Eurostat (LFS 2007 - 2016). Online data code: edat_lfse_03.

Future funding for higher education is on the agenda. In July 2016 the government published an options paper on a strategy for funding higher education¹⁵². The report is now before the Parliament's Committee on Education and Skills. The DES will also establish priority goals and targets for the sector in the years ahead, so that the funding model can be considered in the light of demand for educational services (DES, 2016c).

Box 2: Ireland's international education strategy 2016-2020:

In October 2016 the DES published 'Irish Educated — Globally Connected: An International Education Strategy for Ireland 2016-2020'.

Its aims include raising the proportion of international students in Irish higher education by 33 % and increasing the revenue of this sub-sector to EUR 2.1 billion per year by 2020 (DES, 2016d).

See <https://www.education.ie/en/Publications/Policy-Reports/International-Education-Strategy-For-Ireland-2016-2020.pdf>

¹⁵² The report sets out three options for consideration:

- A predominantly state-funded system. Undergraduate student service charges (currently €3 000 p.a.) would be abolished, free postgraduate provision would be explored and the state would significantly increase its funding to institutions;
- Continuing student fees. Additional measures would ease the burden for low-income groups. Part-time students (who currently pay full costs) would be funded on the same basis as full-time students. This option would also require a considerable increase in state funding;
- Deferred payment of fees through income-contingent loans. Courses would be free, and repayments of loans would only begin when a graduate starts earning and reaches a certain income threshold. Repayments would be set at a pre-defined percentage of annual income. Increased state funding would still be required.

The report also recommends that employers pay a greater share of costs.

See <https://www.education.ie/en/Publications/Policy-Reports/Investing-in-National-Ambition-A-Strategy-for-Funding-Higher-Education.pdf>.

The issue of steering students to STEM fields is being discussed. In November 2016 the DES published the study of an expert group on science, technology, engineering and mathematics (STEM) indicating that a qualitative change is needed to promote better education in these subjects (NFETLHE, 2015). An integrated national STEM Education Policy Statement will be published during 2017. In addition, a STEM 2020 Partnership in consultation with the Minister for Jobs, Enterprise and Innovation will be established to promote support for STEM education by businesses.

Box 3: ESF project: financial help for students to curb dropout from tertiary education

The Student Assistance Fund (SAF) provides assistance to students who are experiencing financial difficulties in higher education. The overall allocation is of €22.4m for the Third Level Access activity over the current funding round, with a target of approximately 185.000 disadvantaged and disabled persons supported in accessing and remaining in third level education.

<http://hea.ie/funding-governance-performance/funding/student-finance/student-assistance-fund/>

7. Modernising vocational education and training and promoting adult learning

The lower attractiveness of vocational education compared to academic education remains an issue. The rate of participation in vocational education and training in Ireland is below other EU countries, due to the fact that participation takes place for the most part outside the second level system. Adult participation in learning remained low in 2016 at 6.4 %, well below the EU average of 10.8 %¹⁵³. The employability of recent VET graduates is visibly improving and getting closer to or even above the EU average. However, there are wide divergences depending on the level of education attained. In 2016 the rate for those with secondary level was 67.2 % v 72.6 % for the EU average, and for tertiary level it was 86.7 % v 82.8 % respectively. This makes Ireland one of the EU countries with the highest disparities in employment rates for people with different skill levels (Eurostat, 2017).

Ireland's national skills strategy for 2025 provides a strategic vision and specific objectives for Ireland's future skills requirements. Many of these objectives have been reiterated in the Action Plan for Education 2016-2019. There is an increased focus on lifelong learning and an ambitious target to increase participation in adult learning to 15 % by 2025. One option being explored is the redeployment of spending from the National Training Fund, which has most recently been focused mainly on funding training courses for the unemployed. The idea is that it could in future provide more upskilling and reskilling opportunities for those already in work. SOLAS, the further education and training authority, is overseeing the development of a framework for employee skills development (Irish Government, 2017). However, it is clear that considerable investment in upskilling, in particular for employed people, is needed to meet the ambitious targets for lifelong learning.

New types of apprenticeships are being introduced. During 2017 a national promotional campaign was launched, with the Apprenticeship Council¹⁵⁴, SOLAS, the HEA and other key stakeholders working in partnership (Eurydice, 2017). A new website (www.apprenticeship.ie) supports promotional activities¹⁵⁵. In parallel, Skillnets will enhance delivery of company-led training, continuing to develop the model in accordance with the Skillnets Statement of Strategy 2016-2019. Skillnets will establish five new networks in 2017 in addition to the existing 63

¹⁵³ A target has been set to increase participation in adult learning to 15% by 2025.

¹⁵⁴ To date nine new apprenticeship programmes have been developed by the Apprenticeship Council following its first call for proposals in 2015.

¹⁵⁵ A major promotional campaign on Apprenticeship and Traineeship education is underway, as is the overall promotion of the opportunities in FET, with the recent launch of the new website fetchcourses.ie

networks reaching 43 000 employees (up from the 40 000 reached in 2016). Skillnets will complement the new networks by working with the existing networks to enhance capacity. As in the education system in general, there is an emphasis on higher education in further education and training (Irish Government, 2017). A key measure of the 2016-2019 action plan is to provide 50 000 upskilling and reskilling places in higher education by 2021. These will fill identified skills gaps in the economy and support an increase in lifelong learning (DES, 2017)¹⁵⁶.

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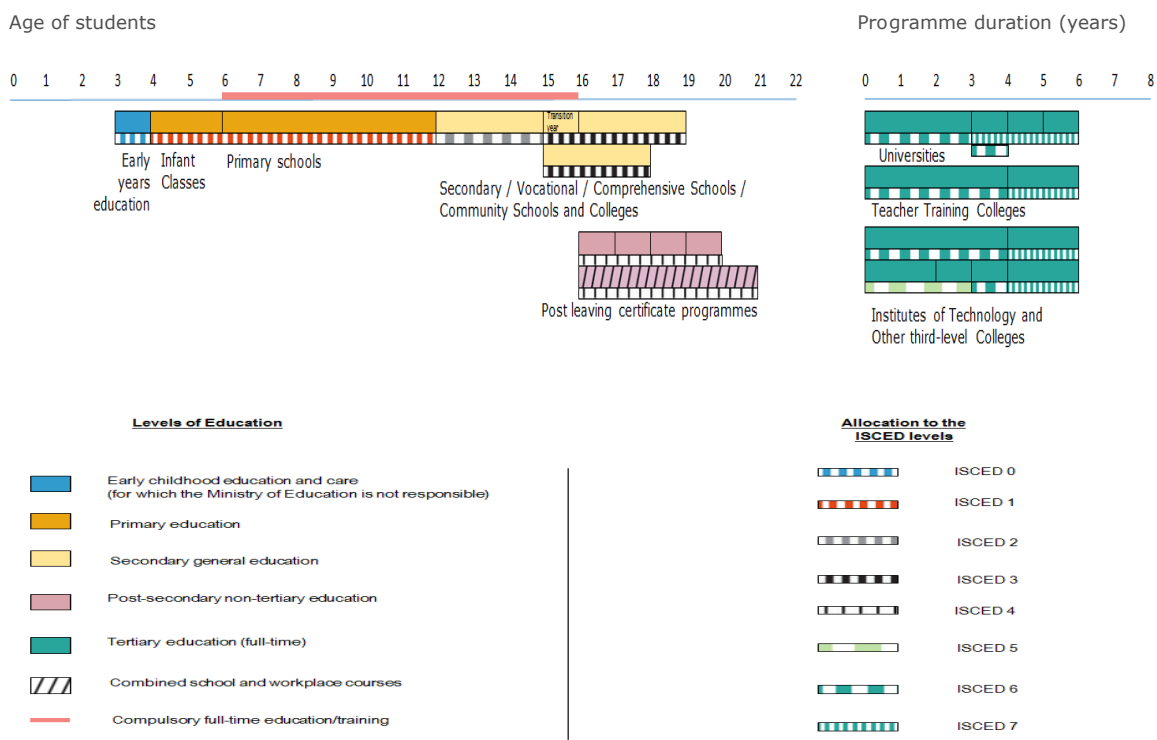
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<http://www.esri.ie/pubs/RS56.pdf>

9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. Structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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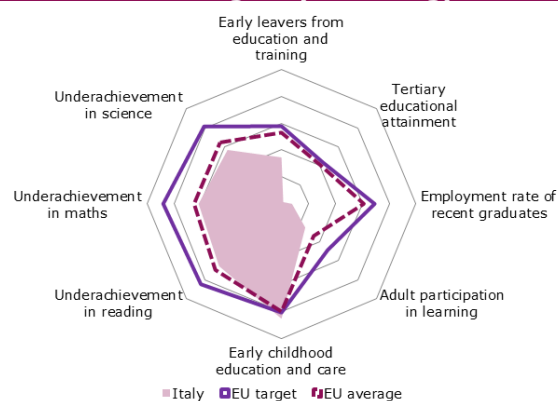
ITALY

1. Key indicators

		Italy		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	16.8%	13.8%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	22.5%	26.2%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		99.2% ¹²	96.2% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	19.5% ¹²	21.0% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	24.7% ¹²	23.3% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	18.7% ¹²	23.2% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	48.5%	52.9%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	6.2%	8.3%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	4.1%	4.0% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS*	ISCED 1-2	€6 051	€6 196 ¹⁴	:	: ¹⁴
		ISCED 3-4**	€7 086	€6 764 ^{14,d}	:	: ¹⁴
		ISCED 5-8	€8 245	€8 410 ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	14.7%	11.8%	11.0%	9.8%	
	Foreign-born	34.3%	30.0%	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	25.2%	29.5%	37.8%	39.9%	
	Foreign-born	11.3%	13.4%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	41.0%	45.6%	69.4%	72.6%	
	ISCED 5-8	57.0%	61.3%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	2.9%	3.8% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	5.1%	4.7% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

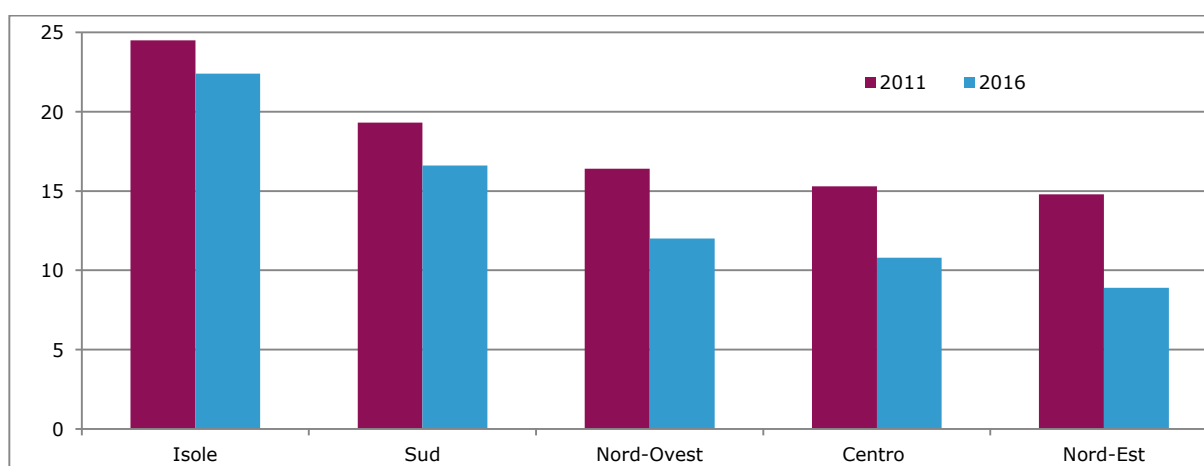
- The 2015 school reform has entered into force and could improve learning outcomes as well as increase equity.
- Although still above the EU average, the early school leaving rate is on a steadily downward trend; participation in early childhood education is almost universal for four- to six-year-olds.
- 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.

3. Tackling inequalities and promoting inclusion

Improvements in basic skills proficiency appear to have stalled, as evidenced by national and international surveys. After a strong improvement, particularly between 2006 and 2009, in 2015 the performance of Italian 15-year-olds in mathematics, reading and science as measured by the OECD Programme for International Student Assessment (PISA) was rather mixed. The proportion of low achievers in science (23.2% in 2015) and reading (21% in 2015) increased compared to 2012, while the proportion of low achievers in maths declined further (from 24.9 in 2009 and 24.7 % in 2012 to 23.3 % in 2015), but it remains above the EU average of 22.2 %. Regional disparities are extremely marked, with pupils from North-eastern regions among the top OECD performers, and pupils from the South among the worst (OECD 2016b).

Italy reached its Europe 2020 national target of 16% for early school leaving (ESL) in 2014. Although steadily declining, Italy's ESL rate remains above the EU average (13.8% and 10.7% in 2016, respectively). The rate is particularly high among foreign-born students, at 30%, compared to the EU average of 19.7%. There is also a considerable gender gap, with the rate for boys at 16.1 %, compared to 11.3 % for girls, and a widening north-south divide (Figure 2).

Figure 2. Early school leaving rate by NUTS 1 regions (2016)



Source: Eurostat (LFS 2011, 2016). Online data code: [edat_lfse_16](#).

The NEET phenomenon continues to be a serious issue. In 2016, 19.9% of Italians aged 15 to 24 were not in employment, education or training (EU average: 11.5%). The percentage rises to 24.3% for the 15-29 age group (EU average: 14.2%). In spite of slight improvements in the past two years, this is the highest NEET rate in the EU¹⁵⁷.

Participation in early childhood education is almost universal for four- to six-year-olds. 96.2 % of this age group attended pre-primary school (*scuola materna*) in 2016. By contrast, only slightly more than one in ten children attended a child care facility (*asilo nido*) in the age range 0-2 in 2013, with large variations across regions (from 26.8% in Emilia Romagna to 2.1 % in Calabria)(Istat 2014). These differences reflect both the socio-economic divide between north and south, and the structural differences between these areas in terms, for example, of women's labour participation (higher in the north, lower in the south). Unlike pre-primary education, childcare facilities are provided or subsidised by municipalities and are considered an individual, on-demand service and are therefore fee-paying. Following the adoption of the school reform *la buona scuola*, provision is being made for an integrated ECEC system for children aged 0-6 involving institutional players at the national, regional and local levels¹⁵⁸: parents' financial contribution will be capped. Several measures have been implemented by the Italian government to help families meet the cost of childcare, such as a nursery voucher (EUR 1,000) for children born after January 2016 until the age of 3. Larger structures (called *Poli per l'infanzia*) incorporating a number of providers will be created to provide a more integrated service for children aged 0-6 and to coordinate the action of the different levels of government involved. The new *Poli* should increase the coverage of this sector, provided they are created in all regions. The reform aims at reaching a coverage rate of 33% for the age group of 0-3 year olds.

Italy is reviewing and promoting its inclusion strategy for pupils with special educational needs (SEN). Its two main instruments are the school plan for inclusion which is part of schools' three-year development plan, and the individual learning plan – *piano didattico individualizzato* – drafted by the class council according to the contents of the individual student's functional profile. Extra requirements for becoming a support teacher are being introduced, notably a one-year university course in special pedagogy and methodology for learning support and inclusion. INVALSI (the National Institute for the Evaluation of the School System) will define the evaluation indicators to be introduced in the school self-evaluation report.

Italian schools are at the forefront of receiving migrant children, but their full inclusion is hindered by social stratification. Over the past decade, the number of non-Italian students more than doubled, from 370.803 in the school year 2004/05 (4.2% of the total school population) to 814.187 in 2014/15 (9.2%). More than half of them (51.7%) were born in Italy¹⁵⁹. They are unevenly distributed across Italian regions – mostly in Northern regions – and education levels – with decreasing shares when moving from primary to upper secondary – reflecting recent arrivals and also higher school drop-out among this group. They repeat grades with much higher frequency than their Italian counterparts: 14.7% in primary school (against 1.9% for Italians), 41.5% in lower secondary school (7.4% for Italians) and 65.1% in upper secondary school (23.3% for Italians), which increases the risk of dropping out and eventually joining the NEET group. Those who reach upper secondary school level are more likely to choose technical schools (38.5%), followed by vocational schools (37.9%). In terms of basic skills, non-Italian students perform worse than Italians, but those in the second generation perform better than the newly arrived. In PISA 2015 the gap between Italians and non-Italians is higher than in other European states with comparable levels of immigration. (OECD 2016b).

Schools are encouraged to be welcoming and inclusive when receiving migrant students. School autonomy allows teachers to tailor individual learning plans (PDP – *piano didattico personalizzato*) for children with a migrant background. However the uneven geographical

¹⁵⁷ Eurostat (LFS, 2016.) Online data code: [edat_lfse_20](#)

¹⁵⁸ *Decreto legislativo 13 aprile 2017, n. 65, recante "Istituzione del sistema integrato di educazione e di istruzione dalla nascita sino a sei anni"*.

¹⁵⁹ Children born in Italy of foreign parents do not automatically acquire Italian citizenship, hence the official distinction between "Italian" and "non-Italian" students (which applies to both first- and second-generation).

distribution of migrants in the country creates an overload of demand in certain areas¹⁶⁰. Italian legislation allows the free admission and school enrolment of children of illegal migrants¹⁶¹: school heads are advised to keep documental track of their presence without involving the immigration authorities. Schools are encouraged to assess the health conditions of newly immigrated children as well as to collect information about schooling experiences in their country of origin. The Ministry of Education has extended the range of activities in centres for adult education to include the teaching of Italian language to foreign adults.

Box 1: ESF support for measures to keep children in school

The region of Puglia in Italy has taken steps to tackle early school leaving and raise levels of educational attainment, especially among disadvantaged children, with support from the ESF.

The project "Diritti a Scuola" put in place a range of measures to help primary school children and youngsters in their first two years of secondary school. Full and part-time teaching staff joined head teachers in delivering the project.

The key objectives were to improve the study of language and science at primary level and to raise standards for the teaching of Italian and mathematics in secondary schools.

The project also provided counselling, vocational guidance and intercultural mediation services to children and their families. These services were particularly focused on helping pupils from poor backgrounds and migrant communities.

In addition, a Help Desk was established to deliver counselling and information services. This proved to be a popular initiative and was used by more than 50 000 pupils and 10 000 families.

Diritti a Scuola reached 200 225 children and can claim to be making a positive contribution to their schooling. The early school leaving rate in Puglia decreased from 24.5 % in 2009 to 16.9 % in 2016 (the national average was 13.8 % in 2016). Early figures also suggest that reading skills are steadily improving. For example, the proportion of 15-year-olds with higher reading skills has increased from 4.2 % in 2009 to 6.1 % in 2012.

The project won the Commission's 2015 RegioStars award in the category "Inclusive Growth" and is now in its second phase (2016-18).

4. Investing in education and training

Education receives a comparatively small share of the public budget. General government expenditure on education, both as a proportion of GDP (4 %) and as a proportion of total general government expenditure (7.9 %) in 2015, continues to be among the lowest in the EU. On a more positive note, the 2015 Stability Law created a specific fund to finance the school reform. In 2015 EUR 1 billion was invested in it, rising to EUR 3 billion a year from 2016. This, however, is not necessarily additional to the present amount of EUR 65.2 billion of annual public spending in education.

¹⁶⁰ In 2014-15 there were 220 schools in the main cities with more than half of foreign students; among them 55 in Milan, 27 in Brescia and 33 in Turin.

¹⁶¹ See Ministero dell'Istruzione "Linee guida per l'integrazione e l'accoglienza degli alunni stranieri" (February 2014).

Figure 3. Expenditure in education in Italy from 2000 - 2016, 2000 =100



Source: DG EAC elaboration Eurostat general government finance statistics (2000 - 2015). Online data code: gov10_a_exp.

The employment rate of 25- to 64-year-olds in 2016 was somewhat below the EU average for low and medium-qualified workers. It stood at 51.2 % and 70.6 % compared to 54.2 % and 74.8 % respectively. At 79.8 %, it was one of the lowest in the EU for tertiary graduates, well below the EU average of 84.8 %¹⁶².

5. Modernising school education

The school reform is being implemented and should improve learning outcomes. New measures include the refinancing of student financial aid for the completion of secondary education, especially in the last two years (grade 12 and 13). The earmarked additional funds (almost EUR 40 million per year) are intended to cover fees, the purchase of textbooks and tablets, and transport costs for low-income students. In addition there is a general tax deduction of tuition expenditure (in the order of 19%, intended to provide advantages to students enrolled in private schools) and a gift offered to all Italian students on their 18th birthday of EUR 500 to be spent on cultural consumption (*bonus cultura*).

Student testing now covers the entire student career and allows for adequate monitoring of student achievements. The extension of student testing includes foreign language in grade 5 and 8 and the introduction of a new test at the end of upper secondary school (grade 13) covering literacy, numeracy and English-language comprehension and use of the language. At primary and secondary levels, assessment has mainly formative purposes. Therefore grade repetition occurs only exceptionally while schools focus their activities on the continuous improvement of learning attainments. Participation in work-based learning (*alternanza scuola-lavoro*) is mandatory in the three final years of upper secondary.

The number of teachers has increased. The overall number of teachers in primary school is on a rising trend when support teachers (*insegnanti di sostegno*) are included. Geographical mismatch means that most teachers come from the South, while most teaching posts are available in schools in the North. A new system for the recruitment and initial training of secondary school teachers is being introduced and will be fully operational by 2021 (Box 2). Additional resources (EUR 325 million) were allocated to ensure new training opportunities for all teachers¹⁶³, in accordance with the national plan (*Piano nazionale per la formazione in servizio obbligatoria e permanente degli insegnanti*) issued in October 2016 (Ministero dell'Economia e delle Finanze 2017).

¹⁶² Eurostat (LFS 2016). Online data code: lfsa_ergaed

¹⁶³ Topics cover foreign languages, ICT, curricula design, student assessment, teaching by competences, civics and global citizenship, integration of minorities, disability and inclusion, school management, social cohesion and crime prevention.

The government is putting increasing emphasis on evaluation as a lever for change. School heads and teachers are evaluated according to school performance in student testing, while school heads are further evaluated according to parents and teachers' perceptions. However, the introduction of evaluation was met with strong resistance and had to be altered. The evaluation of school principals, which should have taken place for the first time in 2017 at national level, has been postponed for another year. It has also been transformed into a form of peer review without outside evaluators. Newly hired teachers were to have been tested at the end of a one-year trial period before being tenured, but they were not. However, school principals were given additional levers to manage their teachers (the monetary incentive associated with the 'merit reward' - valorizzazione del merito).

Box 2: Initial teacher education and teachers' recruitment procedures

Italy has put in place a new system for recruiting and training secondary school teachers, as foreseen by the 2015 school reform. The aim is to put an end to the long waiting lists for entering the teaching profession (*graduatorie ad esaurimento*) by introducing a form of tenure track for aspiring teachers and to ensure that they receive a high-quality initial education.

From now on graduates in possession of a *laurea magistrale* who want to become teachers will participate in a public competition to be admitted to a three-year initial teacher education managed jointly by universities and schools (*Percorso triennale di formazione, inserimento e tirocinio – FIT*). The course combines formal learning with two years' teaching apprenticeship, which is remunerated. Upon successful completion of the third year, teachers will be offered a permanent contract.

The selection procedure will be held every two years starting in 2018. The number of places available will depend on turnover in the profession and student enrolment. In order to be eligible for the selection process, aspiring teachers must have obtained 24 university credits in relevant fields (psychological, anthropological, pedagogical) or teaching methods as part of their degree or education.

www.gazzettaufficiale.it/eli/gu/2017/05/16/112/so/23/sg/pdf

6. Modernising higher education

Higher education in Italy continues to be characterised by high drop-out rates and excessive duration of courses. With a tertiary educational attainment rate for 30 to 34-year-olds of 26.2 % in 2016, Italy has just managed to reach its Europe 2020 national target of 26-27 %, but its rate remains the second lowest in the EU and well below the 2016 EU average of 39.1%. There is a large gender gap: the rate was 19.9 % for men in 2016 (EU average: 34.4%) against 32.5 % for women. After a decline in the period 2012-2015, transition rates from secondary to tertiary education seem to have stabilised at 50% (*Ministero dell'Istruzione, dell'Università e della Ricerca, 2016b*). Southern universities were particularly affected by the decline in enrolments.

The situation is compounded by reduced incentives in the labour market. Italian graduates earn less than their European counterparts and take more time to enter employment (OECD 2016a). This reduces the incentives for secondary school graduates to go on to higher education, and it encourages graduates to work abroad. In 2015 almost 23,000 Italian graduates aged 25 and over left the country, an increase of 13 % compared to the previous year (ISTAT 2016). On a more positive note, the employment rate of recent tertiary graduates, which fell sharply during the economic crisis (to 52.9 % in 2014) has recovered over the past two years, although at 61.3% it is still well below both pre-crisis levels (70.5% in 2008) and the EU average (82.8%).

Funding for universities is being increased through different actions. One third of standard funding (EUR1.4 billion) has been allocated based on the results of the recent research quality assessment exercise (*Valutazione della Qualità dei prodotti della Ricerca VQR 2011-14*), and this

has encouraged an upward convergence of performance, especially among low-performing, predominantly Southern universities. Research activity has been funded in a selective way. The majority of assistant and associate professors receive a minimum funding for their research activity. The best departments in state universities compete for additional funding based on the evaluation of their research activity and recruitment policies.

The government is addressing the issue of low support to higher education students. Student aid has been reinforced with tuition waivers and/or reductions (the so-called "no tax area") covering more than 650,000 students; additional resources (EUR 50 million) have been earmarked for student financial aid. The total amount of resources transferred to regional governments for this purpose – called *FIS-Fondo Statale per il diritto allo studio universitario* – has risen from EUR 162 to EUR 217 million.

Universities and public research institutions have been almost completely freed from the hiring freezes imposed for budgetary reasons during previous years. A National Plan for Research promotion was launched in May 2016, in order to coordinate the efforts of various ministries to raise the resources invested in R&D. Funds are allocated to attract researchers from abroad, through selective tax exemptions and additional grants to support fund raising activities from foreign sponsors, including within public institutions (EUR 30 million); creation of new PhD programmes on innovation in the industry sector (EUR 20 million); creation of Competence centres (EUR 20 million in 2017, EUR 10 million in 2018 and EUR 30 million in 2019); and tax credits for firms who invest in research-related activities. The provision of additional funds to hire 500 associate and full professors of high and recognized scientific merit and international standing (*Natta Chairs*) has not yet been implemented.

Italy still lacks a real non-academic tertiary education, and recent initiatives to change the situation remain limited in scope. A pilot initiative for the gradual introduction of vocational degrees (*lauree professionalizzanti*) in a number of universities, initially foreseen for 2017, has been postponed to 2018. The 2015 school reform includes measures to boost the performance of the Higher Technical Institutes (*Istituti Tecnici Superiori*). However, the Higher Technical Institutes remain a niche provider of education, currently attended by approximately 8,000 students, despite the fact that data on the employability of their recent graduates show that after one year 81 % are employed, 90 % in a job commensurate with their degree (Ministero dell'Istruzione, dell'Università e della Ricerca 2016a).

7. Modernising vocational education and training and promoting adult learning

More than half of upper secondary students are enrolled in vocational education and training (VET), but employment rates for VET graduates are low. At 55.8%, the proportion of students choosing VET is well above the EU average of 47.3 %. However, the employment rate of recent VET graduates in 2016 was one of the lowest in the EU (48.7% vs. 75%).

Italy is reforming its VET system, which could lead to improved employment prospects for VET graduates. A Legislative Decree of April 2017 has revised the state vocational institutes (which represent one branch of the VET system) creating more synergies among the different VET systems at regional and national level. Starting from the school year 2018/19 all curricula of state vocational institutes¹⁶⁴ will have 11 study pathways instead of 6. Curricula will be organised according to sector priorities expressed by regional governments, and VET providers will be embedded in a national network (*rete nazionale delle scuole professionali*). The 2017 Budget allocates an extra EUR 25 million to the dual system and extends to 2018 existing tax incentives for private employers to encourage and facilitate youth employment.

¹⁶⁴ Programmes last 5 years, with the possibility of obtaining a first official qualification (diploma di qualifica professionale) after three years.

Participation in adult learning has improved considerably, although it remains below the EU average. The number of adults aged 25-64 participating in learning has grown steadily from 6.6 % in 2012 to 7.3 % in 2015, reaching 8.3 % in 2016 (EU average:10.8 %). The "National Plan Industry 4.0" increases public incentives for employees and managers participating in training activities linked with digitisation. Migrants can engage in adult education through the Protection System for Asylum Seekers and Refugees (SPRAR). The budget for educational activities for migrants remains stable at EUR 310 million in 2017.

The Italian National Agency for Active Employment Policies (ANPAL) is conducting a pilot project for online self-assessment of literacy, numeracy and problem solving skills using the OECD-PIAAC on-line testing tool in 18 Italian Regions, with the participation of around 180 Public Employment Centres and involving more than 4,000 unemployed persons. The project aims at supporting the long-term unemployed, and to assess the impact of activation programmes.

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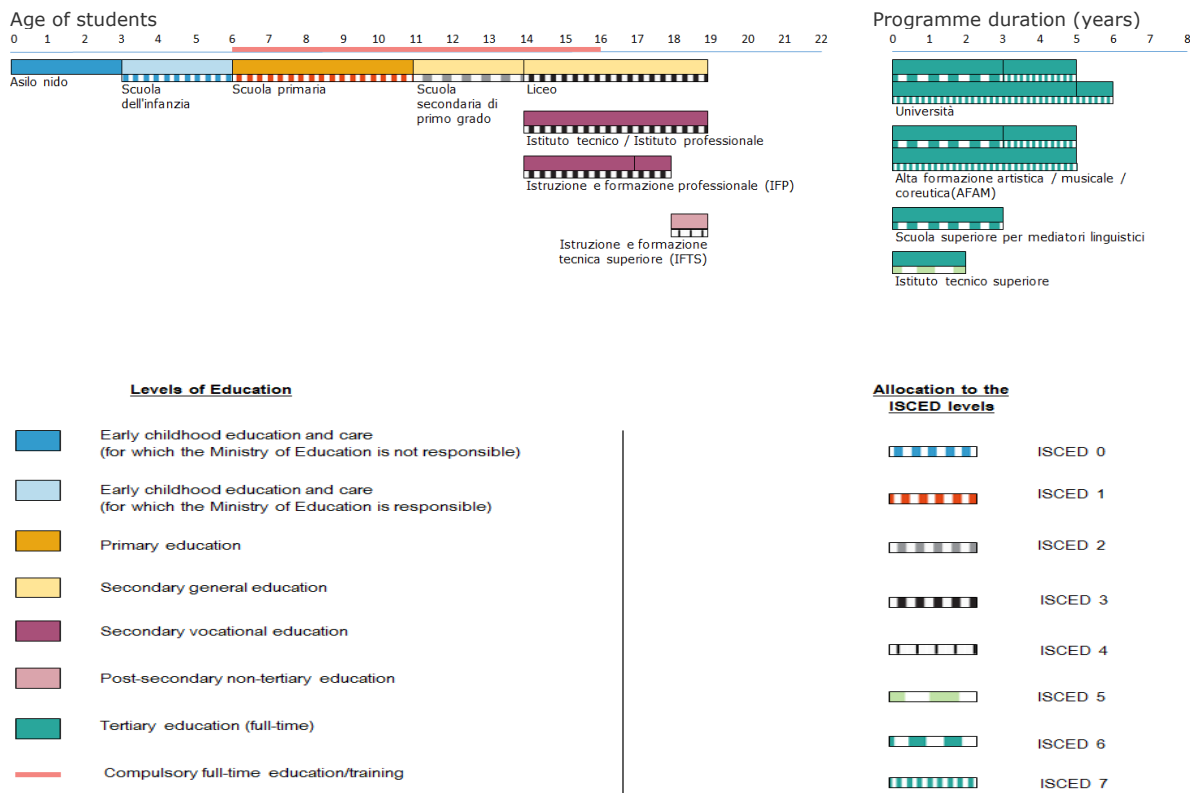
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Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. The structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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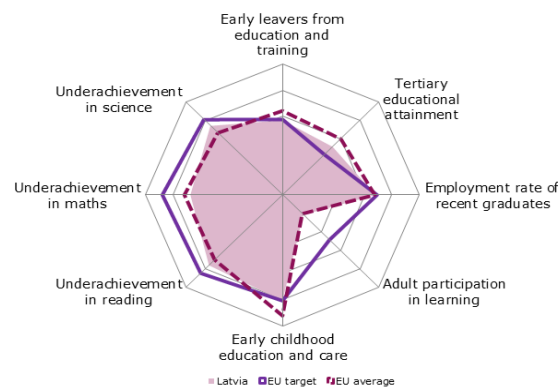
LATVIA

1. Key indicators

		Latvia		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	9.8%	10.0%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	40.7%	42.8%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		93.3% ¹²	95.0% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	17.0% ¹²	17.7% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	19.9% ¹²	21.4% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	12.4% ¹²	17.2% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	78.2%	81.4%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	6.8%	7.3%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	5.7%	6.0% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€4 420	€4 841 ¹⁴	:	: ¹⁴
		ISCED 3-4	€4 288	€4 971 ¹⁴	:	: ¹⁴
		ISCED 5-8	€5 864	€6 588 ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	9.8%	10.1%	11.0%	9.8%	
	Foreign-born	:	:	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	40.5%	42.0%	37.8%	39.9%	
	Foreign-born	45.0%	62.4%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	70.9%	71.7%	69.4%	72.6%	
	ISCED 5-8	84.1%	88.4%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	1.7%	2.2% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	3.0%	6.0% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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.

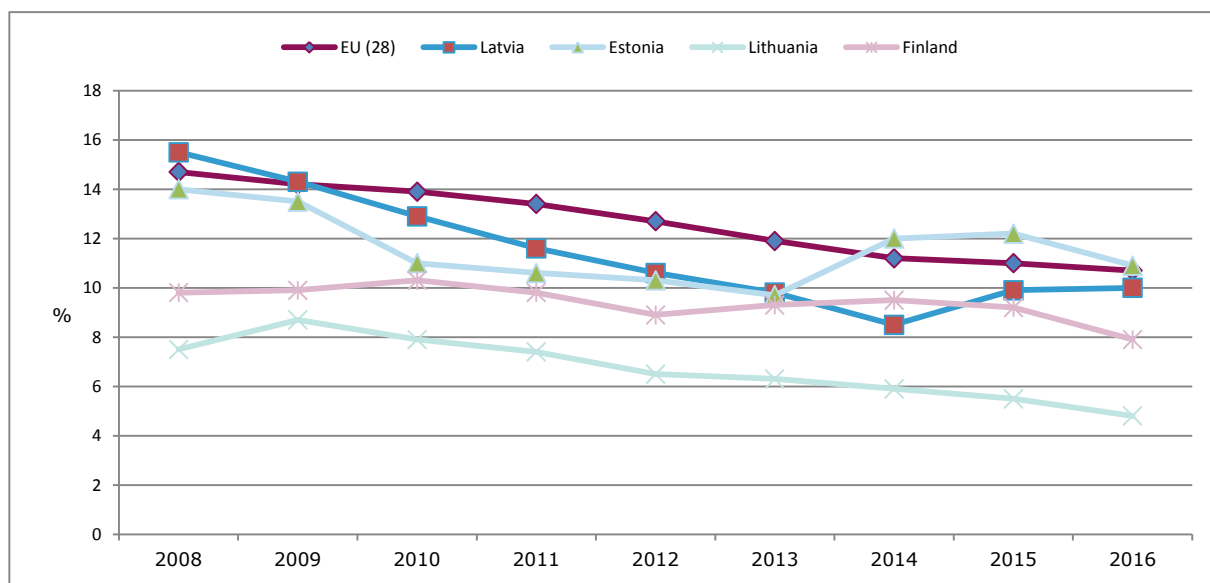
3. Tackling inequalities and promoting inclusion

Almost all Latvians are educated to at least upper secondary level, but access to quality education is strongly dependent on place of residence and type of school. Latvia's education system tends to favour equity through a comparatively longer duration of compulsory education, delayed tracking and low grade repetition. In terms of basic skills, 15-year-olds' performance as measured by the 2015 OECD Programme for International Student Assessment (PISA) appears to have levelled off although it remains well above the EU average. The proportion of low achievers in mathematics (21 %) and in science (17 %) worsened compared to PISA 2012, but continues to be better than the EU average. However, the disparity between rural and urban schools is large and growing. PISA 2015 shows that for students in rural and small-town schools, average performance in science deteriorated since PISA 2006 2015, whereas for students in Riga and other larger cities the performance in science improved over the same period. There are also marked differences in student performance between those in general education and VET, and between mainstream and special needs education (OECD, 2016).

Socio-economic background has a relatively limited influence on students' performance. At less than 20 percentage points, the relation between students' socio-economic background and performance in PISA 2015 is well below the EU average of 26.2 percentage points (European Commission, 2016).

Latvia has reached the Europe 2020 target of 10% early school leaving (ESL), but wide disparities persist between genders and between urban and rural areas. Latvia's ESL rate has been decreasing since 2008. It stood at 10.0 % in 2016, below the EU average of 10.7 % (Eurostat). The figure for female pupils was less than half that for males: 6.2 % and 13.7 % respectively in 2016, as was the figure for urban areas (6.8 %) compared to rural areas (15.5 %). (Government of Latvia, 2017). Latvia is working on the development of a coordinated prevention and intervention strategy with support from the ESF. The project aims at developing adequate prevention mechanisms and at providing individual support to students at risk of dropping out (Government of Latvia, 2017).

Figure 2: Early school leaving in Latvia and EU 28 (%) from 2008 - 2016



Source: Eurostat (LFS, 2016). Online data codes: [edat_lfse_14](#).

The participation of four- to five-year-olds in early childhood education has been growing steadily and is now almost universal. Latvia has reached the European benchmark of 95 %. Enrolments for children under age 3 are still relatively low despite all children being legally entitled to ECEC from 1.5 years of age (European Commission, 2014). Shortages of places, high costs for private ECEC and insufficient geographical coverage are the main issues hampering participation, which the authorities have been addressing in recent years through policies to expand and diversify ECEC services, and to strengthen support (financially and territorially) to families in all parts of the country (Government of Latvia 2017). New pre-school education guidelines are being developed as part of the transition to the competence-based curricula.

Latvia is reforming the special education system and developing a comprehensive support system for the education of students with special needs in mainstream classrooms, but implementation is slow. New criteria for special education development centres (providing support to inclusive education teachers and to students with special needs) have been developed and regulations regarding their functioning and evaluation were adopted in March 2016. The new approach should consolidate expertise on special needs education in 1 or 2 special education development centres in each planning region¹⁶⁵ which provide support to mainstream schools. Currently there are 12 such centres. In March 2017 the MoES launched a study to identify the optimal education, health care and social support services for integrating children with special into mainstream education, and to develop a cost model for the provision of these services. The results of the study will be available in December 2017 and will feed into revised regulations on the procedure and support required for integrating students with special needs in mainstream schools. Success will depend on whether mainstream schools receive sufficient resources to be able to give individual attention to students with special needs.

The gender gap in education is a challenge across the board. Women outperform men significantly both in qualifications and basic skill proficiency. Results from PISA 2015 show the widest gender gap is in reading, where 24.4 % of boys are low achievers, compared with just 11 % of girls, followed by science (20 % and 14 % respectively) and maths (23 % vs 19.9 %). (See also section 6).

¹⁶⁵ Latvia is officially divided into 5 "planning regions" under the Regional Development Law (2002).

There are no specific guidelines for the integration of migrant students. A study on the integration of migrant children in the schools in the capital (Riga), conducted by Riga municipality in 2014, indicates that in the absence of clear state policy on support measures for migrant students, schools rely mostly on ad-hoc measures such as additional consultations with the teachers concerned and meetings with parents. Individual learning plans are developed only infrequently.¹⁶⁶

4. Investing in education and training

The decline in student numbers calls for structural re-adjustment, but government attempts to reduce the number of schools are met with strong resistance by municipalities. Latvia's general government expenditure on education was well above the EU average in 2015, in terms both of proportion of GDP (6.0 % as compared with 4.9 %) and proportion of total public expenditure (16.2 % as against 10.3 %). Latvia's marked population decline (-12.1 % between 2004 and 2013) has led to a comparable contraction in the number of students in general education. The number of students in general education has stabilised at levels much lower than in the 1990s and is not likely to increase over the next years. Fewer schools and teachers are needed. The government has been exerting pressure on municipalities to reduce the number of schools, to ensure that the school network is adequate to current demographic changes and in keeping with OECD recommendations. However this pressure is resisted by municipalities seeking to preserve as many schools as possible. As a result, in many schools, resources such as teacher salaries (allocated per number of students according to the new model) are scarce, which may affect the quality of education (see section 5).

5. Modernising school education

The debate on the unequal quality of education sparked by PISA 2015 highlights the need to address the issue of under-resourced, over-staffed schools, especially in rural areas. Since 2008, the Ministry of Education and Science has encouraged municipalities to close or merge small schools with low and decreasing numbers of students. The total number of schools has gone from 948 to 763. However, according to a 2013 study, the number of schools with less than 50 students actually increased between 2008 and 2013, while the number with 50-100 students has decreased only slightly¹⁶⁷. The MoES is carrying out a study to gather evidence for the development of an optimal school network. An interactive map of the existing school network was developed and published¹⁶⁸. It provides information on the general education school network, including the indicator of Centralized Exam results for each school, teachers-pupil ratios and school infrastructure. The study will serve as a basis for the discussions with the municipalities. Quality of education will be the guiding principle for the discussion, followed by quantitative criteria such as required pupils number per class, traveling to school time etc.

Box 1: Evaluating quality in schools

The State Education Quality Service, through an accreditation procedure, carries out quality assessment of education institutions (except pre-school, HEIs and colleges) and educational programmes. The quality assessment methodology covers such fields as education content, teaching and learning, student achievement, support for pupils, school climate, school resources and organisation, management and quality assurance. The education institutions are accredited for six years, while educational programmes are accredited for six or two years.

The Ministry of Education and Science is planning to develop and implement an education quality monitoring system by 2022. Identified quality indicators will cover all levels of education from pre-school to higher education, including general and vocational education.

¹⁶⁶ Izglītības attīstības centrs (2014) SITUĀCIJAS IZPĒTES APKOPOJUMS par jauniebraucēju un reemigrantu bērnu iekļaušanos Rīgas vispārizglītojošajās skolās.

¹⁶⁷ Baltic Institute of Social Sciences (2013), Pētījums par mazo lauku skolu tīklu Latvijā.

¹⁶⁸ <https://izm.kartes.lv/>

Voluntary teacher quality evaluation, based on a system of five qualification levels, was introduced in June 2014, with mixed results. The assessment is voluntary, leaving teachers free to choose which quality level to apply for. Although most teachers chose level 3 (the school principal decides on levels 1 to 3, while applications for levels 4 and 5 are assessed externally), Latvia reached the national objective of 10% of evaluated teachers obtaining levels 4 and 5.

In 2017 MoES introduced a new teacher evaluation model. It proposes to reduce the number of quality levels from five to three and to simplify the process. The most important criterion for assessing the work of the teacher is the teacher's daily work in the classroom, cooperation skills and pupils learning outcomes. The teacher assessment process will be carried out at each education institution, thus promoting school autonomy and raising the responsibility of the head of the school for ensuring the quality of education. The quality level can be awarded to a teacher for one, two or three years and is valid only in the education institution where the teacher has been assessed. Assessment is voluntary: all teachers may apply for it, choosing the quality level to which he or she applies. However, the awarding of the premium for the quality level obtained will depend on the resources available to the municipalities in the context of the re-adjustment of the school network.

The introduction of an evaluation system for school principals, originally foreseen for 2015, has been postponed to 2017. According to the new Regulation adopted in 2016, school principals' evaluation is carried out by the State Education Quality Service. The evaluation methodology covers different competencies and such criteria as fulfilment of goals and objectives, execution of duties and professional qualification. School principals are evaluated every six years during the current accreditation period. The State Education Quality Service decides on the principal's compliance or mismatch for their position. Heads of pre-school education institutions will be evaluated from 2018 using the same methodology.

Latvia has taken steps to improve the quality and attractiveness of secondary general and vocational education. The curriculum reform aims to introduce a student-centred approach to learning and to promote the competences and skills needed for individual development and participation in society and the labour market in the future. It also aims to raise students' levels of knowledge and interest in science-related subjects. The new curriculum is being gradually rolled out and should be fully implemented by 2023. A project aimed at reducing school drop-out by implementing preventive and intervention measures (referred to above) is included.

The reform of teachers' remuneration has been implemented, but its success will depend to a large extent on the optimisation of the school network. A new model for calculating teachers' salaries was introduced in September 2016, and an additional 9 million EUR was allocated to teachers' salaries in the 2016 budget, projected to increase to 27 million EUR annually in subsequent years. The schedule for increasing teachers' salaries was submitted to the Cabinet of Ministers for approval in April 2017. At the same time the decreasing number of students makes it difficult to maintain investment and high quality of teaching. In many schools, resources such as finance for teachers' salaries (allocated per number of students according to the new model) are scarce.

Latvia has one of the oldest teaching workforces in the EU, but there are no specific measures to increase the attractiveness of the profession. In 2014, nearly 40% of all primary teachers and nearly 50% of all secondary teachers in Latvia were over 50, in both cases about 10 percentage points over the OECD average (OECD 2016). In the absence of government measures, a private initiative called 'Mission possible' (under the Teach for All network) is proving successful in attracting motivated young graduates to teach in schools for two years. Some of them stay on as teachers. From January 2016 the MoES started a joint project with the 'Mission possible' initiative on attracting young professionals to teaching. No induction provisions for new teachers exist in Latvia, but there are teaching traineeships for students of pedagogical faculties.

Box 2: ESF support for teacher training

The project "Raising teachers' competitiveness during optimisation of education system" was launched in 2009 to help teachers in general and vocational education to adjust to changes brought by recent structural reforms in the education system.

The project focussed on three main activities:

- Piloting a new teachers' evaluation system with elements of self-assessment and peer-assessment (to be introduced in the whole education system, linked with the remuneration system);
- Improving teachers' knowledge and skills for teaching mixed-grade classes, students with special needs or new subjects/higher grades;
- Support for requalification for new jobs including enhanced entrepreneurial and self-employment initiative.

In addition, in 2011 the project also introduced an award for teachers. "Innovation in education", to reward the introduction of innovative approaches in teaching methods and efforts for improving the overall quality of education.

The project, which benefitted from an ESF support of EUR 23 968 460, has been very popular with teachers. Initially, it was planned to involve 17 400 participants but by the end of 2011, it had already reached 27 486 participants. The majority of teachers (some 80%) have participated in the evaluation activity.

