



EUROPEAN
COMMISSION

Brussels, 9.11.2017
SWD(2017) 410 final

PART 2/3

COMMISSION STAFF WORKING DOCUMENT


Education and Training Monitor 2017

The Education and Training Monitor 2017 was prepared by the Directorate-General for Education, Youth, Sport and Culture (DG EAC), with contributions from the Directorate-General of Employment, Social Affairs and Inclusion (DG EMPL) and the Eurydice Network. DG EAC was assisted by the Education and Youth Policy Analysis Unit from the Education, Audiovisual and Culture Executive Agency (EACEA), Eurostat, Cedefop and the JRC's Human Capital and Employment Unit, Directorate Innovation and Growth. The Members of the Standing Group on Indicators and Benchmarks (SGIB) were consulted during the drafting phase.

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

Education and Training Monitor 2017 (Country analysis)

Contents

Contents	3
Introduction.....	4
 Austria	5
 Belgium.....	16
 Bulgaria	28
 Croatia	39
 Cyprus.....	49
 Czech Republic.....	60
 Denmark	71
 Estonia	82
 Finland	92
 France	102
 Germany	115
 Greece.....	128
 Hungary	139
 Ireland	150
 Italy.....	162
 Latvia	172
 Lithuania.....	182
 Luxembourg	192
 Malta	203
 Netherlands.....	213
 Poland	225
 Portugal	237
 Romania.....	247
 Slovakia	258
 Slovenia	270
 Spain	279
 Sweden	290
 United Kingdom	301

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.

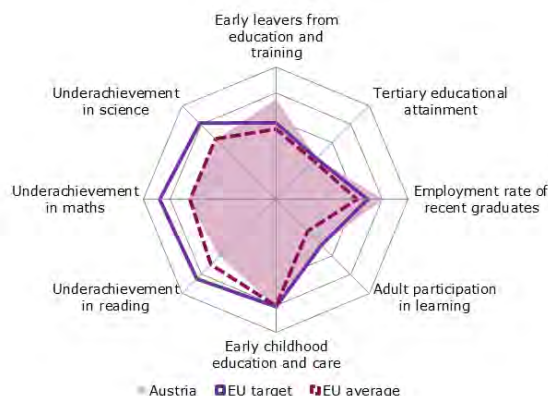
AUSTRIA

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 %).

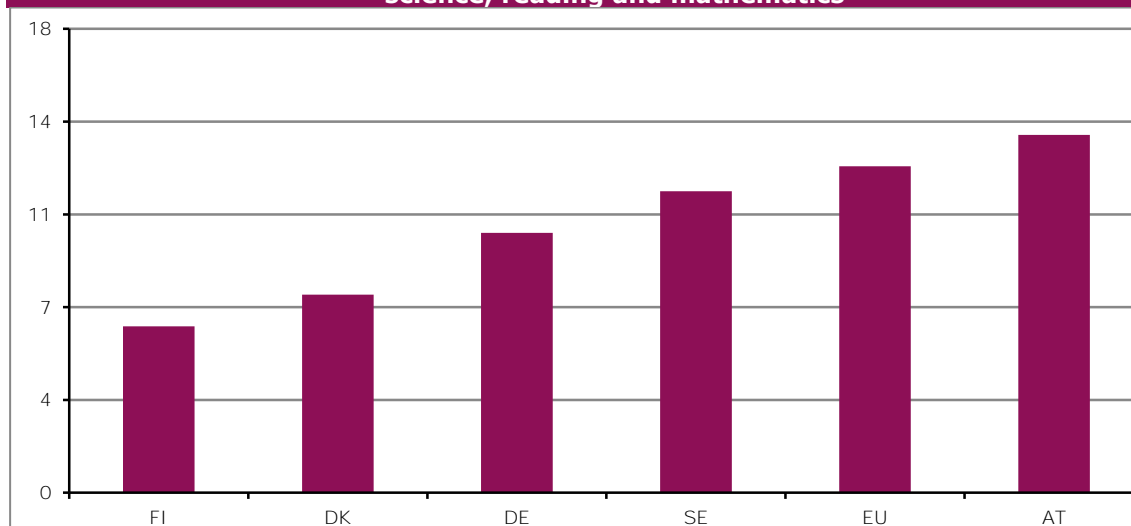
Participation in early education and care (ECEC) is continuously increasing. In 2015 the rate of participation in ECEC of children aged between 4 and the starting age of compulsory education (6) was in line with the EU average (95 % against 94.8 %). 97.2 % of 5-year-olds and 92.7 % of 4-year-olds attend 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

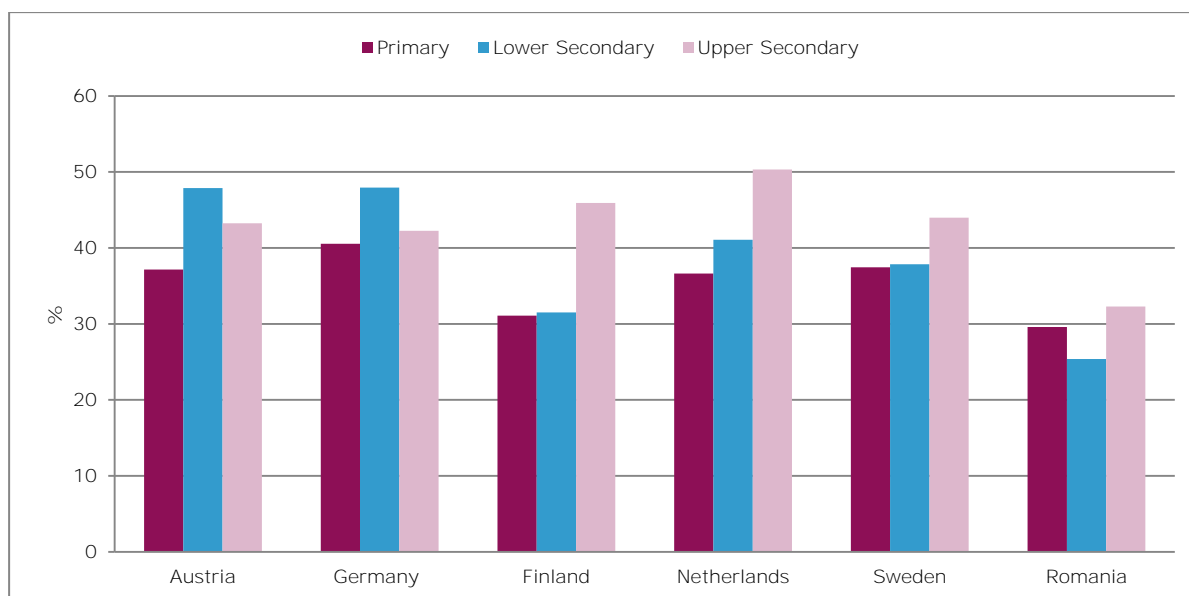
Austria faces the challenge of renewing its teacher population over the next decade. More than 40 % of teachers in secondary education are over 50. Class sizes are smaller than in peer countries (Germany, Finland or Denmark). In PISA 2015 Austria shows an above-average shortage of education staff (as 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.

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.gv.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.

7. References

BIFIE (2013), *Standardüberprüfung 2013, Englisch, 4.Schulstufe, Bundesergebnisbericht*.
https://www.bifie.at/system/files/dl/01_BiSt-UE_E8_2013_Bundesergebnisbericht_gesamt.pdf

BIFIE (2016a), *Nationaler Bildungsbericht/Austrian Education Report 2015*
<https://www.bifie.at/nationaler-bildungsbericht-oesterreich-2015/>

BIFIE (2016b), *Standardüberprüfung 2015, Deutsch, 4.Schulstufe, Bundesergebnisbericht*.
https://www.bifie.at/system/files/dl/BiSt-UE_D4_2015_Bundesergebnisbericht.pdf

BIFIE (2016c), *PISA 2015*.
<https://www.bifie.at/news/3796>

BMB-Federal Ministry for Education/Bifie (2016), *Nationaler Bildungsbericht Österreich 2016, (Austrian Education Report)*.
<https://www.bifie.at/nb>

BMB-Federal Ministry for Education, (2017), *digi.check4 Sammelpass für Volksschulen'*
<http://pubshop.bmbf.gv.at/detail.aspx?id=643>

BMWfW, Unger et al (2015), *Evaluierung des Aufnahmeverfahren nach §14UG 2002*.
https://www.ihs.ac.at/fileadmin/public/media_corner/user_upload/StEOP_Eval_Endbericht.pdf

BMWfW, (2017) *Nationale Strategie zur sozialen Dimension in der Hochschulbildung*.
https://www.bmwfw.gv.at/Presse/AktuellePresseMeldungen/Documents/2017_Strategien_Book_WEB%20nicht%20barrierefrei.pdf

BMWfW (2011), *Der Weg zum Innovation leader*.
https://www.bmvit.gv.at/innovation/publikationen/forschungspolitik/downloads/fti_strategie.pdf

Council of the European Union (2017), *Council Recommendation of 11 July on the 2017 National Reform Programme of Austria and delivering a Council opinion on the 2017 Convergence Programme of Austria*.
<http://data.consilium.europa.eu/doc/document/ST-9282-2017-INIT/en/pdf>

Federal Chancellery (2011), *Strategie der Bundesregierung für Forschung, Technologie und Innovation*
https://www.bmvit.gv.at/innovation/publikationen/forschungspolitik/downloads/fti_strategie.pdf

Federal Chancellery (2016), *National Reform Programme*, Austria 2017.
<https://ec.europa.eu/info/sites/info/files/2017-european-semester-national-reform-programme-austria-en.pdf>

Hatak, Isabella; Reiner, Elisabeth (2011), *Entrepreneurship Education in Secondary Schools*.
Education systems, teaching methods and best practice — a survey of Austria, Finland, France, Germany, Italy, Spain, Sweden

https://www.wu.ac.at/fileadmin/wu/d/ri/ricc/Forschung/Laufende_Projekte/researchreport2011_1.pdf

European Commission (2016), *Education and Training Monitor, Volume II, Austria 2016*.

https://ec.europa.eu/education/sites/education/files/monitor2016-at_en.pdf

European Commission (2017a), *European Semester Country Report Austria*.

https://ec.europa.eu/info/sites/info/files/2017-european-semester-country-report-austria-en_1.pdf

European Commission (2017b), *Europe's Digital Progress Report 2017*.

<https://ec.europa.eu/digital-single-market/en/news/europes-digital-progress-report-2017>

OECD (2016a), *Reviews of School Resources: Austria*.

<https://search.oecd.org/education/oecd-reviews-of-school-resources-austria-2016-9789264256729-en.htm>

OECD (2016b), *Education at a Glance*.

<http://www.oecd.org/edu/education-at-a-glance-19991487.htm>

OECD (2016c), *PISA Low-Performing Students*.

<http://www.oecd.org/edu/low-performing-students-9789264250246-en.htm>

OECD (2016d), PISA 2015 Results.

<http://www.oecd.org/education/pisa-2015-results-volume-i-9789264266490-en.htm>

Statistik Austria (2016a), *Bildung in Zahlen 2015/16*.

https://uniko.ac.at/modules/download.php?key=13584_DE_O&cs=4BAE

Statistik Austria (2016b), *Demographische Indikatoren*, erstellt am 22.12.2016

Statistik Austria (2016c), *Statistisches Taschenbuch 2016*.

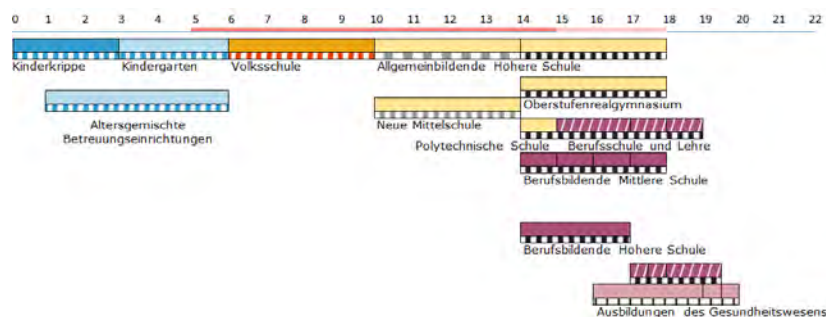
<https://oravm13.noc-science.at/apex/f?p=103:36>

8. Annex I. Key indicator sources

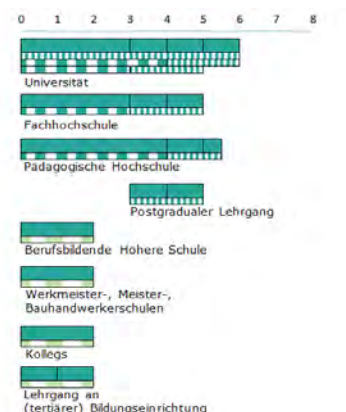
Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_02 + edat_lfse_14
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_lfse_24
Adult participation in 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

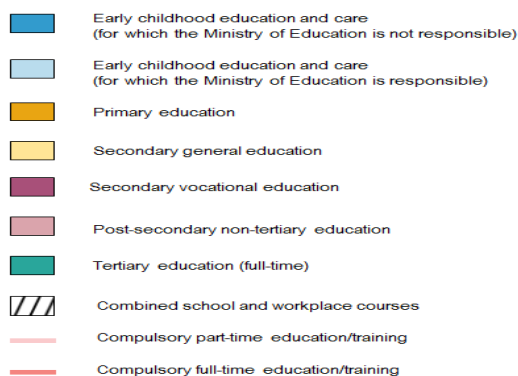


Programme duration (years)

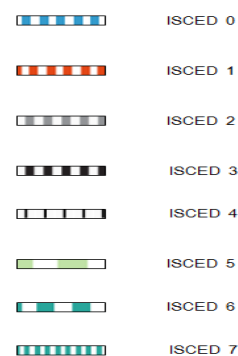


Note: *Berufsbildende Höhere Schulen* deliver continuous programmes i.e. 1st to 3rd year followed by 4th and 5th year.

Levels of Education



Allocation to the ISCED levels



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:
Klaus Körner
klaus.koerner@ec.europa.eu
or
EAC-UNITE-A2@ec.europa.eu

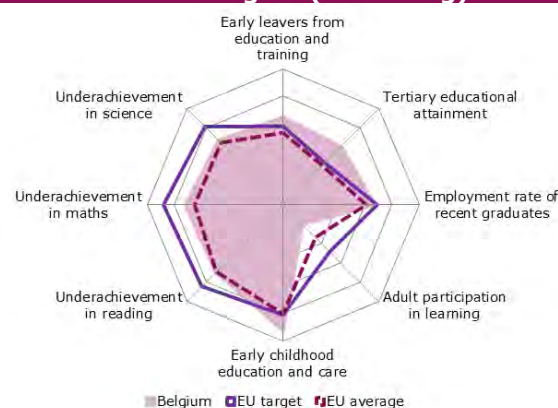
BELGIUM

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	ISCED 1-2	€7 895	€7 952 ¹⁴	: ¹⁴
		ISCED 3-4	€9 609	€9 665 ¹⁴	: ¹⁴
	per student in € PPS	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

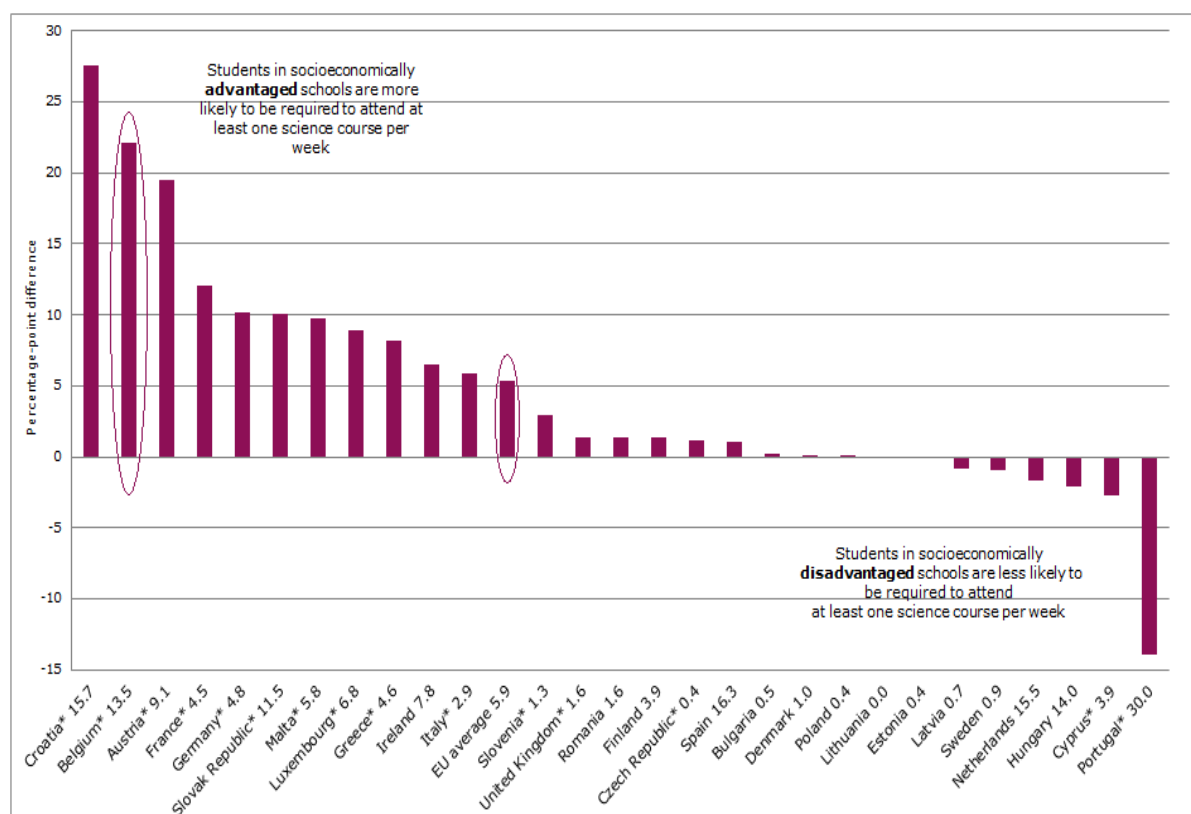
¹⁶ For education, this refers to first generation migrant students born outside BE and second generation students born in BE

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.

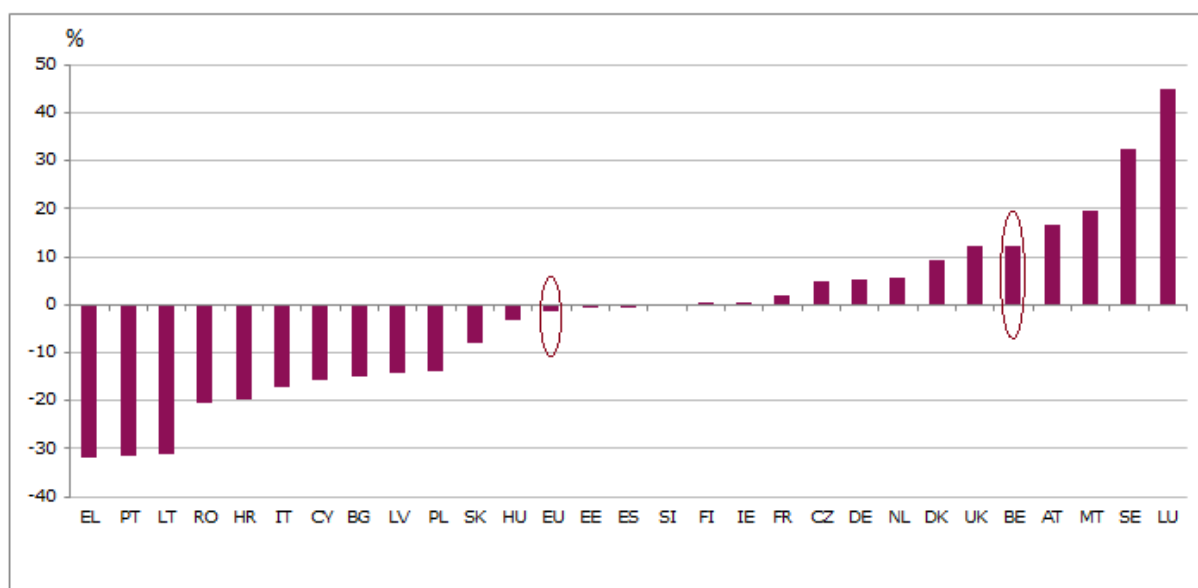
Notes: Statistically significant differences are marked with '*'. The percentage of students who are not required to attend any science course is shown next to the country name. Countries are ranked in descending order of the percentage point difference between students in socioeconomically advantaged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

8. References

Decree (2016) of the French Community '*portant diverses dispositions en matière d'enseignement*' (*décret dit fourre-tout*) (3 février 2016). <http://archive.tabellio.pcf.be/10000000202e030>

Council of the European Union (2017), *COUNCIL RECOMMENDATION of 11 July on the 2017 National Reform Programme of Belgium and delivering a Council opinion on the 2017 Convergence Programme of Belgium*. <http://data.consilium.europa.eu/doc/document/ST-9283-2017-INIT/en/pdf>

European Commission/EACEA/Eurydice (2016), *Promoting citizenship and the common values of freedom, tolerance and non-discrimination through education: Overview of education policy developments in Europe following the Paris Declaration of 17 March 2015* (doi: 10.2797/396908). http://eacea.ec.europa.eu/education/eurydice/mailling/17_March_2016.html

Eurypedia/European Commission (2017a), Country Belgium — Flemish Community.

Eurypedia/European Commission (2017b), *Country Belgium — French Community*. <https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Belgium-French-Community:Overview>

European Commission (2016a), *Study on the diversity within the teaching profession with particular focus on migrant and/or minority background*, Luxembourg: Publications Office of the European Union, 2016
ISBN: 978-92-79-52301-4.

http://ec.europa.eu/dgs/education_culture/repository/education/library/study/2016/teacher-diversity_en.pdf

European Commission (2016b), *Education and Training Monitor 2016* — Volume 1. http://ec.europa.eu/education/policy/strategic-framework/et-monitor_en and volume 2. http://ec.europa.eu/education/policy/strategic-framework/et-monitor_en#country

European Commission (2017a), *Country Report Belgium 2017*. https://ec.europa.eu/info/publications/2017-european-semester-country-reports_en

European commission (2017b) *Gender-related challenges in European education systems*, Country report Belgium (to be published end 2017).

European Commission (2017c), *Europe's Digital Progress Report (EDPR) 2017 Country Profile Belgium*. <https://ec.europa.eu/digital-single-market/en/news/europes-digital-progress-report-2017>

EU STEM Coalition (2016), *STEM skills for a future-proof Europe: Fostering innovation, growth and jobs by bridging the EU STEM skills mismatch*. http://www.csreurope.org/eu-stem-coalition-publishes-new-stem-skills-future-proof-europe-brochure#.V0a6i_7VyU

Kinderrechtencommissariaat (2016): *advies 2015-2016/7 Samen tegen schooluitval*. <https://www.kinderrechtencommissariaat.be/advies/samen-tegen-schooluitval>

Mc Kinsey (2015), *Contribuer au diagnostic du système scolaire en FWB*, Rapport à la Vice-Présidente, Ministre de l'Education, de la Culture et de l'Enfance. <http://www.pactedexcellence.be/wp-content/uploads/2015/01/Rapport-final-FWB.pdf>

OECD (2014a), *Employment Outlook 2014: Non-regular employment, job security and the labour market divide*. Paris: OECD Publishing.

OECD (2014b), *TALIS 2013 Results: An International Perspective on Teaching and Learning*, Paris: OECD Publishing.

