COUNCIL OF THE EUROPEAN UNION

Brussels, 22 November 2012

14871/12
ADD 7

EDUC 344
SOC 927

COVER NOTE

from:	Secretary-General of the European Commission, signed by Mr Jordi AYET PUIGARNAU, Director
date of receipt:	22 November 2012
to:	Mr Uwe CORSEPIUS, Secretary-General of the Council of the European Union
No Cion doc.:	SWD(2012) 377 final
Subject:	Commission Staff Working Document - Rethinking Education: Country Analysis - Part I - Accompanying the document - Communication from the Commission Rethinking Education: Investing in skills for better socio-economic outcomes

Delegations will find attached Commission document SWD(2012) 377 final Part I.

Encl.: SWD(2012) 377 final Part I

EUROPEAN
COMMISSION

Strasbourg, 20.11.2012
SWD(2012) 377 final

COMMISSION STAFF WORKING DOCUMENT

Rethinking Education : Country Analysis
Part I

Accompanying the document

Communication from the Commission

Rethinking Education: Investing in skills for better socio-economic outcomes

{COM(2012) 669 final}
{SWD(2012) 371 final}
{SWD(2012) 372 final}
{SWD(2012) 373 final}
{SWD(2012) 374 final}
{SWD(2012) 375 final}
{SWD(2012) 376 final}

Table of contents

Introduction

The following individual country summaries pinpoint the main challenges to skills provision specific to the different European countries and outline the most significant measures adopted to respond to such challenges.

The specific information contained in the summaries underpins the key messages of the Rethinking Education Communication by providing relevant quantitative and qualitative evidence, established through a methodology, building on the commonly accepted Joint Assessment Framework (JAF).

The summaries closely reflect the structure of the Rethinking Education Communication and complement the cross-country analysis presented in the Education and Training Monitor.

The summaries will provide essential elements for monitoring the implementation of the country-specific recommendations (CSRs) resulting from the European Semester under the Europe 2020 strategy.

Part I of this Staff Working Document covers the following Member States: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Germany, Denmark, Estonia, Greece, Spain, Finland, France, Hungary, Ireland and Italy.

Austria

1. Performance summary

1.1 Overview of benchmarks and skill levels

	Austria 2006	Austria 2011	EU average 2006	EU average 2011	Europe 2020 targets
1. Early leavers from education and training (age 18-24)	9.8%	8.3%	15.5%	13.5%	**EU target: 10%** National target : 9.5%
2. Tertiary educational attainment (age 30-34)	21.2%	23.8%	28.9%	34.6%	**EU target: 40%** National target :38%

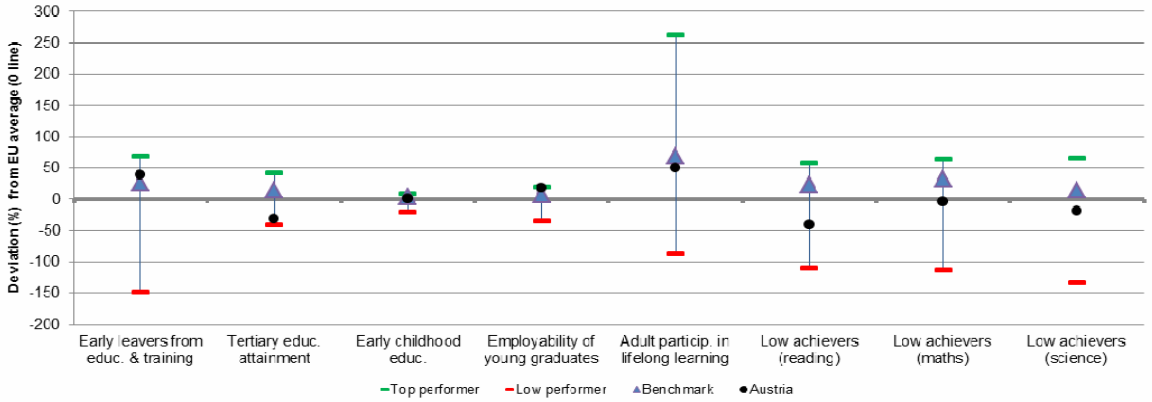
		Austria 2006	Austria 2011	EU average 2006	EU average 2011	ET 2020 Benchmarks
3. Participation in early childhood education (4 years old - year before start of compulsory primary)		88.1%	92.1% [10]	89.3%	92.3% [10]	**95%**
4. Employment rate of graduates (age 20-34) having left education and training no more than 3 years before reference year		90.1%	91.0%	79.0%	77.2%	**82%**
5. Adult participation in lifelong learning (age 25-64)		13.1%	13.4%	9.5%	8.9%	**15%**
6. Basic skills Low achievers (15 year-olds; Level 1 or lower in PISA study)	Reading	21.5%	27.5% [09]	23.1%	19.6% [09]	**15%**
	Mathematics	20.0%	23.2% [09]	24.0%	22.2% [09]	**15%**
	Science	16.3%	21.0% [09]	20.3%	17.7% [09]	**15%**
7. ICT skills	% of pupils in 4th grade using computers at school	37.4% [07]	:	60.7% [07]	:	
	% of individuals aged 16-74 with high computer skills[1]	31.0%	42.0%	21.0%	27.0%	
8. Entrepreneurship	% of 18-64 old population who believe to have the required skills and knowledge to start a business	53.0% [07]	:	42.0%	43.0%	
9. Languages	Average number of foreign languages learned per pupil at ISCED 2	1.1	1.1 [10]	1.4	1.5 [10]	
	% of students reaching B1 level or higher in the first foreign language at the end of lower secondary educ.[2]	:	:	:	43.5%	
10a. Tertiary graduates by field Graduates (ISCED 5-6) in a specific field, as % of all fields	Education and training	13.9%	12.1% [10]	10.5%	9.6% [10,e]	
	Humanities and art	8.7%	8.6% [10]	12.1%	11.5% [10,e]	
	Social science, business and law	29.6%	34.0% [10]	35.2%	35.7% [10,e]	
	of which: business and administration	*14.9%*	*20.6%* [10]	*19.5%*	*20.2%* [10,e]	
	Maths, science and technology	32.2%	29.0% [10]	22.4%	21.9% [10,e]	
	Agriculture and veterinary field	2.1%	1.8% [10]	1.7%	1.6% [10,e]	
	Health and welfare	9.9%	10.9% [10]	14.3%	15.1% [10,e]	
	Services	3.7%	3.5% [10]	3.8%	4.2% [10,e]	
10b. MST graduates	Number of maths, science and technology graduates per 1000 young people (age 20-29)	10.8	15.5 [10]	13.5	14.4 [09]	
11. Skills for future labour markets Projected change in employment 2010-2020 in %	High qualification	:	31.1% [10]	:	19.7% [10]	
	Medium qualification	:	-1.7% [10]	:	4.8% [10]	
	Low qualification	:	-9.4% [10]	:	-20.1% [10]	
12. Investment in education and training Public spending on education, % of GDP		5.40%	6.01% [09]	5.03% [e]	5.41% [09,e]	

Source: Eurostat (LFS): 1, 2; Eurostat (UOE): 3, 9a, 10, 12; Eurostat (ISS): 7b; CRELL (based on Eurostat LFS): 4; OECD (PISA): 6; Eurydice (based on IEA TIMSS): 7a; Global Entrepreneurship Monitor: 8; European Survey on Language Competences (ESLC): 9b; Cedefop: 11

Additional notes:
[07] =2007, [08] =2008, [09] =2009, [10] =2010, [11] =2011, e= estimate, b= break, p= provisional
Number of countries included in EU average: PISA=25, Entrepreneurship=18, Language skills=13, ICT/Computers at school=13
[1]= having carried out 5-6 specific computer related activities, [2]= average of skills tested in reading, listening, writing

1.2 Position in relation to Europe 2020 targets and ET2020 benchmarks

Deviation (%) from EU average and relative position to the EU benchmarks, top performers and low performers in EU27

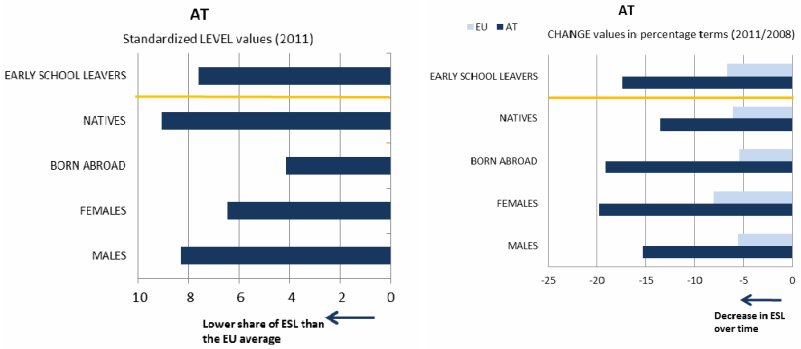


Source: DG EAC

2. Europe 2020 targets: patterns of sub-groups and sub-indicators[1]

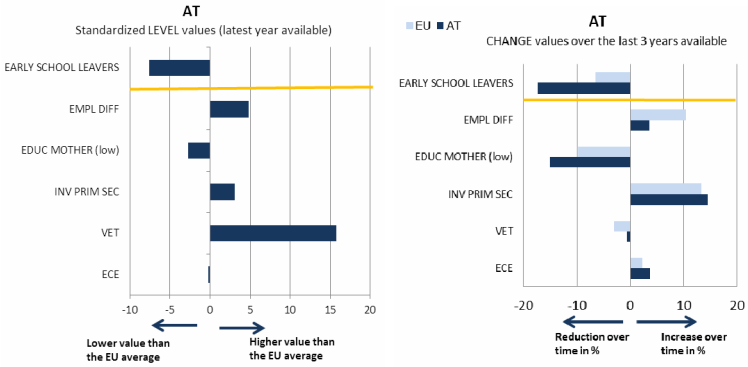
2.1 Early leavers from education and training

- Early school leavers of specific population sub-groups (country of birth and gender)



- Early school leavers and sub-indicators

(Difference in employment rate for low/medium education, low education background of the mother, investment in primary and secondary education, participation in vocational education and training [VET] and in early childhood education [ECE])

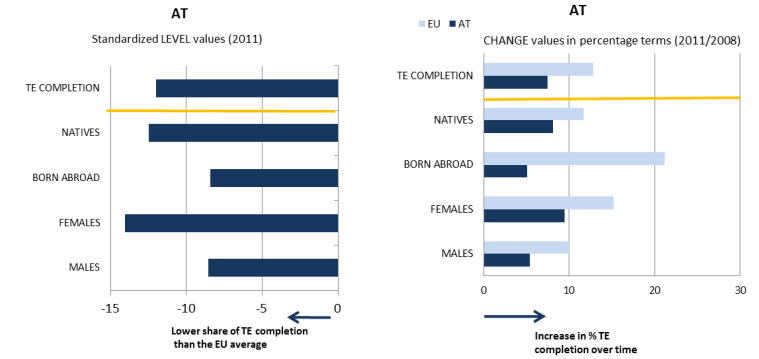


Source: JRC-CRELL

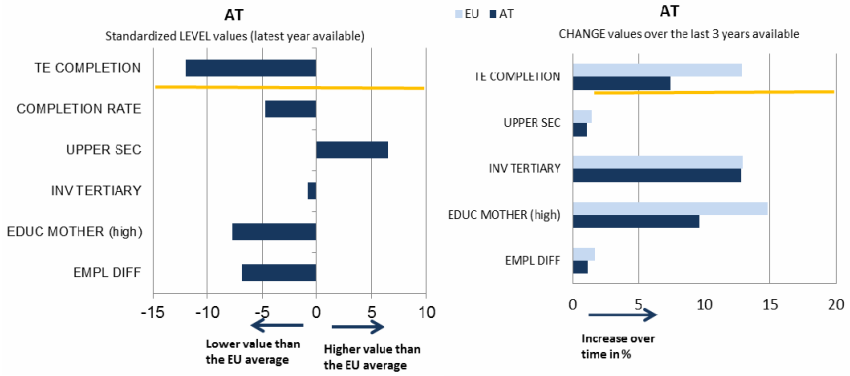
[1] See annex 2.

2.2 Tertiary educational attainment

- Tertiary educational attainment of specific population sub-groups (country of birth and gender)



- Tertiary educational attainment and sub-indicators
  (Completion rate in higher education, upper secondary educational attainment, investment in tertiary education, high education background of the mother, difference in employment rate for high/medium education)



Source: JRC-CRELL

3. Key findings on benchmarks and skills levels

Concerning the Europe 2020 targets, Austria performs well with regard to early school leaving (ESL), but a large gap in early school leaving rates persists, in particular between natives and foreign-born people (2011: 6.3% for the former, 19.8% for the latter). All the relevant sub-indicators have improved recently. Tertiary attainment (ISCED levels 5 and 6) is 23.8%, low in comparison to the EU average of 34.6%. However, Austria includes in its national 2020 target for tertiary attainment (38%) also ISCED 4a qualifications which it considers as "equivalent" (total ISCED 4a, 5, 6 in 2011: 35.8%). As regards the other ET 2020 benchmarks, educational deficits tend to add up from early childhood: while overall participation in early childhood education has increased in Austria (from 88.1% in 2006 to 92.1% in 2010), immigrant children have a lower rate of participation here too. Despite high spending on education, the Austrian education system shows low educational outcomes with below average PISA results in all tested subject areas, coupled with a strong influence of socio-economic background on educational achievement. Participation of adults in lifelong learning is high in EU comparison (13.4 % vs. 8.9% in 2011).

With regard to ICT skills, Austria is performing above the EU average: 45% (as against 27%) of the population has high computer skills. As far as entrepreneurship is concerned, recent data is lacking, but traditionally the share of the population believing to have the required skills and knowledge to start a business is above the EU average. Austria has a relatively high share of graduates in mathematics, science and technology. Employment in high qualification jobs up to 2020 is forecast to increase significantly faster than the EU average (31.1% vs. 19.7%), whereas employment in medium qualification jobs will drop by 1.7%. The employment in low qualification jobs will decrease less substantially than the EU average (-9.4% vs. -20.1%).

Public spending on education as a share of GDP in Austria is above the EU average (6.01% vs. 5.41% in 2009); it has increased since 2006 by 0.61 percentage points.

4. Major policy initiatives and reforms

4.1 Initiatives and measures to increase the relevance and level of skills

Austria is currently implementing several reform measures, of which the most important being the replacement of General Secondary Schools (Hauptschule) by New Secondary Schools (Neue Mittelschule). The New Secondary School reform is designed to improve educational outcomes and to mitigate the consequences of early selection of children. However, the early tracking of children into two different school types (New Secondary School and secondary academic school, i.e. Gymansium lower level) at the age of ten is still retained.. The reform was launched as a pilot in 2008/2009 and has now become a part of the regular school system: by 2018/19 all classes of the General Secondary Schools are supposed to be transformed into the new system. New pedagogical concepts form an integral part of the reform and entail a more individualised approach to learning, a more differentiated teaching including team teaching and a more favourable teacher-pupils ratio, which go hand in hand with supplementary financial support.

More emphasis is being put on quality assurance by the introduction of quality standards in general education and VET and the new standardised "Matura" examination. The educational standards (in mathematics and German for the fourth grade and mathematics, German and English for the eighth grade) were designed to promote competence-oriented teaching. In 2011/12 the 8th grade students were tested in maths, and in the next years testing of one subject will be done each year. The testing of VET standard is in the pilot phase, from 2014/15 onwards a new examination model will be introduced for the secondary academic schools and in 2015/16 for the secondary vocational schools.

With regard to ESL, new measures for an early intervention against school drop-out (youth and apprentices coaching) and free-of-charge courses to acquire certification for basic education for people without a final qualification ("second-chance education") have also been introduced. However, the coaching measures have not been embedded in a comprehensive strategy combating ESL.

Despite significant improvements in the recent past, tertiary education still suffers from capacity shortages. A steadily growing number of students, also due to high incoming mobility (‘mass university’) and high drop-out rates (around 40%) remains the main challenge, together with a considerable gap in funding. Improving educational outcomes, combating early school leaving and increasing higher education capacity could also be addressed through EU Structural Funds.

4.2. Initiatives and measures to stimulate open and flexible learning

Early tracking predetermines to a large extent future education pathways, making it more difficult to reach higher education levels at a later stage. This leads to suboptimal results, in particular for those with a migrant background, which are aggravated by the predominance of half-day schooling. In response, Austria reformed the lower secondary school education (Neue Mittelschule) and also intends to expand the provision of after-school care places from 105,000 in 2011/2012 to 210,000 in 2014/2015. The dual system was improved by the introduction of modular apprenticeships, which are divided into basic, main and special modules aiming at the enhancement of flexibility, and the creation of a better link between initial and continuing VET against the background of on-going changes in the labour market.

The Austrian higher education system offers only a limited range of part-time study opportunities, although there has been significant improvement over the last decade, in particular with the extensive development of study programmes at universities of applied sciences (Fachhochshulen). Many of these study programmes are also available as part-time studies. Recent data reveal that almost half (47% in 2010/11) are offered as part-time study programmes. In contrast, traditional universities are still characterised by a profound lack of part-time study programmes. This is particularly relevant as participation in tertiary education for people coming from less privileged backgrounds is often only possible in the form of part-time studies. Most universities agreed to introduce at least one part-time master’s degree programme between 2010 and 2012.

The most important action in the field of digital competence is the national strategy "efit21 – digital agenda for education, culture and arts" pursuing inter alia four strategic objectives in the field of education. The main focus is placed on teaching digital competence, with the aim of raising awareness of the necessity of digital skills for personal, professional, social and cultural success. The coverage and promotion of ICT in education comprises the provision of central services like learning platforms and content portals for new types of learning, modernising the ICT teacher training, linking ICT initiatives with e.g. educational standards and competence-based teaching and learning. ICT is integrated in curricula and teachers and students are recommended to use it actively in class, homework and for project work. Moreover, digital competence is a learning outcome in primary and secondary education.

4.3. Initiatives and measures to secure smart funding and developing partnerships

The public expenditure on education was 6% of the Austrian GDP in 2009, at the same level of expenditure observed around 1995. The main concern is the lack of efficiency in educational spending, where Austria commits an above-average amount of resources to attain only average educational outcomes. Thus it can be deduced that Austria could save a considerable amount of resources while still achieving the same educational outcomes.

The division of responsibilities in the management of the education system is excessively fragmented and bureaucratic due to the federalist institutional structure, thus representing a major challenge for profound reforms. Even minor reforms, such as the supersession of the district school boards (Bezirksschulräte) face political disagreement between the different layers of government (ministries of the Federal government and Länder governments). A more comprehensive reform of teacher education via harmonisation and unification as well as the enhancement of permeability between different school types was started in 2009, but no results have been achieved yet due to its implication on teachers' legal status, their employing entity ("Bund" or "Länder"), remuneration and organisation of schools.

The funding for Higher Education is almost exclusively based on public sources, which also calls for the fostering of cooperation between universities and business.

Conclusion

The high level of public spending on education does not correspond to the average performance of students in most international student testing, indicating low efficiency of Austria's school system. School administration is expensive and bureaucratic, with significant room for efficiency gains. However, a comprehensive school administration reform is blocked due to opposition on regional and federal state level, so far preventing any major reform. With regard to ESL, Austria is already outperforming the Europe 2020 target, but efforts have to be continued to reduce the ESL rate of migrants. Moreover the decrease of early school leavers between 2008 and 2011 may partly be explained by the economic crisis and young people's decision to stay in training instead of entering the labour market early at a very challenging time.

Progress has recently been made in the reform of lower secondary school education and quality assurance by the introduction of quality standards at all levels of education. Improving educational outcomes and increasing general tertiary graduation rates remain the main challenges in Austria. Key trends show that Austria will face a significant shortage of engineering and science graduates in the coming years, threatening to compromise the country's competitive strength. Unless the challenges are addressed in a timely manner, Austria risks losing its leading position in the EU with regard to low overall and youth unemployment rates.

Belgium

1. Performance summary

1.1 Overview of benchmarks and skill levels

	Belgium 2006	Belgium 2011	EU average 2006	EU average 2011	Europe 2020 targets
1. Early leavers from education and training (age 18-24)	12.6%	12.3%	15.5%	13.5%	**EU target: 10%** National target : 9.5%
2. Tertiary educational attainment (age 30-34)	41.4%	42.6%	28.9%	34.6%	**EU target: 40%** National target : 47%

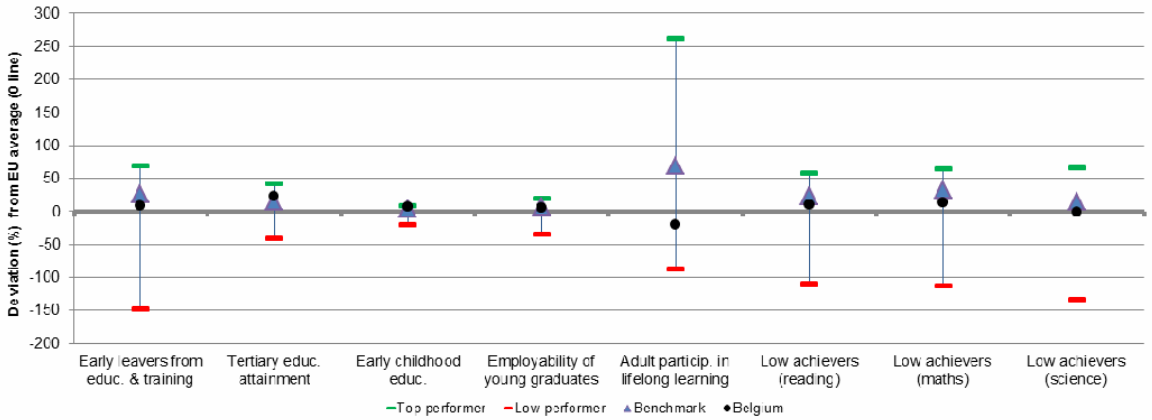
		Belgium 2006	Belgium 2011	EU average 2006	EU average 2011	ET 2020 Benchmarks
3. Participation in early childhood education (4 years old - year before start of compulsory primary)		99.9%	99.1% [10]	89.3%	92.3% [10]	**95%**
4. Employment rate of graduates (age 20-34) having left education and training no more than 3 years before reference year		81.1%	80.8%	79.0%	77.2%	**82%**
5. Adult participation in lifelong learning (age 25-64)		7.5%	7.1%	9.5%	8.9%	**15%**
6. Basic skills Low achievers (15 year-olds; Level 1 or lower in PISA study)	Reading	19.4%	17.7% [09]	23.1%	19.6% [09]	**15%**
	Mathematics	17.3%	19.1% [09]	24.0%	22.2% [09]	**15%**
	Science	17.0%	18.0% [09]	20.3%	17.7% [09]	**15%**
7. ICT skills	% of pupils in 4th grade using computers at school	:	:	60.7% [07]	:	
	% of individuals aged 16-74 with high computer skills[1]	22.0%	28.0%	21.0%	27.0%	
8. Entrepreneurship	% of 18-64 old population who believe to have the required skills and knowledge to start a business	35.0%	44.0%	42.0%	43.0%	
9. Languages	Average number of foreign languages learned per pupil at ISCED 2	1.2	1.2 [10]	1.4	1.5 [10]	
	% of students reaching B1 level or higher in the first foreign language at the end of lower secondary educ.[2]	:	30.2%	:	43.5%	
10a. Tertiary graduates by field Graduates (ISCED 5-6) in a specific field, as % of all fields	Education and training	18.0%	12.7% [10]	10.5%	9.6% [10,e]	
	Humanities and art	10.2%	11.5% [10]	12.1%	11.5% [10,e]	
	Social science, business and law	29.6%	31.7% [10]	35.2%	35.7% [10,e]	
	of which: business and administration	*16.3%*	*14.9%* [10]	*19.5%*	*20.2%* [10,e]	
	Maths, science and technology	17.8%	16.6% [10]	22.4%	21.9% [10,e]	
	Agriculture and veterinary field	2.4%	2.4% [10]	1.7%	1.6% [10,e]	
	Health and welfare	19.8%	23.0% [10]	14.3%	15.1% [10,e]	
	Services	2.2%	2.0% [10]	3.8%	4.2% [10,e]	
10b. MST graduates	Number of maths, science and technology graduates per 1000 young people (age 20-29)	10.6	12.2 [10]	13.5	14.4 [09]	
11. Skills for future labour markets Projected change in employment 2010-2020 in %	High qualification	:	16.3% [10]	:	19.7% [10]	
	Medium qualification	:	13.5% [10]	:	4.8% [10]	
	Low qualification	:	-19.4% [10]	:	-20.1% [10]	
12. Investment in education and training Public spending on education, % of GDP		5.99%	6.57% [09]	5.03% [e]	5.41% [09,e]	

Source: Eurostat (LFS): 1, 2; Eurostat (UOE): 3, 9a, 10, 12; Eurostat (ISS): 7b; CRELL (based on Eurostat LFS): 4; OECD (PISA): 6; Eurydice (based on IEA TIMSS): 7a; Global Entrepreneurship Monitor: 8; European Survey on Language Competences (ESLC): 9b; Cedefop: 11

Additional notes:
[07] =2007, [08] =2008, [09] =2009, [10] =2010, [11] =2011, e= estimate, b= break, p= provisional
Number of countries included in EU average: PISA=25, Entrepreneurship=18, Language skills=13, ICT/Computers at school=13
[1]= having carried out 5-6 specific computer related activities, [2]= average of skills tested in reading, listening, writing

1.2 Position in relation to Europe 2020 targets and ET2020 benchmarks

Deviation (%) from EU average and relative position to the EU benchmarks, top performers and low performers in EU27

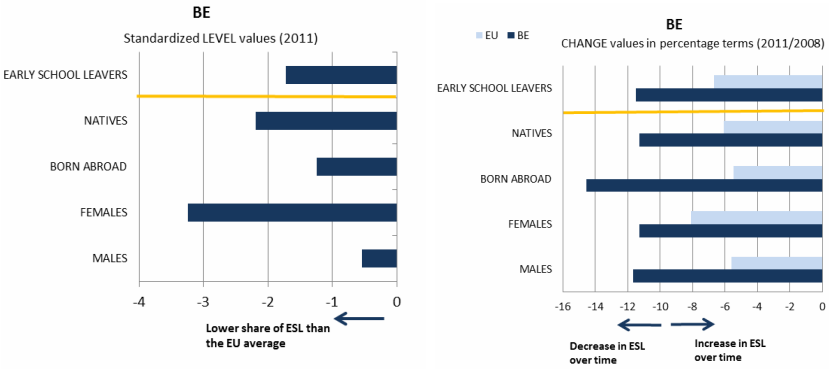


Source: DG EAC

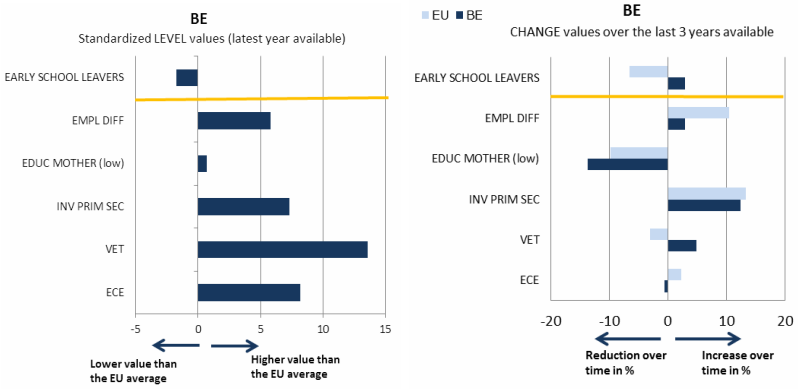
2. Europe 2020 targets: patterns of sub-groups and sub-indicators[2]

2.1 Early leavers from education and training

- Early school leavers of specific population sub-groups (country of birth and gender)



- Early school leavers and sub-indicators
  (Difference in employment rate for low/medium education, low education background of the mother, investment in primary and secondary education, participation in vocational education and training [VET] and in early childhood education [ECE])

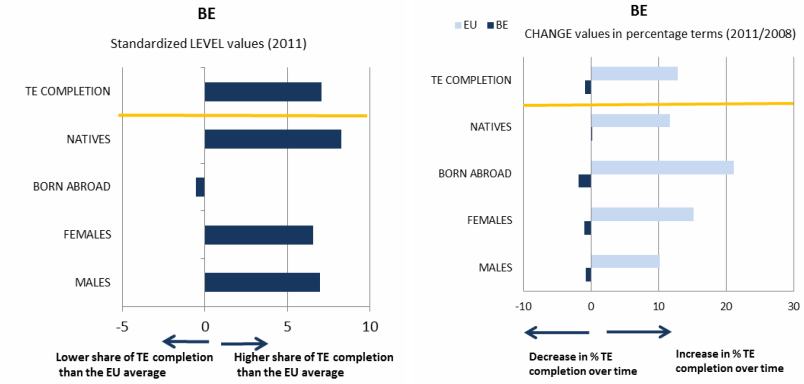


Source: JRC-CRELL

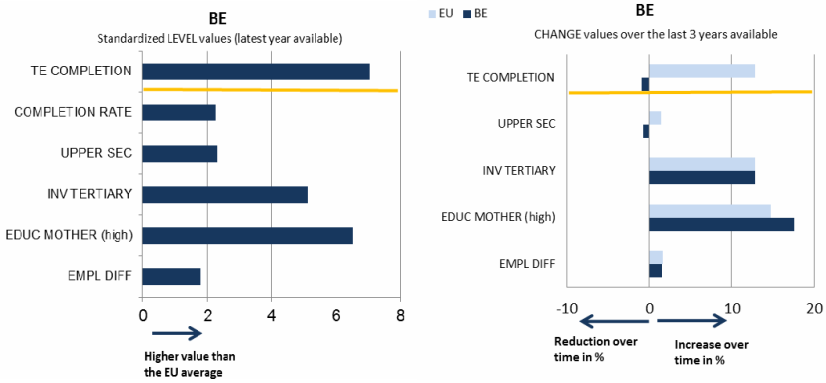
[2] See annex 2.

2.2 Tertiary educational attainment

- Tertiary educational attainment of specific population sub-groups (country of birth and gender)



- Tertiary educational attainment and sub-indicators
  (Completion rate in higher education, upper secondary educational attainment, investment in tertiary education, high education background of the mother, difference in employment rate for high/medium education)



Source: JRC-CRELL

3. Key findings on benchmarks and skills levels

Concerning the Europe 2020 targets, Belgium still outperforms the EU average in terms of early school leaving (ESL) despite the fact that it is one of the two countries which was faced with an increase of the ESL rate between 2009 and 2011 (from 11.1 % to 12.3%). Belgium's tertiary attainment rate surpasses significantly the EU average (42.6% vs. 34.6% in 2011). The analysis of sub-indicators shows high and increasing investment rates in primary, secondary and tertiary education, favourable family environments for both headline indicators, better participation and completion patterns in upper secondary education and early childhood education. As regards the other ET 2020 benchmarks, Belgium ranks amongst the best performers as regard participation in early childhood education. In terms of basic skills, 15-year-olds' performance on 2009 PISA test is better than the EU average in reading and mathematics and very close to it for science. The national average rate masks persisting regional/community differences, in particular, in the area of ESL (the ESL rates in Walloon and Brussels regions amount respectively to 14.7% and 18.9%) and basic skills with the Flemish, German and French speaking communities Pisa results respectively significantly above, close or below the EU average. Differences between nationals and migrants are significant at national and community levels, in particular in the Flemish community. Youngsters with migrant backgrounds are twice as much at risk of becoming ESL and are overrepresented in low achievers for basic skills. Belgium is one of the few countries where participation rates in Lifelong Learning declined continuously in recent years.

The employment rate of graduates remains above the EU average (80.0% vs. 77.2% in 2011). Participation rates in Lifelong Learning are below the EU average. ICT skills levels are close to the EU average. As regards entrepreneurship, the share of the population believing to have the

required skills and knowledge to start a business is slightly above the EU average. As regards the distribution of tertiary graduates by field compared with the EU average, Belgium shows a high share of graduates in health and welfare (23.0% as against 15.1% in 2010) and a low share of graduates in business and administration (14.9% vs. 20.2%) as well as in maths, sciences and technology (16.6% vs. 21.9%). The employment pattern in Belgium up to 2020 is forecast to be fairly different from the EU average in medium qualification, with a strong increase in demand (13.5 % vs. an EU average of 4.8%). Public spending on education as a share of GDP in Belgium is above the EU average (6.57% vs. 5.41% in 2009) and remains one of the highest whilst rather stable since 2000.

4. Major policy initiatives and reforms

4.1 Initiatives and measures to increase the relevance and level of skills

The Flemish community evidence-based policy and measures are focused more and more on well targeted groups (e.g. Roma) and on early prevention and detection of learning difficulties taking the personal situation of the students into account. An improved definition of learning outcomes for all basic skills has been implemented between 2010-2012, as a follow up of the 2006 major reform of the core curriculum. The Flemish Government is preparing measures for combatting low literacy as part of the action plan for groups at risk in secondary education. The aim is to develop tailor-made student-centred strategies. Since 2010, in addition to an early good mastering of Dutch, priority is given to the mastering of at least two foreign languages. As part of the comprehensive ESL policy, a second truancy action plan has been adopted in early 2012.

To reduce skills mismatch, the project Platform ' Flemish labour market research of the future' (VLAMT, 2010-12) seeks to experiment with methods for detecting and analysing trends and their impact on occupations and skills. In order to tackle the insufficient growth rate in mathematics, science and technology graduates, an action plan (2012-2020) has been launched to stimulate careers in those fields. It covers all levels of education as well as employment services.

In the French speaking community, further steps to develop the monitoring and evaluation of the education and training system have been taken with the introduction in 2010-2011 of two non-mandatory external summative assessments of competences in secondary education. A project to equip schools with a scoreboard of relevant indicators is foreseen. However some difficluties are being encountered in gathering personal data needed to develop a more targeted and personalised policy.

Improvements of the framework curriculum of technical and vocational training related to the final learning outcomes were initiated in 2010. While these are positive steps, a more profound revision appears necessary to complement the broad generic key competences approach. The Council for Education and Training (CEF) made recent recommendations to integrate the learning outcomes concept in the decrees related to mandatory, higher and adult educations.