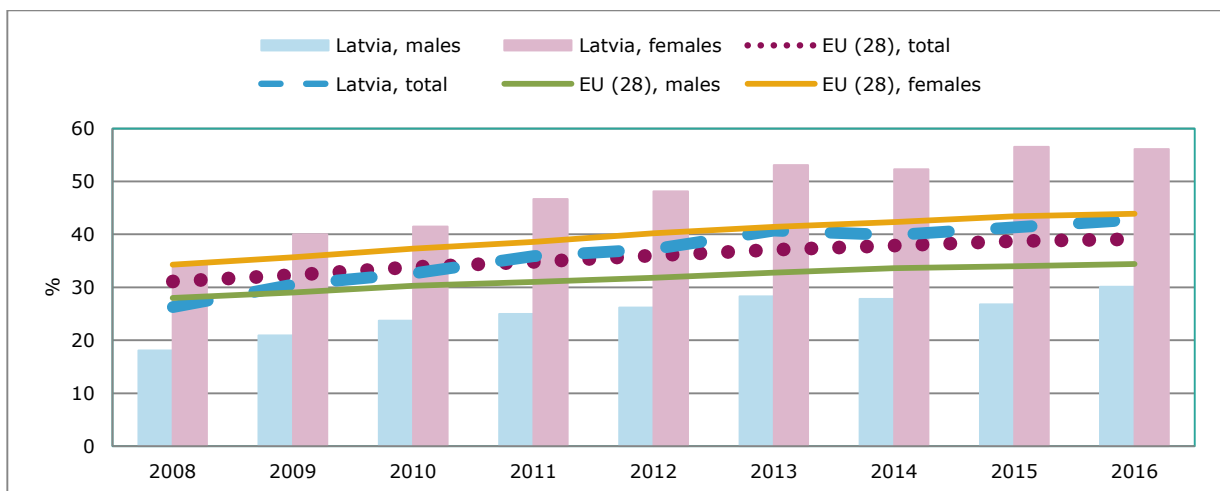
Support for teacher training is one of the horizontal priorities for the current programming period. It is foreseen that by 2023 a total of 16 163 general and vocational education teachers will have benefitted by ESF projects aimed at improving their professional competence.

<http://ec.europa.eu/esf/main.jsp?catId=46&langId=en&projectId=244>

6. Modernising higher education

Latvia's tertiary educational attainment rate among 30- to 34-year-olds is high. The number of graduates grew from 39.9 % in 2014 to 42.8 % in 2016, i.e. above the EU average (39.1 %) and the national Europe 2020 target (34-36 %). Participation of men in tertiary education (30.1 %) remains significantly lower than that of women (56.1 %), although the gap appears to be shrinking (Figure 3).

Figure 3. Tertiary education attainment in Latvia and EU 28, from 2008 - 2016 (%)



Source: Eurostat (LFS 2008 2016). Online data code: lfse_03.

As student support is entirely merit-based, access to tertiary education tends to be related to private means and therefore to socio-economic status. In Latvia, 31% of total expenditure on tertiary education comes from households. The lack of means-tested financial support hampers access for students from disadvantaged socio-economic backgrounds, despite the availability of free study places. In the 2016/17 academic year, 42% of students were in government-funded study places, while 58 % were funded privately.

There are no regular tracking surveys of graduates and no reliable data is available on employment transition. In 2016 the government amended the *Law on Higher Education* to start collecting data on graduates' transition into employment (Government of Latvia, 2017).

Latvia is progressing in the implementation of the two major higher education reforms launched in 2015 - the establishment of an external quality assurance system, and the introduction of a new funding model. The Academic Information Centre has been operating as an independent national accreditation agency from July 2015. It ensures licensing and accreditation of study programmes as well as the monitoring and evaluation of their quality. The Centre aims to be included in the European Quality Assurance Register for Higher Education by 2018, i.e. before the next large accreditation round scheduled for 2019. The new funding model for higher education was introduced in 2015. In the 2016 budget, the allocation for the performance-based element was increased from EUR 5.5 million (2015) to EUR 6.5 million (Ministry of Education and Science, 2015). However, the historical financing principle (allocating at least as much base funding per university as in the previous year) has been retained for the time being, which somewhat limits the impact of performance-based funding.

Latvia is looking at ways of consolidating its highly fragmented tertiary system. A study by the World Bank (WB) which will evaluate higher education institutions' internal governance, funding systems and human resources policies, and will make recommendations for the design of structural fund programmes. This may suggest more effective ways of reducing fragmentation of the higher education sector in the future. So far, attempts to reduce fragmentation in higher education show that small higher education institutions are reluctant to be merged with bigger ones, even if they do not have a sufficient base for research and innovation on their own.

STEM subjects are being promoted in order to achieve a better balance in the supply of places in higher education. Latvia is gradually increasing the proportion of publicly financed study places in STEM fields and cutting it in social sciences (Government of Latvia, 2017). This may help steer demand towards study fields linked to high added-value economic sectors.

7. Modernising vocational education and training and promoting adult learning

Latvia needs to address the development of skills and competences and low participation in adult learning. Challenges include the lack of a quality assurance framework; a need for more effective coordination of the different policy fields influencing the adult learning system; and the need to ensure that learning provided better meets the demands of learners and the needs of the labour market. The proportion of upper secondary students (ISCED 3) in Latvia in vocational education and training (VET) remained stable in 2015 at 39.8% below the EU average of 47.3%. The employment rate of recent VET graduates in 2016, at 74.8%, was close to the EU average of 75% (Eurostat).

The main challenges for Latvia's VET system - to ensure the quality, labour market relevance and attractiveness of vocational pathways - are being addressed. The policy aim is to ensure a balanced distribution of students choosing vocational and general education after completing basic education. Latvia has launched a project to extend work-based learning in VET programmes, to renew and transform VET curricula into a system based on learning outcomes and to reduce the number of professional standards.

Progress on curriculum reform has been slow. So far 56 VET programmes have been revised as part of an ESF project, out of the 187 planned. As of 2017, only 35 of these have been approved. Out of the 240 occupational standards to be updated, 80 have been updated by 2014 and more 90 should be updated by 2018. The Council of the European Union therefore made a

recommendation to Latvia in 2017 to "[...]up-skill the labour force by speeding up the curricula reform in vocational education" (European Commission 2017). A project to increase the number of students participating in work-based learning in enterprises was launched in 2017 with ESF support. The project has a total budget of EUR 20.5 million and aims to attract 3,150 students to work-based learning programmes and to provide another 11,025 students with short-duration practical training by 2022. In 2016 the Cabinet of Ministers approved the regulation on further modernisation of vocational education and training, which foresees an investment of EUR 104.7 million in the development of VET institutions over the next five years.

Latvia is still far from achieving its objective of 15% participation in adult learning by 2020. Adult participation in learning increased in 2016 to 7.3%, but remains well below the EU average of 10.8 %. Latvia's Adult education governance model implementation plan for 2016 – 2020 includes the development of legislative acts and efficient management of available resources. The Adult Education Supervisory Board was established in mid-2016 to monitor and co-ordinate the system, and to coordinate the actions of the different ministries and institutions responsible for specific groups of adults. An ESF project to improve prospects for employed adults, including low-skilled and older adults, is starting in 2017. Around 36.000 adults are expected to take part in training financed through this project, of which 12.000 are expected to be low-qualified adults. The training will be provided mostly at VET schools.

8. References

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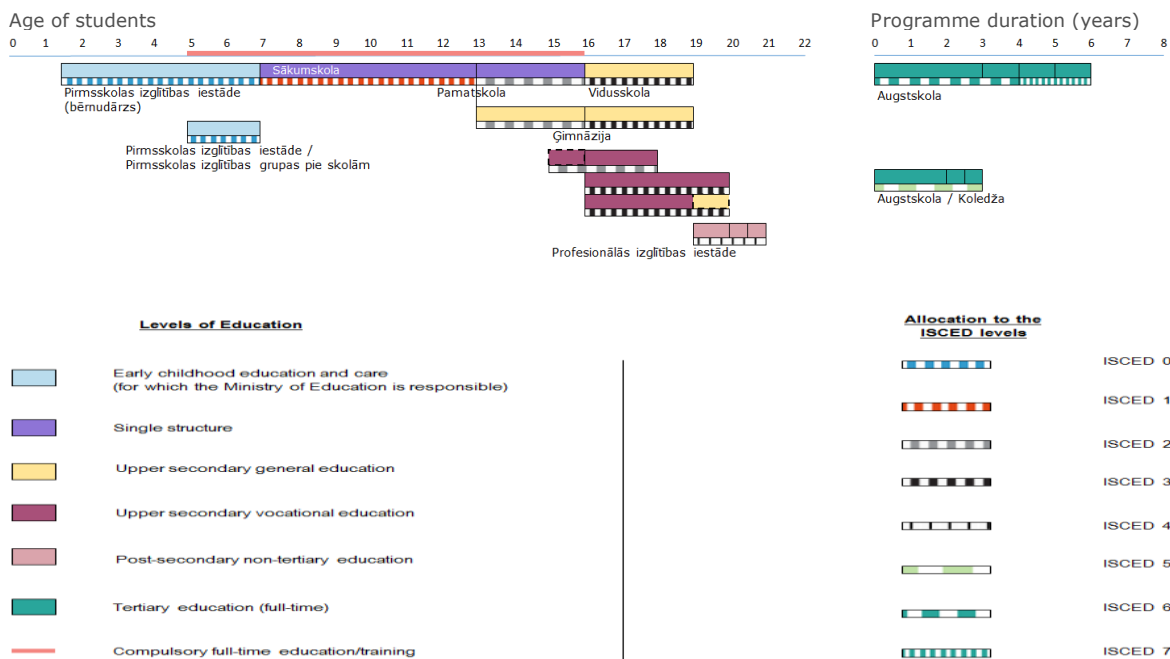
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9. Annex. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. The structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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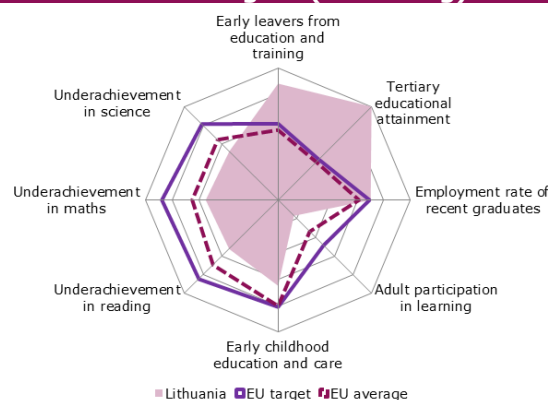
LITHUANIA

1. Key indicators

		Lithuania		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	6.3%	4.8%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	51.3%	58.7%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		84.8% ¹²	90.8% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	21.2% ¹²	25.1% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	26.0% ¹²	25.4% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	16.1% ¹²	24.7% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	75.5%	82.4%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	5.9%	6.0%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	5.6%	5.4% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€3 582	€3 729 ¹⁴	:	: ¹⁴
		ISCED 3-4	€4 446	€4 364 ¹⁴	:	: ¹⁴
		ISCED 5-8	€6 418	€7 362 ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	6.3%	4.8%	11.0%	9.8%	
	Foreign-born	:	:	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	51.0%	58.2%	37.8%	39.9%	
	Foreign-born	:	:	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	63.2%	70.3%	69.4%	72.6%	
	ISCED 5-8	84.6%	91.1%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	1.2%	1.0% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	2.2%	5.3% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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 delivers the highest tertiary education attainment in the EU, but there is evidence of quality and efficiency challenges. These are expected to be addressed by major reforms.

3. Tackling inequalities and promoting inclusion

There is stagnation in educational outcomes, as evidenced by international surveys.

According to the OECD Programme for International Student Assessment (PISA) 2015, the performance of Lithuanian 15-year-olds in mathematics, reading and science was below the EU average, which continues a general trend from 2009. Compared to 2012, in 2015 the proportion of low achievers increased in science and reading and remained broadly unchanged in mathematics — just above 25 % and above the EU average of 22.1 %. Between 2012 and 2015 the share of top performers decreased and remained well below 10 % across the board, suggesting that excellence is not being adequately fostered¹⁶⁹. Around 15 % of students are low achievers in all PISA domains, which makes them likely to face serious problems in their further education and work, and later in life. The performance gap between girls and boys narrowed in science and reading over the reference period, while it remained more or less unchanged in mathematics.

Socioeconomic status and school location play a big role in student performance. The extent of educational inequality is highlighted by PISA 2015, which found that 38.8 % of students in the bottom socioeconomic quartile fail to meet basic reading skills (compared with 11.9 % for students in the top socioeconomic quartile). The source of this disadvantage lies mainly in the large differences in performance between urban centres and rural regions. PISA 2015 shows that the difference between children studying in rural and urban areas is 57 points in science, 65 points in reading and 53 points in mathematics¹⁷⁰. The results of the OECD's survey of adult skills (PIAAC) highlighted the concentration of highly skilled adults in Vilnius, who scored higher in literacy, numeracy and digital problem-solving than adults in smaller cities and rural areas.

Participation in early childhood education and care (ECEC) has been increasing, but the large urban-rural disparity in enrolment rates is not diminishing.

In 2015, 90.8 % of pupils aged between 4 years old and the starting age of compulsory education attended pre-school and pre-primary education, up from 86.5 % in 2013 but still below the EU average of 94.8 %. The national target of 95 % participation by 2020 could be still attained thanks to a new measure in place since September 2016 making a pre-primary education programme of a minimum of 640 hours compulsory for all 6-year-olds. (Ministry of Education and Science 2016). The marked disparity in enrolment rates between urban and rural areas — 45 % and 12.3 % respectively for children under 3 years old and 98.2 % and 47.6 % for 4-6-year-olds in 2015 (Statistics Lithuania 2016) — poses a serious policy challenge. One solution has been to encourage more municipalities to offer transportation services, including through European Structural and Investment Funds

¹⁶⁹ 6.9 % in maths, 4.4 % in reading and 4.2 % in science (PISA 2015).

¹⁷⁰ 30 points in PISA correspond to around one year of schooling.

(ESIF)-financed projects. As a result, the share of municipalities providing transport to ECEC facilities increased from 67 % in 2012 to 88 % in 2014 (Education Supply Centre 2015).

Quality assurance of institutions offering ECEC is insufficient, even though the child-teacher ratio in ECEC is low. In 2014, there were 7 children per contact staff and 10 children per teaching staff, both of which are lower than the OECD averages of 11 and 14 respectively (OECD 2016a). However, due to the lack of external evaluation mechanisms, there is a lack of comparable data on the quality of ECEC institutions, carers and teachers, which could drive improvement (National Audit Office 2016).

Rates of early school leaving (ESL) are traditionally low and declining. Low participation in early childhood education and care is not translating into high ESL rates. With an ESL rate of 4.8 %, Lithuania is the second best performer in the EU in 2016 (after Croatia) and is below the EU average of 10.7 %. When broken down by gender and school location, the early school leaving rate is highest among boys from rural areas (12.5 %).

4. Investing in education and training

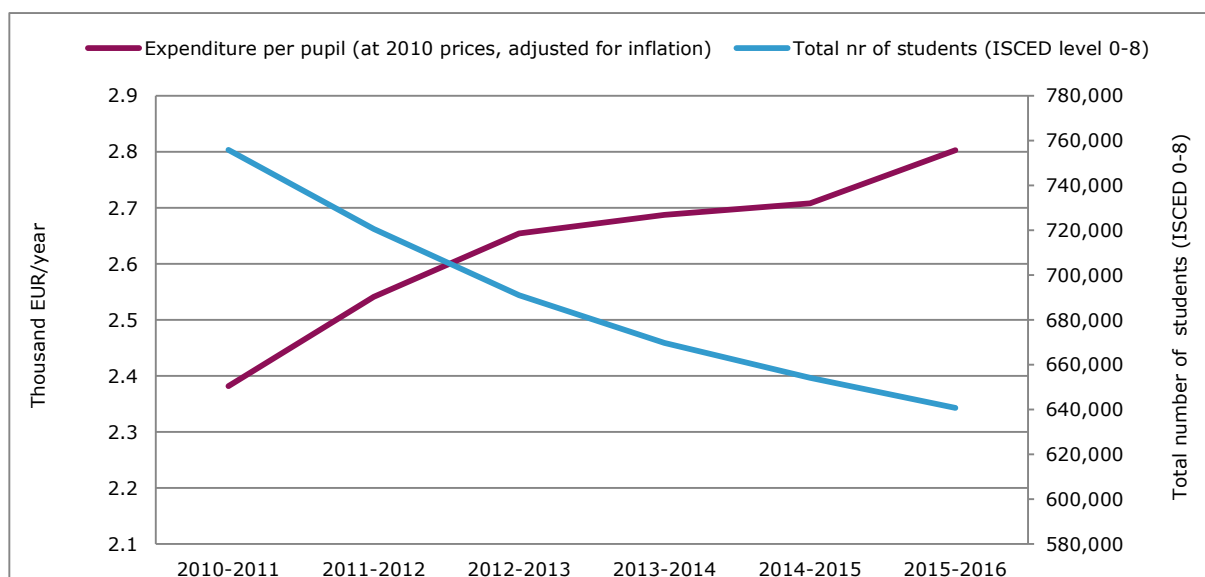
Education expenditure has decreased but remains high by EU standards. In 2015, Lithuania spent 5.4 % of GDP on education, down from 6.4 % in 2010 but still significantly higher than the EU average of 4.9 %. As a percentage of total public government expenditure, at 15.4% Lithuania had the second highest share spent on education in the EU after Latvia (EU average: 10.3 %). The real level of expenditure when corrected for inflation dropped by 2 % between 2010 and 2015, after a decade of rapid growth (by nearly 40 % over 2000-2010). Spending per pupil has increased steadily as the number of pupils/students enrolled has decreased by around one quarter since 2000.

Comparatively high levels of spending on education are not translating into high teacher salaries. In 2015/2016, Lithuania was one of only three EU countries where the highest possible statutory teacher salary at all three levels of school education was lower than GDP per capita (European Commission/EACEA/Eurydice, 2016). New recruits to teaching earn less than experienced teachers because salaries are set on the basis of the workload, the years of service and the teachers' qualification category. It has been argued that the reason for low teacher salaries lies in the size of the teacher workforce and the dissipation of resources across a high number of schools in the country (IMF, 2017). At nearly 10 % of all employment in the country, Lithuania has historically had one of the highest concentrations of teachers in the active population in Europe (OECD 2016b) and a comparably large support staff (LFMI, 2016).

The declining student numbers are a challenge for the efficiency of funding of education. In the past decade there has been a sharp decline in the size of the school-age population (6- to 19-year-olds): in 2015 there were 36% less students than in 2005¹⁷¹. Because of the low student numbers, the student-teacher ratio is constantly among the lowest in the EU — in 2015 it was 8.2 pupils per teacher in primary and lower secondary education and 8.1 in upper secondary education. The average class size also decreased — national data showed that class sizes in rural areas dropped from around 13 students per class to 11.4 in 2015, whereas in urban areas they dropped steadily from 23.3 in 2005 to 20.6 in 2015 (Shewbridge, C. et al. 2016, p.42). Consequently, expenditure per student has been rising very fast in the last 5 years (by around 3 % per year in real terms), although from a very low base.

¹⁷¹ Source: Eurostat data on Population on 1 January by age 2005 and 2015, online data code: [demo_pjan](#)

Figure 2. Expenditure per student (all International Standard Classification of Education (ISCED) levels at 2010 prices) in relation to number of students



Source: Lithuanian Statistical Office, Pupils and students by level of education, <https://osp.stat.gov.lt/web/guest/statistiniu-rodikliu-analize?hash=8c0ea1bd-5177-4b3a-845a-e20d46d9717c#/> and Eurostat (GOFOF 2010 - 2016). Online data code: gov_10a_exp

5. Modernising school education

The demographic structure of the teaching workforce in Lithuania is a cause for concern, while medium-term shortages are likely. The teaching workforce is ageing, while the supply of young teachers is insufficient. As many as 44 % of lower secondary education teachers were aged 50 years or older in 2014 (higher than the same indicator in the neighbouring countries¹⁷²) and there is ample evidence that the teaching profession is not attractive to young talented people (Research and Higher Education Monitoring and Analysis Centre (MOSTA), 2015; Lithuanian Education Council, 2015). For example, in the last 3 years no students have applied to physics and chemistry teacher training programmes (Lithuanian Education Council, 2015). A significant proportion of entrants into initial teacher education, estimated as high as 85 %, end up not entering the teaching profession (Shewbridge, C. et al., 2016). This suggests that in the medium to long term schools are likely to face teacher shortages.

The gender gap in the Lithuanian teaching force is pronounced. In 2015, women accounted for 87.5 % of all teachers. Gender differences persist in choice of subject, profession and future occupation: women comprise a large majority of students studying in colleges to become a teacher (94.7 %) (Lithuania Statistics 2016). There are more women than men serving as directors of general schools (61.7% are women) but more men than women in charge of vocational schools (37.1% are women). Lithuania's State education strategy 2013-2022 has set the target of increasing the share of male teachers from 16 % in 2012 to 20 % in 2022.

Funding for continuous professional development is scarce. Obligatory in-school practice during initial teacher education is limited, and innovative teaching methods remain underutilised. There are also large discrepancies in the funding of continuous professional development with some municipalities allocating three times as much budget as others, thanks to their autonomy in the allocating resources (Shewbridge, C. et al., 2016).

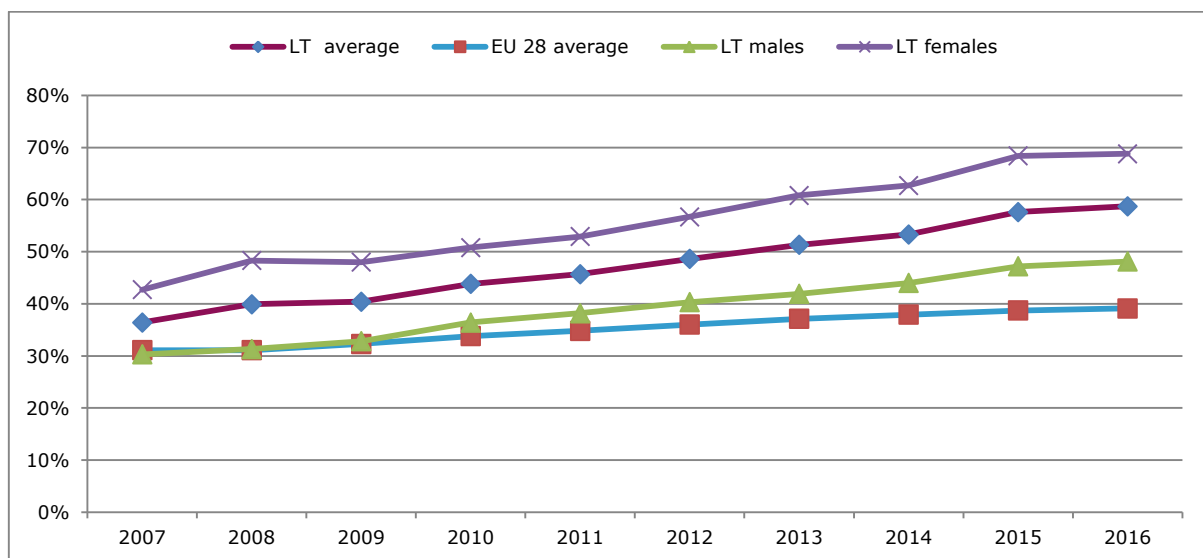
¹⁷² For example, 22 % in Poland, 31.9 % in Latvia, 39.9 % in Estonia in 2014 (the calculations are based on OECD data: https://stats.oecd.org/Index.aspx?DataSetCode=EAG_PERS_SHARE_AGE#)

The government has taken some steps to improve the attractiveness of the teaching profession. It raised salaries for novice teachers and allocated funding for early retirement compensation to create more vacancies and provide more employment opportunities for young teachers. The take-up was fairly successful — 900 teachers in 2015 and 814 in 2016 took advantage of the scheme. While this may indeed be a positive step in some respects, it requires careful planning to avoid future teacher shortages and a loss of accumulated expertise. In addition, scholarships for teaching degrees and a mentoring programme supporting young teachers have been set up. The government is currently negotiating a new way of structuring teacher salaries with the trade unions, moving away from payment per contact hours to a full-time scheme of 36 working hours, which include teaching, preparation and other duties.

6. Modernising higher education

Lithuania tops the EU charts for tertiary educational attainment, but has a gender-unbalanced higher education system. Compared with the EU average of 39.1 %, in Lithuania as many as 58.7 % of 30-34-year-olds have a higher education degree; the expansion over the past decade has also been much faster than in the EU overall (Figure 3). As in most Member States, more women graduate than men — 68.8 % of women of the same age group hold a tertiary degree, compared with 48.1 % of men. This makes Lithuanian women the most highly qualified in Europe, followed by Cyprus, Sweden and Ireland. In recent years, however, there has been some redistribution of enrolments across study fields and a small increase in the number of entrants into natural sciences (MOSTA 2016). This is a positive development, as skills forecasts predict that by 2025 around 27% of job opportunities will be for high-level occupations in science, engineering and healthcare, but also business and teaching.

Figure 3. Tertiary educational attainment of 30-34-year-olds



Source: Eurostat (LFS, 2007 - 2016). Online data code: [edat_lfse_03](#)

Labour-market outcomes for higher education graduates are very good. Lithuania's employment rate of tertiary graduates is one of the highest in the EU, reaching 91.1 % in 2016, significantly higher than the EU average of 82.2 %. The employment rate advantage compared to upper secondary education graduates (70.3%) shows the clear value of attaining higher education.

The higher education sector is characterised by a large network of institutions and a declining student body. There are currently 21 universities and 22 colleges operating in Lithuania. While tertiary attainment among 30-34-year-olds is very high, the number of young people entering higher education has for demographic reasons decreased by 21 % since 2012, including a 9 % decrease between 2015 and 2016 alone (MOSTA, 2016). Consequently, in 2016, one third of all study programmes had no more than 10 enrolled students (MOSTA 2016). In order to attract students from a shrinking pool of young people and receive a corresponding amount of

state funding according to the 'money follows student' principle, higher education institutions were encouraged to expand their offer of study courses and to lower the quality threshold for admitting students. However, as of the 2017 academic year, the government introduced minimum entry requirements to increase the quality of entrants into higher education¹⁷³.

The reform and rationalisation of tertiary education is high on the political agenda. In December 2016, Parliament adopted a resolution urging the government to work out a restructuring plan. A working group set up for this purpose proposed a wider higher education reform. The blueprint, accepted by the government and adopted by Parliament in June 2017, contains proposals for abolishing bachelor's tuition fees while raising entry requirements and reforming the higher education funding system. Setting up and negotiating the institutions' financial incentives in a way that primarily promotes quality and efficiency of higher education will be the key challenge for the reform.

Box 1: Optimisation of the higher education network in Lithuania

The Lithuanian Parliament adopted the plan for consolidation of Lithuanian universities in June 2017. According to this plan, Lithuania should have two universities offering a wide range of studies in Vilnius and Kaunas, as well as universities with specialised missions focusing on technology, health sciences and arts in Vilnius and Kaunas. University level science centers that correspond to regional needs would be maintained in Klaipeda and Siauliai, with a possibility of integration into other universities. This will replace the current network of 21 universities and 22 colleges.

However, universities are autonomous and can propose their own mergers to Parliament, as Vytautas Magnus University (VDU) has done, proposing to become a national 'umbrella' university. It launched the merger process with the Lithuanian University of Educational Sciences (LEU), while Aleksandras Stulginskis University (ASU) later joined the initiative. VDU also said that they expected to conclude integration talks with the Lithuanian Sports University (LSU). The government's reform plan calls for merging VDU, LSU, ASU, LEU and the Kaunas University of Technology (KTU) into a single university in Kaunas. It remains to be seen how the plan will interact with the universities' own plans for consolidation and how the reform of the funding and quality assurance systems can be combined with the consolidation plans.

7. Modernising vocational education and training and promoting adult learning

The government aims to improve the quality and attractiveness of vocational education and training, yet challenges remain. The proportion of upper secondary students (ISCED 3) in initial vocational education and training (IVET) remained stable in 2015 at 26.8 %, substantially below the EU average of 47.3 %. The employment rate of recent IVET graduates in 2016 of 74.9 % was almost the same as the EU average of 75 %. A work-based learning component in IVET is lacking. With falling student numbers, another challenge is ensuring the sustainability of sectoral practical training centres, which benefited from substantial European Regional Development Fund (ERDF) and European Social Fund (ESF) investments of more than EUR 100 million during 2007-2013.

Lithuania is reforming the concept of IVET curricula to make them more labour-market relevant. The intention is for IVET programmes to be based on qualifications profiles, to be defined by sectoral qualifications standards and transformed into a modular structure. 10 sectoral qualification standards (out of the total of 24) and 60 modular programmes were developed under a dedicated ESF project that ran from 2010 to 2015. Major social partners and employers'

¹⁷³ Scores of not less than 3 out of 10 points for universities and not less than 1.6 out of 10 points for colleges.

organisations took part in developing the standards and worked with expert groups that designed IVET programmes. In 2016 the first modular programmes were piloted. Based on the lessons learned, the second wave of modular programmes is to be launched.

Lithuania struggles to increase participation in adult learning, in particular among groups that are the least likely to participate. Adult participation in learning remained low in 2016 at 6.0 %, well below the EU average of 10.8 % and the national target of 15 %. The system for quality assurance seems to be inefficient, with overall fragmentation of the system and insufficient involvement of stakeholders in planning and development of adult learning. As indicated in the Lithuanian Republic Ministry of Education and Science Activity report 2016, low levels of participation in adult education were caused by gaps in legislation and insufficient investment in adult non-formal education.

New legislation in force since 2015, coupled with EU funding, are opening the way to positive developments for increased participation in adult education. As well as addressing quality, funding and governance aspects, changes to the Labour Code have introduced an entitlement to training leave for non-formal education activities for each person. The leave can be up to 5 days per year and must be agreed with the employer. A European Structural Fund call for proposals to develop formal and non-formal learning possibilities was launched in February with a total budget of EUR 12 164 041. The support is planned to be given to the following groups:

- adult school leavers who are willing to finish their secondary education;
- teachers willing to acquire higher education qualification;
- senior learners;
- non-formal learning for vocation teachers so that they can up-skill.

Box 2: Skills monitoring and anticipation in Lithuania

A set of projects collecting and analysing data on skills supply and demand are contributing to a clearer picture of where policy intervention is needed to reduce skills mismatches in the economy.

Specialist Qualification Map

In 2014, the Ministry of Education and Science launched a one-off pilot initiative called the 'Specialist Qualification Map' (Specialistų kvalifikacijų žemėlapis). The initiative was run by MOSTA. The purpose was to assess the level of mismatch between qualifications attained and those required in jobs by combining administrative data from three national databases. It covered 75 000 higher education graduates and around 150 000 VET graduates from 2012 and 2013. The result of the analysis was a report which provides information on the graduates' integration into the labour market, broken down by type of studies, date of recruitment, occupation and earnings¹⁷⁴. Among other things, the Map gave an insight into the pay gap between public- and private-sector employment, inter-regional migration and the gender pay gap. As a next step, MOSTA is working on a project entitled 'Development and implementation of the system for education supply analysis and evaluation' (ESF, 2016).

National Human Resources Monitoring (NHRM)

The 'Human resources demand forecasting' project (2013-2015), funded by the European Social Fund (ESF), sought to implement an econometric skills forecasting model based on labour demand and supply by extracting data from three different sources. The resulting forecasts and snapshots were presented online at www.zips.lt. To ensure continuity with this project, in February 2016 the government provided the legal basis for the creation of a system of skills monitoring — National Human Resources Monitoring. The NHRM, coordinated by a cross-

¹⁷⁴ http://mosta.lt/images/leidiniai/Specialistu_kvalifikaciju_zemelapio_pirmine_analize_2015.pdf

ministerial committee, will integrate various national registers on educational, employment, social security, migration and other data in order to provide a comprehensive system for assessing current and future demand and supply of skills.

Source: Cedefop, Skills anticipation in Lithuania.

http://skillspanorama.cedefop.europa.eu/en/analytical_highlights/skills-anticipation-lithuania

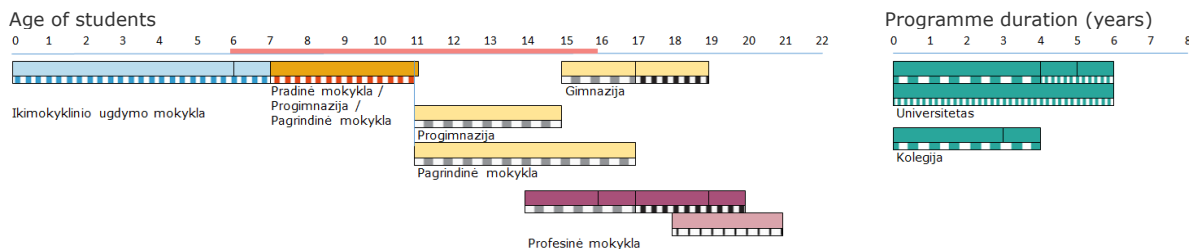
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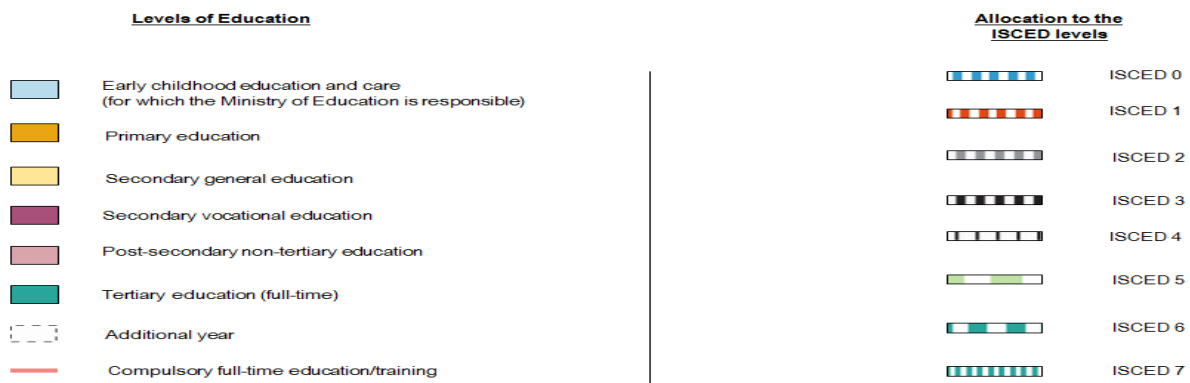
9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. Structure of the education system



Note: *Gimnazija* may cover both primary education programme (ISCED 1) and basic educational programmes.



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems*

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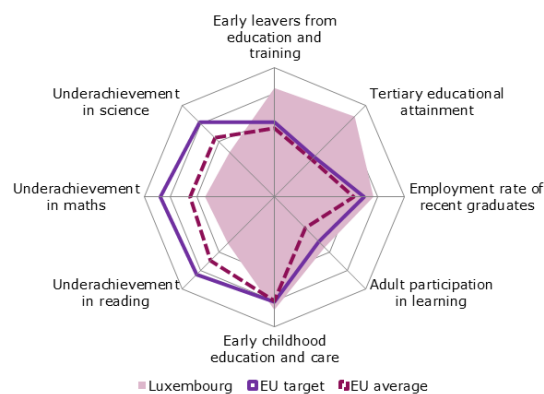
LUXEMBOURG

1. Key indicators

		Luxembourg		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	6.1%	5.5%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	52.5%	54.6% ^u	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		97.8% ¹²	96.6% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	22.2% ¹²	25.6% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	24.3% ¹²	25.8% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	22.2% ¹²	25.9% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	79.1%	85.4%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	14.6%	16.8%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	5.4%	5.2% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€13 847	€15 628 ¹⁴	:	: ¹⁴
		ISCED 3-4	€13 936	€15 417 ¹⁴	:	: ¹⁴
		ISCED 5-8	:	€34 161 ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	5.3%	4.1%	11.0%	9.8%	
	Foreign-born	8.1% ^u	8.5%	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	44.2%	50.9%	37.8%	39.9%	
	Foreign-born	58.5%	57.2%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	71.4%	79.9%	69.4%	72.6%	
	ISCED 5-8	83.8%	89.0%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	20.9%	20.6% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	58.8%	63.0% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

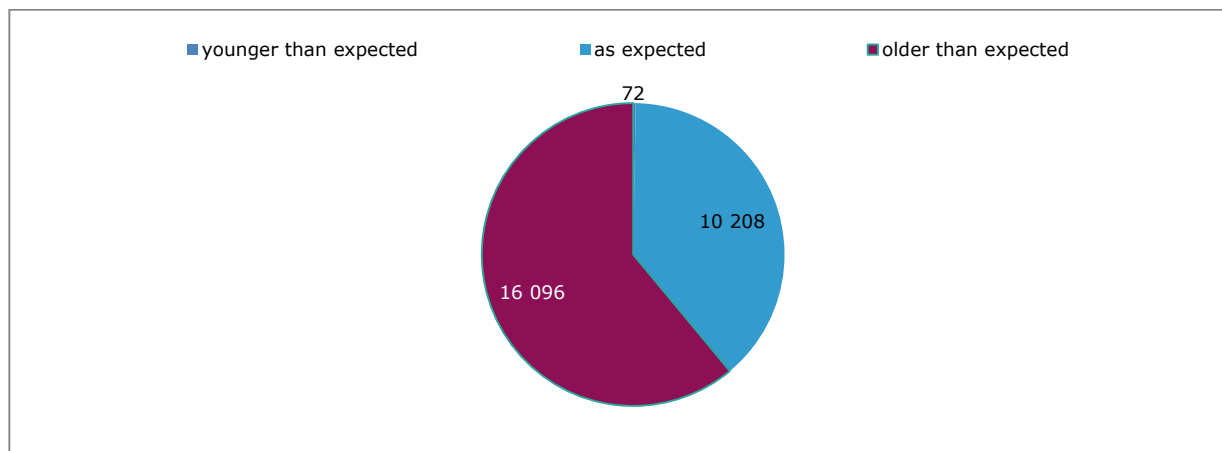
- The PISA performance of 15-year-olds in the 2015 survey was significantly below the EU average in all three components: mathematics, reading and science.
- Calculated according to national surveys, the early school leaving rate is high and has been on the rise since 2009.
- An ambitious reform to improve 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.

3. Tackling inequalities and promoting inclusion

Early school leaving in Luxembourg is significantly below the EU average but national surveys indicate a steady rise. Luxembourg's early school leaving (ESL) rate, as measured by the Labour Force Survey in line with standard EU practice, decreased by 3.8 percentage points in 2016, to 5.5 %. However, this data should be interpreted with caution because of the limited sample size in Luxembourg. National estimates based on the actual number of young people not completing upper secondary education indicate that dropouts have been on the rise since 2009 and stood at 13.5 % in 2015 (Ministère de l'Éducation Nationale, de l'Enfance et de la Jeunesse (MENJE) 2017a). Dropout is more than one and half times higher among boys than girls and occurs most often at age 16-17, around the end of the compulsory school age. In addition, some 29 % of pupils leaving Luxembourg schools in 2014/2015 continued upper secondary education either abroad or in a private/European school (MENJE 2017a). This suggests that school failure could be reduced if public education was better adapted to pupils' needs. The Local Action for Youth (ALJ - *Action locale pour jeunes*) offices of the Ministry of Education are responsible for identifying and contacting early school leavers to help them return to education or find a job. Between 2010/2011 and 2014/2015 the shares of such young people the ALJ managed to reach grew from 18 % to 88 %.

Grade repetition is frequent and a strong factor behind early school leaving. About 20 % of pupils have already repeated a grade by the third grade of primary school (Martin et al. 2012) and by the end of secondary education this is true for half of all pupils. Across school types, grade repetition is particularly high (61 %) among pupils in technical secondary education (MENJE 2016). Failing 2 years in the course of one's studies is the clearest predictor for early school leaving (MENJE 2017a).

Figure 2. Distribution of pupils by their real and expected age in Technical Secondary Education in 2014 -2015



Source: MENJE (2016).

Despite recent reform of the orientation process at the end of primary education, early tracking with little scope for change between levels makes the education system more inequitable. Students with lower socioeconomic status are the most likely to fall behind in all subjects and to be oriented towards the technical tracks of secondary school¹⁷⁵. Changing tracks is extremely rare (Klapproth and al. 2013). The difference in the language regimes of the general and the technical tracks of secondary education — the first being French-based and the second German — also plays a role in orientation decisions and narrows the scope for switching. Pupils of foreign nationality are less frequently oriented towards the higher tracks of secondary education¹⁷⁶. A majority (63.2 %) of pupils of foreign nationality who do attend general secondary education go to schools that do not follow the national curriculum (MENJE 2016). As most of these schools demand a tuition fee, this option is mainly available to pupils of higher socioeconomic status. As of 2016/2017 the orientation process was reformed to give parents a say in the decision.

Pupils' performance at school is heavily influenced by their ability to cope with the trilingual system. The vernacular language at primary school is Luxembourgish, while pupils learn to read in German and learn mathematics in French. This is challenging for all but especially for pupils who speak a different language than Luxembourgish at home. In 2014/2015, this group represented 57 % of the school population (MENJE 2016). While the share of pupils speaking a Romance language (34.4 %) — in particular Portuguese — in technical secondary education has been increasing, the language of tuition in this track remains German. This further increases the risk of school failure or dropout for non-Luxembourgish pupils (Chambre des Commerces 2014). There is scientific evidence¹⁷⁷ (Thomas & Collier 2002) that reading and numeracy skills develop best when these are acquired in the mother tongue. Research also shows that children's ability to learn additional languages does not suffer when their mother tongue is the primary language of

¹⁷⁵ At the end of primary education — in grade 6 — teachers orient students either towards general secondary schools, technical secondary schools or what are called 'preparatory classes' on the basis of their results in the national tests in German, French and mathematics, and the teachers' overall assessment of students' performance. General secondary is geared towards higher education. Technical secondary leads mainly to vocational education but its highest strand, the technical regime, also allows access to higher education. The proportion of students in the two different tracks was 32 % in the general and 68 % in the technical path in 2013/2014 (MENJE/University of Luxembourg, 2015). Preparatory classes are intended for pupils who either failed or did not sit for the secondary school admission test at the end of primary education. The aim is to prepare pupils to enter vocational education.

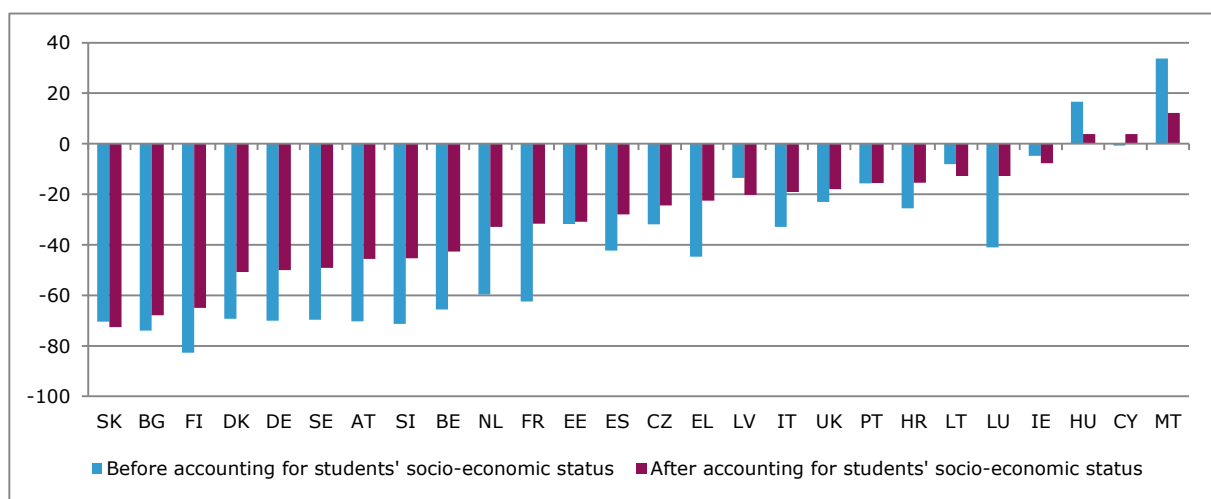
¹⁷⁶ In 2014/2015, 47.6 % of Luxembourgish students completing primary education were oriented towards general secondary school, while this was the case for only 12.2 % of Portuguese students and 34.5 % of students of other nationalities (MENJE 2016).

¹⁷⁷ Thomas and Collier examined the records of 700 000 language minority students, speaking dozens of home languages, in five school systems between 1985 and 2001. They found that the strongest predictor of learner success at upper secondary level in the dominant (English) language education system was the number of early years of instruction the learners had received in their mother tongue.

instruction throughout primary school (Ball 2014). This suggests that school achievement could be improved by a language system more adapted to children's cognitive development, while this should not harm their language skills.

15-year-olds perform significantly below the EU average in PISA in all three components: mathematics, reading and science. Luxembourg's average performance, already below the EU average, worsened between 2012 and 2015, especially in reading and science. In addition, the proportion of low achievers across all three areas is close to 26 %, much higher than the EU average. The impact of socioeconomic background on performance is the second strongest across EU countries. It outweighs (by 2.7 times) the impact of the language spoken at home (MENJE and the University of Luxembourg 2016) and even the immigrant background. Controlling for socioeconomic status, the performance gap of the children of immigrants is reduced by two thirds (OECD 2017a).

Figure 3. Difference in science achievement between foreign and native-born students (PISA score points) with and without adjustment for socioeconomic status, 2015



Note: Countries are ordered after accounting for students' socioeconomic status. Data are not available for Poland and Romania.

Source: European Commission, DG EAC (2016). "PISA 2015: EU performance and initial conclusions regarding education policies in Europe", based on OECD PISA 2015, URL: https://ec.europa.eu/education/sites/education/files/pisa-2015-eu-policy-note_en.pdf.

In 2016, an ambitious reform was launched to improve access and quality in early childhood education and care. Compulsory education starts at age four, when children enter 2 years of pre-school (*préscolaire*). Virtually all children — 96.6 % — participate. This can be complemented with an optional year of early childhood education (*précoce*) from age 3. The rapid expansion in recent years of private nurseries and day care services made it clear that there was a need for widening access and establishing quality standards in early childhood education. The Act on Youth of April 2016 established national quality standards, with which all providers will need to comply by September 2017. Providers are required to familiarise children aged 1-4 with both Luxembourgish and French to be eligible for the state co-financing scheme (*chèque-service accueil*). Every child is entitled to 20 free hours per week of education and care in eligible providers, with additional free hours for low-income families. From September 2016, the co-financing scheme was extended to commuting workers. Single parents and low-income earners will benefit from tax credits for education and child care costs (OECD 2017a).