OECD (2015a), *Schooling redesigned: towards innovative learning systems, Educational research and innovation*, OECD Publishing, Paris, pp. 66. <http://www.oecd.org/edu/schooling-redesigned-9789264245914-en.htm>

OECD (2015b), *Reviews of School Resources: Flemish Community of Belgium*. <http://www.oecd.org/edu/oecd-reviews-of-school-resources-flemish-community-of-belgium-9789264247598-en.htm>

OECD (2016a), *PISA 2015*, Volume I. <http://www.oecd.org/education/pisa-2015-results-volume-i-9789264266490-en.htm>

OECD (2016b), *PISA 2015*, Volume II, Policies and Practices for Successful Schools. <http://www.oecd.org/edu/pisa-2015-results-volume-ii-9789264267510-en.htm>

OECD (2016c), *PISA* Volume III, <https://www.oecd.org/pisa/PISA-2015-Results-Students-Well-being-Volume-III-Overview.pdf>.

OECD (2016d), *Education at a Glance 2016, Country note Belgium*. http://www.keepeek.com/Digital-Asset-Management/oecd/education/education-at-a-glance-2016/belgium_eag-2016-43-en#.V9rEdP7Vyzk

OECD (2017a), *Education at a glance, Country note Belgium*, OECD Publishing, Paris. http://www.keepeek.com/Digital-Asset-Management/oecd/education/education-at-a-glance-2017/belgium_eag-2017-40-en#.WcIdlv5IJZQ

OECD (2017b), *Education Policy Outlook: Belgium*, OECD Publishing, Paris. <http://www.oecd.org/edu/profiles.htm>

Cedefop (2017), *ReferNet: Belgium: Better guidance in dual education to prevent drop-out*. <http://www.cedefop.europa.eu/en/news-and-press/news/belgium-better-guidance-dual-education-prevent-dropout-0>

Schyns MM, Minister of education of the French community, *Cadre budgétaire pluriannuel : un budget structurel pour le Pacte*, <http://schyns.cfwb.be/cadre-budg-taire-pluriannuel-un-budget-structurel-pour-le-pacte-0>

Studiedienst van de Vlaamse Regering (2015), *Vlaamse Armoedemonitor*. <http://www.vlaanderen.be/dar/svr/monitoring/pages/2010-04-vlaamse-armoedemonitor.aspx>

Statistics Belgium (2015), *Census 2011: l'obtention d'un diplôme de l'enseignement supérieur: quelles inégalités socio-démographiques?* http://census2011.fgov.be/index_fr.html

Universiteit Gent (2016), *overzicht van de eerste vlaamse resultaten van PISA 2015*. <http://www.PISA.ugent.be/uploads/assets/135/1480689744246-Finale%20versie.pdf>; http://www.vlor.be/sites/www.vlor.be/files/sts_standvanzaken_publiek.pdf

Vlaams Ministerie van Onderwijs and Vorming (2016) — Departement — Afdeling BDK, *Kleuterparticipatie: inschrijvingen and aanwezigheden kwantitatief*. <http://www.onderwijs.vlaanderen.be/hoge-kleuterparticipatie-maar-extra-maatregelen-nodig>

Vlaams Departement Onderwijs en Vorming (2016), *Kleuterparticipatie eindrapport en bijlages*. http://www.onderwijs.vlaanderen.be/sites/default/files/atoms/files/Eindrapport_Onderzoek_naar_kleuterparticipatie.pdf

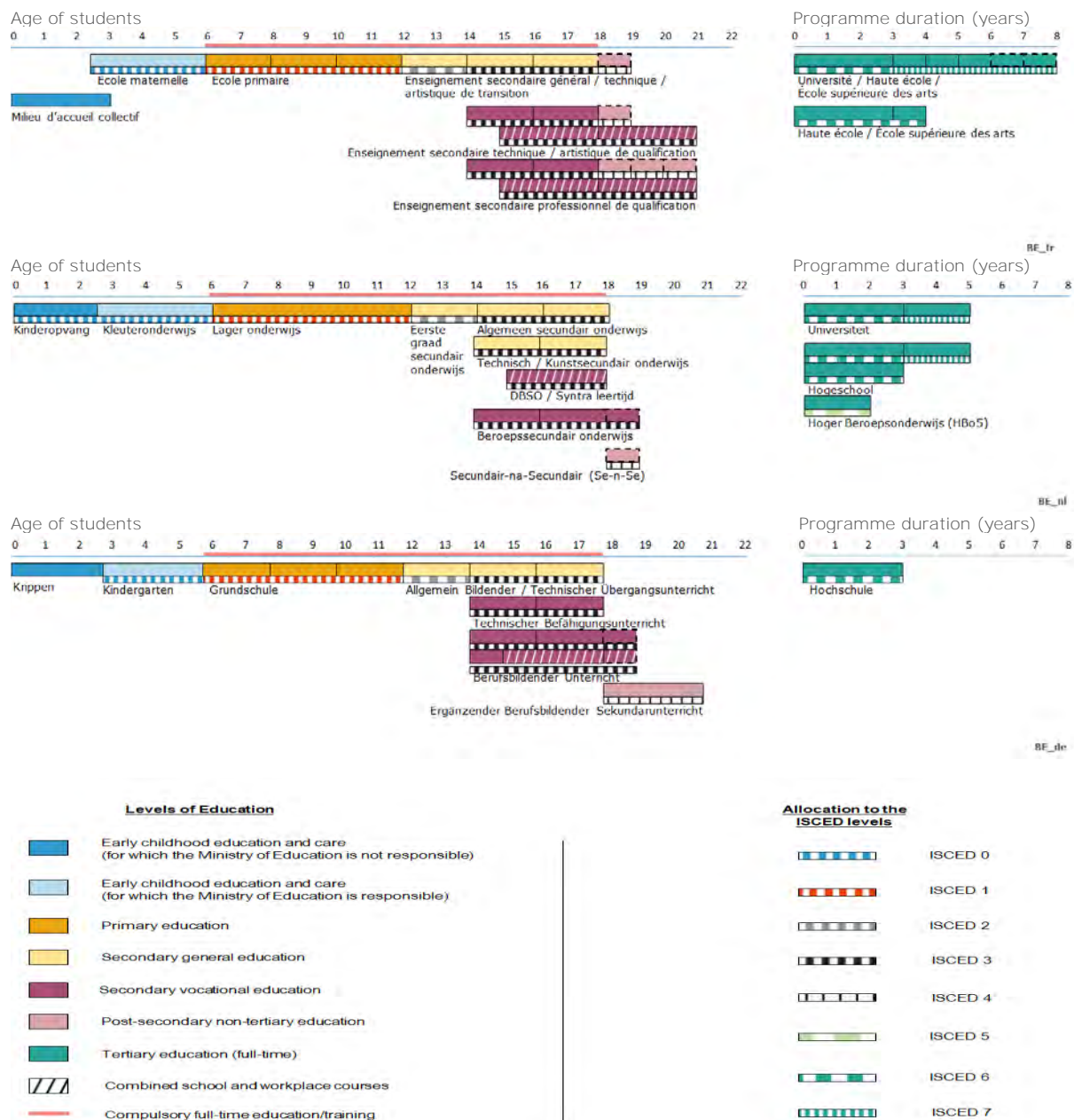
VR/Vlaamse Regering, studiedient (2016), *VRIND 2016 Vlaamse Regionale Indicatoren*. <https://www.vlaanderen.be/nl/publicaties/detail/vrind-2016-vlaamse-regionale-indicatoren>

Wouters, T. & Groenez, S. (2015). *Overheidsbeleid en schoolse segregatie*. Leuven: Steunpunt SSL, rapport nr. SSL/2015.8/2.3.1: https://steunpuntssl.be/Publicaties/Publicaties_docs/ssl-2015.08-2-3-1-overheidsbeleid-en-schoolse-segregatie

9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_ifse_02 + edat_ifse_14
Tertiary educational attainment	edat_ifse_03 + edat_ifs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_ifse_24
Adult participation in learning	trng_ifse_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:
Patricia DE SMET
Patricia.de-smet@ec.europa.eu
or
EAC-UNITE-A2@ec.europa.eu

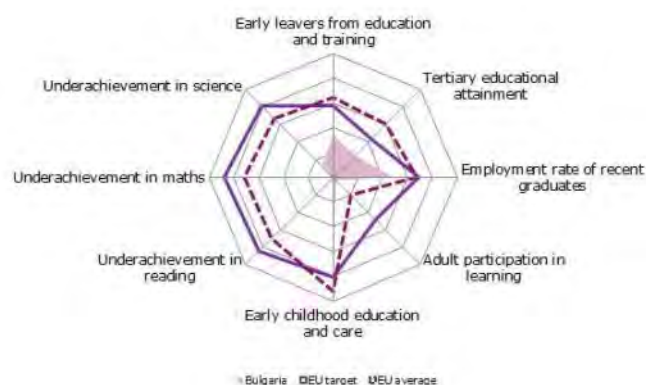
BULGARIA

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	ISCED 1-2 €2 387 ¹⁴	:	:
		ISCED 3-4 €2 293	ISCED 3-4 €2 484 ¹⁴	:	:
		ISCED 5-8 €4 104	ISCED 5-8 €4 829 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.

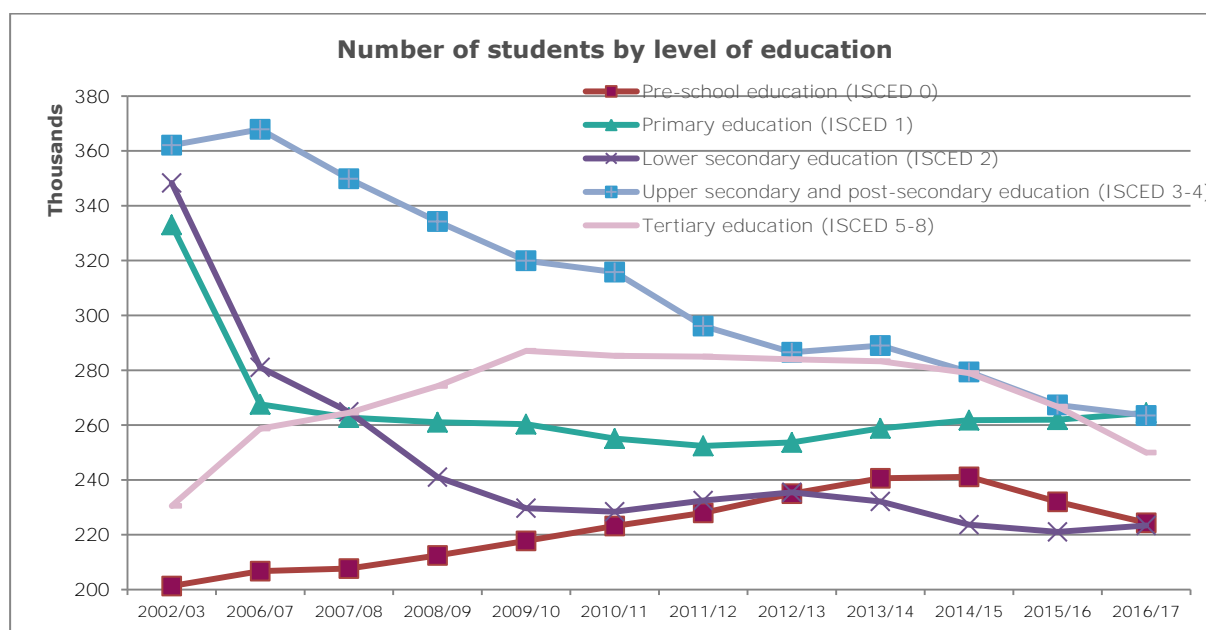
Bulgaria plans to revise the school funding model to help improve equity and quality. The new Education Act strengthens the use of correction coefficients to support disadvantaged schools and pupils. The objective is to add criteria on school performance and quality of education through a system of external 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

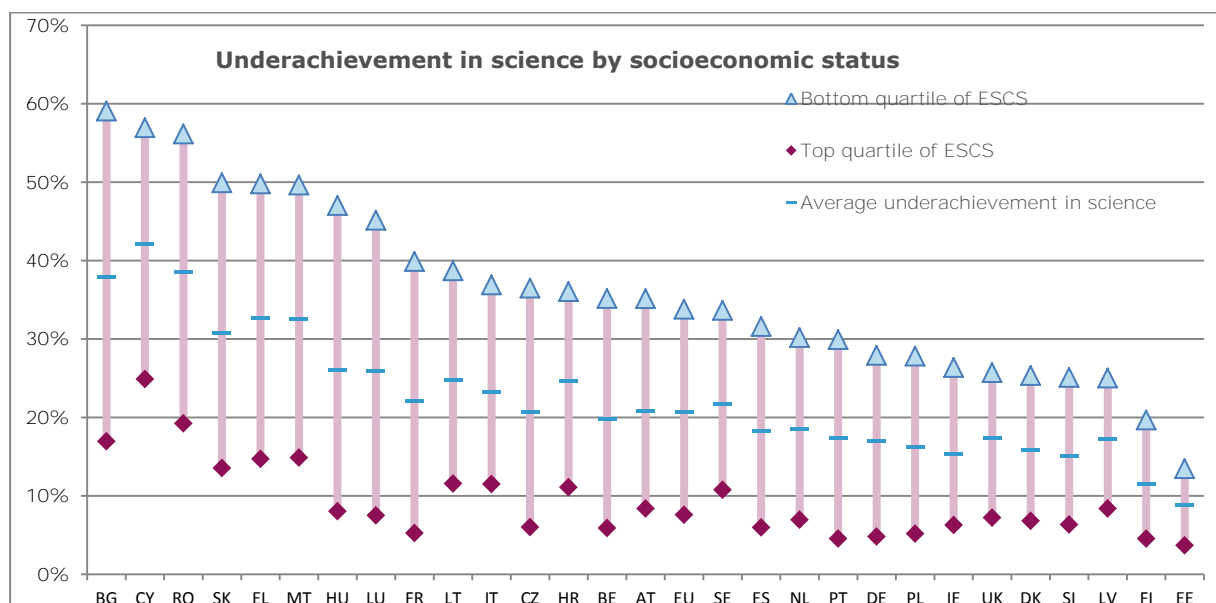
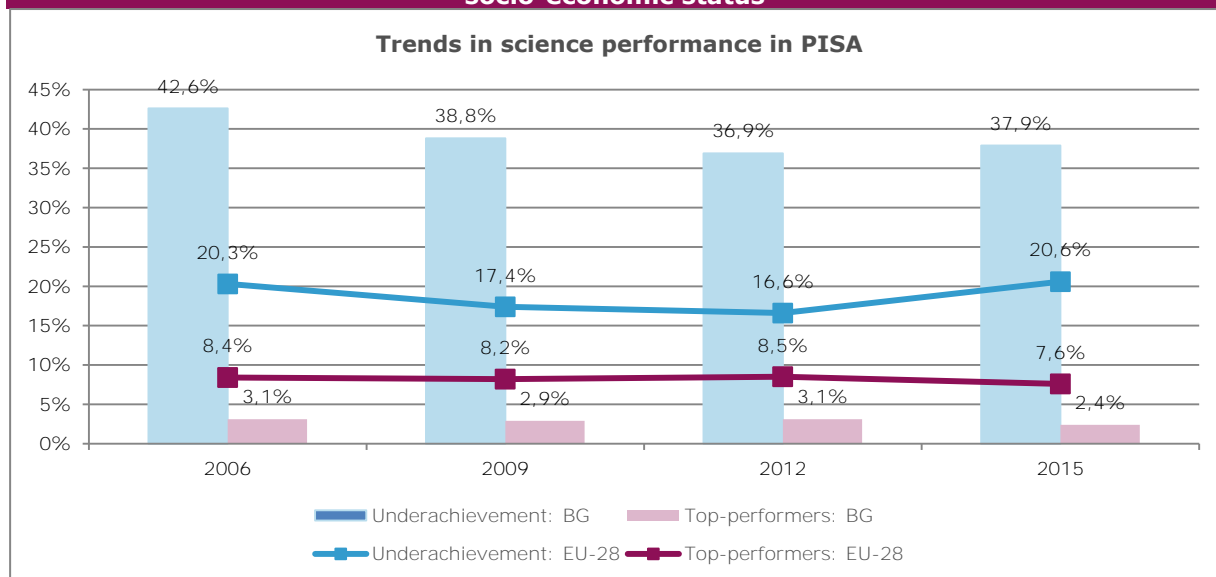
High underachievement in basic skills in PISA 2015 is explained by a combination of educational factors and equity challenges. In all three subjects tested, the proportion of low-achieving students remains one of the highest in the EU. In 2015, underachievement in Bulgaria was around double the EU averages: 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.

8. References

National Audit Office (2016), *Audit Report on the implementation of vocational education for employment*.

<http://www.bulnao.government.bg/bg/articles/download/9690/od-prof-obraz-270516.doc>

Council of Ministers (2017), *decision No 373 on the cooperation with institutions for coverage and retention in education of children and pupils in pre-school and compulsory school-age*

Council of the European Union (2017), *Council Recommendation of 11 July on the 2017 National Reform Programme of Bulgaria and delivering a Council opinion on the 2017 Convergence Programme of Bulgaria*. <http://data.consilium.europa.eu/doc/document/ST-9284-2017-INIT/en/pdf>

Cedefop Skills Panorama (2017). <http://skillspanorama.cedefop.europa.eu/en/countries/bulgaria>

EC (2015), *Peer review of the Bulgarian Research and Innovation System*. <https://rio.jrc.ec.europa.eu/en/policy-support-facility/peer-review-bulgarian-research-and-innovation-system>

European Commission (2017), *Commission Staff working document accompanying the document Communication on school development and excellent teaching for a great start in life (COM(2017) 248 final)*. https://ec.europa.eu/education/sites/education/files/school-swd-2017-165_en.pdf

European Union Agency for Fundamental Rights (FRA) (2016), *Second European Union Minorities and Discrimination Survey (EU-MIDIS II) Roma — Selected findings*. <http://fra.europa.eu/en/publication/2016/eumidis-ii-roma-selected-findings>

European Union Agency for Fundamental Rights (FRA 2012) Roma survey — *Data in focus, Education: the situation of Roma in 11 Member States*. <http://fra.europa.eu/en/publication/2014/education-situation-roma-11-eu-member-states>

IEA (2016), *Trends in International Mathematics and Science Study — TIMSS 2015*. <http://timss2015.org/download-center/>

MoF (2017), Ministry of Finance, *Convergence Programme of the Republic of Bulgaria*, https://ec.europa.eu/info/sites/info/files/2017-european-semester-convergence-programme-bulgaria-en_0.pdf

NRP (2016), *National Reform Programme of Bulgaria*, <https://ec.europa.eu/info/sites/info/files/2017-european-semester-national-reform-programme-bulgaria-en.pdf>

OECD (2016), *PISA 2015 Results (Volume 1): Excellence and Equity in Education*, OECD Publishing, Paris. <http://www.oecd.org/publications/pisa-2015-results-volume-i-9789264266490-en.htm>

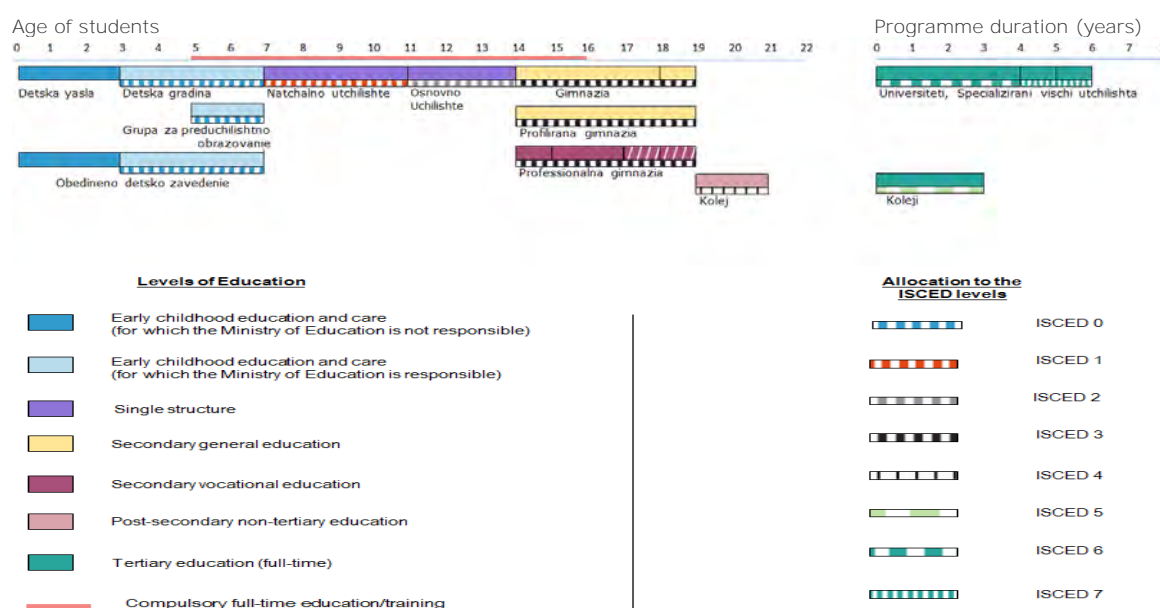
World Bank (2009), *Bulgaria: Improving the Quality and Relevance of Education for All*, <https://openknowledge.worldbank.org/handle/10986/12542>

World Bank (2010), *A Review of the Bulgaria School Autonomy Reforms*, <https://openknowledge.worldbank.org/bitstream/handle/10986/13040/548900ESWOP1180choolAutonomyReforms.pdf;sequence=1>

9. Annex I. Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_ifse_02 + edat_ifse_14
Tertiary educational attainment	edat_ifse_03 + edat_ifs_9912
Early childhood education and care	educ_uoe_enra10
Employment rate of recent graduates	edat_ifse_24
Adult participation in learning	trng_ifse_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.

Comments and questions on this report are welcome and can be sent by email to: Alexandra Tamasan
alexandra.tamasan@ec.europa.eu
or
EAC-UNITE-A2@ec.europa.eu

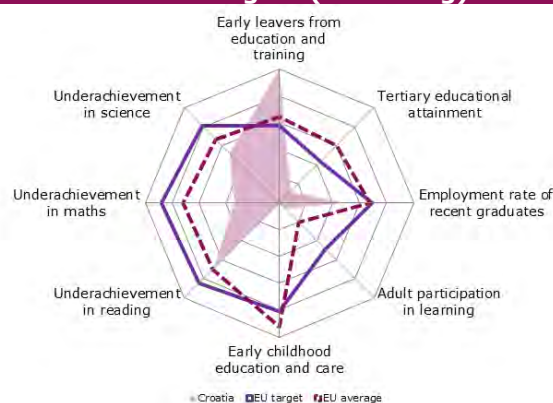
CROATIA

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.

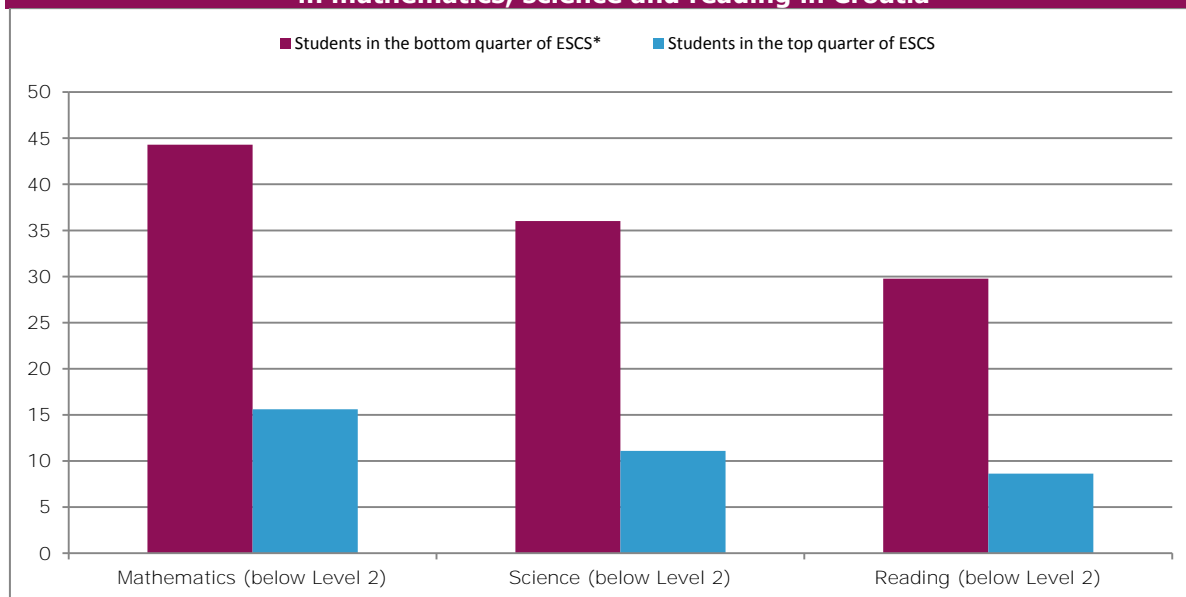
3. Tackling inequalities and promoting inclusion

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.