The implementation of a 'qualification by units' ('CPU') in VET should be extended to the remaining 50% schools of the 5 pilot sectors in 2012-2013. During the 2011-12 academic year, interesting pilot 'alternate schemes' have been introduced for higher education at master level. A strategic policy document on an in depth reform of the higher education landscape is announced by the end of 2012. As regards skills forecasts, the recently created sectoral skills council (SFMQ) has been tasked with the development of job profiles and corresponding 'qualification' profiles.

4.2. Initiatives and measures to stimulate open and flexible learning

Belgium is among the three European countries which are the most affected by a shortage of qualified teachers. The profession is not seen as very attractive and a significant number of teachers abandon the profession in the first years. The situation is more acute in the French speaking community with a 40% drop-out rate during the first 5 years. A CEF recommendation was published in 2012 to support comprehensive policy measures for attracting, training, retraining and retaining teachers. An evaluation of initial teacher training has been published early 2012. The VET reform foresees common training of trainers from the different VET providers. The recent Flemish action plan for entrepreneurship education (2011-2014) aims at

providing teachers with the training needed to help them create positive attitudes towards entrepreneurship and self-employment. All teachers, but especially VET teachers have the opportunity to do an internship in an enterprise. The German speaking Community places focus on better training of teachers and a professionalisation of school management.

Addressing a persistent decrease in participation rates in Lifelong Learning (LLL) remains a challenge. The Flemish speaking community has made significant progress in increased flexibility of all educational pathways. This encompasses the recent revision of the higher education programme design which is now organised in a fully flexible way as well as adult education courses. The implementation of transparency and recognition tools in the three communities is progressing, albeit at a different pace. The corresponding links of the Flemish qualifications framework with the 8 EQF levels was established in 2011. NQF preparation is now well advanced in the French and German speaking communities and the adoption is expected by the end of 2012.

There are community strategies related to ICT which include equipment and training provision for teachers. Digital competences and recommendations related to the use of ICT are mentioned in the central steering document for primary and general education (ISCED 1- 3), ICT being a cross-curricular objective at ISCED 1 and 2 levels. The use of ICT for education is a key component of the Flemish speaking community implementation of flexible and modular educational pathways. Policy attention is also given to the Open Educational Resources (OER) development. The authorities are involved in producing or funding educational materials where these cannot be obtained which is the case for digital learning material in special needs education and for adult learning and media literacy. A new strategy on media literacy is under development which includes initial and in training provision for teachers.

Initiatives to reinforce measures of the French and German speaking communities are being taken at regional level. The 'ICT Master Plan Wallonia, digital territory of excellence' adopted in 2011 highlights the need to optimise the integration of ICT into education. A proposal for a 'Digital school of tomorrow' in Wallonia was tabled in April 2011 by a task force. The adoption of a new plan for ICT in education in Wallonia is planned early 2013. Since 2011, the Walloon region provides its inhabitants with free access to a platform supporting online learning for languages with the highest demand This platform provides access to OER and to self-assessment tools.

4.3. Initiatives and measures to secure smart funding and developing partnerships

A 2012 study analysed potential savings in the Flemish education sector without compromising the level of quality. It questions the inefficiency of the high number of pupils and students who have to repeat a school year (estimated to be twice as high as the international average) as well whether the high number of teaching hours, as is the case in Flanders, is necessary. Results of PISA survey have persistently highligthed the low performance and inefficiency of the French speaking education and training system. Pressure on smart funding is high as public spending on education in the French-speaking Community as a share of GDP is slightly above the national and EU average rates. The importance of this financial effort is to be seen in the context of a relatively low and declining GDP of the Community and an increasing number of pupils are expected in particular in the Brussels region. Criticism addressed to the 'differentiated measures" suggest that the allocation of funding does not address systemic reform but simply provides additional resources to certain schools. Closer synergies between education and training providers are expected to lead to more efficient spending.

In order to guarantee enough workplaces for learning and to ensure they offer enough quality, an effective cooperation between education institutions and the concerned professional sectors is necessary. The Decree on secondary, after secondary and higher professional education will be evaluated in 2013. Special focus in this evaluation will be placed on the results and the quality of the different cooperation partnerships including with the employment agency (VDAB).

Conclusion

Generally Belgium's education system performs better than the EU average. The skills challenges faced in Belgium are rather long-standing in nature as well as the different community/regional levels of performance and the inequity of the systems. However, the

economic crisis, the expected increase of the number of pupils with migrant backgrounds as well as the change in the employment pattern, where a significant rise in the demand for jobs with medium qualifications is forecast, amplify the challenges. The timely implementation of the VET reform initiated by all communities in cooperation with the education and training providers and the employment sector is essential to respond to the challenges. The initiation of a systemic and targeted approach to support pupils with migrant backgrounds is positive and the initial results appear promising. Addressing this issue is particularly important for the French speaking community where the percentage of pupils with migrant background is significantly higher.

Innovation and growth could be hampered by the lack of entrepreneurial skills and the insufficient growth rate of graduates in mathematics, science and technology. Communities have started to address this issue at a different pace. Addressing Lifelong learning participation remains an issue. It is not yet clear if the strategy and measures adopted in Flanders will be sufficient to reach the ambitious objective of 15% participation rate by 2020. Little progress has been made by the French speaking community, the Walloon and Brussels regions in the adoption of a 2020 Lifelong strategy.

Bulgaria

1. Performance summary

1.1 Overview of benchmarks and skill levels

	Bulgaria 2006	Bulgaria 2011	EU average 2006	EU average 2011	Europe 2020 targets
1. Early leavers from education and training (age 18-24)	17.3%	12.8%	15.5%	13.5%	**EU target: 10%** National target : 11%
2. Tertiary educational attainment (age 30-34)	25.3%	27.3%	28.9%	34.6%	**EU target: 40%** National target : 36%

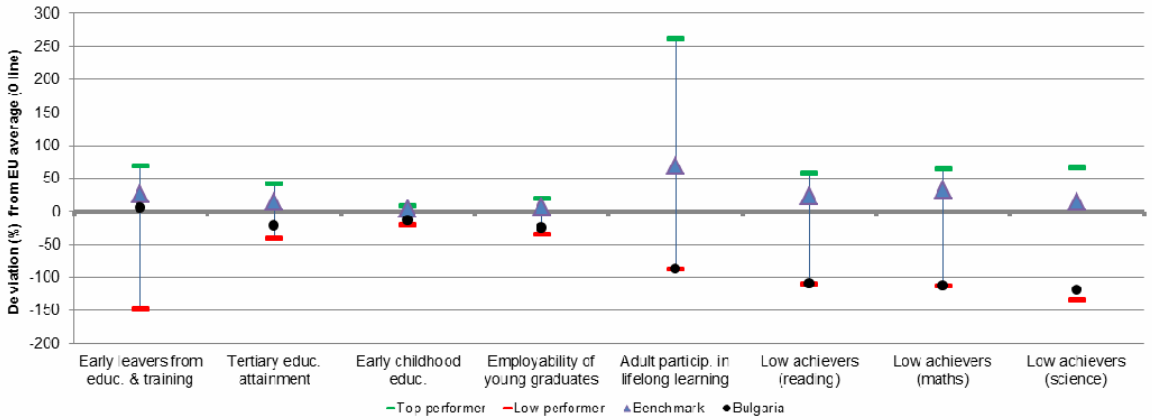
		Bulgaria 2006	Bulgaria 2011	EU average 2006	EU average 2011	ET 2020 Benchmarks
3. Participation in early childhood education (4 years old - year before start of compulsory primary)		80.5%	79.2% [10]	89.3%	92.3% [10]	**95%**
4. Employment rate of graduates (age 20-34) having left education and training no more than 3 years before reference year		69.6%	57.5%	79.0%	77.2%	**82%**
5. Adult participation in lifelong learning (age 25-64)		1.3%	1.2%	9.5%	8.9%	**15%**
6. Basic skills Low achievers (15 year-olds; Level 1 or lower in PISA study)	Reading	51.1%	41.0% [09]	23.1%	19.6% [09]	**15%**
	Mathematics	53.3%	47.1% [09]	24.0%	22.2% [09]	**15%**
	Science	42.6%	38.8% [09]	20.3%	17.7% [09]	**15%**
7. ICT skills	% of pupils in 4th grade using computers at school	:	:	60.7% [07]	:	
	% of individuals aged 16-74 with high computer skills[1]	6.0%	11.0%	21.0%	27.0%	
8. Entrepreneurship	% of 18-64 old population who believe to have the required skills and knowledge to start a business	:	:	42.0%	43.0%	
9. Languages	Average number of foreign languages learned per pupil at ISCED 2	1.3	1.2 [10]	1.4	1.5 [10]	
	% of students reaching B1 level or higher in the first foreign language at the end of lower secondary educ.[2]	:	35.3%	:	43.5%	
10a. Tertiary graduates by field Graduates (ISCED 5-6) in a specific field, as % of all fields	Education and training	6.9%	5.5% [10]	10.5%	9.6% [10,e]	
	Humanities and art	8.4%	6.8% [10]	12.1%	11.5% [10,e]	
	Social science, business and law	47.8%	51.6% [10]	35.2%	35.7% [10,e]	
	of which: business and administration	*28.8%*	*33.3%* [10]	*19.5%*	*20.2%* [10,e]	
	Maths, science and technology	20.9%	19.8% [10]	22.4%	21.9% [10,e]	
	Agriculture and veterinary field	2.0%	1.9% [10]	1.7%	1.6% [10,e]	
	Health and welfare	6.2%	6.7% [10]	14.3%	15.1% [10,e]	
	Services	7.7%	7.6% [10]	3.8%	4.2% [10,e]	
10b. MST graduates	Number of maths, science and technology graduates per 1000 young people (age 20-29)	8.5	11.4 [10]	13.5	14.4 [09]	
11. Skills for future labour markets Projected change in employment 2010-2020 in %	High qualification	:	10.0% [10]	:	19.7% [10]	
	Medium qualification	:	3.1% [10]	:	4.8% [10]	
	Low qualification	:	-24.0% [10]	:	-20.1% [10]	
12. Investment in education and training Public spending on education, % of GDP		4.04%	4.58% [09]	5.03% [e]	5.41% [09,e]	

Source: Eurostat (LFS): 1, 2; Eurostat (UOE): 3, 9a, 10, 12; Eurostat (ISS): 7b; CRELL (based on Eurostat LFS): 4; OECD (PISA): 6; Eurydice (based on IEA TIMSS): 7a; Global Entrepreneurship Monitor: 8; European Survey on Language Competences (ESLC): 9b; Cedefop: 11

Additional notes:
[07] =2007, [08] =2008, [09] =2009, [10] =2010, [11] =2011, e= estimate, b= break, p= provisional
Number of countries included in EU average: PISA=25, Entrepreneurship=18, Language skills=13, ICT/Computers at school=13
[1]= having carried out 5-6 specific computer related activities, [2]= average of skills tested in reading, listening, writing

1.2 Position in relation to Europe 2020 targets and ET2020 benchmarks

Deviation (%) from EU average and relative position to the EU benchmarks, top performers and low performers in EU27

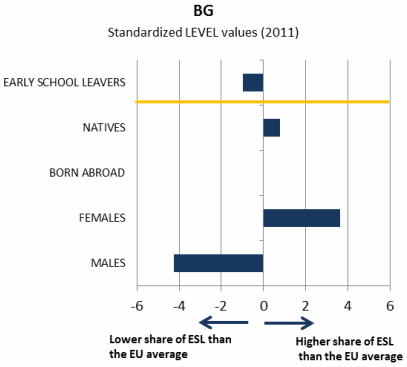


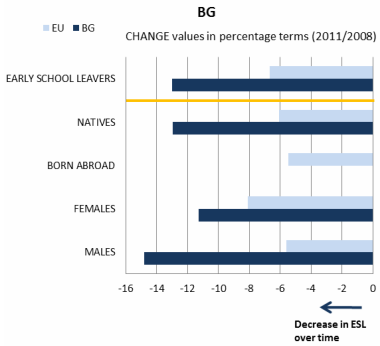
Source: DG EAC

2. Europe 2020 targets: patterns of sub-groups and sub-indicators[3]

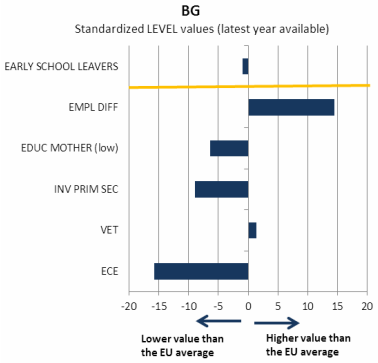
2.1 Early leavers from education and training

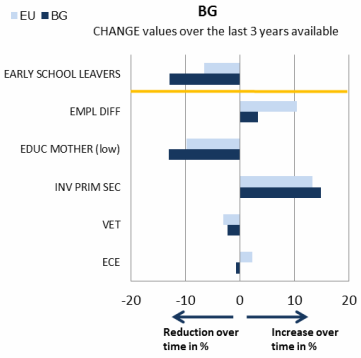
- Early school leavers of specific population sub-groups (country of birth and gender)





- Early school leavers and sub-indicators
  (Difference in employment rate for low/medium education, low education background of the mother, investment in primary and secondary education, participation in vocational education and training [VET] and in early childhood education [ECE])



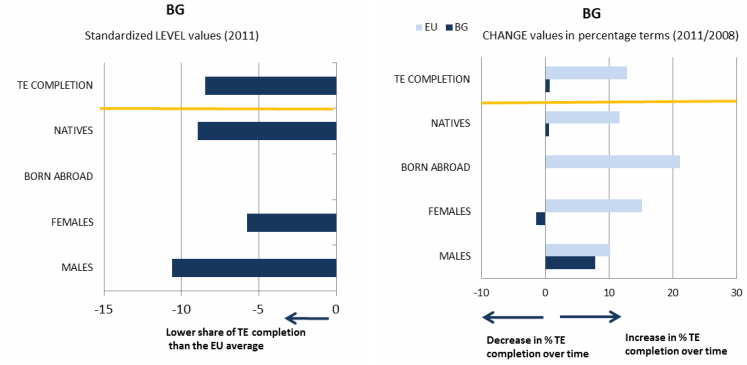


Source: JRC-CRELL

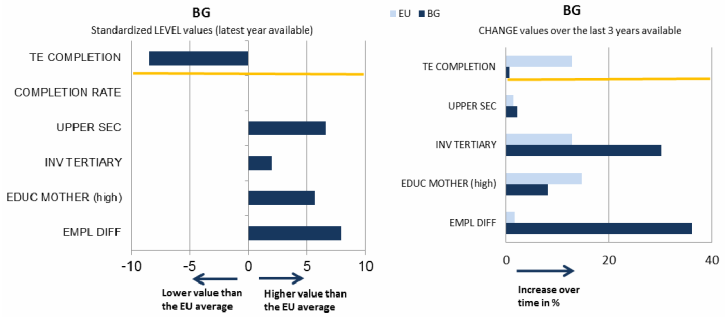
3 See annex 2.

2.2 Tertiary educational attainment

- Tertiary educational attainment of specific population sub-groups (country of birth and gender)



- Tertiary educational attainment and sub-indicators
  (Completion rate in higher education, upper secondary educational attainment, investment in tertiary education, high education background of the mother, difference in employment rate for high/medium education)



Source: JRC-CRELL

3. Key findings on benchmarks and skills levels

Concerning Europe 2020 headline targets, when it comes to early school leavers (ESL) Bulgaria is slightly outperforming the EU average (12.8% vs. 13.5% in 2011). It has shown a steady improvement since 2006 (17.3%) and has made progress towards achieving the national 2020 target of 11%. By contrast, it is lagging behind in tertiary education attainment (27.3%). Furthermore, since 2008 there has been a slight decrease in the percentage of females who complete higher education. However, for both headline indicators labour market incentives are high and increasing, while the family background is more favourable compared to the EU average. With regard to the ET 2020 benchmarks, Bulgaria scores below the 95% EU benchmark in early childhood education participation (79.2%) and shows a negative trend – in 2006 this number was 80.5%. Even more dramatic is the situation regarding employment levels of young graduates – 57.5% compared to 69.6% in 2006 and an EU average of 77.2%. In addition, adult participation in lifelong learning (1.2% in 2011) is the lowest in the EU.

The low quality of Bulgarian education is demonstrated by the worst results among EU countries in the 2009 PISA study in both reading and mathematics. In science, Bulgaria's results are close to the lowest performers in the EU. This may partly be due to the difference in teaching and learning methodologies applied in Bulgaria and those tested by the PISA study, but in more general terms demonstrate the steady decline of the school education quality in the past two decades.

The share of people with high ICT skills in the age range 16-74 is significantly lower than the EU average (11% vs. 27%). It is a similar picture for the language skills of lower secondary students. With regard to the distribution of tertiary graduates by field, Bulgaria shows a clear disproportion in favour of the social sciences, business and law (51.6% as against an EU average of 35.7%) and low (and decreasing) interest in education and training (5.5% from

6.9% in 2006) and humanities and art (6.8% from 8.4% in 2006), as well as a low number of MST graduates. Employment in high qualification jobs in Bulgaria up to 2020 is forecast to increase slower than the EU average. In 2009, public expenditure on education as a share of GDP was well below the EU average (4.58% vs. 5.41%).

4. Major policy initiatives and reforms

4.1 Initiatives and measures to increase the relevance and level of skills

The draft new Law on Preschool and School Education, currently under reading in the National Parliament, envisages entrepreneurship, creativity and developing a sense of initiative as the main goals of the educational system in Bulgaria. Entrepreneurship will be included as one of the subjects. The Ministry determines on a national level the total number of school hours, but schools have autonomy to distribute these hours among a range of subjects. On the basis of the Law, state educational standards shall be created. Some of them concern: preschool education; general education; vocational training; curricula; assessment of the results of education of the students; civil, health and intercultural education; textbooks and educational supplements.

In 2011 a project called "School on two speeds" started to be implemented for students in ISCED 0 and 1. The main aims are: 1) to decrease the risk of early school leaving; 2) to work out measures to support children with learning difficulties, who are at risk of early school leaving.

The Law on University Education and Lifelong Learning is currently being updated. A new system of universities' rating was adopted (March 2012) that aims to improve the transparency of tertiary education, measurement of quality and differentiated financing of universities based on demonstrated quality. The initiative has been co-financed by the European Social Fund.

Drafting the new Law on Preschool and School Education undoubtedly constitutes a step in the right direction; however the Bulgarian authorities should make efforts and assign the necessary level of priority to this draft when it comes to adopting it in the Parliament, as recommended by the Commission and Council in the European Semester 2012. Once adopted, close attention should be paid to ensure the correct implementation of this law and the results are to be carefully studied.

4.2. Initiatives and measures to stimulate open and flexible learning

A draft Bulgarian National Qualifications Framework (NQF) for lifelong learning was presented in spring 2011 and approved by the Minister for Education, Youth and Science (MEYS) on 3 June 2011. The Bulgarian government sees the NQF as a precondition for implementing the European Qualifications Framework (EQF) and an important national priority. The approved framework builds on the proposals of a working group set up by the MEYS in April 2008 on how to relate national qualification degrees to the EQF, how to pursue sectoral qualifications development, and on necessary changes in national legislation.

In 2008, the implementation of the module "Qualification of teachers" within the national programme "Qualification" was launched by the MEYS with the aim to improve the quality of foreign language proficiency of the teachers. The national programme "Qualification" covers a period of four years and initially includes development of working plans, programmes and modules for improving key competences and the creation of innovative practices.

Overall, the policy measures taken are a step in the right direction. However, when it comes to teachers' qualifications and performance, there is a vast space for improvement – starting from modernising universities' curricula in pedagogy disciplines, through introducing on the job qualification courses, to adopting measures to motivate and retain teaching and training personnel, in order to avoid the predicted staff shortage.

In 2010, interactive classes were introduced in 4th – 12th grades. In 2012, a new national ICT programme for schools for the next four years was launched. It will renovate the technological facilities in Bulgarian schools and bring the latest IT developments, such as computer and terminal solutions with central management, zones for wireless access, interactive peripherals, etc. The later initiative could facilitate the openness of the teaching and learning processes in the near future. Given the poor quality of general education in Bulgaria, the inadequate or low

qualifications of teaching staff and their low motivation, as well as the poor physical condition of education infrastructure, the measures taken in the field of ICT and Open Education seem inadequate and untimely, as they come before the necessary improvements in the above mentioned areas.

4.3. Initiatives and measures to secure smart funding and developing partnerships

Most expenditure for the education and skills sector in Bulgaria is funded by the state budget. Public expenditure for education was almost seven times higher than private expenditure in 2008 and 2009 and determined the dynamics of total educational expenditure increase (2.5 times for the period 2000-2009). Since 2007 the European Social Fund is a very important source for additional funding providing a total of EUR 371.4 million (2007-2013) for improving the quality and access to education and training. Private schools, kindergartens and universities are self-supporting, mainly through paid tuition fees. Public funds are not provided to the private educational institutions.

In the period of recent crisis the cuts implemented have affected education and training at all levels and of all kinds. The MEYS, however, does not publish precise information about the scope of the reductions.

The application of the schemes financed from the European Social Fund via the Operational Programme "Human Resources Development" (OP HRD) provides an important financial relief after 2008. A common issue is the relatively low absorption of already contracted funds. A positive evaluation should be granted to the provision of vouchers for adults to gain new skills. The use of the funds from OP HRD contributed to the application of innovative practices including for basic and transversal skills training. According to the reports of the Employment Agency, young people's demand is towards these innovative trainings, whereas adults aged 40+ years are oriented towards courses traditionally organised by the Employment Agency and financed by the State Budget.

Conclusion

Bulgaria scores very poorly as regards student achievement in basic skills (especially in reading and mathematics). This low achievement is linked to the poor education provision paired with a lack of incentives for teachers to perform better. Despite the fact that some serious reforms have been initiated at all education levels, Bulgaria is facing the challenge of improving the overall quality and efficiency of the education and training system. In order to achieve it in the long run, in the short term attention needs to be paid to adopting the reform laws and to enforcing their implementation while carefully monitoring their impacts. A lot remains to be done to improve teachers' motivation and to attract more young people to this professional path. In addition, the MEYS should considerably accelerate the implementation of the on-going ESF co-financed operations (improving qualification of teachers, introducing ICT in education, promoting student practices).

Cyprus

1. Performance summary

1.1 Overview of benchmarks and skill levels

	Cyprus		EU average		Europe 2020 targets
	2006	2011	2006	2011	
1. Early leavers from education and training (age 18-24)	14.9%	11.2%	15.5%	13.5%	**EU target: 10%** National target : 10%
2. Tertiary educational attainment (age 30-34)	46.1%	45.8%	28.9%	34.6%	**EU target: 40%** National target : 46%

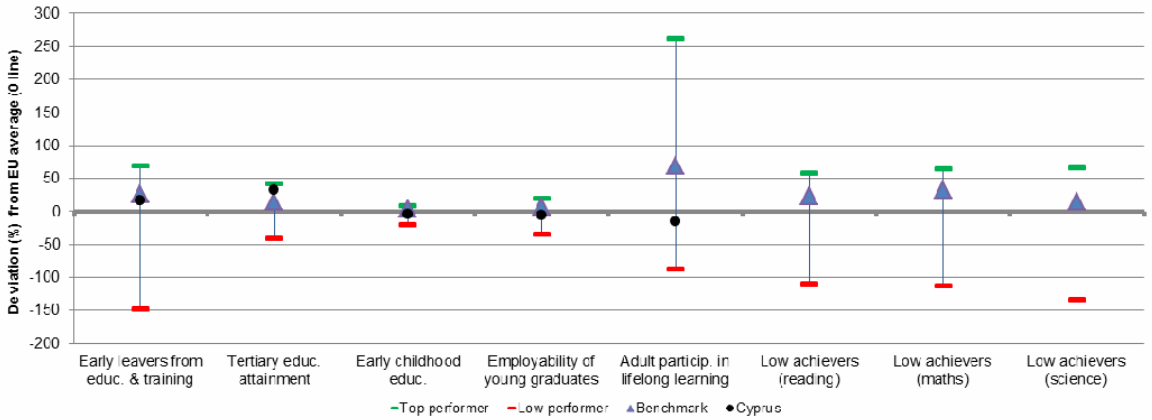
		Cyprus		EU average		ET 2020 Benchmarks
		2006	2011	2006	2011	
3. Participation in early childhood education (4 years old - year before start of compulsory primary)		84.7%	87.7% [10]	89.3%	92.3% [10]	**95%**
4. Employment rate of graduates (age 20-34) having left education and training no more than 3 years before reference year		80.5%	73.1%	79.0%	77.2%	**82%**
5. Adult participation in lifelong learning (age 25-64)		7.1%	7.5%	9.5%	8.9%	**15%**
6. Basic skills Low achievers (15 year-olds; Level 1 or low er in PISA study)	Reading	:	:	23.1%	19.6% [09]	**15%**
	Mathematics	:	:	24.0%	22.2% [09]	**15%**
	Science	:	:	20.3%	17.7% [09]	**15%**
7. ICT skills	% of pupils in 4th grade using computers at school	:	:	60.7% [07]	:	
	% of individuals aged 16-74 with high computer skills[1]	19.0%	23.0%	21.0%	27.0%	
8. Entrepreneurship	% of 18-64 old population who believe to have the required skills and knowledge to start a business	:	:	42.0%	43.0%	
9. Languages	Average number of foreign languages learned per pupil at ISCED 2	1.9	2.0 [10]	1.4	1.5 [10]	
	% of students reaching B1 level or higher in the first foreign language at the end of lower secondary educ.[2]	:	:	:	43.5%	
10a. Tertiary graduates by field Graduates (ISCED 5-6) in a specific field, as % of all fields	Education and training	11.2%	10.7% [10]	10.5%	9.6% [10,e]	
	Humanities and art	10.0%	10.1% [10]	12.1%	11.5% [10,e]	
	Social science, business and law	43.7%	49.0% [10]	35.2%	35.7% [10,e]	
	of which: business and administration	*36.8%*	*41.9%* [10]	*19.5%*	*20.2%* [10,e]	
	Maths, science and technology	13.9%	13.3% [10]	22.4%	21.9% [10,e]	
	Agriculture and veterinary field	0.2%	0.1% [10]	1.7%	1.6% [10,e]	
	Health and welfare	6.7%	7.6% [10]	14.3%	15.1% [10,e]	
	Services	14.3%	9.2% [10]	3.8%	4.2% [10,e]	
10b. MST graduates	Number of maths, science and technology graduates per 1000 young people (age 20-29)	4.3	5.1 [10]	13.5	14.4 [09]	
11. Skills for future labour markets Projected change in employment 2010-2020 in %	High qualification	:	33.3% [10]	:	19.7% [10]	
	Medium qualification	:	13.9% [10]	:	4.8% [10]	
	Low qualification	:	-18.3% [10]	:	-20.1% [10]	
12. Investment in education and training Public spending on education, % of GDP		7.02%	7.98% [09]	5.03% [e]	5.41% [09,e]	

Source: Eurostat (LFS): 1, 2; Eurostat (UOE): 3, 9a, 10, 12; Eurostat (ISS): 7b; CRELL (based on Eurostat LFS): 4; OECD (PISA): 6; Eurydice (based on IEA TIMSS): 7a; Global Entrepreneurship Monitor: 8; European Survey on Language Competences (ESLC): 9b; Cedefop: 11

Additional notes:
[07] =2007, [08] =2008, [09] =2009, [10] =2010, [11] =2011, e= estimate, b= break, p= provisional
Number of countries included in EU average: PISA=25, Entrepreneurship=18, Language skills=13, ICT/Computers at school=13
[1]= having carried out 5-6 specific computer related activities, [2]= average of skills tested in reading, listening, writing

1.2 Position in relation to Europe 2020 targets and ET2020 benchmarks

Deviation (%) from EU average and relative position to the EU benchmarks, top performers and low performers in EU27

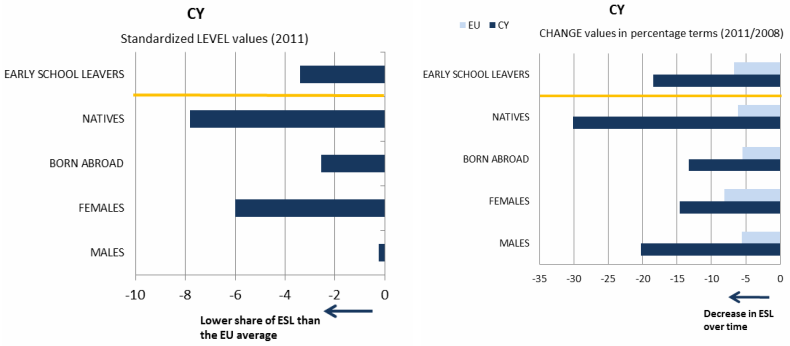


Source: DG EAC

2. Europe 2020 targets: patterns of sub-groups and sub-indicators[4]

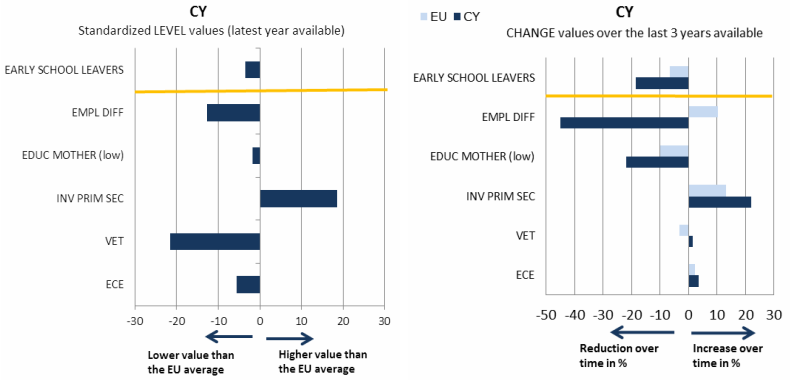
2.1 Early leavers from education and training

- Early school leavers of specific population sub-groups (country of birth and gender)



- Early school leavers and sub-indicators

(Difference in employment rate for low/medium education, low education background of the mother, investment in primary and secondary education, participation in vocational education and training [VET] and in early childhood education [ECE])

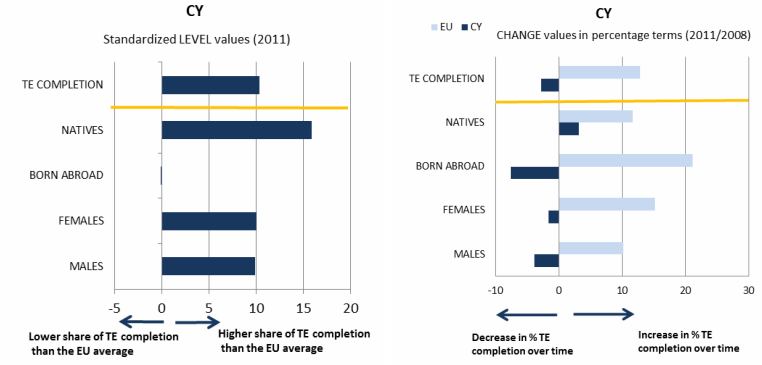


Source: JRC-CRELL

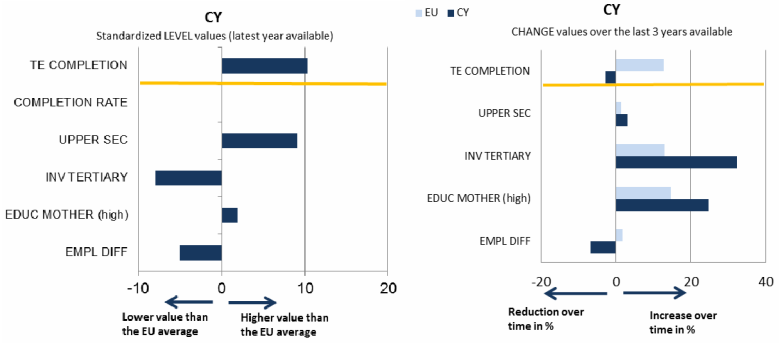
[4] See annex 2.

2.2 Tertiary educational attainment

- Tertiary educational attainment of specific population sub-groups (country of birth and gender)



- Tertiary educational attainment and sub-indicators
  (Completion rate in higher education, upper secondary educational attainment, investment in tertiary education, high education background of the mother, difference in employment rate for high/medium education)



Source: JRC-CRELL

3. Key findings on benchmarks and skills levels

Concerning the Europe 2020 targets, Cyprus performs better than the EU average in the area of early school leaving (ESL). Cyprus has one of the highest tertiary attainment rates in the EU with 45.8% compared to the European average of 34.6% in 2011. Also the share of young adults with at least an upper secondary education is high compared in EU comparison. As regards the other ET2020 benchmarks, Cyprus performs below the EU average with respect to early childhood education and care (87.7% compared to 92.3% in 2010). As regards basic skills, Cyprus performs below the EU average. Relating to literacy, based on relevant research and available data regarding "Functional Illiteracy", during the school year 2008-2009, the percentage of students with high likelihood of remaining illiterate (by the age of 15) was estimated at 10%. The equivalent for students with inadequate numeracy skills was estimated at 7%. Underperformance can be traced to specific reference groups, mainly boys that do not speak Greek at home. The share of MST (mathematics, science and technology) graduates in 2011 was amongst the lowest in Europe (13.3%). Cyprus is lagging behind in lifelong learning participation compared to the EU average (7.5% as against 8.9% in 2011).

ICT skills of the population are slightly below the EU average. The employment rate of graduates aged 20-34 is 73.1% (2011), which is below the EU average (77.2%) and places Cyprus at the end of the second third of EU countries. Foreign language learning is widespread, with students at ISCED 2 level learning on average two foreign languages, thus placing Cyprus among the 5 best performing EU countries. Compared with the EU average, Cyprus has a very high share of graduates in social science, business and law and a very low share of graduates in science, mathematics and technology. Employment in medium and high qualification jobs up to 2020 is forecast to increase faster than the EU average. Cyprus spends 7.98% of GDP on

education (2009 data), considerably more than the EU average (5.41%) and is second only to Denmark (8.72%). This results from modest but continuous increases over the last few years.

4. Major policy initiatives and reforms

4.1 Initiatives and measures to increase the relevance and level of skills

The new National Curriculum, which includes competences in Reading, Mathematics, Science, Foreign languages (English), Digital competences, and Social and Civic Competences, is partially applied in primary education from the school year 2011-12 and will be completely implemented by the school year 2014-2015. ICT is taught in primary schools.