Grade repetition

Grade repetition is widely used to tackle the diversity of attainment and behavioural difficulties in class in Luxembourg. Only 40 % of pupils successfully complete secondary schooling in the minimum envisaged number of years, the lowest rate in the OECD (OECD 2014). Grade repetition is particularly frequent in vocational secondary education: while only 9 % of 15-year-old students in general secondary education have repeated a year, the share is 36 % in technical secondary education and 65 % in the preparatory regime (MENJE 2016). Grade repetition is often considered as an assurance of school quality and high standards (OECD 2017a). Teachers believe in its efficacy and schools have few incentives to reduce its level (OECD 2012).

Repeating years is costly¹⁷⁸ for the education system, while the academic benefits are slight and short-term (Klapproth and al. 2016). Related psychological effects are also important: Anderson, Jimerson, and Whipple (2005) found that pupils rated grade repetition as the most stressful life event, similar to the loss of a parent and going blind. Finally, grade repetition increases expenditure on other social services as pupils who experience school failure are more prone to high-risk behaviour and/or dropout (Jimerson, Pletcher and Graydon 2006). A survey among early school leavers showed that school failure was one of the major reasons for interrupting studies (Ministry of Education 2015).

A number of countries have managed to reduce the frequency of grade repetition and in doing so have improved overall performance, e.g. by focusing on early, targeted support, by limiting repetition to the subjects or modules failed instead of whole-year repetition, and by setting objectives and aligning incentives for schools to reduce repetition (OECD 2012). Luxembourg has also taken a number of measures to improve school quality, such as introducing an induction period for beginner teachers in 2016 and increasing the number of hours of compulsory further training for teachers. Since 2009, primary schools have had the obligation to adopt plans for school development, and this is now planned to be extended to secondary schools. Draft legislation submitted in October 2016 provides for 'school development specialists', who will offer individual support to children with special learning needs. Finally, in May 2017 Parliament adopted a Law on guidance, which stipulates that every school must have a local guidance plan¹⁷⁹. If combined with promoting alternative strategies and targeted incentives, these measures could be instrumental in reversing the culture of repetition.

4. Investing in education and training

General government spending on education has slowed down in recent years. In real terms, it increased by just 3.5 % in the 2010-2015 period, after rising by 65 % in the previous decade. Education spending did not keep pace with growth in either GDP or total public expenditure, falling to 5.2 % and 12.4 % respectively. However, the figure is still above the EU average values of both ratios¹⁸⁰.

Across the OECD, Luxembourg is the country with the highest average spending on education by student per year in primary through tertiary educational institutions: EUR 24 045 compared to an EU-22 average of EUR 10 897 (OECD 2017)¹⁸¹. Funding has increased the strongest for higher education and research, from EUR 72 million in 2009 to EUR 154.1 million in 2016.

¹⁷⁸ An additional year of schooling for one student generates costs of more than EUR 19 000 (MENJE 2017. L'enseignement luxembourgeois en chiffres. Année scolaire 2015-2016).

¹⁷⁹ <http://www.men.public.lu/fr/actualites/articles/communiqués-conference-presse/2017/05/12-mo/index.html>

¹⁸⁰ Source: Eurostat, General government expenditure by function (COFOG) database.

¹⁸¹ Figures are in purchasing power standards. There are 22 EU members of the OECD.

Luxembourg has a very mixed population, 46 % of which is foreign-born¹⁸². Among the foreign-born, 86 % are EU nationals¹⁸³, who generally achieve high employment participation. In contrast, immigrants of non-EU origin are less successful in the labour market, with high unemployment and high female inactivity (OECD 2017a). On average, immigrants tend to be highly educated: 57.2 % of adult immigrants have a tertiary degree. Due to the high proportion of highly skilled migrants, the employment rate among immigrants (73.8 %) ¹⁸⁴ is higher than across the EU (71.2 %) and even than the native-born population (66.1 %).

More than half of the school population has an immigrant background: 21.4 % are first-generation and 30.6 % of 15-year-olds are second-generation immigrants (OECD 2016a). These figures are exceptionally high when compared to other EU Member States. Almost half of pupils with a migrant background have a low socioeconomic status (MENJE and the University of Luxembourg 2016).

5. Modernising school education

Secondary education has been reformed in order better to adapt the school offer to the needs of an increasingly diverse school population. After several years of nationwide debates, the Law on secondary education was adopted in July 2017. The main objective of the reform is to better meet learners' needs by giving schools more autonomy to organise the curriculum, depending on which of the three profiles they would opt for¹⁸⁵. The school development plans will need to reflect the needs of the school population and cover aspects such as guidance, study success, after-school activities, psycho-social assistance and improving digital skills. The number of subjects in the upper-secondary school leaving exam will be reduced to 6 (down from an average of 10), to allow pupils to focus on the areas matching their further study plans. In vocational education and training, it will be possible to study mathematics at basic or advanced level and guidance will be strengthened to improve study success. In addition to the existing trilingual system, the language choice in public education will be diversified, for example by the opening of a second international public school as of 2017/2018 and by the expansion of English-language education provision to the secondary level in another public school.

Both initial and continuing teacher training have been recently strengthened to enlarge the pool of candidates and improve the quality of teaching. Despite high salaries, there is a shortage of teachers, linked to the requirement to show command of the three official languages. To increase the pool of candidates, the University of Luxembourg launched a master's course for graduates in mathematics, French or German language and literature as a second path to teacher training. At the same time, the teachers' competitive examination was transformed into a simple competition. As from September 2016, a three-year induction period has been introduced for all new teachers, both in primary education (where a similar traineeship did not exist) and in secondary education (replacing the previous two-year programme). Moreover, the hours of compulsory continuing professional development have been doubled to 48 hours every 3 years.

The support system for school quality has been strengthened. Following primary schools, secondary schools now also have the obligation to adopt plans for school development every 3 years. Since September 2016 they are assisted in the design and follow-up of their plans by the Pedagogical and Technological Research and Innovation Coordination Service (SCRIPT). A law adopted in May 2017 replaces the system of inspectorate districts by 15 regional offices. These offices will take over responsibility for the administrative management and pedagogical supervision of primary schools, monitor the implementation of the school development plans and organise support actions for pupils with special educational needs. The law also provides for 'school development specialists' employed by SCRIPT, who will assist schools in their school development plans and offer pedagogical support to teachers. Finally, 150 special education teachers will offer individual support for children with special learning needs at school.

¹⁸² Source: Service Central de la Statistique et des études économiques (2015). Annuaire statistique du Luxembourg

¹⁸³ Source: Government of Luxembourg: <http://www.luxembourg.public.lu/en/le-grand-duche-se-presente/luxembourg-tour-horizon/population-et-multiculturalite/>

¹⁸⁴ Source: Eurostat, Activity rates by sex, age and citizenship (April 2017).

¹⁸⁵ The three possible profiles are: (i) 'future hubs', with an emphasis on ICT, science and new technologies; (ii) entrepreneurial schools; and (iii) schools specialised in sustainable development.

6. Modernising higher education

Luxembourg has set the target of further increasing its tertiary attainment rate among 30-34 year olds to 66 % by 2020. At 54.6 %, the country has the EU's second-highest tertiary attainment rate. This is partly due to the high proportion of the immigrant population with a tertiary degree (57.2 %), compared to 50.9 % among the native-born. Luxembourg has both the largest proportion of international students (44 %) and the largest proportion of national students enrolled in institutions abroad (68 %) ¹⁸⁶ among OECD countries (OECD 2016b).

To meet the strong demand for high-skilled workers, Luxembourg has made further adjustments to the 2013 reform of financial aid to students. Following a ruling by the European Court of Justice in 2013, children of commuting workers have also become eligible for state support for their studies. Since September 2016 financial aid has been split into three components: a basic part, a mobility part and a social part, with a view to making the system more equitable. The volume of the aid has been linked to the price index and the amount of the mobility and social parts of the grant have been increased.

7. Modernising vocational education and training and promoting adult learning

Participation in vocational education and training is high but marked by school failure. The proportion of upper secondary students (ISCED 3) in vocational education and training (VET) was 61.4 % in 2015, well above the EU average (47.3 %). The employment rate of recent VET graduates in 2014 was 78.5 %, close to the EU average (75 %). Challenges include high rates of grade repetition and early school leaving (see Section 1). The VET Law was amended in 2016 and has been in application since 2016/2017. The main objective of the reform is to improve the qualitative skill sets and study success rates of students. To better match supply and demand and prevent youth unemployment, the 'Talent Check' initiative was launched in 2016. This is a competence test developed by the Chamber of Commerce to assist learners in their choice of a suitable training place by making them aware of their own strengths and weaknesses. Companies can also make use of candidates' test results when selecting apprentices.

Adult participation in lifelong learning is high but needs to be strengthened for low-skilled people to improve their employability. At 16.8 %, the participation of adults in lifelong learning is considerably higher than the EU average but much lower among low-skilled workers (at 6.9 %), bringing with it the risk of outdated skills and early retirement. The employment rate for older workers is among the lowest in the EU (39.2 %), so it is important to improve the participation in lifelong learning for this age cohort in particular (European Commission 2017). The government intends to progressively implement the national lifelong learning strategy ¹⁸⁷, which addresses participation and quality issues in adult education. In July 2017, an amendment to the Labour Law was adopted ¹⁸⁸, reorganising the State's co-financing provisions for training provided by companies, which has sparked a broad stakeholder debate, notably among social partners. As of September 2017, the Second Chance School (*École de la 2e chance*) will offer training corresponding to the curriculum of the final year of upper secondary school, leading to a diploma for entry to higher education (*diplôme d'accès aux études supérieures - DAES*). This will give adults without an upper-secondary school leaving diploma a second chance to obtain a recognised certification and access higher education.

Specific provisions are in place to assist the integration of immigrants. Foreign-born adults can benefit from a national programme entitled 'Welcome and Integration Contract' (*Contrat d'Accueil et d'Intégration, CAI*), started in 2011. Participants commit to attending, over a two-year period, an orientation day to get acquainted with public services, a free civic instruction course on Luxembourgish history, culture and institutions, and up to three courses in Luxembourg's three national languages.

¹⁸⁶ State support is available for all students regardless of the country they study in.

¹⁸⁷ <http://www.gouvernement.lu/6854330/2017-pnr-luxembourg-en.pdf>

¹⁸⁸ <http://www.chd.lu/wps/portal/public/Accueil/TravailALaChambre/Recherche/RoleDesAffaires?action=doDocpaDetails&backto=/wps/portal/public/Accueil/Actualite&id=6883>

CONSTRUCEC: Technical training for construction workers

A project in Luxembourg enables construction workers to upgrade their skills to meet companies' needs and regulatory requirements and to sustain their employability in the long run. The 'Institut de Formation Sectoriel du Bâtiment' (Institute for Building Sector Training) provides courses of 1 to 6 weeks in a wide range of subjects such as construction techniques, low-energy-consumption buildings and health and safety at the workplace.

ESF contribution : EUR 293 700

Duration: July 2015 – December 2017

Number of participants by July 2016: 243

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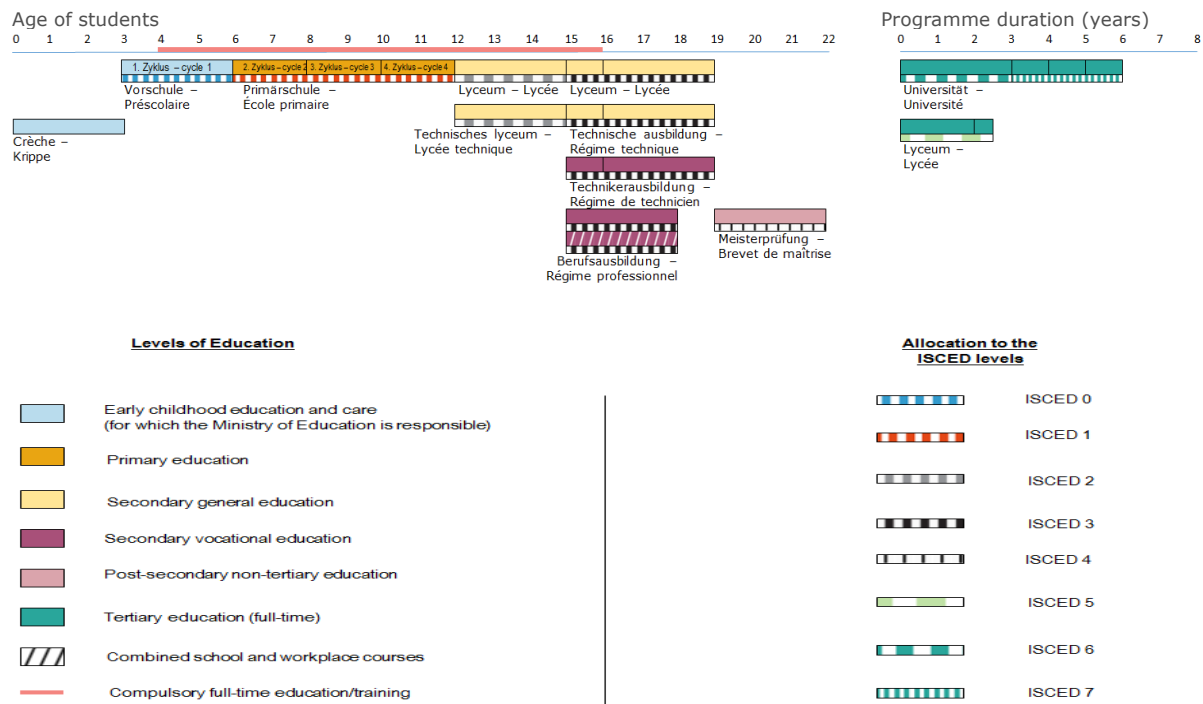
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9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. Structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg; Publications Office of the European Union.

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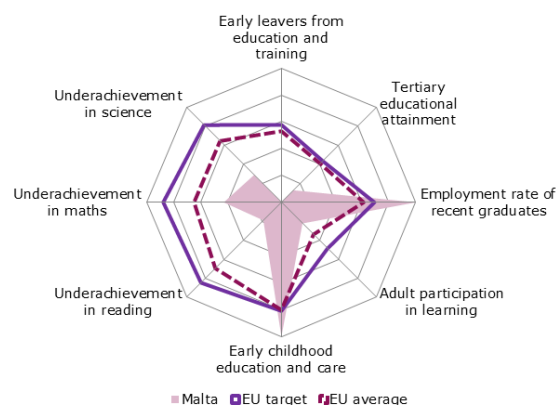
MALTA

1. Key indicators

		Malta		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	20.5%	19.6%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	26.0%	29.8%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		100.0% ¹²	100.0% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	: ¹²	35.6% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	: ¹²	29.1% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	: ¹²	32.5% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	92.1%	96.6%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	7.6%	7.5%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	5.8%	5.5% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€8 189	€8 461 ¹⁴	:	: ¹⁴
		ISCED 3-4	€8 421	€7 155 ¹⁴	:	: ¹⁴
		ISCED 5-8	€30 324	€11 333 ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	20.3%	19.5%	11.0%	9.8%	
	Foreign-born	25.6% ^u	:	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	24.5%	29.3%	37.8%	39.9%	
	Foreign-born	45.4%	35.4%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	90.7%	95.7%	69.4%	72.6%	
	ISCED 5-8	93.1%	97.0%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	3.2%	1.7% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	12.6%	7.2% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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.

3. Tackling inequalities and promoting inclusion

Despite significant improvement in recent years, the early school leaving (ESL) rate continues to be a challenge, but the proportion of NEET's is lower than the EU average. In 2016 Malta had the highest ESL rate in the EU. While there has been a significant reduction in ESL, from 27.2 % in 2008 to 19.6 % in 2016, Malta is still far from reaching its ambitious Europe 2020 national target of 10 %. The gender gap (male rate minus female rate) is well above the EU average, at 7.3 pp compared to the EU average difference of 3 pps. The proportion of 15- to 24-year-olds not in employment, education or training (NEET's) was 8.6 % in 2016, well below the EU average of 11.5 %. In July 2016 Malta launched the second cycle of its NEET Activation scheme, aimed at training, upskilling and providing work experience to 150 participants a year.

Learning outcomes are strongly influenced by socio-economic background and type of school. Basic skills attainment among young people, as measured by the OECD's Programme for International Student Assessment (PISA), has improved somewhat between 2009 and 2015, but remains weak. 15-year olds continue to perform below the EU average, and improvement was only significant in mathematics. Socio-economic status strongly influences student performance (European Commission, 2016), as does the type of school, with 'independent' (i.e. private) school students performing best, followed by Church school pupils and then State school pupils. The 2015 Trends in International Mathematics and Science Study (TIMSS) survey of 13-14 year olds confirmed these findings (Ministry for Education and Employment, 2016).

Participation in early childhood education for children aged four and five is now universal: this may help lower later early school leaving. To improve quality in early childhood education and care, the government has put forward the Education Act on Professions in Education. The Act regulates the profession of kindergarten assistants working with 3-4 year olds, but does not cover those working in child-care centres with younger children. A reform of pre-school educators' initial training was launched with the creation of the B.A. (Hons) in Early Childhood Education in October 2016. Students graduating at Level 5 in Early Childhood Education and Care from MCAST (Malta College of Arts, Science and Technology - provider of advanced vocational training) can progress to join the third year students in the University of Malta's B.A. course.

The proportion of non-Maltese pupils in schools is increasing, and the biggest integration challenge relates to those whose first language is not English. According to data from the Ministry for Education and Employment, in 2014/2015, they made up 7.4 % of total pupils in primary schools and 4.9 % in secondary schools; they came from around 70 different countries, the largest groups being from the UK, Italy, Libya and Bulgaria. As from the 2015/2016 school year, non-English-speaking students are being offered a one-year induction course in basic functional English and Maltese. This is delivered by trained teachers, language support assistants and parent leaders, who support both students and parents. As from 2015/2016, MCAST has been offering a course in functional Maltese for non-Maltese speaking students at post-secondary level, as well as additional learning support in English through its Learning Support Unit. ITS has also launched courses on Maltese for Tourism and English for Tourism as from 2016. In order to address

the issue of the language of instruction, the government has finalised its language policy for the early years aimed at 3- to 7-year-olds (Ministry for Education and Employment, 2017). This endorses a total immersion approach to both languages, and teachers are encouraged to code-switch depending on the children's linguistic abilities. Greater linguistic engagement is encouraged at home and some language mediation is included. If properly implemented, the policy could improve learning outcomes for pupils who are not proficient in English.

Malta is implementing a range of measures designed to prevent or compensate for early school leaving. The 'Alternative Learning Programme' (ALP) has been offered for the fourth consecutive year. It is aimed at students who are reaching the end of compulsory schooling, but who clearly demonstrate that they will not attain the desired qualification and who are at high risk of becoming early school leavers. The programme comprises a range of vocational pathways and student support services. In 2016/17 the ALP had an intake of 154 students. A centre in Paola now consists of 22 workshops/labs covering engineering, plumbing, auto mechanics, hospitality and multimedia studies; it offers hospitality equipment, as well as salons for personal care and beauty studies. The programme has a strong vocational component and students are expected to continue with their education or training in a full-time higher education institution or in other lifelong learning institutions on a part-time basis. In 2016/17 the government launched the Alternative Learning Programme Plus (ALP+) which enables students to continue their learning experience at a post-secondary level, while receiving a monthly grant.

Box 1: 'My Journey' – Making secondary education more relevant and inclusive

The government is working on a reform called 'My Journey; Achieving thorough different paths' to be implemented in lower secondary school in the school year 2019/2020 in order to move from a 'one size fits all' system to more inclusive and equity -oriented programmes catering to pupils' individual aptitudes. In this regard, Malta is set to introduce learning outcomes instead of prescribed syllabi. The aim is to promote inclusion and respond to diversity by allowing students to choose from several education routes among general, vocational or applied subjects for their elective subjects (beyond the core curriculum). Under the current system, students are focused mainly on areas of general education, e.g. science, business etc. But in the past few years, a number of vocational subjects were introduced and learning outcomes developed to be offered at levels 1-3 on the Maltese Qualifications Framework.

'My Journey' introduces applied subjects, thus changing the secondary education system (beyond core curriculum) into three main streams: general, which reflects current subjects offered; vocational subjects which build on existing ones; and applied subjects. Once the new system is in place students will be able to choose either an individual pathway or a mix of the three. The reform is intended to promote inclusion and to reduce the number of early school leavers by making education relevant to more students and to a changing labour market.

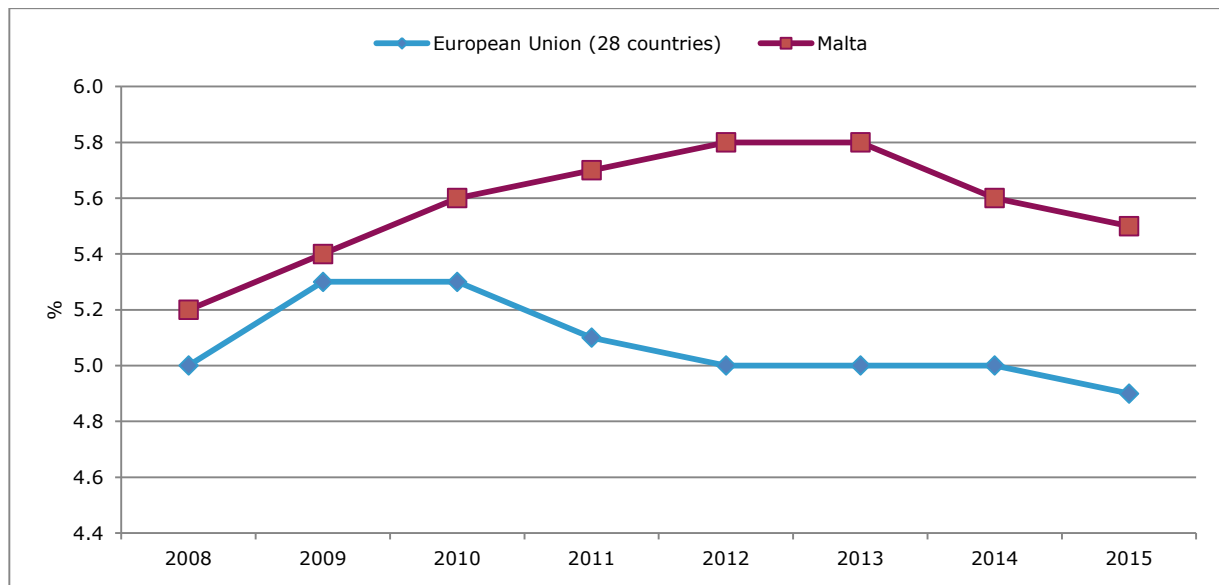
The Ministry for Education and Employment is working on the infrastructure needed to implement the system in local schools. It has set up a committee to ensure teacher readiness through appropriate initial teacher training, re-training of existing teachers and up-skilling and professionalising of trainers who are skilled in a specific sector, but who do not possess teacher training. The committee is comprised of the Faculty of Education of the University of Malta, the Institute of Tourism Studies, MCAST, and the Institute for Education. Haaga-Helia University of Applied Sciences in Finland will assist with the training of teachers in vocational education.

<http://www.myjourney.edu.mt/wp-content/uploads/2017/02/MY-JOURNEY-BOOKLET-WEB-UPLOAD-24FEB17.pdf>

4. Investing in education and training

Despite significant investment in the education system, basic skills attainment among young people remains below EU average. Malta's expenditure on education is relatively high compared to the EU average, both as a share of GDP (5.6 % as compared to 5.0 %) and as a proportion of total public expenditure (13.3 % against 10.3 %).

Figure 2. General government expenditures on education in Malta and EU 28 (%) from 2008 - 2015



Source: Eurostat (GOFOG, 2008 - 2015). Online data code: [gov10_a_exp](#).

Employment rates are above the EU average at all qualification levels, but overall Malta's workforce remains relatively low-qualified, despite significant improvements in recent years. Malta has the highest proportion of low-qualified adults in the EU, as 56.5 % of those aged between 25 and 64 has at most a level of education equivalent to lower secondary education (ISCED 0-2). In addition, the share of low-qualified youth (25-24 years-old) is among the highest in the EU (37.1% vs. 16.6%). In comparison to the native population, the foreign-born population has on average a higher skills: in 2015, 31.3 % of foreigners living in Malta had tertiary education (ISCED levels 5-8), compared with 18.5 % among the native population. As a result, they are able to take up higher-skilled jobs, thus filling skill shortages in growth areas, such as ICT, accounting and finance and science, where the number of native graduates is not sufficient to meet market demands (see also section 6).

5. Modernising school education

Malta has taken steps to improve basic and digital skills in schools. Following the positive evaluation of a 2015 pilot project for using mobile technology in primary schools as part of the 'One Tablet per Child' initiative, in December 2016, every child in Year 4 (i.e. nine years old) was provided with a tablet computer intended to help improve reading, writing, numeracy and digital literacy skills. Training was provided to 26 specialised teachers who in turn trained 473 Year 4 teachers and Learning Support Assistants (LSAs) during the September 2016 in-service teacher training.

The reform of the national curriculum has led to the development of learning outcomes for all subjects within all educational cycles of compulsory education. Learning outcomes will be used to benchmark and record the educational development of each Maltese student in

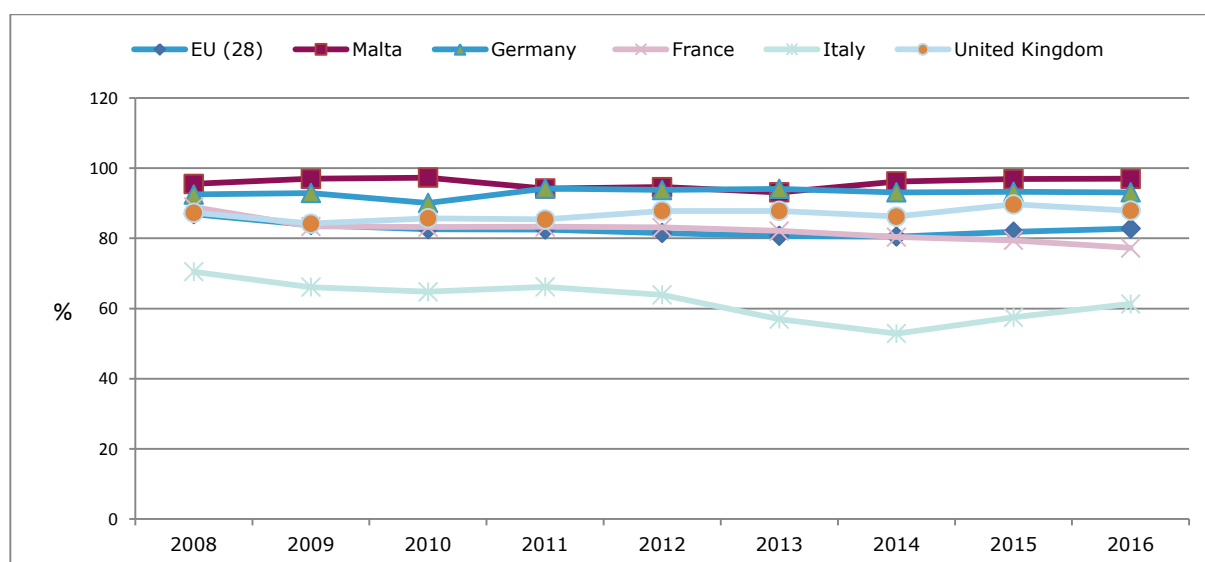
compulsory education. The reform aims to move away from a prescriptive curriculum based on standalone subjects, towards a framework which allows for internal flexibility and promotes inclusiveness, citizenship and employability. Preparations are underway at the University of Malta's Faculty of Education to open initial teacher-training courses within the Master in Teaching and Learning to the new vocational and applied subjects in order to ensure a supply of trained teachers when the reform is launched in October 2019.

Malta continues to invest in the training of teachers. Teacher training has been moved from a Bachelor's degree to Master's level. This reform is being implemented by the Faculty of Education at the University of Malta in consultation with the Ministry for Education and Employment. Continuous professional development for teachers is provided mainly by the Institute for Education, which started to offer courses this year and is taking on a greater role in the training of teachers, having obtained a 5-year licence as a further and higher education institution by the National Commission for Further and Higher Education (NCFHE). The institute is tasked with developing accredited learning programmes and offers a range of accredited courses including periodic stand-alone courses, both short and long. It also offers courses for unqualified teachers in schools to help them build their professional skills.

6. Modernising higher education

The tertiary educational attainment rate is rising steadily but remains below the EU average. The rate for people aged 30-34 increased by 6.4 percentage points over the last five years, but at 29.8 % in 2016 it remains one of the lowest in the EU. At the same time, the employment rate of recent tertiary graduates increased by almost 4 percentage points between 2013 and 2015 and is now the highest in the EU, at 97 % (Figure 3). The gender gap (female rate minus male rate) is relatively low: 5 pp against 9.5 pp EU-wide. Inbound graduate mobility is rather high at Master's level. The government supports access to tertiary education by ensuring that it is free for Maltese students, as well as to those coming from EU and EEA countries and by providing grants to Maltese students enrolled in courses in MCAST and the University of Malta. Student attending the Institute of Tourism Studies (ITS) receive a grant of EUR 233 to cover expenses related to their studies.

Figure 3. Employment rate of recent graduates in Malta and EU 28



Source: Eurostat (LFS, 2008 - 2016). Online data code: [edat_lfse_24](#).

The Higher Education sector has undergone significant changes in recent years. It evolved from having one State funded tertiary institution, the University of Malta, to having two additional Bachelor-awarding State institutions, MCAST and ITS, and a number of other institutions awarding select qualifications, certificates, diplomas, higher diplomas, degrees and/or representing foreign

Universities through local campuses, which award foreign degrees. The University of Malta has implemented changes to its entry requirements for students with learning difficulties. The changes come into force with the round of admissions in October 2017, and while it will be easier for those with special needs to be admitted to University, the relaxation of entry requirements will only apply to non-core subjects. MCAST has been reorganised into a three-college structure (Foundation College, Technical College and University College), to ensure a smooth progression from MQF/EQF 1 to MQF/EQF 6 and 7 programmes. As from September 2017, ITS is also offering vocational Bachelor Degrees in tourism and hospitality. A new foreign University, the American University of Malta, is to open its doors in the next academic year 2017/2018. A new medical school is set to open in Gozo by Barts and the London School of Medicine and Dentistry.

Malta is introducing measures aimed at improving governance and quality in higher education institutions. In April 2017 the Ministry for Education and Employment launched a public consultation on the new University of Malta Act. The Act aims at developing a sustainable framework to support higher education institutions and to improve the quality of teaching and learning. The proposed new measures include a requirement for all higher education staff to have pedagogical training, as well as changes to the University of Malta's current governance system (University of Malta, 2017). The Quality Assurance (QA) Committee was set up in May 2015 with the remit of reviewing Levels 7 and 8 qualifications prior to accreditation. During its first two years of operation, as part of the project 'Consolidating Quality Assurance and Validation in Higher Education in Malta', the QA Unit will also update the National Quality Assurance Framework for Further and Higher Education and the External Quality Assurance Manual.

There are some specific measures to promote tertiary education in disadvantaged areas where take-up is low. The University of Malta's Cottonera Resource Centre, set up to act as a bridge between communities in the inner harbour area and the University with the objective of providing information, support and guidance to those interested in furthering their education. The Centre relies mainly on volunteers. Supplementary grants are provided for students from low socio-economic background in order to further encourage take-up of further and higher education. MCAST's Foundation College enables students who left compulsory education without the necessary qualifications to re-engage with education and training. Students who achieve an MQF/EQF 3 qualification from the Foundation College can proceed to MQF/EQF levels 4, 5, 6, and in certain areas level 7, and complete a degree at MCAST's University College.

Several initiatives aim to increase the number of graduates in science subjects. These include the extension of the Material Engineering Lab and the Mathematics and Physics buildings plus a new Transdisciplinary Research and Knowledge Exchange (TRAKE) complex at the University of Malta. A hub for science communication, called 'Esplora', opened to the public in October 2016, with the aim of stimulating interest in science, research and innovation among young people and encouraging them to pursue careers in science and technology. The MCAST Research Framework plans to set up a Research Committee to encourage the transfer of knowledge between academics, students and industry.

The University of Malta continues to promote entrepreneurship through its Centre for Entrepreneurship & Business Incubation (CEBI). The Centre is currently targeting knowledge-intensive sectors such as science, technology, engineering, and creative media and establishing links between the University of Malta and enterprises. Training on product development, business management and other business related topics will be part of a programme targeted at candidates looking to set up their own business. The TAKEOFF Seed Fund Award is again being offered in 2017. This initiative can provide young graduates as well as academics with the necessary financial, legal and management support to develop their ideas and innovations into actual products.

7. Modernising vocational education and training and promoting adult learning

Malta has the highest employment rate for recent VET graduates, but adult participation in learning remains a challenge. The proportion of upper secondary students (ISCED 3) in Malta in vocational education and training (VET) slightly decreased in 2015 to 12.7. Conversely, the employment rate of recent VET graduates in 2016 was the highest in the EU (96.2 %, vs 75%). Malta is having to rely on foreign workers to cover labour shortages. A teacher training programme on the content, pedagogy and assessment of vocational subjects has been offered to secondary school teachers who expressed an interest in teaching vocational subjects. The Government is planning to introduce applied learning subjects to complement the vocational subjects.

The supply and quality of apprenticeships is increasing. The Ministry for Education and Employment and the MCAST cooperate with national and European stakeholders in developing policies and measures to implement quality apprenticeships in local industry. MCAST has increased the number of vocational pathways offered through apprenticeships and will increase the quality of work-based learning through the formal accreditation of work-based modules. Almost all MQF/EQF 4 courses at MCAST have an apprenticeship component as do a number of MQF/EQF 3 courses. MQF/EQF 5 and 6 students at MCAST are offered internships while other forms of work-based learning are encouraged across the board. Once finalised, the "Work-based Learning and Apprenticeship Act" will provide an harmonised legal framework for work placements, apprenticeships and internships.

The low participation rate of low-skilled adults in learning continues to be a challenge. Adult participation in learning increased slightly in 2016 to 7.5 %, but it is still low in comparison to the EU average of 10.8 %. One of the main challenges remains to increase participation among low-skilled adults (3,0% in 2016) in order to strengthen labour supply. The national VET policy proposes strategic measures targeted at adults, including career guidance, CVET programmes to retrain/up-skill workers in declining sectors, and framework and financial initiatives for employers to invest in CVET dedicated to the low-skilled. In 2017, the Maltese PES launched two initiatives to encourage individuals to develop their skills (Investing in Skills; Training Pays). Emphasis has also been placed on raising the professional profile of adult educators through a National Diploma in Teaching Adults. Malta is building a national framework for the validation of non-formal and informal learning and a skills forecasting and anticipation system. Skills profiling is part of the initial assessment for unemployed people at the Public Employment Service (JobsPlus), leading to an individualised action plan. In addition, the National Skills Council was set up in December 2016 to improve governance, by bringing together the worlds of education and skills.

Box 2: Making VET Education More Relevant and Attractive with the support of the ESF

Project Cost: EUR 7,606,636

Beneficiary: Malta College of Arts, Science and Technology (MCAST)

The project aimed at improving the quality of VET, to make it more economically relevant and attract more students into further and higher education. A substantial upgrading exercise within vocational education was conducted. A number of existing courses were re-designed so as to become more relevant to current economic needs. New courses were designed and launched. Thus MCAST's offerings became more attractive to a larger cohort.

The project's results were:

- 1) The redesign of 38 courses and accreditation of these. It is estimated that 450 students will progress and further their studies and that 193 will be able to join the job market. It is further estimated that, of these, 154 will within a period of 12 months of certification acquire a job relevant to their studies.
- 2) The increase of MCAST's course offerings: 14 in Malta and 16 in Gozo. It is estimated that 80% of their graduates will find a job related to their studies within 12 months of their certification.

3) 25% of the certified / licensed students will find employment within the first year after course completion, while others will opt to further their studies and remain in the education system.

4) 16 members of staff who will be employed during the project will retain their job after the project is implemented.

<http://ec.europa.eu/esf/main.jsp?catId=46&langId=en&projectId=316>

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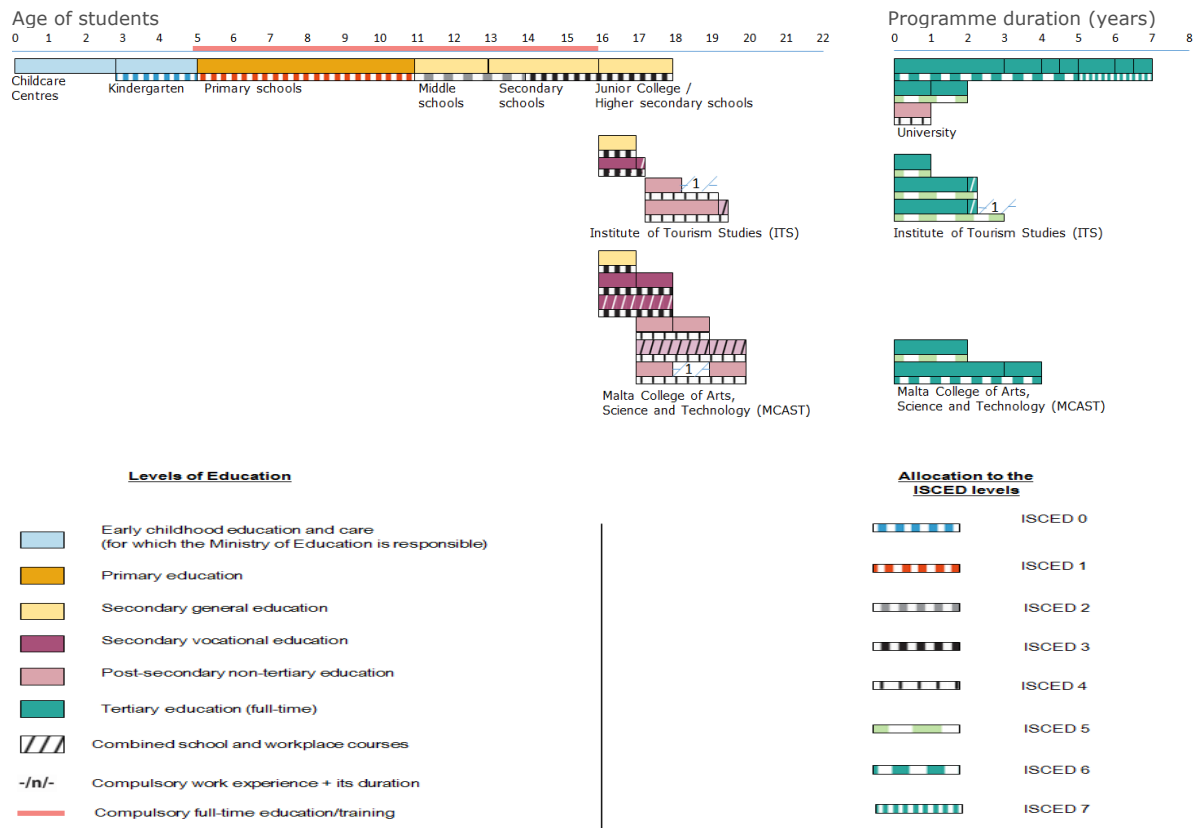
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9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. Structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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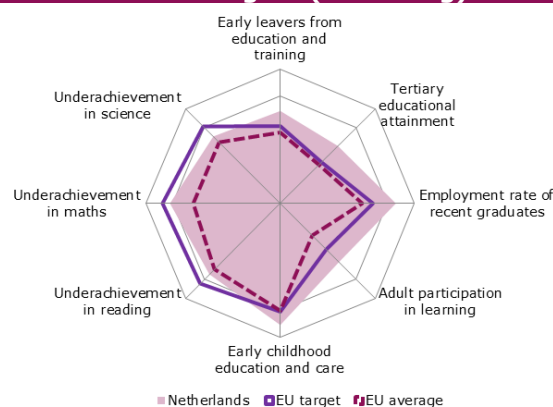
NETHERLANDS

1. Key indicators

		Netherlands		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	9.3%	8.0%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	43.2%	45.7%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		99.6% ¹²	97.6% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	14.0% ¹²	18.1% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	14.8% ¹²	16.7% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	13.1% ¹²	18.5% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	86.0%	90.1%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	17.9%	18.8%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	5.4%	5.4% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€7 315	€7 394 ¹⁴	:	: ¹⁴
		ISCED 3-4	€8 977	€9 154 ¹⁴	:	: ¹⁴
		ISCED 5-8	€13 944	€14 041 ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	9.2%	7.9%	11.0%	9.8%	
	Foreign-born	11.3%	8.3%	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	45.9%	48.2%	37.8%	39.9%	
	Foreign-born	29.3%	32.4%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	80.3%	85.1%	69.4%	72.6%	
	ISCED 5-8	90.7%	94.2%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	9.4%	10.0% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	20.4%	21.8% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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.

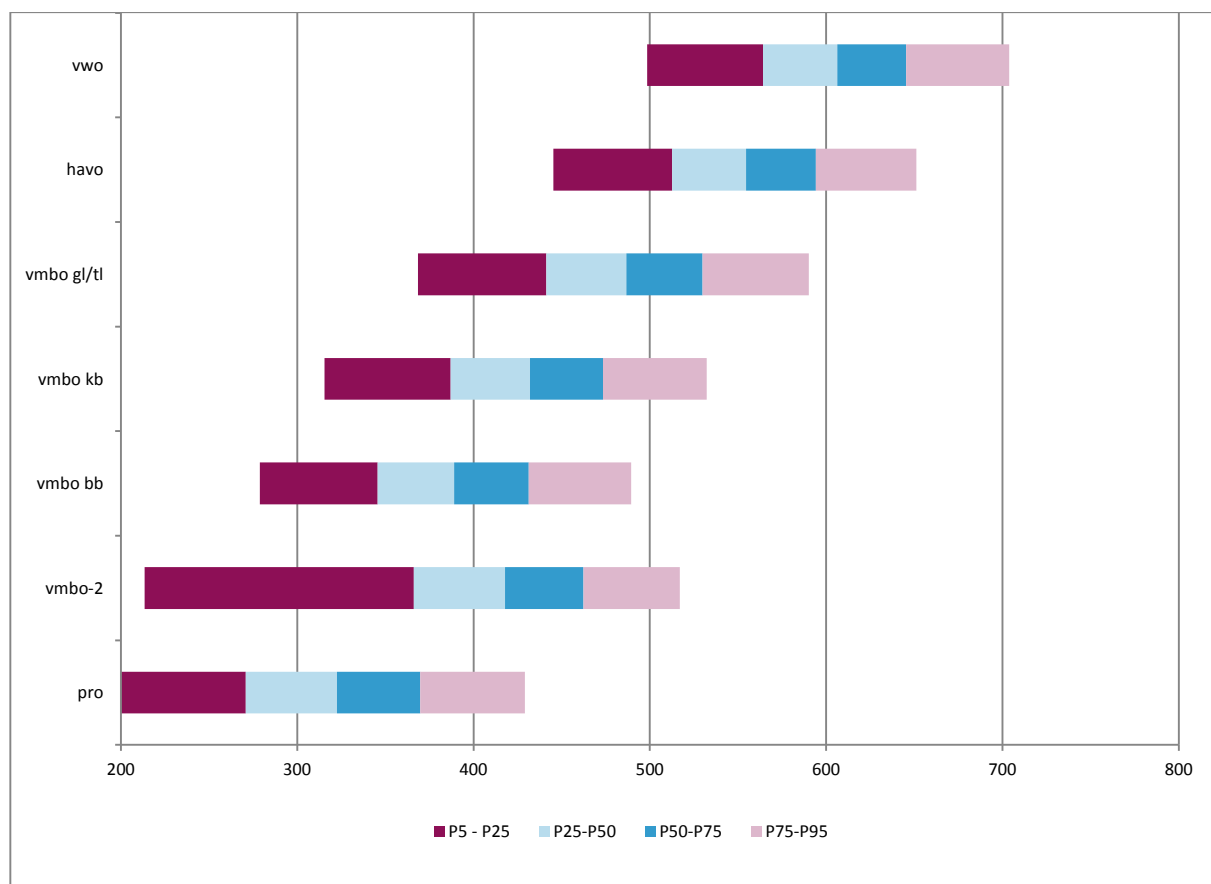
3. Tackling inequalities and promoting inclusion

Despite a good overall performance, there has been a decline in basic skills and an increase in performance differences between schools. Average Programme for International Student Assessment (PISA) 2015 scores were lower than in 2012. The proportion of low achievers in PISA 2015 is still below the EU average, but increased in all fields: reading, science and mathematics. Differences between schools have the strongest impact on pupils' performance of all OECD countries (OECD 2016e), and are strongly linked to the different educational tracks they offer. Differences appear also between schools with similar student populations (Inspectorate of Education 2017). Several new measures¹⁸⁹ aim to close performance gaps between students from disadvantaged and more favourable backgrounds. An additional EUR 25 million in 2017 and EUR 32 million in 2018 will be invested to increase equity in education.

Similarity in pupils' performance in the different tracks of secondary education raises doubts about grouping pupils at an early age.¹⁹⁰ PISA performance of pupils in different tracks overlaps considerably, suggesting that pupils may have been oriented to a track either too low or too high for them. In grade 3 of secondary education, 10 % of pupils study in a higher track and 15 % in a lower track than they were advised to at the end of primary school (Inspectorate of Education 2017). As the different tracks involve different learning goals, 'late bloomers' need to overcome a curricular gulf to switch to a higher track. In its 2016 review of the Dutch education system, the OECD recommended that some tracks are merged to better promote permeability in secondary education (OECD 2016a).

¹⁸⁹ Action plan as presented on 31 October 2016 to the parliament.

¹⁹⁰ Students have a choice of three types of secondary education after primary school: preparatory secondary vocational education (VMBO, accounting for about half of secondary students and which is itself split into 4 sub-tracks); senior general secondary education (HAVO, preparing students for universities of applied sciences and accounting for about a quarter of students); or pre-university education (VWO, accounting for the remaining quarter of secondary students). All students follow a broad curriculum in lower secondary education. At the end of the second year (pre-vocational education and training) or third year (pre-university/university of applied sciences), students opt for one of four study branches.