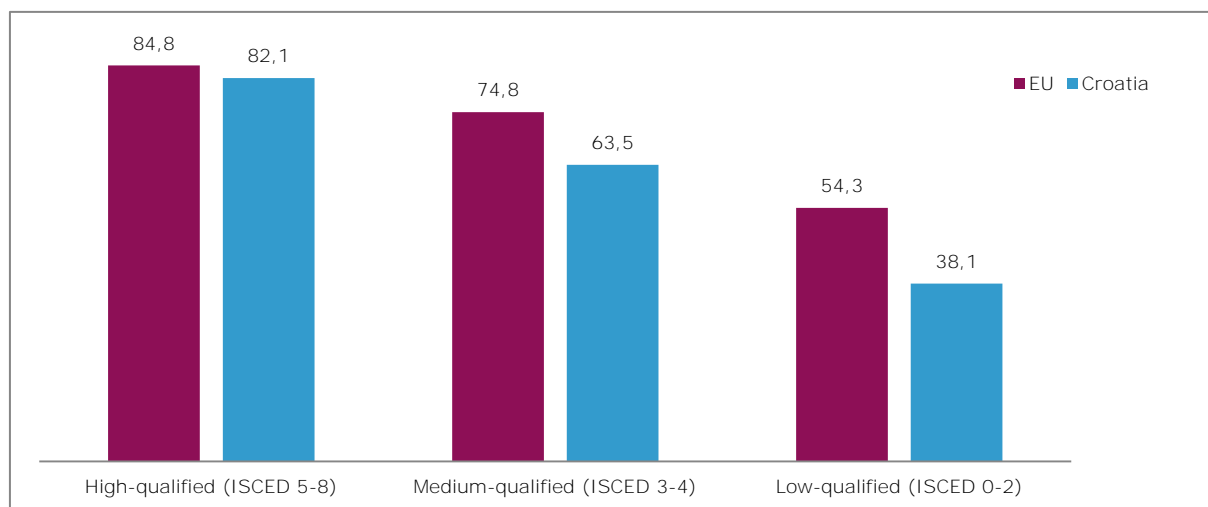
However, the political situation since 2015 has contributed to a very difficult context for continuing with the reform. From the outset, the lack of clarity about the timeline and budget for implementation, and uncertainty about the level of commitment to the reform, has led to a loss of momentum which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

Council of the European Union (2017), *Recommendation for a Council Recommendation on the 2017 National Reform Programme of Croatia and delivering a Council opinion on the 2017 Convergence Programme of Croatia*. <http://data.consilium.europa.eu/doc/document/ST-9286-2017-INIT/en/pdf>

European Commission (2017), *Digital Scoreboard 2017*

IEA (2016), *Trends in International Mathematics and Science Study – 2015 Results*. <http://www.iea.nl/timss-2015-results>

OECD (2016), *PISA 2015 Results, (Volume I), Excellence and Equity in Education*, OECD Publishing, Paris. <http://www.oecd.org/publications/pisa-2015-results-volume-i-9789264266490-en.htm>

National Council for Education (Nacionalno Vijeće za Odgoj i Obrazovanje) (2016), *National qualification standard for teachers in primary and secondary schools: Proposal*. <http://nvoo.hr/wp-content/uploads/2016/03/Okvir-standarda-kvalifikacije-final..pdf>

National Statistics Office (2017), *Kindergartens and other legal entities implementing preschool education programmes: beginning of 2016/2017 pedagogic year*, published 1 June 2017, Number: 8.1.8., ISSN 1330-0350. <http://www.dzs.hr/>

Report on the work of the Children's Ombudsman for 2016. <http://www.dijete.hr/websites/dijete.hr/index.php/hr/izvjemainmenu-93/izvjeo-radu-pravobranitelja-za-djecu-mainmenu-94.html>

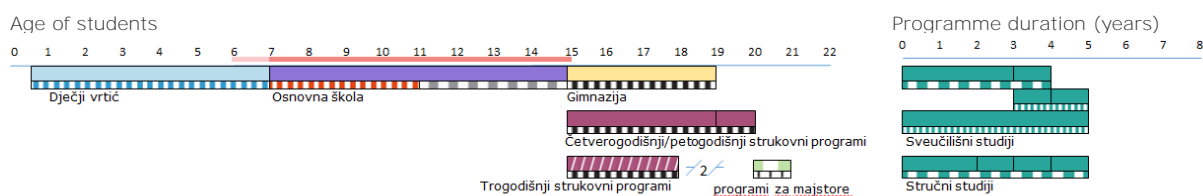
SEECCEL (2017) *Analysis of the Current Status of the Apprenticeship Scheme in Croatia: Strengthening the Capacities of the Chambers and Partners to Help SMEs to Engage in Apprenticeship*, published in February 2017. <http://www.hgk.hr/documents/seecel-reportfinalreviewed58e5fad85b0fe.pdf>

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.

Comments and questions on this report are welcome and can be sent by email to:
Luka JUROS
luka.juros@ec.europa.eu
or
EAC-UNITE-A2@ec.europa.eu

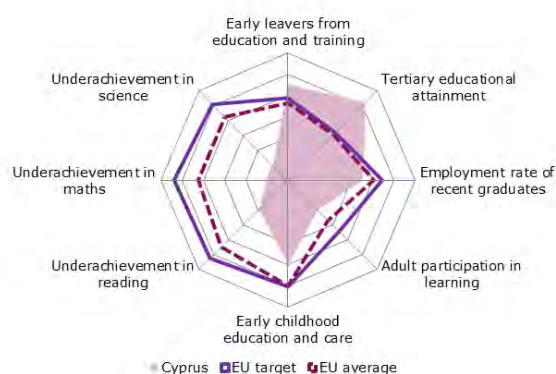
CYPRUS

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.

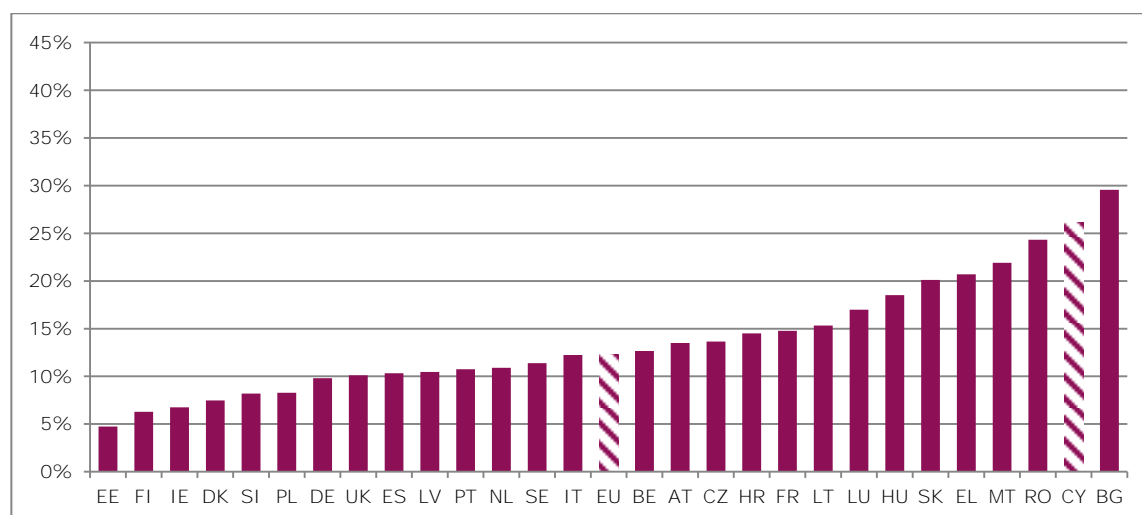
Early school leaving (ESL) is below the EU target, but remains a risk especially for students from a migrant background. Cyprus' ESL rate has been consistently below both the EU 2020 and the national target of 10 %, reaching 7.7 % 2016. However, the situation is less positive for male and foreign-born 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.

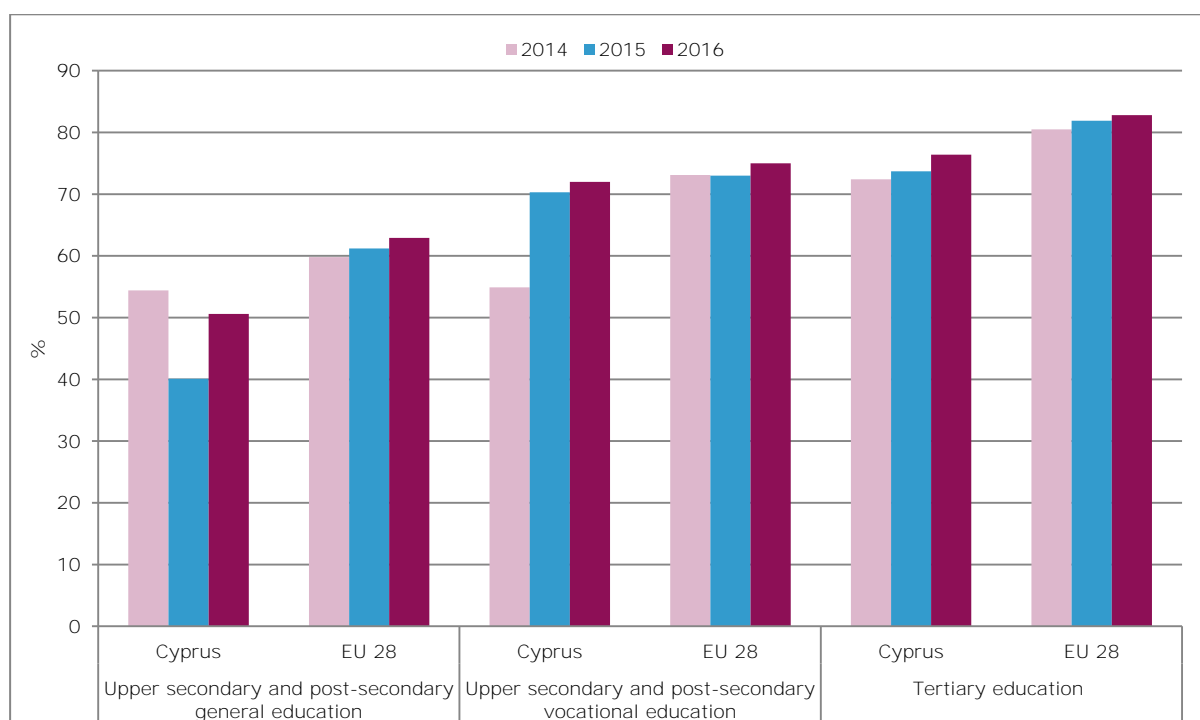
⁴³ Data for 2015.

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>

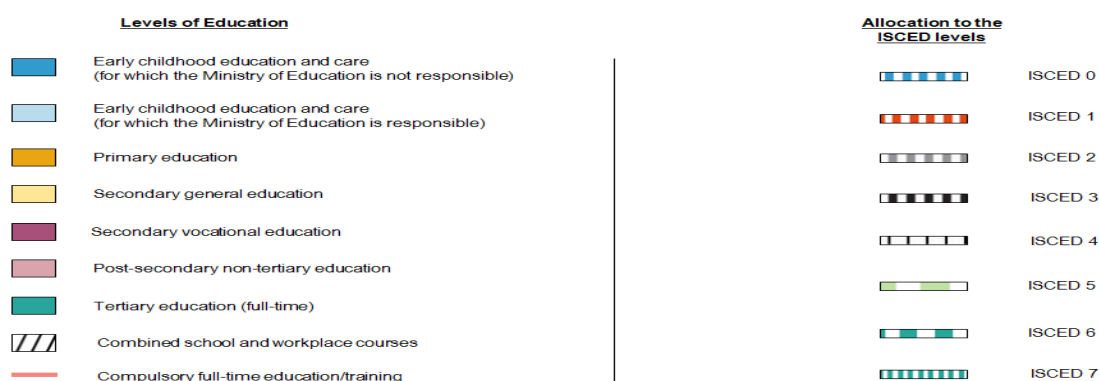
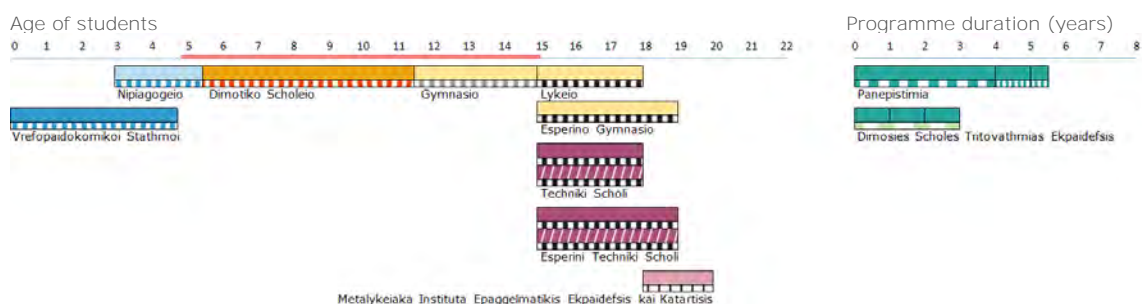
8. References

- Human Resource Development Authority (2015), *Προβλέψεις Απασχόλησης στην Κυπριακή Οικονομία 2014-2024*.
http://www.anad.org.cy/easyconsole.cfm/page/project/p_id/221
- Council of the European Union (2012), *Council Recommendation of 20 December 2012 on the validation of non-formal and informal learning*.
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2012:398:0001:0005:EN:PDF>
- Council of the European Union (2017), *Council Recommendation on the 2017 National Reform Programme of Cyprus and delivering a Council opinion on the 2017 Stability Programme of Cyprus*.
<http://data.consilium.europa.eu/doc/document/ST-9287-2017-INIT/en/pdf>
- European Commission (2016), *PISA 2015, EU performance and initial conclusions regarding education policies in Europe*.
https://ec.europa.eu/education/sites/education/files/pisa-2015-eu-policy-note_en.pdf
- European Commission (2017a), CEDEFOP, *Skills panorama*.
<http://skillspanorama.cedefop.europa.eu/en/countries/cyprus>
- European Commission (2017b), *DESI scoreboard*.
<https://ec.europa.eu/digital-single-market/en/scoreboard/cyprus>
- European Commission (2017c), *Eurydice, Eurypedia*.
<https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Cyprus: Overview>
- European Commission (2017d), *Eurydice, Key Data on Teaching Languages at School in Europe*.
https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Publications: Key_Data_on_Teaching_Languages_at_School_in_Europe_-_2017_Edition
- European Council on Refugees and Exiles, ECRE (2016), *Country Report: Cyprus*.
http://www.asylumineurope.org/sites/default/files/report-download/aida_cy_2016update.pdf
- Government of Cyprus (2017), *Cyprus National Reform Programme 2017*.
<https://ec.europa.eu/info/sites/info/files/2017-european-semester-national-reform-programme-cyprus-en.pdf>
- Ministry of Education and Culture (2016), *ΚΕΙΜΕΝΟ ΠΟΛΙΤΙΚΗΣ ΓΙΑ ΤΗΝ ΕΝΤΑΞΗ ΤΩΝ ΜΑΘΗΤΩΝ/ΤΡΙΩΝ ΜΕ ΜΕΤΑΝΑΣΤΕΥΤΙΚΗ ΒΙΟΓΡΑΦΙΑ ΣΤΟ ΚΥΠΡΙΑΚΟ ΕΚΠΑΙΔΕΥΤΙΚΟ ΣΥΣΤΗΜΑ*.
http://www.pi.ac.cy/pi/files/anakoinoseis/2016_2017/metanasteftiki_viografia.pdf
- Ministry of Education and Culture (2017), *Εξετάσεις για εγγραφή και κατάταξη στους Πίνακες Διορισίμων*.
<http://diorisimoι.moec.gov.cy/index.php/el/>
- OECD (2016a), *PISA 2015 Results (Volume I): Excellence and Equity in Education*.
<http://dx.doi.org/10.1787/9789264266490-en>
- OECD (2016b), *PISA 2015 Results (Volume II): Policies and Practices for Successful Schools*.
<http://dx.doi.org/10.1787/9789264267510-en>
- Vienna Institute of Demography and International Institute for Applied Systems Analysis (2016), *European Demographic Datasheet 2016*.
<http://www.populationeurope.org/>

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:
Ulrike PISIOTIS
Ulrike.Pisiotis@ec.europa.eu
or
EAC-UNITE-A2@ec.europa.eu

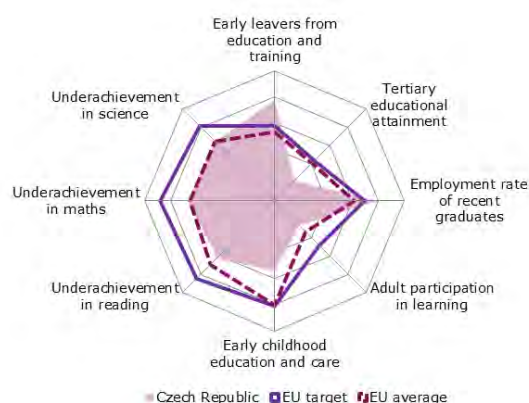
CZECH REPUBLIC

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	ISCED 1-2	€4 526	€4 729 ¹⁴	: ¹⁴
	per student in € PPS	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_uoe_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.

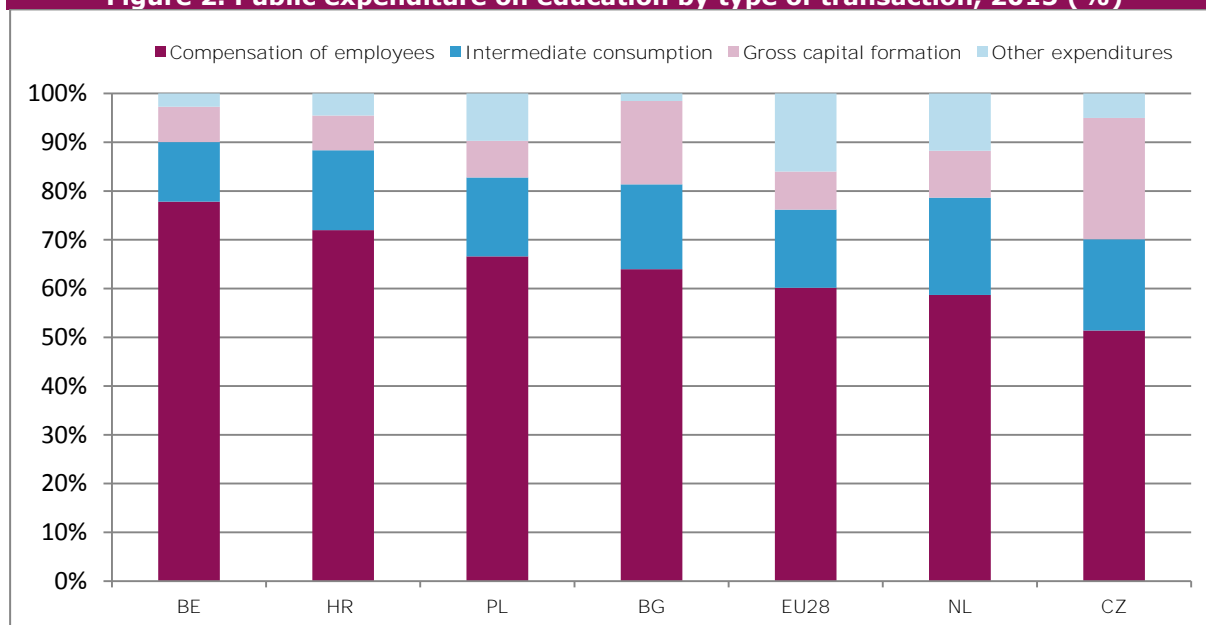
In spite of increases in recent years, teachers' salaries remain comparatively very low. In 2014, teachers in primary and secondary education earned less than half of the salaries of other workers with similar educational levels (OECD, 2016 c). Furthermore, career salary progression is relatively flat. 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 (Česká škola, 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.

8. References

CEDEFOP 2016, *Skills Panorama, October 2016*.

http://skillspanorama.cedefop.europa.eu/en/analytical_highlights/czech-republic-mismatch-priority-occupations#_summary

Ceska Skola (2017). <http://www.ceskaskola.cz/2017/03/polovina-zajemcu-o-pedagogicke-fakulty.html>

Czech School Inspectorate (2016), *Annual Report for the school year 2015/2016*.