The 2012 National Reform Programme (NRP) for Cyprus prioritises predominantly the creation of job positions in the sectors for the highly skilled. This is complemented by a mapping of the needs/demands in education and for special skills by the Ministry of Education. This is the basis for further development of the education and training sector.

An important challenge facing the education and training system in Cyprus, including vocational education and training (VET), is the provision of more adapted responses to the needs of the labour market, given the increasing unemployment of young people.

4.2. Initiatives and measures to stimulate open and flexible learning

Cyprus has taken several positive steps in order to improve the openness of education and training systems and pathways. Particular attention is being given to teacher training with an emphasis on those in deprived areas, as well as in schools with high migrant concentration. Generally, the Cyprus Pedagogical Institute organises various trainings and conferences that aim at informing teachers about the integration of ICT in learning and teaching. It has established a Memorandum of Understanding with Microsoft (partners in learning) for issues that are related to ICT besides running training courses to provide basic skills in the area of ICT.

Cyprus is a country that exhibits an excellent performance in both secondary and university level education. However, the low lifelong learning rate limits the capacity for addressing skill mismatches. The national comprehensive Lifelong Learning Strategy 2007-2013 is gradually being implemented and promotes lifelong learning though measures that increase adult education and offer access to relevant programmes.

Vocational education and training (VET) is also among the areas with low participation levels. The 2011 NRP includes a number of measures that aim at addressing this issue, including the establishment of new post-secondary VET institutes and of the new apprenticeship system from 2012-2013 onwards.

The 2011 NRP also includes measures for recognising prior learning as well as for the establishment of a National Qualifications Framework making reference to the European Qualifications Framework (EQF) as well as the European Credit Transfer System for Vocational Education.

There is a national strategy on the use of Information and Communication Technologies (ICT) in education that is related to a general national ICT strategy covering the following areas: e-Government; infrastructure and broadband connectivity; e-Learning; ICT in schools; ICT security; e-Inclusion; digital media Literacy and e-Skills development.

The Ministry of Education and Culture is currently implementing an ICT integration plan aiming at effectively using ICT in the educational process and to enhance the digital literacy of students and teachers. It provides schools with advanced ICT infrastructure and equipment and aims at improving the teaching and learning aids, in accordance with the current curricula reform and pedagogical methods. For this purpose the Ministry has initiated two strategic projects: 1) the eContent and educational software acquisition and 2) the creation of the Schoolnet DIA.S. (Educational Portal and LMS). Specific attention is given to the training of teachers ensuring their competence in using ICT tools and on pedagogical innovation and progress.

4.3. Initiatives and measures to secure smart funding and developing partnerships

Being the second largest investor in education and training in the EU, Cyprus has also a large private expenditure in education and training. In 2008 it accounted for 1.6% of GDP compared to 1.7% in the United Kingdom and less than 1% in almost every other EU Member State.

Only very recently have some initiatives better interlinked education and training with the business environment using, among others, experiences gained in EU funded projects. This led to establishing university-industry liaison offices in all recognised local Universities, both public and private. For instance, the European Social Fund Project "Development and Operation of Enterprise Liaison Offices in Universities Operating in the Republic of Cyprus" aims to boost the communication and cooperation between Business and Academia.

The governance of education and vocational training institutions remains centralised at the Ministry of Education and Culture and the Cyprus Pedagogical Institute in the case of formal education, whilst the vocational training system is managed by the Human Resource Development Authority of Cyprus (HRDA). Relevant skills are identified either through suggestions from the private sector or gap analysis and needs assessments performed by the Authority itself. The influence of the private sector remains limited when it comes to decision making regarding education and vocational training.

Conclusion

Like in other European countries, the effects of the global financial crisis were felt in Cyprus as well. Despite the general tendency of applying austerity measures that take the form of budget cuts and consequently have an effect on the quantity as well as the quality of initiatives in terms of education and training, this was not the case for Cyprus. The budget of the Ministry of Education and Culture was not decreased and a number of initiatives in relation to the educational reform are being implemented, sometimes at a slow but generally steady pace.

However, more needs to be done to maintain areas of excellence and catch up in other areas. Even though it is widely accepted that Cyprus has a good educational system, catching up in adult participation in lifelong learning to levels known in other EU Member States remains a key challenge in order to enhance the skills profile and occupational mobility of the workforce, in line with the country-specific recommendation received in the European Semester 2012. It is important to encourage and support the involvement of low-skilled and older workers as well as women in the country's labour market. Furthermore, the creation of new post-secondary institutes and the establishment of a new apprenticeship system so as to support vocational education and training are in progress. These efforts will need to be persistent not only to make these alternative educational pathways more attractive, but also in order to improve their general quality.

Czech Republic

1. Performance summary

1.1 Overview of benchmarks and skill levels

	Czech Republic		EU average		Europe 2020 targets
	2006	2011	2006	2011	
1. Early leavers from education and training (age 18-24)	5.1%	4.9%	15.5%	13.5%	**EU target: 10%** National target : 5.5%
2. Tertiary educational attainment (age 30-34)	13.1%	23.8%	28.9%	34.6%	**EU target: 40%** National target : 32%

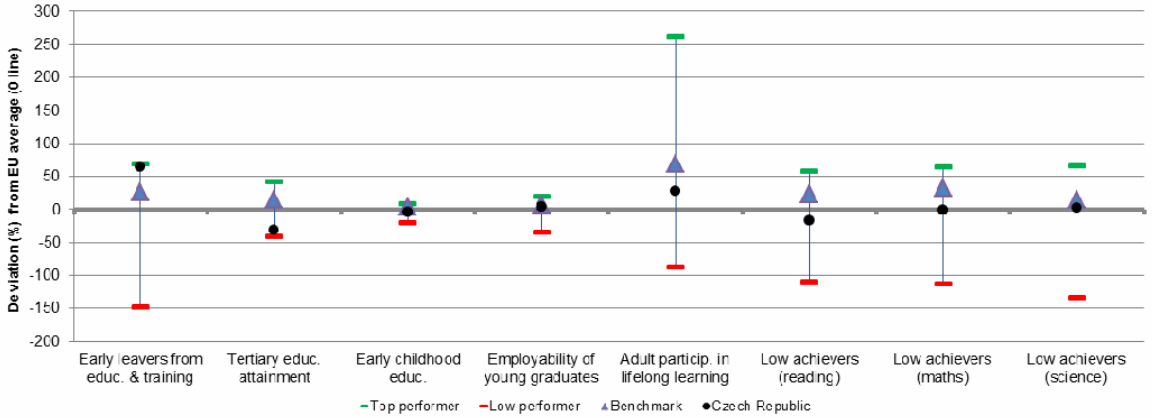
		Czech Republic		EU average		ET 2020 Benchmarks
		2006	2011	2006	2011	
3. Participation in early childhood education (4 years old - year before start of compulsory primary)		92.6%	88.7% [10]	89.3%	92.3% [10]	**95%**
4. Employment rate of graduates (age 20-34) having left education and training no more than 3 years before reference year		82.8%	80.3%	79.0%	77.2%	**82%**
5. Adult participation in lifelong learning (age 25-64)		5.6%	11.4% [b]	9.5%	8.9%	**15%**
6. Basic skills Low achievers (15 year-olds; Level 1 or lower in PISA study)	Reading	24.8%	23.1% [09]	23.1%	19.6% [09]	**15%**
	Mathematics	19.2%	22.3% [09]	24.0%	22.2% [09]	**15%**
	Science	15.5%	17.3% [09]	20.3%	17.7% [09]	**15%**
7. ICT skills	% of pupils in 4th grade using computers at school	51.1% [07]	:	60.7% [07]	:	
	% of individuals aged 16-74 with high computer skills[1]	14.0%	25.0%	21.0%	27.0%	
8. Entrepreneurship	% of 18-64 old population who believe to have the required skills and knowledge to start a business	38.0%	39.0%	42.0%	43.0%	
9. Languages	Average number of foreign languages learned per pupil at ISCED 2	1.1	1.3 [10]	1.4	1.5 [10]	
	% of students reaching B1 level or higher in the first foreign language at the end of lower secondary educ.[2]	:	:	:	43.5%	
10a. Tertiary graduates by field Graduates (ISCED 5-6) in a specific field, as % of all fields	Education and training	15.4%	15.6% [10]	10.5%	9.6% [10,e]	
	Humanities and art	7.9%	7.7% [10]	12.1%	11.5% [10,e]	
	Social science, business and law	30.2%	35.1% [10]	35.2%	35.7% [10,e]	
	of which: business and administration	*20.0%*	*22.8%* [10]	*19.5%*	*20.2%* [10,e]	
	Maths, science and technology	23.7%	24.2% [10]	22.4%	21.9% [10,e]	
	Agriculture and veterinary field	3.8%	3.6% [10]	1.7%	1.6% [10,e]	
	Health and welfare	13.1%	9.2% [10]	14.3%	15.1% [10,e]	
	Services	5.9%	4.7% [10]	3.8%	4.2% [10,e]	
10b. MST graduates	Number of maths, science and technology graduates per 1000 young people (age 20-29)	10.0	16.5 [10]	13.5	14.4 [09]	
11. Skills for future labour markets Projected change in employment 2010-2020 in %	High qualification	:	30.3% [10]	:	19.7% [10]	
	Medium qualification	:	-3.0% [10]	:	4.8% [10]	
	Low qualification	:	-15.1% [10]	:	-20.1% [10]	
12. Investment in education and training Public spending on education, % of GDP		4.42%	4.38% [09]	5.03% [e]	5.41% [09,e]	

Source: Eurostat (LFS): 1, 2; Eurostat (UOE): 3, 9a, 10, 12; Eurostat (ISS): 7b; CRELL (based on Eurostat LFS): 4; OECD (PISA): 6; Eurydice (based on IEA TIMSS): 7a; Global Entrepreneurship Monitor: 8; European Survey on Language Competences (ESLC): 9b; Cedefop: 11

Additional notes:
[07] =2007, [08] =2008, [09] =2009, [10] =2010, [11] =2011, e= estimate, b= break, p= provisional
Number of countries included in EU average: PISA=25, Entrepreneurship=18, Language skills=13, ICT/Computers at school=13
[1]= having carried out 5-6 specific computer related activities, [2]= average of skills tested in reading, listening, writing

1.2 Position in relation to Europe 2020 targets and ET2020 benchmarks

Deviation (%) from EU average and relative position to the EU benchmarks, top performers and low performers in EU27

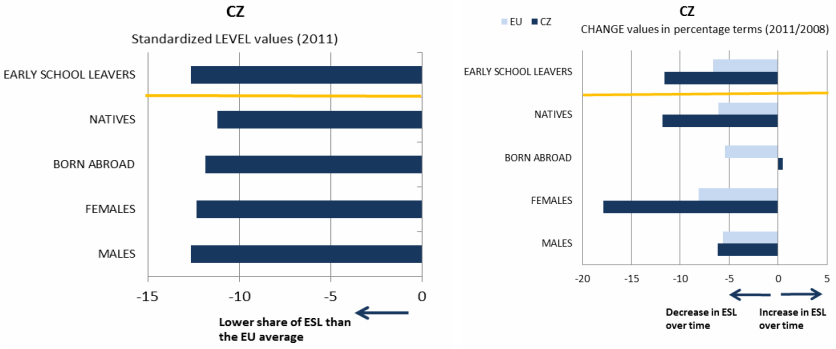


Source: DG EAC

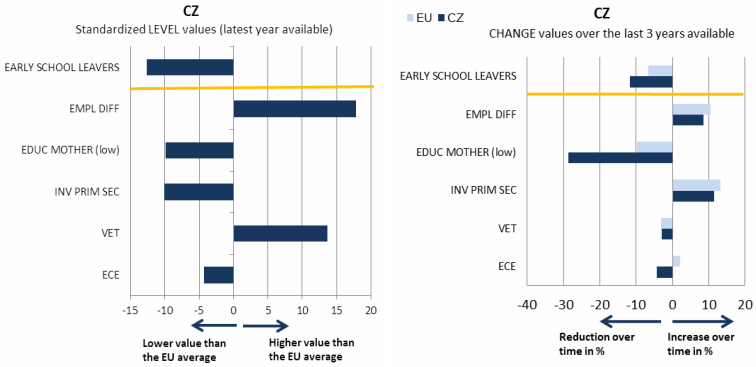
2. Europe 2020 targets: patterns of sub-groups and sub-indicators[5]

2.1 Early leavers from education and training

- Early school leavers of specific population sub-groups (country of birth and gender)



- Early school leavers and sub-indicators
  (Difference in employment rate for low/medium education, low education background of the mother, investment in primary and secondary education, participation in vocational education and training [VET] and in early childhood education [ECE])

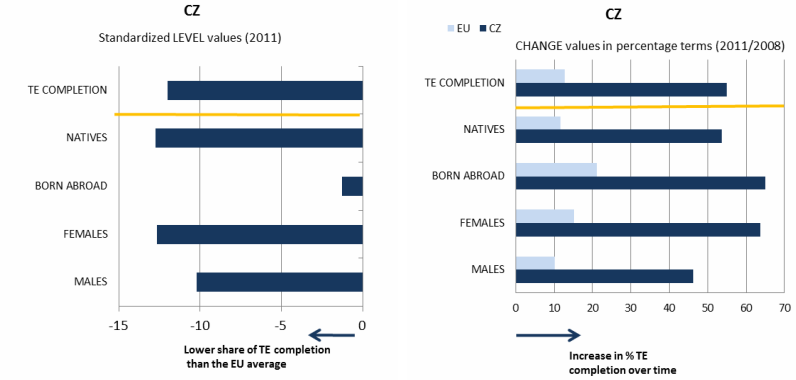


Source: JRC-CRELL

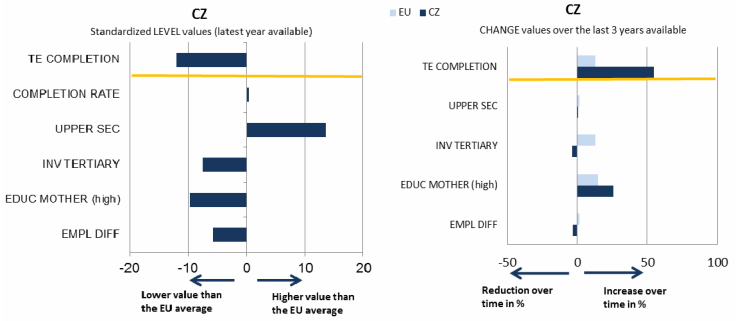
5 See annex 2.

2.2 Tertiary educational attainment

- Tertiary educational attainment of specific population sub-groups (country of birth and gender)



- Tertiary educational attainment and sub-indicators
  (Completion rate in higher education, upper secondary educational attainment, investment in tertiary education, high education background of the mother, difference in employment rate for high/medium education)



Source: JRC-CRELL

3. Key findings on benchmarks and skills levels

Concerning the Europe 2020 targets, the Czech Republic already performs better than the EU headline target regarding early school leaving (ESL). The early school leaving rate was 4.9% in 2010 i.e. one of the lowest in the EU and the national target is not to go beyond the rate of 5.5% by 2020. The Czech Republic's tertiary attainment rate (23.8% in 2011) is significantly lower than the EU average of 34.6%, even if there has been considerable progress since 2008.

As regards the other ET 2020 benchmarks, the Czech Republic performs slightly below the EU benchmark on participation in early childhood education. In terms of basic skills: 15-year-olds' performance on PISA tests in 2009 worsened in mathematics and science compared to 2006, while it moderately improved in reading. The national average masks significant disparities between schools. In fact, according to PISA, the impact of the pupils' socio-economic background on educational attainment is significant in the Czech Republic, as the system has a strong tendency to concentrate children with similar household characteristics and similar performance in the same schools. Performance is actually in line with or above the EU average in the selective grammar schools, but markedly worse in the rest of basic and vocational schools. Participation of adults in lifelong learning used to be low in EU comparison but grew significantly in the last years (11.4% vs. the EU average of 8.9% in 2011). Lifelong learning participation is still low for the low-skilled (2.8% in 2011), who would benefit the most from further education.

ICT skills of the population are close to the EU average. As regards entrepreneurship, only 39.2% of Czechs believe that they have the required knowledge, skills and competence to set up a business which is rather low compared to other EU countries (according to the 2011 Global Entrepreneurship Monitor). The Czech Republic shows a high share of graduates in education

and training and a low (and declining) share of graduates in health and welfare. A significant increase in the population with high level qualifications took place in the period 2000-2010 and this trend is expected to continue, according to Cedefop calculations, in the period 2010-2020. By 2020, job demand is expected to concern primarily highly qualified jobs in non-market services, distribution and transport and business and other services. Public spending on education is below the EU average (4.38% of GDP in year 2009, compared to 5.41% in the EU) and the gap seems most severe in primary and pre-primary education, where the below-average supply of pre-primary education facilities is an important explanatory factor. Expenditure on tertiary education of 1.0% of GDP is around the EU average and has been stable in recent years. This masks a growing substitution between funding provided directly from the state budget and resources channelled through EU funds.

4. Major policy initiatives and reforms

4.1 Initiatives and measures to increase the relevance and level of skills

The Czech Republic implemented curricular reforms focusing on increasing quality and efficiency of basic education (ISCED 0, 1, 2 and 3) and vocational training, mainly through the creation of school curricula based on the national framework curricula. The reform aimed at the development of key competences across all school levels. It provides for simplification of the school curricula where autonomy to schools is given to design their own plan according to the guidelines provided in the national framework and according to their profile. However, the reforms have had limited success, mainly because of insufficient initial and in-service training and a lack of understanding of the aims of the reforms. As a response to the worsening of the pupils´ achievement in international comparisons, it was decided to introduce a standardised national computer-based testing at key levels of compulsory education. This would appear to be a step in the right direction, provided that the testing is part of a more complex system of monitoring and does not lead to reducing learning to preparation for tests and unhealthy competition between schools. On the contrary, an efficient improvement-oriented system of monitoring of schools should lead to further supporting of currently under-performing schools, teachers and pupils. There are also on-going reforms or initiatives in the field of VET, in particular when it comes to schools self-evaluation, development of qualification standards and transformation of VET schools into centres of lifelong learning.

The early school leaving in the Czech Republic is mainly prevented by a high degree of permeability between education paths (in particular towards the vocational training). Some effective measures are in place to effectively compensate early school leaving, such as the possibility for early school leavers to complete later on courses required for compulsory education. Early schools leavers can also enrol for vocational training courses without completing the compulsory education.

In order to tackle the low quality of higher education, a complex reform has been planned for several years. It aims to enhance the accreditation system, differentiate among higher education institutions (HEI), adjust their governance structures and strengthen the link between results and funding. A clearer profiling of HEI providing first degrees or higher qualifications is expected to improve quality and the employability of first-degree graduates. However, greater emphasis on systematic data collection and analysis and their use in public debate would strengthen the credibility of the reform, which faces strong opposition from the academic community.

4.2. Initiatives and measures to stimulate open and flexible learning

The Czech Republic adopted and implemented a comprehensive Lifelong Learning Strategy, in which different partners have been involved, including social partners and the civic sector. The Act on Verification and Recognition of Qualifications is a basis for the system of the validation and recognition of qualifications, and all relevant skills and knowledge can be recognised, no matter where and how, they were obtained. The National Qualifications Framework, which provides a description of qualification requirements for the labour market, has been implemented through a number of ESF funded projects in all regions of the Czech Republic. At the core of this reform is the work of sectoral councils which have the objective to monitor labour market needs and identify needs of a given sector in terms of human resources and skills

and competences. This results in the definition of partial qualifications. This information is translated into a structure of occupations, related to partial qualifications standards and supported by assessment standards. The partial qualification and assessment standards are linked to the system for recognition of non-formal and informal learning and also to the further education courses developed by VET schools for adults.

The most significant measure in the field is the 'Strategy for development of ICT in education' in the period 2009-2013, introduced in 2008. The Strategy entails dedicated funding for ICT equipment and a series of interconnected actions. The use of ICT is also mentioned as a component of communication competency in the national framework curricula for primary and general secondary education (ISCED 1, 2 and 3). The framework curricula prescribe the teaching of ICT as a separate subject and they recommend the use of ICT as a general tool and/or for specific tasks across other educational areas of the curriculum. The use of ICT is recommended for students in class, however it lacks guidelines concerning teachers' use of ICT in classroom teaching. The school reform and in particular the curriculum reform brought in new focus for education. Therefore, a methodological portal was set up, with the help of ESF funding, in order to provide the teaching community with new pedagogies and tools focused on teaching key competences. The schools could also use ESF funding, through the initiative 'EU money for schools', in order to buy the ICT equipment for their schools.

4.3. Initiatives and measures to secure smart funding and developing partnerships

The on-going higher education reform has the objective of improving the quality and ensuring sustainable funding of higher education in the Czech Republic. Performance based funding was introduced as of 2010. However, this link between the budget of each higher education institution (HEI) and a set of quality indicators in the current system of funding has been primarily set to mitigate the funding pressures stemming from the growing numbers of students. It appears to be fairly loose and there is no clear evidence that it has an impact on improving the quality of output.

As public funding is limited, the government's objective is to keep the rate of admissions at the current level while improving the quality of programmes. In 2012, HEI can decide to admit more students than the number of publicly funded places for a given year but these students will be charged a fee by the HEI. The original reform proposal also aimed to introduce generalised tuition fees and attract more private funding into HE, but these measures are on hold, following massive protests against the higher education reform in spring 2012.

Conclusion

The quality of compulsory and tertiary education remains a challenge, as identified by the Commission and Council in the European Semester 2012. The relevant measures to ensure the provision of necessary basic and labour market relevant skills need to be pursued and reinforced, also through the EU structural funds.

Despite the above average performance in the past, the Czech Republic now ranks below EU average for student achievement in basic skills (literacy, numeracy and science). While serious reforms have been initiated at all education levels, the Czech Republic is still facing the challenge of improving the overall quality and efficiency of the education and training system. The curricular reforms as well as the higher education reform have attracted attention and concentrated resources, for implementation and parallel measures. They will require time and mediation to overcome resistance and promote ownership in specific interest and professional groups. Finally, in the context of growth-friendly fiscal consolidation there is a need for preserving expenditure in education and training while increasing its efficiency.

Germany

1. Performance summary

1.1 Overview of benchmarks and skill levels

	Germany 2006	Germany 2011	EU average 2006	EU average 2011	Europe 2020 targets
1. Early leavers from education and training (age 18-24)	13.7%	11.5%	15.5%	13.5%	**EU target: 10%** National target : <10%
2. Tertiary educational attainment (age 30-34)	25.8%	30.7%	28.9%	34.6%	**EU target: 40%** National target : 42%

		Germany 2006	Germany 2011	EU average 2006	EU average 2011	ET 2020 Benchmarks
3. Participation in early childhood education (4 years old - year before start of compulsory primary)		93.0%	96.2% [10]	89.3%	92.3% [10]	**95%**
4. Employment rate of graduates (age 20-34) having left education and training no more than 3 years before reference year		82.1%	88.2%	79.0%	77.2%	**82%**
5. Adult participation in lifelong learning (age 25-64)		7.5%	7.8%	9.5%	8.9%	**15%**
6. Basic skills Low achievers (15 year-olds; Level 1 or lower in PISA study)	Reading	20.0%	18.5% [09]	23.1%	19.6% [09]	**15%**
	Mathematics	19.9%	18.6% [09]	24.0%	22.2% [09]	**15%**
	Science	15.4%	14.8% [09]	20.3%	17.7% [09]	**15%**
7. ICT skills	% of pupils in 4th grade using computers at school	37.5% [07]	:	60.7% [07]	:	
	% of individuals aged 16-74 with high computer skills[1]	27.0%	25.0%	21.0%	27.0%	
8. Entrepreneurship	% of 18-64 old population who believe to have the required skills and knowledge to start a business	39.0%	37.0%	42.0%	43.0%	
9. Languages	Average number of foreign languages learned per pupil at ISCED 2	1.2	1.3 [10]	1.4	1.5 [10]	
	% of students reaching B1 level or higher in the first foreign language at the end of lower secondary educ.[2]	:	:	:	43.5%	
10a. Tertiary graduates by field Graduates (ISCED 5-6) in a specific field, as % of all fields	Education and training	9.5%	9.3% [10]	10.5%	9.6% [10,e]	
	Humanities and art	16.0%	16.5% [10]	12.1%	11.5% [10,e]	
	Social science, business and law	23.9%	22.4% [10]	35.2%	35.7% [10,e]	
	of which: business and administration	*13.8%*	*13.2%* [10]	*19.5%*	*20.2%* [10,e]	
	Maths, science and technology	25.1%	25.7% [10]	22.4%	21.9% [10,e]	
	Agriculture and veterinary field	1.9%	1.5% [10]	1.7%	1.6% [10,e]	
	Health and welfare	20.5%	21.6% [10]	14.3%	15.1% [10,e]	
	Services	3.1%	3.0% [10]	3.8%	4.2% [10,e]	
10b. MST graduates	Number of maths, science and technology graduates per 1000 young people (age 20-29)	10.7	14.8 [10]	13.5	14.4 [09]	
11. Skills for future labour markets Projected change in employment 2010-2020 in %	High qualification	:	0.4% [10]	:	19.7% [10]	
	Medium qualification	:	0.4% [10]	:	4.8% [10]	
	Low qualification	:	-6.5% [10]	:	-20.1% [10]	
12. Investment in education and training Public spending on education, % of GDP		4.43%	5.06% [09]	5.03% [e]	5.41% [09,e]	

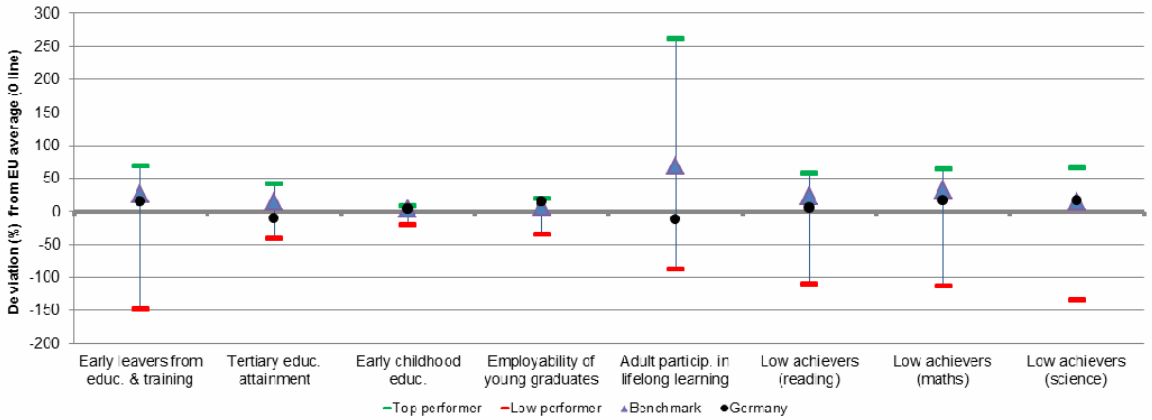
Source: Eurostat (LFS): 1, 2; Eurostat (UOE): 3, 9a, 10, 12; Eurostat (ISS): 7b; CRELL (based on Eurostat LFS): 4; OECD (PISA): 6; Eurydice (based on IEA TIMSS): 7a; Global Entrepreneurship Monitor: 8; European Survey on Language Competences (ESLC): 9b; Cedefop: 11

[07] =2007, [08] =2008, [09] =2009, [10] =2010, [11] =2011, e= estimate, b= break, p= provisional; Number of countries included in EU average: PISA=25, Entrepreneurship=18, Language skills=13, ICT/Computers at school=13; [1]= having carried out 5-6 specific computer related activities, [2]= average of skills tested in reading, listening, writing;

Germany includes in the calculation of its national Europe 2020 target for tertiary education (42%) all qualifications attained at ISCED level 4 as "equivalent" (ISCED 4A: e.g. evening classes for Abitur, combinations of apprenticeships and other programmes giving access to tertiary education; ISCED 4B: e.g. combinations of two ISCED 3B VET programmes). ISCED 4 attainment (30-34) was at 11.5% in 2011.

1.2 Position in relation to Europe 2020 targets and ET2020 benchmarks

Deviation (%) from EU average and relative position to the EU benchmarks, top performers and low performers in EU27

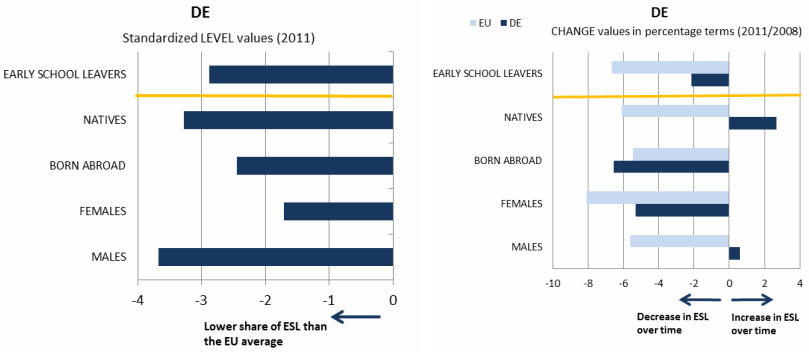


Source: DG EAC

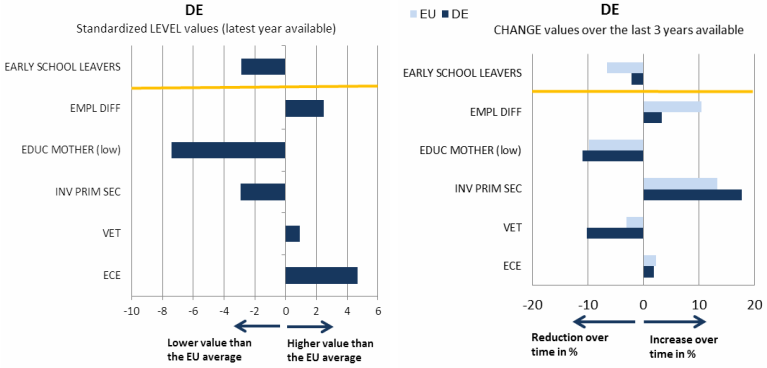
2. Europe 2020 targets: patterns of sub-groups and sub-indicators[6]

2.1 Early leavers from education and training

- Early school leavers of specific population sub-groups (country of birth and gender)



- Early school leavers and sub-indicators
  (Difference in employment rate for low/medium education, low education background of the mother, investment in primary and secondary education, participation in vocational education and training [VET] and in early childhood education [ECE])

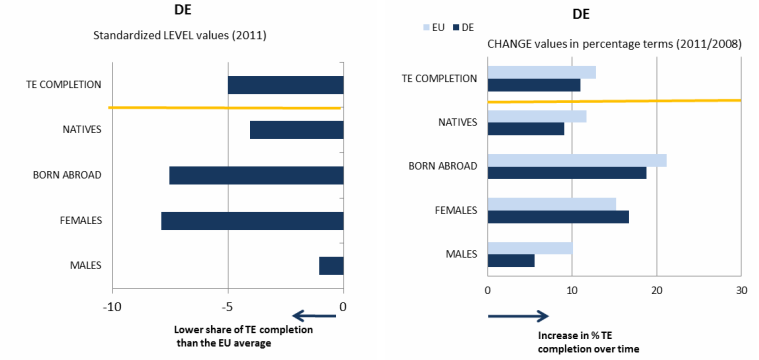


Source: JRC-CRELL

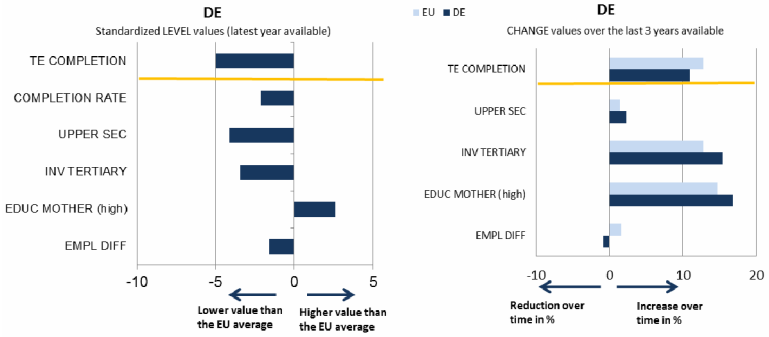
6 See annex 2.

2.2 Tertiary educational attainment

- Tertiary educational attainment of specific population sub-groups (country of birth and gender)



- Tertiary educational attainment and sub-indicators
  (Completion rate in higher education, upper secondary educational attainment, investment in tertiary education, high education background of the mother, difference in employment rate for high/medium education)



Source: JRC-CRELL

3. Key findings on benchmarks and skills levels

Concerning the Europe 2020 targets, the early school leaving rate is better than the EU average and improved between 2006 and 2009. Since then it remained at around 11 % (11.5% in 2011). As regards tertiary attainment, figures have increased by more than 5 percentage points since 2006 but performance remains at 30.7% (2011) below the EU average, especially for females. However, Germany includes in its national 2020 target for tertiary attainment (42%) also ISCED 4 qualifications which it considers as "equivalent" (total ISCED 4, 5, 6 in 2011: 42.3%, above the national 2020 target). With a view to the other EU benchmarks, participation in early childhood education has increased further over recent years (96.2% in 2010) and has surpassed already the EU benchmark. In terms of basic skills, 15-year-olds' performance on PISA tests in reading and mathematics improved and continue to outperform the EU average, whereas in science they have already surpassed the EU benchmark. The employment rate of graduates has increased over recent years and is, due to the quick recovery from the crisis and current economic boom, at 88.2% clearly above EU average and also above the 2020-benchmark. Participation of adults in lifelong learning is below EU average (7.8% vs. 8.9% in 2011) but has slightly increased as opposed to the decreasing EU average.

ICT skills of the population are close to the EU average. According to the latest PISA survey in 2009, 95% of German students have access to computers and the internet at school, and the ratio of computers to students aged 15 is 1 for every 11 students which is below the OECD average. Compared with the EU average, Germany has a high share of graduates in humanities and art as well as in health and welfare and a low share of graduates in social science, business and law. As regards entrepreneurship, the share of the population believing to have the required skills and knowledge to start a business decreased slightly in recent years by 2 percentage points. Germany's employment pattern up to 2020 is forecast to remain largely

unchanged apart from low qualification jobs, for which a decrease by around 6 percentage points in volume is forecasted. In particular with a view to high qualification jobs the forecast is very distinct to the EU average (expected increase of only 0.4% vs. 19.7% in the EU). Public spending on education in Germany is growing but still somewhat below the EU average (5.06% vs. 5.41% of GDP in 2009).