Figure 2. PISA scores in reading per education level


Source: Cito 2016.

Notes:

Vwo (voorbereidend wetenschappelijk onderwijs): pre-university secondary education

Havo (hoger algemeen voortgezet onderwijs): senior general secondary education

Vmbo (voorbereidend middelbaar beroepsonderwijs): preparatory secondary vocational education

Vmbo gl/tl (gemengde leerweg / theoretische leerweg): combined / theoretical tracks

Vmbo kb (kaderberoepsgerichte leerweg): advanced vocational track

Vmbo bb (basisberoepsgerichte leerweg): basic basic vocational track

Vmbo-2 (tweede leerjaar): second grade

Pro (praktijkonderwijs): vocational training

The downward trend in early school leaving continues. In 2016, the rate of early school leaving (ESL) stood at 8 %: the Europe 2020 national target has been achieved. The Netherlands monitors the number in the age group 12-23 who leave school without a 'start qualification'¹⁹¹. number of dropouts fell from 71 000 in 2001/2002 to less than 23 000 in 2015/2016. The goal is to bring this below 20 000 by 2021. Preventing ESL is achieved through a regional approach in which municipalities work with schools, employers, youth organisations and other partners, coordinated by regional support hubs (Regionale Meld- en Coördinatiefunctie, RMC). In 2016, all 39 regions renewed their covenants with partners for a further four years (MoECS 2017). The government supports these actions with a total of EUR 140 million annually.

Participation in early childhood education and care (ECEC) is high but shows variations by socioeconomic status. From age four 97.6 % of children participate, compared to an EU average of 94.8 %. Up to age three, children from the lowest income group (20th percentile) are five times more likely not to participate in ECEC than children from the highest income group (OECD 2016a). A new measure provides compensation to parents using public pre-kindergartens

¹⁹¹ A VET, general upper secondary or tertiary qualification.

who previously did not receive compensation (Ministry of Social Affairs and Employability 2016). The development of a curriculum framework and a shift towards a more integrated ECEC system have been proposed to improve quality (OECD 2017). In 2016 the government announced that in 2017 an additional EUR 200 million would be made available to achieve higher quality. Children from disadvantaged backgrounds between the ages of 2.5 and 6 can benefit from a specific education and care programme (*Voor en vroeg schoolse educatie*) with a structured curriculum for holistic child development and special emphasis on Dutch language development.

The school performance of students from an immigrant background remains an important challenge. Non-immigrant children perform significantly better than immigrant children in all three PISA areas. This difference holds also for second-generation immigrants. TIMSS shows that immigrant students are already behind their non-immigrant peers by the age of 10. After controlling for socioeconomic differences, first and second-generation immigrant students score far behind non-immigrant peers, with a 41 point difference in reading and 31 in mathematics (Meelissen et al. 2012).

Massive inflows of newcomers in education in recent years have necessitated a reorganisation of their support system. Most young migrants enter the Dutch education system through so-called international transfer classes (ISKs), designed to facilitate their entry into mainstream schools and Dutch society. ISKs teach Dutch language and introduce children to the school subjects. Children in secondary education usually attend ISKs for two years, after which they join a regular secondary school, vocational education or work. According to a recent report (Stavenuiter et al. 2016) on the transition from ISKs to mainstream schools, the greatest barrier facing migrant children is limited language proficiency. The type of secondary school to which a child is assigned is often determined by proficiency in Dutch rather than cognitive ability. Specific measures for immigrants include: targeted funding for secondary schools with newly arrived immigrants; agreements to reduce segregation between native Dutch and immigrant students in primary schools; induction classes offering intensive Dutch lessons to newly arrived immigrant students; and the creation of specific platforms for ethnic minority parents.

While the overall employment rate for people aged 25 to 64 is higher (78.1 %) than the EU average (73.1 %),¹⁹² it is much lower for people from an immigrant background. In 2016, the employment rate was well above the EU average at all qualification levels: 60.7 % for individuals with at most lower secondary education (ISCED 0-2), 79.4 % for individuals with upper secondary or post-secondary non-tertiary education (ISCED 3-4) and 88.4 % for individuals with tertiary education (ISCED 5-8). The rate for non-EU born immigrants is 20 percentage points lower than for people born in the Netherlands: only a small part of the difference is related to age and educational achievement (European Commission 2017).

Foreign-born young people in the Netherlands are particularly at risk of becoming NEETs (people not in education, employment or training). Immigrants represent a significant and continuously growing segment of the population, with migration inflows rising from 37 457 in 2000 to 139 348 in 2015 (OECD Migration Statistics database). Foreign-born young people (aged 15-29) are more than twice as likely as their native-born contemporaries to be out of school and out of a job: 12.1 % against 5.7 %, compared to EU averages of 21.5 % and 13.3 %. They are at serious risk of economic and social exclusion, with potentially harmful effects for all of society (OECD 2016d).

The number of pupils in primary special education has decreased by more than 6 % since the introduction of 'education that fits' (*passend onderwijs*) in 2014/2015. All schools are now responsible for placing every child, including those with special educational needs, in a suitable educational setting, preferably in mainstream education. Regional school alliances make arrangements for support and guidance. 18 % of primary schools and 72 % of secondary schools have taken on children from special education. Most school principals report that their teachers have followed further training in the past two years related to this change (Inspectorate of Education 2017).

¹⁹² Source: Eurostat lfsa_ergaed.

4. Investing in education and training

Public expenditure on education remained stable. In 2015 the Netherlands' spent 5.4 % of GDP on education, the same share as in 2014, well above the EU average of 4.9 %. In real terms, spending on education had increased by 3.6 % in 2015, consolidating the 2014 recovery. This can also be seen in the ratio of education spending to total public expenditure, which went back up to 12 % after 6 years.

Student loans have replaced grants. Since September 2015, higher education students have been able to take out low-interest loans provided by the government to finance their studies. This system replaces the partly grant-based student finance system for tertiary education. The aim is to invest the resulting savings in higher education, starting with EUR 200 million in 2018 and gradually increasing to an additional EUR 600 million annually from 2025. Furthermore, higher education institutions have also agreed to invest EUR 200 million per year from their own savings in 2015-2017 (MoECS 2015).

5. Modernising school education

Despite strong accountability mechanisms, there is high variance in school performance, even after controlling for the socio-economic background of students (MoECS 2017b). Performance differences between schools are closely linked to the tracks they offer. Primary and secondary schools in the Netherlands have great autonomy: while the system has a centralised framework of attainment targets and supervision, decisions on resource allocation, curriculum and assessment remain with school boards. School autonomy has been associated with high variability in school quality and differing teacher professionalisation efforts (Inspectorate of Education 2017).

In 2015, the Ministry of Education initiated a nationwide dialogue on the curriculum for compulsory education. The central question was what kind of knowledge and skills children in primary and secondary education must acquire to function effectively in a changing society. One of the main conclusions was to put more emphasis on social and emotional skills¹⁹³ in the new curriculum. Five transversal skills were identified: working together, critical thinking, learning to learn, creativity and problem solving (MoECS 2016b). Currently the recommendations are being developed further, in consultation with teachers and other stakeholders.

The Netherlands faces an increasing shortage of teachers. In primary education, a shortfall of 4 000 full-time equivalent posts is expected in 2020 and 10 000 full-time equivalents in 2025. In secondary education, a shortage is expected for specific subjects such as mathematics, science and foreign languages (Fontein et al. 2015). After several years of decline in applications, initial teacher education colleges saw a small increase (of 5 %) in enrolments in 2016 (Onderwijs in Cijfers 2017). While the student population is becoming increasingly diverse, the composition of applicants to initial teacher education remains rather homogeneous: there are few men, hardly any students from a migration background and few secondary graduates of STEM subjects (science, technology, engineering and mathematics) (Inspectorate of Education 2017).

Not all students receive education from qualified teachers. On average 5.1% of all classes in secondary education were given by staff without professional teaching qualification in 2015¹⁹⁴, with some evidence of higher rates in certain schools (Inspectorate of Education 2017). Poor performance on the final arithmetic test¹⁹⁵ in secondary education is generally attributed to poor arithmetic skills acquired in primary education, which in turn is ascribed to the poor arithmetic skills of primary school teachers.

¹⁹³ In Dutch: *persoonsvorming*.

¹⁹⁴ <https://www.tweedekamer.nl/kamerstukken/detail?id=2017D04001&did=2017D04001>

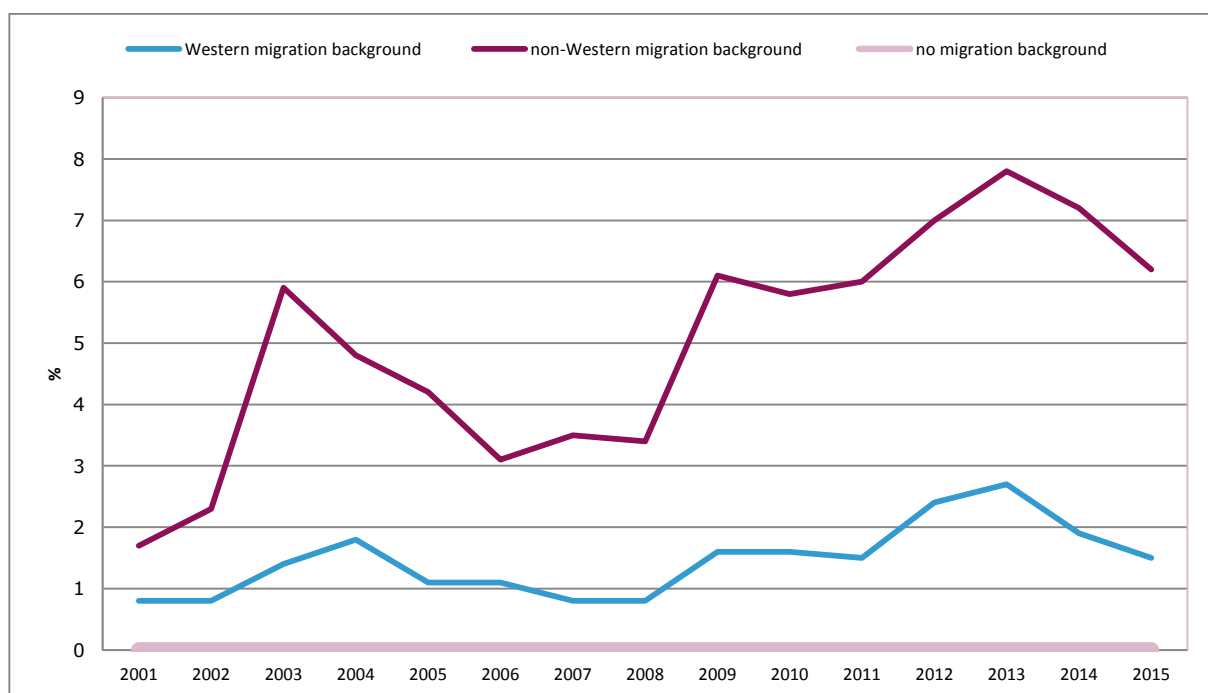
¹⁹⁵ In February 2015, the Parliament voted to make the arithmetic test part of the graduation requirements from secondary education as of 2015/2016. However, a later amendment postponed implementation to 2020 in all but the highest track of secondary education (VWO). In the other tracks, success is not a requirement for graduation.

In line with the 2013-2020 Teachers' Agenda, measures to improve the quality of teaching, continuing professional development and career prospects have been implemented. The Teachers' Agenda (MoECS 2013) was launched to improve the quality of teaching and continuing professional development and to make the teaching profession more attractive.¹⁹⁶ It allows schools to support their teachers and school heads in obtaining further qualifications to advance in their career and obtain higher salaries. Teachers will need to record their skills and further training activities in the teachers' register (*Lerarenregister*), which will be mandatory as of 1 August 2018. A teacher scholarship (*Lerarenbeurs*) is available for teachers wishing to obtain a master's or bachelor's degree in education in addition to their other degrees. According to an evaluation of this scheme (Van der Steeg & Van Elk 2015), about one in ten teachers used the scheme to pursue studies that they would not have pursued otherwise.

6. Modernising higher education

The tertiary attainment and graduate employment rates are well above the EU average. There is a large gap in the attainment rates of the native- (48.2 %) and foreign-born populations (32.4 %). The employment rate of recent tertiary graduates was very high at 94.2 % in 2016, well above the EU average of 82.8 %. Surveys show that graduates with a non-Western immigration background from universities of applied sciences are less likely to find a job corresponding to their qualification than their peers (ROA 2016; Falcke et al. 2016; SCP 2016). These inequalities have increased over the last 15 years (Figure 3).

Figure 3. Deviations in unemployment rates of graduates from universities of applied sciences with a migration background compared to graduates with a Dutch background in the period 2001-2015



Source: ROA.

¹⁹⁶ The main changes proposed are: raising entry requirements for teacher training; improving teacher training; promoting attractive and flexible learning pathways; giving new teachers a better start; transforming schools into learning organisations; offering more training to ensure that all teachers are capable and competent; and creating a strong professional body for teachers.

Following the transition from a partly grant-based system to low-interest loans, enrolments initially dropped in higher education but recovered in 2016. In 2015 the number of students enrolling in tertiary education dropped by 7 %, both in universities and universities of applied sciences (HBO). Enrolments fell by around 15 % among students with low-educated parents. In 2015/2016, the proportion of students with functional limitations decreased by around 20 % in HBO and by at least 5 % in universities (Van den Broek et al. 2016). These falls were partly reversed in 2016/2017: 2016 data show a recovery in enrolments of 5 % for HBO and 8 % for universities; participation of students with special needs also increased in HBO (Van den Broek et al. 2017). At the same time, the take-up of student loans has increased by 20 % (Onderwijs in Cijfers 2017). An estimated 67 % of students are in debt at time of graduation. The government continues to monitor the impact of the study loan system, particularly on the social composition of tertiary education.

The performance agreements between the Ministry of Education and Science and each higher education institution are being evaluated in 2017. Savings resulting from the introduction of the student loan system are reinvested in the quality of higher education, as indicated in the Strategic Agenda for Higher Education and Research for 2015-2025.¹⁹⁷ The performance-related budget, linked to the achievement of performance goals set for each institution, increased from EUR 80 million in 2012 to EUR 325 million in 2016, when it represented about 7 % of the total budget for higher education. During the period 2013-2016, higher education institutions could only receive such funding if they had signed a performance agreement. For 2017-2020, they will receive performance funds in function of how much they have achieved their targets for quality of education and study success in the period until 2015. The performance agreement tool is being evaluated in 2017; lessons drawn will be used to design future agreements.

Box 1: The National Technology Pact

Despite high wage premiums for a number of occupations, there is a continuous shortage of STEM graduates. In response, in 2013 the government initiated the National Technology Pact.¹⁹⁸ This brings together over 60 signatories from education, business and government to promote technical training throughout the education system. The Pact identifies measures from primary to lifelong learning which are implemented through regional coordination units.

Recent labour market forecasts (UWV 2015) indicate that the Netherlands will continue to experience labour market shortages in technical and ICT-related professions in the medium term. The objectives and activities of the Pact were therefore renewed in April 2016. The 2016 Pact is structured in three action lines encouraging:

- more pupils to choose a technology education;
- more graduates in technology programmes to start a career in technology and
- more people already working in technology to remain in the field.

The Pact has shown good results, including an increase in the proportion of tertiary students starting a science programme.

¹⁹⁷ The Strategic Agenda outlines that half of this money will be spent on initiatives to create small scale and more intensive learning environments. The other half will be spent on: talent programmes (10 %); education-related research (20 %); improving facilities for students; and ICT (10 %). The remaining 10 % will go to national programmes, such as scholarship programmes to improve regional collaboration and experiments in innovation in teaching.

¹⁹⁸ <http://www.techniekpact.nl/>

7. Modernising vocational education and training and promoting adult learning

Ten new programmes were introduced in lower secondary vocational education (vmbo) in 2016/2017. These are based on broad learning profiles that can be combined with more specific courses. Schools can work together with regional business partners in designing these courses. The overall curriculum now consists of three parts: a 'basic' part including courses in Dutch, English, art, physical education and arithmetic; a 'profile' part which, depending on the path, includes either a combination of profile courses and two general academic courses or only general academic courses; and a 'selective' part in which pupils can choose courses according to their study and careers plans.

Upper secondary vocational education (mbo) performs well, with strong links to the labour market. The proportion of upper secondary students (ISCED 3) in the Netherlands in vocational education and training (VET) reached 68.5 % in 2015, well above the EU average of 47.3 %. The employment rate of recent VET graduates at 86.7 % in 2016 is also above the EU average of 75 %. In order to further improve work-based learning, quality agreements were introduced in March 2016. Each VET school develops a plan indicating how they will improve the quality of work-based learning both in the school-based form and in dual training. These agreements form part of a performance-based funding scheme, which envisages extra funding for well-performing schools.

Adult participation in learning at 18.9 % is almost double the EU average of 10.7 %. While participation in non-formal learning is relatively high, participation of adults in formal associate degree, bachelor and master programmes is rather low. Therefore the government aims to increase the flexibility of these programmes. There is a large scale experiment from 2016 to 2022, with around 20 universities of applied sciences and 500 part time programmes, in which the structured content of training programmes is replaced with work-based learning. This is particularly interesting to employers, who can have a say in the choice of skills to be developed for their employees. There is also a smaller scale experiment with voucher funding for modular bachelor and associate degree programmes. From September 2017 onwards, participation in formal part time education is also promoted through a low interest loan to finance tuition fees.

Box 2: Vouchers for Learning Jobs

Municipalities in the IJssel-Vecht region have joined forces to help unemployed young people find a learning workplace. Young people often face difficulties in doing so given the high cost to employers. Between 2011 and 2012 a voucher system was created to motivate employers to offer them learning places. The voucher entitles companies to a contribution of max. 50 % of the minimum salary for up to one year.

Wage costs are financed partly from the European Social Fund (with EUR 860 000) and partly by municipalities. Around 320 young people were placed in learning jobs through the project

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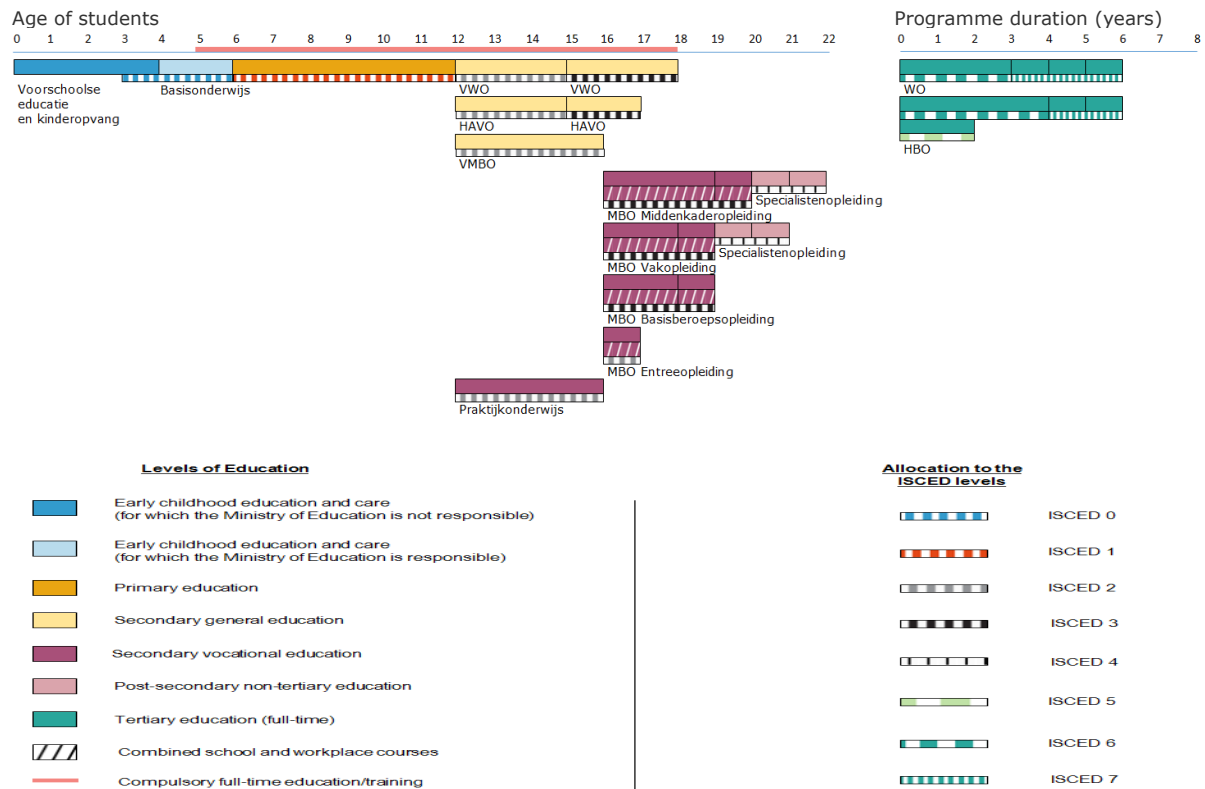
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9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. Structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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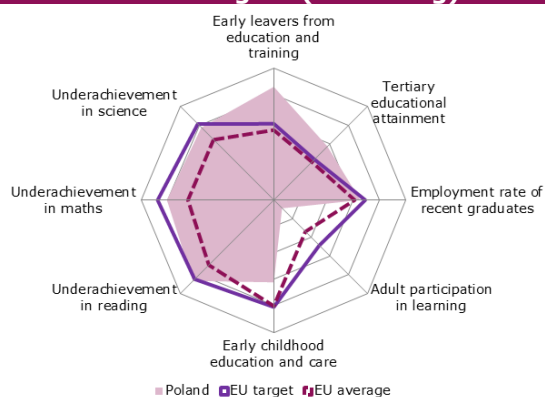
POLAND

1. Key indicators

		Poland		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	5.6%	5.2%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	40.5%	44.6%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		84.3% ¹²	90.1% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	10.6% ¹²	14.4% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	14.4% ¹²	17.2% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	9.0% ¹²	16.3% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	73.2%	80.2%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	4.3%	3.7%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	5.3%	5.2% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€5 094	€5 086 ¹⁴	:	: ¹⁴
		ISCED 3-4	€4 460	€4 302 ^{14,d}	:	: ¹⁴
ISCED 5-8		€6 580	€7 213 ¹⁴	:	: ¹⁴	
Early leavers from education and training (age 18-24)	Native-born	5.6%	5.2%	11.0%	9.8%	
	Foreign-born	:	:	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	40.5%	44.6%	37.8%	39.9%	
	Foreign-born	:	50.7% ^u	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	62.8%	72.7%	69.4%	72.6%	
	ISCED 5-8	81.3%	87.0%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	0.6%	1.1% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	1.3%	1.9% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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.

3. Tackling inequalities and promoting inclusion

Poland's rate of early school leaving (ESL) is very low: in 2016 it was 5.2 %, less than half the EU average of 10.8 %. Eurostat data show, however, that there are regional and gender differences. The highest — and rising — levels are in western Poland, more than 7 %. The rate is higher for boys (6.4 %) than for girls (3.9 %), but this gap has decreased and is now close to the average EU gap. The factors that lead to educational exclusion in Poland are well known and include socioeconomic, institutional and cultural reasons (Federowicz i Sitek, 2011 and Kozarzewski, 2008). The proportion of 15- to 24-year-olds not in employment, education or training was 10.5 % in 2016, slightly below the EU average of 11.5 %, reflecting the low level of school dropout.

The ambitious national target of reducing ESL to 4.5 % will be difficult to meet. Further reducing dropout will be difficult but changes in initial vocational education and training (VET), as well as programmes to help teachers develop their skills, could help (Polish Government, 2017). Between 2013 and 2015 ESL declined by only 0.1 percentage point (pp.) annually. Interesting initiatives include the already well-established reintegration programme for young people who dropped out of school organised by the Voluntary Youth Corps (*Ochotnicze Hufce Pracy — OHP*); strengthening family support (the new 500+ income support programme); cooperation with parents; and institutions providing social assistance (Eurydice, 2017a).

The gradual modernisation of pre-school education is helping to raise participation in early childhood education and care (ECEC). Participation in ECEC increased rapidly by 5.3 pps between 2013 and 2015 to 90.1 %, still below the EU average of 94.8 %. The increase was partly due to the new entitlement to pre-school education, which currently applies to 4- and 5-year-olds and will be extended to 3-year-olds from 2017¹⁹⁹. However, there are differences in the share of children in pre-school education by age, with 3- and 4-year-olds showing the sharpest increase²⁰⁰. Poland is gradually catching up with the levels of other countries in the region but for younger children there is still room for improvement²⁰¹. The government announced the new 'Toddler plus'

¹⁹⁹ In addition, as of 1 January 2017 pre-school education for 6-year-olds is free of charge in public kindergartens.

²⁰⁰ The provision of pre-school education for every interested family became compulsory for local authorities.

²⁰¹ During the period 2011-2015 pre-school was compulsory for 5 year olds'. Starting from September 2016 it is optional, but the entitlement remains.

programme in February 2017, as a continuation of the previous ‘Toddler’ programme. The new programme has a dedicated budget of PLN 151 million and will support 12 000 new places for children in early-years education and 42 000 existing care places²⁰² (Eurydice, 2017a).

Despite progress, there are persistent regional differences and significant unmet demand for ECEC in urban areas. This concerns in particular the provision for 3-year-olds, who are not yet legally entitled to attend ECEC. A shortage of places is reported, especially in larger cities. The share of children under 3 in ECEC remains very low, at 7.5 % in 2015 against the EU average of 33.9 % (Eurydice, 2017b). In addition, enrolment in ECEC is geographically uneven (GUS, 2017): it is much lower in rural areas, particularly eastern and north-eastern Poland. The general policy of supporting the right to pre-school education will help parents and improve children’s knowledge, skills and abilities in the long-run²⁰³.

Poland has established quality standards for ECEC. Pre-schools are monitored by the regional inspectorate (*kuratoria*) offices. ECEC teachers are regulated under the Teachers’ Charter. According to new proposed regulations they will be required to have a higher education qualification with appropriate pedagogical content²⁰⁴. The qualifications of teachers in non-public pre-schools and of carers or volunteers responsible for children below 3 are also regulated (Polish Government, 2017).

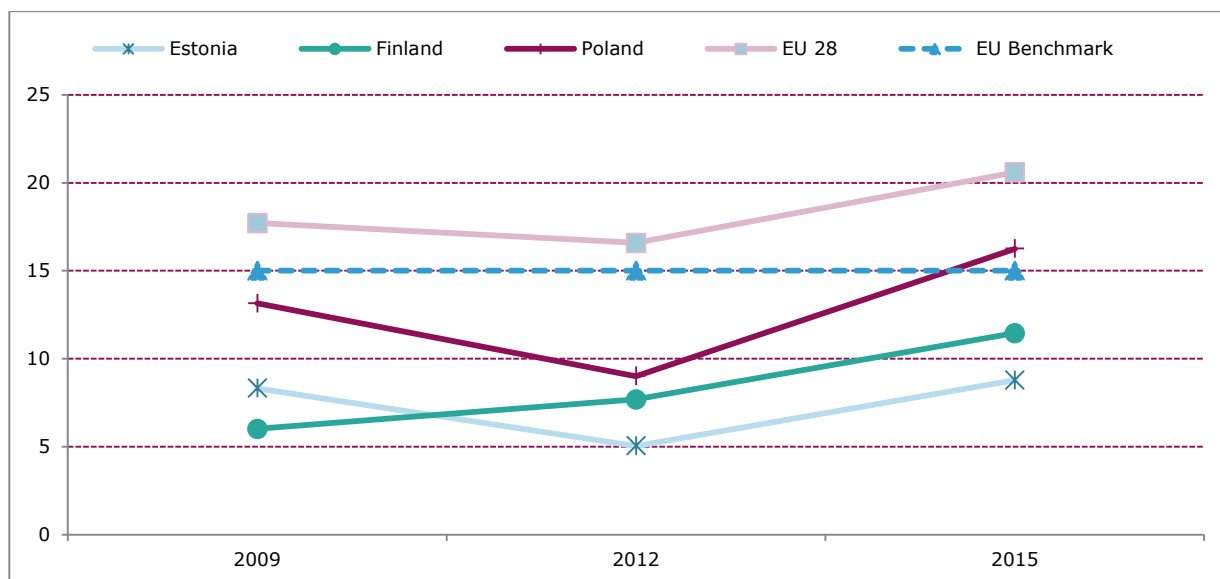
Despite some decline in 2015 PISA results, Poland is among the best-performing EU countries. Following a strong improvement between 2006 and 2012, Poland’s performance worsened in all fields in the 2015 OECD Programme for International Student Assessment (PISA) survey (OECD, 2016a), especially in science (see Figure 2). However, it still scored better than both the EU and OECD averages in all areas (European Commission, 2016). The proportion of low achievers, at 16 % in science, 14 % in reading and 17 % in maths, is significantly below the EU average in all fields and very close to the EU Education and Training 2020 benchmark of 15 %. The share of top performers declined to the level observed in 2009 (OECD, 2016b). The impact of socioeconomic status on performance is relatively limited and has continued to decrease since 2006 (OECD, 2016c). The OECD has warned that the recently tabled reform of lower secondary education needs to be carefully evaluated to ensure that it does not cause deterioration in basic skills (OECD, 2017). The OECD’s Survey of Adult Skills shows that Poland’s general skill levels are lagging behind, particularly among older adults and for those with low educational attainment in rural areas (OECD, 2015).

²⁰² See <http://www.zlobki.mpips.gov.pl/>.

²⁰³ Poland is developing an integrated approach to the ECEC, in cooperation with parents, and accompanied by new income support for families (i.e. the 500+ programme).

²⁰⁴ <http://legislacja.rcl.gov.pl/projekt/12295107>

Figure 2. Progress towards reducing the rate of low achievers in science, 2009-2015



Source: OECD (PISA 2014) Online data code: [table 1.2.2.a](#)

Emerging inequalities between schools in educational outcomes are a new challenge.

Inequalities between schools in lower secondary education are emerging. Recent research indicates that, already at primary school level, there is a rising issue of inequality between schools in larger cities (Dolata, 2014). There is also a steady trend of rising selectivity among lower secondary schools in urban areas (Dolata, M. et Sitek, M., 2015). According to Polish authorities current and recent policy reforms seek to address this.

More effort is needed to ensure migrants are integrated effectively. Migrants in Poland arrive principally from Ukraine, the Caucasus and Central Asia²⁰⁵. The recently adopted law on school education (see section 5 for details) envisages measures to help newly arrived migrant children integrate and to prevent them from dropping out of school. These measures provide for additional Polish language classes, individual support activities and the deployment of teaching assistants. However, according to the assessment by the Supreme Audit Office, these requirements are frequently not met in reality (NIK, 2015).

4. Investing in education to address demographic and skill challenges

Public expenditure on education has remained stable and close to the EU average over the last decade. Public expenditure on education in 2015 was 5.2 % of GDP, against 4.9 % across the EU. In 2015 education represented 12.6 % of general government expenditure, against 10.3 % on average for the EU. The absolute value of spending on education has risen, given robust GDP growth. Poland's patterns of public and private spending per student, measured in purchasing power standard (PPS), were similar to other central European countries in 2014. It lags behind Western Europe countries, particularly in spending on the tertiary level²⁰⁶ (OECD, 2016c). The bulk of public expenditure is decentralised in the form of the 'educational subsidy' granted to local authorities (Sztanderska, (ed.), 2014). Experts have recently raised questions about the fairness of

²⁰⁵ In 2016 Poland granted ca. 0.4 million residency permits and ca. 1.2 million work permits to Ukrainians (GUS, 2017).

²⁰⁶ For ISCED 0 it was at EUR 4 618, for ISCED 1-2 at EUR 5 086, for ISCED 3-4 at EUR 4 301 and for ISCED 5-8 at EUR 7 213 (all in PPS).

this system, particularly in the context of the forthcoming school reform, which will have a heavy financial impact on local authorities. The employability of recent graduates from education is improving and continues to move towards the EU average. The general rate for all ISCED levels stood at 79.5 %, compared with the EU average of 77.1 % in 2016. However, it varies considerably according to the education level attained²⁰⁷.

Demographic decline is a key challenge as the numbers in the school system are projected to sharply decrease. The numbers in education are declining, reflecting the low birth rate since the early 1990s. In 2013-2015 the numbers enrolled at all levels of education diminished by 4.3 %; enrolment in higher education dropped by as much as 12.5 %. Between 2007 and 2012, the number of pupils in primary education fell by 9.1 % and the number of schools by 5.8 %. In lower secondary education, the drop in pupils was 20.3 % (GUS, 2016a) but the number of schools increased by 3 %. This reflects both regional redistribution — e.g. to areas of population increase — and the creation of new non-public schools. The decline in student numbers will continue in the future and is likely to raise the difficult question of school rationalisation (Herczyński and Sobotka, 2014). The phenomenon is also visible in the classroom, with the number of pupils per teacher dropping from 16.4 in 2013 to 15.1 in 2015 (OECD, 2016c). The recent reform of lower-secondary schools may partly address this issue.

Box 1: National strategy for responsible development (Strategia na Rzecz Odpowiedzialnego Rozwoju, or 'Morawiecki Plan')

A 'strategy for responsible development' was announced by the new Polish government in 2016 and formally adopted in February 2017. Among other things the strategy envisages a reform of the higher education system and the implementation of the Integrated Qualifications System.

The strategy underlines a number of key challenges in the area of education, including developing key abilities and skills — 'formation of human capital' — for the future of the economy (MR, 2017).

https://www.mr.gov.pl/media/36848/SOR_2017_maly_internet_03_2017_aa.pdf

5. Modernising school education

The changes announced in the structure of the school system are causing uncertainty The December 2016 Law on School Education sets out a major reform of lower and upper secondary education to be implemented between 1 September 2017 and the school year 2022/2023²⁰⁸. Lower secondary schools (*gimnazja*) will be gradually phased out. In the school year 2018/2019 these schools will cease to operate and their last pupils will have graduated (Eurydice 2017a). The reform merges primary and lower secondary levels; students will stay in primary education for 8 years instead of 6. Teachers Union argue that phasing out lower secondary schools could lead to potential job losses among teachers and thus have a negative impact students' learning outcomes (ZNP, 2017), but authorities point to planned increases in teacher numbers.

The reform will affect all schools, teachers and local governments, which are responsible for the school network. The cost of the reform over 2017-2018 is estimated at PLN 931 million, which will include a sizeable amount to be met by local authorities. An additional challenge relates to the adjustment of the school network at district (*gmina*) and county (*powiat*) levels as the district level network of primary and lower secondary school will be replaced by primary schools only, while counties will be responsible for the extended period of learning in the new secondary schools. Because of its potentially disruptive effects the reform is opposed by the Polish Teachers' Union (*Związek Nauczycielstwa Polskiego* — ZNP) and by parents' organisations, among others. In April 2017 a petition signed by 910 000 citizens was presented calling for a national referendum on

²⁰⁷ For ISCED 0-2 the rate was 40.7 % in Poland v 54.3 % for the EU average; for ISCED 3-4 it was 68.5 % v 74.8 %, respectively; and for ISCED 5-8 it was 87.5 % v 84.8 % (all 2016).

²⁰⁸ See <http://reformaedukacji.men.gov.pl/aktualnosci/ustawy-wprowadzajace-reforme-edukacji-opublikowane-w-dzienniku-ustaw.html>.

the reform. This call was rejected by the government because the reform had already been implemented²⁰⁹.

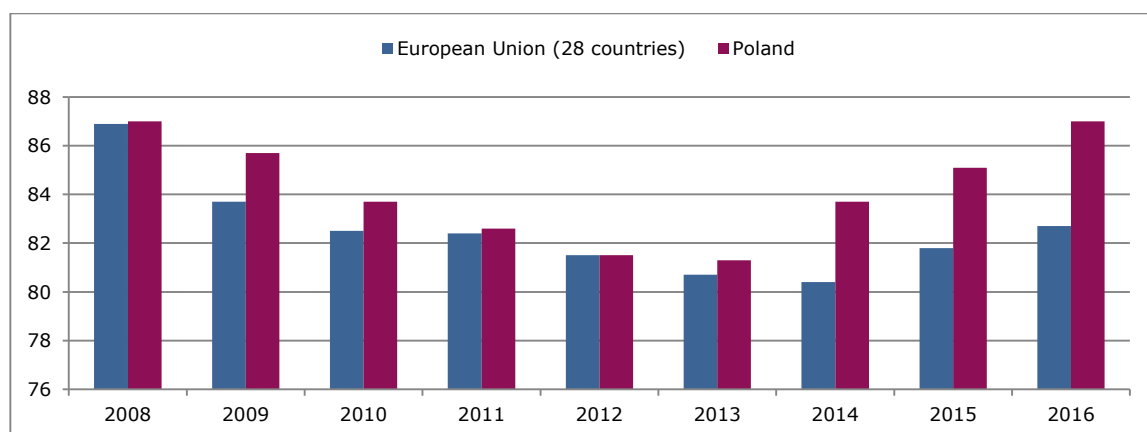
Poland faces the need to continuously improve the quality of teaching. To maintain current good performance, it is important to strengthen the evaluation and assessment of teachers, make new pedagogical tools and methods available to them and improve school management. In this context, in February 2017 the Ministry of National Education adopted a new regulation on core curricula for pre-school and general education in primary schools (MEN, 2017). New textbooks — now free of charge to all primary and lower secondary pupils — were launched. The new core curriculum will be gradually introduced in all grades of primary school in the coming years. All primary school teachers will take part in training on implementing it. However, the new framework programmes could reduce the relative autonomy of school leaders and teachers, by e.g. specifying the exact number of teaching hours per subject in each grade.

The Education Information System is being further developed. The SIO (*System Informacji Oświatowej*) - an electronic system of databases on schools, educational institutions, teachers and pupils - is an important source of information on the quality of education. The data are used in policy-making, to manage access to learning and the financing of the education system²¹⁰. Every school sends data to SIO on pupils/ teachers, capital investment and expenses, etc. On psychological, pedagogical and social support to pupils and students the SIO will not collect individual data; only aggregated data will be available for statistical analysis (Eurydice 2017a).

6. Modernising higher education

Poland has one of the EU's highest rates of tertiary education attainment. Poland reached the Europe 2020 headline target in 2013 and in 2016, its rate was 44.6 %, above the EU average of 39.1 %. The ambitious national target of 45 % for 2020 will soon be met. Higher education institutions are starting to face a decrease in enrolments reflecting demographic developments, with student numbers falling since 2013 (GUS, 2016b). This is affecting the funding of both public and private institutions, in line with 'the money follows the student' principle. Poland is considering new entry paths to universities, for example through greater openness to lifelong and adult learners²¹¹.

Figure 3. Employment rates of recent graduates, age 20-34 having left tertiary education 1-3 years before reference year



Source: Eurostat (LFS, 2008 - 2016). Online data code: [edat_ifse_24](#)

²⁰⁹ See <http://referendum-szkolne.pl>

²¹⁰ See <https://cie.men.gov.pl/>.

²¹¹ A pilot project supporting 'third age' universities was launched in October 2016 with a modest PLN 4 million budget.

Poland has seen a steady increase in graduate employment. The employability rate of recent graduates is high, at 87 % against the EU average of 82.8 % (see Figure 3). The issue of steering more students towards the fields of study most required by the Polish economy has emerged. The proportion of Polish students studying science, technology, engineering and mathematics (STEM) and ICT, is very close to the EU average but lags behind leaders such as Sweden or Finland. The same applies to learning mobility, especially at masters' level. Growing skills shortages suggest it may be necessary to direct graduates towards STEM subjects. Poland's 2017 national reform programme outlines plans to reform the higher education system, one aim being to improve its relevance to labour market needs (Polish Government, 2017). The EU Structural and Investment Funds play an important supporting role in this regard (see below an example of a successful project supported by the European Social Fund).

Box 2: The Competence Development Programme

It was established on the basis of a specific ex-ante evaluation, commissioned by the National Centre for Research and Development and conducted in 2014, which explored future demand for skills in various industries and in the context of new economic trends.

Its main objective is to strengthen the competences needed to succeed in the labour market, especially transversal ones. The Programme supports i.a. the following actions:

- training sessions and workshops aimed at increasing the skills and competences most relevant to the labour market, including entrepreneurship,
- additional courses delivered jointly with employers,
- project-based learning,
- career guidance.

The Programme puts a particularly strong emphasis on cooperation between universities and employers to strengthen the practical elements of training and increase employer's engagement in the Programme's delivery.

Sample link: <http://www.ch.pw.edu.pl/Studenci/Program-rozwoju-kompetencji>

Poland intends to reform its higher education model. The need to shift the system towards taking greater account of the diversity of students' abilities, interests and aspirations is acknowledged (Marciniak, 2014). The introduction of the National Qualifications Framework in higher education refocuses the sector on learning outcomes. Further measures are required to improve quality of teaching and monitor labour market outcomes - the national system of graduate tracking introduced in 2016 addresses this need. Initial results are already available online²¹² (MNiSW, 2017). In addition, changes were made to the student loan system in the summer of 2016 which allow for greater flexibility in granting means-tested student support. For PhD students the 'Implementation doctorates' programme which combine advanced university studies with professional activities, have been introduced.

²¹² <http://www.nauka.gov.pl/aktualnosci-ministerstwo/zobacz-co-studowac-zeby-dobrze-zarabiac.html>.

Box 3: Poland's new strategy for science and higher education

The Ministry of Science and Higher Education has announced a new strategy covering both fields (MNiSW, 2016). IT aims to improve the performance of Polish higher education institutes in science and research AND comprises three pillars:

- 'Constitution for Science': structural changes to the higher education system, including governance and funding²¹³;
- 'Innovations for the Economy': commercialisation of science and cooperation with business;
- 'Science for You': a programme promoting the social responsibility and public dissemination of science.

<http://www.nauka.gov.pl/ustawa20/> and <http://www.nauka.gov.pl/en/polish-science-news/the-experts-presented-their-proposals-of-assumptions-for-the-law-on-higher-education.html>

7. Modernising vocational education and training and promoting adult learning

The proportion of upper secondary students in Poland in initial vocational education and training (VET) slightly increased in 2015 to 50.5 %, above the EU average of 47.3 %. The employment rate of recent initial VET graduates in 2016, at 74.3 %, was slightly lower than the EU average of 75 %. The 2016 reform of initial VET has confirmed the challenges facing the sector (Polish Government, 2017). These include the lack of a mechanism to match initial VET offers to labour market demand; the absence of flexible learning pathways; insufficient guidance and counselling; low-quality teaching; and a lack of investment. These challenges have not been sufficiently addressed, mainly because the financing model has not been adjusted to the changes in structure and content introduced by the 2012 reform.

The current VET reform strengthens existing measures and introduces new components. The direction of the reform, which has been implemented since September 2017, is in line with EU policy priorities. It aims at promoting employers' co-operation with schools, especially to organise practical training in real working conditions. There are also projects financed by the European Social Fund (ESF) which address specific issues such as supporting cooperation between initial VET and business or developing exams. In 2016 no specific measures on continuing VET were taken, even though the sector faces similar challenges to those in initial VET (Eurydice 2017a).

Adults show low interest in developing their competencies or acquiring new qualifications. Poland faces a critical long-term challenge to establish a lifelong learning culture among its population, especially among older and low-skilled people. Adult participation in learning in 2016 of 3.7 % represents an increase of 0.2 pp. over the previous year, but is still well below the EU average of 10.8 %. The OECD's latest Survey of Adult Skills shows that 15 % of Polish adults have low literacy and numeracy levels and that all age groups in Poland have ICT skills below the OECD average²¹⁴ (OECD, 2016c). The integrated qualifications system and qualifications register were launched in 2016. There are also ESF projects in the pipeline to finance activities to develop methods and tools supporting ICT use and to make them widely available. However, these measures may prove ineffective without a coherent adult learning policy, clear leadership at national level and the close involvement of stakeholders. For that reason there are high expectations regarding the future Skills Strategy.

'Sectoral qualification councils' are a new initiative in the area of skills. In 2015 the Polish Agency for Enterprise Development (PARP) started an ESF-cofinanced project to establish and support 15 sectoral qualification councils. The councils should make recommendations for legislative solutions or changes in the area of education and training, and for adjustments to labour market needs in specific sectors (PARP, 2015).

²¹³ A new system of funding public higher education institutes (HEIs) was introduced on 1 January 2017. <http://www.nauka.gov.pl/en/polish-science-news/gowin-universities-are-beginning-to-adapt-to-changes-in-financing.html>

²¹⁴ The gap is mainly visible in the level of participation in non-formal education.

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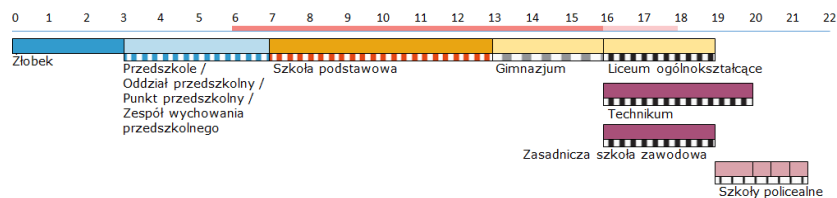
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9. Annex I. Key indicator sources

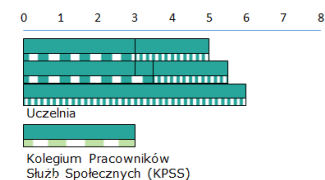
Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03+ edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	edu_uoe_mobg03

10. Annex II. Structure of the education system

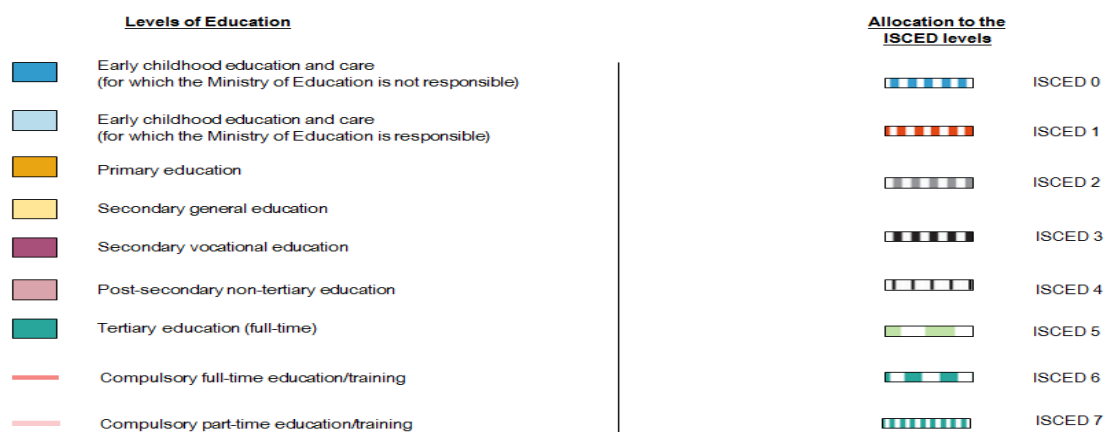
Age of students



Programme duration (years)



Note: As of September 2016, compulsory education in primary school starts at the age of 7. Admission of 6-year-olds to grade 1 of primary school is left to the parents' discretion.