[http://www.csicr.cz/cz/Dokumenty/Vyrocní-zpravy/Vyrocní-zprava-Ceske-skolní-inspekce-za-skolní-\(2\)](http://www.csicr.cz/cz/Dokumenty/Vyrocní-zpravy/Vyrocní-zprava-Ceske-skolní-inspekce-za-skolní-(2))

Ecorys for the European Commission (2016), *Study on the Diversity within the Teaching Profession with Particular Focus on Migrant and/or Minority Background, annexes*.

http://ec.europa.eu/dgs/education_culture/repository/education/library/study/2016/teacher-diversity-annexes_en.pdf

European Commission (2016), *Education and Training Monitor 2016, Czech Republic*.

https://ec.europa.eu/education/sites/education/files/monitor2016-cz_en.pdf

European Commission (2017), *Country Report Czech Republic 2017 (2017 European Semester)*.

https://ec.europa.eu/info/sites/info/files/2017-european-semester-country-report-czech-en_1.pdf

European Commission/EACEA/Eurydice 2016, *National student fee and support systems in European higher education 2016/17*.

https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/images/5/58/EN_Fees_and_support_2016_17.pdf

European Commission/EACEA/Eurydice (2017a), *Eurypedia*.

https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Czech-Republic:Ongoing_Reforms_and_Policy_Developments

European Commission/EACEA/Eurydice (2017b), *Key data on Teaching Languages at School in Europe*. https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/images/0/06/KDL_2017_internet.pdf

FRA (2016) (European Union Agency for Fundamental Rights), *EU-Midis II,, Second European Union Minorities and Discrimination Survey Roma*.
<http://fra.europa.eu/en/publication/2016/eumidis-ii-roma-selected-findings>

Institute for Democracy and Economic Analysis, Economic Institute of the Czech Academy of Sciences (2016), Cost-benefit analysis of public support for places in kindergartens.
http://idea.cerge-el.cz/files/IDEA_Studie_3_2016_Verejna_podpora_mist_ve_skolkach/files/downloads/IDEA_Studie_3_2016_Verejna_podpora_mist_ve_skolkach.pdf

International Association for the Evaluation of Educational Achievement (IEA 2015), *Trends in International Mathematics and Science Study (TIMSS) 2015*.
<http://timssandpirls.bc.edu/timss2015/international-results/timss-2015/mathematics/student-achievement/>

Ministry of Education, Youth and Sport (2017). <http://www.msmt.cz/ministerstvo/novinar/priprave-rozpocet-se-zohledni-narust-vydaju-na-skolstvi>

OECD (2016a), *Programme for International Student Assessment 2015, volume I*.
<http://www.oecd.org/education/pisa-2015-results-volume-i-9789264266490-en.htm>

OECD (2016b), *Economic Survey of Czech Republic 2016*. <http://www.oecd.org/czech/economic-survey-czech-republic.htm>

OECD (2016c), *Education at a Glance 2016, OECD indicators*. http://www.keepeek.com/Digital-Asset-Management/oecd/education/education-at-a-glance-2016_eag-2016-en#.WSwxkf5dA6Y

OECD (2016d), Shewbridge, C., et al. *Review of School Resources: Czech Republic 2016*.
http://www.keepeek.com/Digital-Asset-Management/oecd/education/oecd-reviews-of-school-resources-czech-republic-2016_9789264262379-en#.WS_v6P5dA6Y

Office of the Government of the Czech Republic (2017), *National Reform Programme of the Czech Republic 2017*. <https://ec.europa.eu/info/sites/info/files/2017-european-semester-national-reform-programme-czech-republic-cs.pdf>

SCIO, https://www.scio.cz/download/zprava_VSP_media.pdf

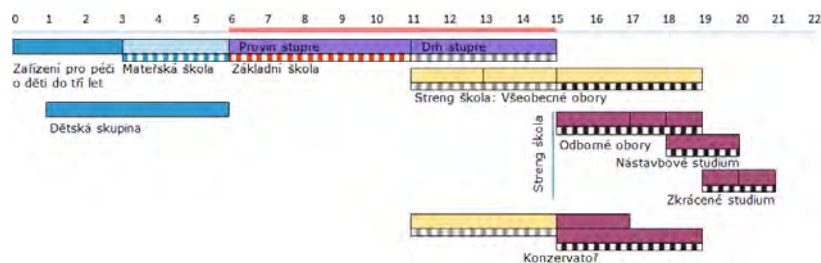
Trhlíková, J. (2012). *Předčasné odchody ze vzdělávání na středních školách. Kvalitativní analýza rozhovorů s experty a příklady dobrých praxí*. Praha: NÚV.
<http://www.infoabsolvent.cz/Temata/PublikaceZP?Stranka=9-0-73&NazevSeo=Predcasne-odchody-ze-vzdelavani-na-strednich->

9. Annex I. Key indicator sources

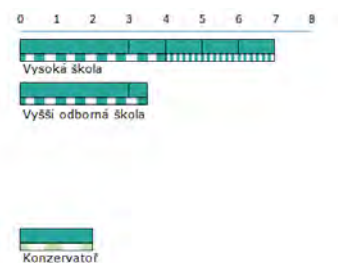
Indicator	Eurostat online data code
Early leavers from education and training	edat_ifse_02 + edat_ifse_14
Tertiary educational attainment	edat_ifse_03 + edat_ifs_9912
Early childhood education and care	educ_uoe_enra10 + tps00179
Employment rate of recent graduates	edat_ifse_24
Adult participation in learning	trng_ifse_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.

Comments and questions on this report are welcome and can be sent by email to: Christèle DUVIEUSART
christele.duvieusart@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

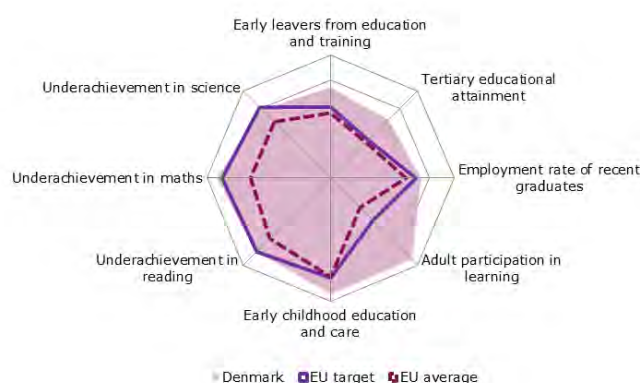
DENMARK

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	ISCED 1-2 €8 587 ¹⁴	:	: ¹⁴
		ISCED 3-4 €7 687	ISCED 3-4 €7 730 ¹⁴	:	: ¹⁴
		ISCED 5-8 :	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.

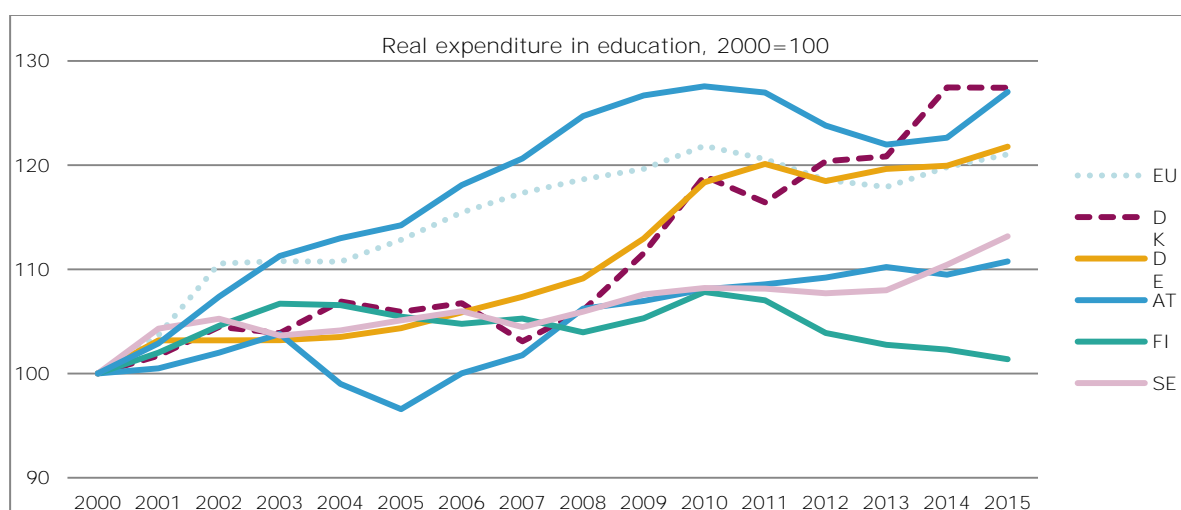
Participation in early childhood education and care (ECEC) is almost universal and is widely and highly appreciated. The participation rate stood at 98.6 % in 2015 for the age of four or older. The participation rates of foreign-born and native children in this age group are almost identical, but younger 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).

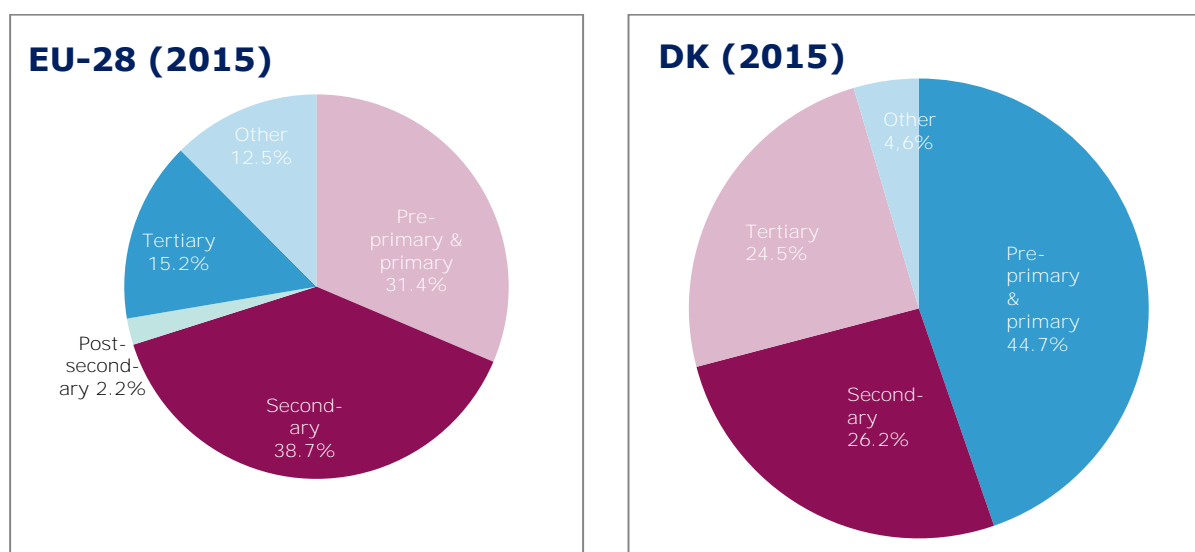
Figure 2. Increase of real public expenditure in education



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.

8. References

- Bjørnholt, et al (2016), *Den kommunale styring forud for Folkeskolereformen*, s.l.: KORA.
http://www.kora.dk/media/4936320/11144_den-kommunale-styring-forud-for-folkeskolereformen.pdf
- Cedefop (2015), *Denmark, Skill Supply and Demand up to 2025*.
<http://www.cedefop.europa.eu/en/publications-and-resources/country-reports/denmark-skills-forecasts-2025>
- Committee on Quality and Relevance in Higher Education/Uddannelses- og Forskningsministeriet (2014).
<http://ufm.dk/uddannelse-og-institutioner/rad-naevn-og-udvalg/tidligere-rad-naevn-og-udvalg/kvalitetsudvalget>
- Dansk Industri (2015), *DI Business - Flere faglærte tak- (More skilled workers. Thank You)*.
<https://di.dk/dibusiness/nyheder/Pages/TalentefterlysesFlerefaglaerte,tak.aspx>
- Danish Government (2017), *Denmark's National Reform Programme (NRP) 2017*.
<http://english.oim.dk/media/18649/danmarks-nationale-reformprogram-2017-uk-150617.pdf>
- European Commission, *Education and Training Monitor, Volume II, Denmark 2016*.
https://ec.europa.eu/education/sites/education/files/monitor2016-dk_en.pdf
- European Commission (2017a), *Country Report Denmark*. <https://ec.europa.eu/info/sites/info/files/2017-european-semester-country-report-denmark-en.pdf>
- European Commission (2017b), *Europe's Digital Progress Report*.
<https://ec.europa.eu/digital-single-market/en/news/europes-digital-progress-report-2017>
- Eurydice (2017), *Key Data on Teaching Languages at School in Europe*.
https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/images/0/06/KDL_2017_internet.pdf
- Leffland L. (2014), *Productivity Commission 'Choktal fra gymnasierne: Tusinder af elever fravælger naturfagene'*.
<https://ing.dk/blog/choktal-fra-gymnasierne-tusinder-af-elever-fravaelger-naturfagene-168696>
- Ministry of Education, (2017), *DWH*
<https://www.uddannelsesstatistik.dk/grundskolen/sider/indhold/Nationale%20m%C3%A5ltal%20-%20Trivsel.aspx>
- OECD (2016a), *Education at a Glance 2016*, OECD Publishing, Paris. <http://www.oecd.org/edu/education-at-a-glance-19991487.htm>
- OECD (2016b), *PISA 2015 Results, (Volume I)*, Excellence and Equity in Education, OECD Publishing, Paris.
<http://www.oecd.org/education/pisa-2015-results-volume-i-9789264266490-en.htm>

OECD (2016c), *PISA 2015 Results in Focus*. OECD Publishing, Paris. <https://www.oecd.org/pisa/pisa-2015-results-in-focus.pdf>

OECD (2016d), *PISA Low-Performing Students*.
<http://www.oecd.org/edu/low-performing-students-9789264250246-en.htm>

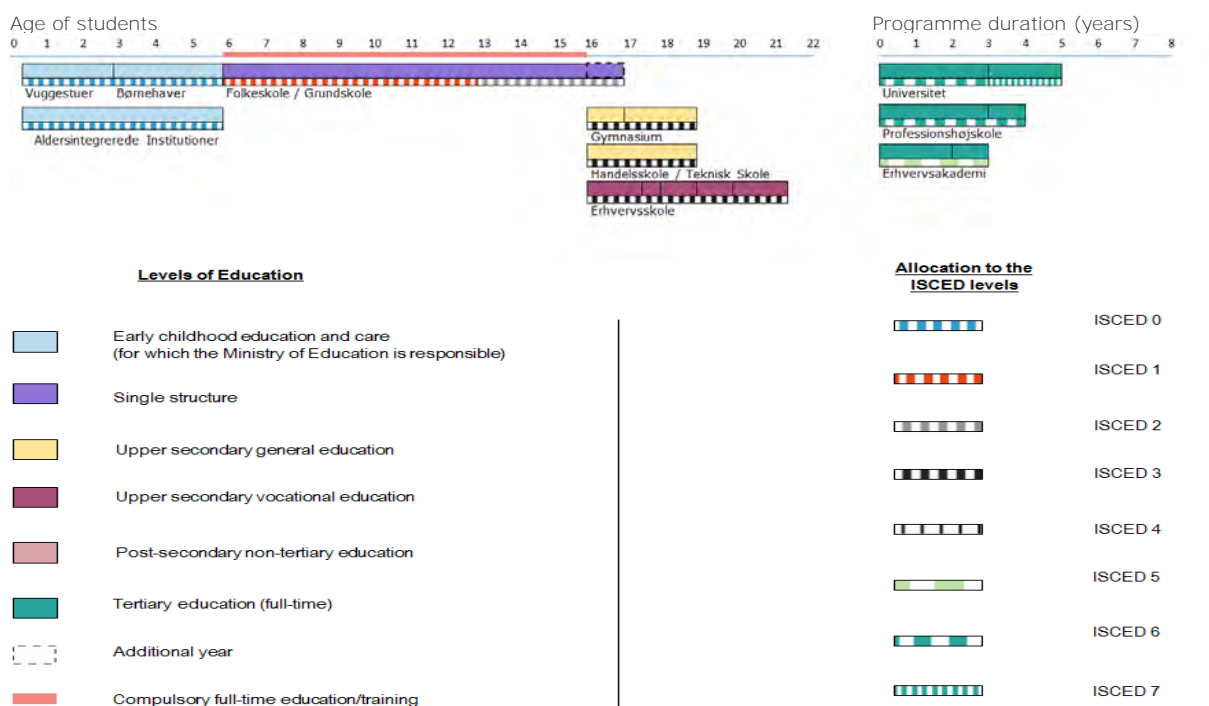
OECD (2016e), *Reviews of school Resources: Denmark*.
<http://www.oecd.org/publications/oecd-reviews-of-school-resources-denmark-2016-9789264262430-en.htm>

SFI (2016), The Danish National Centre for Social Research (2016), *Folkeskolereformen. Beskrivelse af 3. dataindsamling blandt elever og forskelle over tid*.
http://pure.sfi.dk/ws/files/267297/SFI_Notat_Folkeskolereformen_1.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. 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:

Klaus Körner

klaus.koerner@ec.europa.eu

or

EAC-UNITE-A2@ec.europa.eu

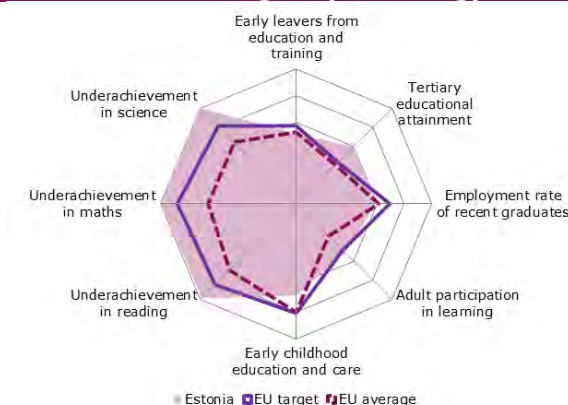
ESTONIA

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 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.

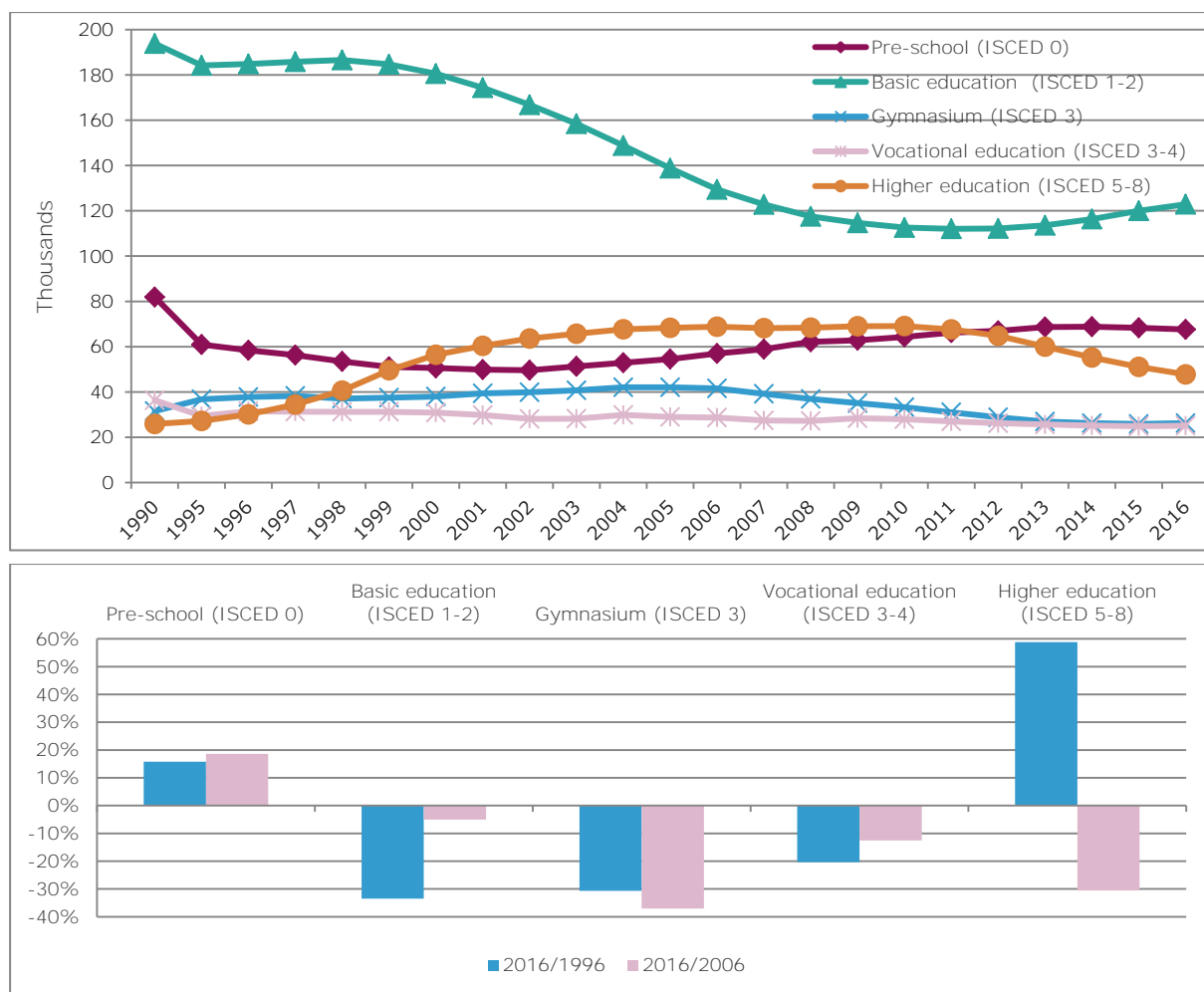
Estonia is taking measures to increase the efficiency of spending, but adjusting to demographic trends requires further coordination of resources and responsibilities. In 2015, Estonia started to re-centralise general upper secondary schools (gymnasiums) to address concerns over the slow and incomplete 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:

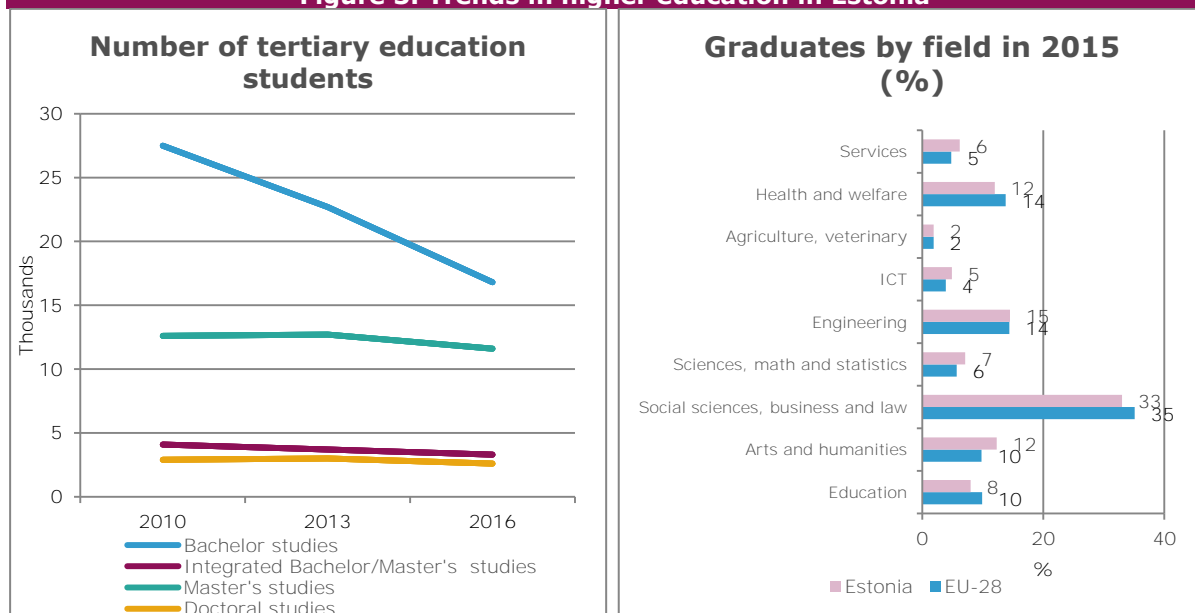
- Abolishing the clear distinctions between bachelor's-level study curricula and professional higher education, and creating the opportunity for learners to choose between academic or applied courses in the third year of study;
- Increasing the number of ICT professionals by a factor of 1.5 by 2020, 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.

8. References

Council of the European Union (2017), *COUNCIL RECOMMENDATION of 11 July on the 2017 National Reform Programme of Estonia and delivering a Council opinion on the 2017 Convergence Programme of Estonia*. <http://data.consilium.europa.eu/doc/document/ST-9292-2017-INIT/en/pdf>

European Commission (2017), *Commission Staff Working Document, Country Report Estonia 2017 2017 European Semester: Assessment of progress on structural reforms, prevention and correction of macroeconomic imbalances, and results of in-depth reviews under Regulation (EU) No 1176/2011*. <http://ec.europa.eu/info/sites/info/files/2017-european-semester-country-report-estonia-en.pdf>

MoER (2016a), *Ministry of Education and Research, Innove, PISA survey 2015*. https://www.hm.ee/sites/default/files/pisa_2016_booklet_eng.pdf

MoER (2016b), *Ministry of Education and Research, PISA 2015 Estonian Results. Estonian Students Knowledge and Skills in Science, Reading and Mathematics*, Foundation Innove. <http://www.innove.ee/et/uudised/689/pisa-2015-tulemused-estni-pohiharidus-on-euroopa-parim/>

MoER (2016c), *Ministry of Education of Research, Eesti keelest erineva emakeelega põhikooli lõpetajate eesti keele oskus* https://hm.ee/sites/default/files/hmin_b1_keeles_tase.pdf

MoER (2016d), *Ministry of Education and Research, Annual analysis summary 2016*. <https://www.hm.ee/sites/default/files/summary.pdf>

MoER (2016e), *Ministry of Education and Research, Eestis on parimad võimalused hariduse omandamiseks* <https://hm.ee/et/uudised/eestis-parimad-voimalused-hariduse-omandamiseks>

National Audit Office of Estonia (2015), *Availability of Places in Preschool Institutions*, National Audit Office of Estonia.