4. Major policy initiatives and reforms

4.1 Initiatives and measures to increase the relevance and level of skills

Based on a sophisticated system of dual VET provision that assures practical training of young people close to the labour market, the relevance of work specific skills can be considered very high. Germany pays also significant attention to the anticipation of skills needs, e.g. through the '*FreQueNz'* network where the results of anticipation projects are synthesised and disseminated nationwide. As regards basic skills, the PISA study shows an important gap between high performing and low performing pupils, notably those pupils with a migrant background. As a consequence, it remains difficult for low performers to acquire a qualification and/or enter dual VET, despite shrinking age cohorts of young people and relatively good supply of apprenticeship places. Given the demographic situation – Germany has the lowest birth rate in the EU - this poses an important risk to an adequate future skills supply.

In the past years several measures have been agreed between Bund and Länder ("*Qualifizierungsinitiative*" 2008) or at Länder level within the KMK (Kultusministerkonferenz) with a view to improving the quality of school education and supporting disadvantaged groups. The measures, gradually implemented by the Länder, include early learning of German language for migrant children, competence-based and more individualised teaching approaches, better and earlier career guidance, and closer links between schools and the world of work to support transitions for pupils at risk. For example the initiative "Lesenstart" ("start reading"), launched by the federal government in 2012, aims to reach parents from disadvantaged socio-economic backgrounds, notably migrants, and equips them with reading material for children as of age 1. Tackling the educational disadvantage of migrants is also a key element of the *National Action Plan for Integration*, adopted in January 2012.

Lead initiatives with a view to supporting transition from school to VET are the existing "*Ausbildungspakt*" (national training pact), extended until 2014, and the 2010 adopted "*Bildungsketten*" (chains of education) and '*Jobstarter Connect'* which aim to provide early support and guidance for pupils at risk. There is growing awareness among stakeholders of the need to reform the overly complex and inefficient school to VET transition system.

As regards the relevance of skills at higher qualifications levels, the number of dual tertiary programmes, whereby students can acquire at the same time a VET and an academic qualification through combined in-company training and tertiary studies, are growing quickly and most of the Länder are actively promoting this trend. With a view to basic skills of adults, a scientific study revealed that an estimated 7.5 Mio Germans are (functional) illiterates. Bund and Länder have agreed in 2011 to implement a strategy to fight basic skills deficiencies ("*Grundbildungspakt*").

4.2. Initiatives and measures to stimulate open and flexible learning

As regards flexible learning pathways the Länder ministers within the KMK have agreed in 2009 to grant, when fulfilling certain criteria such as professional experience, access to higher education also to people who have acquired a dual VET qualification but no general university entrance qualification (e.g. "Abitur"). The so-called *"Hochschulzugang für beruflich qualifizierte Bewerber"* exists now in all Länder and students can obtain financial support ("career advancement grants"). Though take up is still low at the moment, together with the rapid expansion of dual tertiary VET, this may further contribute to increasing permeability between VET and higher education.

In 2011, the federal government adopted a law introducing a nationally standardised system for the assessment of professional qualifications acquired in foreign countries (*Berufsqualifikationsfeststellungsgesetz*). Based on individualised reviews EU and non-EU-citizens are entitled to receive a decision of equivalency of their professional qualifications

acquired abroad in relation to comparable professions in Germany. In case of partial equivalency a full qualification may be achieved through targeted up-skilling.

There is a national strategy on the use of ICT in school education ("*Schulen ans Netz*") which focuses on support and training for teachers and other educational staff, awareness-raising on chances and risks of new media and promotion of e-learning. Also the general national ICT strategy covers the topics e-Learning, ICT in schools, Digital-Media Literacy and e-skills development.

As regards development of digital competence and ICT use in school, a general reference is made to this issue in the central steering documents for primary and general secondary education, adopted by the KMK. At primary level, the steering documents recommend the use of ICT as a general tool and/or for specific tasks of the curriculum: language of instruction, mathematics, foreign languages, natural sciences, social sciences and arts. At secondary level, the steering documents recommend the use of ICT as a general tool and/or for specific tasks across the above-mentioned subjects as well as ICT as a separate subject depending on the 'Land' and included in the technology subject. Since the Länder are responsible for the organisation of their education system and curricula the extent to which Länder-level curricula make specific reference to ICT-use varies.

4.3. Initiatives and measures to secure smart funding and developing partnerships

With a view to public-private cooperation the social partners traditionally play an important role in Germany for identifying skills needs and ensuring sufficient numbers of skilled people for the labour market. The dual VET system heavily depends on strong commitment of employers who do not only provide the practical training, but are responsible also for final exams, and have a key role in ensuring relevance and updating of curricula. This system comprises also an effective element of cost-sharing: while employers' net-investment (after deduction of productive contributions of apprentices) amounts to ca. EUR 14.7bn a year (84% of total costs)[7], surveys underpin the long-term benefits for employers that clearly outweigh initial investment. Thus, employers have a strong interest in filling the increasing number of open apprenticeship posts in certain sectors and regions due to shrinking age cohorts and a general trend to follow general education leading directly to tertiary education. The national training pact (*Ausbildungpakt*), first concluded in 2004 between federal government and employers to assure sufficient numbers of apprenticeship places, is now focusing increasingly on providing better guidance to pupils interested in VET with a view to improve matching between provision and (declining) demand for apprenticeship places. Also, more emphasis is now on making low achieving pupils fit for apprenticeships including through basic skills training and the provision of short term traineeships offered by companies ("*Einstiegsqualifikationen*") which are subsidised by the public employment service.

Increasingly, partnerships are also being developed between schools and businesses to improve relevance of teaching and of early career orientation (e.g. in Baden-Württemberg 90% of all lower-secondary schools have entered into a partnership with one or several companies). The federal initiative "JOBSTARTER", first launched in 2006, financially supports cooperation between companies and schools until 2013 with 125 Mio EUR. In its current period a focus is on sustainable skills provision with an important focus on enhancing the number of apprenticeship places in emerging sectors such as renewable energies.

Another partnership initiative between public and private actors with a view to tackling potential skills shortages in MST and engineering subjects is the *"Komm mach MINT"* initiative. Based on a 2008 pact, renewed in 2011, concluded between ministries, social partner associations, and actors from the worlds of business and research, it aims to attract more girls and young women into STEM professions.

With a view to *funding of higher education,* a 2010 federal law established a national programme on scholarships for high performing tertiary students ("*Deutschlandstipendium*"). While 50% of the 300 EUR monthly scholarship are provided by the federal government, for the other 50% universities need to recruit sponsors (companies, foundations, alumni, etc.) for match funding. While the funding volume is developing rather slowly, this initiative may, in the

[7] "Duale Ausbildung sichtbar gemacht", BMBF 2007

long run, help to develop a sustainable culture of sponsoring and increase private investment in higher education. An important decision to assure smart funding must be seen in the 2008 commitment of the Länder ("Qualifizierungsinitiative") to retain those resources in the education system, which may become available due to demographic development, and to use these for quality development.[8]

Conclusion

While Germany is today still in a favourable position with a view to the necessary skills mix for its economy, notably highly relevant job specific skills provided through dual VET, there is a risk that a too high share of its shrinking population does not acquire the necessary skills needed in its high-tech economy.

Thus, even more effort may be necessary to develop learning approaches that allow all pupils regardless of their socio-economical background to acquire the necessary skills for entering professional training, as recommended by the Commission and Council in the European Semester 2012. With a view to keeping the VET system attractive also for high performing students, the increasing number of dual tertiary programmes as well as the facilitation of access to tertiary education for VET graduates can be seen as promising developments. More proactive support might be necessary to help a greater number of people pursuing such a path leading to higher skills levels. In this respect, building on the strong partnership tradition may help to find more innovative solutions for addressing effectively potential skills gaps.

[8] Final document of the Bund-Länder education summit of 22 October 2008.

Denmark

1. Performance summary

1.1 Overview of benchmarks and skill levels

	Denmark 2006	Denmark 2011	EU average 2006	EU average 2011	Europe 2020 targets
1. Early leavers from education and training (age 18-24)	9.1%	9.6% b	15.5%	13.5%	**EU target: 10%** National target : <10%
2. Tertiary educational attainment (age 30-34)	43.0%	41.2% b	28.9%	34.6%	**EU target: 40%** National target : >40%

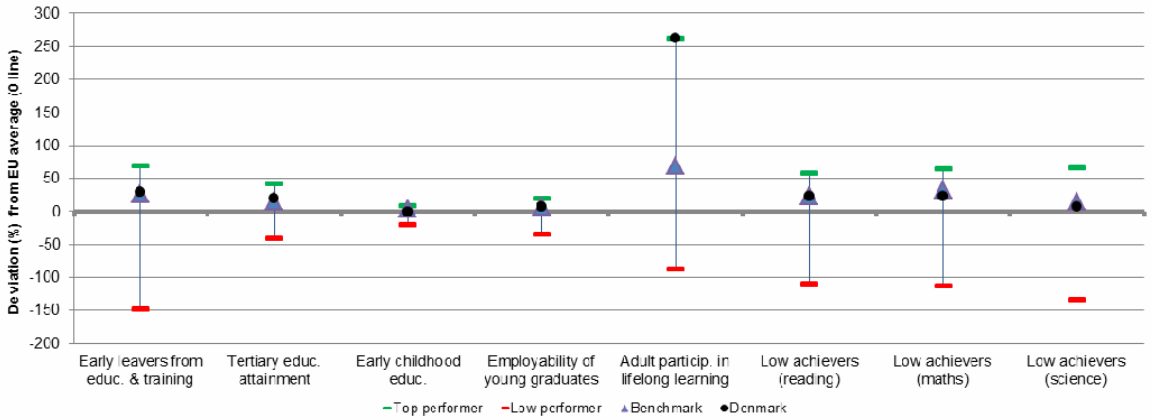
		Denmark 2006	Denmark 2011	EU average 2006	EU average 2011	ET 2020 Benchmarks
3. Participation in early childhood education (4 years old - year before start of compulsory primary)		92.0%	91.1% 10	89.3%	92.3% 10	**95%**
4. Employment rate of graduates (age 20-34) having left education and training no more than 3 years before reference year		89.0%	83.0%	79.0%	77.2%	**82%**
5. Adult participation in lifelong learning (age 25-64)		29.2%	32.3%	9.5%	8.9%	**15%**
6. Basic skills Low achievers (15 year-olds; Level 1 or low er in PISA study)	Reading	16.0%	15.2% 09	23.1%	19.6% 09	**15%**
	Mathematics	13.6%	17.1% 09	24.0%	22.2% 09	**15%**
	Science	18.4%	16.6% 09	20.3%	17.7% 09	**15%**
7. ICT skills	% of pupils in 4th grade using computers at school	78.8% 07	:	60.7% 07	:	
	% of individuals aged 16-74 with high computer skills[1]	38.0%	39.0%	21.0%	27.0%	
8. Entrepreneurship	% of 18-64 old population who believe to have the required skills and knowledge to start a business	36.0%	35.0%	42.0%	43.0%	
9. Languages	Average number of foreign languages learned per pupil at ISCED 2	2.0	1.8 10	1.4	1.5 10	
	% of students reaching B1 level or higher in the first foreign language at the end of lower secondary educ.[2]	:	:	:	43.5%	
10a. Tertiary graduates by field Graduates (ISCED 5-6) in a specific field, as % of all fields	Education and training	8.4%	7.6% 10	10.5%	9.6% 10,e	
	Humanities and art	13.8%	13.2% 10	12.1%	11.5% 10,e	
	Social science, business and law	30.4%	32.7% 10	35.2%	35.7% 10,e	
	of which: business and administration	*18.8%*	*20.3% 10*	*19.5%*	*20.2% 10,e*	
	Maths, science and technology	18.1%	19.3% 10	22.4%	21.9% 10,e	
	Agriculture and veterinary field	2.1%	1.6% 10	1.7%	1.6% 10,e	
	Health and welfare	23.8%	22.6% 10	14.3%	15.1% 10,e	
	Services	3.3%	2.9% 10	3.8%	4.2% 10,e	
10b. MST graduates	Number of maths, science and technology graduates per 1000 young people (age 20-29)	13.8	16.5 10	13.5	14.4 09	
11. Skills for future labour markets Projected change in employment 2010-2020 in %	High qualification	:	13.0% 10	:	19.7% 10	
	Medium qualification	:	-14.9% 10	:	4.8% 10	
	Low qualification	:	20.8% 10	:	-20.1% 10	
12. Investment in education and training Public spending on education, % of GDP		7.97%	8.72% 09	5.03% e	5.41% 09,e	

Source: Eurostat (LFS): 1, 2; Eurostat (UOE): 3, 9a, 10, 12; Eurostat (ISS): 7b; CRELL (based on Eurostat LFS): 4; OECD (PISA): 6; Eurydice (based on IEA TIMSS): 7a; Global Entrepreneurship Monitor: 8; European Survey on Language Competences (ESLC): 9b; Cedefop: 11

Additional notes:
07 =2007, 08 =2008, 09 =2009, 10 =2010, 11 =2011, e= estimate, b= break, p= provisional
Number of countries included in EU average: PISA=25, Entrepreneurship=18, Language skills=13, ICT/Computers at school=13
1= having carried out 5-6 specific computer related activities, 2= average of skills tested in reading, listening, writing

1.2 Position in relation to Europe 2020 targets and ET2020 benchmarks

Deviation (%) from EU average and relative position to the EU benchmarks, top performers and low performers in EU27

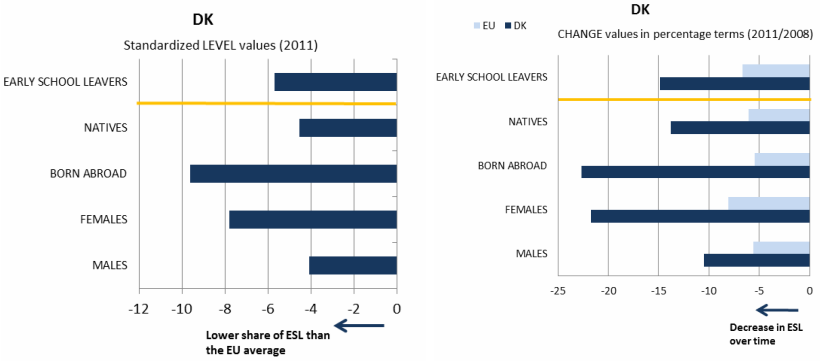


Source: DG EAC

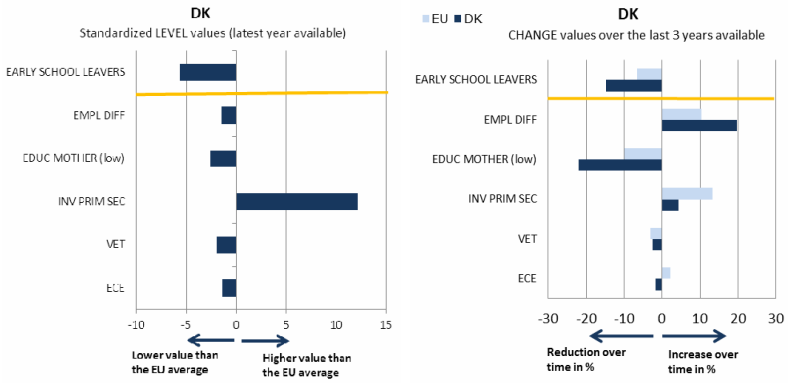
2. Europe 2020 targets: patterns of sub-groups and sub-indicators[9]

2.1 Early leavers from education and training

- Early school leavers of specific population sub-groups (country of birth and gender)



- Early school leavers and sub-indicators
  (Difference in employment rate for low/medium education, low education background of the mother, investment in primary and secondary education, participation in vocational education and training [VET] and in early childhood education [ECE])

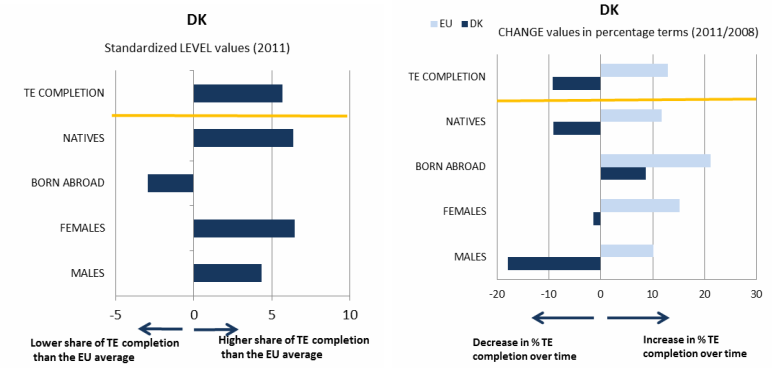


Source: JRC-CRELL

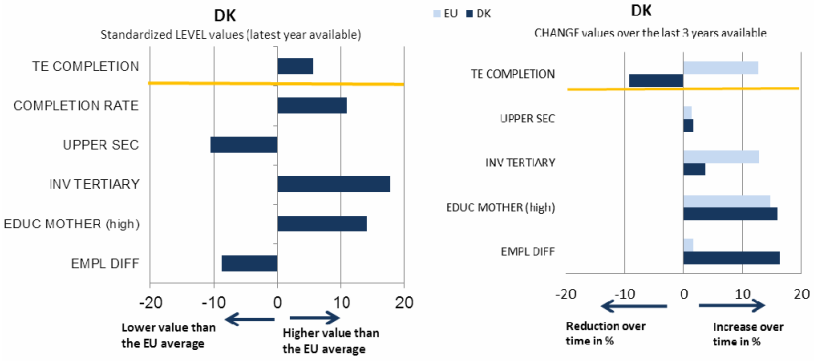
[9] See annex 2.

2.2 Tertiary educational attainment

- Tertiary educational attainment of specific population sub-groups (country of birth and gender)



- Tertiary educational attainment and sub-indicators
  (Completion rate in higher education, upper secondary educational attainment, investment in tertiary education, high education background of the mother, difference in employment rate for high/medium education)



Source: JRC-CRELL

3. Key findings on benchmarks and skills levels

Denmark has achieved the two Europe 2020 headline indicators and is performing well above the EU average on both. As regards the early leaving school rate (9.6% in 2011), it has decreased significantly in recent years for the sub-group of born abroad. The tertiary attainment rate has also decreased marginally from 43% in 2006 to 41.2% in 2011 but is still significantly above the EU average (34.6%).

As regards the other ET 2020 benchmarks, the participation rate in early childhood education has also declined marginally to 91.1% in 2011, thus failing the threshold of 95%. Denmark is above the EU targets for the three basic skills in reading, mathematics and science but the performance in mathematics worsened significantly between 2006 and 2009 whereas the share of low-achievers in reading and science fell during the same period. Girls outperform boys in reading like in the other Nordic countries, whereas in Denmark boys have a lower percentage of low achievers in both mathematics and science than girls. The employment rate of graduates has decreased significantly to 83% in 2011 but from a comparably very high level of 90.9% pre-crisis level in 2007. This level is above the current EU average of 77.2%. Denmark has the highest level of adult participation in lifelong learning among EU Member States at 32.2% in 2011, - a level which has been slightly increasing since 2006 and is nearly three times the present EU average of 8.9%.

Denmark has a comparatively high penetration of computer use in schools (78.8% of pupils in 4th grade use computers at school (average for countries where data is available is 60.7%). Likewise ICT skills of the population are above the EU average. As regards entrepreneurship, the share of the population believing to have the required knowledge to start a business is 35%,

as against the EU average of 43%. Foreign language learning starts in primary education where all pupils learn English as a first foreign language and this continues into lower secondary education (ISCED 2) where opportunities for studying other languages are available. Danish pupils study more foreign languages than the EU average. Denmark has a high share of graduates in health and welfare compared with the EU average. The forecast for the Danish employment pattern up to 2020 would increase the demand for high and low skilled persons whereas the demand for medium skilled would fall significantly. This forecasted employment pattern is in marked contrast to the overall EU forecast of a positive demand for medium skilled and a negative development for low skilled. Finally, Denmark is keeping its position as the country within the EU where the government is spending most on education as a percentage of GDP (8.72% in 2009).

4. Major policy initiatives and reforms

4.1 Initiatives and measures to increase the relevance and level of skills

Denmark, as shown above, does well in many areas of education and also spends generously on education policies. However, in several key areas, as also documented by the PISA results, the educational outcomes are only average, pointing towards deficiencies in the cost-effectiveness of the education system.

In general there is no national strategy in Denmark for basic skills as such. However, traditionally educational goals are defined at a central level. For example, since 2009, all curriculum subjects in primary and lower secondary schools share the common objective of improving pupils' reading skills. National tests in Danish reading have been introduced and are conducted regularly to identify individual learning needs. Specialist reading teachers are widely available in the country as are digital reading and writing programmes for students. Available evidence also shows that the test results are used actively by teachers for improving skill levels of pupils.

Overall, Denmark has taken and is still initiating a number of policy measures for increasing the skill levels by implementing focused measures at different education levels. At primary and lower secondary level (the unified 'Folkeskole'), efforts have mostly addressed basic skills and efficiency in delivery. The efforts to improve basic skills have centred on strengthening evaluation, i.e. by introducing national tests. General upper secondary education has been reformed with a view to preparing students for working and studying in interdisciplinary teams.

The VET sector is being reformed at the moment in Denmark and negotiations are taking place in order to implement the reforms. Reforming the vocational education system should bring the following benefits: (i) Further strengthen the roles of guidance centres and trade committees for matching VET with labour market needs; (ii) Develop incentives for the creation of more apprenticeship places. It will also be beneficial to support high-quality and attractive vocational upper secondary education through the application of the European Quality Assurance Framework for VET and also through the introduction of training placements abroad in VET programmes (including considering the introduction of shorter programmes).

Overall, the long term supply of labour in Denmark is under pressure due to demographic ageing. Currently, unemployment is relatively high, and there is little evidence of bottlenecks. However, in the future, a need to increase the supply of labour presents a challenge. In addition, there is evidence that the skills levels in the Danish population are not sufficient in view of the challenges ahead. Historically, the Danish system of continuing education has been very strong in keeping the skills of the working population updated, but increasingly, a large share of the population is outside the labour market, and other measures are needed to ensure the skill supply.

4.2. Initiatives and measures to stimulate open and flexible learning

Adult education sector is well-established in Denmark. In 2009-10, the adult education reform created 13 'VEU Centres' (Centres for Adult Education and Training). The Centres were formed by merging previously separate schools and training centres providing education and training for adults in basic skills, occupational skills, as well as transversal skills. The aim was to improve the links between general education for adults and continuing vocational education and training,

to provide employers with a single access point for competence development of their employees and to create institutions that can advise enterprises with respect to competence development.

Higher education institutions have been streamlined in order to ensure that qualifications are more easily understandable in an international perspective and to improve transparency and access between qualifications.

Denmark has a national strategy for the use of ICT in education. ICT is not prescribed as a separate subject, but its use is recommended for specific tasks across different curriculum areas. Digital competences are identified as a learning outcome in central steering documents at primary and secondary education. While there are no national examinations, there are central recommendations for on-screen testing in primary and general secondary education.

4.3. Initiatives and measures to secure smart funding and developing partnerships

With the *Agreement on the implementation of the globalisation fund* of 2006, a total of approximately DKK 17 billion were allocated to strengthen upper secondary education, higher education as well as adult education and continuing training in the period 2007-2012. More specifically, in the period 2007- 2012, approx. DKK 9.9 billion were allocated to strengthen upper secondary education, approx. DKK 4.8 billion were allocated for initiatives in higher education and approx. DKK 2.5 billion were allocated to strengthen adult education and continuing training. The objective of the allocations was to increase the proportion of young people with upper secondary education and/or higher education as well as to enhance the quality of education.

There has been an agreement on more than DKK 1 billion to be spent on increased activity in 2012 and 2013. The Government wants 60 per cent of the youth cohort to complete higher education. Therefore, with the Agreement on the Budget Bill for 2012 a total of DKK 420 million has been allocated for 2012 and DKK 630 million for 2013 to be spent on increased higher education activity.

The high drop-out rates in vocational education and training (almost 50 per cent) are linked to the fact that Denmark has a lack of apprenticeships available, which continues to be a challenge despite numerous initiatives to tackle the issue. The amount of available apprenticeship slots in the private sector has been decreasing in connection with the on-going economic crisis and the in-school alternative training has been criticised by observers for not providing a "real work place experience" and thus not facilitating the transition to the labour market, which is intended to be the advantage of the dual Danish apprenticeship system. Moreover, employers lack incentives to create apprenticeship places.

For 2013, in order to fight youth unemployment, the government proposed a new package stimulating job rotation, apprenticeships and vocational education. DKK 300 million are allocated to provide education for the unemployed who will lose their unemployment benefits in 2013 and DKK 600 million are allocated between 2012 and 2016 to tackle youth unemployment.

Conclusion

During the 2000s, a number of important reforms have been introduced to strengthen lifelong learning and to ensure that the education system at all levels of education is more in line with what will be required in the labour markets of the future, and thereby to improve the competitiveness of Danish companies in the global competition. In addition, financial incentives have been introduced to improve efficiency and completion at the levels of the education system above compulsory school. However, it is crucial to ensure the balance between increasing the capacity and maintaining good quality of education and training provided.

Concerning basic skills of children and young people as measured by the PISA tests and the (outdated) survey of basic skills of Danish adults, the skills of the Danish population are just at or slightly above European average, despite the high public expenditure on education as a share of GDP. Increasing the cost-effectiveness of the education system, as recommended by the Commission and Council in the European Semester 2012, will thus be important.

As there is a close correlation between educational level and labour market opportunities, and persons with no formal education beyond compulsory schooling have considerably increased risk

of being unemployed and also of exiting the labour force altogether. Therefore, there is currently widespread concern in Denmark concerning the future of young persons with no formal education beyond compulsory education and considerable resources are being invested in upgrading skills for the most vulnerable youth groups. New reforms are underway focussing particularly on upper secondary vocational training (dual training – apprenticeships) and targeted measures for the most vulnerable young people.

Estonia

1. Performance summary

1.1 Overview of benchmarks and skill levels

	Estonia 2006	Estonia 2011	EU average 2006	EU average 2011	Europe 2020 targets
1. Early leavers from education and training (age 18-24)	13.5%	10.9%	15.5%	13.5%	**EU target: 10%** National target : 9.5%
2. Tertiary educational attainment (age 30-34)	32.5%	40.3%	28.9%	34.6%	**EU target: 40%** National target : 40%

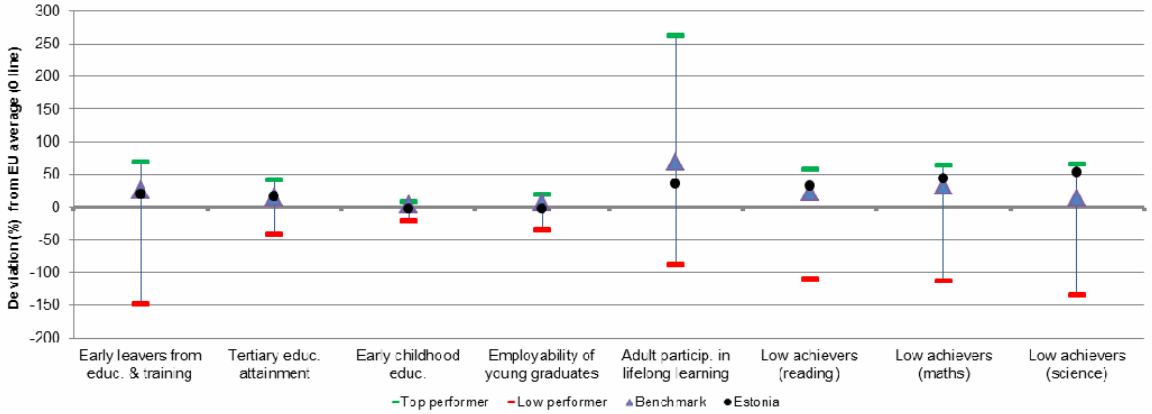
		Estonia 2006	Estonia 2011	EU average 2006	EU average 2011	ET 2020 Benchmarks
3. Participation in early childhood education (4 years old - year before start of compulsory primary)		94.9%	89.8% [10,b]	89.3%	92.3% [10]	**95%**
4. Employment rate of graduates (age 20-34) having left education and training no more than 3 years before reference year		84.9%	75.1%	79.0%	77.2%	**82%**
5. Adult participation in lifelong learning (age 25-64)		6.5%	12.0%	9.5%	8.9%	**15%**
6. Basic skills Low achievers (15 year-olds; Level 1 or lower in PISA study)	Reading	13.6%	13.3% [09]	23.1%	19.6% [09]	**15%**
	Mathematics	12.1%	12.7% [09]	24.0%	22.2% [09]	**15%**
	Science	7.7%	8.3% [09]	20.3%	17.7% [09]	**15%**
7. ICT skills	% of pupils in 4th grade using computers at school	:	:	60.7% [07]	:	
	% of individuals aged 16-74 with high computer skills[1]	25.0%	32.0%	21.0%	27.0%	
8. Entrepreneurship	% of 18-64 old population who believe to have the required skills and knowledge to start a business	:	:	42.0%	43.0%	
9. Languages	Average number of foreign languages learned per pupil at ISCED 2	2.0	:	1.4	1.5 [10]	
	% of students reaching B1 level or higher in the first foreign language at the end of lower secondary educ.[2]	:	61.0%	:	43.5%	
10a. Tertiary graduates by field Graduates (ISCED 5-6) in a specific field, as % of all fields	Education and training	10.2%	7.7% [10]	10.5%	9.6% [10,e]	
	Humanities and art	11.4%	12.8% [10]	12.1%	11.5% [10,e]	
	Social science, business and law	36.6%	37.6% [10]	35.2%	35.7% [10,e]	
	of which: business and administration	*22.6%*	*23.2%* [10]	*19.5%*	*20.2%* [10,e]	
	Maths, science and technology	19.3%	20.5% [10]	22.4%	21.9% [10,e]	
	Agriculture and veterinary field	2.2%	1.9% [10]	1.7%	1.6% [10,e]	
	Health and welfare	11.6%	11.0% [10]	14.3%	15.1% [10,e]	
	Services	8.6%	8.5% [10]	3.8%	4.2% [10,e]	
10b. MST graduates	Number of maths, science and technology graduates per 1000 young people (age 20-29)	11.2	11.3 [10]	13.5	14.4 [09]	
11. Skills for future labour markets Projected change in employment 2010-2020 in %	High qualification	:	5.6% [10]	:	19.7% [10]	
	Medium qualification	:	6.1% [10]	:	4.8% [10]	
	Low qualification	:	17.5% [10]	:	-20.1% [10]	
12. Investment in education and training Public spending on education, % of GDP		4.70%	6.09% [09]	5.03% [e]	5.41% [09,e]	

Source: Eurostat (LFS): 1, 2; Eurostat (UOE): 3, 9a, 10, 12; Eurostat (ISS): 7b; CRELL (based on Eurostat LFS): 4; OECD (PISA): 6; Eurydice (based on IEA TIMSS): 7a; Global Entrepreneurship Monitor: 8; European Survey on Language Competences (ESLC): 9b; Cedefop: 11

Additional notes:
[07] =2007, [08] =2008, [09] =2009, [10] =2010, [11] =2011, e= estimate, b= break, p= provisional
Number of countries included in EU average: PISA=25, Entrepreneurship=18, Language skills=13, ICT/Computers at school=13
[1]= having carried out 5-6 specific computer related activities, [2]= average of skills tested in reading, listening, writing

1.2 Position in relation to Europe 2020 targets and ET2020 benchmarks

Deviation (%) from EU average and relative position to the EU benchmarks, top performers and low performers in EU27

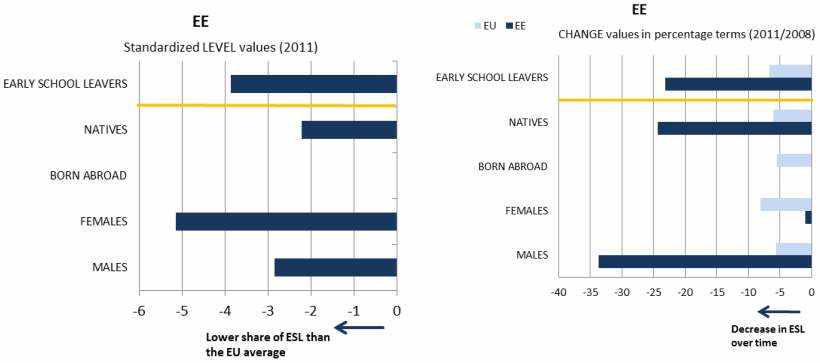


Source: DG EAC

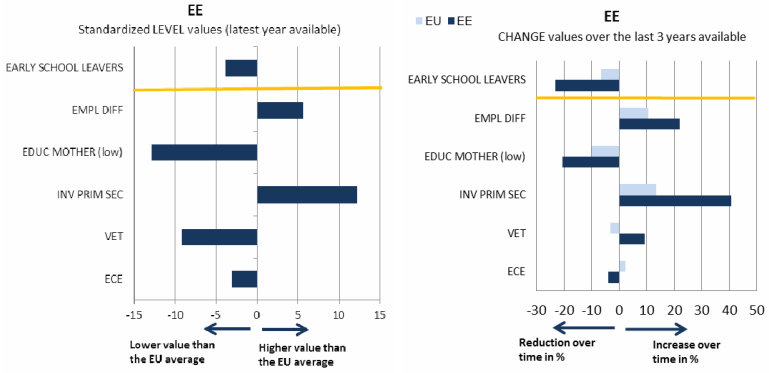
2. Europe 2020 targets: patterns of sub-groups and sub-indicators[10]

2.1 Early leavers from education and training

- Early school leavers of specific population sub-groups (country of birth and gender)



- Early school leavers and sub-indicators
  (Difference in employment rate for low/medium education, low education background of the mother, investment in primary and secondary education, participation in vocational education and training [VET] and in early childhood education [ECE])

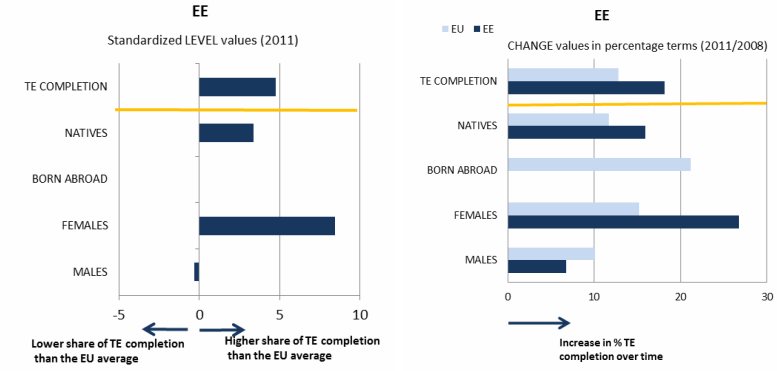


Source: JRC-CRELL

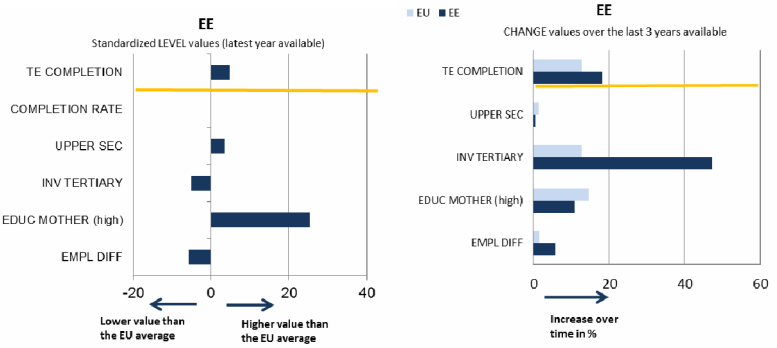
10 See annex 2.