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg; Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
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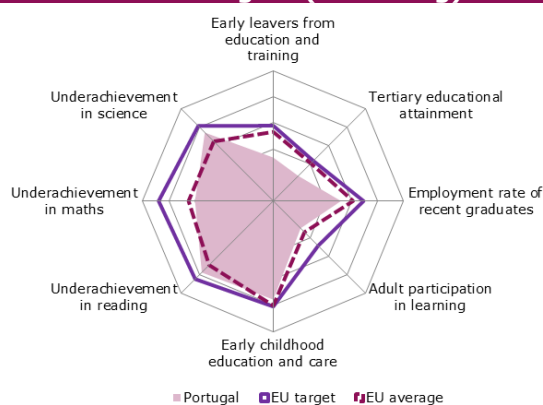
PORTUGAL

1. Key indicators

		Portugal		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	18.9%	14.0%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	30.0%	34.6%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		95.0% ¹²	93.6% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	18.8% ¹²	17.2% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	24.9% ¹²	23.8% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	19.0% ¹²	17.4% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	67.8%	73.8%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	9.7%	9.6%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	6.2%	6.0% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€6 081	€5 382 ¹⁴	:	: ¹⁴
		ISCED 3-4	€7 852	€6 683 ¹⁴	:	: ¹⁴
		ISCED 5-8	€8 302	€8 757 ^{14,d}	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	18.8%	14.0%	11.0%	9.8%	
	Foreign-born	20.1%	14.3%	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	30.2%	35.1%	37.8%	39.9%	
	Foreign-born	28.8%	29.2%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	64.1%	69.4%	69.4%	72.6%	
	ISCED 5-8	72.0%	77.8%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	1.7%	2.1% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	5.5%	7.4% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

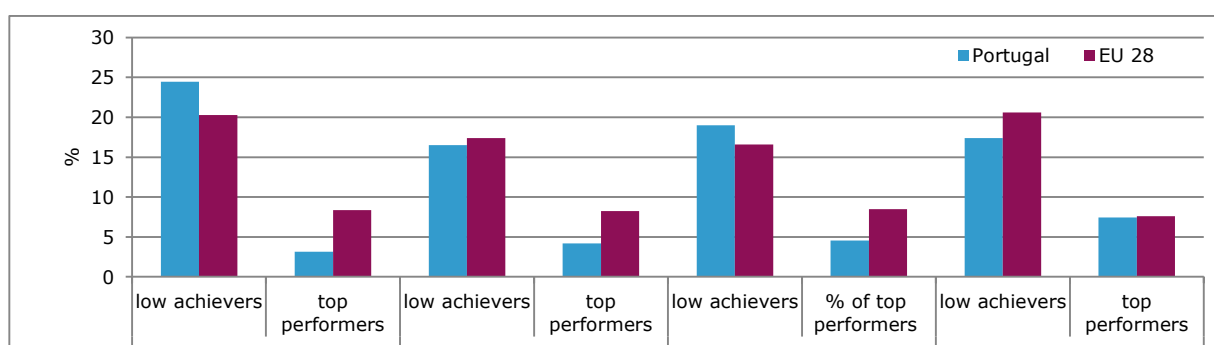
- Portugal is making progress in improving educational outcomes, reducing early school leaving and ensuring full public provision of pre-school education for all children aged 3 to 5 years by 2019.
- Implementation of the 'National Plan to Promote Success at School' — the flagship initiative to prevent 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.

3. Tackling inequalities and promoting inclusion

Educational outcomes are improving, with fewer low achievers and more top performers in PISA, but some concerns remain over equity. According to the 2015 OECD Programme for International Student Assessment (PISA), the proportion of low achievers in Portugal decreased in all subjects tested. The country's results are below the EU average in reading (17 %) and science (17 %) but above average in mathematics (24 %). Average performance levels have increased since continuously²¹⁵, placing Portugal above the OECD and EU averages for the first time. The percentage of top performers in PISA i.e. students who demonstrated high complexity skills — is also increasing and is now around the EU average (see Figure 2).

Despite these positive trends, concerns remain over equity. The proportion of low achievers among students from the bottom socioeconomic quartile is 25 pps. higher than from the upper socioeconomic quartile (OECD 2016)²¹⁶. This is around the EU average (25.6 pps.). In addition, with more than 31 % of students having repeated a grade, Portugal has the third highest rate of grade repetition in the EU (European Commission 2017a). The social gap in this respect is significant, with rates over 52 % among disadvantaged students and less than 9 % among advantaged ones. The gaps between non-migrants and both first- and second-generation immigrants — as measured by early school leaving rates, PISA performance and grade retention — are comparatively small.

Figure 2. Trends in low and top performance in PISA (%)



Source: OECD (PISA, 2015). Online data code: [table I.2.2a](#).

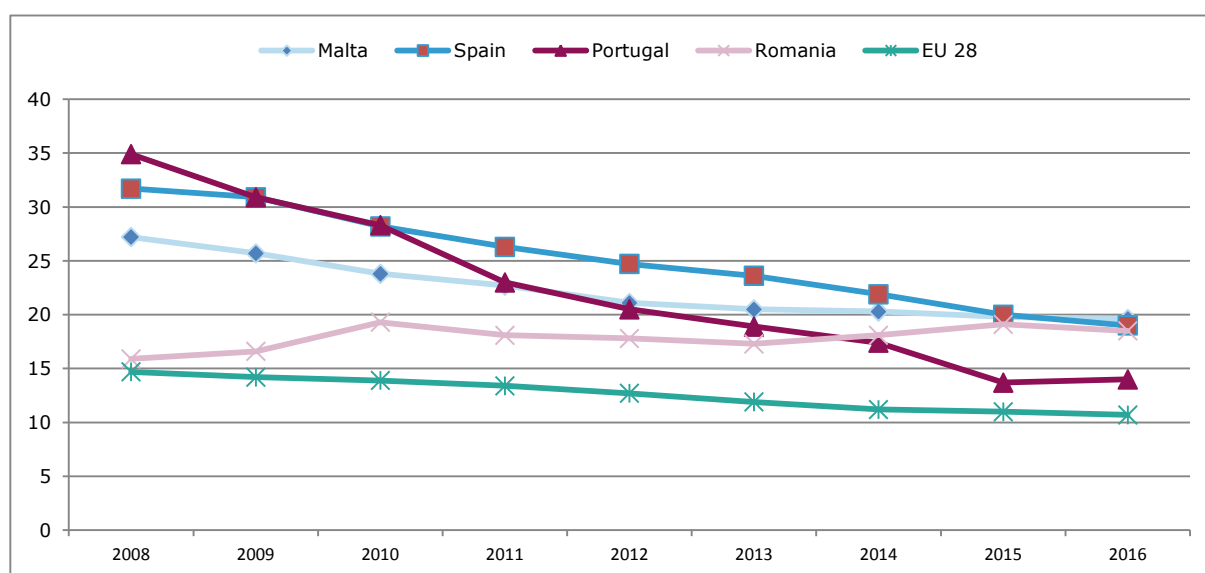
²¹⁵ Portugal's scores since 2012 increased by 12 points in science, 10 points in reading and 5 points in mathematics

²¹⁶ 4.5 % among students from the top socioeconomic quartile compared to 29.9 % for students from the bottom socioeconomic quartile.

Portugal is progressing towards full public provision of pre-school education for all children aged 3 to 5 years by 2019. The objective of full provision of pre-school education set in 2016 is likely to be achieved for children aged 5 in 2017²¹⁷. In 2015 the participation of children aged between 4 years old and the compulsory school age (6 years) was 93.6 %, slightly below the EU average of 94.8 %. The revision of pedagogical guidelines for pre-school covering ages 3 to 5 has been completed, drawing on approaches developed in training and professional development of early childhood education and care (ECEC) staff during 2015/2016. This new orientation aims to make pre-school education a learning bridge towards primary school. Lack of available premises makes it more difficult to extend universal ECEC provision, which lies under the responsibility of social services, to children aged 0 to 3. The Ministry of Education is working on new pedagogical guidelines for these levels.

Portugal has made substantial progress in reducing early school leaving²¹⁸ (ESL). The rate fell from 34 % in 2008 to 14 % in 2016 (Figure 3). If this trend is sustained, Portugal is on track to reach its Europe 2020 national target of 10 %. The difference in ESL rates between students born in Portugal and students born outside the country is very narrow (0.3 pp.), but the gender gap, with higher rates for men, is well above the EU average (6.9 pps. vs 3 pps.).

Figure 3. Trends in early school leaving in selected countries



Source: Eurostat (LFS, 2008-2016). Online data code: edat_lfse_14.

Box 1: The National Plan to Promote Success in School (NPPSS)

This is the government's flagship initiative to prevent school failure and reduce grade repetition in all educational stages. In basic education, the new national examination system introducing formative tests in the second, fifth and eighth grades (7-, 10- and 13-year-old students) for Portuguese and mathematics is now fully implemented. Since the 2016/2017 school year, students who have repeated more than one grade are assigned a trained tutor to accompany their learning and improve performance outcomes, as well as to build their trust in school.

The plan is based around close cooperation between local administrations and school clusters²¹⁹. Schools can propose new pedagogical initiatives adapted to their student population and receive additional resources to develop them.

²¹⁷ The figure was 95.6 % in 2015 according to Eurostat.

²¹⁸ The proportion of 18- to 24-year-olds who have not completed upper secondary education and are no longer in education and training.

²¹⁹ In Portugal, there are 811 'school management units' (713 public school clusters and 98 non-clustered schools) based on geographic proximity.

Training will be provided to school managers and teachers, together with some municipal staff. This will focus on strategic planning, setting indicators and use of resources. Each school estimates its readiness to participate in the plan and then presents, on a voluntary basis, a set of measures to improve their students' performance in an inclusive manner. After the proposal is assessed and approved at central level, additional resources are allocated to the school.

During the first year of implementation, 663 education centres joined the plan, representing 80 % of all schools. Together with the 18 % of schools already signed up to the earlier TEIP²²⁰ programme which focused on schools with a high percentage of students from lower socioeconomic backgrounds, this leaves only a handful of education centres outside the programme. In all, schools have proposed 2 915 measures in different fields such as curricular flexibility, organisational flexibility, multidisciplinary teams, experimental sciences and parents' education.

This significant coverage is very promising but it may be challenging to secure the necessary resources both at local and national levels. The success of the plan in raising performance and closing gaps in the system will depend on capacity to provide technical support, ensure regular monitoring of actions and overall coherence of the different projects.

4. Investing in education and training

Patterns in general government expenditure on education may signal improvements in efficiency of spending. In 2015 spending accounted for 6 % of GDP, down from 7.6 % in 2010. As nominal level of GDP in these 2 years was nearly identical, education expenditure shrank by some 20 % over the period. As a proportion of total general government expenditure, spending on education increased again to 12.4 % in 2015 after falling from 14.8 % in 2010 to 11.8 % in 2014. Set against the major improvements in outcomes discussed earlier, the reduced level of spending seems to indicate greater efficiency in education provision resulting from the reforms implemented. Lower government spending also appears consistent with a steadily shrinking student population, in particular at primary level, and with projections by the National Institute for Statistics predicting that the number of children aged 0 to 14 years will decrease steeply from 1.46 million in 2016 to 0.88 million in 2030.

The national budget for 2017 preserves the 2016 level of financing allocation for school education. The European Social Fund (ESF) will continue to play a key role in education and training. The ESF allocation to human capital²²¹ will support implementation of the NPPSS, the expansion of vocational education and training and strengthened adult learning through the 'Qualifica programme' (see Section 7). The 2017 national budget allocated to science and higher education provides an increase of 4.6 % compared to 2016, confirming the upward trend from the previous year²²². A significant part of this increase will be used to restore salary levels eroded in previous years, to increase the number of scholarships and to fund a new programme to hire young researchers.

Government and higher education institutions (HEI) have committed themselves to pooling efforts to guarantee funding stability. In July 2016 the Ministry of Science, Technology and Higher Education signed an agreement with all public HEIs (universities and polytechnics) to guarantee stability in public funding during the government's mandate. The government also committed itself to abandoning the common recent practice of reviewing and cutting funding for HEIs during the year. In return, HEIs agreed to a solidarity mechanism so that any HEI facing a financial deficit will be supported through a loan granted by other HEIs in their

²²⁰ TEIP: the *educational territories of priority intervention* were launched in 1996, inspired by the French ZEPs (priority intervention zones). Schools with a high percentage of students from a vulnerable socioeconomic background are entitled to benefit from additional funding and support through 'improvement contracts'.

²²¹ SF support in the thematic area for human capital is provided by the Human Capital Operational programme and by regional OPs.

²²² The 2016 budget gave an increase of 3.6 % to higher education over 2015.

sector, to be reimbursed over the following years. This prevents the government from receiving unexpected funding requests from HEIs towards the end of the fiscal year. The long announced reform of HEI funding that will replace yearly budgeting by a four-year budget will also help provide institutions with financing stability and enhance their capacity to engage in new projects.

5. Modernising school education

Portugal is making efforts to promote school autonomy. This objective is pursued through the NPPSS to promote school success, but also through the new quality assurance systems at school level and new initiatives for students' participation in policy making and school management. Quality assurance relies on both the direct relationship between school cluster leaders and the Ministry of Education, and on the school councils for clusters, where stakeholders give their views and input on school development plans. External and internal evaluation standards are established for each grade so that schools know what is expected of them. Nevertheless, an important challenge is to develop understanding and ownership of quality assurance indicators — including definitions and understanding of 'quality' — and to ensure that quality assurance focuses on real improvement (European Commission 2017b).

Recent measures seek to improve foreign language learning. Starting from 2015/2016 Portugal has been fully implementing the new policy of making English mandatory for all students aged 8. From 2016/2017, the policy also applies to students aged 9 (Eurydice 2017). In Portugal, Spanish is the second most frequently studied foreign language in general upper secondary education, while French is the second most popular foreign language in vocational education.

Participatory processes seek to improve school governance. The Minister of Education has launched a consultation process with students on the new skills profile, on making curricula more flexible and on future pedagogical changes in schools. The process relies on the organisation of student assemblies in schools to discuss the school of the 21st century. The initiative has been picked up by the OECD as a model for other countries as part of their Education 2030 initiative. In a related effort to support participatory governance, the Ministry of Education launched in 2017 a pilot action under which secondary students are encouraged to make proposals, discuss and vote on how to use a small budget (EUR 800 on average per school) to be spent within the school. Some 1 000 schools are participating. The aim is to develop students' interest and capabilities for civic participation, their financial literacy and engagement in school.

6. Modernising higher education

Tertiary attainment is improving, but the employment rate of recent graduates remains below the EU average. Tertiary attainment in Portugal has significantly increased over the past decade, from 14.9 % in 2003 to 34.6 % in 2016. It is approaching the EU average of 39.1 % but the national target of 40 % by 2020 might be difficult to achieve. Despite the high employability of science, engineering, technology, mathematics (STEM) graduates, there is low student uptake in these fields (GdP 2016). The employment rate of recent tertiary graduates increased to 77.8 % in 2016, but remains below the EU average of 82.8 % and below the national pre-crisis level.

Access to higher education is largely determined by the student's choice of upper secondary education path, but new courses aim to address this issue. Whereas 78 % of graduates from regular secondary education go on to take up higher education, only 6 % of those graduating from vocational secondary education did so in 2014 (DGEEC 2015). The main mechanism to boost enrolment in higher education from upper secondary vocational education and training is the *Cursos Tecnicos Superiores Profissionais, or CTeSPs*. In April 2017, 598 CTeSPs were approved. In 2015-2016, 6 430 students enrolled, 83 % of them in the public sector. Since 2016 there is a public debate on how to adapt the access policy of HEIs to respond to the growing diversity of secondary education paths, while preserving the quality and attractiveness of programmes (CNE, 2017b).

There are overlaps in programmes on offer within the binary higher education system. The public higher education system includes 13 universities, 15 polytechnic institutes and five smaller independent schools. This essentially binary system (universities and polytechnics) is

expected to supply a diversity of programmes to respond to the different needs of the labour market and students' demands for a vocational or academic offer. The flexible legal framework and the growing competition between institutions seeking to attract applicants in a declining demographic landscape have tended to increase overlaps between universities' and polytechnics' programmes, particularly at bachelor's level. Over 40 % of places offered in polytechnics are replicated in similar university programmes, while 25 % of places in universities are also subject to overlaps (A3ES 2013). New measures are emerging to address these inefficiencies.

Unmet capacities in certain regions and institutions further point to the need for the system to be streamlined. From 2009-2010 to 2015-2016 the number of available higher education places on offer decreased by over 20% (DGEEC 2015). This reduction mostly took place in the form of fewer places in private institutions: the proportion of available places in the public higher education sector has increased significantly, accounting for 57 % of places in 2009-2010 and 70 % in 2015-2016. The ongoing reduction in places ended in 2015-2016 with an increase of 51 000 in bachelor's and master's places in public HEIs. Enrolment reached almost 85 % on average in 2015-2016, well up on the previously very low rates (DGEEC 2015), but data point to wide gaps between the different centres. The University of Porto and the University of Lisbon exceeded 90 %, while enrolment hardly reached 40 % in some other institutions. These disparities show further the need to adapt the HEI network to make it more efficient and responsive to students' demand.

The Agency for Accreditation and Evaluation of Higher Education (A3ES) plays a key role in developing quality assurance and helping streamline the HEI offer. In 2017 the A3ES launched an evaluation process of HEIs; this will complement the certification of the quality assurance system developed by each HEI. Certification was done so far on a voluntary basis and thus has covered only a few HEIs, but will now progressively become compulsory. The certifications, together with performance in programme evaluations, research performance and the qualification of academic staff, will be crucial in determining whether HEIs are granted greater autonomy in the next round of evaluations.

Portugal is making efforts to promote digital skills. The new initiative to promote digital skills, the INCoDe2030, includes: a digital literacy and expertise training programme; a code development programme; and graduate and master courses applied to advance manufacturing. It proposes also pilot projects in five polytechnic institutes (Bragança, Cávado e Ave, Leiria, Setúbal e Beja). Each will develop a network community involving businesses, local associations, schools and other stakeholders to reflect on how to improve digital skills in their area. The involvement of ICT businesses in the programmes should allow for a better understanding of their needs.

New initiatives support research careers in HEIs in the context of ageing staff, outflows of highly skilled people and more cooperation with business. The government approved in September 2016 a law regulating the contracting of recent PhD graduates in HEIs (Decree-law 57/2016). The aim is to give researchers more stable working conditions. The recent call for research projects funded by PT2020 and the National Research Council has further strengthened this policy by obliging research institutions with funded projects to hire at least one recent doctorate under these rules. Critics have argued that this is unfair, because conditions for these new contracts are less favourable than for PhD holders already in the system. Its impact may be limited given the financial problems of some HEIs and the need to rejuvenate an ageing teaching and research staff. While it is still too soon to evaluate the full effects, this is an important measure which affects both the quality of teaching and research activities of HEIs, as well as the system's capacity to attract and retain its younger PhD holders in the context of high outflows through emigration.

The Policy Review for University Business Cooperation observed an improvement in the Portuguese environment. This reflects the launch of a number of initiatives in 2016 and 2017 under the national research and innovation strategy for smart specialisation. The 'Interface' programme, one of the strategy's flagship initiatives, encourages joint R&D between universities, research centres and industry by transferring knowledge, developing networks and collaborative platforms and encouraging companies to outsource their R&D to universities. It also provides support to future collaborative laboratories, based mostly in universities, which will promote collaboration in applied research between HEIs and businesses.

7. Modernising vocational education and training and promoting adult learning

Efforts are being made to increase the attractiveness of vocational education and training (VET) and to boost participation of students in upper secondary vocational programmes. Efforts have been made to increase transparency and address overlaps and fragmentation of programmes (*modalidades de formação*) in VET, mainly through the publication of the national credit system in line with the ECVET Recommendation. However, the system is only applicable to double certification training programmes within the national qualifications catalogue. The recently launched 'Qualifica Portal' aims to make obtaining information easier, enabling users to consult programme-related services and tools. The proportion of upper secondary students (ISCED 3) enrolled in VET in Portugal remained stable in 2015 at 44.9 %, just below the EU average of 47.3 %. The employment rate of recent VET graduates increased from 68.6 % in 2015 to 69.8 % in 2016, but is still below the EU average of 75 %.

The recently launched Qualifica Centres network is a key feature of the government's strategy to boost adult education (see Box 2). The number of centres is planned to increase to 300 on the mainland during the first half of 2017 with the creation of 40 new centres. In 2017/2018 the government will also launch the 'Qualifica passport'. This new online tool and platform will upgrade the system for recognising, validating and certifying skills and competences and helping people not in education to access adult learning programmes. Adult participation in learning slightly decreased from 9.7 % in the last 3 years to 9.6 % in 2016 and remains below the EU average of 10.8 %.

Box 2: The Qualifica Programme, a renewed effort to promote adult learning

The QUALIFICA programme focuses on requalification of adults and young NEET to increase their levels of education and employability. It revamps and strengthens the previous CQEPS centres (see below). The main actions are:

- establishment of a network of 300 'Centros QUALIFICA' throughout the country before end-2017;
- reorganisation of the provision of training for adults;
- creation and dissemination of the 'Passaporte QUALIFICA', an online tool for the registration of competences;
- creation of a credit system for professional training more in line with the European system.

The programme aims to reach the following goals by 2020:

- 1) ensure that 50 % of the active population concludes upper secondary education;
- 2) increase the number of adults participating in adult learning;
- 3) 40 % of those aged between 30 and 34 should attain a higher education qualification.

The 'Human Capital' Operational Programme provides financial support for the education of adults in Portugal. Since 2014 it has provided financial support of EUR 11 million for the functioning of the CQEPS adult learning centres, which preceded the Qualifica Centres. A new call will be launched for the 2017/2018 period, amounting to EUR 50 million. The OP also provides support of about EUR 82 million for adult training courses.

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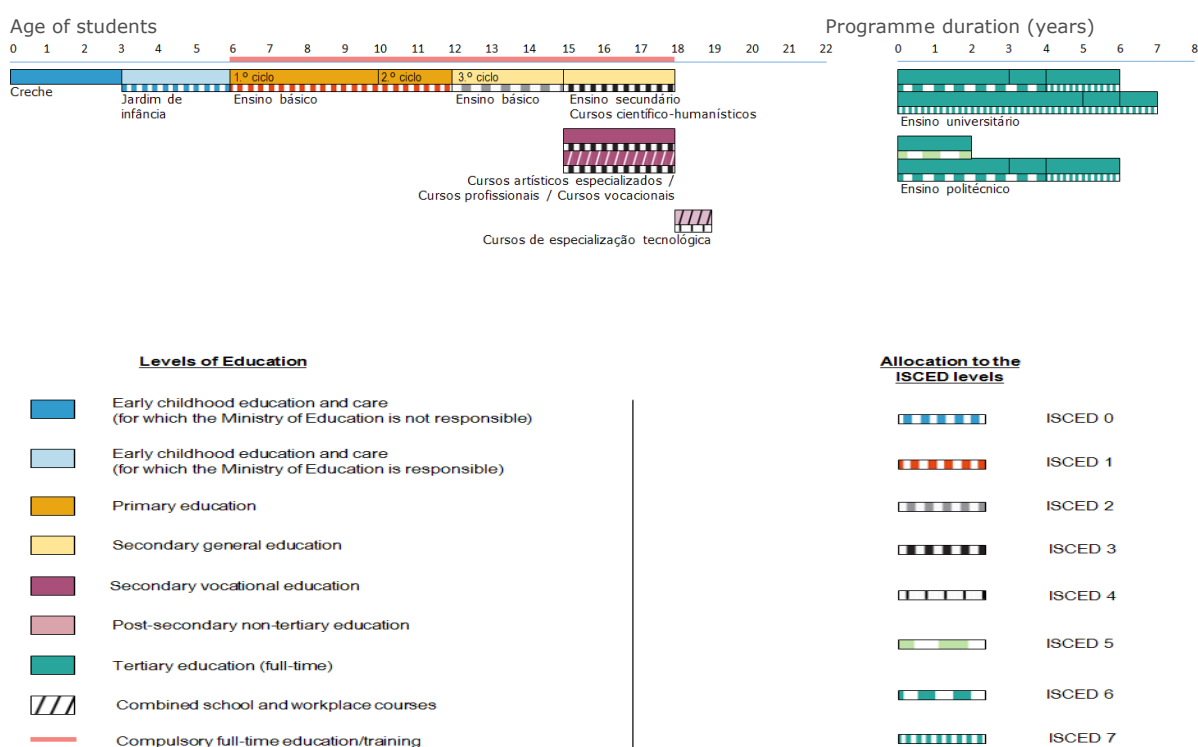
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9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	edu_uoe_mobg03

10. Annex II. Structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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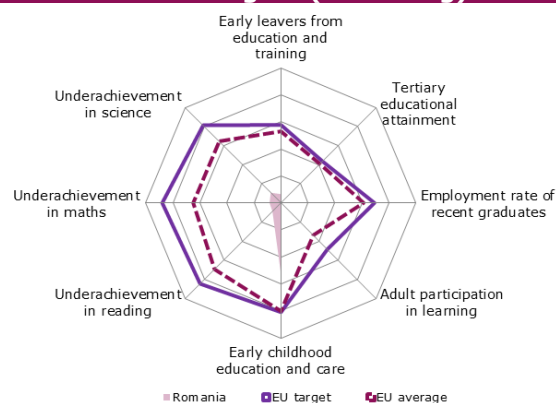
ROMANIA

1. Key indicators

		Romania		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	17.3%	18.5%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	22.9%	25.6%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		85.5% ¹²	87.6% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	37.3% ¹²	38.7% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	40.8% ¹²	39.9% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	37.3% ¹²	38.5% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	67.2%	69.3%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	2.0%	1.2%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	2.8%	3.1% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€1 700	€1 866 ¹⁴	:	: ¹⁴
		ISCED 3-4	€1 959	€2 328 ¹⁴	:	: ¹⁴
		ISCED 5-8	€2 979	€4 180 ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	17.4%	18.6%	11.0%	9.8%	
	Foreign-born	:	:	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	22.9%	25.6%	37.8%	39.9%	
	Foreign-born	:	:	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	55.0%	59.6%	69.4%	72.6%	
	ISCED 5-8	77.2%	80.7%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	1.6%	2.5% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	2.5%	4.4% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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 very 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 low despite the need for upskilling.

3. Tackling inequalities and promoting inclusion

Students' performance is linked to socioeconomic background. The 2015 OECD Programme for International Student Assessment (PISA) survey found that more than half of 15-year-olds from the lower socioeconomic quartile do not possess the minimum level of skills in science (56.1 %), reading (57.5 %) and mathematics (59 %). Underachievement among disadvantaged students is almost three times higher than within the top socioeconomic quartile²²³, even though rates for the latter group are high in international comparison. This gap is one of the highest in the EU (36.9 pp. in science, compared to 26.2 pp. in the EU). Although resilience among disadvantaged students²²⁴ is low (11.3%), including compared to Eastern and Central European peers²²⁵, it has almost doubled since 2006 (OECD 2016).

High early school leaving (ESL) is concentrated in rural areas and among Roma. The proportion of early school leavers among young people aged 18-24 decreased slightly (from 19.1 % in 2015 to 18.5 % in 2016), but remains the third highest in the EU. The national Europe 2020 target of 11.3 % remains beyond reach. The difference between ESL in rural (26.6 %) and urban areas (6.2 % in cities, 17.4 % in towns and suburbs) is high. Annual dropout rates remain high, in particular in rural areas, suggesting that early school leaving will remain a challenge in the years to come. Two national European Social Fund (ESF)-financed calls were launched to finance prevention measures in disadvantaged schools and support the provision of quality education by attracting motivated staff, but implementation on the ground has not started yet. A warm meal programme is being piloted in disadvantaged schools. Preparations for an ESF call to improve the low availability of second chance programmes are underway. However, the design of second chance programme is not flexible enough in particular for adult learners. Accessibility is rather limited in rural areas and programmes are often organised only at specific times of the school year. The alignment between vocational education and training (VET) and second chance programmes requires further strengthening, as well as the focus on basic skills. More alternative pathways are needed to cater for diverse target groups, according to their needs. There are plans to set up a national after-school programme (NRP 2017) and work has begun on developing an early warning mechanism for ESL.

Participation in early education and care (ECEC) is low, but improving. The participation of children aged between 4 and the compulsory school age is increasing gradually, but remains below the EU average (87.6 % in 2015 vs 94.8 %). Romania is currently implementing a means-tested

²²³ 19.2 % in science, 20.4 % in reading and 20 % in mathematics.

²²⁴ Resilient students are those from the bottom quartile of the PISA index of economic, social and cultural status (ESCS) who beat the odds against them and perform at high levels when compared with students of the same socio-economic status from around the world.

²²⁵ 13.6% in Bulgaria, 17% in Hungary, 48% in Estonia.

programme to increase the participation of children from disadvantaged backgrounds. Although the number of new enrolments in kindergarten has not increased significantly, the programme has improved attendance rates. Enrolment for children aged under 2 is very low (1.2 % in 2015), largely due to lack of facilities. In 2012 Romania introduced a preparatory grade into compulsory education, which is assessed as having had a positive impact on reducing dropout rates in the first school years (MoE 2015a) and as having helped reduce disparities among students (IES 2013). The curriculum for kindergarten will be revised with funding from the ESF.

Rural-urban disparities and inequality in education often overlap. Access to quality education is a particular challenge in rural areas, where 45% of Romania's school population (ISCED 1-2) is studying. External evaluations carried out by ARACIP, the quality assurance body in pre-university education, show that rural schools score below urban schools on all performance indicators (ARACIP 2015). The gap in educational outcomes is also confirmed by national examination results. In 2016, 37.5% of 8th grade students in rural schools had poor results (under the 5 mark level) at the national evaluation, compared to 15% in urban schools. Inequalities are further exacerbated by the widespread use of private tutoring, particularly to prepare for national examinations (OECD 2017). The 2017 country-specific recommendations call on Romania to improve access to quality mainstream education, in particular for Roma and children in rural areas.

Challenges in the integration of Roma in education hinder their social inclusion and ability to find employment. A recent survey by the European Agency for Fundamental Rights (FRA 2016) shows that only 38 % of Roma children attend ECEC, while 77 % of Roma aged 18-24 are early school leavers. This indicates that ECEC participation has worsened since 2011, when the figure was 45 %. Meanwhile, the proportion of early school leavers has decreased (compared with 90% in 2011), but remains very high. 64 % of Roma aged 16-24 are out of employment, education and training and only 33 % of Roma aged 20-64 are doing paid work (FRA 2016). By contrast, the survey indicates that 29 % of Roma children receive education in schools where all or most students are Roma. This proportion is the lowest among peer countries (Bulgaria: 60 %, Czech Republic: 30 %, Hungary: 61 %, Slovakia: 62 %). Projects targeting Roma students were prioritised under the ESF. Desegregation criteria were expanded to include other vulnerable groups such as children from rural areas and children with disabilities. The monitoring responsibilities of schools inspectorates were expanded, but there is no standard monitoring methodology.

4. Investing in education and training

Spending on education is low, and mechanisms to channel funds to disadvantaged schools are insufficient. Romania's general government expenditure on education as a proportion of GDP remains the lowest in the EU: 3.1 % in 2015 compared to the EU average of 4.9 %. In 2015 education spending has increased in real terms (+5.6 %), but represents just 8.6 % of total government spending (EU average 10.3 %), below pre-crisis levels. In February 2017 the standard cost per student increased. However, underfunding is evidenced by the unusually large financial burden falling on Romanian households, which spend 35 % of what the government spends on education: this is the highest proportion in the EU. There are no targeted programmes to channel additional resources to disadvantaged schools (OECD 2017). The funding per student formula introduced in 2011 has provided more predictability and improved transparency, but existing correction coefficients are insufficient to address the needs of schools in disadvantaged areas, and also the specific expenditure of VET programmes, partly due to the general low level of funding (UNICEF 2014a). Schools in urban areas are also more likely to receive discretionary complementary funding from local authorities (OECD 2017).

Increasing spending in education may help improve educational outcomes, support human capital development and economic growth. Figure 2 shows that quality educational outcomes are not being achieved with a very low level of spending, including in the case of Romania. A 2014 study estimated significant losses due to non-investment in education, arguing that 'more resources allocated to education could create the conditions for economic development and growth' (UNICEF 2014b). Already, high rates of underachievement in basic skills, coupled with early school leaving and low tertiary attainment do not meet the increasing needs for skilled labour

supply, particularly given the emigration²²⁶ experienced by the country. Overall, evidence from PISA suggests that money relates to learning outcomes among low-spending countries, whereas for the majority of countries what matters most is how resources are allocated, as well as qualitative differences in education policies, cultural norms and professional practices (OECD 2016). Particularly in the context of declining student population, increasing spending while ensuring gains in efficiency and at the same time improving equity is important.

5. Modernising school education

High underachievement in basic skills in PISA is explained by a combination of educational factors and challenges in relation to equity. In PISA 2015, 38.5 % of Romanian 15-year-olds failed to achieve a minimum level of knowledge in science (EU-28: 20.6 %), 38.7 % in reading (EU-28: 19.7 %), and 39.9 % in mathematics (EU-28: 22.2 %). 24% of students are low achievers in all three subjects tested. While underachievement is particularly high in the bottom socioeconomic quartile, it is also relatively high across the socioeconomic spectrum. This shows that educational factors such as teaching and curricula have an important impact on educational outcomes. The proportion of top performing students – those capable of solving complex problems – is the lowest in the EU (2 % in reading, 3.3 % in mathematics and 0.7 % in science). This may suggest that current teaching approaches are ill-equipped to foster more complex, higher-order skills (OECD 2017). Although Romania's average performance in PISA has improved compared to 2006 (from 418 to 435 score-points), it remains by around two years of schooling below the EU-average (495 score-points in 2015). This performance would be even lower if the high proportion of students not enrolled in formal education were included (OECD 2017).

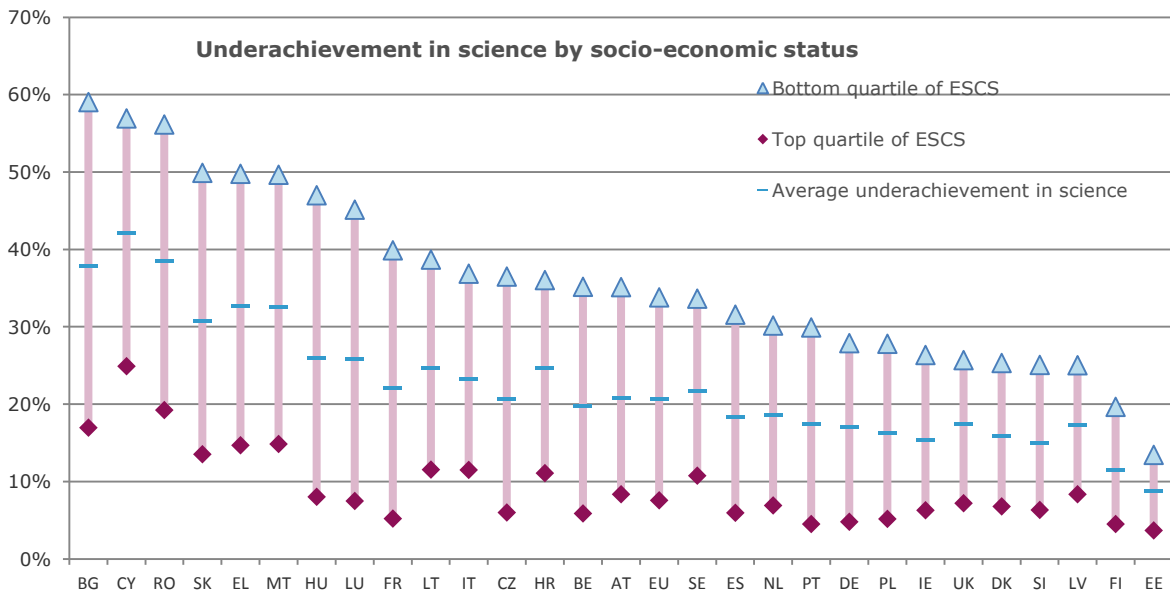
Romania is implementing a student-centred school curriculum focused on key competences. Following the implementation of a competence-based curriculum for primary education, Romania has started phasing in a new curriculum for lower secondary education (with 5th grade in the current school year). In this context, it is important to strengthen learning standards to encourage changes in teaching and use student assessment for classroom and national examinations to improve the new learning standards (OECD 2017). ESF will finance continuous professional development to train teachers to teach the new competence-based curriculum. A modernisation of the curriculum for upper secondary education is planned (NRP 2017).

Strengthening initial teacher education (ITE) remains a challenge. Initial teacher education in Romania offers less preparation than in other European countries, especially in practical domains (OECD 2017), while subjects related to special educational needs and working with students from disadvantaged backgrounds are insufficiently covered. Although the Education Law requires teachers to follow a two-year master's programme in education, this legal requirement was not implemented. The authorities are looking into the possibility of designing a dedicated ITE module focused on special educational needs.

Teacher salaries are increasing, but attracting high-quality teachers in disadvantaged schools remains difficult. Salaries of teachers are increasing, but remain low (OECD 2017) and salary progression is slow. The salary grid was revised last year, resulting in an average 10 % increase for beginner teachers, while in February 2017 teachers' salaries increased by 15 %. Teachers in rural areas also receive an additional allowance, but attracting teachers to disadvantaged schools remains difficult. The current merit-based allowance system, which rewards teachers who achieve exceptional results in examinations and competitions, may encourage a narrow focus on preparation for tests and academic competitions (OECD 2017). In December 2016, criteria for working with disadvantaged students, including students at risk of dropout, were included in merit allowances, but their impact in practice is unclear.

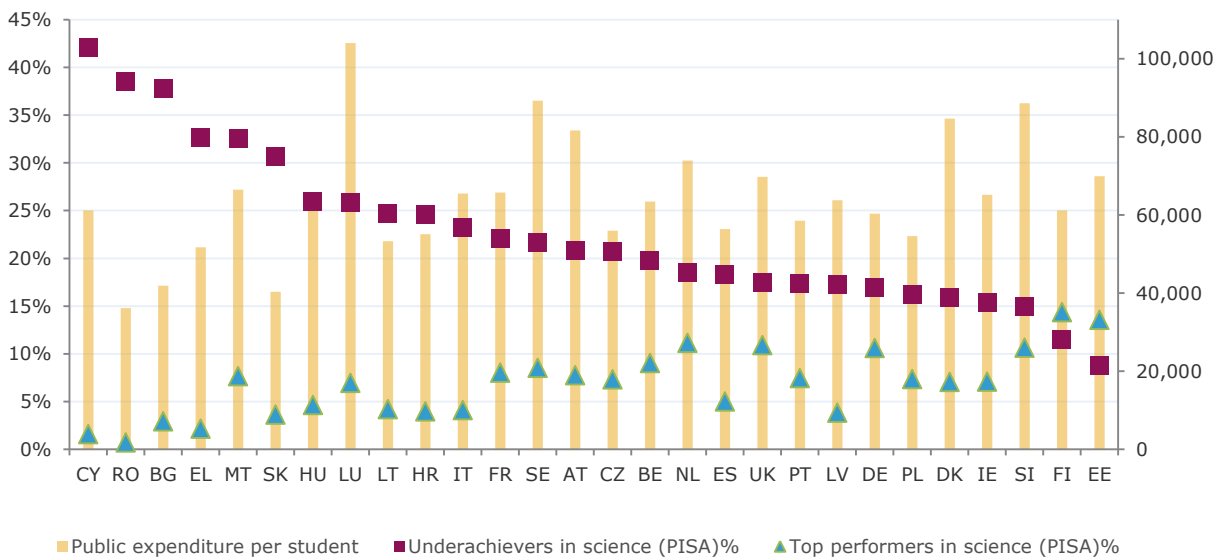
²²⁶ Romania has one of the highest proportions of active, highly educated people having emigrated within the past decade (EC 2015).

Figure 2. Performance in PISA in 2015



Note: Countries are ranked in descending order of the average proportion of underachievement among the bottom quartile of the PISA index of economic, social and cultural status (ESCS).
Source: DG EAC based on PISA 2015.

Cumulative expenditure per student ages 4-15 (EUR PPS (right-hand scale)) and percentage of underachievers and top performers in science (left-hand scale)



Source: DG EAC elaboration based on Eurostat and PISA 2015.

Box 1: Quality assurance in school education

Despite improvements over time, quality assurance remains largely focused on compliance due to a combination of features of the current evaluation system:

- lack of a shared definition of school quality to guide evaluation and improvement;
- fragmentation of responsibilities and duplication of work;
- limited feedback and support to low-performing schools;
- challenges linked to self-evaluation by schools.

The perception is that external and internal evaluations have minimal impact on teaching and learning practices (OECD 2017).

There are three external evaluation bodies, each employing their own methodology: the Romanian Agency for Quality Assurance in Pre-University Education (ARACIP); county-level schools inspectorates; and the Monitoring and School Inspection Directorate of the Ministry of Education. Evaluations carried out every five years by ARACIP focus on institutional capacity, educational effectiveness and quality management. However, ARACIP has no legal authority to support school development and improvement (Eurydice 2015) and cannot make recommendations for remedial, corrective or awareness-raising measures (ARACIP 2015). Although self-evaluation is mandatory, it is not widely regarded as a meaningful improvement exercise by schools. Reasons for this include limited capacity and weak school autonomy (OECD 2017).

Mechanisms to support school improvement and development are relatively weak. County schools inspectorates, which are responsible for checking quality in the school system, carry out their own evaluations and make recommendations. In practice, the focus is largely on compliance with regulations. Although the inspectorates are expected to provide support to schools, most of their formal tasks relate to monitoring and control activities. Objectivity of evaluations may also be undermined by the closeness between inspectorates and schools in the same county and by political influence (OECD 2017). The joint UNICEF-OECD review therefore recommends an overhaul of the external evaluation system, in which ARACIP would become the prime external evaluator, while schools inspectorates would strengthen their supporting role.

6. Modernising higher education

The tertiary educational attainment rate is the lowest in the EU. Although tertiary educational attainment (ages 30-34) more than doubled over the last decade — from 12.4 % in 2006 to 25.6 % in 2016 — it has not increased since 2015 and is the lowest in the EU. The target of 26.7 % by 2020 is achievable, but catching up to the EU average (39.1 % in 2016) in the medium term is challenging. This is due to a combination of factors that limit the potential number of students: high dropout rates in pre-university education, increasing but relatively low pass rates for the baccalaureate exam and low participation of disadvantaged groups in higher education. In 2015 the enrolment rate for the 20-24 age group, i.e. those likely to be in higher education²²⁷ was 28 %. Coupled with the emigration of highly skilled workers, low tertiary attainment risks creating skills shortages in knowledge-intensive sectors and ultimately limiting economic growth.

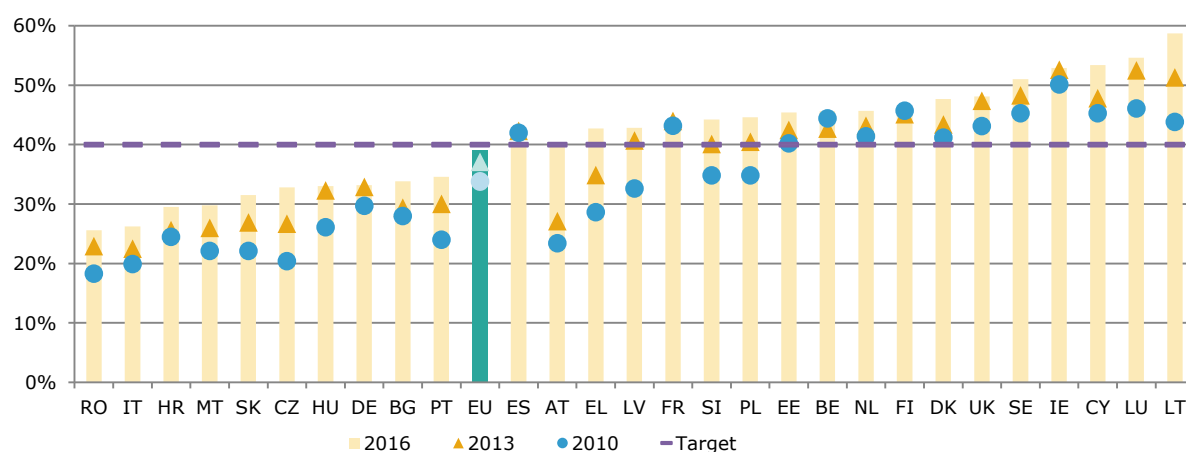
Skills shortages are starting to emerge in a number of economic sectors, and continued emigration adds to the challenge. ICT, health and education are the top three professions for which skills shortages are expected (Cedefop 2017). STEM accounted for 28 % of Romania's graduates - around the average of 26 % in the EU-, but actual numbers are low due to low participation in tertiary education and declining number of students. Remedying the problem of such skills shortages will require integrated approaches to address quality and participation in higher education alongside improving school quality standards.

²²⁷ This indicator may be slightly impacted by the number of Romanian students abroad: 30 100 in 2014, the equivalent of 5 % of higher education students (ISCED 5-8) in that year.

Labour-market relevance of higher education is improving, but challenges remain. The employment rate of recent tertiary graduates is increasing, supported by developments in both the labour market and education. The indicator reached 80.7 % in 2016, narrowing the gap to the EU average of 82.8 %, but remains below pre-crisis levels; the rate was 93 % in the peak year of 2008, when graduate numbers also peaked. Romania has adopted a 2015-2020 strategy for higher education with the aim of raising quality, labour-market relevance and participation of disadvantaged groups, but implementation is slow.