<http://www.riigikontroll.ee/Suhtedavalikkusega/Pressiteated/tabid/168/ItemId/834/View/Docs/amid/557/language/et-EE/Default.aspx>

NRP (2017a), *National Reform Programme Estonia 2020*. https://riigikantselei.ee/sites/default/files/elfinder/article_files/eesti_2020_en.pdf and Action plan 2015-2020

NRP (2017b), *Action Plan of Estonia 2020*. <https://riigikantselei.ee/en/supporting-government/national-reform-programme-estonia-2020>

OECD (2016a), *PISA 2015 Results (Volume 1): Excellence and Equity in Education*, OECD Publishing, Paris. <http://www.oecd.org/publications/pisa-2015-results-volume-i-9789264266490-en.htm>

OECD (2016b) *Education Policy Outlook Estonia*. <https://www.hm.ee/sites/default/files/education-policy-outlook-country-profile-estonia.pdf>

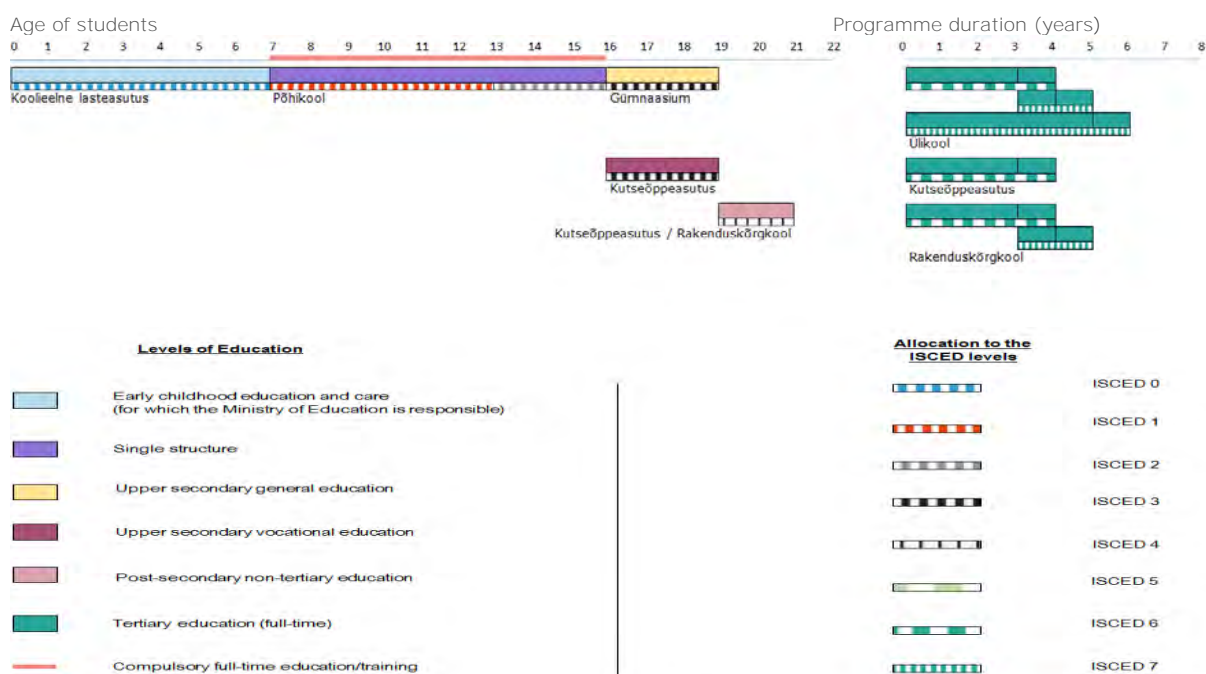
OECD (2016c) *OECD Review of School Resources*. <http://www.oecd.org/publications/oecd-reviews-of-school-resources-estonia-2016-9789264251731-en.htm>

Statistics Estonia 2017, *Quarterly Bulletin of Statistics Estonia*. https://www.stat.ee/publication-2017_quarterly-bulletin-of-statistics-estonia-2-17 Mihkel Lees (2016), *Estonian Education System 1990-2016, Reforms and their impact*. http://4liberty.eu/wp-content/uploads/2016/08/Estonian-Education-System_1990-2016.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.

Comments and questions on this report are welcome and can be sent by email to: Alexandra Tamasan
alexandra.tamasan@ec.europa.eu
or
EAC-UNITE-A2@ec.europa.eu

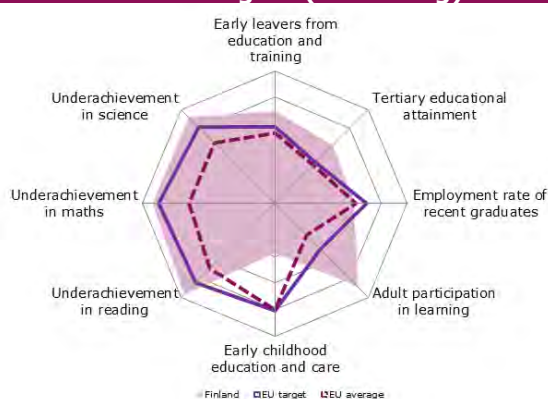
FINLAND

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.

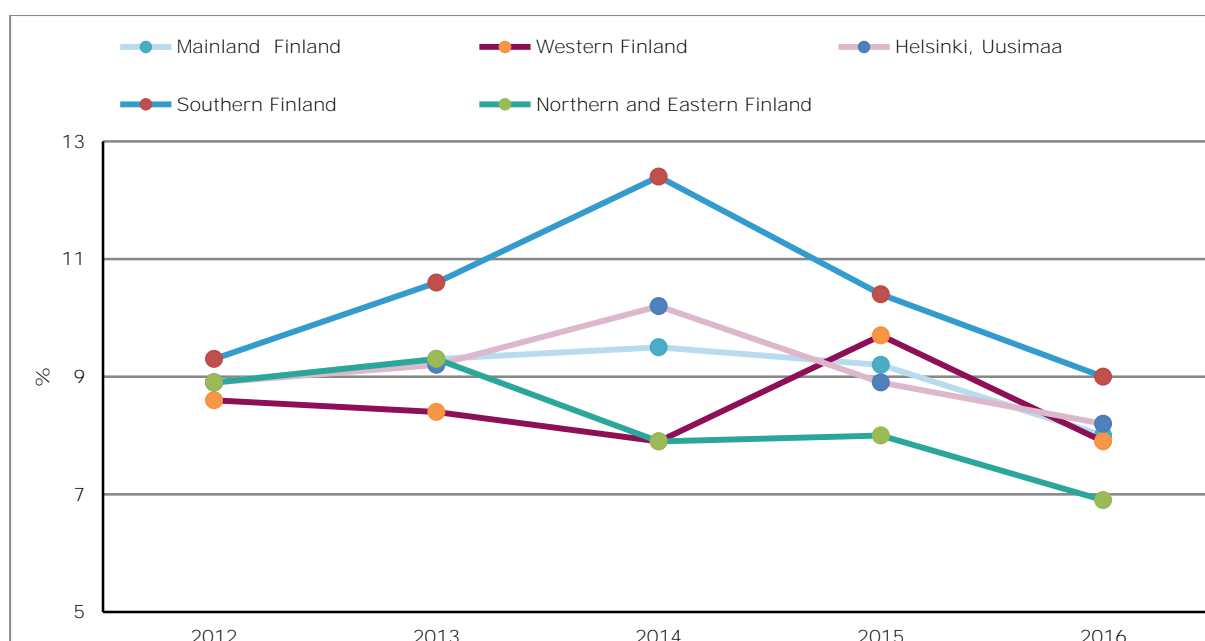
⁷⁷ Students at or above proficiency Level 5 in PISA tests are the best performers, while students at or below Level 2 are poor performers.

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.

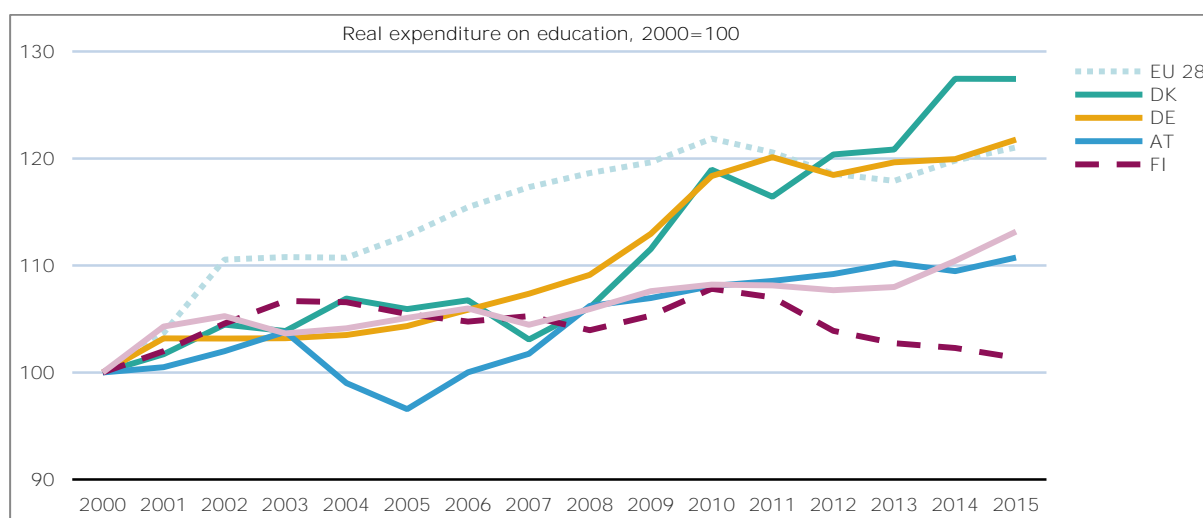
Based on the findings in a teacher forum, initial teacher education and continuing professional development will be amended in the teacher education development programme. Training will be better adapted to the actual skills and development needs of teachers and school heads. It will be supplemented 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 Toissää.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.

8. References

- BiGGAR Economics (2017) *Economic Contribution of the Finnish Universities*.
http://www.unifi.fi/wp-content/uploads/2017/06/UNIFI_Economic_Impact_Final_Report.pdf
- CEDEFOP *Finland Skills forecasts up to 2025*.
<http://www.cedefop.europa.eu/en/publications-and-resources/country-reports/finland-skills-forecasts-2025>
- European Commission *Europe's Digital Progress Report 2017*.
<https://ec.europa.eu/digital-single-market/en/news/europes-digital-progress-report-2017>
- European Commission (2017) *Country Report Finland*.
https://ec.europa.eu/info/files/2017-european-semester-country-report-finland_en
- Finnish Ministry of Finance (2017) *National Reform Programme*.
https://ec.europa.eu/info/files/finland-national-reform-programme_en
- Finnish Ministry of Education and Culture, (2017) *Finnish Country Note on Transitions in ECEC*.
<http://minedu.fi/en/Publication?pubid=URN:ISBN:978-952-263-481-8>
- Finnish Ministry of Education and Culture, (2017) *National Report PISA 2015*.
<http://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/79052/okm41.pdf?sequence=1>
- Hatak, Isabella; Reiner, Elisabeth (2011): *Entrepreneurship Education in Secondary Schools*.
 Education systems, teaching methods and best practice – a survey of Austria, Finland, France, Germany, Italy, Spain, Sweden.
https://www.wu.ac.at/fileadmin/wu/d/ri/ricc/Forschung/Laufende_Projekte/researchreport2011_1.pdf
- Lintuvuori, Ahtiainen, Hienonen, Vainikainen & Hautamäki (2014) *Osaava-ohjelma 2010-2013: Selvityksen loppuraportti*.
<https://tuhat.helsinki.fi/portal/en/persons/meri-lintuvuori%2840a8ced4-9648-4bc9-b7c6-1f229b00a47a%29.html>
- OECD (2016a), *Education at a Glance*.
<http://www.oecd.org/edu/education-at-a-glance-19991487.htm>
- OECD (2016b) *PISA 2015 Results*.
<http://www.oecd.org/education/pisa-2015-results-volume-i-9789264266490-en.htm>
- OECD, (2016c) *PISA Low-Performing Students*.
<http://www.oecd.org/edu/low-performing-students-9789264250246-en.htm>
- OECD (2017a) *Reviews of Innovation Policy: Finland*.
<http://www.oecd.org/finland/oecd-reviews-of-innovation-policy-finland-2017-9789264276369-en.htm>

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

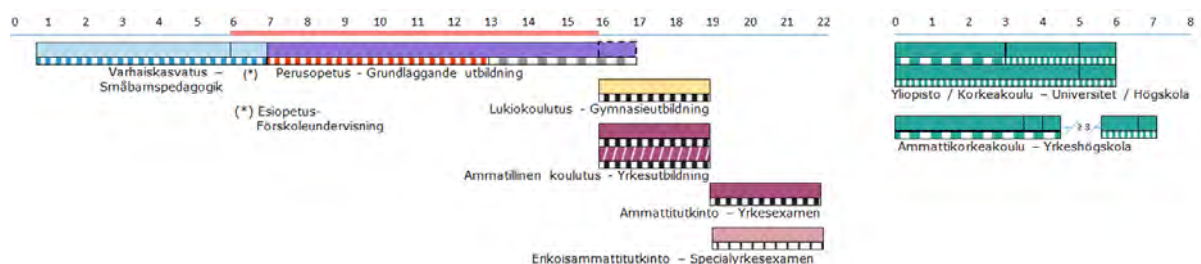
9. Annex. Key indicator sources

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

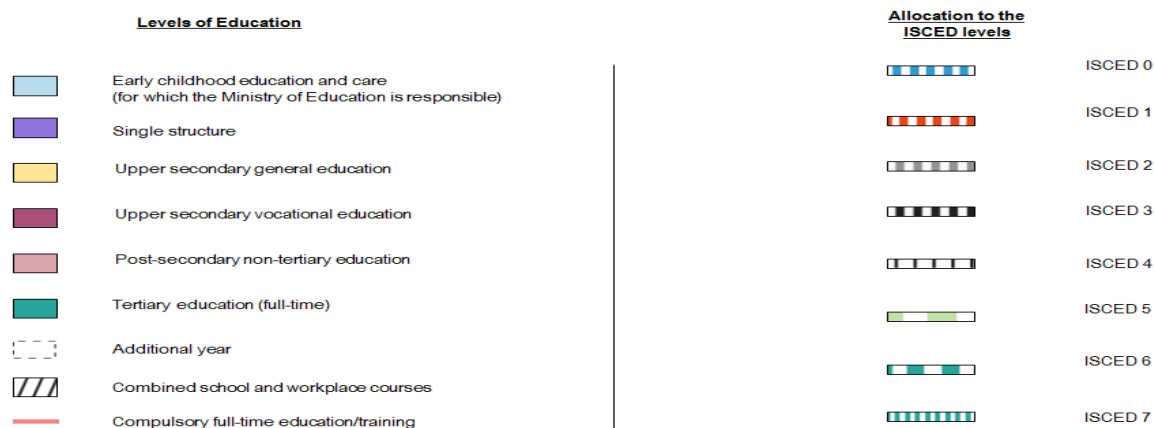
10. Annex II. Structure of the education system

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.

Comments and questions on this report are welcome and can be sent by email to:
Klaus KOERNER
klaus.koerner@ec.europa.eu
or
EAC-UNITE-A2@ec.europa.eu

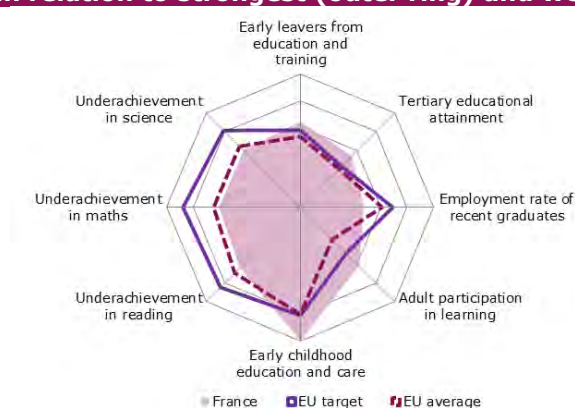
FRANCE

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.

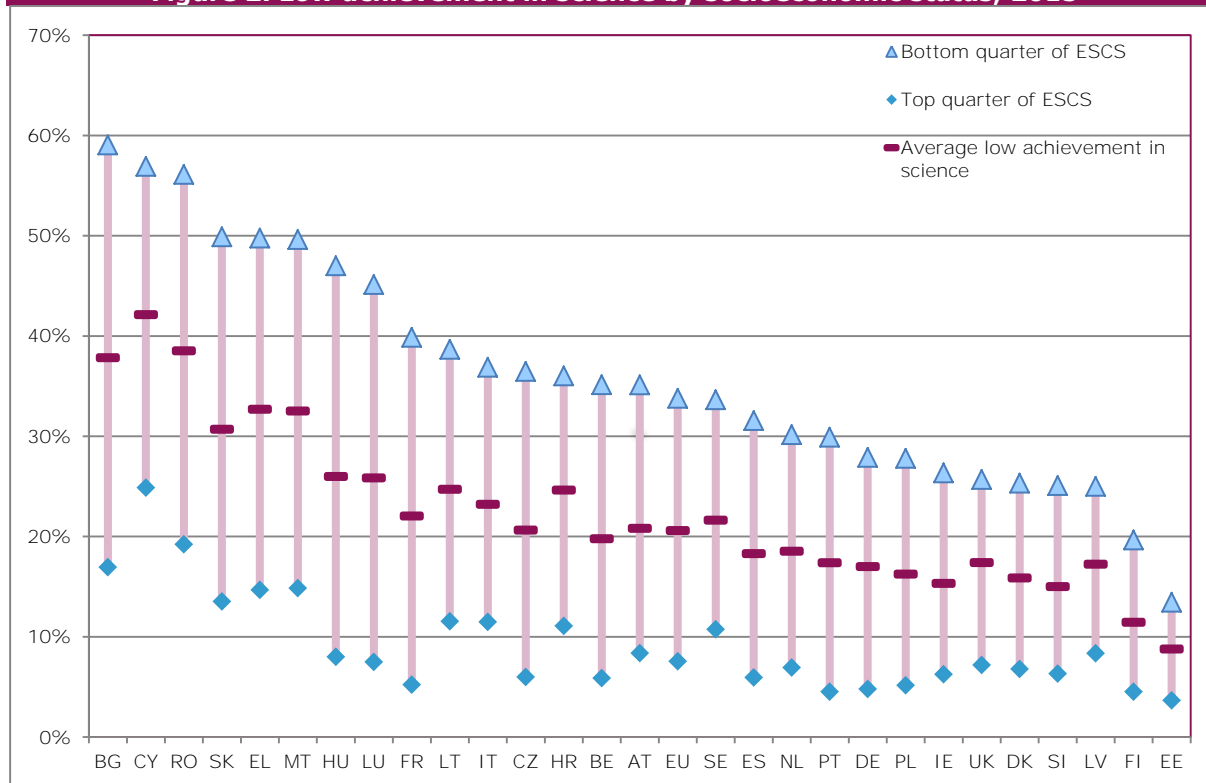
The new government launched the so-called 'homework done' scheme, enabling lower secondary education students to do their homework at school from September 2017, at no cost, under qualified supervision (MEN, 2017b). This is likely to reduce inequality in education outcomes.

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.

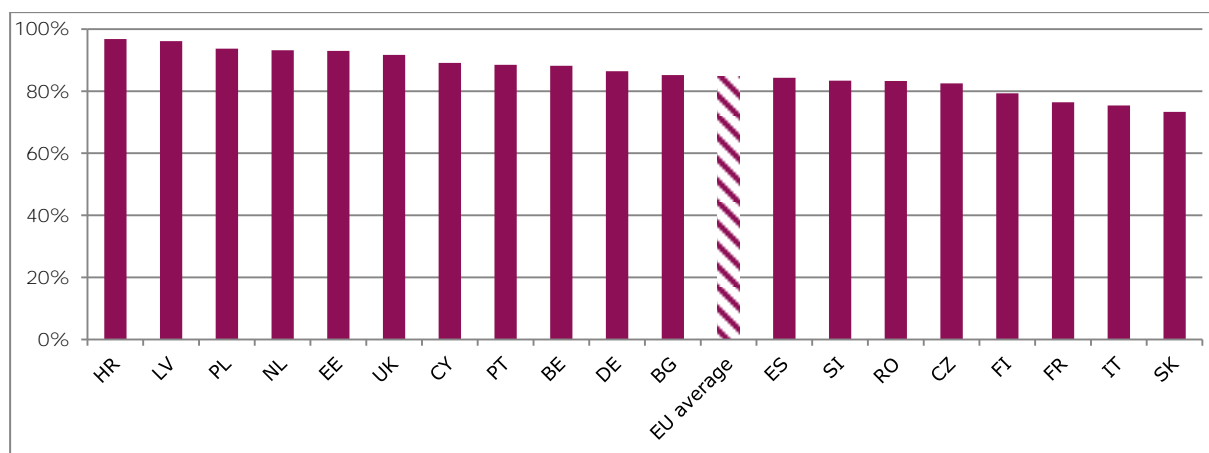
A so-called citizen reserve was created, made up of volunteers who will assist teachers with educational projects, in particular linked to secularism and citizenship education.

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>.