2.2 Tertiary educational attainment

- Tertiary educational attainment of specific population sub-groups (country of birth and gender)



- Tertiary educational attainment and sub-indicators
  (Completion rate in higher education, upper secondary educational attainment, investment in tertiary education, high education background of the mother, difference in employment rate for high/medium education)



Source: JRC-CRELL

3. Key findings on benchmarks and skills levels

Concerning the Europe 2020 targets, Estonia outperforms the EU average for both the early school leaving rate (10.9% vs. 13.5% in 2011) and the tertiary attainment rate (40.3% as against 34.6% in 2011). A significant reduction of the early school leaving rate for males and a strong increase in tertiary attainment of females took place in recent years. As regards the other Education and Training 2020 benchmarks, participation in early childhood education decreased by around 5 percentage points over 2006-10 and is now slightly below the EU average. In terms of basic skills, 15-year-olds' performance on PISA tests in readings, mathematics and science continues to largely outperform the EU average, although it remained broadly constant in recent years. The employment rate of graduates suffered from the recent economic crisis, but after reaching its lowest level at 64.3% in 2010, rebounded in 2011 (75.1%). Participation of adults in lifelong learning increased by 5.5 percentage points over 2006-11 and is now slightly above the EU average (12.0% vs. 8.9% in 2011).

ICT skills of the population are slightly above the EU average. The number of graduates in science, mathematics and technology is low in EU comparison. Foreign language skills are more developed than the EU average. Estonia's employment pattern up to 2020 is forecast to diverge markedly from the EU average in both high and low qualification jobs, with a modest increase in the former and a large increase in the latter. However, low qualification jobs are projected to represent only 12% of total jobs in 2020, still well below the EU average (18%). Public spending on education as a share of GDP increased in recent years, also due to a strong GDP decline in 2008-09, and is now above the EU average (6.09% vs. 5.41% in 2009).

4. Major policy initiatives and reforms

4.1 Initiatives and measures to increase the relevance and level of skills

Presently there are important disparities in performance between different linguistic groups in Estonia. Therefore, the Estonian government undertook the deployment of the Language Immersion Programme, first introduced in 2000. In the programme at least 50% of the subjects are taught in the target language (in this case, Estonian). At present the majority of Russian-speaking kindergartens and schools have joined the programme (17 kindergartens and 31 schools) on a voluntary basis and about 2,500 students in all have enrolled so far. There is an indication that the positive effect of the language immersion programme on students' language skills (i.e. Estonian as a second language) is starting to show, as the schools participating in the programme tend to have better examination results than the national average. As regards the promotion of mathematics, science and technology (MST) studies, the programme *TeaMe* is funded by the ESF and runs until 2015. It aims to increase the public awareness of the impact of research and development on the competitiveness of the economy, to inform young people and promote science related professions and career options and to disseminate scientific thinking. Also, the recent higher education reforms intend to steer more graduate students towards MST subjects. The participation rate of adults in lifelong learning is rather low in Estonia. Therefore, a comprehensive programme was initiated by the Ministry of Education and Research (MoER), funded with the help of the ESF. It is entitled "Work-Related Training and Development Activities of Adult Population" (2007-13). The programme addresses the need to enhance the opportunities for the adult population participation in lifelong learning and to achieve a better match between skills supply and demand in the labour market. The training courses were provided in all Regional Vocational Centres and Professional Higher Education Institutions. A total of 33,000 adult learners are expected to get high-quality training, to enhance work-related skills and competences and thus promote labour market mobility. The overall funding for the project was €8.6 million p.a.

4.2. Initiatives and measures to stimulate open and flexible learning

To address i.a. the high drop-out rate from higher education, the Programme for Continuation of Interrupted Education Path at Higher Education Institutions (TULE) was introduced in 2010. The programme targets those who dropped out of higher education institutions between 2003 and 2009. The programme provides the opportunity to come back and finish studies free of charge at a higher-education level and thus ensures an increase in the provision of a highly qualified workforce for the Estonian labour market. TULE is being implemented in cooperation between the Department of Higher Education of the Ministry of Education and Research (MoER) and 13 Estonian higher education institutions with a total budget of €8 million p.a., 95% co-financed by the European Social Fund (ESF) and 5% co-financed by the state and other partners (higher education institutions participating in the Programme). The number of students entering the programme is ca. 800 per year, and the graduation rate is at 80%. In order to address high drop-out rates from VET the KUTSE Programme was initiated in 2010 and will end in 2013. The budget for the programme is € 1.9 million p.a. euros, and most of this funding is meant for financing studies of students who previously dropped-out of VET, but also adult learners. About 40 VET schools can participate in the programme. The aim is to steer at least 400 drop-outs or adults with lower qualifications to graduation. Participating VET schools provide counselling and career guidance, as well as recognition of prior learning and working experience. In addition, in vocational education and training (VET) at tertiary level the credit system and the recognition of prior learning outcomes (VÕTA) system have been introduced. It incentivises adult learners to continue their learning path. The VÕTA system has been implemented mainly at higher education institutes (advanced tertiary VET).

In general education there is a widely recognised need to enhance ICT education at school by e.g. updating the ICT skills of teachers and teachers of educators. Therefore the *"Õppiv Tiiger"* (The Learning Tiger) Programme (2008-13) was launched in order to support access to lifelong learning and enhance the quality of technology learning in different areas, especially in general and vocational education. The programme's activities include the education of teacher trainers and adults concerning the use of modern education technology methods, advanced training of teachers and managers of schools in ICT use in teaching, and the development of innovative study programmes and materials for adults. The funding for this venture is of €1.3 million euros

p.a., co-financed by the European Social Fund (ESF) and the Estonian state budget. As there is strong demand for ICT specialists in Estonia the government has introduced the "*Tiigriülikool"* (Tiger [Leap] at University) Programme (2009-12 to enhance the knowledge society and the use of ICT in higher education. It is foreseen that with the help of the programme the ICT skills of graduates are likely to increase and the supply of ICT skilled specialists for high-tech industries (e.g. Skype) is also set to grow. Tiger Leap intends to achieve this goal by strengthening ICT education at tertiary level, through the modernisation of the ICT infrastructure as well as the development of ICT skills by academic staff. More specifically, it foresees four types of activities: improvement of the ICT infrastructure at universities, enhancement of e-learning, support for ICT specialities and study programmes in higher education, and support for the ICT College. The programme provides support for university teachers, the preparation and implementation of e-learning study materials, training for teachers, etc. It has a budget of € 2.2 million per year. Also at tertiary level, the Roadmap for ICT implementation in education is focused on improvement of teachers' educational ICT skills, teaching practices in technology rich environments, and Estonian-language digital learning materials. The EST_IT@2018 foresight action plan for higher education is implemented through IT-ACADEMY programme. The goal of the IT-academy is to increase the number of highly-qualified ICT specialists coming from higher education institutions.

4.3. Initiatives and measures to secure smart funding and developing partnerships

As regards examples of partnerships in Estonia the "Training of Adults in Training Centres of Non-formal Education" Programme (2008-13), providing training of basic and transversal skills for adults, has been implemented by the Estonian Non-formal Adult Education Association (ENAEA) with the support of the "Training of Adults in Training Centres of Non-formal Education". It provides training for the adult population, including the unemployed and other vulnerable groups on the labour market by teaching basic and transversal skills and other work-related skills to improve employability. The training courses are provided by the ENAEA network, which consists of about 60 member organisations, covering all of the regions of Estonia. The scope of courses is wide and includes ICT, language and communication skills, entrepreneurship courses, etc. At least 40.000 adults are expected to participate in the training courses in locations across the country. In order to support and promote the development of entrepreneurial skills in general and in particular in vocational education, the programme "Become Enterprising and Creative in the Student's Firm" funded by the European Social Fund (ESF), has been implemented by the NGO Junior Achievement Development Agency *Eesti (*JA). To date, the JA has provided entrepreneurship training and developed about 1,700 students' firms. Many participants in their programmes have become successful entrepreneurs. From 2011 to 2013 the JA is set to continue the programme to enhance entrepreneurship education in vocational schools. Finally, the previously described programmes *"Tiigriülikool"* and *"Õppiv Tiiger"* are both conducted in cooperation with the Tiigrihüppe SA (Tiger Leap Foundation).

Conclusion

Estonia is confronted with relatively significant skill mismatches, *inter alia* as a result of a structural shift from non-tradable to tradable sectors. Estonia is also faced with a problem of a high number of people without any professional education, since about 30% of Estonians aged 25-64 years have graduated from neither VET nor university. Therefore this group has only compulsory or upper-secondary general education at the moment.

A number of initiatives (e.g. TULE, KUTSE) intend to address these two important challenges in the field of education and training, often with the assistance of financing from EU structural funds.

Greece

1. Performance summary

1.1 Overview of benchmarks and skill levels

	Greece 2006	Greece 2011	EU average 2006	EU average 2011	Europe 2020 targets
1. Early leavers from education and training (age 18-24)	15.5%	13.1%	15.5%	13.5%	**EU target: 10%** National target : 9.7%
2. Tertiary educational attainment (age 30-34)	26.7%	28.9%	28.9%	34.6%	**EU target: 40%** National target : 32%

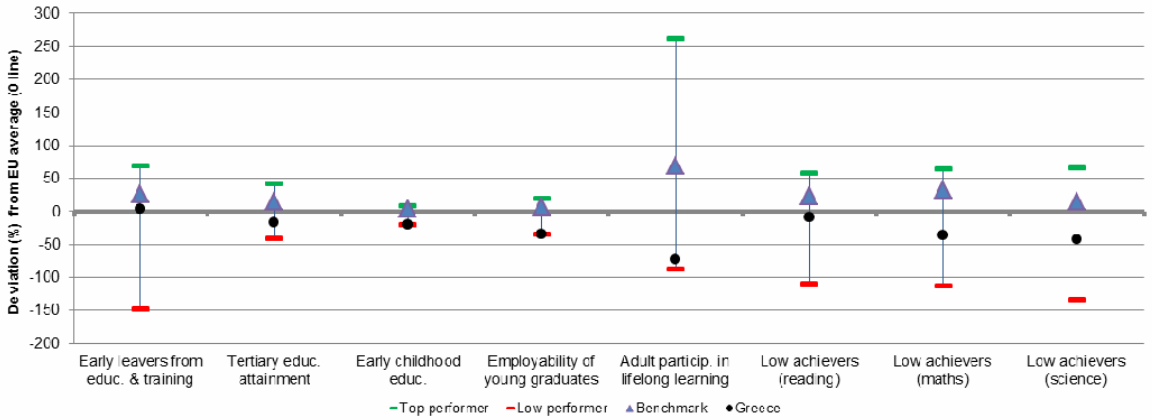
		Greece 2006	Greece 2011	EU average 2006	EU average 2011	ET 2020 Benchmarks
3. Participation in early childhood education (4 years old - year before start of compulsory primary)		70.9%	73.5% [10]	89.3%	92.3% [10]	**95%**
4. Employment rate of graduates (age 20-34) having left education and training no more than 3 years before reference year		66.6%	50.2%	79.0%	77.2%	**82%**
5. Adult participation in lifelong learning (age 25-64)		1.9%	2.4%	9.5%	8.9%	**15%**
6. Basic skills Low achievers (15 year-olds; Level 1 or lower in PISA study)	Reading	27.7%	21.3% [09]	23.1%	19.6% [09]	**15%**
	Mathematics	32.3%	30.3% [09]	24.0%	22.2% [09]	**15%**
	Science	24.0%	25.3% [09]	20.3%	17.7% [09]	**15%**
7. ICT skills	% of pupils in 4th grade using computers at school	:	:	60.7% [07]	:	
	% of individuals aged 16-74 with high computer skills[1]	16.0%	24.0%	21.0%	27.0%	
8. Entrepreneurship	% of 18-64 old population who believe to have the required skills and knowledge to start a business	46.0%	50.0%	42.0%	43.0%	
9. Languages	Average number of foreign languages learned per pupil at ISCED 2	1.9	:	1.4	1.5 [10]	
	% of students reaching B1 level or higher in the first foreign language at the end of lower secondary educ.[2]	:	48.0%	:	43.5%	
10a. Tertiary graduates by field Graduates (ISCED 5-6) in a specific field, as % of all fields	Education and training	7.5% [07]	8.8% [10]	10.5%	9.6% [10,e]	
	Humanities and art	15.6% [07]	13.2% [10]	12.1%	11.5% [10,e]	
	Social science, business and law	25.5% [07]	30.3% [10]	35.2%	35.7% [10,e]	
	of which: business and administration	*10.6%* [07]	*16.0%* [10]	*19.5%*	*20.2%* [10,e]	
	Maths, science and technology	21.6% [07]	27.5% [10]	22.4%	21.9% [10,e]	
	Agriculture and veterinary field	4.2% [07]	4.6% [10]	1.7%	1.6% [10,e]	
	Health and welfare	15.9% [07]	12.6% [10]	14.3%	15.1% [10,e]	
	Services	9.8% [07]	3.1% [10]	3.8%	4.2% [10,e]	
10b. MST graduates	Number of maths, science and technology graduates per 1000 young people (age 20-29)	8.5 [07]	12.8 [10]	13.5	14.4 [09]	
11. Skills for future labour markets Projected change in employment 2010-2020 in %	High qualification	:	22.0% [10]	:	19.7% [10]	
	Medium qualification	:	15.9% [10]	:	4.8% [10]	
	Low qualification	:	-24.4% [10]	:	-20.1% [10]	
12. Investment in education and training Public spending on education, % of GDP		:	:	5.03% [e]	5.41% [09,e]	

Source: Eurostat (LFS): 1, 2; Eurostat (UOE): 3, 9a, 10, 12; Eurostat (ISS): 7b; CRELL (based on Eurostat LFS): 4; OECD (PISA): 6; Eurydice (based on IEA TIMSS): 7a; Global Entrepreneurship Monitor: 8; European Survey on Language Competences (ESLC): 9b; Cedefop: 11

Additional notes:
[07] =2007, [08] =2008, [09] =2009, [10] =2010, [11] =2011, e= estimate, b= break, p= provisional
Number of countries included in EU average: PISA=25, Entrepreneurship=18, Language skills=13, ICT/Computers at school=13
[1]= having carried out 5-6 specific computer related activities, [2]= average of skills tested in reading, listening, writing

1.2 Position in relation to Europe 2020 targets and ET2020 benchmarks

Deviation (%) from EU average and relative position to the EU benchmarks, top performers and low performers in EU27

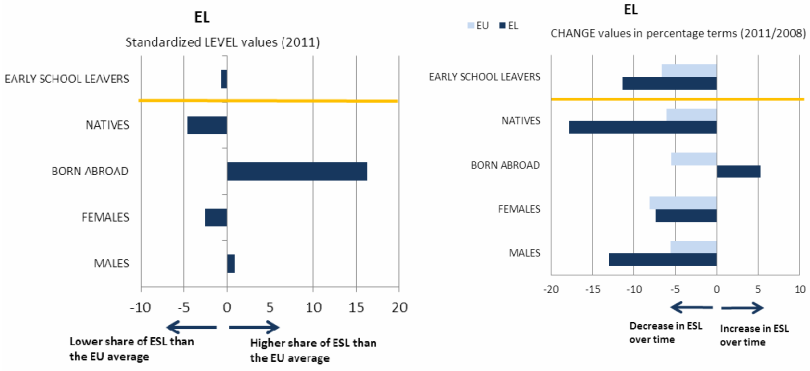


Source: DG EAC

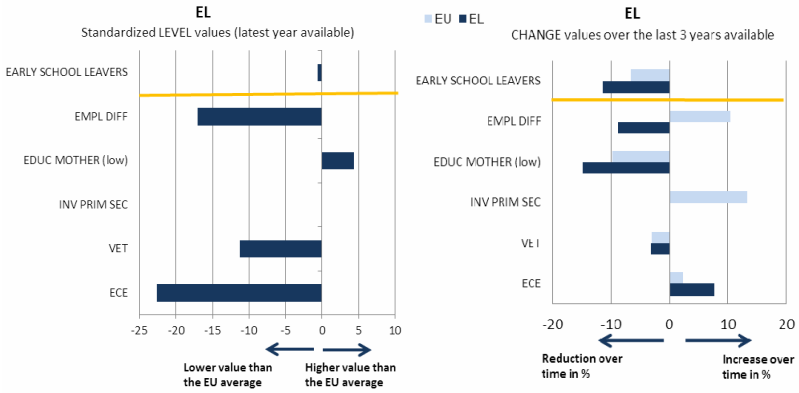
2. Europe 2020 targets: patterns of sub-groups and sub-indicators[11]

2.1 Early leavers from education and training

- Early school leavers of specific population sub-groups (country of birth and gender)



- Early school leavers and sub-indicators
  (Difference in employment rate for low/medium education, low education background of the mother, investment in primary and secondary education, participation in vocational education and training [VET] and in early childhood education [ECE])

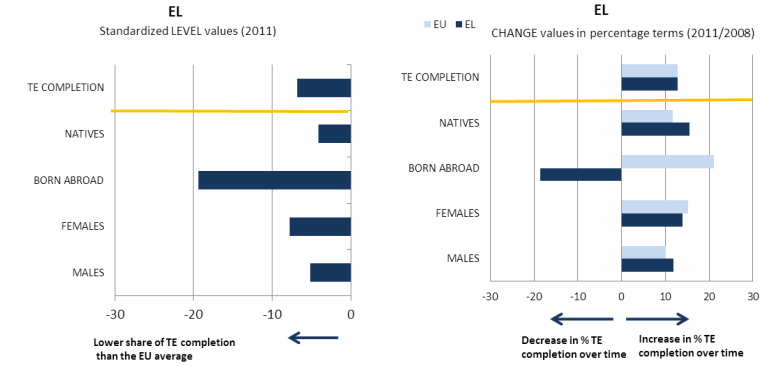


Source: JRC-CRELL

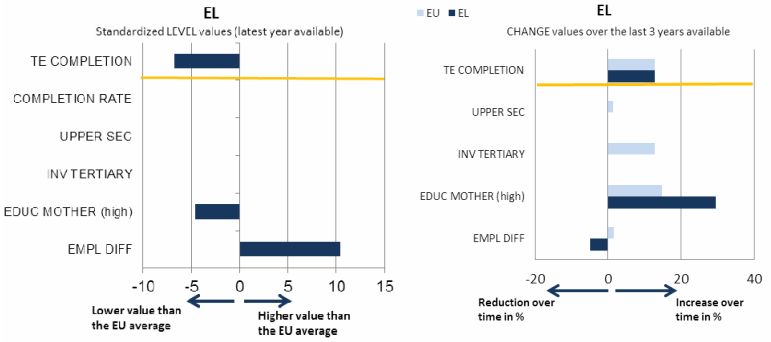
11 See annex 2.

2.2 Tertiary educational attainment

- Tertiary educational attainment of specific population sub-groups (country of birth and gender)



- Tertiary educational attainment and sub-indicators
  (Completion rate in higher education, upper secondary educational attainment, investment in tertiary education, high education background of the mother, difference in employment rate for high/medium education)



Source: JRC-CRELL

3. Key findings on benchmarks and skills levels

Concerning the Europe 2020 targets, Greece performs better than the EU average in early school leaving (13.1% in 2011 having dropped from 15.5% in 2006). However the national average masks significant variation between different geographical areas, types of schools and social groups. For instance, the sub-group of people born-abroad is lagging behind. Tertiary attainment rate (28.9% in 2011) is lower than the EU average of 34.6% and has been increasing very slowly over the past decade (25.4% in 2000). As regards the other ET 2020 benchmarks, Greece performs significantly below the EU average in early childhood education. School education produces rather weak results in terms of basic skills: the share of low achievers in reading, mathematics and science remains above the EU average and with a persistent achievement gaps between migrants and natives. The employment rate of graduates suffered hugely from the economic crisis and has decreased by over 16 percentage points since 2006, further increasing the gap in relation to the EU average (50.2% vs. 77.2% in 2011). Youth unemployment has surged to record levels exceeding 55% with young women being the hardest hit. Approximately one third of the unemployed youth are long term unemployed and low skilled. Adult participation in lifelong learning is far below the EU average and one of the lowest in the EU (2.4% in 2011).

ICT skills of the adult population are close to the EU average. As regards entrepreneurship, the share of the population believing to have the required skills and knowledge to start a business (50%) is among the highest in the EU. Learning of foreign languages starts in primary school and figures indicate above EU average language skills. The employment pattern in Greece up to 2020 is forecast to be different from the EU average, with a stronger decrease in low qualification jobs and stronger increase in both medium and high qualification jobs.

4. Major policy initiatives and reforms

4.1 Initiatives and measures to increase the relevance and level of skills

Since late 2009, the "New School" reform is the main umbrella initiative aiming to improve compulsory education and to tackle low performance in basic skills. Structured around twenty broad objectives, the reform put emphasis on foreign languages, revised curricula, all-day provision, the first steps towards a culture of evaluation, teacher training, reform of special needs provision, a pilot scheme of Education Priority Zones and a "digital school" pilot scheme. The implementation of this reform in the current economic context remains nevertheless a challenge.

Piloted initially in 800 primary schools, which later increased to 961, *all-day provision* is a key component of the "New School" reform. The savings-motivated reduction of the number of all-day primary schools in rural and isolated areas in 2011 (with a parallel increase in urban areas) raises concerns about unequal treatment. In addition, the government's initial (2009) plan to make all primary schools all-day schools by 2013 looks unattainable.

In addition to the New School reform, 2010-2011 saw the announcement of the third school VET reform in ten years, to mark a shift away from narrowly specialised job-specific skills towards broader vocational and general knowledge, skills and competences, and to develop pathways through VET to further learning and tertiary education. As VET is still seen as the place for low achievers and registers high dropout rates, the implementation of this reform remains a challenge.

In the field of tertiary education, structural reform legislation voted through the Greek Parliament in 2011 with a big majority remains only partially implemented. The reform law includes, inter alia, changes in the governance and financial autonomy of universities, their re-organisation around "schools" rather than narrowly specialised "departments", mergers and redeployment of institutions to better serve regional development and labour market needs, internationalisation to attract foreign students and staff, implementation of a culture of evaluation, better use of universities to provide lifelong learning opportunities to local and regional populations, better monitoring of inputs and outputs.

A great deal of foreign language teaching and learning (and certification) still takes place outside the formal education system, in private profit-making language schools. Beyond compulsory education, the State Certificate of Language Competence validates the skills of Greek natives in modern languages and the skills of foreign nationals in the Greek language. It is aligned to the six levels proposed in the European Language Passport.

4.2. Initiatives and measures to stimulate open and flexible learning

Progress is being made in Greece in terms of promoting pathways across education and training sub-systems through progress in the development of a National Qualifications Framework (NQF) and through a new agency responsible for this, the National Organisation of Certifying Qualifications (EOPP). EOPP's mission is to develop the NQF, to align it with the European Qualifications Framework (EQF) and to develop the recognition of qualifications acquired through formal, non-formal and informal learning.

Furthermore, the *National Lifelong Learning Strategy* is another major policy initiative announced (in 2011) which has not been fully implemented. Although branded "lifelong learning" this initiative is *not* an overarching strategic vision for learning in the meaning of a "coherent and comprehensive LLL strategy". Rather, it is *an adult education plan* with two strands: a) initial and continuing training for the labour market; b) general adult education. Improving access of adults and of non-traditional learners to diverse and flexible learning opportunities is crucial for adult skills in Greece.

The "Digital School" strand of the New School reform is the main vehicle for exploiting the potential of ICT and open education resources. This scheme has been piloted in 800 primary and 1250 lower secondary schools aiming to provide a platform for digital content and tools and for teacher training.

4.3. Initiatives and measures to secure smart funding and developing partnerships

Public investment in education and training is one of the lowest in the EU (2,75% of GDP in early 2011, and subsequently further reduced). The need to consolidate public finances has led to drastic reductions in the recruitment of teachers and in teacher salaries. While the LLL Implementation Report 2011 argues that the quality of the education provided has not been affected by spending cuts (since some compensating measures have been taken such as extensive school mergers which reduced operating costs) there is a risk that low public spending will undermine reform efforts and the convergence towards the 2020 EU targets.

At the same time, the Ministry of Education has been orienting itself towards more efficient spending, and towards revitalising human and capital resources which had not been used efficiently previously. An independent task force of education policy experts set up in cooperation with the OECD in 2011 offered some guidance on how Greece could improve the overall efficiency of its education system. In the current context, the best possible use of the EU Structural Funds is crucial as it can enable reforms in this field to continue and can also finance infrastructure, including in early childhood education and care.

Efforts are being made to strengthen links and partnerships for lifelong learning in the context of National Lifelong Learning Strategy, as well as to consolidate the functions of national educational agencies to avoid overlap. For instance, an Institute of Educational Policy has been created to which the main functions of four existing services (Pedagogical Institute, Centre of Educational Research, Institute for Education for Greeks Abroad and Intercultural Education, Organisation of Teacher Training) are being transferred and rationalised in order to avoid overlap. However, a major governance gap relates to the lack of a tradition of cooperation between different levels of governance and even within the same level of governance in Greece.

Conclusion

The Greek education and training system faces serious challenges in terms of its quality, its effectiveness and its capacity to ensure a successful transition of young people to employment. In relation to *basic* skills, resources and opportunities should be shifted towards schools with a disadvantaged intake, participation in quality ECEC, the expansion and quality of all-day provision, the quality, attractiveness and labour market relevance of VET. In relation to *adult* skills, more emphasis could be placed on addressing the horizontal skills mismatches of tertiary education graduates who often have the right level of qualification for the job but not the right skills, as well as the vertical skills mismatches as the Greek economy appears to be creating demand for medium and low skilled jobs against the increasing volume of tertiary education graduates. The strategic reform of the VET system and of post-secondary non-tertiary provision will be key.

Low public investment makes convergence towards the EU targets difficult and undermines reform efforts. Investment in this field is crucial to support both short-term recovery and long-term sustainable growth in Greece. In the current context, however, whereby new spending may not be an option, "smart spending" would include taking full advantage of the possibilities of the Structural Funds which can underpin education reforms and also finance educational infrastructure. However, perhaps more than lack of funds, *implementation* of reforms remains the key issue in the Greek context. Strategic long-term planning and continuity, capacity and resources at the sub-national levels combined with adequate central guidance, policy and programme evaluation, concrete and measurable targets for each level of education and age-group, time-frames for implementation and tools to monitor progress, effective cross-policy synergies, cooperation between different levels of governance but also within the same level of governance, partnerships with key stakeholders at local and regional level, all seem to be big challenges in education reform in Greece. These governance bottlenecks matter for skills policies, not least because issues of skills supply, matching, and use, are complex and require multidisciplinary and integrated approaches to be resolved. In the current context, a better focus on monitoring and evaluation will help identify what works, will help make the necessary adjustments to existing measures, and will ultimately increase their efficiency and effectiveness.

Spain

1. Performance summary

1.1 Overview of benchmarks and skill levels

	Spain 2006	Spain 2011	EU average 2006	EU average 2011	Europe 2020 targets
1. Early leavers from education and training (age 18-24)	30.5%	26.5%	15.5%	13.5%	**EU target: 10%** National target : 15%
2. Tertiary educational attainment (age 30-34)	38.1%	40.6%	28.9%	34.6%	**EU target: 40%** National target : 44%

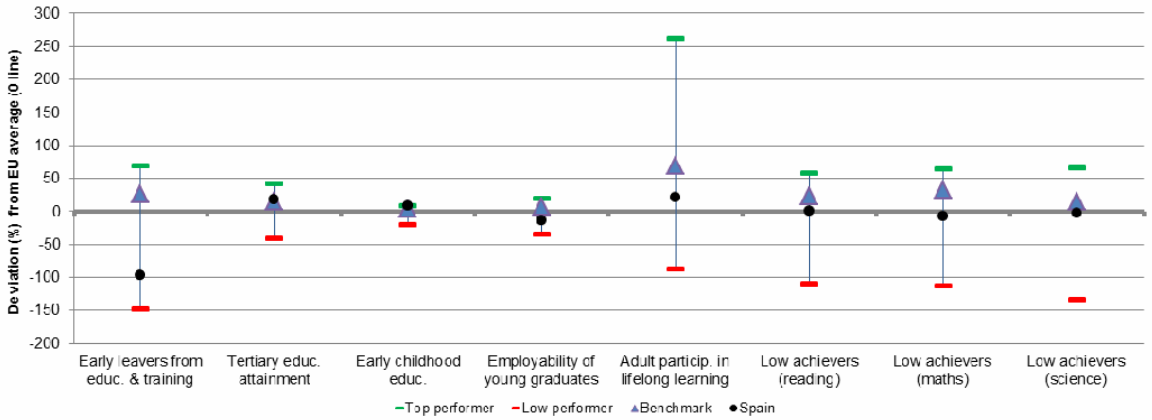
		Spain 2006	Spain 2011	EU average 2006	EU average 2011	ET 2020 Benchmarks
3. Participation in early childhood education (4 years old - year before start of compulsory primary)		98.5%	99.4% [10]	89.3%	92.3% [10]	**95%**
4. Employment rate of graduates (age 20-34) having left education and training no more than 3 years before reference year		82.3%	66.4%	79.0%	77.2%	**82%**
5. Adult participation in lifelong learning (age 25-64)		10.4%	10.8%	9.5%	8.9%	**15%**
6. Basic skills Low achievers (15 year-olds; Level 1 or low er in PISA study)	Reading	25.7%	19.6% [09]	23.1%	19.6% [09]	**15%**
	Mathematics	24.7%	23.7% [09]	24.0%	22.2% [09]	**15%**
	Science	19.6%	18.2% [09]	20.3%	17.7% [09]	**15%**
7. ICT skills	% of pupils in 4th grade using computers at school	:	:	60.7% [07]	:	
	% of individuals aged 16-74 with high computer skills[1]	23.0%	32.0%	21.0%	27.0%	
8. Entrepreneurship	% of 18-64 old population who believe to have the required skills and knowledge to start a business	46.0%	51.0%	42.0%	43.0%	
9. Languages	Average number of foreign languages learned per pupil at ISCED 2	1.4	1.4 [10]	1.4	1.5 [10]	
	% of students reaching B1 level or higher in the first foreign language at the end of lower secondary educ.[2]	:	26.7%	:	43.5%	
10a. Tertiary graduates by field Graduates (ISCED 5-6) in a specific field, as % of all fields	Education and training	12.3%	14.5% [10]	10.5%	9.6% [10,e]	
	Humanities and art	9.2%	8.7% [10]	12.1%	11.5% [10,e]	
	Social science, business and law	28.3%	26.8% [10]	35.2%	35.7% [10,e]	
	of which: business and administration	*17.3%*	*16.5%* [10]	*19.5%*	*20.2%* [10,e]	
	Maths, science and technology	26.6%	24.9% [10]	22.4%	21.9% [10,e]	
	Agriculture and veterinary field	1.8%	1.7% [10]	1.7%	1.6% [10,e]	
	Health and welfare	14.3%	15.4% [10]	14.3%	15.1% [10,e]	
	Services	7.6%	8.0% [10]	3.8%	4.2% [10,e]	
10b. MST graduates	Number of maths, science and technology graduates per 1000 young people (age 20-29)	11.5	13.9 [10]	13.5	14.4 [09]	
11. Skills for future labour markets Projected change in employment 2010-2020 in %	High qualification	:	26.2% [10]	:	19.7% [10]	
	Medium qualification	:	32.2% [10]	:	4.8% [10]	
	Low qualification	:	-32.2% [10]	:	-20.1% [10]	
12. Investment in education and training Public spending on education, % of GDP		4.26%	5.01% [09]	5.03% [e]	5.41% [09,e]	

Source: Eurostat (LFS): 1, 2; Eurostat (UOE): 3, 9a, 10, 12; Eurostat (ISS): 7b; CRELL (based on Eurostat LFS): 4; OECD (PISA): 6; Eurydice (based on IEA TIMSS): 7a; Global Entrepreneurship Monitor: 8; European Survey on Language Competences (ESLC): 9b; Cedefop: 11

Additional notes:
[07] =2007, [08] =2008, [09] =2009, [10] =2010, [11] =2011, e= estimate, b= break, p= provisional
Number of countries included in EU average: PISA=25, Entrepreneurship=18, Language skills=13, ICT/Computers at school=13
[1]= having carried out 5-6 specific computer related activities, [2]= average of skills tested in reading, listening, writing

1.2 Position in relation to Europe 2020 targets and ET2020 benchmarks

Deviation (%) from EU average and relative position to the EU benchmarks, top performers and low performers in EU27

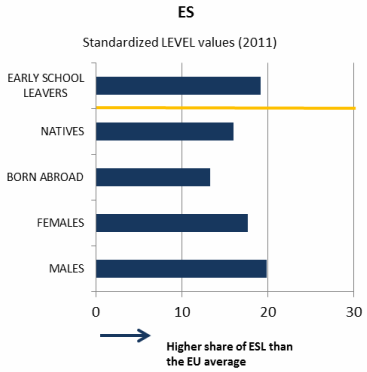


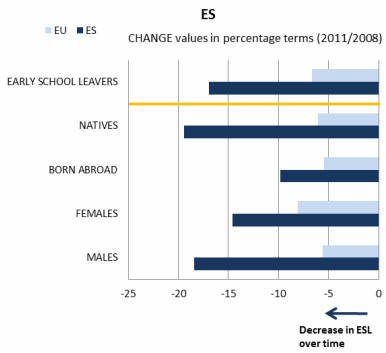
Source: DG EAC

2. Europe 2020 targets: patterns of sub-groups and sub-indicators[12]

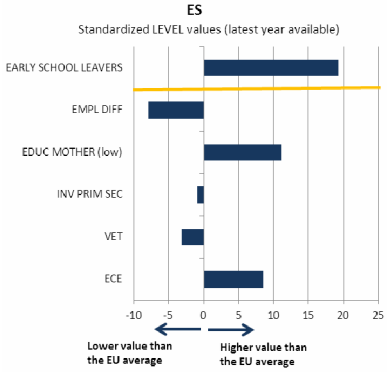
2.1 Early leavers from education and training

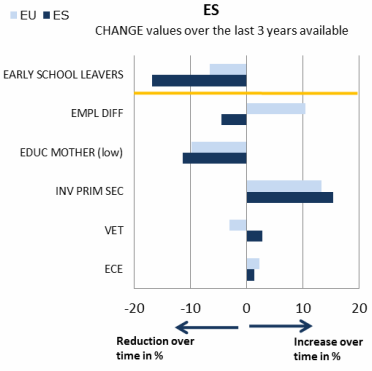
- Early school leavers of specific population sub-groups (country of birth and gender)





- Early school leavers and sub-indicators
  (Difference in employment rate for low/medium education, low education background of the mother, investment in primary and secondary education, participation in vocational education and training [VET] and in early childhood education [ECE])



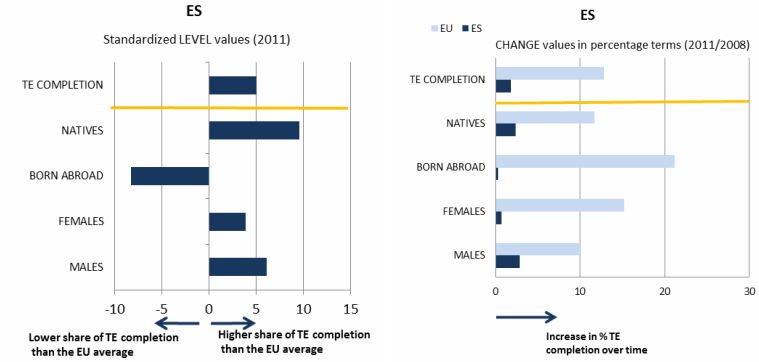


Source: JRC-CRELL

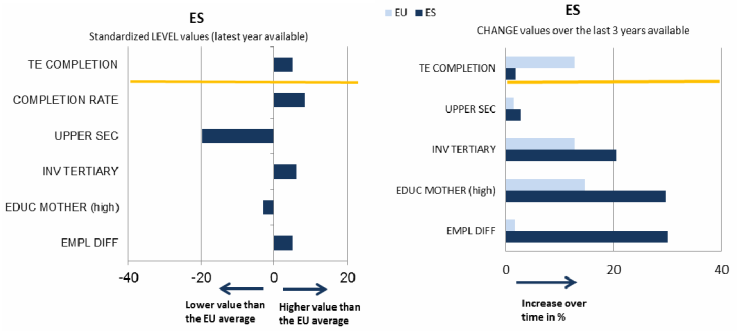
12 See annex 2.