Fostering excellence in higher education and research remains a challenge. Although several measures were put in place to improve quality and labour-market relevance, including ongoing efforts to improve external evaluation procedures and standards for bachelor and master's programmes, several challenges remain, including in quality assurance in universities and doctoral schools. Temporary accreditation was awarded to doctoral schools to allow them to function without the five-year re-evaluation required by law. Plagiarism cases raised questions over the quality of academic ethics and of doctoral schools. More recently, a controversial decision by the Ministry of Research and Innovation limits the participation of foreign peers in the evaluation of national research projects. This raises concerns over the governance, efficiency and openness of Romania's public research and higher education system.

Figure 3. Tertiary educational attainment in the EU



Source: Eurostat, online data code: [edat_lfse_03].

Box 2: Tracking of university graduates

Although tracking of university graduates is not done systematically in Romania, recent measures mark some progress in this direction. An ESF-financed project aims to support the development of a tool to monitor graduates' insertion into the labour market. The project seeks to analyse the compatibility between higher education and employers' requirements, including by analysing the quality and relevance of labour market programmes offered by universities by fields of study at regional level. The project also seeks to improve the decision-making process at the level of the Ministry of Education, and support its forecasting capacities by developing partnerships and a permanent consultation mechanism between the Ministry, universities and employers.

7. Modernising vocational education and training and promoting adult learning

Measures to improve vocational education and training (VET) are underway, but challenges remain. The proportion of upper secondary VET students (ISCED 3) decreased slightly in 2015 to 56.3 %, but remained above the EU average of 47.3 %. The employment rate of recent VET graduates is lower than the EU average (63.3 % vs 75 % in 2016). Reforms in VET continued in the past year, with particular attention to dual VET. Following an extensive consultation process of the main VET stakeholders, the legal framework to allow for dual VET at levels 3, 4 and 5 of the national qualifications framework was adopted at governmental level and awaits approval by Parliament. Private companies involved in dual VET will be offered tax incentives to provide training and will be involved more in decision-making at school level. Effectiveness of measures aimed at aligning qualifications with labour market requirements still needs to be improved. An integrated and robust system of collecting feedback from employers about the relevance of qualifications is still to be developed, despite the isolated good experiences of some education institutions. Guidance and counselling services are still under-developed and lack a common methodology to be effective across all educational levels. Further efforts are needed to improve the attractiveness of VET as a career choice and not mainly as a 'second choice' option. Another measure (still to be adopted by Parliament) proposes support for VET students by ensuring free meals and accommodation to help prevent dropout.

Adult participation in learning remains very low despite the widespread need for upskilling. Adult participation in learning continues to be very low, at 1.2 % in 2016, well below the EU average (10.8 %). The unemployed are less likely to engage in learning (2.1 %) compared with the EU average (9.5 %), as well as older people (0.3 % versus 6.9 %) and low-qualified adults (0.3 % versus 4.3 %). The adult learning system in Romania remains fragmented, and its different components have developed in disparate ways. For example, the validation of prior learning is well developed, but there is no database of possible courses where adults can go to supplement the competences they lack, which would make it possible to match adult learners' needs and demands with the educational offer. In addition, there is poor data collection and a limited culture of participation in lifelong learning, particularly among the large population living in rural areas and working in subsistence and semi-subsistence agriculture, where there is poor educational infrastructure and limited access to learning opportunities.

Implementation of adult learning measures is slow. Implementation of the national strategy for lifelong learning adopted in 2015 has been delayed. The legal framework establishing community centres for lifelong learning was adopted in August 2017, but support for capacity building and training of adult learning professionals to ensure quality and diverse educational provision have yet to be developed. Adoption of the new national registry of qualifications was again postponed. The registry is intended as a single reference tool in training, ensuring fair access to national and European labour markets and matching labour market needs. Access to continuing VET learning programmes is hampered by entry requirements linked to the completion of lower secondary education.

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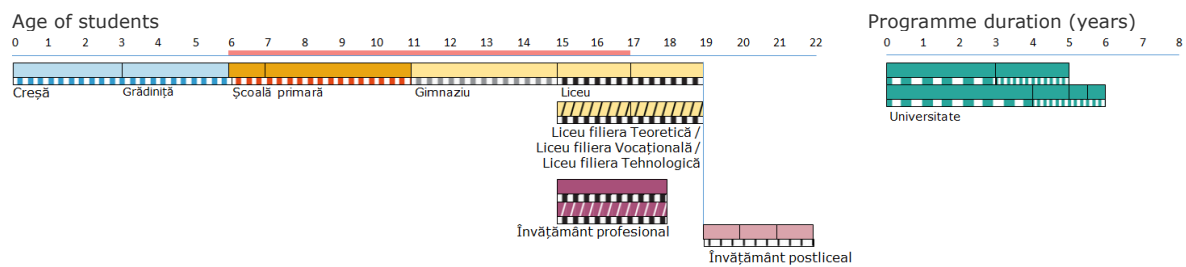
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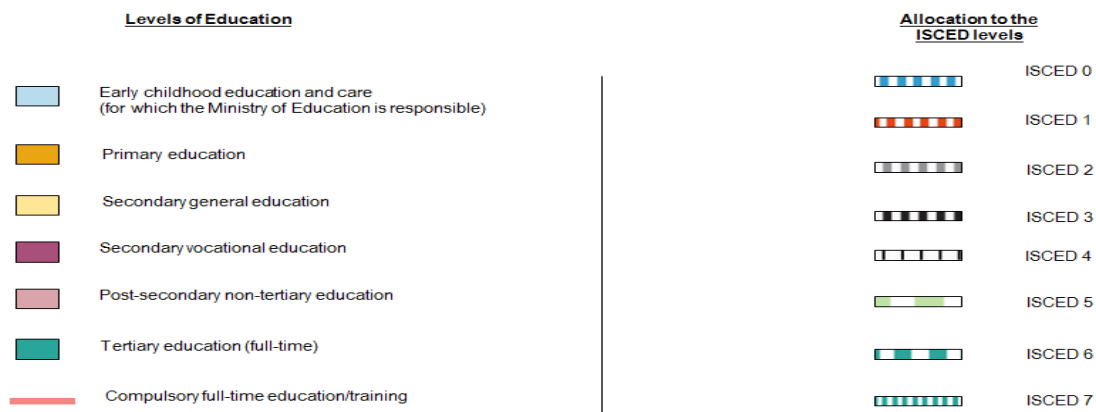
9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03+ edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	edu_uoe_mobg03

10. Annex II. Structure of the education system



Note: Under Article 23(1)(e) of the National Education Act (Law No 1/2011), as amended, *învățământ postliceal* is defined as 'non-university tertiary education' (*învățământ terțiar non-universitar*). According to the International Standard Classification on Education (ISCED), *învățământ postliceal* is defined as ISCED 4 level.



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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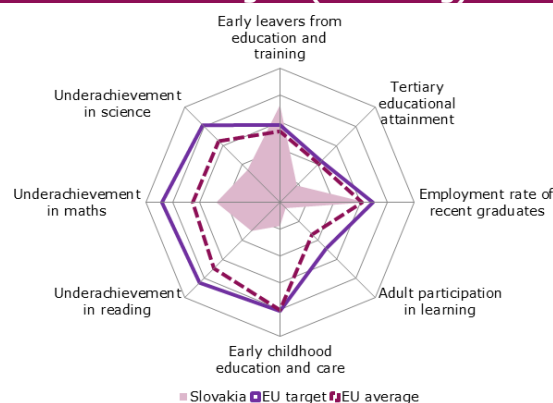
SLOVAKIA

1. Key indicators

		Slovakia		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	6.4%	7.4%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	26.9%	31.5%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		77.1% ¹²	78.4% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	28.2% ¹²	32.1% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	27.5% ¹²	27.7% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	26.9% ¹²	30.7% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	70.3%	79.6%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	3.1%	2.9%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	4.0%	4.2% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€4 278	€4 580 ¹⁴	:	: ¹⁴
		ISCED 3-4	€4 299	€4 866 ¹⁴	:	: ¹⁴
		ISCED 5-8	:	€8 242 ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	6.4%	7.4%	11.0%	9.8%	
	Foreign-born	:	:	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	26.8%	31.5%	37.8%	39.9%	
	Foreign-born	:	:	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	63.1%	75.9%	69.4%	72.6%	
	ISCED 5-8	76.7%	82.5%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	4.2%	4.2% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	3.5%	4.6% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS, 2016) and OECD (PISA, 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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.

3. Tackling inequalities and promoting inclusion

In 2017 Slovakia received a country-specific recommendation on quality, equity and access to education, in particular for Roma. The recommendation by the Council of the European Union calls on Slovakia to '*Improve the quality of education and increase the participation of Roma in inclusive mainstream education*' (Council of the European Union, 2017)²²⁸. The country's socioeconomic and educational exclusion of its Roma communities (estimated by the 2011 census at 2 % of the population) is a key problem²²⁹. Roma communities are mainly in the central and eastern parts of the country (see map below). The 2016 EU Agency for Fundamental Rights (FRA) survey indicates that 62 % of Roma children attend a school where all or most other children are also Roma (FRA 2016). The 2015 OECD Programme for International Student Assessment (PISA) survey shows a very wide gap between pupils who speak Slovak at home and those who do not — most commonly Roma pupils. In science, this gap is 106 points, equivalent to more than 3 years of schooling (OECD, 2016a). A recent Amnesty International report criticises Slovakia for continued discrimination against Roma children and their over-representation in special schools²³⁰. Almost 2 years after the European Commission launched an infringement procedure over the segregation of Roma children in education, the report sees no real progress (Amnesty International, 2017). In addition, the national prohibition on collecting data based on ethnic origin hinders better understanding of the problem.

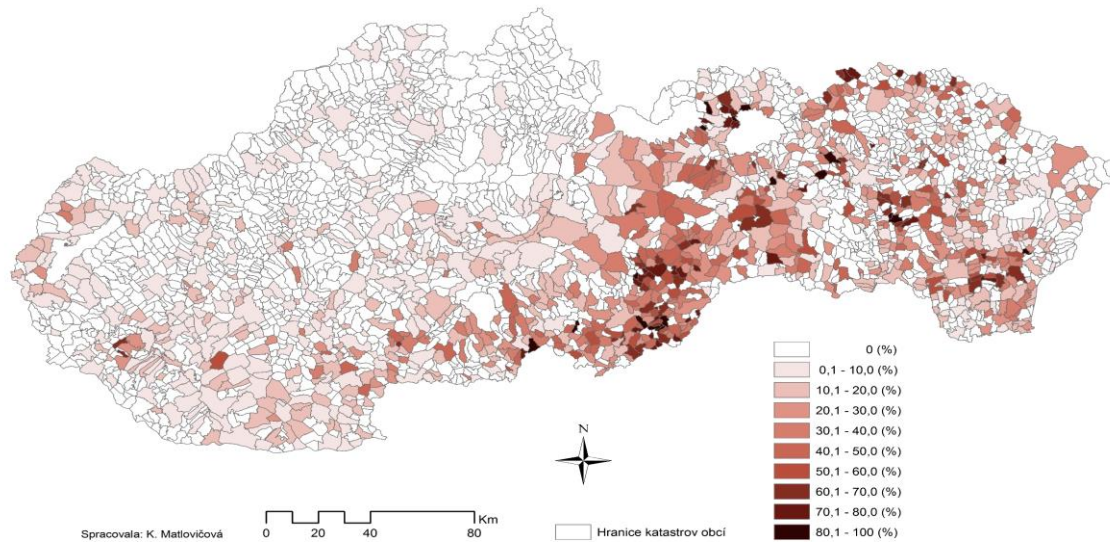
²²⁸ See <http://data.consilium.europa.eu/doc/document/ST-9310-2017-INIT/en/pdf>.

²²⁹ See also '*Action plans for the least developed regions of Slovakia*'; <http://www.nro.vlada.gov.sk/18329-sk/akcny-plan/>.

²³⁰ Amnesty International studied two basic schools and two special basic schools.

Percentuálny podiel Rómov v obciach Slovenska

Kvalifikovaný odhad - Atlas 2013



Map: Roma communities in Slovakia in 2013 in % of total population at local level, from 'Atlas Rómskych Komunit na Slovensku' (UNDP, 2014)²³¹.

Educational outcomes further deteriorated in PISA 2015; socioeconomic status continues to have a strong influence on performance. The proportion of low achievers in PISA 2015 is significantly higher than the EU and OECD averages in all areas tested (31 % in science, 32 % in reading and 28 % in mathematics). Slovakia's general performance deteriorated in 2009-2015 (see Figure 2 below on reading (OECD, 2016b)). The gap in achievement between upper and lower socioeconomic quartiles is among the widest in the EU at more than 35 percentage points (pps), compared to an EU average of 26 pps. Half of all pupils in the bottom social quartile are low achievers. At the same time, the proportion of low achievers among the top social quartile is higher than in most other EU countries. Slovakia also shows a very sizeable gender gap in reading, with boys 13.2 pps. more likely to be low achievers than girls (European Commission, 2016). These results are confirmed in other international surveys, such as the 2015 Trends in International Mathematics and Science Study (IEP, 2017).

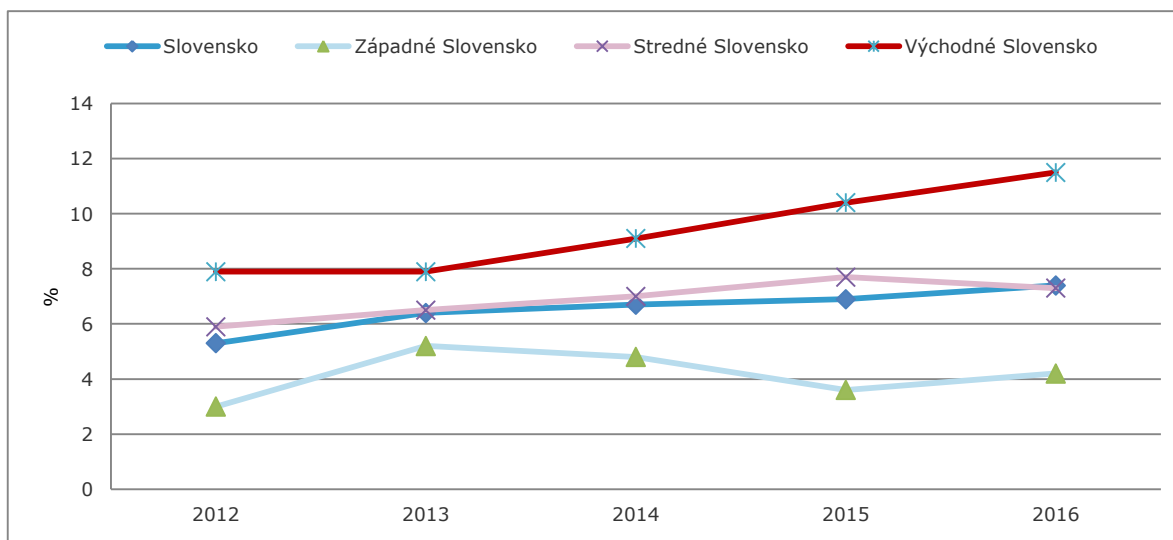
Slovakia's 2017 national reform programme sets the ambitious goal of reaching the OECD average performance level on basic skills by 2020 – it seems unlikely that this can be achieved. The draft 'Learning Slovakia' consultation paper published by the Education Ministry in March 2017 proposes improvement in mathematics, for example, through increasing support for out-of-school activities to boost numeracy (Ministry of Education, 2017a). The Slovak Chamber of Teachers in a February 2017 opinion points to a range of issues including: a shortage of assistant teachers and of teacher trainers; insufficient preparation of teachers for pedagogy; poor inter-ministerial cooperation; no systemic approach to social inclusion; and underfunding (Slovak Chamber of Teachers, 2017)

²³¹ http://www.minv.sk/?atlas_2013.

Figure 2. Progress towards meeting the benchmark of low achievers in reading, PISA 2009, 2012, 2015


Source: OECD (PISA 2009; 2012; 2015). Online data codes: table 1.4.2a.

School dropout has risen and there are large regional disparities. The rate of early school leaving (ESL) is low at 7.4 %, well below the EU average of 10.7%. However, it has risen since 2012 when it stood at 5.3 %. Eurostat data show a sizeable regional variation. The highest and fastest-rising levels are in eastern Slovakia, where ESL exceeds 12 %; compared to 4 % in western regions (see Figure 3 below). ESL is higher for boys (7.1 %) than for girls (5.3 %) in 2016 (Eurostat, 2017). FRA estimates that 58 % of Roma children are early school leavers. The rate of young people aged 15-24 not in employment, education or training was 12.3 % in 2016, close to the EU average of 11.5 %.

Figure 3. Early leavers from education and training by regions in Slovakia 2012-2016


Source: Eurostat (LFS, 2012 - 2016). Online data code: edat_lfse_16.

The new national 'School for everyone' and 'More Successful in Basic School' projects aim to foster equity and inclusion. The goal is to provide the same access to quality education for everyone and to improve the competences of children in kindergarten and primary school (Eurydice, 2017). According to the IEP, the share of pupils with light mental disability attending the first grade of special schools and special classes decreased by 10%. The impact of legislation targeting misplacement of children in special schools or classes, adopted in 2015-2016, will be evaluated in 2018 (Slovak Government, 2017). There is also a renewed targeted initiative for Roma communities (see Box 1 below).

Box 1: Updated action plan for Roma integration up to 2020

The government approved the revised action plan for integrating Roma in February 2017. The main educational goal is to narrow the difference between the education level of Roma and the population average (Ministry of Interior, 2017).

More than EUR 380 million, mostly from the European Social Fund, will be earmarked for the plan, with EUR 170 million going to education. While the Government Plenipotentiary for Roma is hopeful that the plan will alleviate the marginalisation of Roma communities, experts point to the need to ensure full and timely implementation.

See http://www.minv.sk/?revizia_strategia

Participation in pre-school education is stagnating, with differences in attendance persisting across the board. According to Eurostat, participation in early childhood education and care (ECEC) was 77.4 % in 2015, well below the EU average of 94.8 % (a 17.4 pp. difference), an increase of only 1 pp. in 2013-2015. There are big regional disparities. Participation of Roma children, estimated at 34 %, is particularly low (FRA, 2016).

An amendment to the act on social services to improve provision and quality of ECEC became effective on 1 March 2017. Care for a child aged up to 3 years with parents working or studying in secondary or higher education will be considered a social service. Nurseries providing care to children up to 3 became a state-regulated and registered social service; they must meet all legal requirements by the end of the current year (Eurydice, 2017).

4. Investing in education to address demographic and skill challenges

Public expenditure on education has been well below the EU average over the last decade. Slovakia's general government expenditure on education in 2015 was 4.2 % of GDP, below the EU average of 4.9 % (the gap has narrowed in recent years). In 2015 education represented 9.3 % of total government expenditure, against 10.3 % for the EU. Nevertheless, the absolute value of spending on education is constantly increasing, reflecting the country's fast economic growth: in real terms spending has grown by 45 % since 2005. On public and private spending per student in purchasing power standard (PPS), in 2014 Slovakia had patterns broadly similar to other central European countries (OECD, 2016c)²³². The employability of recent graduates is improving and approaching the EU average, but very poor for the lower-skilled population. The rate for all ISCED levels stood at 72.8 % in 2016, close to the EU average of 73.1 % (Eurostat, 2017)²³³.

²³² For ISCED level 0 it was EUR 3 658, for ISCED 1-2 EUR 4 278, for ISCED 3-4 EUR 4 299, all in PPS (NB no data for higher education are available).

²³³ For ISCED 0-2 the rate was very low at 37.2 % v 54.3 % for the EU average (a 17.1 pp. difference). For ISCED 3-4 it was 74.3 % v 72.6 %; and for ISCED 5-8, at 81.3 % it was marginally below the EU average rate of 82.8 %.

There is an ongoing focus on effectiveness of education spending, but in a context of low expenditure. The Ministries of Finance and Education (MoE) conducted an Education Spending Review with assistance from the IMF. It suggested future rationalisation and more effective use of financial and human resources in education (MoF and MoE, 2017). The Review team's analysis acknowledges underfinancing, but projected only a slight increase in the share of GDP going to education: to 4.3% GDP in 2020, still significantly below EU and OECD averages²³⁴. It confirms the persistently low pay of teachers, noting that wage rises proposed in the present Government Manifesto would increase salaries "from 63% to 67% of the average tertiary level educated workforce, while the OECD average is 85%" (MoF and MoE, 2017). The recently tabled draft Learning Slovakia strategy addresses some of the issues raised (see box below). It sets a target for teacher salaries to reach 80% of the average tertiary level wage by 2020. New legislation of June 2017 included measures to support access and equity, for example by covering fees for pre-primary schools for children from poor families; transportation costs to the nearest school with the corresponding language of instruction; and funding of schools which will take into account teachers' years in service. Reducing the number of schools is under debate. Authorities are also making an attempt to more strategically steer the education sector in the ambitious 2017 national programme for education development (Ministry of Education, 2017d).

Box 2: 'Učiace sa Slovensko' ('Learning Slovakia') – a 10-year national strategy for education

A team of independent experts tasked by the Education Ministry with preparing an agenda for a comprehensive and long-term education reform in Slovakia unveiled their vision in March 2017.

A final version of the document and a related two-year action plan are expected in the second half of 2017.

See https://www.minedu.sk/data/files/6987_uciace_sa_slovensko.pdf

5. Modernising school education

Slovakia faces shrinking pupil numbers coupled with a rapidly ageing teaching force.

According to the 'OECD Reviews of School Resources: Slovak Republic' of February 2016, more should be done to rationalise the school network and consolidate the teaching force. This requires better planning capacity, coordination and inter-municipal collaboration. Between 2003 and 2016 student numbers dropped by 25%, while the number of schools reduced by 12%, teachers by 19% and classes by 14%. Slovakia has fewer pupils per class than the OECD average in both primary (18 vs. 21) and lower secondary levels (19 vs. 23). In the tight fiscal context greater efficiencies are required, more co-ordination and collaboration is needed between the 2,900 municipalities responsible for basic schooling. A range of solutions is suggested: consolidating small schools; sharing resources across schools; and clustering small schools under a single leadership team and budget (Santiago et al., 2016).

Teacher salaries are being increased gradually, but much remains to be done to make the profession more attractive.

Teachers' salaries increased sharply in 2016 (4% in January and 6% in September), and in 2017 (6% in September) and the government is committed to making annual increases of 6% until 2020²³⁵. However, the profession has long been unattractive and it is not easy to reverse this. The 2017 national reform programme commits strongly on the issue (Slovak Government, 2017)²³⁶. Non pay measures being implemented include: enhancing initial teacher education, professional development and working conditions; decreasing administrative workloads and increasing funding for materials and technical conditions²³⁷.

²³⁴ More on <https://goo.gl/5zVBEJ>

²³⁵ More on <http://www.minedu.sk/prehľad-zrealizovanych-uloh-a-cielov-v-rezorte-skolstva/>

²³⁶ 'The attractiveness of the teacher's profession will be increased... staff in regional education will receive a higher salary (...) faster growth will be encouraged in the case of novice teachers in order to increase the attractiveness of the teaching profession for the most talented young people.'

²³⁷ More on <http://www.minedu.sk/data/att/9207.pdf>

Box 3: European Social Fund (ESF)-supported project: helping marginalised Roma pupils make the grade in Spiš

This project provided a range of activities to help Roma pupils do better at primary school, in order to improve their educational attainment and life chances. It focused on the Spiš region in north-eastern Slovakia.

ESF contribution: EUR 177 679. Number of participants: 177 pupils, 15 staff.

See <http://zsstefsbela.edupage.org/text/?text=text/text3&subpage=18>

6. Modernising higher education

Slovakia has fast-increasing tertiary educational attainment rates, but internationalisation is still low. In 2016, the tertiary attainment rate was 31.5 %. While below the EU average of 39.1 %, it has progressed strongly with an increase of 7.8 pp. since 2012. Women (at 39.4 %) strongly outperformed men (at 24 %). Outgoing learning mobility remains low at only 4.5 % for ISCED 5-8 levels in 2015, against 8.2 % in the Czech Republic for instance. Weak internationalisation is an issue: the number of in-coming foreign students studying at Slovak universities is roughly one quarter of the Czech level.

There has been a steady improvement in graduate employment. The employment rate of recent graduates recovered to pre-crisis levels in 2016, reaching 82.5 %, in line with the EU average of 82.8 %. There is evidence of skills mismatches, with an estimated 40 % of master-level graduates working in a position other than their field of graduation (Martinák, 2016). The introduction of universities of applied science and the provision of practically oriented bachelor studies are under discussion (Eurydice, 2017). Rationalisation of the higher education network is also being considered as is the possibility to change funding formulas to encourage more specialisation and differentiation.

Quality assurance and accreditation mechanisms are to be strengthened. In April 2017 the Ministry of Education presented legislative proposals applying the goals of the 'Learning Slovakia' reform agenda to higher education. The objective is to introduce greater flexibility for universities in response to current societal needs, while also strengthening their responsibility for the quality of education. The draft laws should enter into force on 1 January 2018 (Ministry of Education, 2017c)²³⁸. There is a general consensus on the need to follow European guidelines on accreditation through a fully independent quality assurance agency, but no agreement among stakeholders on the appropriate approach. Both the Higher Education Council and the Rectors Conference have expressed dissatisfaction with the legislative proposals. In November 2016 the government approved its plan for educational, research, development and other activities in higher education institutions for 2016-2021 (Eurydice, 2017).

Slovakia faces high emigration among tertiary graduates²³⁹. In January 2017 the Institute for Financial Policy (IFP) published a study on emigration showing that university graduates are more likely to emigrate than their peers with lower levels of education. More than 10 % of recent university graduates have left the country; the report estimates an annual sunk investment cost of EUR 45 million. Emigration is especially pronounced among graduates in medicine and technical fields, where it reaches 22 % (IFP, 2017)²⁴⁰.

²³⁸ See <https://www.minedu.sk/minister-skolstva-predstavil-navrhy-na-zvysenie-kvality-vysokoskolskeho-vzdelavania/>.

²³⁹ 14.2% of tertiary students are enrolled abroad - the second highest rate in OECD; most in the Czech Republic. A majority of these (82%) state that Czech institutions offer a better education (2017 OECD Economic Survey of the Slovak Republic).

²⁴⁰ See <http://www.finance.gov.sk/Default.aspx?CatID=11308>.

7. Modernising vocational education and training and promoting adult learning

The proportion of upper secondary students (ISCED 3) in vocational education and training (VET) remained stable in 2015 at 69.0 %. This is well above the EU average of 47.3 %. The employment rate of recent VET graduates, at 77.2 % in 2016, was slightly higher than the EU average of 75 %. Adult participation in learning remains very low compared to the EU average (10.8 %) and in 2016 it even decreased to 2.9 %.

Following the launch of the 'dual VET' scheme in 2015, further efforts are needed to increase quality and responsiveness. They are necessary particularly to address skills shortages and to improve the financing model and continuous professional development of VET teachers and trainers. There is a lack of quality data on labour market outcomes of VET graduates and on future skills needs. The financing model is largely input based. A key issue is the asymmetric distribution of VET students in specific VET fields with respect to labor market needs. Teachers and trainers in VET have little access to specialised continuous professional development. For in-company trainers, there is no system for their further professionalisation.

A draft national programme for development of education ('Učiace sa Slovensko'²⁴¹) has opened a broad debate on improvements, including on VET. The draft programme was submitted for public consultation in spring 2017. Among other issues, it points to an urgent need to analyse the impact of automation on VET; OECD says Slovakia is the country with the highest share of jobs at risk of being automated (OECD, 2016d). The draft programme proposes to decouple provision of training by VET schools from the final examination processes. It also envisages introducing a new group of independent evaluators to ensure objective assessment of VET graduates, so that they acquire minimum qualification standards.

Since the 2015 VET Act, experts without teacher training do not need to comply with the pedagogical qualification requirements if they teach for less than 10 hours per week. Linked to further improvements in the dual scheme, employers are expected to support the professionalisation of in-company trainers and the provision of training placements for teachers from VET schools. Cedefop will undertake an in-depth review of future skills needs in Slovakia (Cedefop 2017). Recently introduced elements of performance-based funding in VET, together with motivational scholarships for pupils selecting study fields with identified shortages, have potential to improve the quality and responsiveness of VET to labour market needs. The VET Act provides for two lists of study fields to be drawn up annually, one to list fields that do not produce enough graduates for the jobs market and the other to list fields that produce too many²⁴². Under the first two lists published in February 2017, per capita funding for VET schools was increased by 10 % for study fields with a lack of graduates and cut by 10 % for the other fields (Ministry of Education, 2017). To underpin credibility of the lists, however, further improvements are needed in the quality of the data on outcomes of VET graduates (Martinák, 2017)²⁴³.

Slovakia still struggles to make full use of its human resources. Employers lack skilled workers yet unemployment is still relatively high. While unemployment has decreased sharply in recent months (6.7% in July 2017), long-term unemployed and inactive people need to be empowered to (re)enter the labour market. The government has introduced two action plans addressing the long-term unemployed and the least developed regions. Both emphasise the need

²⁴¹ See Box 2.

²⁴² See <http://www.minedu.sk/zoznam-studijnych-odborov-a-ucebnych-odborov-s-nedostatocnym-poctom-absolventov-pre-potreby-trhu-prace-a-zoznam-studijnych-odborov-a-ucebnych-odborov-ktore-su-nad-rozsah-potrieb-trhu-prace-15-februar-2017/>.

²⁴³ The Institute for Education Policy published an analysis of the performance based funding arrangements. It concluded:

- the existing model has shortcomings caused i.a. by low data availability. Improving the data for evaluation purposes is desirable. Also some reconsideration of evaluation methodology is needed, e.g. to cover the regional aspect
- the effect on increasing participation in study fields with labour shortages is insufficient. It suggests that motivational tools (scholarships) may be either inadequate or poorly communicated, or that schools' teaching capacity in these study fields is insufficient.

to upskill and reskill specific groups (Slovak Government, 2017). Government envisages transforming local VET schools into regional centres for training the workforce, focused on long-term unemployed with few or no qualifications. The centres will also link municipal social enterprises to help get the long-term unemployed back into work by developing the skills and working habits they need. The plans give specific attention to marginalised Roma communities.

A new ESF project to be launched by the end of 2017 will introduce the nationwide system for validating non-formal and informal learning. Implementation of the project will make the education and training system more flexible and allow for validation of individualised learning pathways (Eurydice, 2017). The project covers development of the validation system, pilot testing and putting the changes into legislation. A new act on lifelong learning is expected. The ESF provides support to develop dual education in Slovakia through a national project launched in November 2016 with a total allocation of EUR 34 million.

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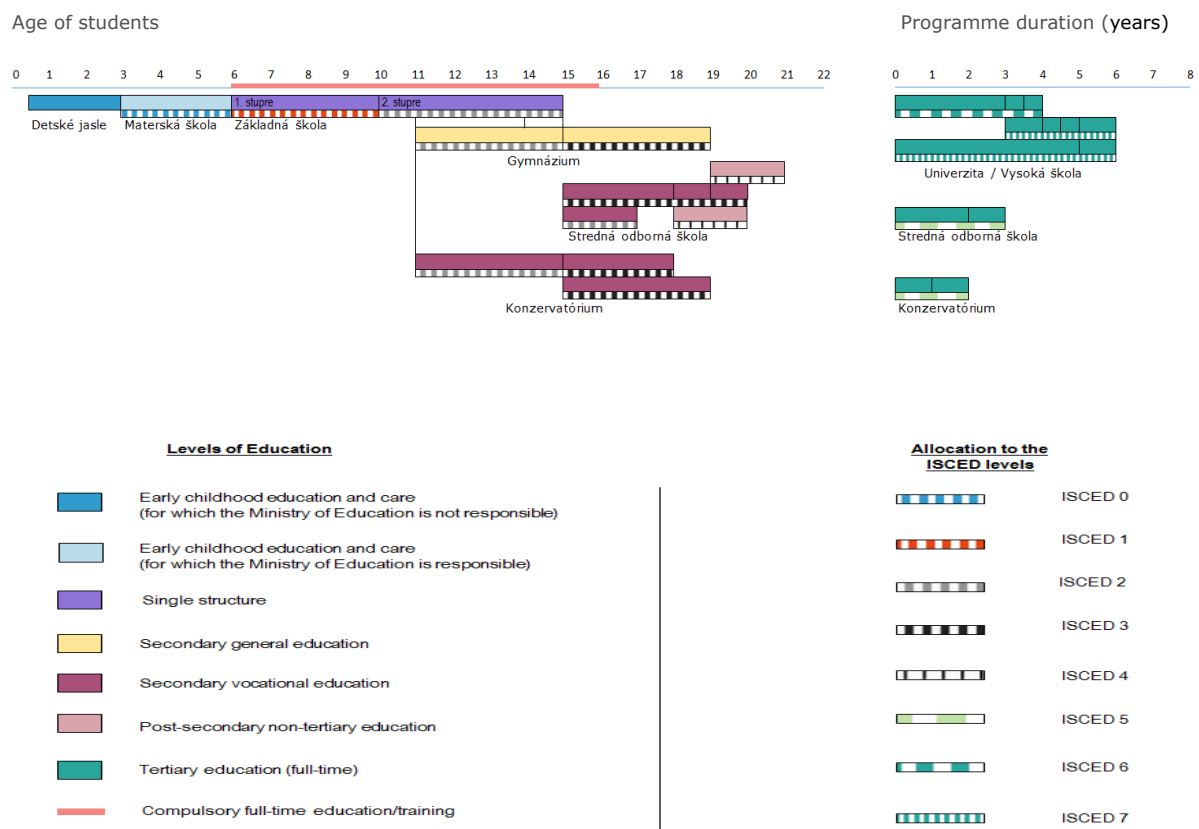
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9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. Structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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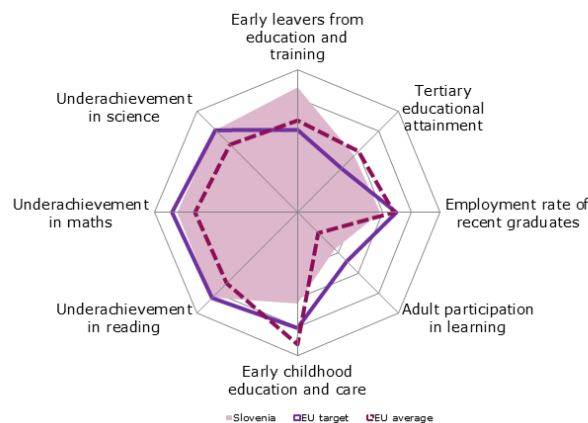
SLOVENIA

1. Key indicators

		Slovenia		EU average	
		2013	2016	2013	2016
ET 2020 benchmarks					
Early leavers from education and training (age 18-24)	Total	3.9%	4.9%	11.9%	10.7%
Tertiary educational attainment (age 30-34)	Total	40.1%	44.2%	37.1%	39.1%
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		90.9% ¹²	90.5% ¹⁵	93.9% ¹²	94.8% ¹⁵
Proportion of 15 year-olds with underachievement in:	Reading	21.1% ¹²	15.1% ¹⁵	17.8% ¹²	19.7% ¹⁵
	Maths	20.1% ¹²	16.1% ¹⁵	22.1% ¹²	22.2% ¹⁵
	Science	12.9% ¹²	15.0% ¹⁵	16.6% ¹²	20.6% ¹⁵
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	73.8%	76.7%	75.4%	78.2%
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	12.5%	11.6%	10.7%	10.8%
Other contextual indicators					
Education investment	Public expenditure on education as a percentage of GDP	6.5%	5.6% ¹⁵	5.0%	4.9% ¹⁵
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2 €7 028	€7 078 ¹⁴	:	: ¹⁴
		ISCED 3-4 €5 724	€5 636 ¹⁴	:	: ¹⁴
	ISCED 5-8 €8 602	€8 815 ¹⁴	:	: ¹⁴	
Early leavers from education and training (age 18-24)	Native-born	3.5%	4.4%	11.0%	9.8%
	Foreign-born	16.4% ^u	15.6% ^u	21.9%	19.7%
Tertiary educational attainment (age 30-34)	Native-born	42.4%	46.8%	37.8%	39.9%
	Foreign-born	13.1% ^u	19.2% ^u	33.4%	35.3%
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	61.8%	70.3%	69.4%	72.6%
	ISCED 5-8	79.3%	80.2%	80.7%	82.8%
Learning mobility	Inbound graduates mobility (bachelor)	1.5%	2.0% ¹⁵	5.5%	6.0% ¹⁵
	Inbound graduates mobility (master)	2.6%	4.1% ¹⁵	13.6%	15.1% ¹⁵

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to highest (outer ring) and lowest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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. There are marked differences, however, between pupils with a migrant and a non-migrant background.
- 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.

3. Tackling inequalities and promoting inclusion

The basic skills of Slovenian 15-year-olds are, overall, high and improving. Slovenian 15-year-olds are performing well in all three fields tested in the OECD's 2015 Programme for International Student Assessment (PISA) survey — science, mathematics and reading. In particular, Slovenia has achieved one of the EU's steepest reductions in the proportion of low achievers in reading since 2009 (second only to Ireland).²⁴⁴ At the moment, there is insufficient data to explain this trend. The proportion of low achievers is below the EU average in the areas covered (15 % in science, 16.1 % in maths and 15.1 % in reading); each field is now close to the EU benchmark for 2020 of 15 % of low achievers. Other international comparative assessments have found a similar steep improvement in the maths and science skills of 4th grade and 8th grade pupils over the past decade. The 2015 Trends in International Mathematics and Science Study (TIMSS), for example, found striking increases of 58 and 79 points, respectively, in the maths and science performance of 4th grade pupils between 1995 and 2015.²⁴⁵ Slovenia's older pupils — 8th graders — achieved some of the highest results among participating EU countries in both maths (third-best result in the EU) and science (best EU result).

Equity in education is improving but certain inequalities persist. The rate of underachievement among students from the bottom socioeconomic quartile is 25.1 %, against only 6.3 % for students from the top quartile. However, the gap is smaller than in the EU as a whole (18.8 percentage points (pp.) vs 26.6 pp.). Moreover, the difference in performance associated with students' socioeconomic status narrowed to 13.5 % in 2015 from 17.5 % in 2006, signalling an improvement in equity. The variation in performance between schools is strongly associated with the socioeconomic status of the schools and their pupils. In addition, the difference in the proportion of low performers among students with a migrant background (7.8 % of students in PISA 2015) and non-migrant students is rather high. The difference in performance in science between students who speak Slovenian at home and those who do not is quite high but below that in most EU Member States (88 score-points, corresponding to almost 3 years of schooling).²⁴⁶

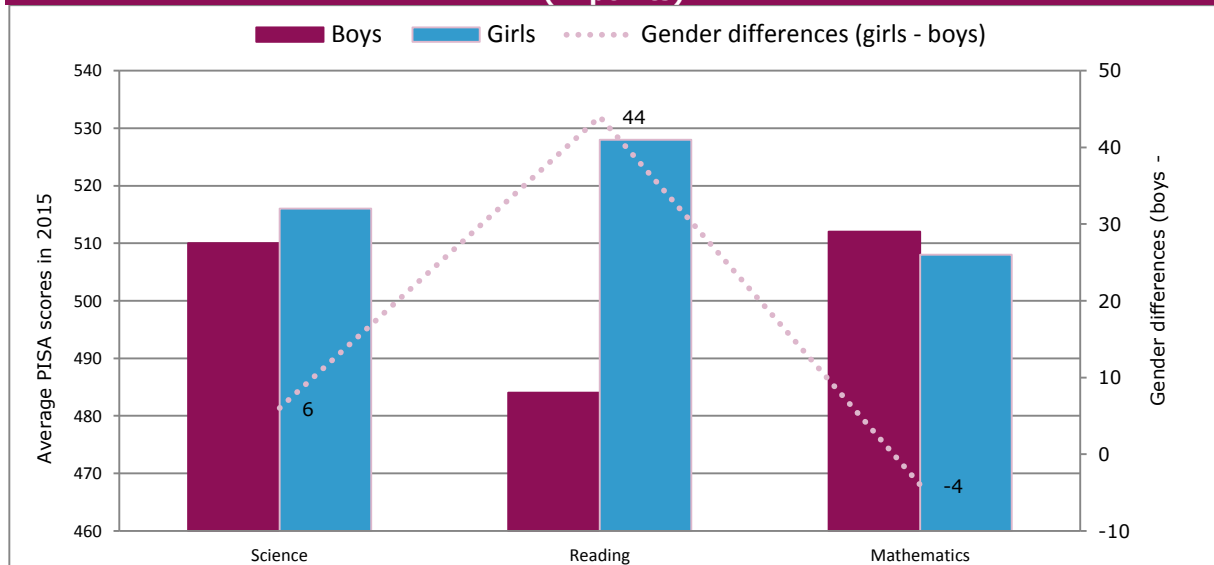
Girls significantly outperform boys in PISA, despite a narrowing of the gender gap. In science, Slovenia had the ninth-highest proportion of girls — 10.4 % — demonstrating high complexity skills of the 72 countries and economies participating in PISA 2015. In reading, girls' performance is the eighth highest in PISA. Despite a significant improvement between PISA 2012 and PISA 2015 — leading among the EU Member States — the performance of boys in reading literacy is still concerning. There are 12.1 % more boys than girls who underachieve in reading (EU average 9.6 % - Figure 2).

²⁴⁴ From 21.2 % in 2009 to 15.1 % in 2015.

²⁴⁵ From 462 points in 1995 to 520 points in 2015 for maths and from 464 points in 1995 to 543 points in 2015 for science for 4th grade pupils.

²⁴⁶ OECD average: 52 points.

Figure 2. Average PISA scores in 2015 by gender and gender difference in Slovenia (in points)



Source: OECD (PISA Volume I, 2015). Online data codes: Table 1.2.8a, Table1.4.8a, Table1.5.8a

Early school leaving is rare and mostly affects men. Only 4.9 % of 18- to 24-year-olds in 2016 left school before acquiring an upper secondary qualification. This is the third-lowest rate in the EU and less than half the EU average of 10.7 % in 2016. Data for foreign-born children are less reliable due to a small sample size, but they suggest that early school leaving is much more widespread among them (15.6 %) than among native children (4.4 %). In line with the situation across the EU, in Slovenia early school leaving is more prevalent among men (6.7 %) than women (3.1 %).

Participation in early childhood education and care is increasing. The number of children attending Slovenian kindergartens is growing. As a proportion of the whole age cohort in 2015, 90.5 % of all children between the age of 4 and the school-starting age (6) were enrolled in pre-school education. This is moving closer to the EU average of 94.8 % and the benchmark of 95 %. 82.8 % of children aged 3 attended kindergarten in 2015. The participation rate in childcare was 69 % for 2-year-olds and 21.4 % for children below 2 — respectively, the fifth- and sixth-highest in the EU (Eurostat, 2015).²⁴⁷

4. Investing in education and training

Slovenia has reduced its investment in education. Education expenditure as a proportion of GDP was 5.6 % in 2015, down a further 0.4 pp. after the 0.5 pp. drop in 2014²⁴⁸. Nevertheless, although approaching the EU average of 4.9 %, Slovenia is still among the 10 EU countries that spend the most on education. The proportion of education expenditure in the 2015 total general government expenditure (11.6 %) is also above the EU average (10.3 %), but it has fallen compared to 2014 (12.1 %). Since 2009, public expenditure on education has decreased by 13 % in real terms, whereas the number of pupils and students has remained broadly stable.

Slovenia's expenditure allocation between different education sectors in 2015 was broadly in line with the EU average. Secondary education received 35.7 %, compared with an EU average of 38.7 %; tertiary education was allocated 18.8 % (EU average 15.2 %); and 37.3 % went to pre-primary and primary education (EU average 31.4 %).²⁴⁹ The budget cuts in secondary, pre-primary and primary level, as a percentage of funding year on year, were lower than the total budget cuts. They were higher at the tertiary education level.

²⁴⁷ Source: Eurostat (UOE 2015). Online data code: [uoe_enrp07](#).

²⁴⁸ Source: Eurostat, general government finance statistics (2015) online data code [gov_10_a_exp](#).

²⁴⁹ Source: Eurostat, general government finance statistics (2015) online data code [gov_10_a_exp](#).

5. Modernising school education

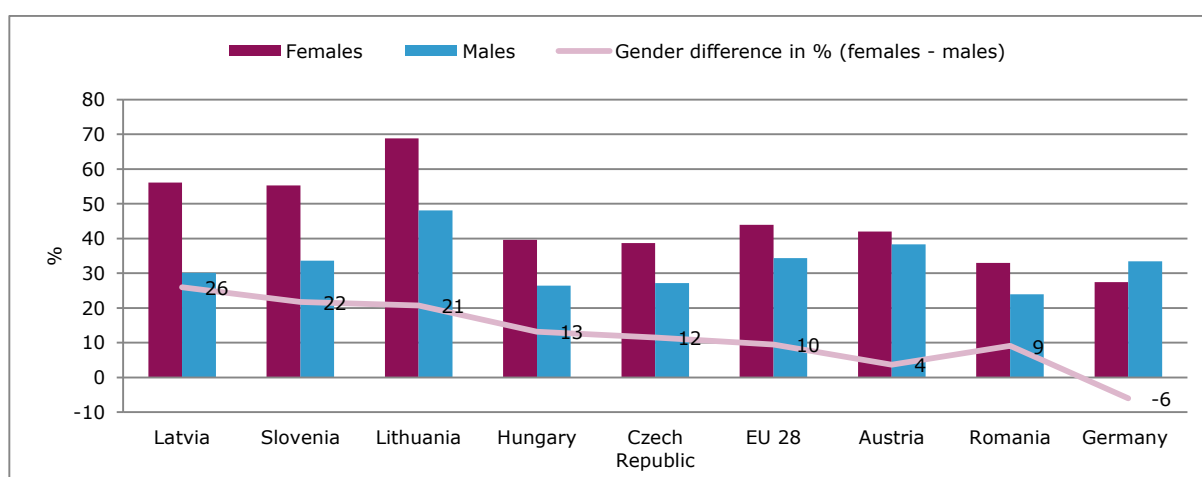
An important development is the full introduction of foreign language learning earlier in primary education. One of the most important new measures in school education is the introduction of the first foreign language as a mandatory subject from the 2nd grade of primary education (age 7). In April 2015 a total of 90 basic schools were selected to test the measure, which was then fully implemented in the 2016/17 school year.²⁵⁰ This change, plus the possibility for children to choose a second foreign language in the 4th grade (age 10) as an optional subject, should foster the development of their key competences and improve their future mobility options.