8. References

Collège de France (2017), *Programme national PAUSE*.
<http://www.college-de-france.fr/site/programme-pause/>

Council of the European Union (2017), *Council Recommendation on the 2017 National Reform Programme of France and delivering a Council opinion on the 2017 Stability Programme of France*.
<http://data.consilium.europa.eu/doc/document/ST-9295-2017-INIT/en/pdf>

CNESCO (2016a) (Conseil national d'évaluation du système scolaire), *Inégalités sociales. Comment l'école amplifie-t-elle les inégalités sociales et migratoires?*, Septembre 2016.
<http://www.cnesco.fr/fr/inegalites-sociales-et-migratoires-comment-lecole-les-amplifie/>

CNESCO (2016b), *Le métier d'enseignant attire-t-il toujours?* Novembre 2016.
<https://www.cnesco.fr/fr/le-metier-denseignant-attire-t-il-toujours/>

CNESCO (2017), *Trente préconisations pour améliorer l'éducation en France*, Mars 2017.
<https://www.cnesco.fr/fr/30-preconisations/>

Comité de suivi Loi de refondation de l'Ecole (2017), *Rapport annuel*. <http://www.assemblee-nationale.fr/presidence/Loi-de-refondation-de-l-ecole-synthese-2017.pdf>

Commissariat Général à l'Investissement 2016, *Préparer la France aux défis de demain*.
<http://www.gouvernement.fr/sites/default/files/contenu/piece-jointe/2016/06/pia3.pdf>

Cour des Comptes (2015), *La formation continue des enseignants*, Avril 2015.
<https://www.ccomptes.fr/Publications/Publications/La-formation-continue-des-enseignants>

Cour des Comptes (2017), *Le remplacement des enseignants absents*, Mars 2017.
<https://www.ccomptes.fr/Publications/Publications/Le-remplacement-des-enseignants-absents>

DEPP (2016a) (Direction de l'évaluation, de la prospective et de la performance, Ministère de l'Éducation nationale), *La ségrégation entre les collèges*, Pauline Givord, Marine Guillerme, Olivier Monso, Fabrice Murat, Education et Formations, n° 91, Septembre 2016.
http://cache.media.education.gouv.fr/file/revue_91/03/4/depp-2016-EF-91-La-segregation-sociale-entre-les-colleges_635034.pdf

DEPP (2016b), *Les élèves du second degré à la rentrée 2016: une baisse généralisée du taux de redoublement*, Décembre 2016. http://cache.media.education.gouv.fr/file/2016/17/1/depp-ni-2016-41-constat-2d-degre-2016_689171.pdf

DEPP (2016c) *Note d'information n°37, Décembre 2016*.
http://cache.media.education.gouv.fr/file/2016/39/3/depp-ni-2016-37-PISA-2015-culture-scientifique_678393.pdf

DEPP (2016d), *Repères et références statistiques 2016*.
http://cache.media.education.gouv.fr/file/2016/97/5/depp_rers_2016_614975.pdf

DEPP (2017a), *Le niveau de formation et de diplôme demeure toujours déterminant dans l'insertion des apprentis, Note d'information n°11, juin 2017*.
http://cache.media.education.gouv.fr/file/2017/24/1/NI-EN-11-2017_763241.pdf

DEPP (2017b), *Repères et références statistiques 2017, édition 2017*,
<http://www.education.gouv.fr/cid57096/reperes-et-references-statistiques.html>
<http://www.education.gouv.fr/cid57096/reperes-et-references-statistiques.html>

Ecorys for the European Commission (2016), *Study on the Diversity within the Teaching Profession with Particular Focus on Migrant and/or Minority Background, annexes*.

http://ec.europa.eu/dgs/education_culture/repository/education/library/study/2016/teacher-diversity-annexes_en.pdf

European Commission (2016), *Education and Training Monitor 2016 — France*, Novembre 2016.

https://ec.europa.eu/education/sites/education/files/monitor2016-fr_en.pdf

European Commission/EACEA/Eurydice (2016), *Structural indicators on early childhood education and care in Europe*, 2016 .

https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/images/2/26/Early_Childhood_Education_and_Care_.pdf

Eurydice (2016), *National Student Fee and Support systems in European Higher Education 2016/17*.

http://bookshop.europa.eu/is-bin/INTERSHOP.enfinity/WFS/EU-Bookshop-Site/en_GB/-/EUR/ViewPublication-Start?PublicationKey=ECAE16002

IGEN/IGAENR (2016) (Inspection générale de l'Education nationale/Inspection générale de l'administration de l'Education nationale et de la recherche), *La mise en place des écoles supérieures du professorat et de l'éducation au cours de l'année 2015-2016*, Septembre 2016.

http://cache.media.education.gouv.fr/file/2016/74/9/2016-062_ESPE_653749.pdf

MEN (2016a) (Ministère de l'Education Nationale), *Evaluation des acquis des élèves, note d'information n°21, Juillet 2016*. <http://www.education.gouv.fr/cid54177/cedre-2015-nouvelle-evaluation-en-fin-de-college-competences-langagieres-et-litteratie.html>

MEN (2016b), *Priorité égalité: assurer l'égalité sur tout le territoire et soutenir l'ambition de tous les jeunes*. <http://www.education.gouv.fr/cid114497/priorite-egalite.html>

MEN (2016c), *Réussir le développement de la scolarisation des enfants de moins de 3 ans*. <http://www.education.gouv.fr/cid100762/reussir-le-developpement-de-la-scolarisation-des-enfants-de-moins-de-3-ans.html>

MEN (2016d), *Dispositif 'meilleurs bacheliers', Septembre 2016*.

<http://www.education.gouv.fr/cid91247/le-dispositif-meilleurs-bacheliers.html>

MEN (2017a), *Création du corps de psychologues de l'Education nationale, Février 2017*.

<http://www.education.gouv.fr/cid112672/publication-du-decret-rendant-effective-la-creation-du-corps-de-psychologues-de-l-education-nationale.html>

MEN (2017b), *Rentrée 2017 – 4 mesures pour bâtir l'école de la confiance*.

<http://www.education.gouv.fr/cid117637/rentree-2017-4-mesures-pour-batir-l-ecole-de-la-confiance.html>

MEN (2017c), *Tous mobilisés pour vaincre le décrochage scolaire, Mai 2017*.

<http://www.education.gouv.fr/cid84031/tous-mobilises-pour-vaincre-le-decrochage-scolaire.html>

MENESR (2017), *Livre Blanc de l'Enseignement Supérieur de la Recherche 2017*.

https://cache.media.enseignementsup-recherche.gouv.fr/file/Actus/04/1/ESR_Livre_Blanc_707041.pdf

MENESR-SIES (2017), *Note d'information 17.05, Avril 2017*.

https://cache.media.enseignementsup-recherche.gouv.fr/file/2017/15/2/NI5_avril2017_749152.pdf

MESRI (2015) (Ministère de l'Enseignement Supérieur, de la Recherche et de l'Innovation), *Pour une société apprenante, propositions pour une stratégie nationale de l'enseignement supérieur*,

https://cache.media.enseignementsup-recherche.gouv.fr/file/STRANES/12/2/STRANES_entier_bd_461122.pdf

MESRI (2017a), *Communication en Conseil des Ministres, amélioration des conditions de vie étudiante*, Avril 2017. <http://www.enseignementsup-recherche.gouv.fr/pid29939-cid115383/communication-en-conseil-des-ministres-amelioration-des-conditions-de-vie-etudiante.html>

MESRI (2017b), *Entrepreneuriat étudiant*. <https://www.pepite-france.fr/>

OECD (2014), *TALIS 2013 Results: An International Perspective on Teaching and Learning*, Paris: OECD Publishing. <http://www.oecd.org/edu/school/talis.htm>

OECD (2015), *Débats sur la politiques migratoires, l'école est-elle (encore un des principaux vecteurs d'intégration en France?)*, Septembre 2015. <http://www.oecd.org/france/is-school-still-one-of-the-main-routes-of-integration-in-france.pdf>

OECD (2016a), *Programme for International Student Assessment 2015, volume I*. <http://www.oecd.org/education/pisa-2015-results-volume-i-9789264266490-en.htm>

OECD (2016b), *PISA volume III*. <https://www.oecd.org/pisa/PISA-2015-Results-Students-Well-being-Volume-III-Overview.pdf>

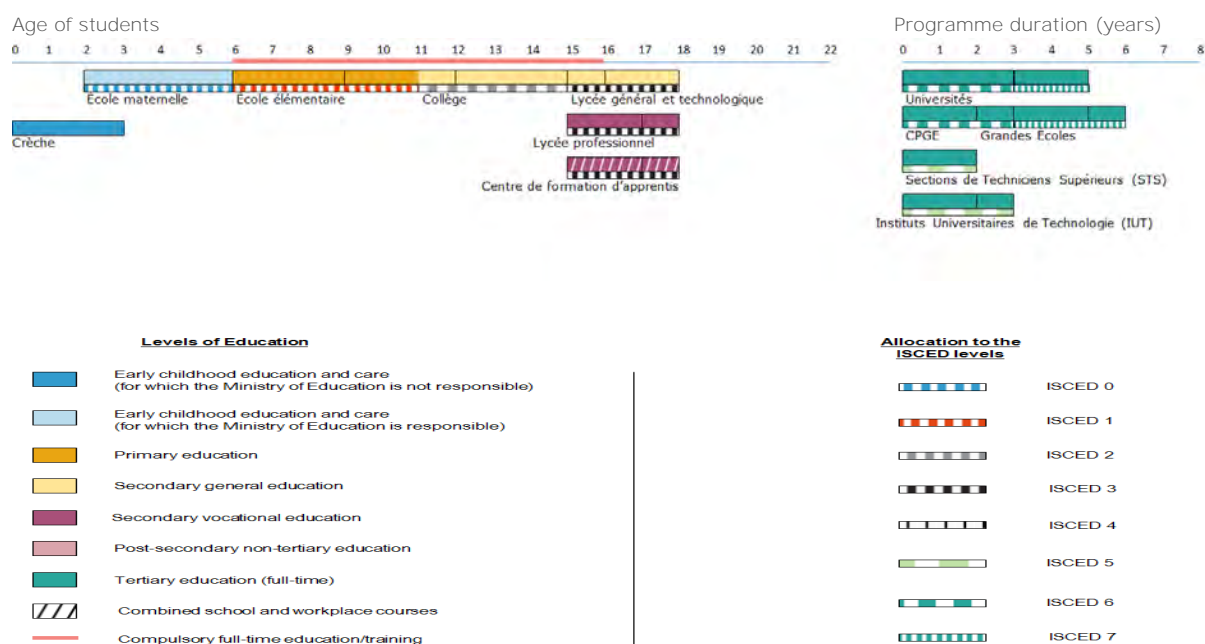
OECD (2016c), *Education at a Glance 2016*. <http://www.oecd.org/edu/education-at-a-glance-19991487.htm>, indicator D3 How much are teachers paid?

Prime Minister (2017), *National Reform Programme 2017*. <http://proxy-pubminefi.diffusion.finances.gouv.fr/pub/document/18/22401.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.

Comments and questions on this report are welcome and can be sent by email to: Christèle DUVIEUSART
christele.duvieusart@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

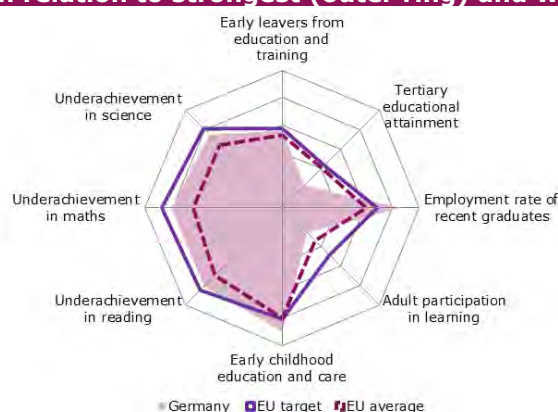
GERMANY

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.

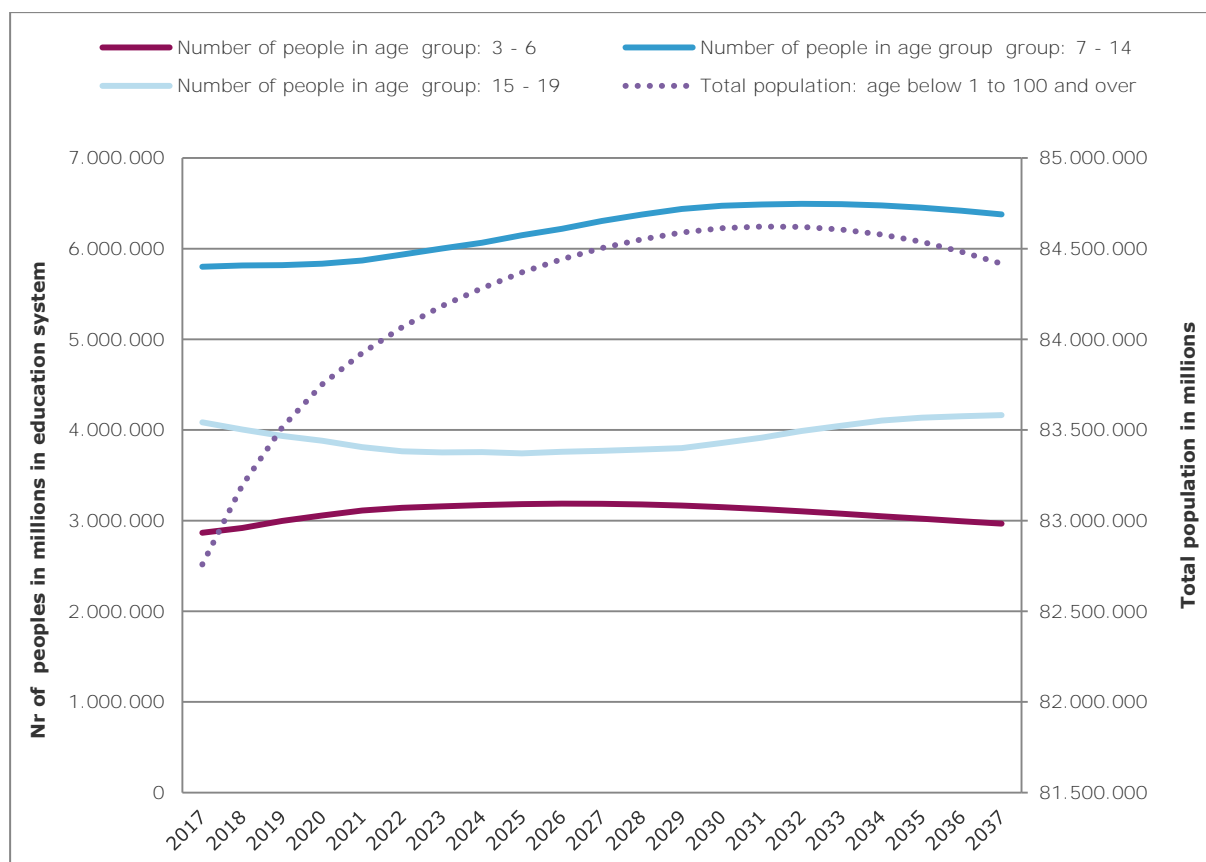
¹⁰⁵ Complete comparability of public education expenditure can however not be achieved because of the different organisation of work-based components in VET in different Member States, where (private) expenditure by companies in Germany is considerable.

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/Bildungsoffensive_fuer_die_digitale_Wissensgesellschaft.pdf.

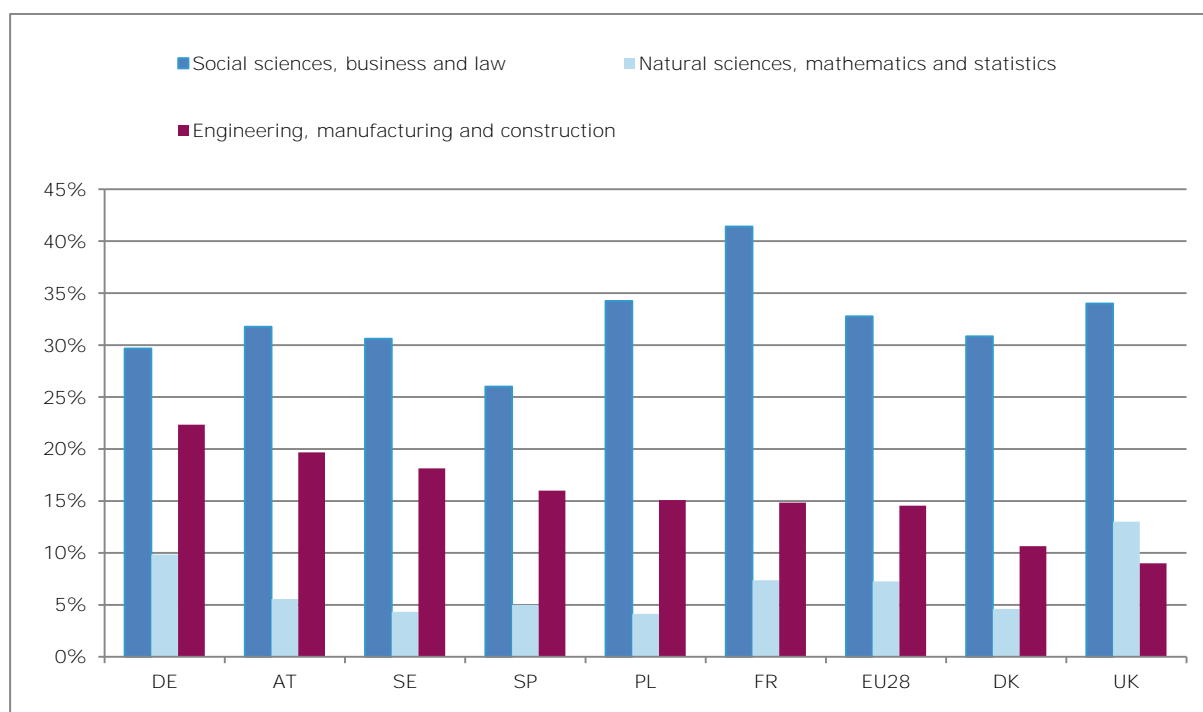
6. Modernising higher education

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>

8. References

Autorengruppe Bildungsberichterstattung (2016), *Bildung in Deutschland 2016, Ein indikatorengestützter Bericht mit einer Analyse zu Bildung und Migration*.

<http://www.bildungsbericht.de/de/bildungsberichte-seit-2006/bildungsbericht-2016/pdf-bildungsbericht-2016/bildungsbericht-2016>

Council of the European Union (2017), *Council Recommendation on the 2017 National Reform Programme of Germany and delivering a Council opinion on the 2017 Stability Programme of Germany*.

<http://data.consilium.europa.eu/doc/document/ST-9296-2017-INIT/en/pdf>

Ebert, Julia; Heublein, Ulrich (2017), *Ursachen des Studienabbruchs bei Studierenden mit Migrationshintergrund*.

<https://www.stiftung-mercator.de/de/publikation/ursachen-des-studienabbruchs-bei-studierenden-mit-migrationshintergrund-zentrale-ergebnisse/>

European Union Agency for Fundamental Rights (FRA, 2017), *Current migration situation in the EU: Education*.

<http://fra.europa.eu/en/publication/2017/current-migration-situation-eu-education>

European Commission (2016a), *PISA 2015, EU performance and initial conclusions regarding education policies in Europe*.

https://ec.europa.eu/education/sites/education/files/pisa-2015-eu-policy-note_en.pdf

European Commission (2016b), *Study on the diversity within the teaching profession with a particular focus on migrant and/or minority background*.

http://ec.europa.eu/dgs/education_culture/repository/education/library/study/2016/teacher-diversity_en.pdf

European Commission (2017), Cedefop, *Skills panorama*.

<http://skillspanorama.cedefop.europa.eu/en/countries/germany>

Federal Ministry for Economic Affairs and Energy (2017), *Nationales Reformprogramm 2017*.

<https://ec.europa.eu/info/sites/info/files/2017-european-semester-national-reform-programme-germany-de.pdf>

Federal Ministry of Education and Research, BMBF (2017a), *Berufsbildungsbericht 2016*.

https://www.bmbf.de/pub/Berufsbildungsbericht_2016.pdf

Federal Ministry of Education and Research, BMBF (2017b), *Die wirtschaftliche und soziale Lage der Studierenden in Deutschland 2016*.

https://www.bmbf.de/pub/21._Sozialerhebung_2016_Hauptbericht.pdf

Federal Office for Migration and Refugees, BAMF (2017a), *Das Bundesamt in Zahlen 2016, Asyl*.

http://www.bamf.de/SharedDocs/Anlagen/DE/Publikationen/Broschueren/bundesamt-in-zahlen-2016-asyl.pdf?__blob=publicationFile

Federal Office for Migration and Refugees, BAMF (2017b), *Schlüsselzahlen Asyl 2016*.

http://www.bamf.de/SharedDocs/Anlagen/DE/Publikationen/Flyer/flyer-schluesselzahlen-asyl-2016.pdf?__blob=publicationFile

Federal Office for Migration and Refugees, BAMF (2017c), *Migration, Integration, Asylum*.

http://www.bamf.de/SharedDocs/Anlagen/EN/Publikationen/EMN/Politikberichte/emn-politikbericht-2016-germany.pdf?__blob=publicationFile

Forsa (2017), *Inklusion an Schulen aus Sicht der Lehrkräfte in Deutschland — Meinungen, Einstellungen und Erfahrungen Ergebnisse einer repräsentativen Lehrerbefragung*.

http://www.vbe.de/index.php?eID=tx_nawsecuredl&u=0&g=0&t=1501145301&hash=cf210a8fefa003dfcac6c1b97c5f2bb150ba95f7&file=fileadmin/vbe-presettermine/2017-05-22_forsa-Inklusion_Text_Bund.pdf

Grotlüschen, Anke (2016), *UNESCO country profiles of formal and nonformal adult education opportunities in literacy, numeracy and other skills: Germany, Paper commissioned for the Global Education Monitoring Report 2016, Education for people and planet: Creating sustainable futures for all*.

<http://unesdoc.unesco.org/images/0024/002475/247583e.pdf>

Klemm, Klaus; Zorn, Dirk (2016), *Die landesseitige Ausstattung gebundener Ganztagsschulen mit personellen Ressourcen. Ein Bundesländervergleich*.

https://www.bertelsmann-stiftung.de/fileadmin/files/BSt/Publikationen/GrauePublikationen/IB_Studie_Die_landesseitige_Ausstattung_gebundener_Ganztagsschulen_mit_personellen_Ressourcen.pdf

Klemm, Klaus; Zorn, Dirk (2017), *Demographische Rendite adé, Aktuelle Bevölkerungsentwicklung und Folgen für die allgemeinbildenden Schulen*.

http://www.bertelsmann-stiftung.de/fileadmin/files/BSt/Publikationen/GrauePublikationen/Demographische_Rendite_ade____final.pdf

Koehler, Claudia (2017), *Continuity of learning for newly arrived refugee children in Europe*.

<http://nesetweb.eu/wp-content/uploads/2016/02/Refugee-children.pdf>

Standing Conference of the Ministers of Education and Cultural Affairs, KMK (2013), *Lehrereinstellungsbedarf- und angebot in der Bundesrepublik Deutschland. Modellrechnung 2012-2025*.

http://www.kmk.org/fileadmin/Dateien/pdf/Statistik/Dokumentationen/Dok_201_LEB_LEA_2013.pdf

Standing Conference of the Ministers of Education and Cultural Affairs, KMK (2016a), *Allgemeinbildende Schulen in Ganztagsform in den Ländern in der Bundesrepublik Deutschland, Statistik 2011 bis 2015*.

https://www.kmk.org/fileadmin/Dateien/pdf/Statistik/Dokumentationen/GTS_2015_Bericht.pdf

Standing Conference of the Ministers of Education and Cultural Affairs, KMK (2016b), *Bildung in der digitalen Welt*.

https://www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2016/2016_12_08-Bildung-in-der-digitalen-Welt.pdf

Standing Conference of the Ministers of Education and Cultural Affairs, KMK (2016c), *Sonderpädagogische Förderung in allgemeinen Schulen (ohne Förderschulen) 2015/2016*.

https://www.kmk.org/fileadmin/Dateien/pdf/Statistik/Dokumentationen/Aus_SoPae_Int_2015.pdf

Standing Conference of the Ministers of Education and Cultural Affairs, KMK (2016d), *Sonderpädagogische Förderung in Schulen 2005 bis 2014*.

https://www.kmk.org/fileadmin/Dateien/pdf/Statistik/Dokumentationen/Dok_210_SoPae_2014.pdf

Institute for Educational Quality Improvement, IQB (2016), *IQB-Bildungstrend 2015*.

<https://www.iqb.hu-berlin.de/bt/BT2015/Bericht>

OECD (2016a), *Education at a Glance 2016: OECD Indicators*.

<http://dx.doi.org/10.1787/eag-2016-en>

OECD (2016b), *PISA 2015, Country Note Germany*.