2.2 Tertiary educational attainment

- Tertiary educational attainment of specific population sub-groups (country of birth and gender)



- Tertiary educational attainment and sub-indicators
  (Completion rate in higher education, upper secondary educational attainment, investment in tertiary education, high education background of the mother, difference in employment rate for high/medium education)



Source: JRC-CRELL

3. Key findings on benchmarks and skills levels

Concerning the Europe 2020 targets, despite some progress since 2008 Spain still underperforms the EU average in the area of early school leaving (ESL), with 26.5% compared to 13.5% in 2011, and with striking differences between the regions (from 13% to 37%). The analysis of sub-indicators shows an unfavourable family background of the population aged 18-24. Spain's tertiary attainment rate however has already reached the 2020 European target (40.6% in 2011, with 35.7% for men and 45.9% for women). As regards the other ET 2020 benchmarks, Spain performs above the benchmark on participation in early childhood education (99.4% in 2010), which is relevant for prevention of ESL. School education in Spain produces medium results in terms of basic skills: despite some recent improvements in the three fields concerned (reading, mathematics and science) 15-year olds' performance on PISA tests remains slightly below the EU average, coupled with big regional disparities. In addition, females perform much better in reading, ten points difference in percentage, males perform better in mathematics, five points difference in percentage, and the two are close to equal in science. The employment rate of graduates is below the EU average (66.4% in 2011) and declined significantly in recent years due to the on-going economic crisis. Participation of adults in lifelong learning is 10.8% vs. 8.9% in the EU in 2011.

ICT skills of the population are somewhat above the EU average. As regards entrepreneurship, the share of the population believing to have the required skills and knowledge to start a business (51%) is one of the highest in the EU. As regards the distribution of tertiary graduates by field compared with the EU average, Spain shows a high share of graduates in education and training and services, as well as a low share of graduates in social science, business and law. Employment in medium and high qualification jobs in Spain up to 2020 is forecast to increase faster than the EU average, in medium qualifications (32.2% vs. 4.8%) and in high qualification

(26.2% vs. 19.7%). Public spending on education in Spain increased over the last decade and was getting closer to the EU average (5.01% vs. 5.41% of GDP in 2009).

4. Major policy initiatives and reforms

4.1 Initiatives and measures to increase the relevance and level of skills

Competences on Education and Training are attributed to the 17 Autonomous Communities according to the 1978 Constitution. The Ministry of Education, Culture and Sport develops cooperation plans and programmes with the Autonomous Communities, the main goal being to improve the quality of education and training. The programmes carried out since 2010 aim at developing key competences in a number of areas.

The inclusion of key competences in the curriculum (2006 Organic Law on Education) has been implemented by different Territorial Cooperation Programmes such as: 'Programme for the consolidation of key competences' as a core element of the curriculum, 'Learn to Learn Programme', 'Reading in the digital era' and the 'Plan for the promotion of foreign language learning'. The promotion of digital competences has been developed as well by means of the Territorial Cooperation Programmes for the integration of information and communication technologies (ICT) in publicly-funded schools. The modification of the structure of Educación Secundaria Obligatoria (ESO), or upper secondary education– has made vocational education more attractive for students and contributes to the prevention of ESL. It also guides young people in training and professional pathways, and supports their adaptation to the continuously changing working conditions. A project of Royal Decree developing the training and apprenticeship contract and establishing the basis for a dual VET system is at an advanced stage of preparation.

In vocational training, one of the declared objectives is to encourage creativity, innovation and entrepreneurship. It is foreseen that every vocational training program will include, from 2012/2013 onwards, a module on business and entrepreneurship.

Within the framework of the 'Strategy University 2015', skills and abilities oriented towards innovation and the promotion of creativity and entrepreneurship, especially in PhD studies, are proposed to be included in the university curriculum.

4.2. Initiatives and measures to stimulate open and flexible learning

In 2012 six cooperation programmes have been maintained between the central Government and Autonomous Communities, which directly aim at stimulating open and flexible learning. The following budgets correspond to the amount the central Government will contribute to each programme.

The Plan 'PROA' (60 million €) is an orientation and support programme whose goal is to provide reinforcement for students experiencing difficulties. The Plan contributes to the fight against early school leaving. The 'Plan to fight against Early School Leaving' (40.8 million €) finances specific actions proposed by the Autonomous Communities. The 'Plan for improvement of foreign language learning' (13.3 million €) is in particular relevant, as foreign language learning constitutes a priority for the Government.

The 'Programme for Innovation' in the area of vocational education and training aims at enhancing the use of technologies and supporting cooperation with the world of business (11.2 million €). The Programme facilitates the acquisition and transfer of knowledge through collaboration between internal and external networks. Finally, the 'Programme for the recognition of professional competences' (20.1 million €) leads to the recognition and certification of lifelong work experience.

The promotion of the digital competence has been developed by means of the Territorial Cooperation Programmes, i.a. through the increased provision of information and communication technologies (ICT) in publicly funded schools.

In 2009-2010 the average number of pupils per PC in Spanish schools (public and private, in primary, secondary education and VET) was 4.3%, varying in the Autonomous Communities from 1.7% to 7.4%. The use of the internet by children (10-15 year olds) has increased

dramatically in the recent years; nevertheless it is higher at home than at school (72.3% vs. 52% in 2010).

Intensifying the use of ICT is one of the priority objectives of the Government. From 2012 onwards, a Territorial Cooperation Programme on ICT (41.5 M€) will be further developed. It will promote the use of virtual learning environments as well as individual learning.

4.3. Initiatives and measures to secure smart funding and developing partnerships

Cooperation and partnerships, given the territorial and political organisation in Spain, are the usual way of working together at national, regional and local level, according to the different administrations' competences in the field of education and training.

The latest measures regarding education public expenditure adopted by the Royal Decree Law of 20 April 2012, concern the rational use of all resources available in education: increasing the number of teaching hours per teacher; reviewing class-sizes and therefore the student/teacher ratio; adjusting the offer of upper secondary education and first-cycle university degrees to real demand; as well as reviewing the university fees in order to adjust them to the real cost of higher education. These measures to secure funding of education aim at reducing costs without decreasing the quality of the educational service.

As regards initiatives developing partnerships with business, Vocational Education and Training is being reformed in order to increase the length of traineeships in companies and to establish the contract of apprenticeship, thus establishing a linkage between training and work experience. Increasing private funding in higher education and overcoming the transfer deficit from research and innovation to the productive sector are among the measures that Spain is considering to adopt in order to increase the quality and efficiency of higher education.

Conclusion

In this time of high unemployment rate, particularly youth unemployment, re-thinking skills in the context of education and training constitutes for Spain a medium to long term key challenge. Updating and adapting skills to present and future labour market needs requires the involvement of civil society, particularly the business world, in order to enhance a lifelong learning culture of innovation and mobility.

To address the 2011 and 2012 country-specific recommendations adopted by the Council, Spain has implemented a number of measures in the education and training field. Moreover, the Government approved in September 2012 a draft project of Organic Law on measures to improve the quality of Education. Among others, Spain also implements numerous policies to address early school leaving, although the rate remains very high, with strong regional disparities. In terms of adult participation in lifelong learning, while Spain performs slightly better than the European average, further efforts are needed to increase the participation of older workers with a view to provide more up-skilling and re-skilling.

Given the economic and financial situation, Spain is facing the challenge of preserving expenditure in education and training within the objective of a growth-friendly fiscal consolidation. There is room for improving efficiency of spending, as well as involving and motivating stakeholders from the early stages of this difficult exercise. The recent Royal Decree Law of 20th April 2012 includes urgent measures of rationalisation of public expenditure in the educational field. The key focus of the current debate in education is how best to allocate adequate human and financial resources.

Finland

1. Performance summary

1.1 Overview of benchmarks and skill levels

	Finland 2006	Finland 2011	EU average 2006	EU average 2011	Europe 2020 targets
1. Early leavers from education and training (age 18-24)	9.7%	9.8%	15.5%	13.5%	**EU target: 10%** National target : 8%
2. Tertiary educational attainment (age 30-34)	46.2%	46.0%	28.9%	34.6%	**EU target: 40%** National target : 42%

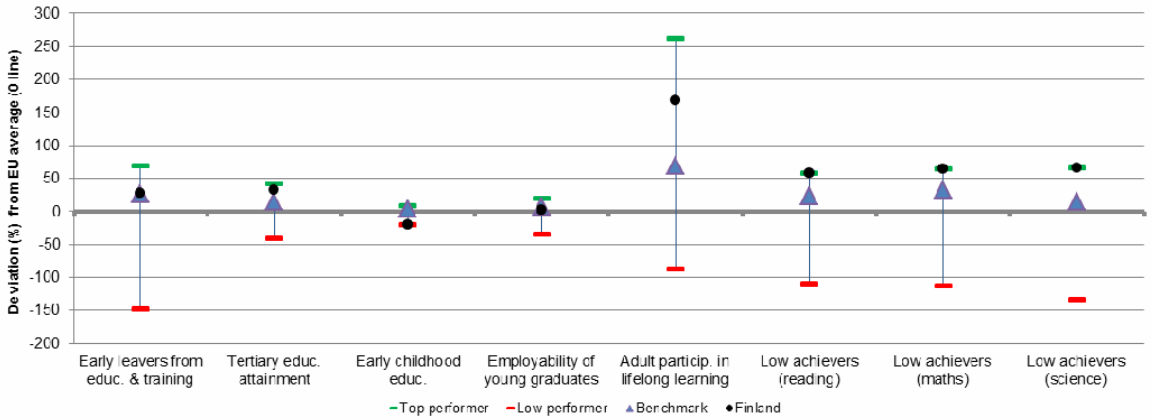
		Finland 2006	Finland 2011	EU average 2006	EU average 2011	ET 2020 Benchmarks
3. Participation in early childhood education (4 years old - year before start of compulsory primary)		68.1%	73.1% [10]	89.3%	92.3% [10]	**95%**
4. Employment rate of graduates (age 20-34) having left education and training no more than 3 years before reference year		79.7%	78.4%	79.0%	77.2%	**82%**
5. Adult participation in lifelong learning (age 25-64)		23.1%	23.8%	9.5%	8.9%	**15%**
6. Basic skills Low achievers (15 year-olds; Level 1 or lower in PISA study)	Reading	4.8%	8.1% [09]	23.1%	19.6% [09]	**15%**
	Mathematics	6.0%	7.8% [09]	24.0%	22.2% [09]	**15%**
	Science	4.1%	6.0% [09]	20.3%	17.7% [09]	**15%**
7. ICT skills	% of pupils in 4th grade using computers at school	:	:	60.7% [07]	:	
	% of individuals aged 16-74 with high computer skills[1]	29.0%	43.0%	21.0%	27.0%	
8. Entrepreneurship	% of 18-64 old population who believe to have the required skills and knowledge to start a business	37.0%	37.0%	42.0%	43.0%	
9. Languages	Average number of foreign languages learned per pupil at ISCED 2	2.2	2.2 [10]	1.4	1.5 [10]	
	% of students reaching B1 level or higher in the first foreign language at the end of lower secondary educ.[2]	:	:	:	43.5%	
10a. Tertiary graduates by field Graduates (ISCED 5-6) in a specific field, as % of all fields	Education and training	6.5%	6.1% [10]	10.5%	9.6% [10,e]	
	Humanities and art	13.5%	13.4% [10]	12.1%	11.5% [10,e]	
	Social science, business and law	23.4%	23.0% [10]	35.2%	35.7% [10,e]	
	of which: business and administration	*15.9%*	*14.0%* [10]	*19.5%*	*20.2%* [10,e]	
	Maths, science and technology	29.4%	31.8% [10]	22.4%	21.9% [10,e]	
	Agriculture and veterinary field	2.3%	2.2% [10]	1.7%	1.6% [10,e]	
	Health and welfare	19.1%	18.4% [10]	14.3%	15.1% [10,e]	
	Services	6.0%	5.1% [10]	3.8%	4.2% [10,e]	
10b. MST graduates	Number of maths, science and technology graduates per 1000 young people (age 20-29)	17.9	24.2 [10]	13.5	14.4 [09]	
11. Skills for future labour markets Projected change in employment 2010-2020 in %	High qualification	:	11.4% [10]	:	19.7% [10]	
	Medium qualification	:	4.2% [10]	:	4.8% [10]	
	Low qualification	:	-20.1% [10]	:	-20.1% [10]	
12. Investment in education and training Public spending on education, % of GDP		6.18%	6.81% [09]	5.03% [e]	5.41% [09,e]	

Source: Eurostat (LFS): 1, 2; Eurostat (UOE): 3, 9a, 10, 12; Eurostat (ISS): 7b; CRELL (based on Eurostat LFS): 4; OECD (PISA): 6; Eurydice (based on IEA TIMSS): 7a; Global Entrepreneurship Monitor: 8; European Survey on Language Competences (ESLC): 9b; Cedefop: 11

Additional notes:
[07] =2007, [08] =2008, [09] =2009, [10] =2010, [11] =2011, e= estimate, b= break, p= provisional
Number of countries included in EU average: PISA=25, Entrepreneurship=18, Language skills=13, ICT/Computers at school=13
[1]= having carried out 5-6 specific computer related activities, [2]= average of skills tested in reading, listening, writing

1.2 Position in relation to Europe 2020 targets and ET2020 benchmarks

Deviation (%) from EU average and relative position to the EU benchmarks, top performers and low performers in EU27

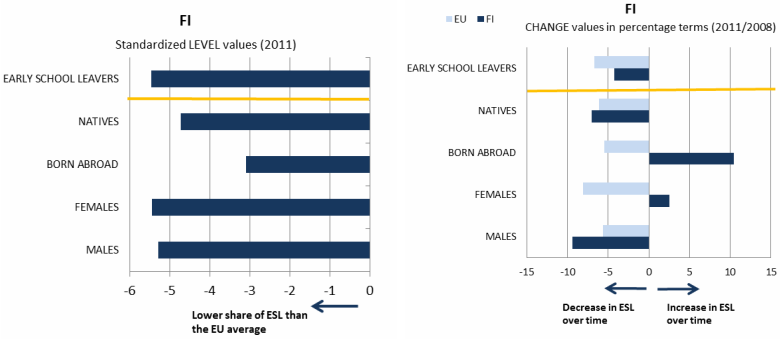


Source: DG EAC

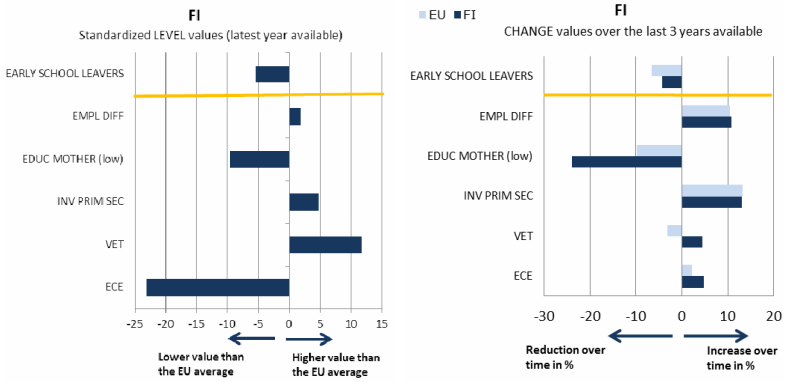
2. Europe 2020 targets: patterns of sub-groups and sub-indicators[13]

2.1 Early leavers from education and training

- Early school leavers of specific population sub-groups (country of birth and gender)



- Early school leavers and sub-indicators
  (Difference in employment rate for low/medium education, low education background of the mother, investment in primary and secondary education, participation in vocational education and training [VET] and in early childhood education [ECE])

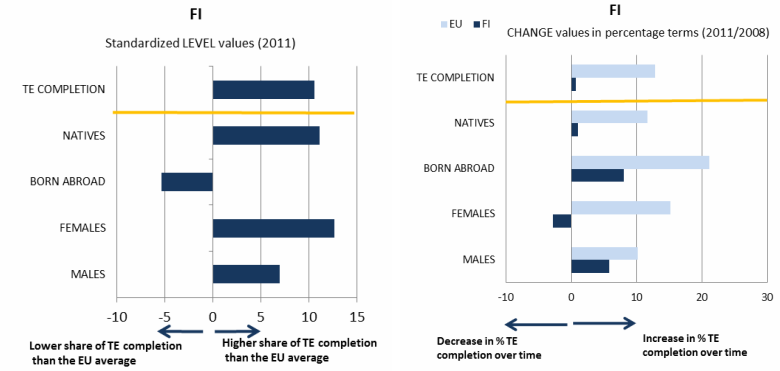


Source: JRC-CRELL

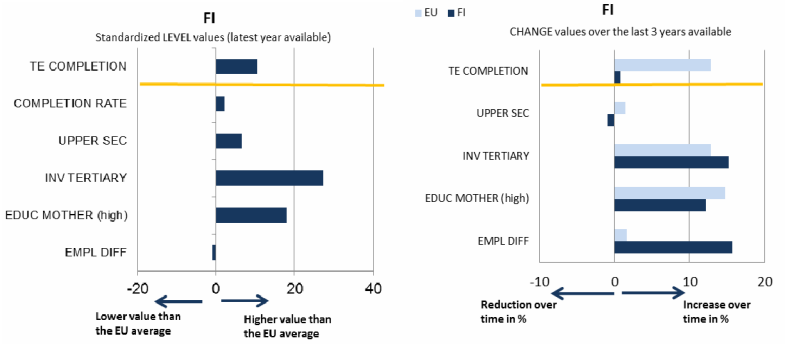
13 See annex 2.

2.2 Tertiary educational attainment

- Tertiary educational attainment of specific population sub-groups (country of birth and gender)



- Tertiary educational attainment and sub-indicators
  (Completion rate in higher education, upper secondary educational attainment, investment in tertiary education, high education background of the mother, difference in employment rate for high/medium education)



Source: JRC-CRELL

3. Key findings on benchmarks and skills levels

Concerning the Europe 2020 targets, Finland performs significantly better than the EU average for both the early school leaving rate (9.8% vs. 13.5% in 2011) and the tertiary attainment rate (46.0% as against 34.6% in 2011), although no further progress has taken place over the last five years. The analysis of sub-indicators shows a high investment in education, favourable family background, better participation and/or completion patterns in VET and upper secondary education. Participation in early childhood education is well below the EU average (73.1% vs. 92.3% in 2010). In terms of basic skills, 15-year olds' performance on PISA tests in reading, mathematics and science continues to be the best in the EU, despite a certain degree of stagnation in recent years. The employment rate of graduates remained close to the EU average throughout the economic crisis. Participation of adults in lifelong learning is the third highest in the EU (23.8% in 2011).

A large share of the population has high level computer skills. Compared to the EU average, Finland shows a very high (and increasing) share of graduates in science, mathematics and technology (31.8% vs. 21.9%), as well as a low share of graduates in social science, business and law (23.0% vs. 35.7%). With regard to entrepreneurship, the share of the population believing to have the required skills and knowledge to start a business is below the EU average. On average, Finnish pupils at ISCED 2 learn more than two foreign languages. The employment pattern in Finland up to 2020 is forecast to be very similar to the EU average in medium and low qualification jobs, with a more modest increase in high qualification jobs (which already accounted for 43% of total jobs in 2010 compared with an EU average of 34%). Public spending on education as a share of GDP is among the highest in the EU (6.81% in 2009) and has continued increasing over the last few years.

4. Major policy initiatives and reforms

4.1 Initiatives and measures to increase the relevance and level of skills

Finland has adopted a holistic approach via the 'Education and Research Development Plan' (2011–2016), according to which the competitiveness of Finnish labour requires a well-functioning educational system. The Plan aims at strengthening one of the most comprehensive educational systems in the world to guarantee equal opportunities for all. It outlines 188 actions such as: raise the education level of the population - in particular of the labour force, improve the efficiency of the education system, prevent children's and young people's exclusion and enhance adults' education and training opportunities. Attention is also paid to the quality and internationalisation of education. Finland aims for excellence in professional expertise, higher education and research, as well as development and innovation activities.

Finland has also made significant efforts to anticipate the needs for future skills and competences, particularly in post-compulsory education and in all vocational and professional fields. The Finnish National Board of Education initiated the National Project on Anticipation of Competences and Skills Needs (VOSE, 2008-12). VOSE is a cooperation project engaging stakeholders such as the state administration, social partners, vocational education providers, universities - including of applied sciences, local authorities, research institutes, and student organisations, to develop methods and processes for anticipating competences and skills needs, and networking between institutions. New procedures will be tested through VOSE in two fields - social welfare and health care, and real estate and construction. The scheme is supported by the European Social Fund (ESF). Combined government and ESF funding is €5.3 million.

Finland is officially a bi-lingual country (Finnish, Swedish) and English is widely known. However, the need to learn foreign languages other than English has emerged, given the decreasing number of students choosing such languages (only 5 %, compared to 95 % for English). The KIELITIVOLI (Language Circus) Programme (2009-11) tackled this issue by giving pupils in lower primary education the opportunity to learn languages other than English and offering a coherent learning path throughout the school system. The initiative was part of the governmental education programme for 2008-2011 and responded to the global need for better language learning in a competitive economy. The government made funding available for municipalities responsible for education to help them collaborate with other institutions in order to increase stakeholders' knowledge and language learning, enlarge the offer available and its quality, using i.a. ICT. The National Board of Education coordinated the venture with Finnish municipalities, 88 of which participated. The programme included coordination events, information campaign kits for parents, a web-based game for students, and teachers' professional development. The target languages were German, French, Russian, and Spanish. The Finnish government is due to decide in early 2013 whether this action will be resumed in the future.

Finland also features schemes for migrants, such as the 'AIKIS' initiative, providing language learning material for the immigrant population learning Finnish and Swedish, the 'Preparatory education for the immigrant population' and the 'Basic Education of Roma Pupils' actions.

4.2. Initiatives and measures to stimulate open and flexible learning

Finland has a long-standing tradition of flexible paths and permeability between different educational sub-systems. For instance, the '*Hyvä startti!*' Programme ('Job start' – education preparing for vocational education and training) running since 2006 works to facilitate the transition from basic to vocational education. It aims to reduce drop-out in the early stages of training and help students to complete their studies and obtain a qualification. The target group are students who left compulsory education with no idea of what occupation to choose, and/or those without sufficient knowledge and skills to apply for or cope with vocational education and training. The Ministry of Education has set a target of at least 80% of students to continue towards vocational training and an additional 10% to be steered towards upper secondary school or another type of education. In 2010, 43 institutions participated in the programme, and the results are encouraging given that around 70% of participants found a place in further education and training.

The JOPO (flexible basic education) Programme aims at developing new teaching methods and procedures to help reduce drop-out rates at primary level, particularly of pupils in the last years of basic education. This initiative develops new methods catering for individual pupil needs using; activity based learning, small group teaching, on-the-job learning, and different learning environments. JOPO activities support pupils in finishing school and applying for further training through guidance and counselling, early intervention and intensified school-home cooperation. This in turn helps to reduce school drop-out rates, eases the transition from basic education, and offers further training possibilities. In 2009 about 100 educational institutions and 950 students took part in this scheme. The Ministry of Education has made funding available for municipalities, holding the responsibility for basic education, in order to implement programmes to reduce drop-out rates between the end of compulsory education and the next level of studies. JOPO activities seem to be effective, since the educational situation of nearly 90% of the pupils had improved during their participation in the scheme. JOPO had its most visible effect in ensuring that pupils obtain their school-leaving certificate, in reducing absenteeism and improving study motivation.

As regards ICT, Finland has developed the 'Learning environments' initiative in order to provide better learning contexts (including both physical and digital) and increased use of ICT in schools. The action is project based and the stakeholders design products and development programmes to create better and more holistic learning environments for the use of ICT in teaching and learning. 445 projects were funded in 2007 and 2008, and about 100 in 2009. In 2012, up to €6.5 million were earmarked for this scheme by the National Board of Education.

4.3. Initiatives and measures to secure smart funding and developing partnerships

The 'Youth Guarantee' ('Social Guarantee for Young People: education, work, and tailored services') is one of the major political and social priorities of the Finnish government and an example of an ambitious partnership with shared responsibility between authorities, trade unions, and young people. It is based on a Public-Private-(People)-Partnership model, in which youngsters are active participants shaping their own future. The action targets the engagement into a first job or a training position for young adults having obtained an upper secondary qualification. The guarantee is meant to ensure that all young adults find their way into education, working life and society. It aims to provide each person under the age of 25 and each recent graduate below 30 years of age with a study place, a traineeship, an apprenticeship or a job. The objective is to ensure that by the end of the decade 90% of young adults (20–24) have a degree other than the upper secondary qualification. The guarantee was launched in the autumn of 2011 and will become permanent as of 1 January 2013. A budget of €60 million p.a. is foreseen.

Another example in this field is the 'SANSSI-kortti' action. It is a youth employment action targeting those under the age of 30 who have completed education. The rationale is to make sure that youngsters are not excluded from the labour market early on and do not stay unemployed for a long period of time. Young people (over 17 years old) can register online to receive a voucher for subsidised work from the Employment and Economic Development Office. Each employer can receive up to €670/month to cover the employment costs. The subsidy is available for up to 10 months. In 2011, 18.500 young people received the voucher and 3.200 managed to secure a job.

The 'Skilled workforce through Recruitment Training, Specialised Training and Change Training' scheme brings in the contribution from the business community. It targets unemployed people with the aim to reduce skills gaps in the labour market. By training a current or new employee, an enterprise may secure availability of workforce, promote professional integration and contribute to prolonging working lives, maintaining jobs and preventing unemployment. The training provided is based on joint planning and financing by the employer and the employment and economic development administration. Employers play a key role in selecting the students. Three different schemes are available. In most cases, the training lasts from 3 to 9 months. Participants receive either pay for the training period or, subject to certain preconditions, a training allowance and maintenance support for labour force training. The scheme is co-financed by the employment and economic development administration and by employers.

Conclusion

With regard to basic skills, Finland has been able to maintain its high position in PISA in 2009 in literacy, in numeracy and in science. In order to improve language skills outcomes, measures are taken to widen the offer of foreign language studies (other than English). Additionally, there are initiatives targeting the acquisition of basic skills for disadvantaged groups of pupils at primary and secondary school, e.g. those at risk of dropping-out of basic education, Roma pupils and preparatory education for immigrant students. Furthermore, as of January 2013, the "Social Guarantee for Young People: education, work and tailored services" will be reinforced.

In the context of an ageing population, the employability of older workers and the need to delay their exit from the labour market on the one hand, and the increasing level of youth unemployment and a lack of relevant skills among young job seekers on the other, are growing sources of concern for Finland. However, Finland has been able to maintain its education budget throughout the financial crises, and its public expenditure on education has remained above the EU average despite a generally difficult economic context.