High spending on education is not reflected in high teacher salaries. Slovenian teachers' statutory salaries are below the EU-22 average in all education sectors and at all points in their career (starting salary, salary after 10 years, after 15 years, and salary at top scale) (OECD, 2016a). Lower secondary teachers' actual salaries were 88 % of the earnings of tertiary-educated workers in 2014, which is higher than the OECD average (OECD, 2016b). After a period in which teachers' salaries were frozen, in 2016 Slovenia restored promotion to higher wage grades and titles as well as an increased holiday payment for all public employees including teachers (Eurydice, 2016).

6. Modernising higher education

High tertiary attainment masks wide gender differences. Slovenia's tertiary educational attainment rate has continued to grow: in 2016, 44.2 % of 30- to 34-year-olds held a tertiary qualification, up from 43.4 % in 2015. This is above the EU average of 39.1 % and the national Europe 2020 target of 40 %. Access to higher education is helped by the absence of tuition fees, but nevertheless there are differences in participation between men and women. Women are much more likely to graduate from higher education than men. The gender gap is the second-widest in the EU, with 55.3 % of women but only 33.6 % of men attaining higher education. Slovenia's employment rates are slowly recovering to their pre-crisis levels and are broadly equal for men and women. The employment rate of tertiary-educated 20-34 year-olds who graduated 1-3 years before employment was 80.2 % in 2016, just below the EU average of 82.8 %. The rate has been growing since 2012, when it was 78.6 %. For men the rate is 82.5 % and for women 78.5 %.²⁵¹

Figure 3. Tertiary educational attainment (age 30-34) by sex in 2016 (%)



Source: Eurostat (LFS, 2016). Online data code: [edat_lfse_03](#)

A reform of higher education was initiated in 2016 and implementation is starting in 2017. The idea behind the two-stage higher education reform was to speed up the adoption of less controversial measures on which there was consensus among key stakeholders, while postponing the more demanding issues until a more fundamental legislative change. As a first step, revisions

²⁵⁰ MESS (2016).

²⁵¹ Source: Eurostat (LFS 2016). Online data code: [edat_lfse_24](#)

to the Higher Education Act were adopted in November 2016. These brought institutional accreditation as opposed to programme-based accreditation, abolished the procedure of the programmes' reaccreditation and increased student involvement in internal governance. They also initiated some important changes in the funding of higher education (Box 1).

An ambitious recalibration of higher education funding towards a more performance-oriented system is planned. As a second step in the higher education reform, the government coalition agreement for 2014-2018 committed to delivering a new Higher Education Act by the end of 2017. The new law will define what constitutes public service in higher education and from which sources this service should be financed. It will also define more clearly the rights and responsibilities of employees²⁵² in higher education and science; define the rights of students and users of higher education; and provide for more stable and systemic financing of research activities. However, there are several points of contention between the different stakeholders. These include whether work on income-generating activities constitutes a public service of the university and whether they should be covered from public sources. Such activities include teaching fee-paying PhD students or part-time students, and engaging in privately financed projects. The definition of the public service role depends on defining the broader strategy for higher education²⁵³.

Box 1: Reform of higher education funding

The revision of the Higher Education Act in November 2016 introduced performance-based funding of higher education institutions.

The law brought new elements into the higher education funding formula:

- a basic pillar, sub-divided into fixed (although increased by the growth index every year) and variable funds (maximum 25% of the basic pillar); and
- a developmental pillar (maximum 3 % of overall funding)

The changes include a revision of the funding formula, with details to be worked out in a decree on budgetary financing of higher education in autumn 2017. It is clear that the funding formula will move from being input-oriented to being output-oriented, with a variable part that can be tapped into by institutions that are deemed to be performing well. The formula will reward, amongst other things, scientific excellence, completion rates, employability of graduates and ability to attract research and development funds from other sources, including the business sector. The idea is that such a funding system would push higher education institutions to optimise their operations and increase the quality of teaching and research.

The revised law obliged the Government to extend the financing of PhD studies as part of a public service in higher education. Its most progressive element is the guarantee that national funding for study-related activities in higher education should remain at a minimum of 1% of GDP (currently it stands at exactly 1.0%).

A significant innovation is the introduction of 4-year funding agreements which would cover not only the basic financing pillar but also the developmental pillar, which will support the implementation of institutional priorities which are in line with the national strategic goals. The timetable for rolling out the funding agreements as well as the exact details of their content are not set in law. It is hoped that with the introduction of performance-based agreements, the institutions will be empowered to respond to changes in their environment and autonomously shape the direction of their development and institutional specialisation.

The European Commission is supporting the higher education reform in Slovenia through a year-long peer counselling exercise. In this, experts from different EU administrations are giving Slovenia advice on the design of the new higher education funding model.

²⁵² Covering their pedagogical, research and other duties.

²⁵³ The issues under consideration include the one of a balance between the missions of the smaller regional faculties (both private and public) and universities, or the bigger, research-intensive universities.

7. Modernising vocational education and training and promoting adult learning

Attendance of VET is high and is expanding further into pilot apprenticeships in 2017.

Vocational education in Slovenia, which includes vocational (2-3 years) and technical (4 and 3+2) programmes, is designed to obtain trade-specific qualifications to enter the labour market or to pursue programmes at the tertiary level. The proportion of upper secondary students (ISCED 3) in Slovenia in vocational education and training (VET) increased in 2015 by 0.7 pp. to 67.5 %, which is well above the EU average of 47.3 %. By contrast, the employment rate of recent VET graduates in 2016, at 72.3 %, was below the EU average of 75 %. The pilot implementation of an apprenticeship scheme is expected to begin from the school year 2017/2018, starting at seven VET schools with a maximum of 200 apprenticeships. The Apprenticeship Act creates opportunities for unemployed people, among others, to join apprenticeship schemes. The government sent to Parliament in July 2017 a draft amendment to the Vocational and Technical Education Act which touches on technical issues. These include a procedure to verify learning work places and the setting-up of a single register of learning work places at national level. It also includes provisions addressing part-time students.

Box 2: Job rotation of VET trainers and mentors in companies

A programme to improve the professional competences of teachers was launched in 2016 as part of a Ministry of Education initiative. Running until 2022, the programme has funding of EUR 1.65 million, of which EUR 1.32 million is from the European Social Fund and the rest from the Slovenian government. Its aim is to improve teaching quality and learner experience by giving teachers and mentors the opportunity to update and complement their knowledge, skills and competences through job rotation.

Teachers of vocational modules and organisers of work-based learning will spend 2 or 4 months in a company. In this period they will be substituted by suitably qualified and trained experts from the host companies or by previously unemployed teachers. The planned number of in-company mentors and teachers participating in the programme is 560, with 297 in Eastern Slovenia and 263 in Western Slovenia.

Adult learning is widespread but the lack of learning by low-skilled adults in Slovenia is a serious issue. Adult participation in learning is 11.6 %, just above the EU average of 10.8 %. National statistics show that in 2015, 89 % of employees took part in professional training and 84.1 % of all businesses offered professional training to their employees (Statistical Office Slovenia, 2017). However, variations in adult skill levels are wide, with older people having the lowest proficiency. Older and low-skilled workers continue to have low employment rates and the unemployed older and low skilled are under-represented in active labour market policy measures. Especially problematic is the very low employment rate of low-qualified women aged 50-64 – 29.6 %, against the EU average of 39.1 %. As a result, under the 2017 European Semester the Council of the EU recommended Slovenia to '*Intensify efforts to increase the employability of low-skilled and older workers, particularly through targeted lifelong learning and activation measures*' (Council of the European Union, 2017).

The authorities are seeking to develop a long-term skills strategy and regulate the adult education system. The National Skills Strategy, currently being developed with facilitation from the OECD, intends to build a consensus around the skills challenges and their long-term solutions. A diagnostic report was published in June 2017, with a set of nine broad recommendations covering the development of skills, activation and their effective use, as well as the functioning of the skills system (OECD, 2017). In addition, the Ministry for Education, Science and Sport held a public consultation on the draft Adult Education Act in March 2017. The proposal went into inter-ministerial consultation in June 2017.

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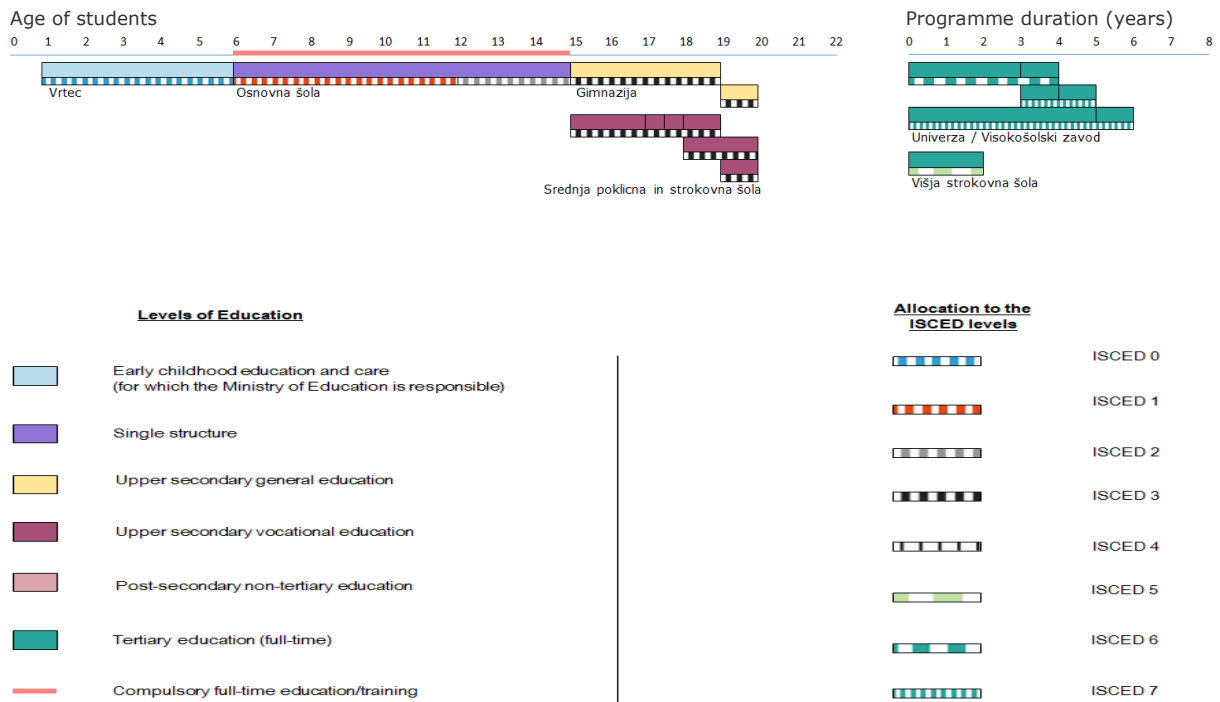
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9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03+ edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	edu_uoe_mobg03

10. Annex II. The structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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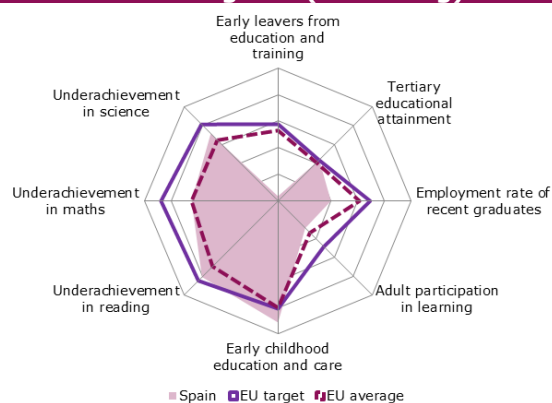
SPAIN

1. Key indicators

		Spain		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	23.6%	19.0%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	42.3%	40.1%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		97.4% ¹²	97.7% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	18.3% ¹²	16.2% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	23.6% ¹²	22.2% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	15.7% ¹²	18.3% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	59.9%	68.0%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	11.4%	9.4%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	4.1%	4.1% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€5 476	€5 511 ¹⁴	:	: ¹⁴
		ISCED 3-4	€6 442	€6 445 ¹⁴	:	: ¹⁴
		ISCED 5-8	€9 302	€9 247 ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	20.6%	16.1%	11.0%	9.8%	
	Foreign-born	38.3%	32.9%	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	46.9%	44.8%	37.8%	39.9%	
	Foreign-born	25.0%	22.4%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	40.9%	56.8%	69.4%	72.6%	
	ISCED 5-8	66.8%	72.3%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	0.6%	0.6% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	4.7%	7.4% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to highest (outer ring) and lowest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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.

3. Tackling inequalities and promoting inclusion

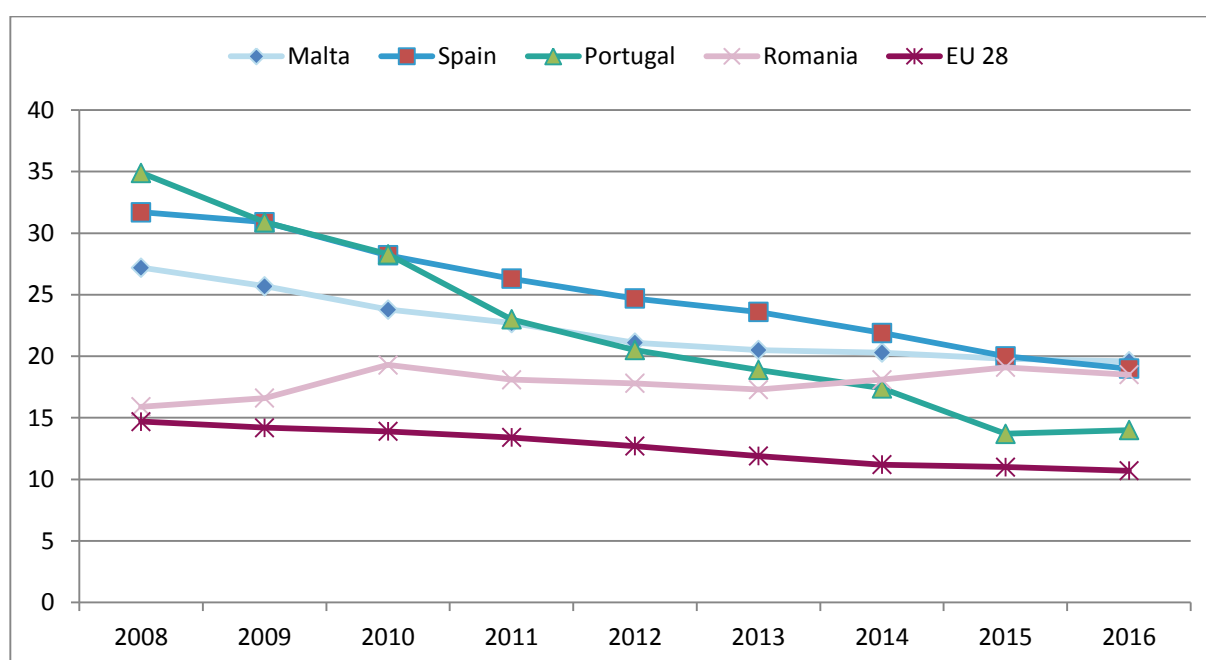
Students' performance in basic skills is stable at around the EU average; the skills gap between regions persists. According to the 2015 OECD Programme for International Student Assessment (PISA) survey, the proportion of low achievers in all three fields tested is around the EU average: 18 % in science, 16 % in reading and 22 % in mathematics. Compared to PISA 2012, this shows an improvement in reading and mathematics and a slight deterioration in science. The gap in low achievement between students from top and bottom socioeconomic quartiles — 6 % and 31.6 %, respectively, in science — is around the EU average. However, the difference between the highest and the lowest-performing regions in PISA in all three fields is over 40 mean score points — equivalent to more than 1 year of schooling. This reflects differences in their socioeconomic conditions but also suggests gaps in the effectiveness of education systems. In this context, the 2017 European Semester country-specific recommendations call on Spain to address regional disparities in 'educational outcomes' — the knowledge, skills and abilities that pupils and students attain. It should do so notably by strengthening teacher training and support for individual students (Council of the European Union, 2017). The performance gap between non-migrants and first-generation migrants is relatively small; second-generation immigrants further close the gap with non-migrants, especially in reading (OECD, 2016).

Spain has significantly reduced its rate of early school leaving (ESL), regional disparities, while narrowing, persist. ESL has decreased progressively over the past 8 years and reached 19 % in 2016, bringing Spain closer to its national Europe 2020 target of 15 %. Despite this positive trend, Spain's ESL rate is still the second highest in the EU. There are significant differences between regions: some still have rates over 25 % and struggle to maintain the downward trend, while others are already below 10 %. A variety of causes have been suggested, so policy responses need to be diverse. Factors linked to socioeconomic status and parents' level of education play a significant role (Canosa & Pérez, 2010). There is also a significant gender gap, with ESL rates 7.6 percentage points (pps.) higher among men. The extent to which regional labour markets generate high-skilled jobs is also relevant. Regions where growth is based on activities such as tourism and construction —with high demand for low-skilled people — risk seeing ESL increase again as growth recovers.

High rates of grade repetition can fuel ESL and reflect social inequalities. With more than 31 % of students having repeated a grade, Spain has the second-highest rate of grade repetition in the EU. This shows a slight improvement since 2012 (European Commission, 2017). A social gap is

evident, with rates of 53 % among disadvantaged students, against below 9 % for advantaged students (OECD, 2016). Repetition levels are especially high in primary and lower secondary education. The different levels of grade repetition across the regions broadly mirror differences in ESL rates. However, PISA 2015 shows there are also regions where students who have repeated a grade perform significantly better than the EU average. This suggests that the additional year can serve a good educational purpose.

Figure 2. Trends in EU countries with high early school leaving rates



Source: Eurostat (LFS, 2008 -2016). Online data code: [edat_lfse_14](#).

The government is implementing its 2014-2020 national plan to reduce ESL (MECD, 2014). This is essentially a framework within which education stakeholders and institutions can propose specific programmes. While initially it had no budget, since December 2016 there is a EUR 13.5 million territorial cooperation programme to support targeted learning support measures. Regions can receive funding to implement measures to prevent ESL, for orientation and follow-up measures, and to develop plans for young people who drop out of the school system. The programme also funds measures targeting students with high potential. As part of the plan, the Ministry of Education (MECD) has created a number of online collaborative platforms where regional administrations can share experiences and learn from each other. A basic vocational education path was adopted in 2013 as a flagship to prevent ESL and help potentially poorly performing pupils to do better. It introduced a two-year alternative path for students in lower secondary education to reach medium vocational education and training. Enrolment rates are so far low and several regions show poor transition and promotion rates which call into question the programme's effectiveness (European Commission, 2016). It is too soon to draw conclusions on its effectiveness.

Early childhood education and care is well developed and remains high on the national agenda. Almost all children aged between 4 and the compulsory school age (i.e. 6) attend early childhood education and care. At 97.7 % in 2015 the rate is above the EU average. Attendance by children aged 2 is 55.4 %. For children aged 0 to 2 participation rates show disparities between regions; participation in public centres remains low. The National Schools Council has highlighted the need to create more places for children aged 0 to 3 (CEE, 2014 & 2015). Further expansion of early childhood education is one of the priorities proposed by the MECD for the debate on the National Pact on Education.

Box 1: Castile-Leon: strategy to achieve performance improvements for all

Castile-Leon (CyL) is a region where people traditionally value education highly (Álvarez Guisasola, 2006). Shortage of jobs makes parents and young people highly aware of the advantages of education. PISA 2015 showed that students from CyL have a high overall performance (above 500 points) in reading, mathematics and science. The share of high performers is around 10 % while rates of low performance are low (10-15 %). CyL is not among the wealthiest regions — its GDP per capita is below the national average. However, it has developed a series of measures to help students perform well regardless of their socioeconomic status:

- The programme for improving education success (Programa para la Mejora del Éxito Educativo) is running since 2007-2008 for students of primary and secondary education. It provides primary students with support during school hours. Students in lower and upper secondary school get extracurricular lessons to prepare exams, including the exam to access higher vocational training. Support measures include individualised help, early detection of learning difficulties and initial evaluation of basic abilities.

- To improve literacy, under the regional Reading Plan 2016-2020 all schools should adopt a public supported plan, including web pages to foster literacy, support to school libraries, activities on spelling and a Book Day. The plan must cover also continuing professional development for teachers. This is provided through the network of 'training and innovation' centres through courses, workshops, training projects at schools, innovation and research projects, and self-training. In 2014/2015, 45 095 teachers participated in 3 215 training activities: scientific and didactic updates; application of information and communication technologies (ICT); training in foreign languages; and educational values. The Intercultural Education Resource Centre also offers teachers technical and didactic advice.

4. Investing in education and training

Spending on education is increasing but remains below the EU average. In 2015 spending on education was equivalent to 4.1 % of GDP, below the EU average. From 2012 to 2015, the proportion of total public expenditure devoted to education increased to 9.3 %, still below EU average. Set against a steadily growing student population (up 13.3 % between 2005 and 2015), public expenditure in real terms (constant prices) increased by just 9.1 % over the decade. Spending rose fairly evenly across education levels, whereas student numbers did not. This favoured mainly secondary and, to a lesser extent, tertiary education.

Political agreements have unlocked new funding for specific needs in the education system and increased teachers' replacement rates. Negotiations in Parliament resulted in an allocation of EUR 115 million to improve training, competences and mobility of teachers at all education levels (including tertiary). This budget will also strengthen school activities. In December 2016, the MECD agreed to allocate EUR 325 million to support regional measures for new initial vocational education and training (VET) programmes, to implement new pathways in lower secondary education and to help socioeconomically vulnerable families in buying books and school material. The government significantly increased the regions' scope to recruit teachers. It increased the replacement rate for retiring teachers from 10 % to 50 %, and in 2016 doubled it to 100 % with the aim of reducing the high proportion of interim teachers.

5. Modernising school education

The national debate on a comprehensive education reform has left the implementation of the Law to improve the quality of education (LOMCE) on hold. The school year 2016/2017 was expected to see the full implementation LOMCE. However, several measures have been left on hold to facilitate the new political dialogue aimed at reaching consensus on a comprehensive education reform and a long-lasting legislative framework: the Social and Political National Pact on Education. In December 2016, the government agreed by Royal Decree 5/2016 to postpone

implementing the evaluation tests proposed by the LOMCE at the end of primary, lower secondary and upper secondary education. The outcome of the national debate is expected to bring new proposals for improving the quality of education by evaluating students' results and the performance of the overall system.

The Ministry of Education, Culture and Sports proposes 11 benchmarks for the national pact, covering a wide spectrum of issues from ECEC to higher education. The strategy is embedded in the EU education and training 2020 framework. The process was launched in November 2016 with the appointment of a parliamentary subcommittee to consult stakeholders and experts before drafting a proposal for a new legal framework. At least five of the objectives refer directly to the EU agenda for modernising schools. These include updating curricula and teaching methods to help schools better adapt to new demands and giving schools the capacity to innovate and adjust to changing socioeconomic conditions. One aim is to address the lower level of autonomy of Spanish schools compared to other OECD countries. Principals and teachers in Spain have less responsibility for resources, for the curriculum, for student assessments and for school admissions than the OECD average.

The outcome of the pact should also lay the groundwork for long-awaited reform of the teaching profession. One of the objectives proposed is to improve the social and professional recognition of teachers. The level of job satisfaction among Spanish teachers scores high in Europe but has declined over the past 10 years (European Commission, 2016). Cutbacks during the crisis eroded their working conditions and increased the proportion on interim contracts. Career and salary progression do not reflect teachers' performance; teachers feel they are continuously faced with new demands as a result of frequent reforms, and that they lack support to address them. The increased replacement rate approved in 2016 is expected to reduce the share of interim teachers in the system from 20 % in 2016 to 8 % in 2020. It should create up to 130 000 posts in 3 years, but the reform of teachers' professional status is still pending. Discussion under the pact will take into account the December 2015 white paper on the teaching profession (MECD, 2015). Among the envisaged measures is a major reform of the induction system that would introduce a two-year paid internship in a school before entering the profession. This proposal will require negotiation with trade unions who perceive a risk of underemployment for young teachers.

Spain is making efforts to promote digital skills. The use of ICT in the learning process is also on the pact's agenda. In 2017 the government adopted, in collaboration with the regions, the 'digital competence framework' for teachers to improve teaching ICT skills. It draws on the work of the European Commission's Joint Research Centre as a basis for certifying teachers' digital competences and, ultimately, developing a broader 'professional competence framework' for teachers.

Multilingualism is strongly addressed in the education system but effective implementation remains a challenge. The seventh issue discussed under the pact is promoting multilingual teaching. In Spain, many students speak a language at home that is not the language they are taught in at school. This reflects regional variations in the school language. For example, 9.8 % of 15-year-olds who are non-migrants speak Spanish at home but have a regional language as the language of schooling, mostly Catalan (Eurydice, 2017). The First European Survey on Languages (European Commission, 2012) showed that only 14 % of Spanish students in the last year of low secondary education achieved a B1 level in a foreign language (English); 13 % achieved a B2 level. Today, 99 % of students enrolled in primary education in Spain learn one or more foreign languages, with compulsory learning starting at age 6 (Eurydice, 2017). Several regions encourage the use of 'content and language integrated learning' (CLIL). However, analysis of the performance of students learning through CLIL showed that there may be a decline in their results in subjects taught in the foreign language (FEDEA, 2013). There is a significant language-learning gap linked to education pathways: almost all students (97.5 %) study English in general upper secondary education while only 20.4 % do so in vocational education (Eurydice, 2017).

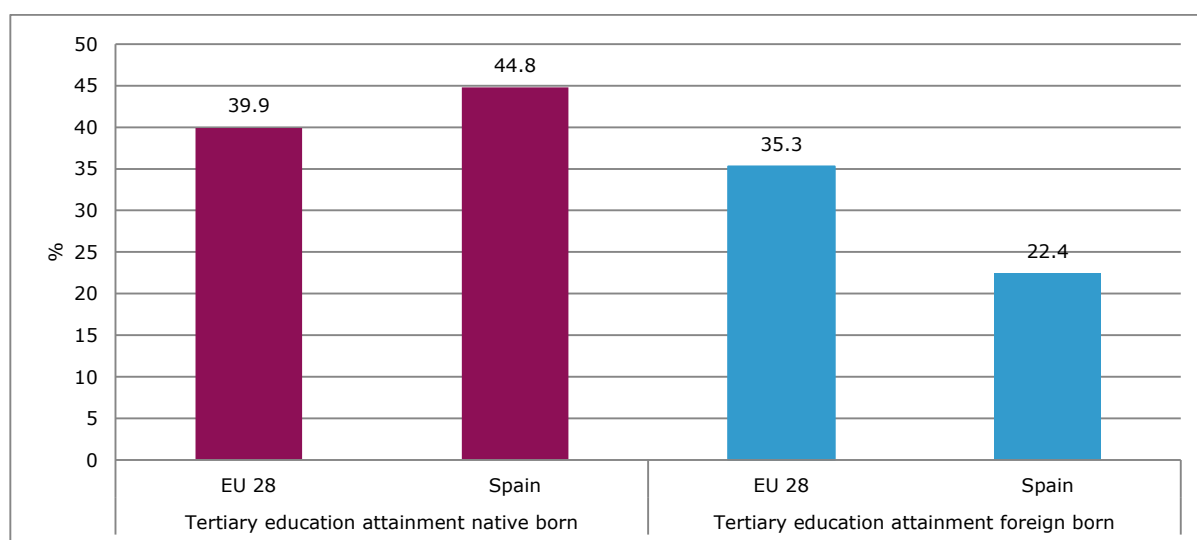
Spain is making efforts to address bullying and promote citizenship in schools. The PISA survey on students' wellbeing (OECD, 2017), shows that 14 % of students in Spain report having been bullied (against 19 % on average across the OECD). In October 2015 the MECD and the regional governments signed a territorial cooperation plan with funding of EUR 1.5 million to foster school well-being and prevent bullying and violence in schools. In March 2017, the MECD presented a strategic plan, later discussed with the regions, proposing among other things: a 24/7 telephone

helpline and a specific smartphone app; guides and handbooks for victims, parents and teachers; training courses for teachers, and a network of bullying-free schools to exchange experiences and resources.

6. Modernising higher education

Spain's tertiary educational attainment rate is high. In 2016 it was 40.1 %, above the EU average, but slightly some distance from the national Europe 2020 target of 44 %. The gender gap in tertiary attainment is increasing, with women surpassing men by almost 13 pps. (46.6 % compared with 33.5 %). There is a wider gap between native and foreign-born young people: the tertiary educational attainment rate of native-born (44.8 %) is double that of migrants (22.4 %) in 2016 (Figure 3).

Figure 3. Tertiary education attainment in Spain, native and foreign born (2016)



Source: Eurostat (LFS, 2016). Online data code: lfs_9912

The employment rate of recent graduates is increasing but remains below the EU average. Since 2013, the employment rate of recent tertiary graduates increased by 5.5 pps. to 72.3 % in 2016, but this is still significantly below the EU average and the national pre-crisis rate of 85.3 %. At 37 %, Spain also has the highest proportion in the EU of graduates working in occupations not requiring university education. In this context, the 2017 European Semester country-specific recommendations call on Spain to make tertiary education more relevant to the jobs market (Council of the European Union, 2017). In 2015, a graduate tracking system was set up to raise new students' awareness of future employment prospects. The graduate tracking questionnaire is currently being updated.

The National Pact on Education creates an opportunity to improve how Spain implements the Bologna Process and make higher education more effective. The Bologna reform was subject to criticisms and many in the higher education system were reluctant to implement it. It is formally considered to be fully implemented now. However, it is frequently argued that not all the human and financial resources needed to implement the reform well were provided, and that choices were made to minimise its impact rather than maximise its benefits. The national pact creates an opportunity to evaluate Bologna's impact and refocus on how to achieve the necessary transformation of higher education to strengthen quality, effectiveness and employability. The pact's agenda includes four points on higher education: develop a university educational offer that matches the demands of local industry to improve competitiveness and students' employability; review the financing model in order to link public funding better to agreed objectives; favour a new model of university governance; and establish the category of research teaching staff as a means to promote university excellence.

The capacity of universities to cooperate with business is improving, but challenges remain. Business-university cooperation is supported by the 2013-2020 national strategy on science, technology and innovation. It mainly emphasises cooperation in research and development less so education or staff and student mobility involving business. Some regional administrations and universities are, nevertheless, being particularly proactive in responding to the EU recommendation to foster cooperation between universities and businesses. However, the limited mobility of students and academic staff, limited traineeship opportunities, lack of incentives and the rigidity of university governance remain obstacles to cooperation with business on education or research.

7. Modernising vocational education and training and promoting adult learning

Spain needs to better adapt young people's skills to the jobs market and increase the attractiveness of VET programmes. The proportion of Spain's upper secondary students (ISCED 3) in VET slightly increased from 34.4 % in 2014 to 35.2 % in 2015, but remains far below the EU average. The employment rate of recent upper secondary VET graduates in 2016 (61.3 %) was well below the EU average. Adult participation in learning is 9.4 % in 2016, also below the EU average. Spain finalised the reform of training for employment (the TES — *subsistema de formación para el empleo*). Its objectives for 2015-2018 include promoting training to upgrade the skills of trainers, teachers, assessors, career counsellors, managers and advisers. This is envisaged through the work of the national reference centres. Since 2015, 'joint sectoral structures' bring together sectoral business and unions to ensure that each sector's training needs are covered. Some regions have developed comprehensive modular approaches for apprenticeships. The law which regulates VET (Ley 30/2015) also covers training opportunities for all workers to improve their employability. It allows them to use the right to training and the opportunity to validate professional skills obtained through training and work. Particularly for adult learning, the modular approach is yielding positive results, such as partial qualification and certification. This allows people to attain a full qualification at their own pace.

Box 3: Integrated qualification and employment programme

The *Programa integral de cualificación y empleo* is implemented by chambers of commerce. It includes orientation and training activities and also creates partnerships with companies as potential employers. The programme is aligned with the Youth Guarantee's aim of providing a high-quality offer of employment, continuous education, training or apprenticeship to people under 30 who have finished formal education or become unemployed.

Each individual programme is developed on the basis of the person's profile, interests, level of education and personal skills. It also responds to demand from companies and takes account of the formal qualifications needed. The programme includes complementary training, mobility and 'dual training' plans.

The training plan can include consecutive actions designed as a complete training itinerary, with a career orientation decision and the necessary training to become employable in the chosen field. Basic general education as well as specific training are provided. Outreach to companies that are potential employers is undertaken. The plan is implemented within the shortest time possible.

The dual training plan can provide training that leads to accreditation with professional certificates, through training and apprenticeship contracts. It includes various phases, starting with mapping of companies, carrying out a training needs analysis, providing training to companies and developing training plans. All of this is coordinated by tutors within the chambers of commerce, who follow up individual participants.

The mobility plan includes opportunities for training and work experience in other EU countries.

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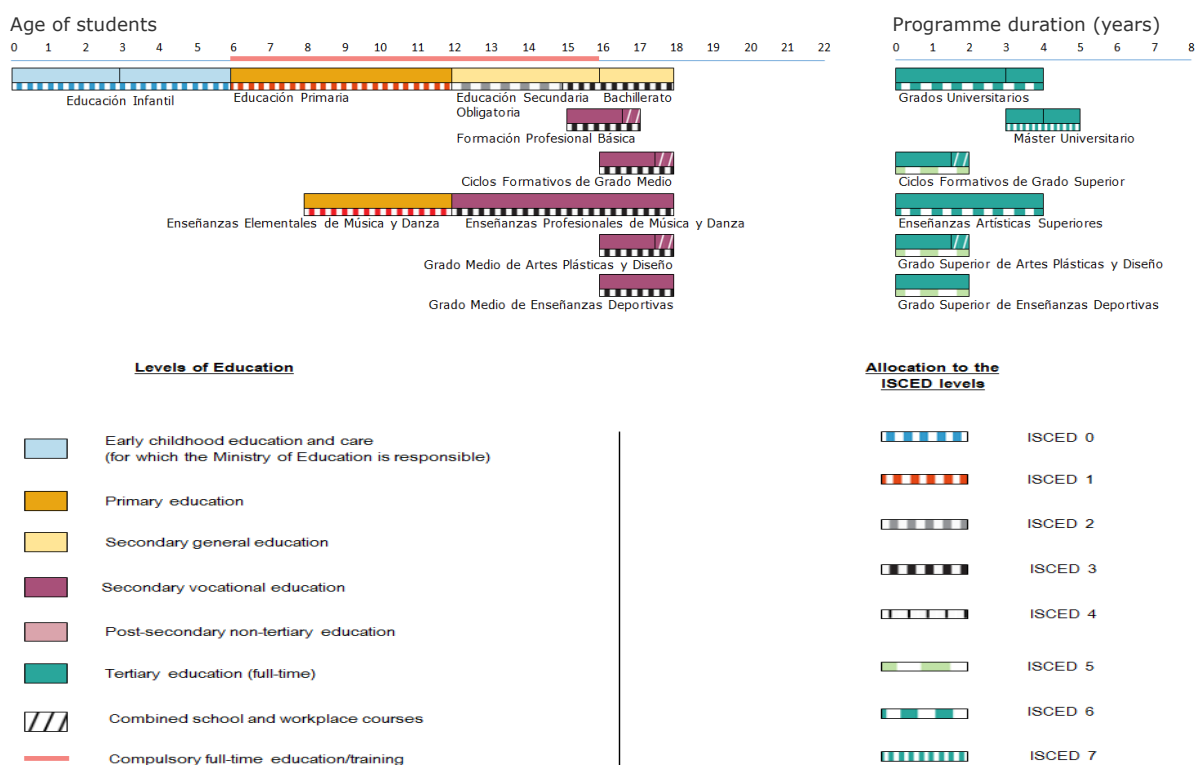
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9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04

10. Annex II. Structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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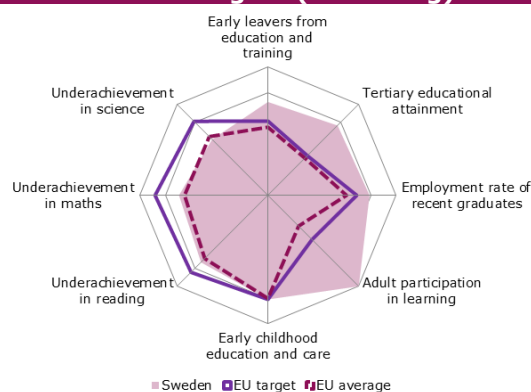
SWEDEN

1. Key indicators

		Sweden		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	7.1%	7.4%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	48.3%	51.0%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		95.9% ¹²	95.0% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	22.7% ¹²	18.4% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	27.1% ¹²	20.8% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	22.2% ¹²	21.6% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	84.9%	86.7%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	28.4%	29.6%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	6.6%	6.5% ¹⁵	5.0%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€8 114	€8 020 ¹⁴	:	: ¹⁴
		ISCED 3-4	€8 242	€7 995 ¹⁴	:	: ¹⁴
ISCED 5-8		€17 461	€17 568 ¹⁴	:	: ¹⁴	
Early leavers from education and training (age 18-24)	Native-born	6.3%	5.9%	11.0%	9.8%	
	Foreign-born	12.2%	15.2%	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	49.6%	51.9%	37.8%	39.9%	
	Foreign-born	45.1%	49.2%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	80.2%	81.6%	69.4%	72.6%	
	ISCED 5-8	89.9%	91.4%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	2.5%	2.2% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	24.0%	16.6% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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.

3. Tackling inequalities and promoting inclusion

Sweden's school system has been relatively equitable, but there are signs of growing inequalities in learning outcomes. According to the OECD's 2015 Programme for International Skills Assessment (PISA), the impact of socioeconomic background on students' performance in science at age 15 is around the OECD average. However, where in 2006 a socioeconomically advantaged student scored 77 points higher in science than a disadvantaged one, in 2015 the difference increased to 94 points (equivalent to more than 3 years of schooling).

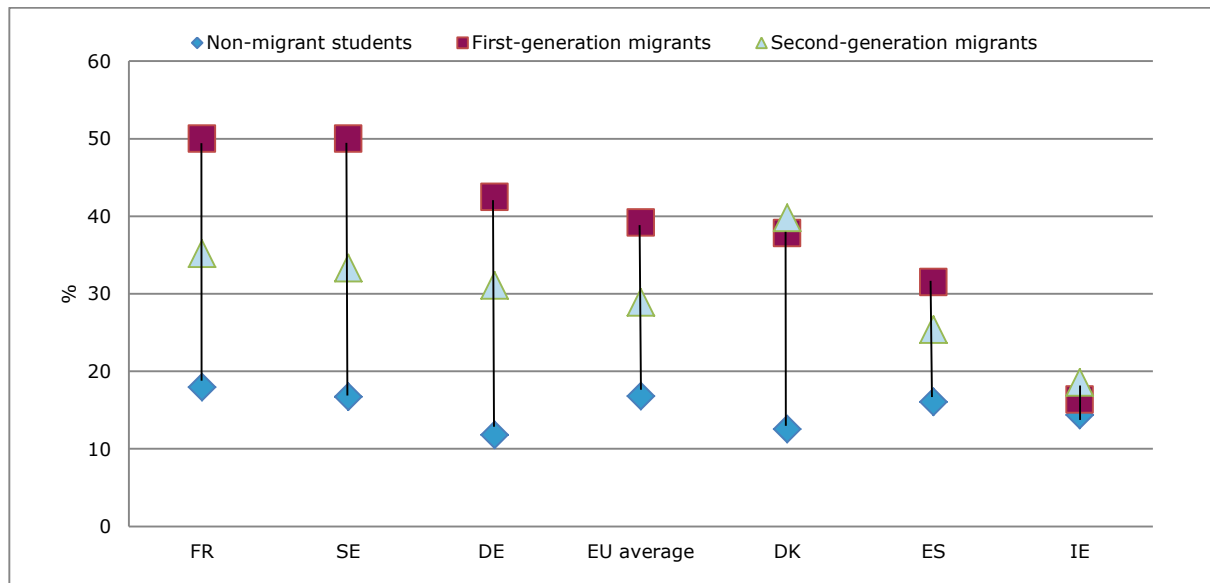
The performance gap between foreign-born and native students remains high and is of growing importance as the numbers with a migrant background rise. In PISA 2015, one in two foreign-born students performed below the baseline level in science. Although the proportion of low performers is smaller among the second generation (i.e. native with foreign-born parents), it remains high at 33.3 %. The proportion among non-migrant background students is by comparison 16.7 % (Figure 2). These results are important given the sharp rise in students from a migrant background. They made up 17.4 % of the 2015 PISA population, compared to 11 % in PISA 2006 (OECD, 2016c).

The transition from compulsory to upper secondary school is a hurdle for many foreign-born students. On reaching the end of compulsory schooling after grade 9 (age 16), one in two students who migrated after the age of 7 do not qualify for an upper secondary 'national programme'.²⁵⁴ This very high proportion compares to less than 10 % for native students (NAE, 2015b). The figure jumps to 72 % among those who arrive in the last 4 years of compulsory schooling. Students who are not eligible for a 'national programme' are directed to one of the five 'introductory programmes'.²⁵⁵ These were originally designed to provide tailored support for small numbers of struggling students and help them bridge the gap to the labour market or further education. In practice, however, these programmes, in particular the 'individual alternative', accommodate students with skills gaps and act as a holding bay until students leave the education system. 31 % of all 'individual alternative' students are foreign-born, often trapped in courses alongside weakly motivated native students (OECD, 2016d). Guidelines are lacking on how to organise these programmes, and links between 'national' and 'introductory programmes' are underdeveloped (SOU, 2016a).

²⁵⁴ Since 1 July 2011 there have been 18 'national' upper secondary programmes: 6 higher education preparatory programmes and 12 vocational programmes.

²⁵⁵ These are: preparatory education, programme-oriented individual options, vocational introduction, individual alternative and language introduction.

Figure 2. Proportion of low achievers in science by migrant background in 2015 (%)



Source: OECD (PISA 2015). Online data code: Table I.7.5a.

The achievement gap between foreign-born and native students has widened since 2008.

This probably reflects changes in the composition of foreign-born students. A higher proportion of recent migrants have arrived at an older age; those who migrated after the age of 7 have increasingly come from countries with weaker school systems. Students born in Africa and unaccompanied minors run the highest risk of failing at school (NAE, 2016a; Grönqvist et al., 2017). Although the early school leaving rate is below the EU average (7.4 % v 10.7 % in 2016), there is a growing difference between native students (5.9 %) and those born abroad (15.2 %).

High-quality early childhood education and care (ECEC), delayed tracking and low grade repetition, favour equity. But school choice may hinder it.

ECEC is well developed, with a curriculum ensuring both academic and socio-emotional development. Participation rates are high: 93 % of 3-year-olds are in an ECEC programme and participation from age 4 is 95 %. Compulsory education – primary and lower secondary education – is organised into a single structure and tracking takes place at the end of compulsory schooling. Grade repetition rates are low: only 4 % of 15-year-olds have repeated a grade, against the OECD average of over 11 % (OECD, 2017b). However, the distribution of school resources varies between municipalities and does not guarantee equal learning opportunities. There is also a strong relationship between performance and the types of school that students attend (OECD, 2017b). The concentration of students of low socioeconomic status in disadvantaged schools is largely a result of residential segregation. Nevertheless, evidence also suggests that school choice, which was part of the 1990s comprehensive school reforms, has exacerbated school segregation (Kallstenius, 2010).²⁵⁶

Getting newly arrived pupils into the school system remains a priority.

In the 2016/2017 school year, close to 80 000 pupils in compulsory schools were newly arrived,²⁵⁷ 17 000 more than a year before. Although admission to schools is still largely left to the discretion of the local municipality and the head teacher, central government guidelines have started to set standards. From 1 January 2016 skills mapping is the basis for placing students in a grade and for planning their instruction. Newly arrived students may be offered introductory classes for up to 2 years to ensure their phased transition to regular schooling. Nevertheless, structured assessment of students' knowledge in various subjects is still inadequate. Their progress is not systematically

²⁵⁶ The school choice policy was intended to create incentives for schools to offer better quality to all. In practice, socioeconomically advantaged students with well-informed parents tend to opt out of schools dominated by socioeconomically disadvantaged students, thus contributing to school segregation.

²⁵⁷ Newly arrived students are students aged 7-18, who have migrated to Sweden without a basic knowledge of Swedish. A student is considered newly arrived for up to 4 years after starting school.

tracked and documentation on their abilities may not be passed on if they move to another municipality (National School Inspectorate, 2017). Bridging the gap between schools and newly arrived parents is a further challenge (Bunar, 2016). In addition, the distribution of newly arrived pupils remains unequal, both between municipalities and between schools (NAE, 2017a).²⁵⁸

The government has boosted resources to tackle inequalities. In the 2017 spring budget the most disadvantaged compulsory schools received an additional SEK 500 million (EUR 52 million). SEK 150 million (EUR 15.6 million) was allocated to improve the quality of the 'introductory programmes'. In the 2018 draft budget a further SEK 1.5 billion (EUR 153 million) has been earmarked to improve equity across schools. The government's increased focus on inequality is in line with the proposal made by the Swedish School Commission, which called for an additional SEK 6 billion (EUR 613 million) to be invested in the coming 3 years to tackle inequality (SOU, 2017). In January 2017, the government also announced a long-term investment plan (covering 2017-2025) to support municipalities and independent school providers in offering high quality education to newly arrived students (MoER, 2017).

Box 1: 'Plug In 2.0' prevents young people from leaving school early

The 'Plug In 2.0' project (2015-2018) aims at improving the quality of upper secondary education and increasing the number of young people who successfully complete it. The target group is students aged 15-24, either in compulsory or upper secondary school or in an introductory programme at upper secondary level, who are at risk of interrupting their studies or have already dropped out of school. Newly arrived students are an important target group.

Eighty of Sweden's 290 municipalities have participated in activities including:

- mentoring and coaching to build positive relationships with students;
- identifying obstacles which prevent students from going to school;
- developing individualised study plans and more effective study paths for the newly arrived.

Plug In 2.0 is implemented by the Swedish Association of Local Authorities and Regions in cooperation with eight Swedish regions. It is co-financed by the participating municipalities and regions and the European Social Fund (ESF). With a budget of SEK 160 million (EUR 16.4 million) and close to 11 000 young people benefiting, Plug In 2.0 is the largest cooperation project in Sweden that tackles early school leaving.

The digital platform 'Pluginnovation' at <http://pluginnovation.se/eng> follows projects, shares methods, research findings and lessons learnt. More information is at <https://skl.se/english-plugin/>.