<http://www.oecd.org/pisa/pisa-2015-Germany.pdf>

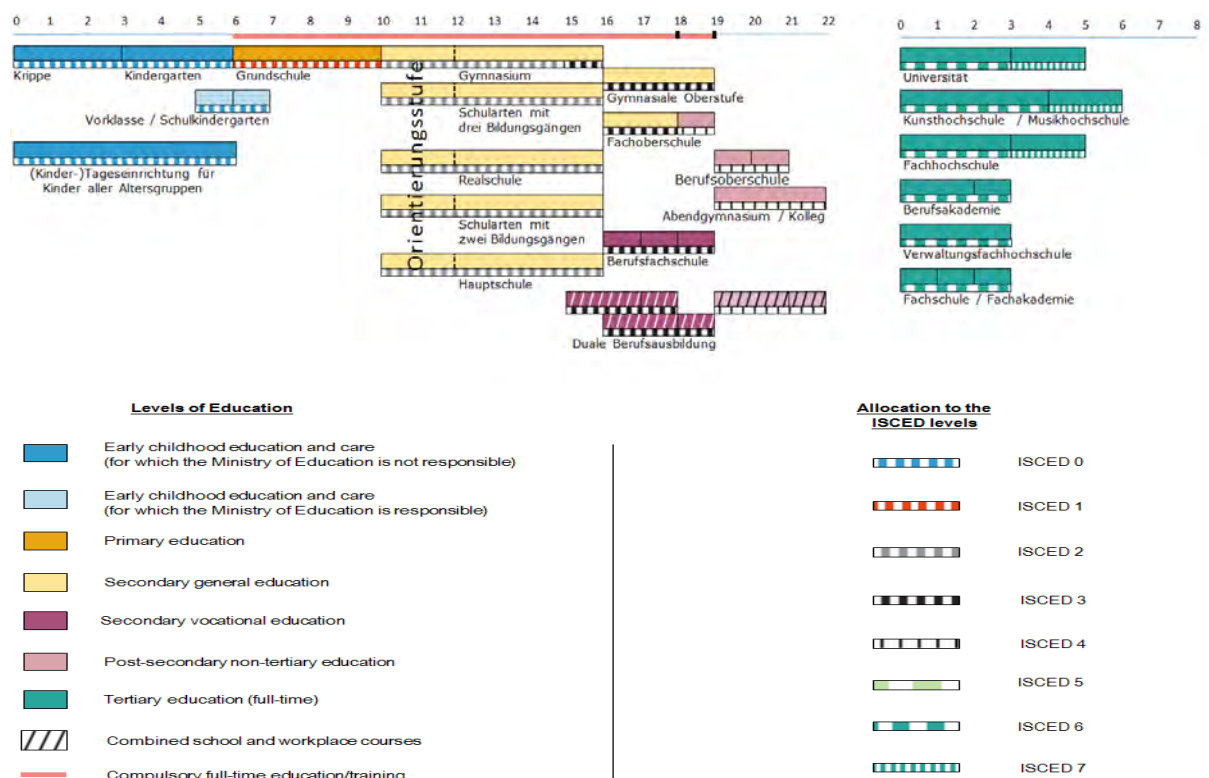
Vienna Institute of Demography and International Institute for Applied Systems Analysis, VID (2016), *European Demographic Datasheet 2016*.

<http://www.populationeurope.org/>

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:
Ulrike PISIOTIS
Ulrike.Pisiotis@ec.europa.eu
or
EAC-UNITE-A2@ec.europa.eu

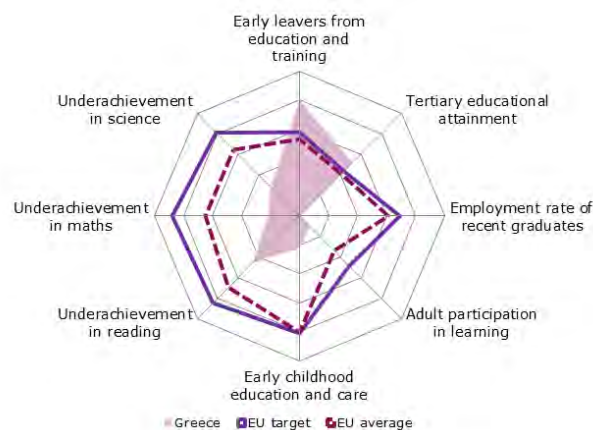
GREECE

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	:	:	:	:
	ISCED 1-2	:	:	:	:
	ISCED 3-4	:	:	:	:
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)	:	:	5.5%	6.0% ¹⁵
	Inbound graduates mobility (master)	:	:	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

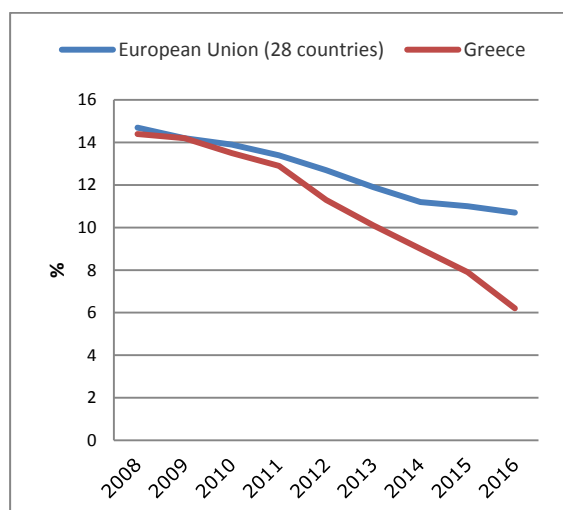
¹¹⁶ Only CY, BG and SK have lower rates.

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.

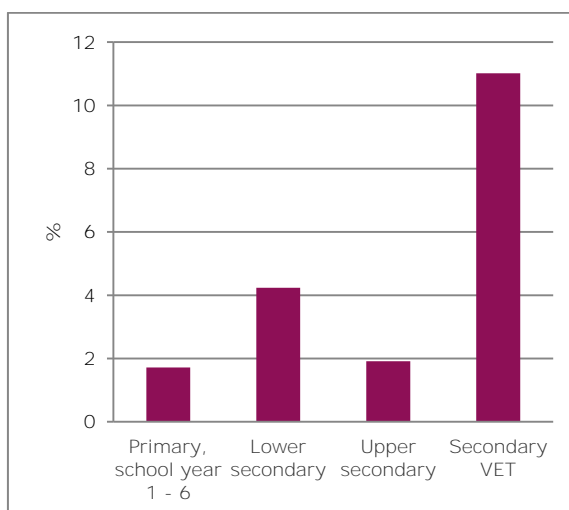
¹¹⁸ IEP shows 11 % for secondary vocational schools compared to the next higher rate of 4.2 % for lower secondary (general) schools.

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.

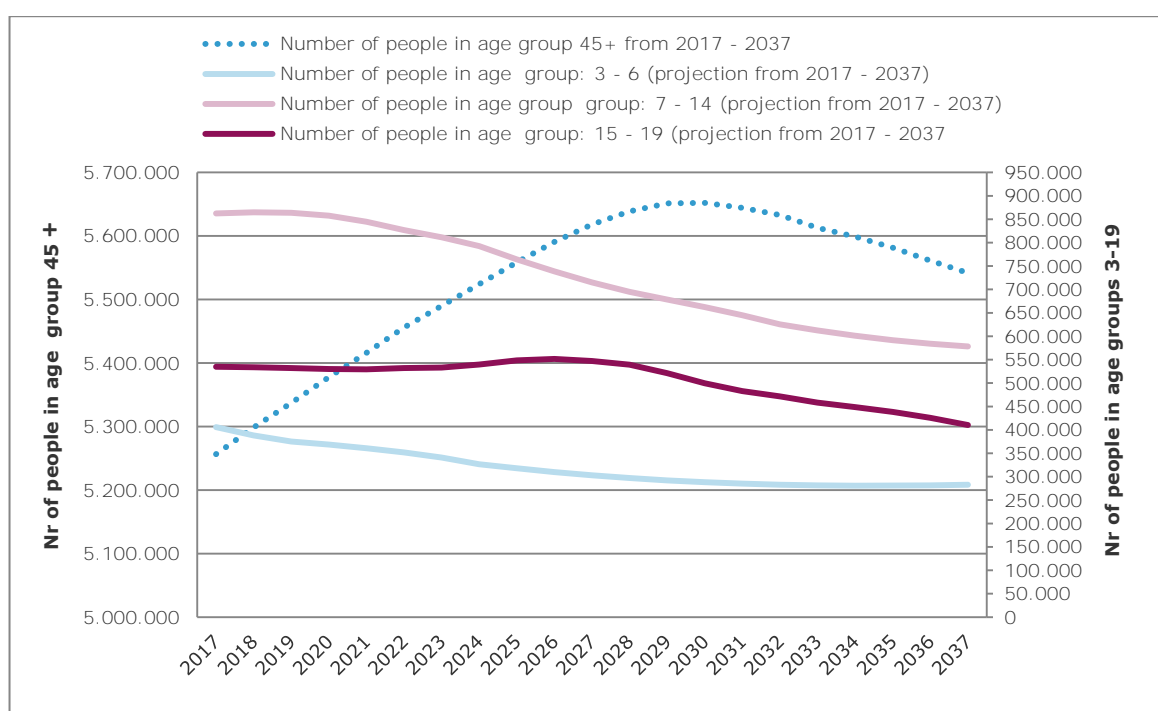
¹²² By Joint Ministerial Decision (JMD) 180647/GD4 /2016 published in FEK 3502/2016/B/31-10-2016.

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/s mou_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/tekhniki-ekpaideusi-2>

8. References

European Commission (2016), *PISA 2015, EU performance and initial conclusions regarding education policies in Europe*.

https://ec.europa.eu/education/sites/education/files/pisa-2015-eu-policy-note_en.pdf

European Commission (2017), CEDEFOP, *Skills panorama*.

<http://skillspanorama.cedefop.europa.eu/en/countries/greece>

European Commission (2014): *Tackling Early Leaving from Education and Training in Europe: Strategies, Policies and Measures. Eurydice and Cedefop Report*.

http://eacea.ec.europa.eu/education/eurydice/documents/thematic_reports/175EN.pdf

European Union Agency for Fundamental Rights (FRA, 2016), *Second European Union Minorities and Discrimination Survey (EU-MIDIS II). Roma — Selected findings*.
<http://fra.europa.eu/en/publication/2016/eumidis-ii-roma-selected-findings>

Educational Policy Institute (2017), *Η μαθητική διαρροή στην ελληνική πρωτοβάθμια και δευτεροβάθμια εκπαίδευση*.
http://iep.edu.gr/images/IEP/EPISTIMONIKI_YPIRESIA/Paratiritirio/2017/2017-03-28_paratiritirio_synopsi.pdf

ΚΕΝΤΡΟ ΑΝΑΠΤΥΞΗΣ ΕΚΠΑΙΔΕΥΤΙΚΗΣ ΠΟΛΙΤΙΚΗΣ της ΓΣΕΕ (ΚΑΝΕΡ, 2017), *Ετήσιας Έκθεσης για την Εκπαίδευση 2016*.
<http://www.kanep-gsee.gr/wp-content/uploads/2017/04/ETEKTH2016.pdf>

Labrianidis, Lois; Pratsinakis, Manolis (2016), *Outward migration from Greece during the crisis*.
http://www.lse.ac.uk/europeanInstitute/research/hellenicObservatory/CMS%20pdf/Research/NBG_2014_-_Research_Call/Final-Report-Outward-migration-from-Greece-during-the-crisis-revised-on-1-6-2016.pdf

Lazaretou, Sofia (2016), *ΦΥΓΗ ΑΝΘΡΩΠΙΝΟΥ ΚΕΦΑΛΑΙΟΥ: Η ΣΥΓΧΡΟΝΗ ΤΑΣΗ ΜΕΤΑΝΑΣΤΕΥΣΗΣ ΤΩΝ ΕΛΛΗΝΩΝ ΣΤΑ ΧΡΟΝΙΑ ΤΗΣ ΚΡΙΣΗΣ*, Οικονομικό Δελτίο, τεύχος 43, Τράπεζα Ελλάδας, σελ. 33- 57.
<http://www.bankofgreece.gr/BogEkdoseis/oikodelt201607.pdf>

Ministry of Education, Research and Religious Affairs (2016a), *Educational actions for refugee children*.
https://www.minedu.gov.gr/publications/docs2016/Epistimoniki_Epitropi_Prosfygon_YPETH_Full_Report_June__2016_-_translated.pdf

Ministry of Education, Research and Religious Affairs (2016b), *Καθορισμός Διαδικασίας Σχεδιασμού, Υλοποίησης και Αξιολόγησης Προγραμμάτων Συνεκπαίδευσης*.
<https://www.minedu.gov.gr/eidiki-agwgi-2/ekdiloseis-eidiki-ekpaideusi-3/24748-20-10-16-gia-proti-fora-ekdidetai-ypourgiki-apofasi-gia-tin-ylopoiisi-programmaton-synekpaidesis-4>

Ministry of Education, Research and Religious Affairs (2017), *Το Έργο της Εκπαίδευσης των Προσφύγων*.
https://www.minedu.gov.gr/publications/docs2017/16_06_17_Epistimoniki_Epitropi_Prosfygon_YPETH_Apotimisi_Protaseis_2016_2017_Final.pdf

OECD (2016a), *Education at a Glance*.
<http://gpseducation.oecd.org/CountryProfile?primaryCountry=GRC&treshold=10&topic=EO>

OECD (2016b), *PISA 2015 Results (Volume I): Excellence and Equity in Education*.
<http://dx.doi.org/10.1787/9789264266490-en>

OECD (2016c), *PISA 2015 Results (Volume II): Policies and Practices for Successful Schools*.
<http://dx.doi.org/10.1787/9789264267510-en>

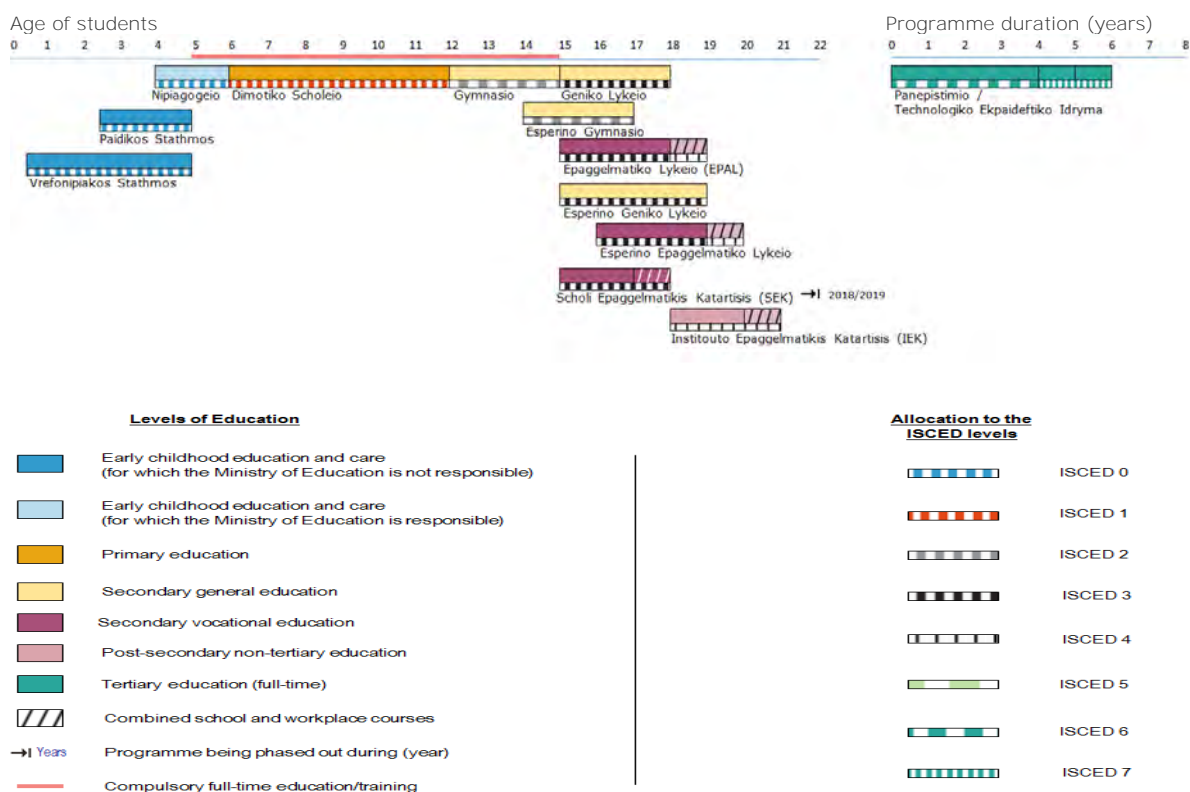
Resa, E. et al (2016), *Curriculum Quality Analysis and Impact Review of European Early Childhood Education and Care (ECEC)*.
http://ecec-care.org/fileadmin/careproject/Publications/reports/D4_3_Overview_of_quality_monitoring_system_s_and_results_of_moderator_analysis.pdf

Vienna Institute of Demography and International Institute for Applied Systems Analysis, VID (2016), *European Demographic Datasheet 2016*.
<http://www.populationeurope.org/>

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:
Ulrike PISIOTIS
Ulrike.Pisiotis@ec.europa.eu
or
EAC-UNITE-A2@ec.europa.eu

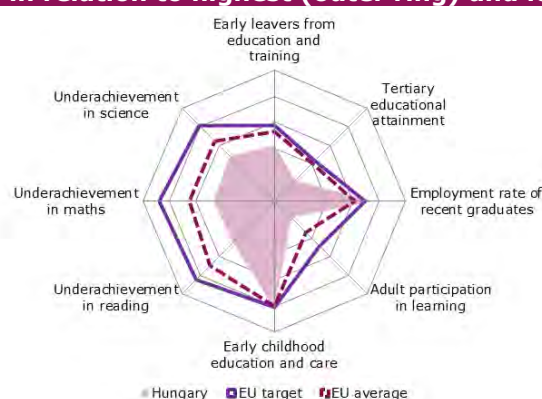
HUNGARY

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

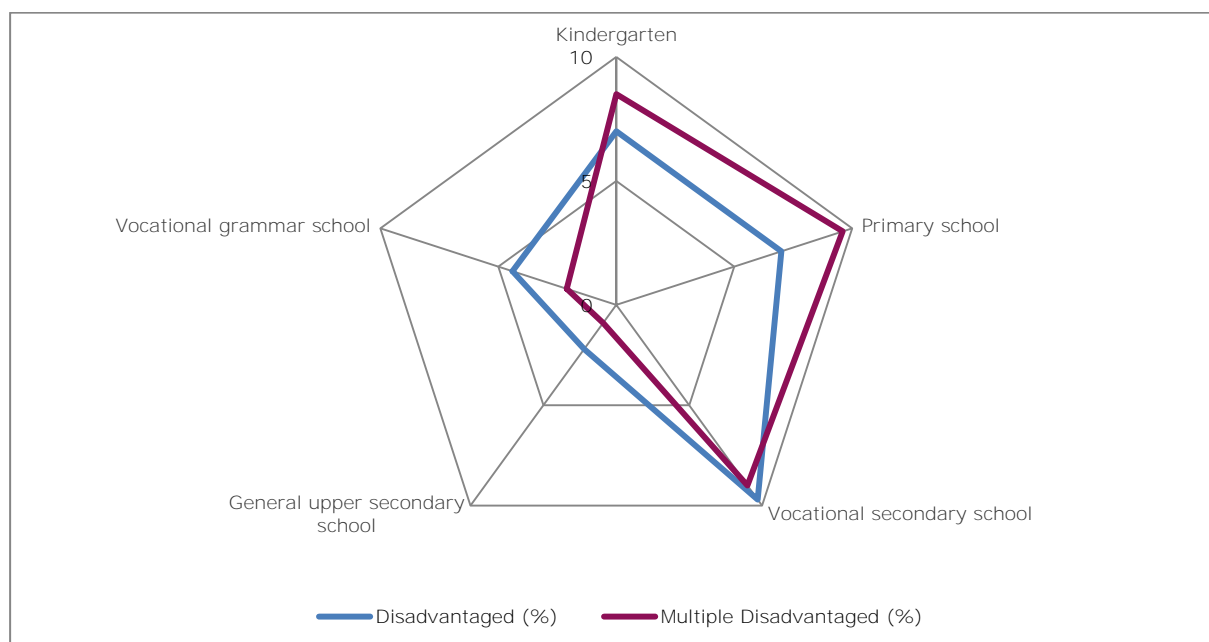
- A revision of Hungary's national curriculum was launched in 2017 in response to declining performance in PISA 2015.
- Recent measures on early childhood education and care may contribute to closing performance gaps between pupils from disadvantaged and more privileged backgrounds.
- A 2017 increase 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).

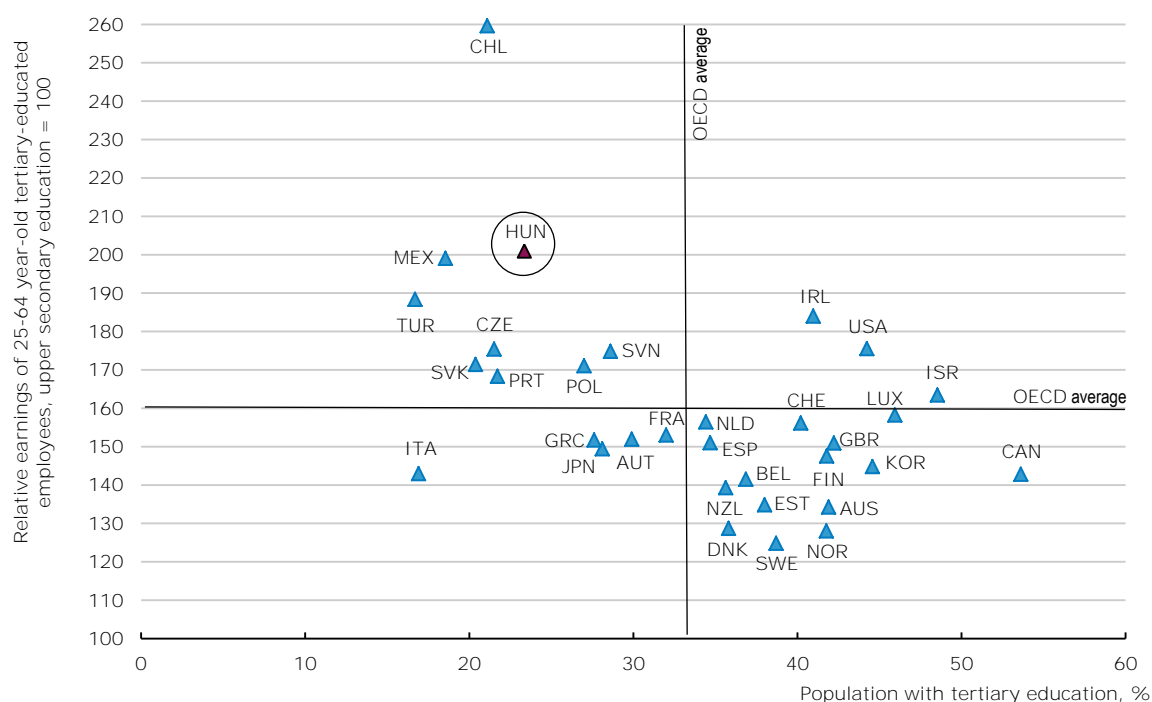
¹³³ Source: 2015 Labour Force Survey.

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_kozlemeny.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.