France

1. Performance summary

1.1 Overview of benchmarks and skill levels

	France 2006	France 2011	EU average 2006	EU average 2011	Europe 2020 targets
1. Early leavers from education and training (age 18-24)	12.4%	12.0%	15.5%	13.5%	**EU target: 10%** National target : 9.5%
2. Tertiary educational attainment (age 30-34)	39.7%	43.4%	28.9%	34.6%	**EU target: 40%** National target : 50%

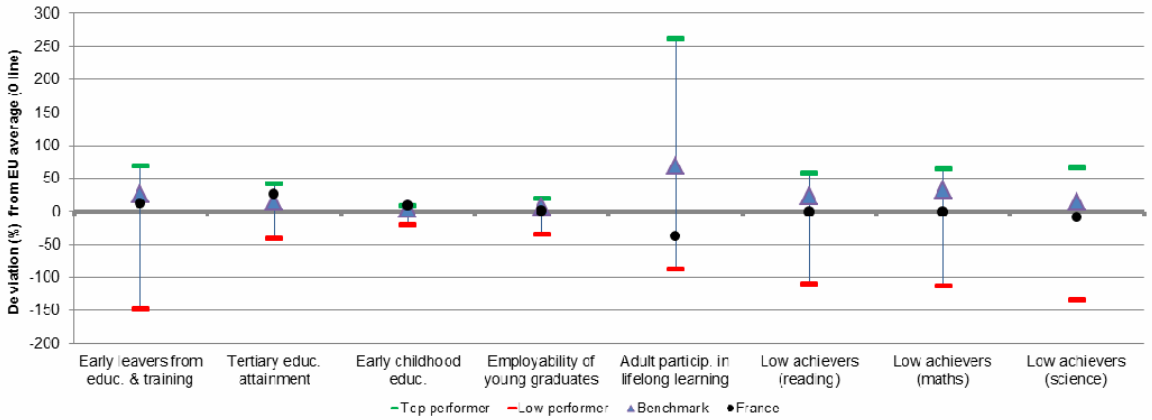
		France 2006	France 2011	EU average 2006	EU average 2011	ET 2020 Benchmarks
3. Participation in early childhood education (4 years old - year before start of compulsory primary)		100.0%	100.0% [10]	89.3%	92.3% [10]	**95%**
4. Employment rate of graduates (age 20-34) having left education and training no more than 3 years before reference year		79.0%	77.6%	79.0%	77.2%	**82%**
5. Adult participation in lifelong learning (age 25-64)		6.4%	5.5%	9.5%	8.9%	**15%**
6. Basic skills Low achievers (15 year-olds; Level 1 or lower in PISA study)	Reading	21.7%	19.8% [09]	23.1%	19.6% [09]	**15%**
	Mathematics	22.3%	22.5% [09]	24.0%	22.2% [09]	**15%**
	Science	21.2%	19.3% [09]	20.3%	17.7% [09]	**15%**
7. ICT skills	% of pupils in 4th grade using computers at school	:	:	60.7% [07]	:	
	% of individuals aged 16-74 with high computer skills[1]	21.0%	29.0%	21.0%	27.0%	
8. Entrepreneurship	% of 18-64 old population who believe to have the required skills and knowledge to start a business	33.0%	38.0%	42.0%	43.0%	
9. Languages	Average number of foreign languages learned per pupil at ISCED 2	1.5	1.5 [10]	1.4	1.5 [10]	
	% of students reaching B1 level or higher in the first foreign language at the end of lower secondary educ.[2]	:	14.3%	:	43.5%	
10a. Tertiary graduates by field Graduates (ISCED 5-6) in a specific field, as % of all fields	Education and training	2.1%	1.5% [09]	10.5%	9.6% [10,e]	
	Humanities and art	12.1%	10.3% [09]	12.1%	11.5% [10,e]	
	Social science, business and law	41.6%	41.6% [09]	35.2%	35.7% [10,e]	
	of which: business and administration	*26.0%*	*27.4%* [09]	*19.5%*	*20.2%* [10,e]	
	Maths, science and technology	25.8%	26.2% [09]	22.4%	21.9% [10,e]	
	Agriculture and veterinary field	1.5%	1.5% [09]	1.7%	1.6% [10,e]	
	Health and welfare	13.0%	14.9% [09]	14.3%	15.1% [10,e]	
	Services	3.9%	4.0% [09]	3.8%	4.2% [10,e]	
10b. MST graduates	Number of maths, science and technology graduates per 1000 young people (age 20-29)	20.9	20.4 [09]	13.5	14.4 [09]	
11. Skills for future labour markets Projected change in employment 2010-2020 in %	High qualification	:	32.3% [10]	:	19.7% [10]	
	Medium qualification	:	2.2% [10]	:	4.8% [10]	
	Low qualification	:	-16.9% [10]	:	-20.1% [10]	
12. Investment in education and training Public spending on education, % of GDP		5.61%	5.89% [09]	5.03% [e]	5.41% [09,e]	

Source: Eurostat (LFS): 1, 2; Eurostat (UOE): 3, 9a, 10, 12; Eurostat (ISS): 7b; CRELL (based on Eurostat LFS): 4; OECD (PISA): 6; Eurydice (based on IEA TIMSS): 7a; Global Entrepreneurship Monitor: 8; European Survey on Language Competences (ESLC): 9b; Cedefop: 11

Additional notes:
[07] =2007, [08] =2008, [09] =2009, [10] =2010, [11] =2011, e= estimate, b= break, p= provisional
Number of countries included in EU average: PISA=25, Entrepreneurship=18, Language skills=13, ICT/Computers at school=13
[1]= having carried out 5-6 specific computer related activities, [2]= average of skills tested in reading, listening, writing

1.2 Position in relation to Europe 2020 targets and ET2020 benchmarks

Deviation (%) from EU average and relative position to the EU benchmarks, top performers and low performers in EU27

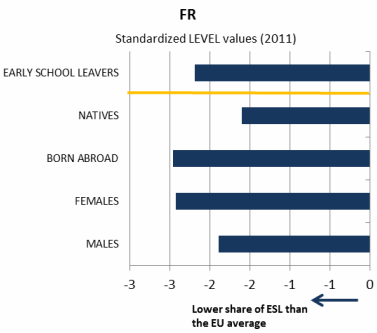


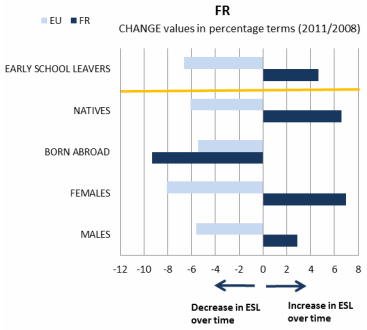
Source: DG EAC

2. Europe 2020 targets: patterns of sub-groups and sub-indicators[14]

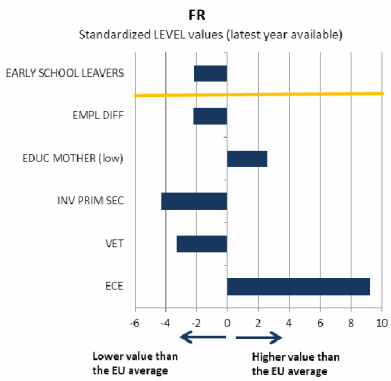
2.1 Early leavers from education and training

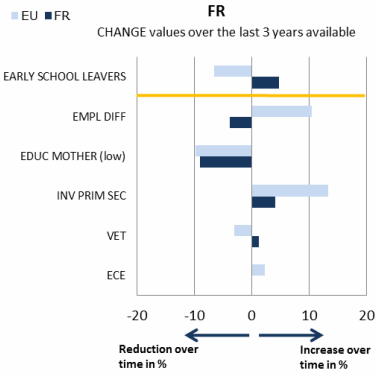
- Early school leavers of specific population sub-groups (country of birth and gender)





- Early school leavers and sub-indicators
  (Difference in employment rate for low/medium education, low education background of the mother, investment in primary and secondary education, participation in vocational education and training [VET] and in early childhood education [ECE])



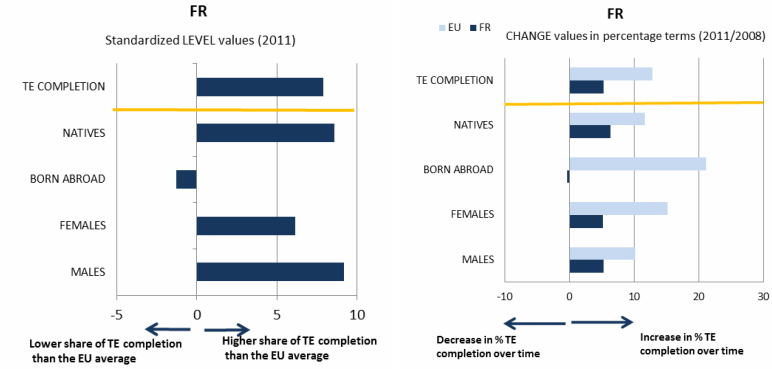


Source: JRC-CRELL

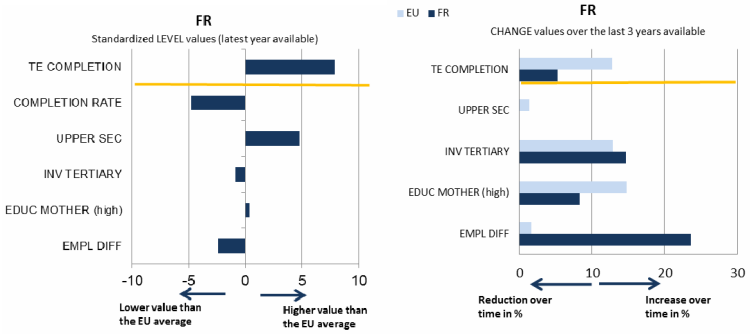
14 See annex 2.

2.2 Tertiary educational attainment

- Tertiary educational attainment of specific population sub-groups (country of birth and gender)



- Tertiary educational attainment and sub-indicators
  (Completion rate in higher education, upper secondary educational attainment, investment in tertiary education, high education background of the mother, difference in employment rate for high/medium education)



Source: JRC-CRELL

3. Key findings on benchmarks and skills levels

Concerning the EU related targets, in 2011 France outperformed the EU average on early school leaving (ESL) with 12% compared to 13.4%, although there has been no improvement in recent years. Its tertiary attainment rate of 43.4% in 2011 is already a better result than the EU target for 2020 of 40%. France had full coverage of early childhood education (100%) already before 2006. However, school education only shows average results for reading, mathematics and science as documented by the 2009 PISA tests for 15 year olds. In general, France's relative position vis-à-vis the EU average has deteriorated over the last decade. Compared with 2006, performance in mathematics remained stable, whilst results for reading and science improved at a slower pace than the EU average. While the employment rate of graduates is close to the EU average, adult participation in lifelong learning is very low in EU comparison (5.5% vs. 8.9% in 2011).

ICT skills in France are close to the EU average. As regards entrepreneurship, France shows some improvement over time, as 38% of the population believe to have the required skills and knowledge to start a business in 2011 compared to 33% in 2006. This is about the same value as for Germany (37%), but below the EU average (43%). With regard to language teaching, France shows very stable performances throughout recent years as pupils continue to learn on average 1.5 languages. This coincides with the EU average. However actual performance of pupils at the end of upper secondary level remains modest, as only 14.3% achieve B1 or higher performance. The number of graduates in mathematics, science and technology is high in EU comparison. Employment in high qualification jobs is forecast to increase very strongly in France and represent 43% of total jobs in 2020 (compared to an EU average of 34%). Public spending in education as a share of GDP in France has been constantly above the EU average, but with no significant increase in recent years.

4. Major policy initiatives and reforms

4.1 Initiatives and measures to increase the relevance and level of skills

Improved curricula and reforms of primary and secondary schools (2008) have focussed, among other factors, on literacy. In 2010, these activities were complemented with a national plan to fight illiteracy developing three axes: (1) training of teachers and research about innovative methods/good practices; (2) development of partnerships to promote books and reading; (3) individualised assistance to pupils at all levels.

To improve science performance, the 2011 initiative "A new ambition for science and technology in school" encourages secondary school children to engage in collective projects on science and technology based on multi-disciplinary approaches and utilising innovative methods.

School reform in 2008 has determined learning outcomes for mathematics in primary and secondary schools. From 2012, mathematics is also being promoted through a national day for mathematics. All levels of schools are being targeted and these activities are complemented by conferences organised by well-known universities as well as radio and TV transmissions on national level.

As far as foreign languages are concerned, the recent primary and secondary school reforms have made learning one language compulsory as of the age of 7 and a second language as of the age of 13. In 2010 the latter has been reinforced. Further considerations on how to strengthen language training will be elaborated by the Strategic Committee for Languages established early in 2011 by the Ministry of Education.

To combat early school leaving, specific actions have been taken, in particular to target pupils and students from disadvantaged backgrounds. "Boarding schools of excellence" (2008) as well as the programmes CLAIR and, since 2011, ÉCLAIR address these target groups in primary and in lower, as well as in upper secondary education. Better counselling at the end of the secondary school and the plan "Réussite en licence" were initiated in 2008 in order to reduce the distinctly high drop-out rate during the first year of university.

Important reforms have been initiated over recent years, reforming curricula and reinforcing guidance in schools and in vocational as well as tertiary education. Given the multitude of intervention, implementation needs to be consolidated. The new government has called for wide public consultations on the future of school ("Refondons l'École de la République") whilst taking some immediate measures in 2012, mainly related to teacher ratios and training. Further reforms are foreseen in 2013, centred on increasing the number of teachers and improving the conditions for the teaching profession. In VET two initiatives have been proposed and discussed in September 2012. Further Higher Education reform is being discussed in a conference on the future of Higher Education and Research since July 2012. The discussion focuses on success for all students, revival of research and innovation as well as a redefinition of the roles of the actors in Higher Education and Research, including governance and financing.

4.2. Initiatives and measures to stimulate open and flexible learning

Historically, French education has been rather segmented and characterised by a lack of permeability between education pathways. The recent reforms of primary and secondary education aimed to address these issues amongst others.

A pathway for the discovery of occupations (Parcours de la Découverte de Métiers, PDMF) has been introduced in the context of the 2008 reforms of secondary schools. Its goal is to have pupils gaining a good understanding and a realistic perception of the world of work leading also to the acquisition of social and civic competences. The plan "Étudiants Entrepreneurs" (2009-2014) aims at bridging gaps between business and the higher education system whilst fostering entrepreneurship among students. This has resulted so far in establishing "entrepreneurship contact points" in 300 higher education institutions, including 71 universities.

Overall, first steps to make a centralised and rather segmented system more permeable have been initiated; however there is still room for improvement.

There is a national ICT strategy in education with the objective to bridge the digital divide and inequalities through a rural digital schools plan. It aims at promoting the use of ICT for teaching

and learning, in teacher training and to develop the ICT skills of all students. All levels of education are targeted.

Digital competence and the use of ICT are not prescribed for ISCED 1,2 and 3 as a separate subject, but recommended as a general tool / and or for specific tasks across different subjects. This ranges from using spread sheets in mathematics, to online dictation in languages or consulting online maps in geography.

In this sense key skills and competences ("socle commun de connaissances et de compétences") for ISCED 1 and 2 have been integrated in order to ensure mastery of common ICT and communication techniques. Individual knowledge in five concerned areas is being certified by an "attestation de compétences" and registered in a skills book for each pupil that accompanies him throughout his school life at all levels. This strategy has opted for a rather transversal experiencing and using of ICT rather than concentrating learning only in specifically dedicated subjects.

4.3. Initiatives and measures to secure smart funding and developing partnerships

A more comprehensive budgeting approach no longer organises the budget strictly along the lines of ministry missions, programmes and actions. Actions in the field of education are implemented in this new context that requires adopting performance oriented and public management approaches through a law on guidance and funding of schools in 2005.

Major changes in governance were introduced in 2007 by the "Law on the Liberties and Responsibilities of universities". This law not only made universities more autonomous and more accountable, aiming to increase their efficiency, but also strengthened the link between training and the labour market. The relationship between the State and universities is governed on the basis of multiannual contracts.

Introducing the notion of performance in French education has been a major development for the French education system, encouraging all actors to focus on the results achieved and the improvements made. All levels concerned (school, academia, Ministry) are invited to better report on their efforts to be efficient. This is an important step towards a more efficient and better performing education system.

Conclusion

The quality of the French education system is demonstrated by the fact that it outperforms the EU average for ESL and has reached the Europe 2020 target in tertiary educational attainment and the ET2020 benchmark in participation in early childhood education. A problematic sector remains adult participation in lifelong learning where France scores persistently below the EU average and where performance actually worsened in recent years. This was also the subject of country-specific recommendation to France in the European Semester 2012.

As far as basic skills are concerned, France's performance has gradually declined from a comfortable position above EU averages to just below the EU average. Foreign language training lags seriously behind in EU comparison. Initiatives have been introduced to address all these issues and efforts have to be kept up.

Overall, education in France has witnessed fundamental reforms at all levels over the last decade that attracted attention and concentrated resources for implementation and parallel measures. Education is high on the government agenda. Full implementation is still a matter of time and of mediation in order to overcome resistance in specific interest groups. It will continue requiring important human and financial resources. There is still room for improving guidance and monitoring tools. Since 2007, in line with the general trend aiming at reducing the budget deficit, investment in education has been reduced. The current government is reversing this tendency having identified education as only one of three public sectors to invest in in a general climate of fiscal consolidation.

Hungary

1. Performance summary

1.1 Overview of benchmarks and skill levels

	Hungary 2006	Hungary 2011	EU average 2006	EU average 2011	Europe 2020 targets
1. Early leavers from education and training (age 18-24)	12.6%	11.2%	15.5%	13.5%	**EU target: 10%** National target : 10%
2. Tertiary educational attainment (age 30-34)	19.0%	28.1%	28.9%	34.6%	**EU target: 40%** National target : 30.3%

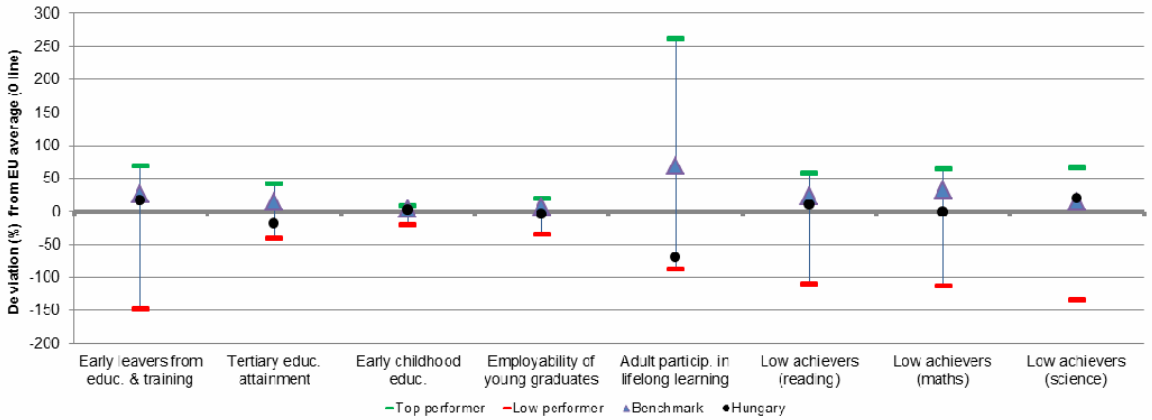
		Hungary 2006	Hungary 2011	EU average 2006	EU average 2011	ET 2020 Benchmarks
3. Participation in early childhood education (4 years old - year before start of compulsory primary)		94.5%	94.3% [10]	89.3%	92.3% [10]	**95%**
4. Employment rate of graduates (age 20-34) having left education and training no more than 3 years before reference year		79.8%	73.5%	79.0%	77.2%	**82%**
5. Adult participation in lifelong learning (age 25-64)		3.8%	2.7%	9.5%	8.9%	**15%**
6. Basic skills Low achievers (15 year-olds; Level 1 or lower in PISA study)	Reading	19.4%	17.7% [09]	23.1%	19.6% [09]	**15%**
	Mathematics	21.2%	22.3% [09]	24.0%	22.2% [09]	**15%**
	Science	15.0%	14.1% [09]	20.3%	17.7% [09]	**15%**
7. ICT skills	% of pupils in 4th grade using computers at school	42.9% [07]	:	60.7% [07]	:	
	% of individuals aged 16-74 with high computer skills[1]	25.0%	32.0%	21.0%	27.0%	
8. Entrepreneurship	% of 18-64 old population who believe to have the required skills and knowledge to start a business	43.0%	40.0%	42.0%	43.0%	
9. Languages	Average number of foreign languages learned per pupil at ISCED 2	1.0	1.0 [10]	1.4	1.5 [10]	
	% of students reaching B1 level or higher in the first foreign language at the end of lower secondary educ.[2]	:	:	:	43.5%	
10a. Tertiary graduates by field Graduates (ISCED 5-6) in a specific field, as % of all fields	Education and training	18.1%	11.5% [10]	10.5%	9.6% [10,e]	
	Humanities and art	7.4%	12.5% [10]	12.1%	11.5% [10,e]	
	Social science, business and law	42.7%	39.9% [10]	35.2%	35.7% [10,e]	
	of which: business and administration	*33.1%*	*26.1%* [10]	*19.5%*	*20.2%* [10,e]	
	Maths, science and technology	12.2%	15.6% [10]	22.4%	21.9% [10,e]	
	Agriculture and veterinary field	2.6%	2.4% [10]	1.7%	1.6% [10,e]	
	Health and welfare	8.6%	8.9% [10]	14.3%	15.1% [10,e]	
	Services	8.5%	9.2% [10]	3.8%	4.2% [10,e]	
10b. MST graduates	Number of maths, science and technology graduates per 1000 young people (age 20-29)	5.8	8.3 [10]	13.5	14.4 [09]	
11. Skills for future labour markets Projected change in employment 2010-2020 in %	High qualification	:	25.9% [10]	:	19.7% [10]	
	Medium qualification	:	-2.2% [10]	:	4.8% [10]	
	Low qualification	:	-13.2% [10]	:	-20.1% [10]	
12. Investment in education and training Public spending on education, % of GDP		5.44%	5.12% [09]	5.03% [e]	5.41% [09,e]	

Source: Eurostat (LFS): 1, 2; Eurostat (UOE): 3, 9a, 10, 12; Eurostat (ISS): 7b; CRELL (based on Eurostat LFS): 4; OECD (PISA): 6; Eurydice (based on IEA TIMSS): 7a; Global Entrepreneurship Monitor: 8; European Survey on Language Competences (ESLC): 9b; Cedefop: 11

Additional notes:
[07] =2007, [08] =2008, [09] =2009, [10] =2010, [11] =2011, e= estimate, b= break, p= provisional
Number of countries included in EU average: PISA=25, Entrepreneurship=18, Language skills=13, ICT/Computers at school=13
[1]= having carried out 5-6 specific computer related activities, [2]= average of skills tested in reading, listening, writing

1.2 Position in relation to Europe 2020 targets and ET2020 benchmarks

Deviation (%) from EU average and relative position to the EU benchmarks, top performers and low performers in EU27

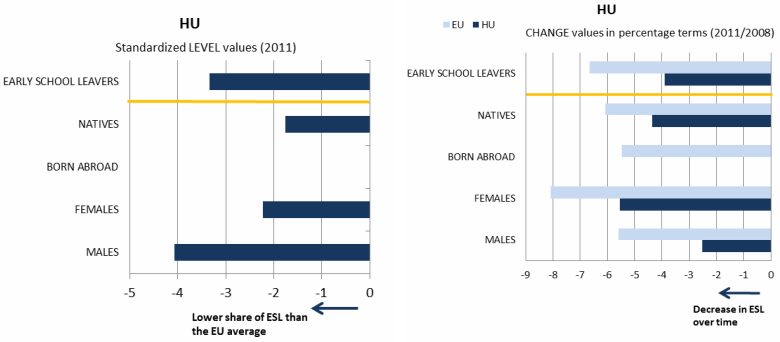


Source: DG EAC

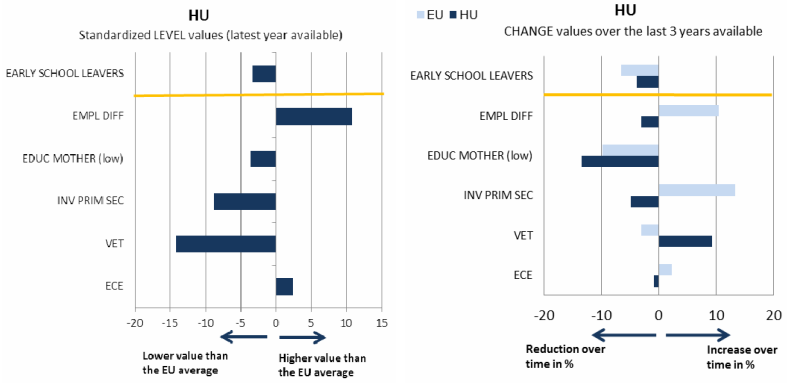
2. Europe 2020 targets: patterns of sub-groups and sub-indicators[15]

2.1 Early leavers from education and training

- Early school leavers of specific population sub-groups (country of birth and gender)



- Early school leavers and sub-indicators
  (Difference in employment rate for low/medium education, low education background of the mother, investment in primary and secondary education, participation in vocational education and training [VET] and in early childhood education [ECE])

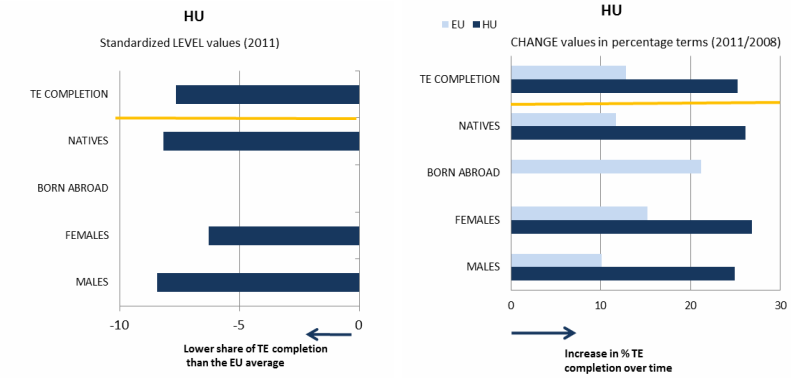


Source: JRC-CRELL

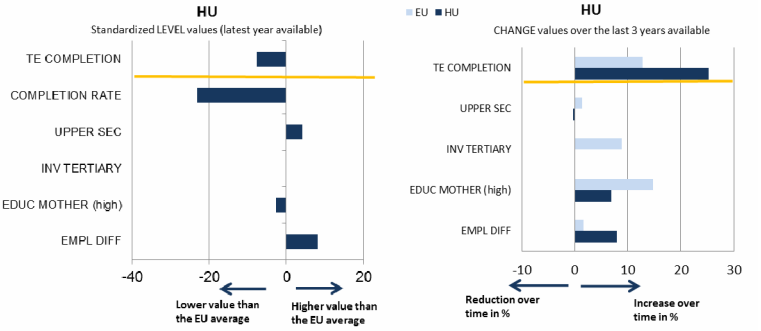
15 See annex 2.

2.2 Tertiary educational attainment

- Tertiary educational attainment of specific population sub-groups (country of birth and gender)



- Tertiary educational attainment and sub-indicators
  (Completion rate in higher education, upper secondary educational attainment, investment in tertiary education, high education background of the mother, difference in employment rate for high/medium education)



Source: JRC-CRELL

3. Key findings on benchmarks and skills levels

Concerning the Europe 2020 targets, Hungary outperforms the EU average in terms of early school leaving (11.2% vs. 13.5% in 2011) while the country's tertiary attainment rate is significantly lower than the EU average (28.1% as against 34.6% in 2011). The tertiary attainment rates of the natives, males and females, have increased more than the EU average in the past three years. As regards the other ET2020 benchmarks, participation in early childhood education is above the EU average. In terms of basic skills, 15-year olds' performance on PISA tests is better than the EU average in reading and science, with clear improvement in recent years. The share of low achievers in mathematics is slightly higher than the EU average and worsened between 2006 and 2009. The employment rate of graduates decreased substantially, by over 6 percentage points, during the recent economic crisis and fell from just above the EU average in 2006 (79.8% vs. 79.0%) to well below the EU average in 2011 (73.5% vs. 77.2%). The participation rate of adults in lifelong learning continues to be one of the lowest in Europe (2.7% vs. EU average of 8.9%), and has even shown further decrease in recent years.

Less than half of the pupils in the 4th grade use computers at school, which is well below EU average (42.9% as against 60.7% in 2007). The share of individuals aged 16-74 years, however, with high ICT skills, outperforms the EU average. Hungary has a low number of graduates in science, mathematics and technology in EU comparison. As regards entrepreneurship, the share of the population believing to have the required skills and knowledge to start a business dropped by 3 percentage points between 2006 and 2011 (from 43.0% to 40.0%) and fell below the EU average (43.0%) in 2011. The average number of foreign languages learned per pupils at ISCED 2 level is lowest in Europe, at the same level as

the English speaking countries of UK and Ireland. Employment in high qualification jobs up to 2020 is forecast to increase faster than the EU average, while there will be a decrease in demand for medium and low qualification jobs. Public spending on education as a share of GDP in Hungary is below the EU average (5.12% vs. 5.41% of GDP in 2009), with a slight decrease between 2006 and 2011.

4. Major policy initiatives and reforms

4.1 Initiatives and measures to increase the relevance and level of skills

After publishing the first PISA results, the education discourse in Hungary has been largely influenced by the concept of competences and skills. Improving the skills supply was the focus of subsequent education reforms at all levels. Central elements of the reforms have been the introduction of a focus on key competences in the national core curriculum (2003, amended in 2007) and the establishment of a nation-wide competence-based assessment system to assess in each school-year the skills of selected grades (standard assessment in numeracy and literacy, with additional assessment in certain other skills). Education programme packages have been developed and gradually introduced in schools, based on the EU's framework for key competences, alongside the restructuring of teacher training. These reform efforts are reflected in the results of PISA 2009 survey, notably in the areas of reading and science. The results of the national assessment of key competences also show a slow, but steady improvement. In the area of vocational education and training (VET) different reforms were implemented in the last decade which also strengthened the role of competence-based training.

To address the significant differences between the performance of different schools, resulting both from the geographical location and the socio-economic background of the parents, Hungary has introduced a number of policy measures, focusing in particular on (multiple) disadvantaged groups, among which Roma are over-represented. Nevertheless, these measures are not explicitly embedded in the new law on general education, adopted at the end of 2011. Compulsory kindergarten attendance from the age of 3, coupled with the expansion and reinforcement of high-quality early childhood education and care, is expected to improve the education prospects of disadvantaged children and to decrease segregation in school education.

The higher education system has been gradually reformed in the framework of the Bologna process. In order to counterbalance the insufficient supply of graduates from science, technology and engineering areas, whose share among tertiary graduates also remains below the EU average, recent measures taken by the Hungarian authorities prioritise financial allocation to subject areas conducive to innovation and thus economic growth. Raising the profile of science and mathematics already in school education would be helpful to prepare pupils for future tertiary studies in these areas.

Hungary is building a comprehensive system for the anticipation and assessment of skills needs, relying on a variety of tools and involving various levels and sectors. The development of skills forecasts at national level is on-going. Furthermore, outcomes of graduate tracking and middle- to long-term employment forecasts are considered in the definition of the number of state-financed places in higher education.

4.2. Initiatives and measures to stimulate open and flexible learning

The government decree on the Hungarian Qualifications Framework was adopted in July 2012. The decree includes the matrix of 8 comprehensive national qualification levels and their descriptors (4 categories: knowledge, skills, attitudes and autonomy/responsibility). The identification of the national level of qualifications and decision on referencing the national qualifications framework to the European Qualifications Framework is still outstanding.

In the framework of the on-going VET reform, the apprenticeship system will be reinforced. This is expected to contribute to the improvement of the labour-market relevance of the training, currently identified as a challenge. The provision of higher level vocational programmes is regulated by the Act on Higher Education. Higher level vocational programmes, offered by a great number of higher education institutions, lead to a higher level vocational qualification without a higher education degree. They provide 120 ECTS, 30-60 ECTS of which can be validated as part of specific first-cycle programmes in the case of further studies. The

programmes offer higher level vocational, technical and professional skills and can therefore react more quickly to the needs of the labour market.

Education quality is strongly influenced by the quality of teachers. In Hungary teachers are poorly paid in both absolute and relative terms. In addition, there are few incentives to participate in further training or to use new teaching methods, adapted to the needs of the pupils. Tailor-made support for pupils would be especially important for schools with a high number of disadvantaged pupils, backed up by support mechanisms for teachers (for example professional supervision and mentoring).

There is a long-term national strategy on ICT in education, elaborated by the Ministry of Education in 2003. The main cornerstones of the strategy are: internet access, ICT infrastructure, digital content provision, teacher training. Digital competence and the use of ICT are mentioned in the central steering documents for primary and general secondary education (ISCED 1, 2 and 3). Steering documents (National Core Curriculum) recommend the use of ICT as a general tool and/or for specific tasks across the different subjects at ISCED 1, 2 and 3, but ICT is also taught as a separate subject. Over the course of the last 6 years a massive, though uneven development of ICT equipment was carried out for schools. It resulted in a large-scale use of ICT tools in the teaching process and contributed to the improvement of ICT skills of students.

4.3. Initiatives and measures to secure smart funding and developing partnerships

Budget cuts resulting from the financial crisis are most present in higher education. The state has significantly decreased the number of state financed places in enrolment. Universities face structural changes which may contribute to a change in the institutional landscape. In school education and VET, the state is taking over the payment of teacher salaries, but leaves the maintenance responsibility of the schools to the local governments.

Chambers of Commerce and Industry became an important player in the VET provision. They have an enhanced role in defining teaching content, revision of official list of vocations and defining the number of places offered at regional level. In addition, chambers, employers and other stakeholders are also consulted when study places both in VET and higher education are defined. Higher education institutions cooperate in particular with employers and their organisations to adapt their courses to the needs of the labour market. Some degree courses are offered as part-time programmes and distance learning programmes to accommodate the needs of working people.

Conclusion

The current good performance of Hungary in tackling early school leaving (ESL) and regarding a number of other Education and Training 2020 indicators is challenged by demographic developments, notably by the increase in the number of disadvantaged pupils, and certain recent legislative changes. The new laws on education contain elements which, if not implemented carefully, might have a negative impact not only on ESL but might increase social inequalities and segregation. The effects of the lowering of the compulsory school age from 18 to 16 years, the shortening of the duration of VET, the substantial decrease of time devoted to the acquisition of key competences in VET, the modification of the national core curriculum by limiting the freedom of individual schools to define their institutional curriculum need to be closely monitored and evaluated. Improving the output of ISCED 2 education would seem necessary to counterbalance the reduced attention to basic skills in vocational education. Targeted measures, involving special guidance and social support, would be necessary to prevent ESL in VET. Moreover, pupils leaving vocational training should be more adequately prepared for the labour market, including the acquisition of key competences.

Drastic cuts in higher education, including the recent reduction in the number of state-financed places and high study fees, imply the risk that the number of entrants, particularly from disadvantaged backgrounds, may decrease. Finally, the effectiveness of adult learning policies could be improved through better targeting and regular monitoring and evaluation.

Ireland

1. Performance summary

1.1 Overview of benchmarks and skill levels

	Ireland 2006	Ireland 2011	EU average 2006	EU average 2011	Europe 2020 targets
1. Early leavers from education and training (age 18-24)	12.1%	10.6%	15.5%	13.5%	**EU target: 10%** National target : 8%
2. Tertiary educational attainment (age 30-34)	41.3%	49.4%	28.9%	34.6%	**EU target: 40%** National target : 60%

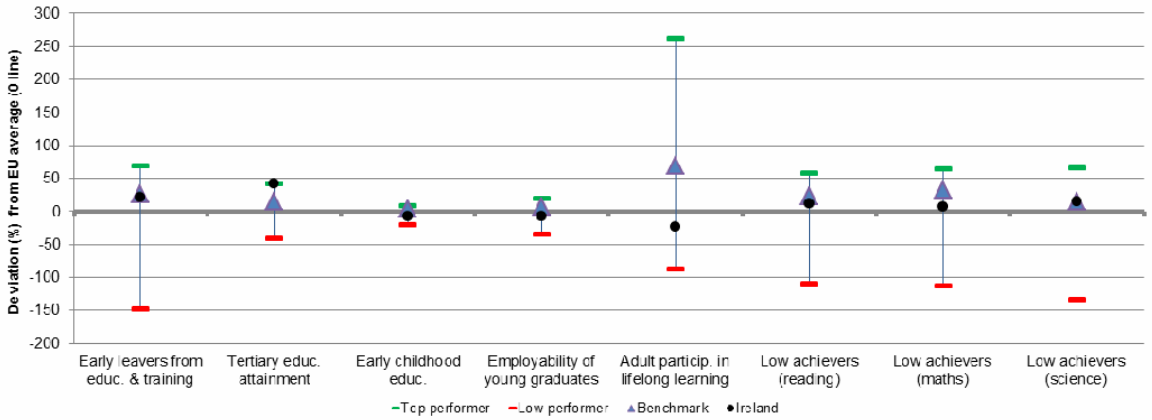
		Ireland 2006	Ireland 2011	EU average 2006	EU average 2011	ET 2020 Benchmarks
3. Participation in early childhood education (4 years old - year before start of compulsory primary)		:	85.4% [10]	89.3%	92.3% [10]	**95%**
4. Employment rate of graduates (age 20-34) having left education and training no more than 3 years before reference year		88.5%	71.4%	79.0%	77.2%	**82%**
5. Adult participation in lifelong learning (age 25-64)		7.3%	6.8%	9.5%	8.9%	**15%**
6. Basic skills Low achievers (15 year-olds; Level 1 or lower in PISA study)	Reading	12.1%	17.2% [09]	23.1%	19.6% [09]	**15%**
	Mathematics	16.4%	20.8% [09]	24.0%	22.2% [09]	**15%**
	Science	15.5%	15.2% [09]	20.3%	17.7% [09]	**15%**
7. ICT skills	% of pupils in 4th grade using computers at school	:	:	60.7% [07]	:	
	% of individuals aged 16-74 with high computer skills[1]	19.0%	26.0%	21.0%	27.0%	
8. Entrepreneurship	% of 18-64 old population who believe to have the required skills and knowledge to start a business	51.0%	46.0%	42.0%	43.0%	
9. Languages	Average number of foreign languages learned per pupil at ISCED 2	1.0	1.0 [10]	1.4	1.5 [10]	
	% of students reaching B1 level or higher in the first foreign language at the end of lower secondary educ.[2]	:	:	:	43.5%	
10a. Tertiary graduates by field Graduates (ISCED 5-6) in a specific field, as % of all fields	Education and training	6.3%	8.8% [10]	10.5%	9.6% [10,e]	
	Humanities and art	19.1%	12.4% [10]	12.1%	11.5% [10,e]	
	Social science, business and law	34.7%	31.9% [10]	35.2%	35.7% [10,e]	
	of which: business and administration	*:*	*21.5%* [10]	*19.5%*	*20.2%* [10,e]	
	Maths, science and technology	25.9%	24.0% [10]	22.4%	21.9% [10,e]	
	Agriculture and veterinary field	0.6%	1.4% [10]	1.7%	1.6% [10,e]	
	Health and welfare	11.0%	16.2% [10]	14.3%	15.1% [10,e]	
	Services	2.4%	5.3% [10]	3.8%	4.2% [10,e]	
10b. MST graduates	Number of maths, science and technology graduates per 1000 young people (age 20-29)	21.6	20.1 [10]	13.5	14.4 [09]	
11. Skills for future labour markets Projected change in employment 2010-2020 in %	High qualification	:	16.8% [10]	:	19.7% [10]	
	Medium qualification	:	13.2% [10]	:	4.8% [10]	
	Low qualification	:	-30.2% [10]	:	-20.1% [10]	
12. Investment in education and training Public spending on education, % of GDP		4.72%	6.50% [09]	5.03% [e]	5.41% [09,e]	

Source: Eurostat (LFS): 1, 2; Eurostat (UOE): 3, 9a, 10, 12; Eurostat (ISS): 7b; CRELL (based on Eurostat LFS): 4; OECD (PISA): 6; Eurydice (based on IEA TIMSS): 7a; Global Entrepreneurship Monitor: 8; European Survey on Language Competences (ESLC): 9b; Cedefop: 11

Additional notes:
[07] =2007, [08] =2008, [09] =2009, [10] =2010, [11] =2011, e= estimate, b= break, p= provisional
Number of countries included in EU average: PISA=25, Entrepreneurship=18, Language skills=13, ICT/Computers at school=13
[1]= having carried out 5-6 specific computer related activities, [2]= average of skills tested in reading, listening, writing

1.2 Position in relation to Europe 2020 targets and ET2020 benchmarks

Deviation (%) from EU average and relative position to the EU benchmarks, top performers and low performers in EU27

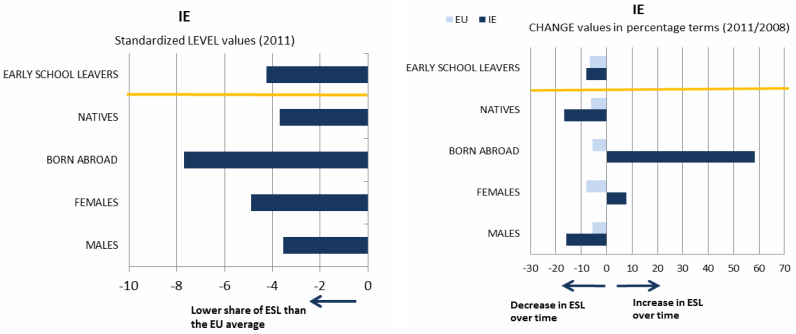


Source: DG EAC

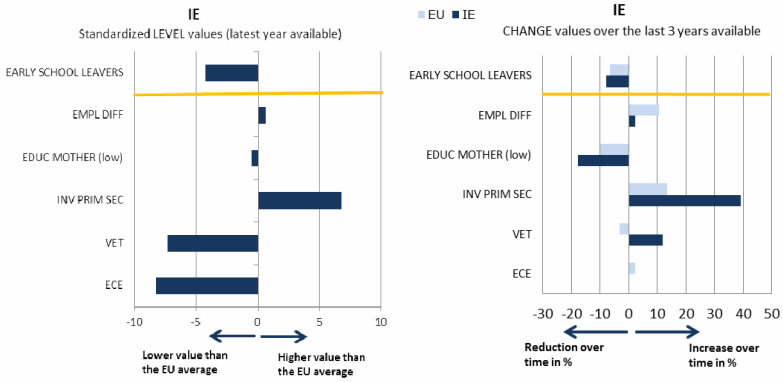
2. Europe 2020 targets: patterns of sub-groups and sub-indicators[16]

2.1 Early leavers from education and training

- Early school leavers of specific population sub-groups (country of birth and gender)



- Early school leavers and sub-indicators
  (Difference in employment rate for low/medium education, low education background of the mother, investment in primary and secondary education, participation in vocational education and training [VET] and in early childhood education [ECE])

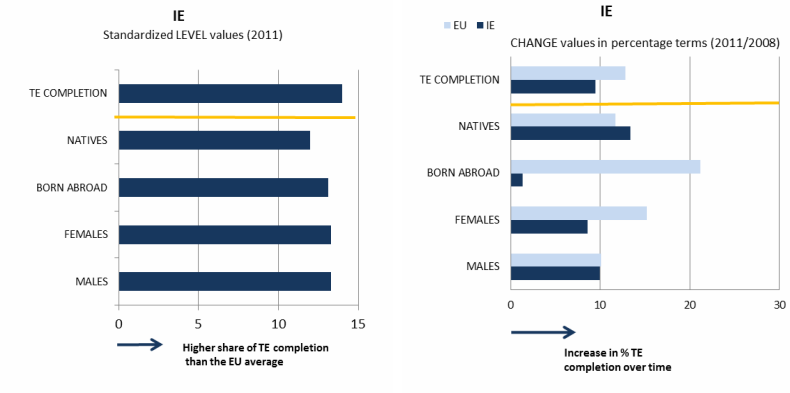


Source: JRC-CRELL

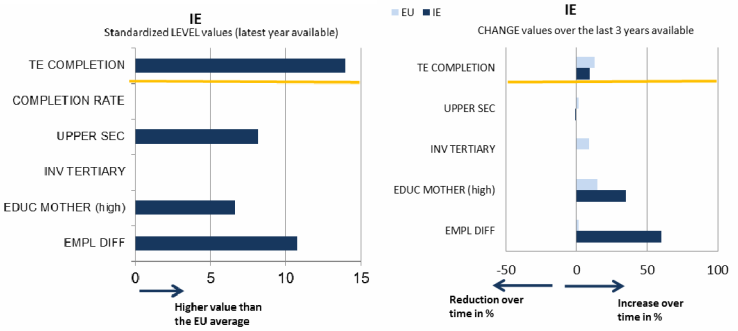
16 See annex 2.

2.2 Tertiary educational attainment

- Tertiary educational attainment of specific population sub-groups (country of birth and gender)



- Tertiary educational attainment and sub-indicators
  (Completion rate in higher education, upper secondary educational attainment, investment in tertiary education, high education background of the mother, difference in employment rate for high/medium education)



Source: JRC-CRELL

3. Key findings on benchmarks and skills levels

Concerning the Europe 2020 targets, Ireland performs better than the EU average for the early school leaving (ESL) rate (10.6% vs. 13.5% in 2011), although the born abroad sub-group has experienced an increase in the ESL rate in the past three years, and has the highest tertiary attainment rate in the EU (49.4% in 2011). As regards the other ET 2020 benchmarks, participation in early childhood education is below the EU average (85.4% vs. 92.3% in 2010). In terms of basic skills, 15-year olds' performance on PISA tests continues to outperform the EU average, although in recent years it deteriorated quite significantly in reading and mathematics and remained broadly constant in science. The recent economic crisis had a strong impact on the employment rate of graduates, which has decreased by 17 percentage points since 2006 and is now below the EU average (71.4% vs. 77.2% in 2011). Participation of adults in lifelong learning remains fairly low in comparison with the EU average (6.8% vs. 8.9% in 2011).

ICT skills of the population are close to the EU average. Ireland has a high number of graduates in science, mathematics and technology in EU comparison. As regards entrepreneurship, the share of the population believing to have the required skills and knowledge to start a business is slightly above the EU average. Given the fact that the English language is commonly used in Ireland, foreign language skills are not very developed at present. The employment pattern in Ireland up to 2020 is forecast to be fairly different from the EU average in medium and low qualification jobs, with a stronger increase in the former and a very large decrease in the latter, which are expected to represent only 14% of total jobs in 2020 (compared with an EU average of 18%). Public spending on education as a share of GDP increased by almost 2 percentage

points over 2006-09, also due to a strong GDP decline in 2008-09, and is now above the EU average (6.50% vs. 5.41% in 2009).

4. Major policy initiatives and reforms

4.1 Initiatives and measures to increase the relevance and level of skills

Given *inter alia* the deterioration of the performance of Ireland in the area of educational achievement (PISA 2006 and 2009), as both literacy and numeracy, the Irish government adopted in July of 2011 the 'Literacy and Numeracy for Learning and Life Strategy' (2011-20). Its aim is to ensure that every child leaving school masters the necessary reading and mathematical skills. It also sets out a programme of reforms in initial teacher education and professional development. It is estimated that the cost of implementation of the actions of this strategy will be €6 million in 2012, rising to €19 million per annum by 2017.

In practical terms Ireland tackles the issue of low-achievement primarily through a targeted approach called the 'Delivering Equality of Opportunity in Schools' (DEIS). This national action plan launched in 2005 fosters educational inclusion at both primary and secondary school levels, especially in disadvantaged communities. The plan comprises a standardised system for identifying and regularly reviewing the levels of disadvantage. It includes a general 'School Support Plan' for priority intervention in difficult geographical areas, as well as a number of thematic sub-programmes, such as 'Ready, Set, Go – Maths', 'Reading Recovery' and 'Maths Recovery' actions. There are currently 670 primary schools and 195 post-primary schools in Ireland receiving assistance under the School Support Plan within the context of the DEIS programme, which has an overall budget of €158 million in 2012.

At the same time Ireland pursued, and even intensified, the implementation of the 'Youthreach' initiative. It targets young people aged 15-20 who have dropped out of school without any qualifications or vocational training. It integrates elements of education, training and work experience. In 2010, 2.385 'Youthreach' learners achieved certification and of those completing, 15% progressed to employment, while 52% progressed to further education and training. This initiative is co-funded significantly by the European Social Fund (ESF), i.e. it has received in 2012 an additional financing of €25 million from the ESF within the context of the Youth Opportunities Initiative.

Finally, Ireland has also decided to invest early on in education to i.a. prevent early school leaving at a later stage, notably through the Universal Free Preschool Year in Early Childhood Care and Education (ECCE) Scheme. The Early Start programme is a pre-school programme for 3 and 4 year-olds which offers one year of preschool (meeting the ISCED Level 0 classification) to children in designated areas of disadvantage. The programme aims to provide children who are most at risk of educational exclusion with an educational programme that will enhance their personal development and prevent failure at school. In 2012 this initiative had a budget of €175 million p.a.

4.2. Initiatives and measures to stimulate open and flexible learning

In the light of the recent economic down-turn in Ireland and the importance of skills mismatches caused by the burst of the real estate bubble, measures intended at the re-entry of learners into education are of particular importance. In this regard the Back to Education Initiative (BTEI), which has been in place since 2002, provides part-time further education programmes for young people and adults. The aim of BTEI is to give persons who would like to return to education the opportunity to improve their skills and knowledge in a flexible way. This means that beneficiaries can combine a return to learning with family and other personal commitments. The BTEI aims, in particular, at increasing the participation of young people and adults with less than upper secondary education, by providing a range of part-time accredited learning opportunities, leading to the awarding of qualifications recognised under the National Framework of Qualifications (NFQ), while also facilitating the access, transfer and progression of participants towards other education or employment pathways.

Another action in this area is the 'Springboard' initiative, managed by the Higher Education Authority (HEA) in Ireland, and aimed at job seekers who wish to take up a part-time course at the level of higher education. Eligible courses are in seven identified skills areas where there are

currently employment opportunities available. The initiative, which was introduced in 2011, is particularly targeted at those who lost their jobs in the course of the recession and would benefit from up-skilling or reskilling. The main incentive for the unemployed is the opportunity to study part-time for undergraduate and post-graduate degrees, whilst maintaining their welfare benefits and being able to continue with their studies in case they find employment. In all there were 5,875 free part-time places made available in higher education in 2011. At the end of December 2011 there were 4,305 people taking part in this scheme. The overall budget for this action in 2011 was of €19.7 million last year.

In order to increase the use of ICT resources Irish authorities have developed the 'e-Learning at the Library' initiative. The aim of the programme is to up-skill people in digital competence and IT skills. The project is a partnership between the nationwide public library, the *Foras Áisenna Saothair* (FÁS, the Training and Employment Authority) and the *An Chomhairle Leabharlanna* (the Library Council of Ireland). The programme addresses the needs of both those with no ICT skills and those with insufficient ones. Therefore, less advanced persons may learn how to use e.g. the internet, e-mail etc. and other more proficient learners are encouraged to work through the European Computer Driving Licence. The newly revised programme will lead to a nationally recognised FETAC award – Computer Literacy. Given the fact that this initiative is based on the network of local public libraries it also reaches people living in often remote and mainly rural local communities.

4.3. Initiatives and measures to secure smart funding and developing partnerships

As regards the particular challenge posed by numeracy, the Irish authorities have undertaken the development of an innovative 'Project Maths', in partnership with the National Council for Curriculum and Assessment (NCCA). The aim of this initiative is to improve achievement in mathematics amongst secondary school students (age 13-18). It focuses on student understanding of mathematical concepts, relating mathematics to everyday experiences and developing problem solving skills. The NCCA leads this initiative, which began in 2008 as a pilot project in 24 schools, and is now being extended to the whole of the country, starting from 2010. The experience of the pilot allowed the NCCA to develop and revise the mathematics syllabus and develop novel teaching and learning resources, as well as new methods of assessment.

As regards innovative partnerships with the business community and co-financing models, Ireland has been implementing the 'Skillsets' initiative since 1999. Its goal is to promote and facilitate training and up-skilling of learners by supporting and funding networks of companies under the Training Networks Programme (TNP). At present, there are over 50 networks designing and delivering training in a variety of sectors and regions. Their member enterprises themselves design, manage and deliver training programmes both to employees as well as now to job-seekers. Presently job-seekers may participate in the programme totally free of charge and receive on-the-job training with the current employees of the company in question. This valuable initiative is co-financed by the Department of Education and Skills (DES) and the member companies belonging to the various networks. Since its inception, over 60,000 Irish enterprises have participated in 'Skillsnets', forming over 350 networks, with as many as 275.000 employees overall benefiting from training and/or up-skilling measures throughout the period.

Conclusion

The main present challenge for Ireland as regards education and training is to preserve expenditure on education and training against the background of strict fiscal consolidation, *inter alia* to facilitate future growth of its economy. School outcomes and educational achievements have significantly deteriorated over recent years, particularly in reading and mathematics, in addition Ireland also features a relatively high level of early school leaving, although still performs better than the EU average. However, recent initiatives targeting disadvantaged groups are starting to have positive effects in these areas.

At present Ireland features a relatively modest level of participation in adult learning and the country is faced with a very high rate of youth unemployment. However, the development of new training opportunities, in particular the up-skilling of the work force and of the unemployed

as well as re-entry into education, is likely to support progress towards the Europe 2020 objectives. Ireland will experience in the future a significant need for both learning provision and educational infrastructure, due to the strongly increasing demographic trends, as enrolment figures are expected to continue to rise over the medium term at all levels of education. This will also require an adequate response from the Irish authorities. Finally, the impact of the current economic down-turn and the savings made in the education sector will have to be further monitored as regards Ireland.

Italy

1. Performance summary

1.1 Overview of benchmarks and skill levels

	Italy 2006	Italy 2011	EU average 2006	EU average 2011	Europe 2020 targets
1. Early leavers from education and training (age 18-24)	20.6%	18.2%	15.5%	13.5%	**EU target: 10%** National target : 15-16%
2. Tertiary educational attainment (age 30-34)	17.7%	20.3%	28.9%	34.6%	**EU target: 40%** National target : 26-27%

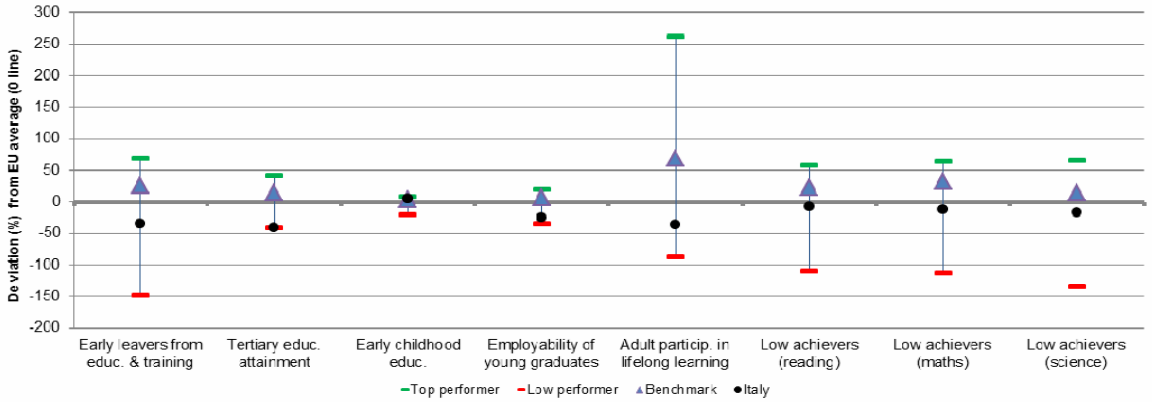
		Italy 2006	Italy 2011	EU average 2006	EU average 2011	ET 2020 Benchmarks
3. Participation in early childhood education (4 years old - year before start of compulsory primary)		100.0%	97.1% [10]	89.3%	92.3% [10]	**95%**
4. Employment rate of graduates (age 20-34) having left education and training no more than 3 years before reference year		66.2%	57.6%	79.0%	77.2%	**82%**
5. Adult participation in lifelong learning (age 25-64)		6.1%	5.7%	9.5%	8.9%	**15%**
6. Basic skills Low achievers (15 year-olds; Level 1 or lower in PISA study)	Reading	26.4%	21.0% [09]	23.1%	19.6% [09]	**15%**
	Mathematics	32.8%	24.9% [09]	24.0%	22.2% [09]	**15%**
	Science	25.3%	20.6% [09]	20.3%	17.7% [09]	**15%**
7. ICT skills	% of pupils in 4th grade using computers at school	63.2% [07]	:	60.7% [07]	:	
	% of individuals aged 16-74 with high computer skills[1]	17.0%	25.0%	21.0%	27.0%	
8. Entrepreneurship	% of 18-64 old population who believe to have the required skills and knowledge to start a business	44.0%	42.0% [10]	42.0%	43.0%	
9. Languages	Average number of foreign languages learned per pupil at ISCED 2	1.7	2.0 [10]	1.4	1.5 [10]	
	% of students reaching B1 level or higher in the first foreign language at the end of lower secondary educ.[2]	:	:	:	43.5%	
10a. Tertiary graduates by field Graduates (ISCED 5-6) in a specific field, as % of all fields	Education and training	11.9%	6.0% [10]	10.5%	9.6% [10,e]	
	Humanities and art	14.6%	17.1% [10]	12.1%	11.5% [10,e]	
	Social science, business and law	33.9%	33.5% [10]	35.2%	35.7% [10,e]	
	of which: business and administration	*11.0%*	*10.7%* [10]	*19.5%*	*20.2%* [10,e]	
	Maths, science and technology	21.2%	22.7% [10]	22.4%	21.9% [10,e]	
	Agriculture and veterinary field	1.8%	1.5% [10]	1.7%	1.6% [10,e]	
	Health and welfare	14.1%	16.0% [10]	14.3%	15.1% [10,e]	
	Services	2.5%	3.2% [10]	3.8%	4.2% [10,e]	
10b. MST graduates	Number of maths, science and technology graduates per 1000 young people (age 20-29)	12.1	:	13.5	14.4 [09]	
11. Skills for future labour markets Projected change in employment 2010-2020 in %	High qualification	:	21.6% [10]	:	19.7% [10]	
	Medium qualification	:	13.1% [10]	:	4.8% [10]	
	Low qualification	:	-18.2% [10]	:	-20.1% [10]	
12. Investment in education and training Public spending on education, % of GDP		4.67%	4.70% [09]	5.03% [e]	5.41% [09,e]	

Source: Eurostat (LFS): 1, 2; Eurostat (UOE): 3, 9a, 10, 12; Eurostat (ISS): 7b; CRELL (based on Eurostat LFS): 4; OECD (PISA): 6; Eurydice (based on IEA TIMSS): 7a; Global Entrepreneurship Monitor: 8; European Survey on Language Competences (ESLC): 9b; Cedefop: 11

Additional notes:
[07] =2007, [08] =2008, [09] =2009, [10] =2010, [11] =2011, e= estimate, b= break, p= provisional
Number of countries included in EU average: PISA=25, Entrepreneurship=18, Language skills=13, ICT/Computers at school=13
[1]= having carried out 5-6 specific computer related activities, [2]= average of skills tested in reading, listening, writing

1.2 Position in relation to Europe 2020 targets and ET2020 benchmarks

Deviation (%) from EU average and relative position to the EU benchmarks, top performers and low performers in EU27

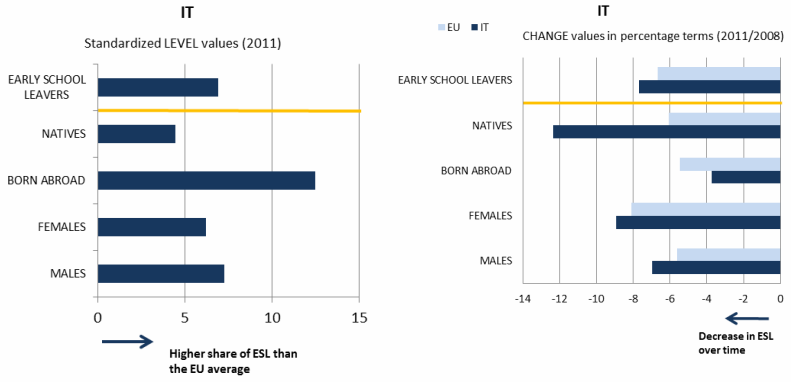


Source: DG EAC

2. Europe 2020 targets: patterns of sub-groups and sub-indicators[17]

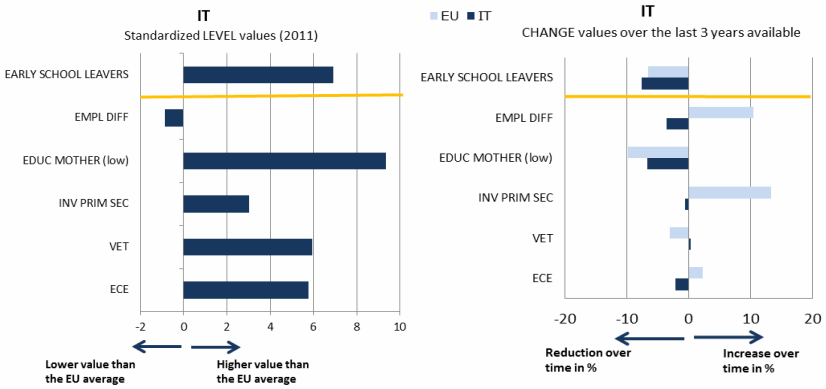
2.1 Early leavers from education and training

- Early school leavers of specific population sub-groups (country of birth and gender)



- Early school leavers and sub-indicators

(Difference in employment rate for low/medium education, low education background of the mother, investment in primary and secondary education, participation in vocational education and training [VET] and in early childhood education [ECE])

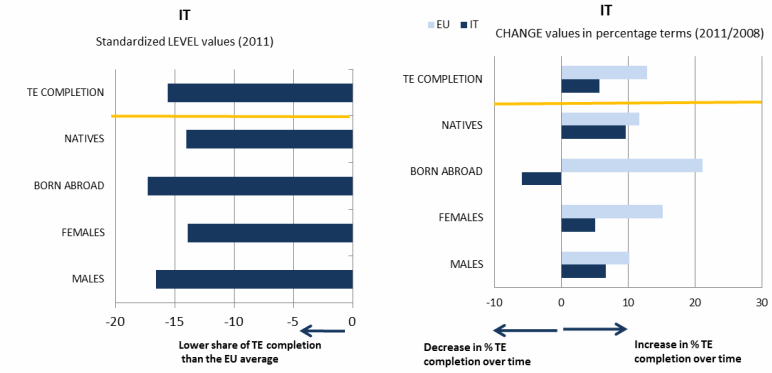


Source: JRC-CRELL

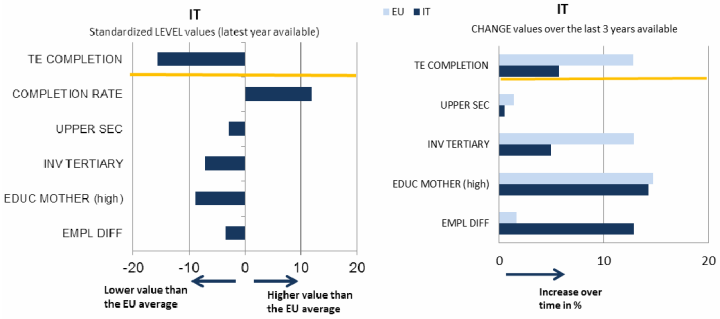
17 See annex 2.

2.2 Tertiary educational attainment

- Tertiary educational attainment of specific population sub-groups (country of birth and gender)



- Tertiary educational attainment and sub-indicators
  (Completion rate in higher education, upper secondary educational attainment, investment in tertiary education, high education background of the mother, difference in employment rate for high/medium education)



Source: JRC-CRELL

3. Key findings on benchmarks and skills levels

Concerning the Europe 2020 targets, Italy still performs below the EU average in terms of early school leaving (ESL), especially in Southern regions and as regards the born abroad population sub-group. Italy's tertiary attainment rate (20.3%) is significantly lower than the EU average of 34.6%, with females clearly outperforming males, and it only increased by 2.6 percentage points over 2006-2011. Italy also features low participation and high drop-out rates in tertiary education. As regards the other ET 2020 benchmarks, Italy performs above the EU benchmark on participation in early childhood education, which is relevant for prevention of ESL. School education in Italy produces rather weak results in terms of basic skills: despite recent improvements, 15-year olds' performance on PISA tests remains quite poor, although the national average masks significant regional disparities. Performance is actually in line with or above the EU average in the northern regions, but markedly worse in the South. The employment rate of graduates is the third lowest in the EU (57.6% in 2011) and has declined significantly in recent years due to the on-going economic crisis. Participation of adults in lifelong learning is low in EU comparison (5.7% vs. 8.9% in 2011). Lifelong learning participation is especially low for the low-skilled (1.2% in 2011), who would benefit the most from further education.

ICT skills levels, as well as entrepreneurship attitude, are close to the EU average. As regards the distribution of tertiary graduates by field compared with the EU average, Italy shows a very high (and increasing) share of graduates in humanities and arts (17.1% as against 11.5% in 2010) and a low share of graduates in business and administration (10.7% vs. 20.2%). Employment in medium and high qualification jobs in Italy up to 2020 is forecast to increase somewhat faster than the EU average, also because now it represents a lower share of total employment (64% as against 77% in 2010). Public spending on education as a share of GDP in

Italy has slightly increased over the last decade but is well below the EU average (4.70% vs. 5.41% in 2009), especially with regard to tertiary education (0.86% vs. 1.22%).

4. Major policy initiatives and reforms

4.1 Initiatives and measures to increase the relevance and level of skills

The ongoing reform of upper secondary school curricula (ISCED 3), currently in its second year of implementation and to be completed in 2015, has been aimed at reducing skills mismatch and further connecting the worlds of education and work, with a focus on key competences development and the introduction of the study of citizenship across all school levels. It provides for simplification of the school curricula: fewer options, fewer overall classroom hours but more foreign-language teaching. Recent measures to curb the ESL phenomenon in general aim at reducing disparities between the North and the South and also include the setting up of a new National Pupils Registry to monitor whether compulsory education is complied with and to keep track of early school leaving, absenteeism or irregular attendance with a view to adopting ad hoc preventive measures. A reform of the apprenticeship system aimed at facilitating the entry of young people (aged up to 29 years) into the labour market entered into force in October 2011, with large support from the social partners. To reduce skills mismatch, a new unit has been established at the Ministry of Labour to collect skills requirements at geographical and sector level, and the setting up of a national centre for skills forecasting is planned.

Despite significant improvements during the last decade, further efforts appear to be needed – also through the EU structural funds - to improve the overall quality of school education and performance to ensure the achievement of the ESL target. In particular, there is no evidence of a comprehensive strategy to combat early school leaving involving prevention, intervention and compensation measures.The challenge of reducing high university drop-out rates has to be addressed in order to increase tertiary attainment rates, as recommended by the Commission and Council in the European Semester 2012. The measures concerning apprenticeships and skill matching are steps in the right direction, which need to be pursued and reinforced.

4.2. Initiatives and measures to stimulate open and flexible learning

Following up the Bologna process, Italian Initial Teacher Education (ITE) has been placed at master level (ISCED 5) for all teachers of all school levels, and entrusted to university subject faculties in the case of secondary school teachers. The reform, finalised in 2010, closed previous ITE regional institutions for secondary teachers (SSIS) in 2009; no ITE provision has thus been available since 2009, except for teachers of ISCED 1, whose training is provided by Education faculties and regulated by previous reforms. The first cohort of secondary teacher candidates following the 2010 reform is due to start ITE courses in the academic year 2012/2013. The main challenges currently concern the profiles, skills and training needs of an increasingly ageing teaching workforce, together with the – so far limited – flexibility of learning pathways, in particular as far as ISCED 3 and tertiary education are concerned. Even though the Italian teaching workforce is predominantly an ageing one, the teacher demand forecast for the future years is quite low, as pension reforms are significantly raising the retirement age and fiscal consolidation policies are producing personnel cuts, increased workloads and bigger class sizes.

Italy has developed a National Qualifications Framework for the Higher Education Area, published in 2010, in order to promote quality, transparency of qualifications and professional/learning mobility within the European Higher Education area. A 2010 agreement between State, Regions and social partners established 21 vocational qualification profiles (three-year length) and 21 vocational certificate profiles (four-year length). In April 2012, the government concluded an agreement with the regional authorities to set up a system for the certification of skills and vocational and training standards. The implementation of this new framework, with a view of having the competences recognised across the country and not only at regional level, will be crucial.

The most significant measure in the field is the national digital agenda (Piano Nazionale Scuola Digitale), introduced in 2009, which has entailed dedicated funding for ICT equipment and a series of interconnected actions. The measure targets students and teachers across all school levels (from ISCED 1 to ISCED 3) and promotes educational innovation through the diffusion of

technologies applied to teaching. It covers not only in-service teacher training, but also basic and transversal skills development in young people, in an integrated way. Moreover, in the framework of e-government 2012 Plan, implemented by the Ministry of Public Administration and Innovation, all schools should be connected and equipped with technological tools for didactics and for relationships with families by 2012. The Ministry started the setup of a national database of ICT and technological equipment used for teaching in Italian schools in 2010; however it is too early to evaluate the impact of this national digital agenda.

4.3. Initiatives and measures to secure smart funding and developing partnerships

Following the 2010 university reform, an increasing share of public funding for universities is to be allocated on the basis of teaching and research performance. However, the share of public funding distributed according to these principles only rose from 7 % in 2009 to 13 % in 2012. Consequently, there is still scope for strengthening the link between universities' research/teaching performance and the allocation of public funding. In order to increase levels of tertiary education attainment and give wider opportunities for university access, a fund for university merit was set up in 2011, with a € 10 million endowment. While the creation of the fund is a promising step, the amounts involved appear quite limited. As asked by the European Council of 30 January 2012, the Italian authorities and the Commission examined measures for reducing youth unemployment. They include a reprogramming and better use of EU structural funds towards supporting, inter alia, education, apprenticeship and mobility. For instance, relevant actions in these fields include: tackling early school-leaving and developing key-competencies (EUR 125 million), promoting transition from education to work (EUR 99 million) and supporting linguistic internships abroad (EUR 186 million).

Since 2007, regions have been given the possibility of setting up post-secondary technical schools (ITS, Istituti Tecnici Superiori). ITS offer post-secondary courses of two years/four semesters, focused on a specific professional sector. They have a special foundation status and may involve various institutions and stakeholders: secondary schools, university departments concerned with scientific/technological research, enterprises of the specific technical/professional sector, and local authorities. The ITS can be considered as a relevant step in promoting the development and modernisation of the post-secondary non-tertiary education system.

Conclusion

Italy 's ESL performance remains far below the EU average. While the recently established pupil monitoring system is a positive step towards preventing ESL, striking the right balance among targeted ESL prevention, intervention and compensation measures will be important for Italy to ensure a faster improvement in ESL rates. Considering Italy's target to raise the tertiary attainment rate to 26-27% by 2020, reducing the high drop-out rate is key. Increasing adults' participation rates in lifelong learning, which are currently very low, remains a challenge.

Despite some progress, Italy still ranks below EU average for student achievement in basic skills (literacy, numeracy and science). While serious reforms have been initiated at all education levels, Italy is facing the challenge of improving the overall quality and efficiency of the education and training system, in particular in the South. The reforms of secondary school and university have attracted attention and concentrated resources, for implementation and parallel measures. They will require time and mediation to overcome resistance and promote ownership in specific interest and professional groups, as well as in trade unions. Finally, in the context of growth-friendly fiscal consolidation there is a need for preserving expenditure in education and training while increasing its efficiency.