4. Investing in education and training

Investment in education has been stable over the past decade. General government expenditure on education was among the highest in the EU in 2015, as a proportion both of GDP (6.5 %) and of total general government expenditure (13 %). The financing of both compulsory and upper secondary education has been fully decentralised since the early 1990s. Education takes a major proportion of municipalities' total expenditure, representing on average 40 % of a municipality's budget (OECD, 2016b). The majority of school funding comes from municipal tax revenues while about 10 % is direct central government investment.²⁵⁹ There are variations between municipalities in how they allocate resources to schools, with some weighting funding by socioeconomic criteria. All schools are publicly funded regardless of whether they are municipal or independent.²⁶⁰

²⁵⁸ 10 % of municipalities have accommodated 41 % of all newly arrived pupils. 9 % of the pupils in municipal schools are newly arrived compared to 3 % in independent schools.

²⁵⁹ In 2017, the total direct central government investment in education amounted to SEK 11 billion (EUR 1.14 billion).

²⁶⁰ In 2015/2016, one in seven compulsory school students and more than one in four upper secondary students attended an independent school.

Sweden invests more in tertiary education than the EU average. Total expenditure on the higher education sector, including research, the costs of the central government managing agencies and study support to students, corresponds to 1.81 % of GDP. The largest proportion of funding (80 %) comes from public sources. Private funding is mainly additional funding for research undertaken. A further 5 % consists of funding from the EU, other international sources and financial revenues (Swedish Higher Education Authority, 2017).

5. Modernising school education

School education outcomes in terms of basic skills proficiency have improved after years of deteriorating performance. In PISA 2015, student performance improved significantly in mathematics and reading compared to 2012, and remained broadly stable in science. The proportion of low-achievers is now close to the EU average in all three core domains. 3.9 % of 15-year-olds are top performers in all three subjects, just above the EU average of 3.7 %. In mathematics, Sweden has managed to raise excellence by increasing the proportion of top performers to around 10 %. This is higher than in 2012, but the trend since 2003 still shows a decline in the proportion of top performers in mathematics. The proportion of top performers has not changed significantly in science compared to 2006, or in reading compared to 2009. Girls and boys perform similarly in science and mathematics, but in reading twice as many boys (24 %) as girls (12 %) are low achievers (OECD, 2016), a wider gap than the EU average.

Measures aim at improving students' basic skills. The government is prioritising 'early intervention', i.e. the first years of schooling, and continues to allocate a central grant of SEK 2.3 billion (EUR 0.2 billion) per school year for the pre-school class and grades 1-3 (age 7-9). Education providers and schools can use the grant to reduce class sizes and employ more primary or special needs teachers. Under the 'reading-writing-arithmetic guarantee', due to enter into force in July 2018, all students should have achieved a baseline level in reading, writing and mathematics on finishing grade 3. To make the guarantee work, a mandatory mapping of pupils' competences in the pre-school class and further diagnostic tests in grades 1 and 3 are proposed. They will also have a right to support in mathematical, reading and writing development (SOU, 2016b).

Recruiting and retaining talented professionals in the teaching profession remains a challenge. Teachers are leaving the profession (SOU, 2016c) and 39 % of teachers are 50 or older (OECD, 2017a). Close to 60 000 new full-time teachers and over 24 000 pre-school teachers would need to be recruited by 2019 to meet demand (NAE, 2015a). At the start of the 2016/2017 school year there was a shortfall of 5 000 teachers, according to the National Union of Teachers. Recruitment is hindered by the low perceived status of teachers and by wages below both the OECD and EU-22 averages later in the career (OECD, 2014 and OECD, 2016a).

The government is increasing financing incentives to make the teaching profession more attractive. The government has earmarked SEK 3 billion (EUR 0.31 billion) per year to increase teacher salaries. Since the start of the 2016/2017 academic year, one in three teachers and pre-school teachers, 65 369 in total, have benefited from the government's 'Boost for Teacher Salaries' initiative. This has given them a monthly salary increase of SEK 2 600 (EUR 271) on average. Since autumn 2016, SEK 1.4 billion (EUR 0.15 billion) has been passed on to teachers and pre-school teachers, representing 90 % of the budget earmarked (NAE, 2017b). The career development reform, launched in 2013, also provides a salary raise linked to career advancement steps for one in six teachers. This amounts to SEK 5 000 (EUR 528) per month for 'first-class teachers'²⁶¹ and SEK 10 000 (EUR 1 056) per month for 'senior lecturers'.²⁶² The government continues to support teachers' continuing professional development (Box 2) and will finance around 3 600 new study places, with a focus on teachers of Swedish as a second language.

²⁶¹ Teachers who stand out in their teaching practice.

²⁶² Teachers with a licentiate degree.

Box 2: Innovative professional development in mathematics and reading

'Boost for Mathematics' ('Matematiklyftet') and 'Boost for Reading' ('Läslyftet') are the most significant collaborative learning programmes targeting the teaching workforce ever developed in Sweden. The programmes are based on research in school improvement and take place locally in schools. They focus on peer learning between teachers on how they plan, conduct and evaluate their teaching — a different approach from traditional individual-based professional development. The 'Boosts' provide teachers with new tools to develop their own teaching and ultimately improve the skills of their students (NAE, 2016d).

By the end of 2016, 35 580 teachers of mathematics — three out of four maths teachers in compulsory and upper secondary schools — had participated in the 'Boost for Mathematics' (2012-2016) for at least 1 year. In addition, 1 668 tutors and 2 961 head teachers were trained. The didactic material was developed by the National Agency for Education, together with over 20 universities and the National Centre for Mathematics Education. According to surveys (NAE, 2016b), teachers have embraced the initiative and believe that they are now more aware of their role, communicate better in the classroom and manage to tailor their teaching to students' different needs. The cost of the programme is estimated at EUR 56 million.

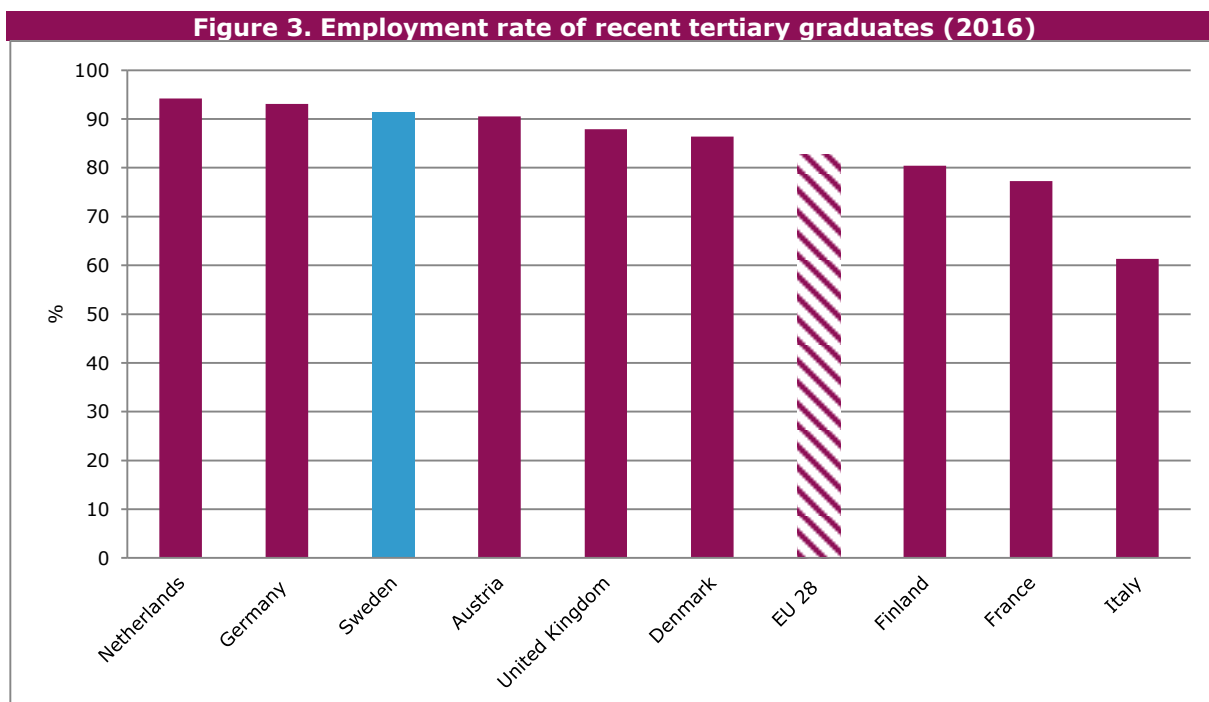
20 000 teachers and 1 600 schools have been taking part in the 'Boost for Reading' (2015-2018). While the main target group is teachers in compulsory and upper secondary schools, the programme has been extended to pre-schools to improve the teaching of Swedish to non-mother tongue children. Total funding of the programme is being increased from EUR 6.2 million to EUR 9.5 million, while pre-schools will receive EUR 0.62 million in 2017-2019.

In PISA 2015, student performance in mathematics improved markedly compared to 2012. Although it is early to say what reversed the previous negative trend, the 'Boost for Mathematics' may have played a role.

6. Modernising higher education

Sweden's tertiary educational attainment rate is at an all-time high and the employment rate of recent tertiary graduates is one of the highest in the EU (Figure 3). 51 %²⁶³ of 30- to 34-year-olds completed tertiary education, above both the EU average of 39.1 % and the national Europe 2020 target of 45-50 %. The current upward trend may slow as the number of higher education entrants declined each year between the peak in 2009/2010 (107 000 entrants) and 2015/2016 (86 000 entrants). One quarter of all entrants come from abroad, over half of them from countries in the EU/EEA and Switzerland. Following a heavy drop in 2011/2012 when tuition fees were introduced for students from outside the EU/EEA and Switzerland, the total of foreign students, including fee-paying ones, has now started to increase (Swedish Higher Education Authority, 2017). The average age of university entrants has traditionally been high but the proportion of 21-year-old or younger entrants has grown in recent years, with one in two now 21 or below. This is partly due to the size of the 19- to 21-year-old cohort, but mainly to changes in the admission regulations which favour younger applicants.

²⁶³ In 2016, the rate was 59.2 % for women and 43.4 % for men. The number of women in higher education has risen faster than the number of men over the past 30 years.



Source: European Commission elaboration on Eurostat data. Online data code: edat_lfse_24.

Sweden's student support system is highly equitable. The majority of students finance their studies with the financial support, a combination of study grants and study loans, they receive from the state. In 2016, the maximum financial support for an academic year of 40 weeks, for a student pursuing full-time studies, amounted to SEK 99 040 (EUR 10 305).²⁶⁴ Students may receive financial support for a maximum of 12 semesters or 6 academic years and can apply for the support until they turn 56. Repayment of the loan is based on an annuity system and the debt is to be repaid within 25 years or before the borrower reaches the age of 60.

The government is putting resources into widening participation. It will finance around 14 600 new study places by 2019 and has also allocated an additional SEK 250 million (EUR 25.56 million) for 2016 and 2017 to humanities, social sciences, law, theology, and teacher and pre-school teacher education. The government has earmarked the same amount for 2018 for the same subjects. The additional funding will support more teacher-led instruction aiming at improving students' chances of successfully completing higher education. Since 2017 a new quality assurance system is in place, developed by the Swedish Higher Education Authority in conjunction with the higher education sector. In April 2017 the government launched an inquiry into the governance and financing of higher education. The objectives are to develop a system that allows more people from socioeconomically disadvantaged backgrounds to enter higher education and to enhance links between research, study programmes and the society.

²⁶⁴ In 2016, the study grant for an academic year was SEK 28 160 (EUR 2 930) and the loan ceiling amounted to SEK 70 880 (EUR 7 375).

7. Modernising vocational education and training and promoting adult learning

The government aims at increasing the attractiveness of vocational education and training (VET), yet challenges remain. The participation of upper secondary students in VET is decreasing. By contrast, the employment rate of recent upper secondary VET graduates, at 83.9 % in 2016, is well above the EU average. The number of apprenticeships at upper secondary level has increased every year since apprenticeship was introduced in 2011.²⁶⁵ The government is working towards VET programmes granting again eligibility to higher education.²⁶⁶ The Parliament has also endorsed a 5-year pilot scheme creating so-called 'branch-schools'. Students will follow specialised VET-courses in 'branch-schools', located around the country, as part of their training in an upper secondary school in their home municipality.

Access to adult education is being widened, primarily to improve labour market outcomes for the low-skilled. Participation by adults (25-64) in learning is high and growing: in 2016 the rate was 29.6 % compared to the EU average of 10.8 %. However, participation by the low-educated, who stand to benefit the most, is lagging behind (19.3 % in 2016). From 2017, at an estimated cost of SEK 537 million (EUR 56 million) a year, all adults have the right to education at upper secondary level. This is a significant extension of the previous entitlement to complete compulsory schooling. Around 70 000 adults are expected to complement their previous studies and obtain an upper secondary qualification that gives access to higher education and improves their chances in the jobs market. To help curb skills mismatches among newly arrived adults, a Swedish Tuition for Immigrants (SFI) course is offered to migrant residents aged 16 or older, in combination with employment, vocational education or other studies.

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²⁶⁵ In autumn 2015 the number of apprentices was 8 400, up from 6 000 in autumn 2013, representing around 9 % of all VET students (NAE, 2016c).

²⁶⁶ Before the 2011 upper secondary school reform, all vocational 'national' programmes had courses that granted eligibility to higher education.

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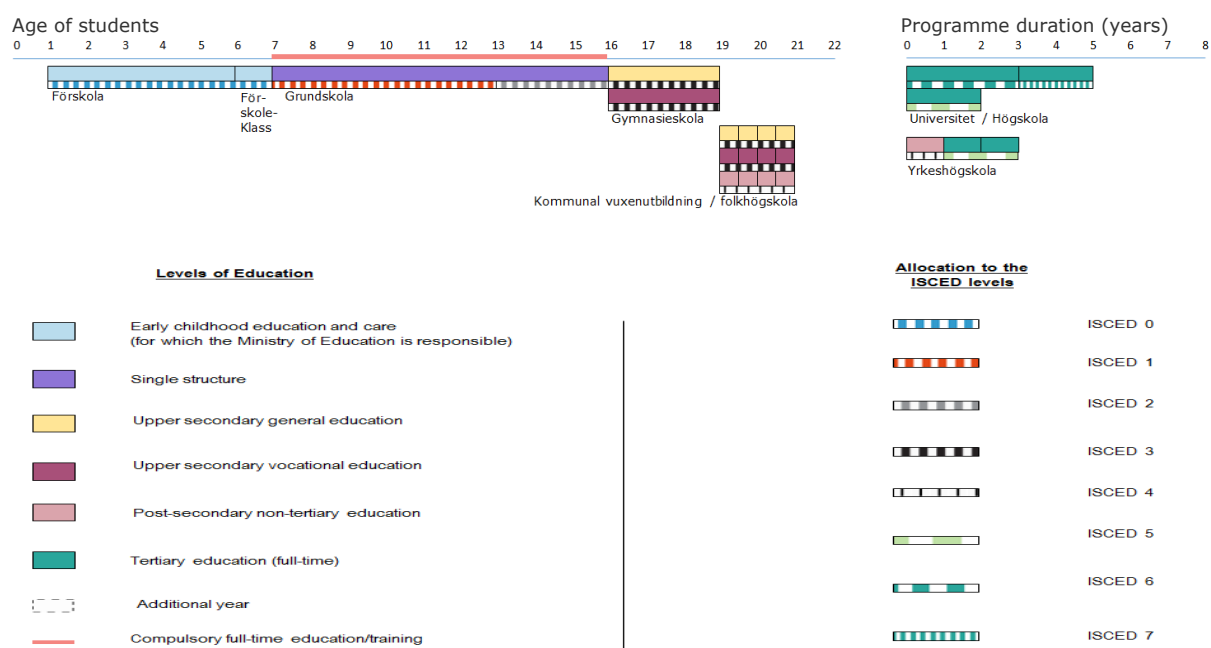
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9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. Structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. *The Structure of the European Education Systems 2016/17: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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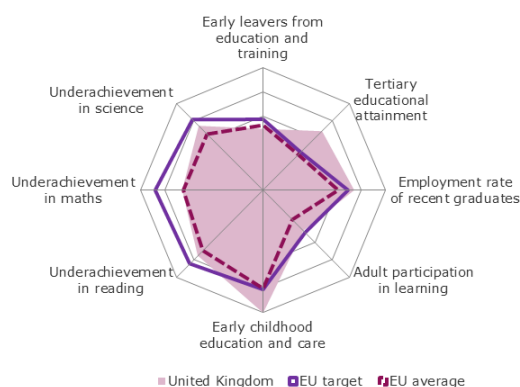
UNITED KINGDOM

1. Key indicators

		United Kingdom		EU average		
		2013	2016	2013	2016	
ET 2020 benchmarks						
Early leavers from education and training (age 18-24)	Total	12.4%	11.2%	11.9%	10.7%	
Tertiary educational attainment (age 30-34)	Total	47.4%	48.1%	37.1%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		97.3% ¹²	100.0% ¹⁵	93.9% ¹²	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	16.6% ¹²	17.9% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	21.8% ¹²	21.9% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	15.0% ¹²	17.4% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	83.8%	84.4%	75.4%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	16.6%	14.4%	10.7%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP		5.4%	5.1% ¹⁵	5.0%	4.9% ¹⁵
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€8 488	€8 652 ¹⁴	:	: ¹⁴
		ISCED 3-4	€8 581	€9 167 ¹⁴	:	: ¹⁴
		ISCED 5-8	€18 999	€18 093 ¹⁴	:	: ¹⁴
Early leavers from education and training (age 18-24)	Native-born	12.7%	11.5%	11.0%	9.8%	
	Foreign-born	9.9%	9.4%	21.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	44.8%	45.6%	37.8%	39.9%	
	Foreign-born	54.8%	54.7%	33.4%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	78.1%	77.8%	69.4%	72.6%	
	ISCED 5-8	87.8%	87.9%	80.7%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	15.7%	16.9% ¹⁵	5.5%	6.0% ¹⁵	
	Inbound graduates mobility (master)	46.1%	47.8% ¹⁵	13.6%	15.1% ¹⁵	

Sources: Eurostat (see section 9 for more details); OECD (PISA). Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; b = break in time series, d = definition differs, e = estimated, p = provisional, u = low reliability, 12 = 2012, 14 = 2014, 15 = 2015. On learning mobility, the EU average is calculated by DG EAC based on available country data in all years. Further information is found in the respective section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

2. Highlights

- 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.

3. Tackling inequalities and promoting inclusion

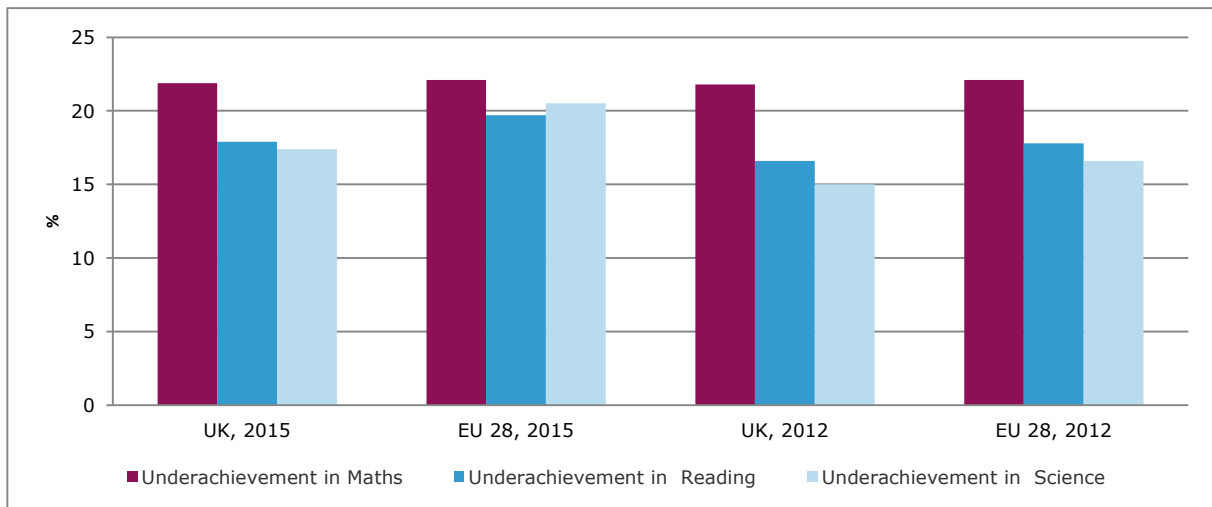
The early school leaving rate in the UK dropped from 14.9 % in 2011 to 11.2 % in 2016, despite a small increase of 0.4 pp. over 2015. It remains slightly above the EU average of 10.7 %. Unusually among EU countries, early school leaving is lower among students born outside the country (9.4 %) than those born in the UK (11.5 %). The gender difference recently increased, with boys now more likely to leave school early by 3.3 pps. in 2016, above the EU average (3 pps.).

The rate of 4-year-olds and older enrolled in early childhood education and care has reached 100 %. This puts the UK among the three best providers in the EU with France and Malta.²⁶⁷ Around a quarter of children under the age of three — 26.1 % — are covered by early education and childcare, the second best in the EU.²⁶⁸ The OFSTED annual report for 2015-2016 notes that investment in early years education in England has led to improvements in quality, as measured by the proportion of nurseries, pre-schools and childminders rated as 'good or outstanding' (91 %) including in socioeconomically deprived areas. However, it has not yet led to clear improvement in the earliest signs of unequal educational attainment. Statistics for England for 2015-2016 show that nearly 200 000 children from poorer backgrounds do not meet the expected literacy, numeracy and learning standards in early primary school (DFE, 2016a). The Childcare Act increases free childcare provision for children aged 3 to 4 from 15 hours a week to 30 hours to children of parents working at least 16 hours a week from September 2017. There are some concerns that increased hours demand from working parents could reduce part-time places available to the detriment of the most disadvantaged children. (Brown, 2016).

UK students' basic skills in science, mathematics and reading are stable, high and fairly equitable according to the PISA 2015 survey. The average science, mathematics and reading performance of 15-year-olds has remained stable since 2006. Compared to 2012, the proportion of low achievers has remained stable in maths (22 %) but slightly worsened in reading (18 %) and science (17 %) These rates are better than the EU average in all three fields (Figure 2). The impact of socioeconomic status on performance is relatively small. Only 11 % of the variation in student performance in science is attributed to differences in students' socioeconomic status. The gap in performance between non-immigrants and first-generation immigrants is small and second-generation immigrants perform similarly to non-immigrants.

²⁶⁷ Latest data from 2015, Eurostat online data code: [educ_uae_enra10](#).

²⁶⁸ Eurostat, 2015. Online data code: [ilc_caindformal](#).

Figure 2. Underachievement in PISA basic skills, UK & EU average 2012, 2015 (%)


Source: OECD (PISA 2015, Volume I). Online data codes: [table 1.5.2a](#), [table 1.4.2a](#), [table 1.2.2a](#).

There are gaps in performance between the UK's different nations. Students in England and Northern Ireland score above the OECD average. Students in Scotland score around the OECD average, while students in Wales score below it. EU-level indicators show comparatively good performance on equity. Nevertheless, according to the Sutton Trust review of the attainment gap in PISA 2015 results, the gap in England and Scotland between top performers from an economically disadvantaged background and their 'well off' peers was equivalent on average to more than two years of schooling.

4. Investing in education to address demographic and skills challenges

The UK's general government expenditure on education as a proportion of GDP stood at 5.1 % in 2015, above the EU average of 4.9 %. Similarly, in 2015 the UK spent a higher proportion of total government expenditure on education — 12.0 % — than the EU average of 10.3 %. These are the lowest proportions the UK has seen since 2007, representing a significant drop from 6.5 % of GDP in 2010

Employment rates in the UK are higher than those of most EU countries, at all qualification levels. The difference in the employment rates between upper secondary and tertiary graduates in the UK — 9 pps. — is relatively small compared to the average 11.6 pps. across the EU.

As part of the broader drive to cut public deficits, 2015 saw budget cuts in pre-primary, further and higher education in England. The 2016 budget compensated for some of these by announcing additional investments, for example of GBP 20 million a year in a Northern Powerhouse (an economic development strategy for northern England) schools strategy (Northern Powerhouse strategy, November 2016). This and other strategies aim to close the area-based educational performance gaps.

There will be a new funding formula for school in England, implemented progressively until 2019-20, with around GBP 500 million of additional core funding. This will be a major change, using a single across the board in place of the current formula under which funding per school pupil could vary by up to 50 % reflecting different local criteria (Box 1).

The government will protect the funding for special needs and disabilities education allocated to local authorities and the pupil premium payable to schools in respect disadvantaged pupils. It will also provide funding to develop strategic plans and capital funding where there is a need to expand provision.

Box 1: New school funding formula in England

Currently, the government assigns the Dedicated Schools Grant (DSG) to local education authorities, who in turn distribute it to schools. There are three blocks: schools, high needs²⁶⁹ and early years education. Local authorities, in consultation with their schools forum (DFE, 2015), are responsible for deciding how to distribute the funding between the blocks and set formulas for allocation to each school and early years provider. Local authorities receive direct funding for special schools and units.

From 2019-2020, the government proposes to set funding nationally through 'a hard national funding formula' that will apply to all 'mainstream schools.' Special schools will continue to be funded as at present. This will do away with the high degree of variability in school funding.

Thirteen factors will determine the DSG for schools:

- A. Basic per-pupil funding based on an age-weighted pupil unit (1)
- B. Additional needs funding based on indicators of deprivation (2), low prior attainment (3), English as an additional language (4) and mobility (5).
- C. School-led funding based on lump sum (6), sparsity (7), premises related costs — rates (8), private finance initiative (PFI) (9), split sites (10) and exceptional circumstances (11) — and growth (12)
- D. Geographic funding based on area cost adjustment (13)

The government undertook a consultation until March 2017 on how the new weighting factor would operate and on transition arrangements to mitigate the effects on schools set to lose funding. The political and public debates have been wide ranging. Most criticism concerned, not the funding formula as such, but the adequacy of overall funding relative to needs — for example, related to maintenance costs in an ageing set of school buildings. (DFE, 2017c)

5. Modernising school education

The White Paper 'Educational Excellence Everywhere' of March 2016 outlined a radically changed schools strategy for England 2016-2021. It sought in particular to address issues such as low basic skills on entry into secondary schools and the underperformance of schools in socially disadvantaged areas, to increase parental choice and to allow schools to focus on specialisations in line with employment prospects. It proposed that all state-funded schools would be run by new academy trusts with minimum involvement of local authorities, and often with input from outside sponsors. It envisaged the creation and expansion of grammar schools. However, during 2016, the government responded to concerns by envisaging a more limited academisation. In 2017, the new government's legislative programme suggested that the commitment to the new school structures outlined in the White Paper may not be maintained.

Irrespective of the choices made on school structures, challenges remain in meeting key targets. Infant school class sizes – covering children aged 4 to 7 - are meant to be no larger than 30 pupils but statistics from January 2016 show that 5.8 % of these pupils are in classes larger than 30, the same level as 2014 (DFE, 2016b).

The supply and retention of teachers is a serious constraint on the system in England. A total of 30 000 new teachers per year are needed to maintain supply in England, but this target has not been achieved for the last four years. There are shortages also in Scotland. The number accepting places in teacher training courses in the 2016/2017 academic year has fallen by 6.9 %, to 26 000 (Richardson, H. 2017), compared to previous academic year. The problem of low supply is compounded by decreasing retention rates. A survey by the National Foundation for Educational Research in 2016 found that the proportion of teachers considering leaving the profession had increased from 17 % in 2015 to 23 % in 2016 (Busby, 2016). Likewise, a 2017 survey by the

²⁶⁹ Special tailored support for individual pupils with special educational needs.

Education Support Partnership showed that 27 % of senior school leaders across the UK do not expect to be working in education beyond the next one to two years and 44 % of teachers and school leaders do not expect to be doing so beyond five years. Surveys point at the heavy workload in the teaching profession, teachers' exposure to abuse and the 'pace of policy reform' as the main reasons behind this phenomenon.

The Institute for Fiscal Studies estimates that the high number of teachers who leave the profession within five years of qualifying is equivalent to GBP 312 million of public expenditure wasted on their initial training (Ward, 2017). The level of qualifications needed to be a teacher in a nursery school has also been the subject of public debate. In March 2017 (DFE, 2017, a) the government announced that in order to ease recruitment difficulties for early years educators, it would in effect ease qualifications²⁷⁰ requirements which had been introduced in 2014.

The government has increased support for teachers' continuous professional and leadership development. It set up the Teaching and Leadership Innovation Fund²⁷¹ worth GBP 75 million (over three years) to support teachers' continuous professional and leadership development in England. The new College of Teaching²⁷² will support teachers' professional development and create career professional pathways²⁷³ leading to the status of 'Chartered Teacher.'

ICT is widely used in classrooms. The 2013 OECD Teaching and Learning International Survey (OECD, 2014) showed that in England information and communications technology (ICT) is widely used in classrooms — by 37.1 % of teachers against 34 % in the EU as a whole. This is in line with the percentage of teachers having been trained in ICT (38.9 %). In 2014, England was the first EU country to introduce computer coding in the primary and secondary curricula. Despite initiatives to help increase teachers' skills, a lack of qualified teachers and IT resources remains a challenge - only 70 % of the required number of ICT teachers has been recruited. A June 2016 report from the House of Commons noted that 22 % of IT equipment in schools was 'ineffective;' that 65 % of teachers do not have any relevant IT qualifications; and that computer science teachers are still in short supply despite the fact that 13 % of computer science graduates are unemployed six months after graduation. The government response relies on the UK Digital Strategy presented in March 2017 which allocates funding for the Computing at School Network of Teaching Excellence in Computer Science. This network of over 350 master teachers can provide continuing professional development for teachers to support the implementation of the computing curriculum. The strategy also aims to encourage computing graduates into teaching, through generous bursaries, and, in partnership with the British Computing Society, scholarships for those training to be a teacher in 2017/18.

The National Teaching Service — a policy initiative in England to move excellent teachers and middle leaders into failing schools in return for better pay - was cancelled in December 2016 due to the poor take-up rate.

6. Modernising higher education

The UK tertiary educational attainment rate has increased continually since 2002. It reached 48.1 % in 2016.²⁷⁴, one of the highest in the EU, well above EU-28 average (39.1 % in 2016) and the EU benchmark for 2020 (Figure 3). The introduction of tuition fees (other than in Scotland where no fees are charged) and student loans has not had a noticeable downward effect on overall participation. Nevertheless, applications to higher education in January 2017 did in fact decrease by 5 % (England 6 %, Scotland 2 %, Wales 7 %, and Northern Ireland 5 %) compared to the previous year. Applications by 18-year olds were stable; applications from students over the age of 25 were 23 % lower.

²⁷⁰ Functional skills are detailed at <https://www.gov.uk/government/collections/functional-skills-qualifications-requirements>.

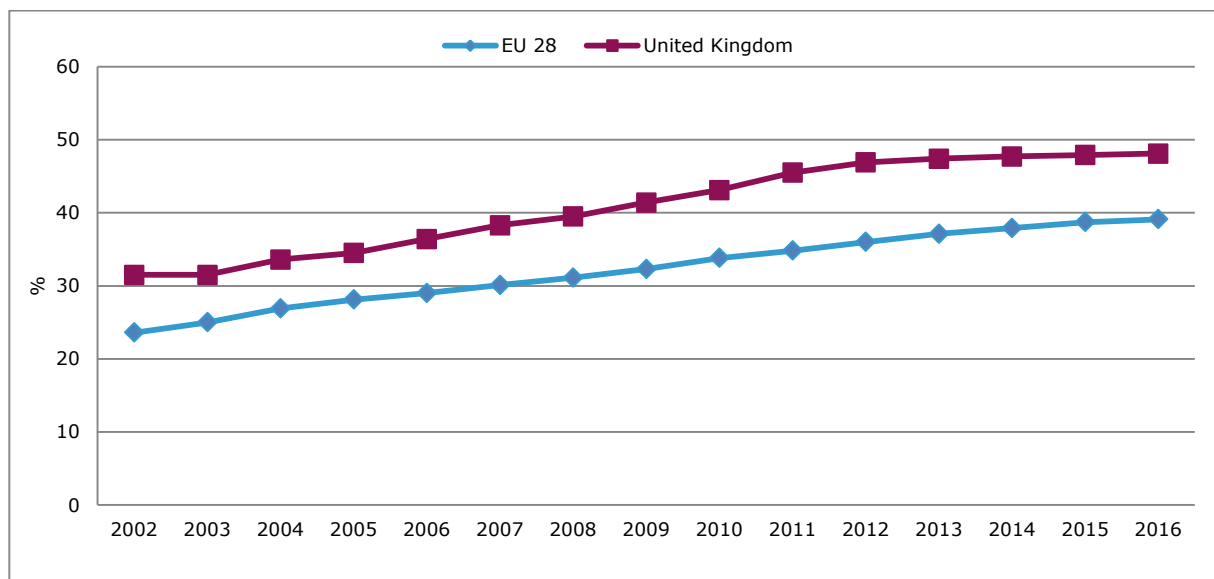
²⁷¹ URL: <https://www.gov.uk/guidance/teaching-and-leadership-innovation-fund>.

²⁷² URL: <https://www.collegeofteaching.org/>.

²⁷³ URL: <https://www.collegeofteaching.org/membership/professional-pathway>.

²⁷⁴ The proportion of the population aged 30-34 having completed tertiary or equivalent education.

Figure 3. Tertiary educational attainment rate in UK and EU-28, from 2002 to 2016



Source: Eurostat (LFS 2002 - 2016). Online data code: [edat_lfse_03](#).

The UK is one of the few EU countries where the proportion of tertiary graduates among the foreign-born population is higher than among the native-born. In January 2017 applications from non-UK EU students fell by 7 %, possibly reflecting concerns related to Brexit. The Higher Education Statistics Agency (HESA, 2017b) reported that 29 % of UK academics are from outside the UK (42 % in disciplines such as engineering and technology), of whom 20 % are from other EU countries (38 % in disciplines such as mathematics, physics and biology) (Coughan, 2017).

Widening third-level participation for disadvantaged students remains a political priority across the UK. Although young people from disadvantaged backgrounds are now 60 % more likely to participate in higher education than was the case in 2006, the participation gap remains large — they are 2.5 times less likely to attend higher education than average. Initially, disadvantaged students went more to 'lower ranking' universities, but there has been a 6 % increase since 2014 in such students attending the Russell Group of leading universities (the Economist, 2017). A study on regional differences in inequality within England published in March 2017 found wide differences in what are cited as barriers to participation: poor transport links; lack of local higher education provision; perceptions of job prospects; cost; and the different levels of information (Wiseman et al., 2017). The Office for Fair Access²⁷⁵ has annual access agreements with each higher education institute and, from 2018/2019 academic year, will agree arrangements with colleges and universities which are proposing a fee rise to secure places for talented students from disadvantaged backgrounds (OFFA, 2017). Loans for doctoral students (alternatively, supplementary studentships that are awarded by Research Councils) will be available through the Student Loans Company²⁷⁶ as a means of ensuring that funded research projects provide not just research outputs but study/career opportunities for talented researchers (DFE, 2017b).

The employability of recent tertiary graduates²⁷⁷ in 2016 rose above pre-crisis 2008 levels. At 87.9 % it is one of the highest in the EU. Statistics on graduate outcomes show that wage progression has continued and that 2003/2004 graduates enjoy sustained employment after 10 years. However, the 'graduate wage premium' has been reduced (Blundell, et al, 2016). In effect, as the proportion of graduates has increased employers recruit more of them, but for jobs

²⁷⁵ URL: <https://www.offa.org.uk/>.

²⁷⁶ URL: <http://www.sl.co.uk/>.

²⁷⁷ people aged 20-34 who left tertiary education between 1 and 3 years before the reference year.

that are less well paid. High levels of student debt, particularly in England where full fees are charged to all, have become a concern. Research by the Institute of Fiscal Studies estimates that 70 % of new graduates will be in their 50s before they pay off their debt (Tetlow, 2016). In August 2016, the National Union of Students (Coughlan, 2016) reported that 52 % of 2015 graduates were dissatisfied with the cost-benefit of their degree; 76 % were worried about long-term debt risks (NUS, 2016). Likewise, the 2016 Student Academic Experience Survey noted that only 27 % of students in 2016 (compared to 52 % in 2012) are convinced about the value-for-money of their degrees. Students in England where fees are highest were most critical. The Money Charity estimates that 2016 graduates will end up owing over GBP 41 000 (tuition loans, maintenance loans, and other accrued debt), which is one third of the average mortgage debt in England (Burns, 2016).

7. Modernising vocational education and training and promoting adult learning

Skills supply, utilisation and progression are the main challenges in vocational education and training in the UK. The proportion of upper secondary students (ISCED 3) in VET in 2015 was 40.1 %, below the EU average of 47.3 %. The employment rate of recent VET graduates in 2016, at 77 %, was slightly higher than the EU average of 75 %. Quality in apprenticeships needs to focus on both the qualification level undertaken and the subject area in which it is taken. Developing other funded routes for skills enhancement, particularly for people over 25, would expand the skills offer available to businesses and to individuals seeking career progression.

In England, the Technical and Further Education Act/Bill 2017 reforms technical education to help boost productivity by addressing skill shortages and ensuring high quality technical education. In its March 2017 budget, the government announced the introduction of new 16-19 'T-Levels' to replace thousands of current technical qualifications with 15 new career-focused pathways. The apprenticeship levy under which large employers pay into an account from which apprenticeships can then be funded - began in April 2017. Degree apprenticeships and apprenticeships for entrepreneurs are to be further developed, while a network of institutes of technology has been proposed. In Scotland, the government is reviewing the learning experiences of all 15- to 24-year-olds. The Education Bill includes a National Improvement Framework to provide robust, consistent and transparent data across Scotland so that what works and drives improvements can be better understood. In Wales, in February 2017, a new apprenticeship policy has been launched. This aims to create 100 000 high quality apprentices over the term of the current Assembly. Qualifications Wales has launched a long-term strategy to ensure that vocational qualifications meet the needs of learners, higher education providers and employers in a wide range of careers. A new strategic authority is to be created to oversee skills, funding for research and the higher and further education sectors in Wales. In Northern Ireland, a new traineeships and apprenticeships system will be offered from September 2017. The 2016 'Further Education Means Success' strategy includes recommendations for standardised approaches to receiving and analysing feedback from learners and employers. It also focuses on further developing provision at level 3 (EQF 4) and above; emphasises literacy, numeracy, and ICT competence; and provides for a new teacher education framework.

Adult participation in learning is higher than the EU average, but challenges remain. Adult participation in learning at 14.4 % in 2016 is above the EU average of 10.8 % but has been declining. Challenges include: to improve learners' willingness to participate; to increase employers' investment in learning; to improve equality of access; to provide learning that meets the needs of employers and learners; and to ensure a coordinated and effective lifelong learning policy.

In England, the March 2017 budget announced new lifelong learning pilots to test different approaches to retraining and upskilling throughout people's working lives, given the changing nature of work. Government will work with business and public sector organisations to identify how best to provide return-to-work support ('returnships') to people who have taken lengthy career breaks. The Education Funding Agency and the Skills Funding Agency have been merged to form the Education and Skills Funding Agency, to be the sole agency responsible for funding adult

learning. In March 2017, the Education and Training Foundation updated its implementation guidance for teaching qualifications in the lifelong learning sector. In December 2016, the government launched its strategy to keep the UK at the forefront of digital technology developments with an emphasis on skills development through a new Digital Skills Partnership. In Scotland, a new GBP 12 million Transition Training Fund (announced in early 2016) will help move people who face losing their jobs in oil and gas into other energy industry and manufacturing jobs through practical (re-) training and education. In Wales, the 'Taking Wales Forward 2016-2021' plan includes a priority to pilot new Community Learning Centres to provide extended services including family learning. In Northern Ireland, a careers strategy, 'Preparing for Success 2015-2020,' jointly agreed between the Departments for the Economy and for Education, was launched in March 2016. It aims to ensure that young people seek guidance before remaining in general education, taking up further education, an apprenticeship, or moving into training or employment; and that more people of working age use a new web-chat and telephone careers guidance centre to find suitable upskilling and reskilling opportunities. The 'Employment Strategy for People with Disabilities' launched in March 2016 aims to help disabled people of all ages achieve their full employment and career potential through enhanced working partnership arrangements between government departments and the local disability sector.

Box 2: Tees Valley Routeways

The Tees Valley Routeways project, led by Hartlepool Borough Council and delivered by a Tees Valley wide consortium, provides tailored routeways for young people aged 15- to 29 to support their movement into employment within local priority sectors. The project, which receives a combined ESF and Youth Employment Initiative investment, targets the top 15 youth unemployment hotspots in Tees Valley, and will support a total of up to 575 participants, by providing work experience, volunteering, apprenticeships, and enterprise activity. The project consults employers who provide industry knowledge based on current and emerging skills needs. This knowledge, along with employer partnerships, enables the project to design routeways for young people to receive training and work experience in priority areas. The aim is to capitalise on the estimated 120 000 replacement jobs and 25 000 new jobs to be created by a variety of industries across the sub-region in the next decade. 248 young people had signed up to the project by the end of March 2017, of which 90 have progressed into education, employment or training.

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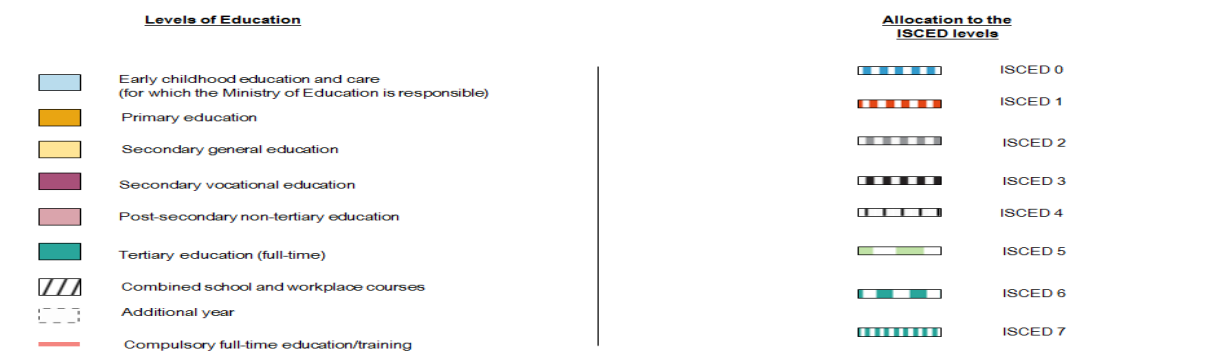
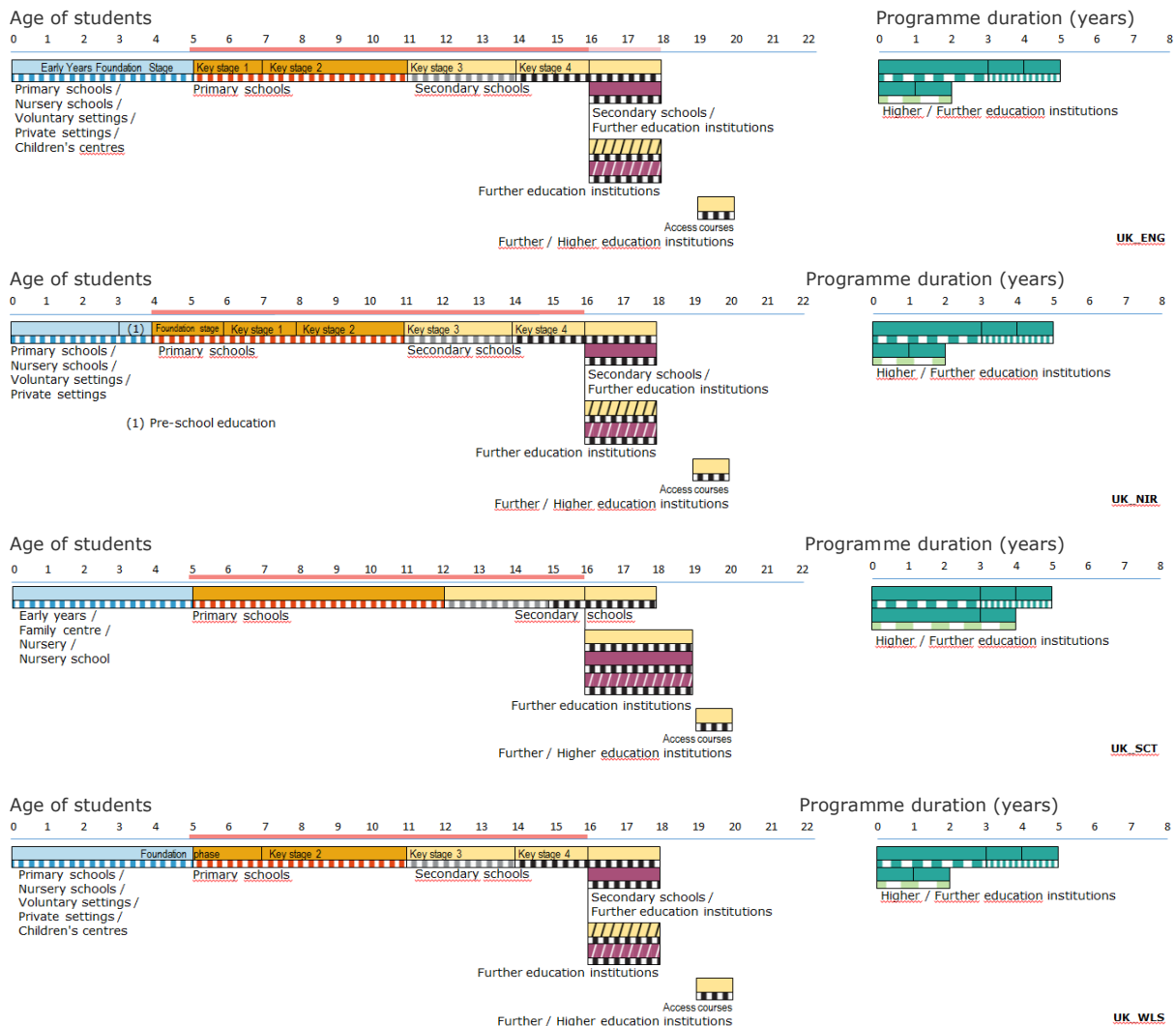
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9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility	educ_uoe_mobg03

10. Annex II. Structure of the education system



Source: European Commission/EACEA/Eurydice, 2016. The Structure of the European Education Systems 2016/17: Schematic Diagrams. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
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