8. References

Beiter et al. (2016), Beiter, K.D., Karran, T., Applagyeyi-Atua, K., *'Measuring' the Erosion of Academic Freedom as an International Human Right: A Report on the Legal Protection of Academic Freedom in Europe*. https://www.vanderbilt.edu/jotl/wp-content/uploads/sites/78/1.-Beiter_updated-1.pdf

Bodnár and Szabó (2014), *A kivándorlás hatása a hazai munkaerőpiacra*. <https://www.mnb.hu/letoltes/a-kivandorlas-hatasa-a-hazai-munkaeropiacra.pdf>

Civil School Education Platform (2016), *Kiút az oktatási katasztrófából. Elemzés a magyar közoktatás alapvető, jelentős beavatkozást igénylő problémáiról és azok lehetséges megoldásáról*. <http://ckp.tanitanek.com/kockaskonyv/>

Council of the European Union (2017). <http://data.consilium.europa.eu/doc/document/ST-9297-2017-INIT/en/pdf>

Educational Authority (2016a), *PISA 2015 Összefoglaló jelentés*. http://www.oktatas.hu/pub_bin/dload/kozoktat/nemzetkozi_merese/pisa/PISA2015_osszefoglalo_jelentes.pdf

Educational Authority (2016b), *Diplomás Pályakövetési Rendszer országos kutatás*. https://www.felvi.hu/pub_bin/dload/DPR_tanulmanyok/frissdiplomasok_zarotanulmany_2015.pdf

Educational Authority (2017a), *Országos kompetenciamérés 2016 — Országos jelentés*. https://www.oktatas.hu/pub_bin/dload/kozoktat/merese/orszmer2017/Orszagos_jelentes_2016.pdf

Educational Authority (2017b), *Felvételi a középfokú iskolákba*. https://www.oktatas.hu/koznevel/kozepfoku_felveteli_eljaras/prezentaciok_tanulmanyok

ELTE Bárczi Gusztáv Special Education Faculty (2017), *Állásfoglalás a köznevelési törvény módosításáról*. <http://www.barczi.elte.hu/content/tajekoztatas.t.1102>

EUA (2015), European University Association, Public Funding Observatory 2015. <http://www.eua.be/Libraries/governance-autonomy-funding/november-2015.pdf?sfvrsn=0>

European Commission (2016), *Country Report Hungary*. http://ec.europa.eu/europe2020/pdf/csr2016/cr2016_hungary_en.pdf

European Commission (2017), *Country Report Hungary*. https://ec.europa.eu/info/sites/info/files/2017-european-semester-country-report-hungary-en_1.pdf

Fehérvári (2015), *Lemorzsolódás és a korai iskolaelhagyás trendjei*. http://nevelestudomany.elte.hu/downloads/2015/nevelestudomany_2015_3_31-47.pdf

FRA (2016), European Union Agency for Fundamental Rights, EU-MIDIS II: *Second European Union Minorities and Discrimination Survey, Roma – Selected findings*, 2016, Vienna. <http://fra.europa.eu/en/publication/2016/eumidis-ii-roma-selected-findings/>

Government (2016), *Fokozatváltás a felsőoktatásban középtávú szakpolitikai stratégia, 2016*. http://www.kormany.hu/download/3/18/e0000/20161202_Fokozatváltás_a_felsőoktatásban_középtávú_stratégia.pdf

Hajdu, T., Z. Hermann, D. Horn, G. Kertesi, G. Kezdi, J. Kollo and J. Varga (2015), *Az érettségi védelmében*, Budapesti Munkagazdaságtani Füzetek BWP. <http://www.econ.core.hu/file/download/bwp/bwp1501.pdf>

Hungarian Academy of Sciences (2016), Institute of Economics, Centre for Economic and Regional Studies, *The Hungarian Labour Market 2016*, Hungarian Academy of Sciences 2016, http://www.econ.core.hu/file/download/HLM2016/TheHungarianLabourMarket_2016_onefile.pdf

MAGyE (2017), *A Magyar Gyógypedagógusok Egyesületének tájékoztatása a 2017. évi, köznevelést érintő törvénymódosítás kapcsán*. <http://www.magye-1972.hu/aktualis-hirek/757-a-magyar-gyogypedagogusok-egyesuletenek-tajekoztatasa-a-2017-evi-koznevelest-erinto-torvenymodositas-kapcsan>

Manpower Group (2016), *Manpower Talent Shortage Survey 2016*. <http://www.manpowergroup.com/talent-shortage-2016>

OECD (2016a), OECD Economic Surveys: *Hungary 2016*. <http://www.oecd-ilibrary.org/docserver/download/1016101e.pdf?expires=1496743060&id=id&accname=oid031827&checksum=0CB9F547E2F2CFBBBBFB113D2384952E>

OECD (2016b), PISA 2015 Results (Volume II). http://www.oecd-ilibrary.org/education/pisa-2015-results-volume-ii_9789264267510-en

OECD (2016c), Education at a Glance 2016. http://www.oecd-ilibrary.org/education/education-at-a-glance-2016_eag-2016-en

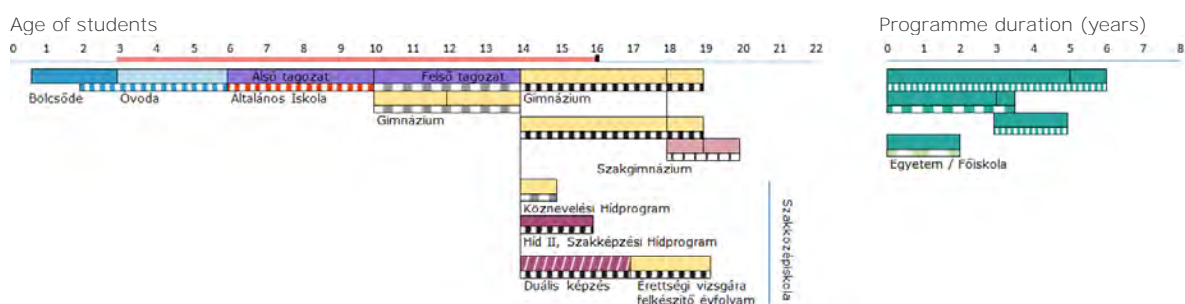
Ombudsman (2017), *Az alapvető jogok biztosának jelentése az AJB-360/2017. számú ügyben*. http://nyelvtudasert.hu/cms/data/uploads/jelentes-a-felsooktatasi-felveteli-nyelvvizsga-koevetelmenyeirol-360_2017.pdf

Társadalomkutató (2016), *Magyar Ifjúság Kutatás 2016*, http://www.ujnemzedek.hu/sites/default/files/magyar_ifjusag_2016_a4_web.pdf

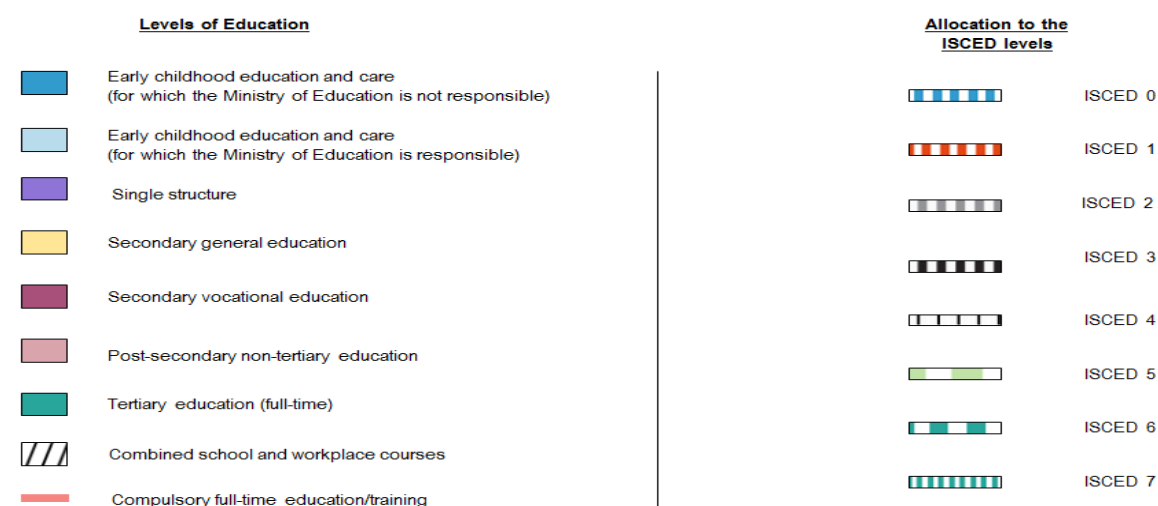
9. Annex I. Key indicator sources

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	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:
Livia RUSZTHY
livia.ruszthy@ec.europa.eu
or
EAC-UNITE-A2@ec.europa.eu

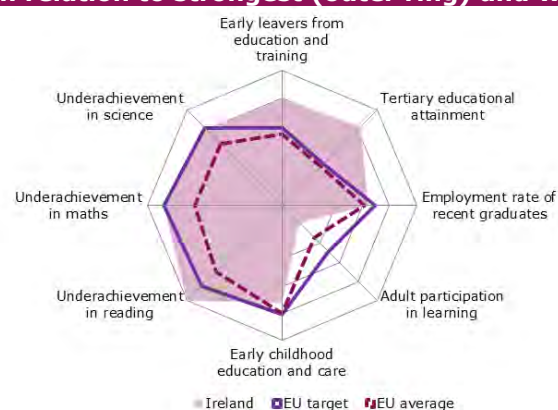
IRELAND

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

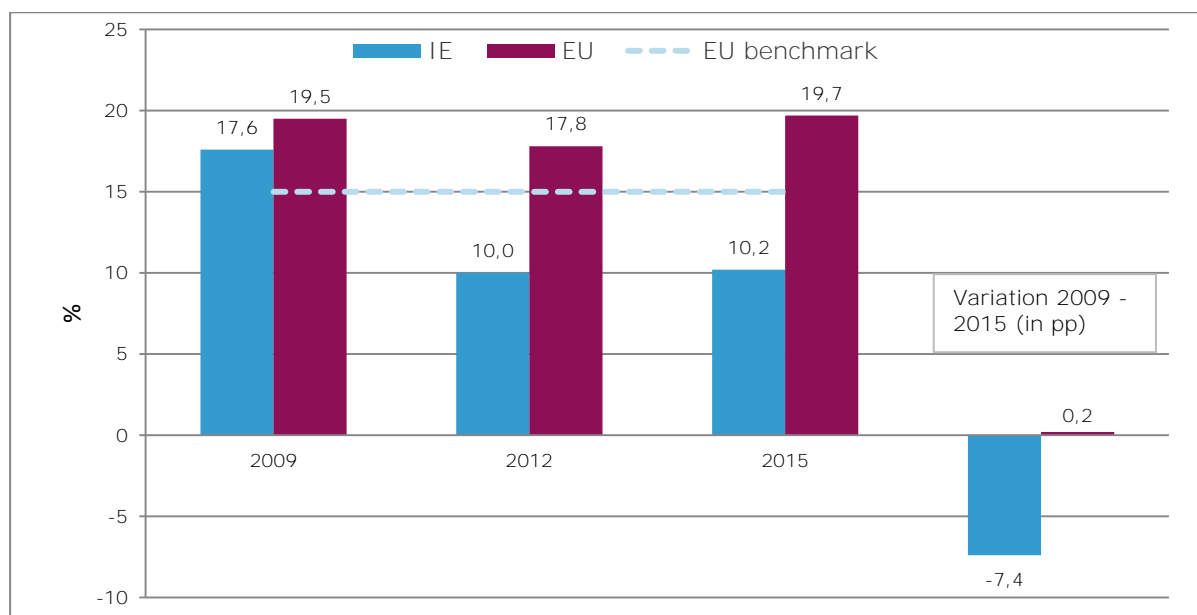
- Irish students' basic skills in reading, mathematics and science are high and relatively unaffected by socioeconomic background.
- Ireland continues to compare very well on education targets for early school leaving and tertiary education attainment. However, inequalities in participation and access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

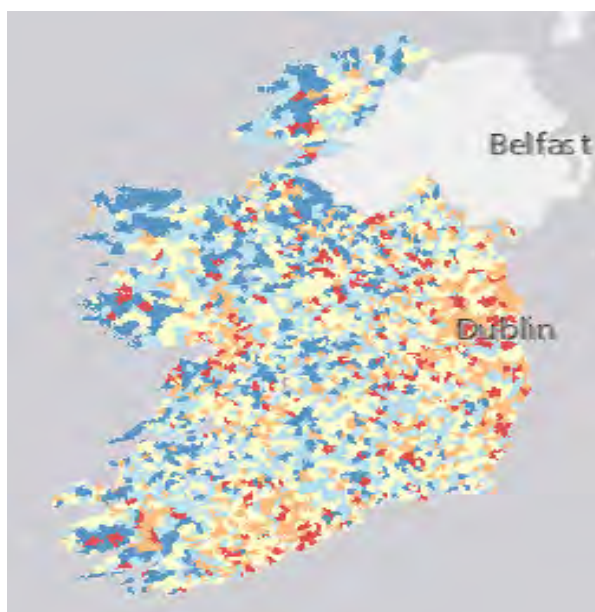
Expenditure on education in Ireland should be considered in the context of demographic patterns. Ireland faces large increases in pupil numbers at primary and secondary level in the immediate future. Birth rates have increased significantly and pupil numbers at primary level are expected to peak in 2018/2019. 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

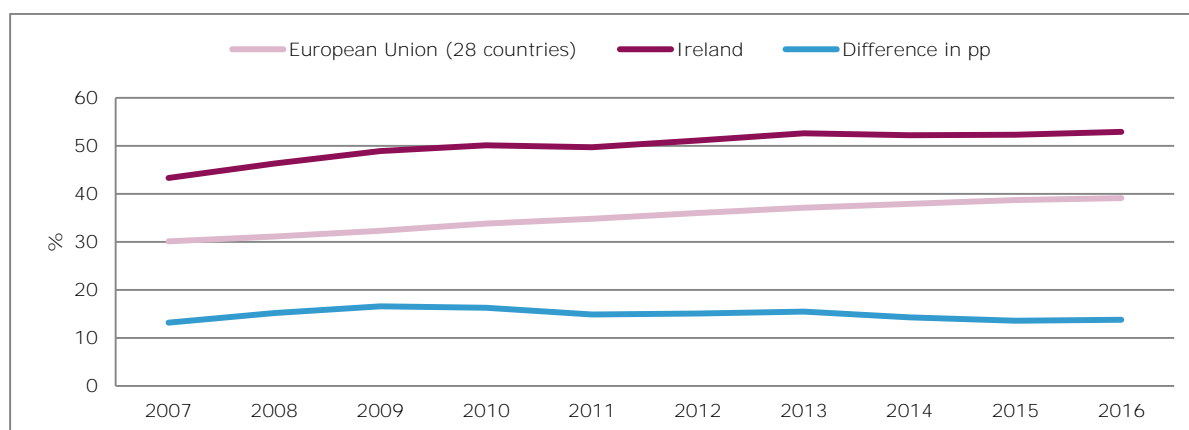
Ireland ranks near the top of the EU on tertiary attainment and has an ambitious national target for 2020. Ireland ranks fourth in the EU in 2016 on tertiary attainment rates. The proportion of 30- to 34-year-olds with higher education was 52.9 % in 2016, well above the EU average of 39.1 % (see Figure 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.

8. References

Banks, J. et al. (2016), *Special Classes in Irish Schools, Phase 2: A Qualitative Study*, by ESRI and NCSE. <https://www.esri.ie/pubs/BKMNEXT308.pdf>

Connors, J. et al. (2016), *Budgetary Impact of Changing Demographics 2017-2027*, by Department of Public Expenditure and Reform (DPER). <http://igees.gov.ie/wp-content/uploads/2015/02/Demographic-Paper-Final-101016.pdf>

Darmody, M. and E. Smyth (2016), *Entry to Initial Programmes of Teacher Education*, in ESRI and The Teaching Council. <https://www.esri.ie/pubs/BKMNEXT299.pdf>

Darmody, M. and E. Smyth (2017), *Education about Religions and Beliefs and Ethics: Views of teachers, parents and the general public regarding the proposed curriculum for primary schools*, by ESRI. <http://www.esri.ie/pubs/BKMNEXT324.pdf>

Department of Education and Skills (2016a), *Standardised Achievement Tests: An Analysis of the Results at Primary School Level*. <https://www.education.ie/en/Publications/Policy-Reports/Standardised-Achievement-Tests-An-analysis-of-the-results-at-Primary-school-level-for-2011-12-and-2012-13.pdf>

Department of Education and Skills (2016b), *Action Plan for Education 2016-2019*. <http://www.education.ie/en/Publications/Corporate-Reports/Strategy-Statement/Department-of-Education-and-Skills-Strategy-Statement-2016-2019.pdf>

Department of Education and Skills (2016c), *Investing in National Ambition: A Strategy for Funding Higher Education*. <https://www.education.ie/en/Publications/Policy-Reports/Investing-in-National-Ambition-A-Strategy-for-Funding-Higher-Education.pdf>

Department of Education and Skills (2016d), *Irish Educated — Globally Connected: An International Education Strategy for Ireland 2016-2020*. <https://www.education.ie/en/Publications/Policy-Reports/International-Education-Strategy-For-Ireland-2016-2020.pdf>

Department of Education and Skills (2017a), *DEIS Plan 2017: Delivering Equality of Opportunity in Schools*. <http://www.education.ie/en/Publications/Policy-Reports/DEIS-Plan-2017.pdf>

Department of Education and Skills (2017b), *Action Plan for Education 2017*. <https://www.education.ie/en/Publications/Corporate-Reports/Strategy-Statement/Action-Plan-for-Education-2017.pdf>

Education Research Centre ERC (2016a), *Future Ready? The Performance of 15-year-olds in Ireland on Science, Reading Literacy and Mathematics in PISA 2015*, by Gerry Shiel, Cathy Kelleher, Caroline McKeown and Sylvia Denner. http://www.erc.ie/wp-content/uploads/2016/12/PISA2015_FutureReady.pdf

Education Research Centre ERC (2016b), *Trends in International Mathematics and Science (TIMSS) in Ireland: Mathematics and Science in Primary and Post Primary Schools*. <http://www.erc.ie/studies/timss/>

European Commission (2016), PISA 2015: 'EU Performance and initial conclusions regarding education policies in Europe'. https://ec.europa.eu/education/sites/education/files/pisa-2015-eu-policy-note_en.pdf

Eurydice (2017), Eurydice: Ongoing Reforms and Policy Developments in Ireland. https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Ireland:Ongoing_Reforms_and_Policy_Developments

Irish Government (2017), *Ireland — National Reform Programme 2017*. <https://ec.europa.eu/info/sites/info/files/2017-european-semester-national-reform-programme-ireland-en.pdf>

¹⁵⁶ Of these places, 6,000 are annual upskilling and reskilling courses, currently provided under Springboard+, which incorporates the ICT skills conversion programme. =

Higher Education Authority HEA (2015), *Supporting a better Transition from Second Level to Higher Education: Implementation and Next Steps*.

http://transition.ie/files/Supporting%20a%20Better%20Transition%20from%20Second%20Level%20to%20Higher%20Education%20-%20Implementation%20and%20Next%20Steps_April%202015.pdf

Higher Education Authority HEA (2016), *Higher Education System Performance 2014-2016, Second Report of the Higher Education Authority to the Minister for Education*.

<http://www.education.ie/en/Publications/Education-Reports/Higher-Education-System-Performance-2014-2016.pdf>

Keane, N. and C. McInerney (2016), *Report on the Provision of Courses in Computer Science in Upper Second Level Education Internationally*, by NCCA. http://www.ncca.ie/en/Curriculum_and_Assessment/Post-Primary_Education/Senior_Cycle/What-s-New/Computer-Science-report.pdf

McCoy et al. (2014), *Leaving School in Ireland: A Longitudinal Study of Post-School Transitions*, by ESRI. <https://www.esri.ie/pubs/RS36.pdf>

Morgan, M. (2014), *Primary Developments, Stages in Educational/Cognitive Development: Current Status and Implications*, by NCCA.

http://www.ncca.ie/en/Curriculum_and_Assessment/Early_Childhood_and_Primary_Education/Primary-Education/Primary_Developments/Structure-and-Time-Allocation/mm2016.pdf

National Forum for the Enhancement of Teaching and Learning in Higher Education NFETLHE (2016), *Teaching and Learning in Irish Higher Education: A Roadmap for Enhancement in a Digital World 2015-2017*. <http://www.teachingandlearning.ie/wp-content/uploads/2015/03/Digital-Roadmap-web.pdf>

National Council for Curriculum and Assessment NCCA (2015), *Proposals for structure and time allocation in a redeveloped primary curriculum: For consultation- Executive summary*.

http://www.ncca.ie/en/Curriculum_and_Assessment/Early_Childhood_and_Primary_Education/Primary-Education/Primary_Developments/Structure-and-Time-Allocation/Executive-summary_Proposals_Structure-and-Time-ncca.pdf

National Council for Curriculum and Assessment NCCA (2017), Public Consultation website. http://www.ncca.ie/en/Curriculum_and_Assessment/Early_Childhood_and_Primary_Education/Primary-Education/Primary_Developments/Structure-and-Time-Allocation/consultation.html

National Foundation for Educational Research NFER (2014), *Curriculum Structures and Stages in Primary Education: Audit of Policy Across Jurisdictions*. <http://www.ncca.ie/en/Publications/Reports/Curriculum-Structures-and-Stages-in-Primary-Education>

OECD (2016a), PISA 2015 Results. <http://www.oecd.org/education/pisa-2015-results-volume-i-9789264266490-en.htm>

OECD, (2016b), PISA Low-Performing Students. <http://www.oecd.org/edu/low-performing-students-9789264250246-en.htm>

OECD (2016c), *Education at a Glance*. <http://www.oecd.org/edu/education-at-a-glance-19991487.htm>

O'Kane, M. (2016), *Transition from Preschool to Primary School*, by the NCCA.

http://www.ncca.ie/en/file/early/ResearchReport19_LR.pdf

Oxford University Centre for Educational Assessment (2014), *Predictability in the Irish Leaving Certificate*. <https://www.examinations.ie/about/Predictability-Overall-Report.pdf>

Smyth et al. (2015), *Learning from the Evaluation of DEIS*, by ESRI. <https://www.esri.ie/pubs/RS39.pdf>

Watson, D., et al., (2017), *A Social Portrait of Travellers in Ireland*, by the ESRI.

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

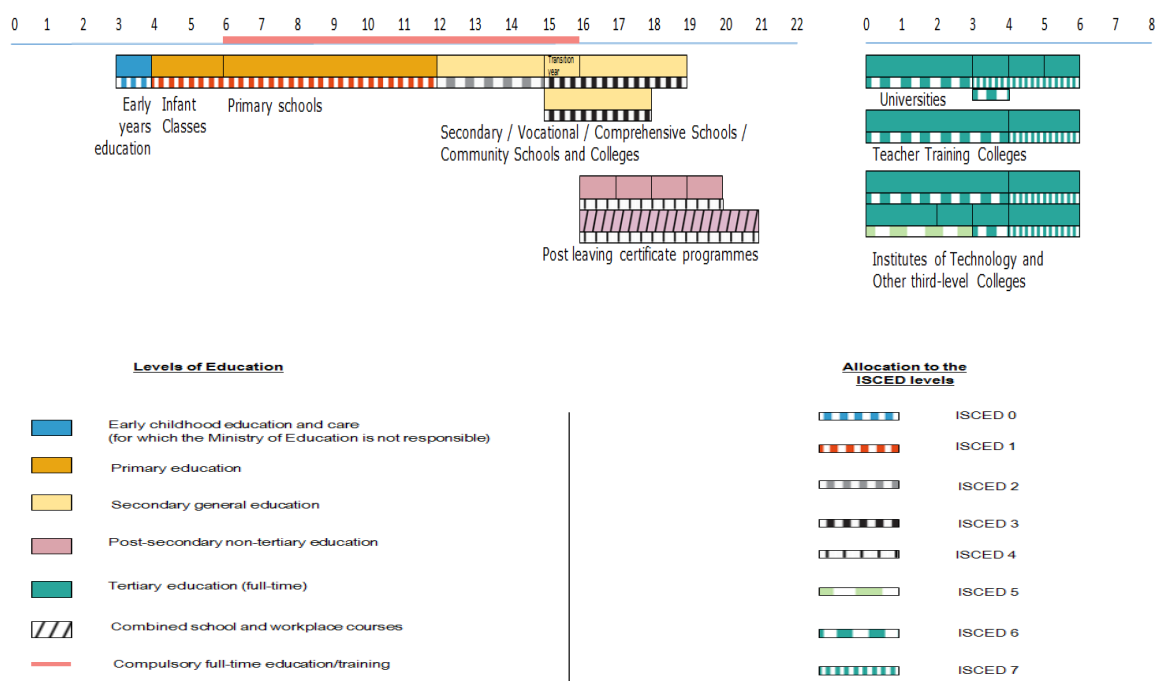
9. Annex I. Key indicator sources

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

Age of students

Programme duration (years)



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:
 Krzysztof KANIA
krzysztof.kania@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu