

Introduction

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1. Introduction

Education and training have an important place in the Lisbon strategy for jobs and growth. As part of this overall strategy, the Council set out broad common objectives for the education and training systems of the EU. This has been done through *the Education and Training 2010 work programme* launched in 2001 and its follow-up, *the strategic framework for European cooperation in education and training* (ET 2020) adopted by the Council in May 2009¹. Member States are supported in achieving these objectives through the open method of coordination, which uses indicators and benchmarks to inform evidence-based policy making and to monitor progress.

The Council in May 2007 identified a framework of 16 core indicators for monitoring progress towards the Lisbon objectives.

Sixteen core indicators for monitoring progress towards the Lisbon objectives

- § Participation in pre-school education
- § Special needs education
- § Early school leavers
- § Literacy in reading, mathematics and science
- § Language skills
- § ICT skills
- § Civic skills
- § Learning to learn skills
- § Upper secondary completion rates of young people
- § Professional development of teachers and trainers
- § Higher education graduates
- § Cross-national mobility of students in higher education
- § Participation of adults in lifelong learning
- § Adult skills
- § Educational attainment of the population
- § Investment in education and training

These indicators enable the Commission and the Member States to:

- underpin key policy messages;
- analyse progress both at the EU and national levels;
- identify good performance for peer review and exchange; and
- compare performance with third countries.

The core indicators cover the whole learning continuum from pre-school to adult education, teachers' professional development and investment in education and training. Not all the data for these indicators are fully available yet. In almost all these areas, new surveys are being prepared or presently carried out.

Indicators never tell the full story. But they help to identify differences, similarities and trends and to provide a starting point for further analysis in order to understand better performance and progress.

In order to guide progress on achieving the objectives set for education and training systems of the EU, the Council adopted in May 2003 five benchmarks to be achieved by 2010² and in May 2009, five benchmarks for 2020³.

Five EU benchmarks for 2010

- § No more than 10% early school leavers;
- § Decrease of at least 20% in the percentage of low-achieving pupils in reading literacy;
- § At least 85% of young people should have completed upper secondary education;
- § Increase of at least 15% in the number of tertiary graduates in Mathematics, Science and Technology (MST), with a simultaneous decrease in the gender imbalance;
- § 12.5% of the adult population should participate in lifelong learning.

Five EU benchmarks for 2020

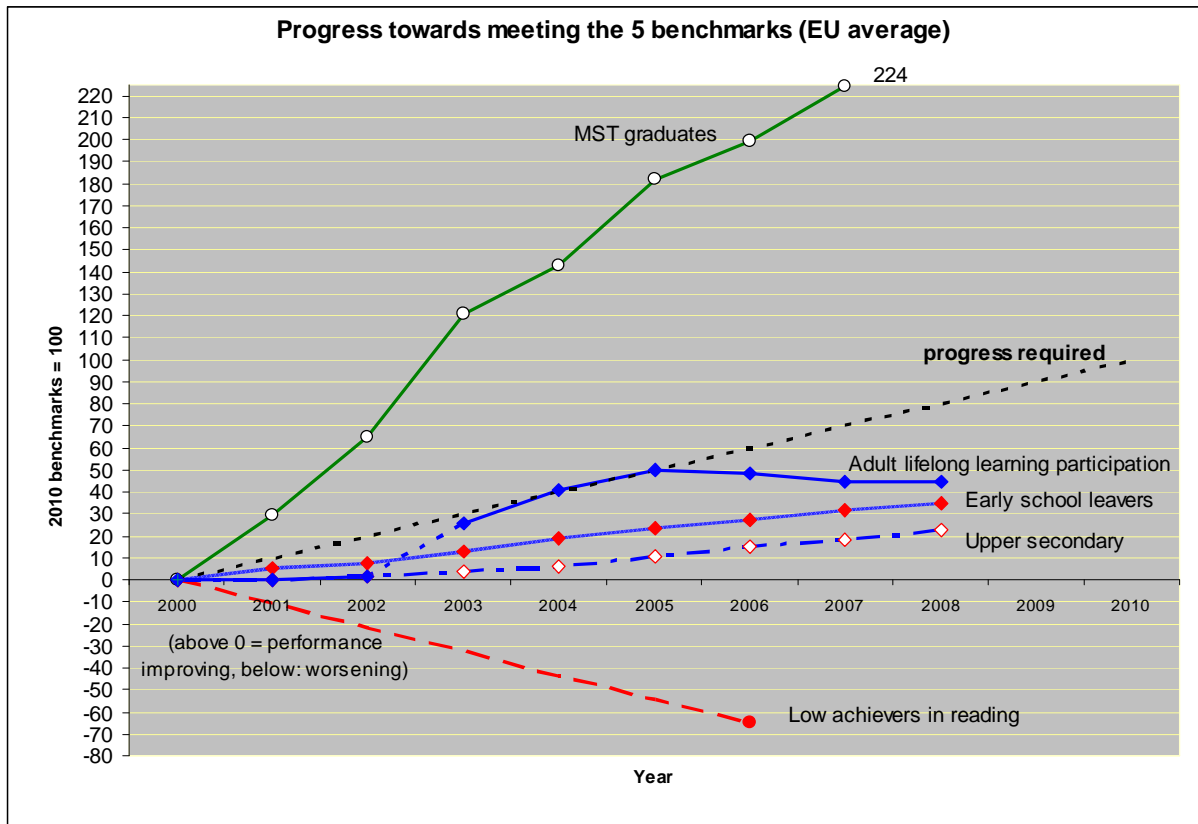
- § at least 95% of children between 4 years old and the age for starting compulsory primary education should participate in early childhood education
- § the share of early leavers from education and training should be less than 10%
- § the share of low-achieving 15-years olds in reading, mathematics and science should be less than 15%.
- § the share of 30-34 year olds with tertiary educational attainment should be at least 40%
- § an average of at least 15 % of adults should participate in lifelong learning

2. Conclusions on progress towards the European benchmarks for 2010

Education and training systems in the EU are generally improving. The EU benchmark on mathematics, science and technology graduates was already reached before 2005. In the period 2000-2007 growth in the number of new maths, science and technology graduates was more than twice the level needed to meet the benchmark.

Although there was broad progress of performance, the benchmarks on early school leaving, completion of upper secondary education and lifelong learning are with the current trends not likely to be reached by 2010. Attaining these benchmarks will in many countries demand more effective national initiatives. In the period 2000-2006 performance even deteriorated for reading literacy of young people.

Chart Int.2.1: Progress towards meeting the five benchmarks for 2010 (2000-2008)



Source: European Commission DG Education and Culture

In this chart the starting point (in 2000) is set at zero and the 2020 benchmark at 100. The results achieved each year are measured against the 2020 benchmark (= 100). The diagonal line shows the progress required, i.e. an additional 1/20 (5%) of progress towards the benchmark has to be achieved each year to reach the benchmark. If a line stays below this diagonal line, progress is not sufficient; if it is above the diagonal line progress is stronger than what is needed to achieve the benchmark. If the line declines, the problem is getting worse.

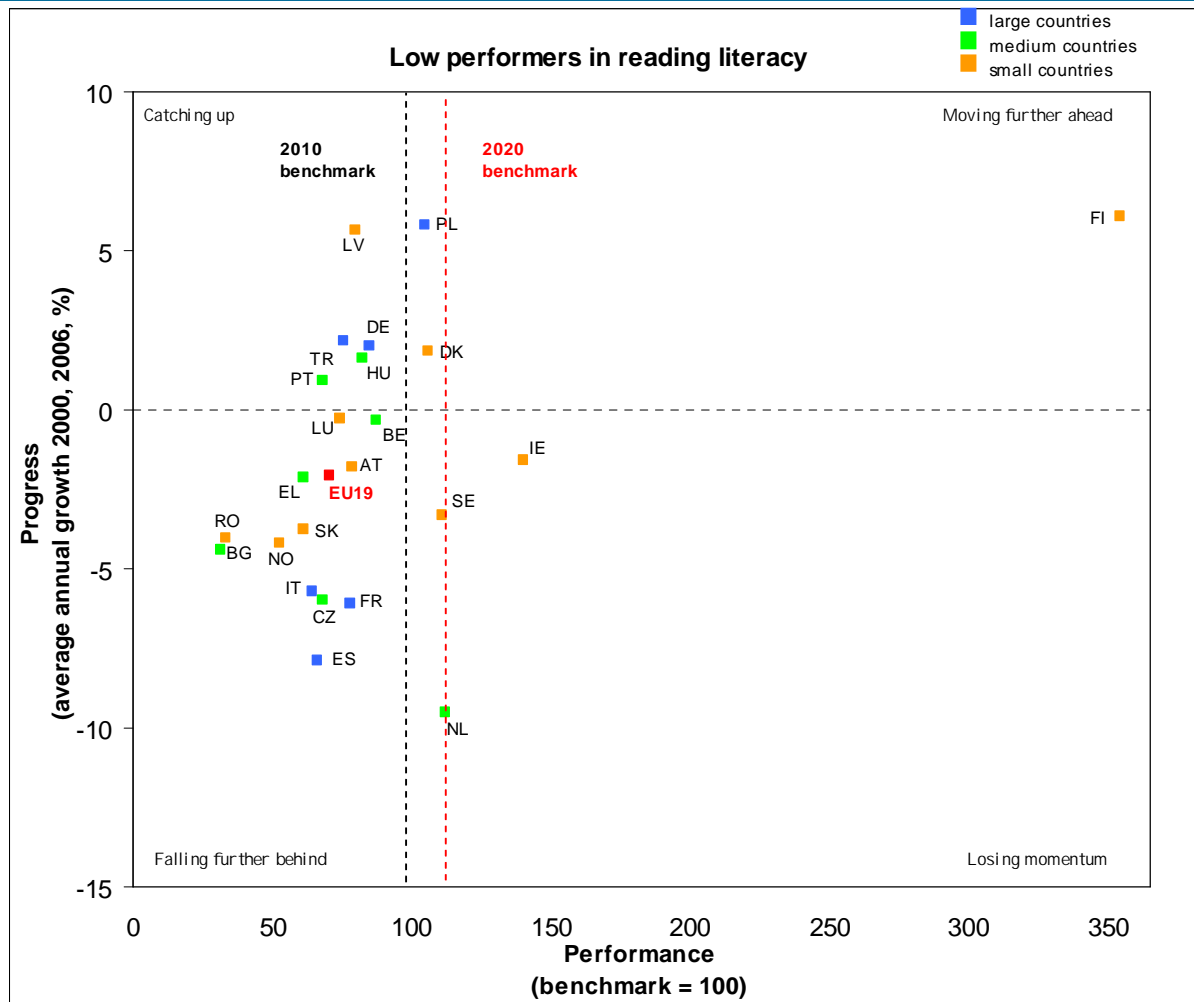
In the case of lifelong learning, it should be kept in mind that there have been many breaks in the time series, which tend to overstate the progress made, especially in 2003. Therefore the 2002-2003 line on LLL participation is dotted. For low achievers in reading (data from the PISA survey) there are results for 18 EU countries for only two data points, 2000 and 2006. It is therefore not yet possible to assess to what extent the observed differences are indicative of longer-term trends

2.1. Country performance and progress in the areas of European benchmarks.

A more detailed analysis of the benchmark areas is provided in Charts Int.2.2 to 2.6 looking into the question on national performance and progress within each of the five benchmark areas for 2010. In the case of the benchmark on low performers in reading literacy (the rate to be reduced by at least 20% by 2010, Chart Int.2.2.), one observes

that most countries are above that level, and have a higher rate of low achievers among young people than targeted. This is however not the case of Ireland, and especially Finland which have a very high performance in the field. Poland, Denmark, Sweden and the Netherlands have performance levels near, but below, the 2010 benchmark. Sweden and especially the Netherlands have not progressed further between 2000 and 2006.

Chart Int. 2.2
Benchmark 2010: Low Performers in reading literacy (2000-2006)

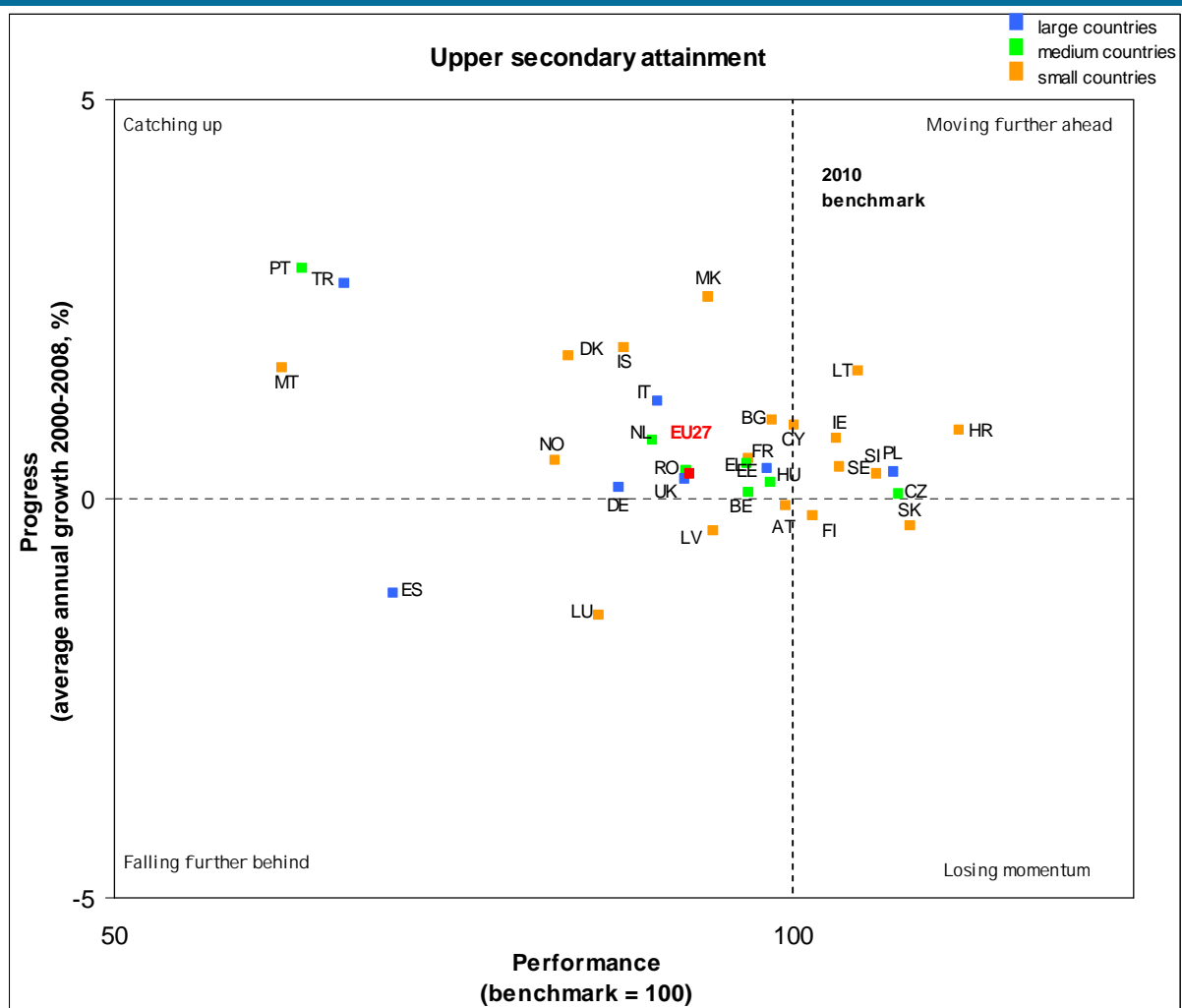


Source: European Commission DG JRC/Crell

Looking at performance and progress on the Upper secondary attainment benchmark (85% of completion by 2010), (Chart Int.2.3) Luxembourg and Spain are losing momentum with decrease in performance while still relatively far from the benchmark level. Croatia is showing the strongest performance, while Turkey and

Portugal are progressing notably, even though both are quite far from the benchmark level. Most large countries, with the exception of Poland, have low level of completion rates which has a significant impact on reaching the EU benchmark.

Chart Int. 2.3
Benchmark 2010: Upper Secondary Attainment (2000-2008)

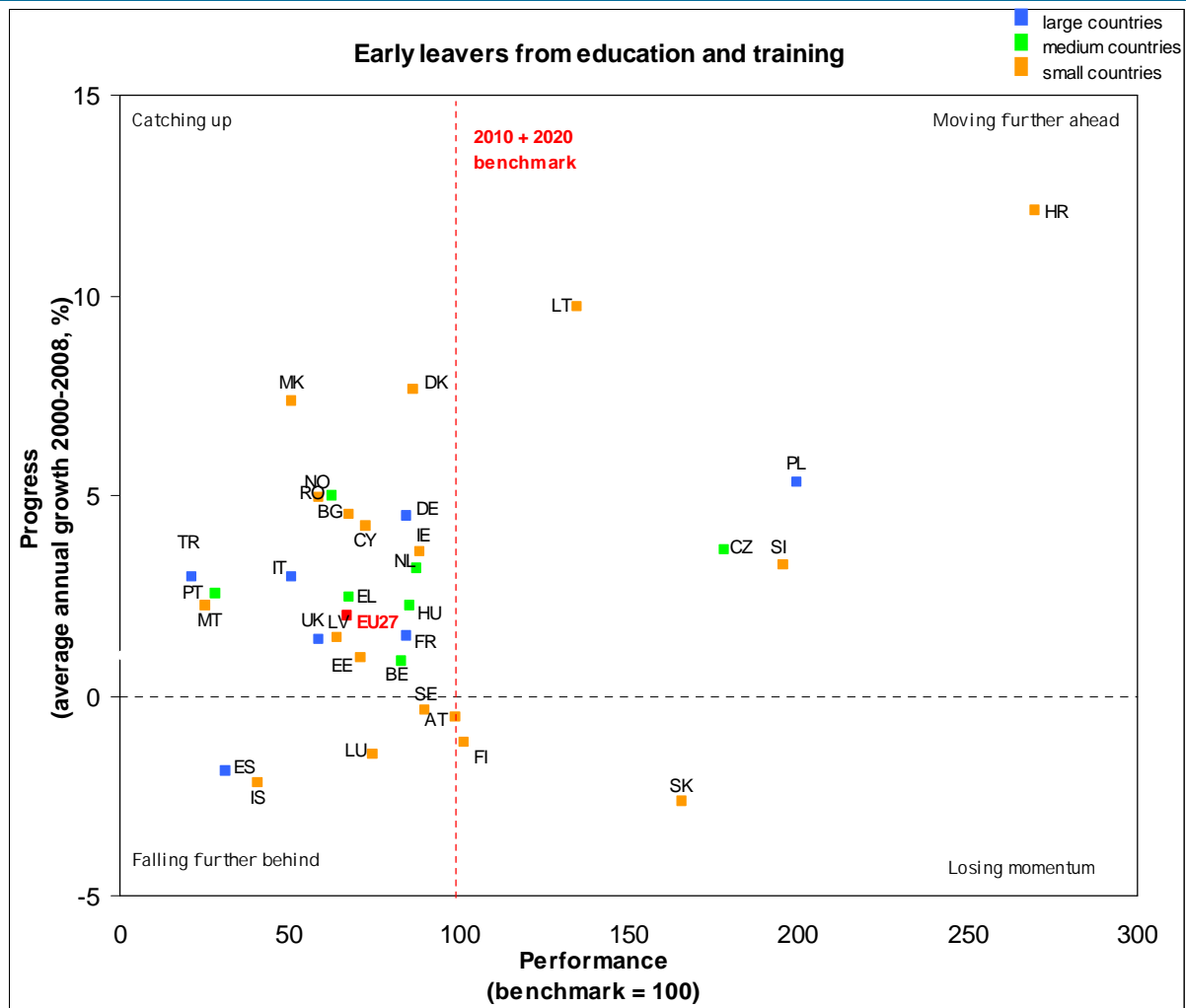


Source: European Commission DG JRC/Crell
*MK= former Yugoslav Republic of Macedonia (cf. Annex 2)

When it comes to the benchmark of Early leavers from education and training, of less than 10% of young people by 2010 (Chart Int. 2.4) one notices that significant progress has been made by many

countries and especially by Croatia, Poland, Slovenia, the Czech Republic, Slovakia and Lithuania, all of which already perform below the benchmark level.

Chart Int. 2.4
Benchmark 2010: Early leavers from education and training (2000-2008)

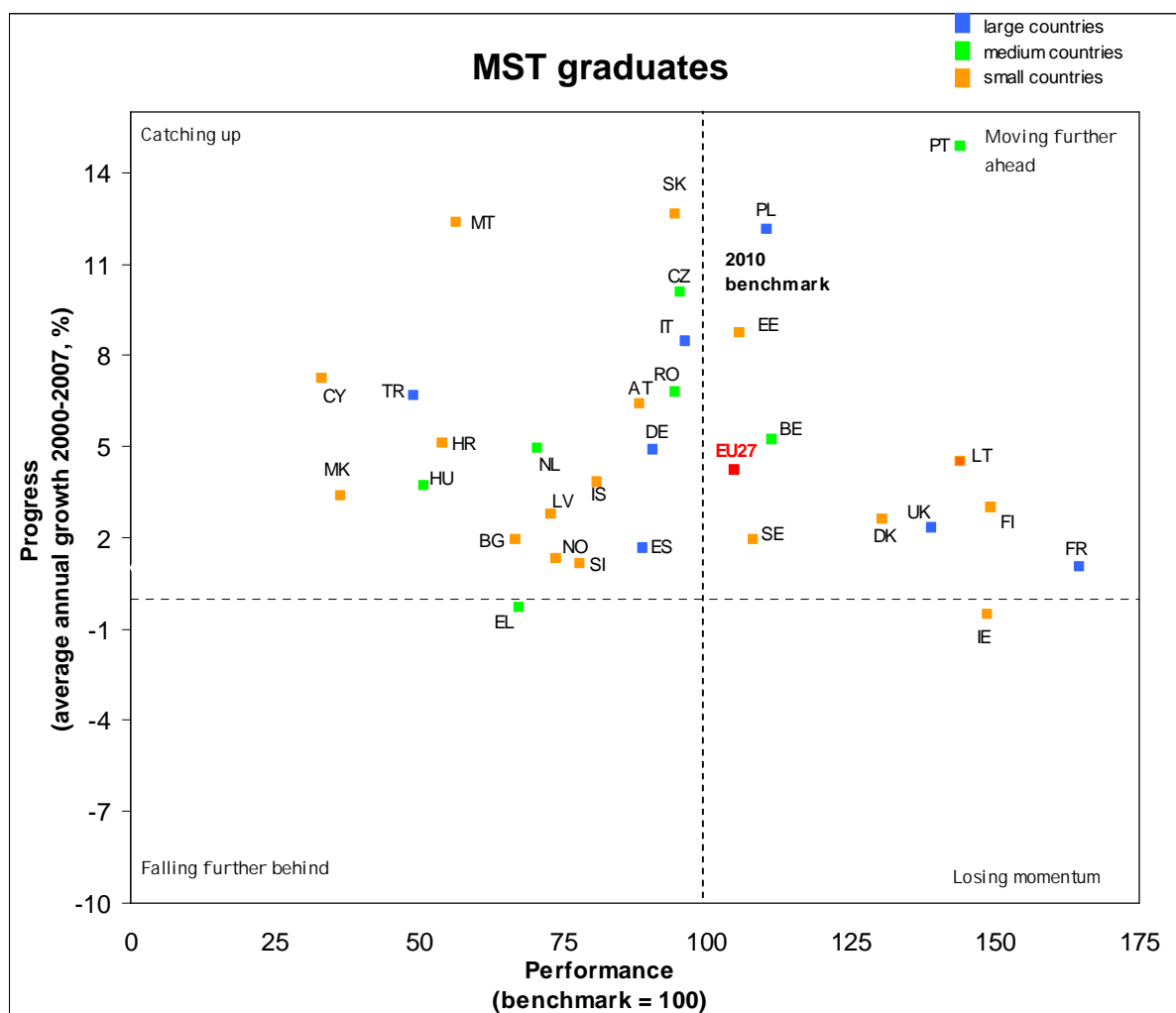


Source: European Commission DG JRC/Crell
*MK= former Yugoslav Republic of Macedonia

Considering the Mathematics, Science and Technology benchmark, (Chart Int. 2.5) many countries have already achieved or are very close to the benchmark level of 2010 (15% increase in the number of graduates as

compared with 2000). Most of the countries which have not yet reached the benchmark level are catching up, with Slovakia and the Czech Republic having the highest rates of progress.

Chart Int.2.5
Benchmark 2010 : Mathematics, Science and Technology Graduates (2000-2007)



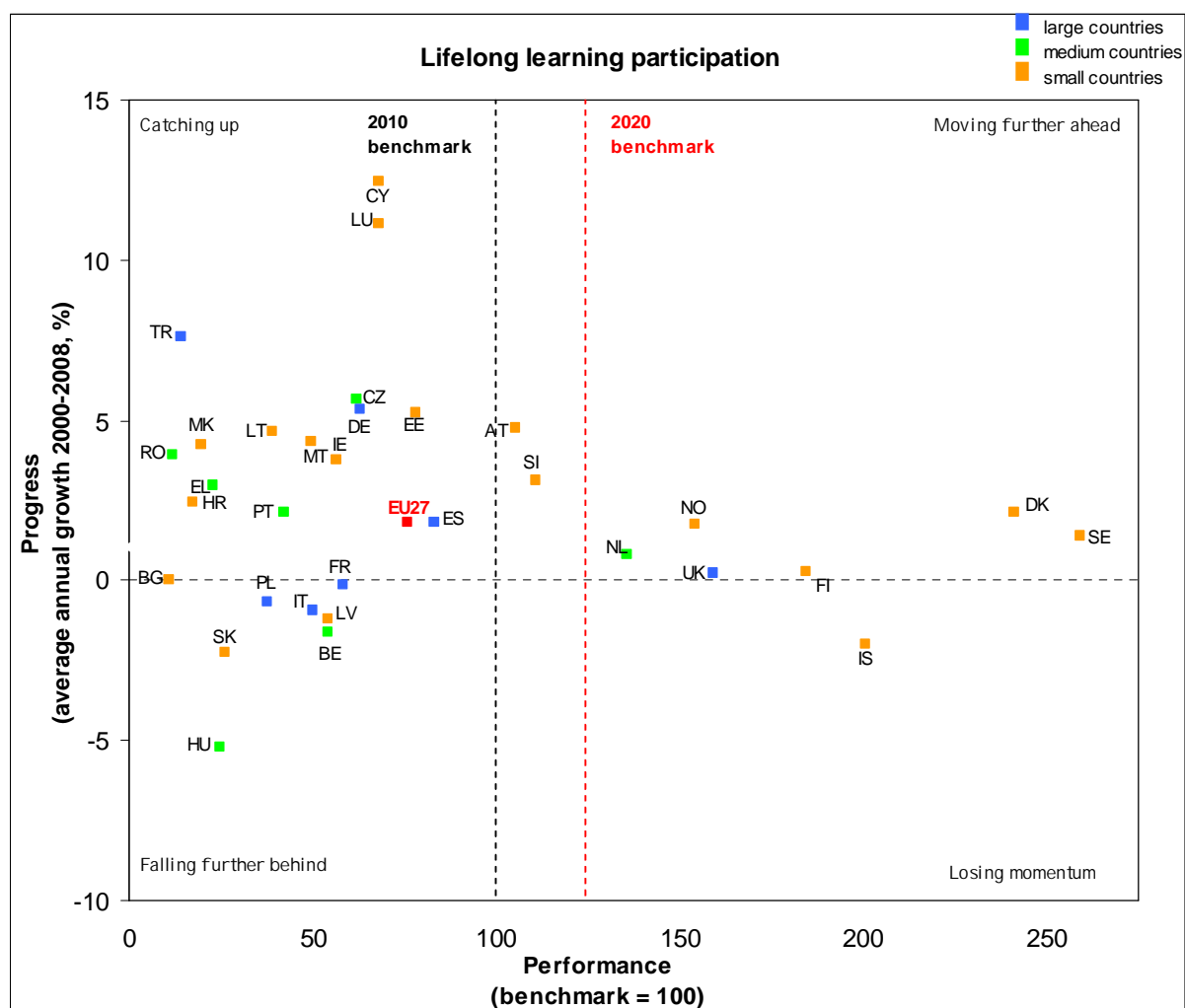
Source: European Commission DG JRC/Crell
 *MK= former Yugoslav Republic of Macedonia

Performance and progress on the Adult Lifelong Learning Participation benchmark (Chart Int. 2.6) shows many countries are catching up and increasing their performance, even though not yet at the 2010 benchmark level (12.5% of participation). Some, especially the Nordic countries (Denmark, Sweden, Finland and Norway and Iceland, together with the

Netherlands and the UK), already perform above the 2020 benchmark level of 15% of adult participation in lifelong learning.

Hungary and especially Slovakia perform clearly below the benchmark level and show decreasing levels of progress.

Chart Int.2.6
Benchmark 2010: Adult Lifelong Learning participation



Source: European Commission DG JRC/Crell
*MK= former Yugoslav Republic of Macedonia

The presentation of performance and progress above in the Charts Int. 2.2-2.6 clearly shows that all countries have strengths and weaknesses in the five benchmark areas and that no country is "falling behind" in all areas. It should be noticed that Poland

has performance levels above the EU benchmark and moving further ahead in four of the five areas and that Austria, Denmark, Finland, Slovenia and Sweden show a similar level of performance and progress in three areas.

2.2. Best performing countries: Learning from good practice

All Member States can learn from the best performers in the Union. Therefore it is important to complete the analysis above by looking at the details in the benchmark areas and in other core indicator areas (See Tables Int.2.1 - Int.2.2).

This is why the Council asked for the three best performing countries in specific policy areas to be identified. Half the Member States are best performers in at least one benchmark area. There is therefore a relative big spread of good practice and expertise in the EU among member states.

Table Int. 2.1: Best performing countries on benchmark relating to school education

	Target for 2010/2020	Best performing countries in the EU			EU	USA	Japan
Participation in early childhood education (4 years-start of comp. primary), %	2020: 95%	2007					
		Sweden 100%	France 100%	Belgium 99.7%	90.7%	69.2	96.4
Low-achievers in reading (15-year-olds, %)	2010: At least 20% Decrease 2020: no more than 15%	Change in the percentage of low achievers in % (2000-2006)					
		Finland -31.4%	Poland -30.2%	Latvia -29.6%	+13.1%	-	+82.2%
		Share of low achievers, 2006					
		Finland 4.8%	Ireland 12.1%	Estonia 13.6%	24.1%	19.4% (2003)	18.4%
Early school leavers (18-24, %)	2010/2020: No more than 10%	2008					
		Poland 5.0%	Czech Republic 5.6% ^a	Slovakia 6.0%	14.9%	-	-
Upper secondary attainment (20-24, %).	2010: At least 85%	2008					
		Slovakia 92.3%	Czech Republic 91.6%	Poland 91.3%	78.5%	-	-

Source: DG Education and Culture - Data sources: Eurostat UOE and LFS; OECD/Pisa

Table Int.2.2: Best performing countries on benchmarks relating to higher education and lifelong learning

	2010 target for EU	Best performing countries in the EU			EU	USA	Japan
Graduates in Mathematics Science Technology (per 1000 young people)	2010: Increase of at least 15% graduates	Average annual increase 2000-2007					
		Portugal +14.9%	Slovakia +12.6%	Poland +12.2%	+4.2%	+2.0%	-1.0%
		MST Graduates per 1000 inhabitants (aged 20-29) in 2007					
		France 20.5	Finland 18.8	Ireland 18.7	13.4	10.1	14.4
Higher education attainment (age 30-34)	2010: - 2020: at least 40%	Higher education attainment, 2008					
		Cyprus 47.1%	Denmark 46.3%	Finland 45.7%	31.1% Aged 25-34: 30.9%	(2007) Aged 25-34: 40%	Aged 25-34: 54%
Adult Lifelong Learning participation (25-64, %)	2010: At least 12.5% 2020: at least 15%	2008					
		Sweden 32.4 (07)	Denmark 30.2%	Finland 23.1%	9.5%	-	-

^a. 2006, p: provisional

Source: DG Education and Culture - Data source: Eurostat UOE and LFS

2.3 Performance of European educational systems in a worldwide perspective

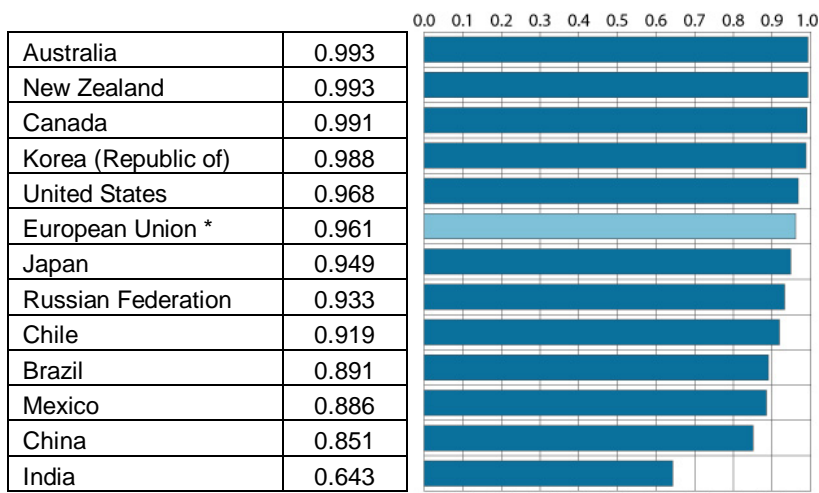
The European Council set the objective of “making European education and training systems in Europe a world quality reference by 2010”. (Council, 2002c, paragraph 43).

This report therefore puts European performance into a world-wide perspective by comparing it with the USA, Canada, Japan, South Korea, Australia, New Zealand, China, Russia, India and Mexico, countries which are trading partners or high educational performers. An overall evaluation of the EU performance compared to the rest of the World can be made by looking at the UN Education Index -

one of the three dimensions of the UN Human Development Index (HDI). The index can give a statistical picture of a country’s relative performances in school enrolment and basic literacy domains. It is constructed based on the adult literacy rate (with two-thirds weighting) and on the gross enrolment rate in the primary, secondary and tertiary levels of education combined (with one-third weighting).

The education index clearly places the EU as a whole among the world’s best performers. Australia, New Zealand, Republic of Korea and the US perform slightly better whereas Japan, Brazil, Russian Federation, India and China show lower values of the index (see Chart Int.2.7)

Chart Int.2.7: EU Education performance in a Worldwide perspective - UN education index*



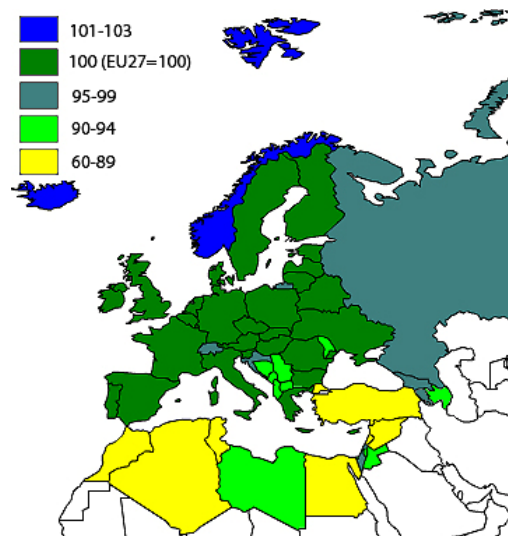
Source: CRELL/Joint Research Centre (2009) Data Source: UNDP, Human Development Report (2009)

(*) EU aggregate is calculated as weighted average of index values for member states and the population data at 1 of January

The Index shows that while the north-eastern EU neighbours are mostly around an equivalent level of the EU average, its south eastern and southern

neighbours are clearly some way behind (Israel and Croatia are exceptions).

Chart Int.2.8: EU Education average performance level in a neighbouring countries perspective UN Education Index* (EU27=100)



Source: CRELL/Joint Research Centre (2009); Data Source: UNDP, Human Development Report, 2009

(*)The index represents statistical values for the year 2007 – See Table Ann Int. 1

2.4. Trends towards the 2020 benchmarks

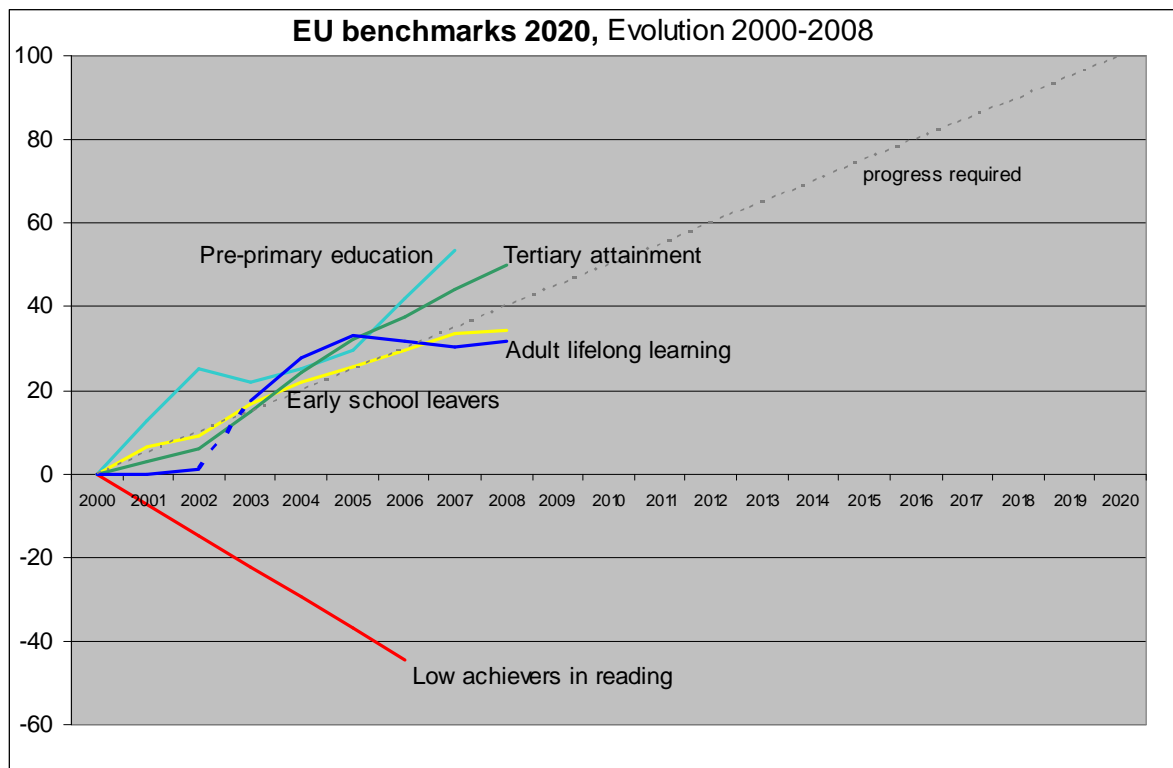
Progress towards achieving the new 2020 benchmarks can not yet be monitored, since the latest data refer to the time before these benchmarks have been adopted (See Chart Int.2.9). However, looking at progress in the period 2000-2008 can help to see if the current trajectory of progress would point towards reaching the EU benchmarks in the future. As regards the benchmarks on Pre-primary education and Tertiary education, progress since 2000 has been above the trend line needed to reach the 2020 benchmarks. However, saturation effects may come into play for both benchmarks at a later stage, slowing down progress after 2010.

As regards early school leavers, in the period 2000-2008, progress is on the trajectory to reach the 10% goal in 2020. However, progress has slowed down 2007-2008.

For low achievers (only low achievers in reading literacy is shown here, whereas the new benchmark for 2020 also includes maths and science) which has only be measured in 2000 and 2006 by the PISA surveys, performance has clearly deteriorated during the period. The results of the 2009 survey, which will be published at the end of 2010, will tell if a change of trend has been achieved. Without a clear change of trends within the coming years the ambitious 15% benchmark will become a very big challenge to reach by 2020.

As regards adult lifelong learning, performance is clearly improving but progress has stagnated since 2005 which could imply that further national efforts are needed to reach this benchmark.⁴

Chart Int.2.9: Trends towards the five benchmarks for 2020 (2000-2008)



Source: DG Education and Culture

3. Demographical trends in Europe⁵

3.1 Current trends in number of young people

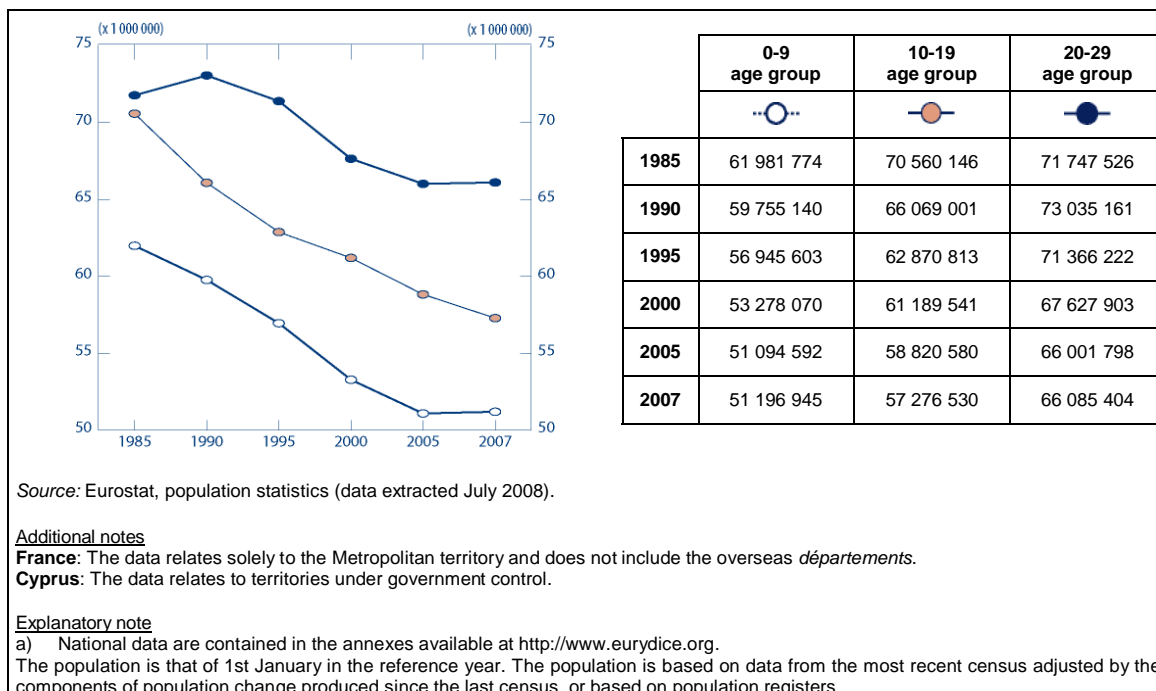
In 2007, young people under 30 years represent about 35% of the total population in the EU27. However, the number of young people in the European Union has declined steadily. Between 1985 and 2007, the population aged 0-9 years in the EU27 decreased by 17.4%, the population aged 10-19 by 18.8%, and the population aged 20-29 by 7.9% (Chart Int. 3.1).

These trends have a different impact on the different levels of education. While compulsory education (primary and lower secondary education) are directly impacted by smaller cohorts through a lower intake

of pupils, increases in participation rates in upper secondary education and university are counteracting the demographic decline.

This overall trend conceals contrasting situations. For the 0-9 age group, although the EU-27 members have reported a stable situation during the 2005-2007 period, in countries such as Germany, Cyprus, Lithuania, Malta and Poland, the population has decreased at rates higher than 1.5% per year. However, for the same age group and time period Ireland and Spain had significant growth rates above 2.5% per year. In the 10-19 age group, several countries (Bulgaria, Estonia and Romania) experienced a population decrease over three times higher than the average rate for the EU-27.

Chart Int. 3.1: Variation of the population in the 0-9, 10-19 and 20-29 age groups in the EU-27 (1985-2007)



3.2 Future intake of pupils in schools

Population projections of future pupil intakes in primary (ISCED 1, age 5-9) and lower secondary education (ISCED 2, age 10-14) enable future requirements in terms of infrastructure and personnel to be estimated.⁶

When it comes to changes in pupil intakes in primary and lower secondary education, two overall trends on the EU level emerge (Chart Ann. Int.2a and 2b). From 2000-2010 future intakes in both primary (8.5%) and lower secondary education (12.9%) fall. From 2010 to 2020 these trends appear to reverse and intakes in both primary and lower secondary education are projected to increase by around 3%.

During the period 2000-2010 only Spain, France, Italy, Luxembourg, the Netherlands and Portugal projections show an increase in the intake of primary

pupils. On the other hand countries such as Bulgaria, Estonia, Cyprus, Latvia, Lithuania, Poland and Slovakia experience projected declines of more than 25% of pupils in primary education. At lower secondary education only in Denmark, Luxembourg and the Netherlands the projections show growth in future intakes while Bulgaria, the Czech republic, Estonia, Latvia, Lithuania, Poland and Romania are projected to experience a decline in the intake of pupils of more than 30%.

During the period 2010-2020, the projections appear less dramatic. In primary education only Denmark, Germany, Italy, the Netherlands and Romania experience a projected fall in the future pupil intake while Estonia, Ireland, Spain and Cyprus experience a more than 15% growth in the projected intake. In Lower secondary education Germany, Lithuania, and Malta experience a more than 10% decrease in projected pupil intakes while Bulgaria, the Czech

Republic, Estonia, Ireland, Spain, Latvia and Sweden have projected increase of more than 10%.

3.3 Overall population trends

European populations are aging because of two major trends. First, total fertility rates have remained low for several decades i.e. below the rate of replacement which is at an average of 2.1 children per women. Second, people live longer and healthier lives.

Projections of demographic developments of specific age-groups towards 2060 (Table Int.3.1) shows that the population of the EU27 will rise gradually from 495.4 million in 2008, reaching 519.9 million in 2030 and gradually declining to reach 505.7 in 2060. The population is becoming older with the median age projected to rise from 40.4 years in 2008 to 47.9 years in 2060.

Table Int 3.1: EU population in millions

	2008	2030	2060
Total population (1 January)	495.4	519.9	505.7
Population aged 0-14 Share of total population	77.5 16%	75.5 14%	71.0 14%
Population aged 15-64 Share of total population	333.2 67%	321.9 62%	283.3 56%
Population aged 65+ Share of total population	84.6 17%	122.5 24%	151.5 30%
Old age dependency ratios	25.9%	38.1%	53.5%

Source: EUROSTAT population statistics

While the young population is decreasing slightly from 77.5 million (16% of the total population) to 71 million (14 % of the total population), the major changes take place in the age group 15-64 year olds and the population older than 65. The working age population (15-64 year olds) falls by about 50 millions while the population older than 65 increases by more than 60 million. In terms of share of the total population, the working age population is expected fall to 56% of the total population while the share of people older than 65 are expected to increase to 30% of the total population.

Consequently, the old age dependency ratio is expected to increase substantially from its current levels of 25.9% to 53.5% in 2060. Or put differently, in 2008 there are 4 persons of working age (15-64 years old) for every person aged 65 years or over. In 2060 the ratio is expected to be 2 to 1.

These overall population trends holds policy message also for education. The shrinking labour force (i.e. the population age 15-64) suggests that education becomes even more important in the future to ensure that people on the labour market have right levels of skills (chapter II on labour market outcomes analyse this relationship in more detail).

The fast growing share of people over 65 year olds underlines the need for emphasising educational opportunities also for this group. Moreover, it suggests an increased demand for care and a need for educating more people to work in the care sector.

4. Investment in Education

Building on the Lisbon Council's call for increased and improved investment in human resources, the Council Conclusions of March 2008 reiterates the need for "*investing more and more effectively in human capital and creativity throughout people's lives*" as crucial conditions for Europe's success in a globalised world (Council, 2008).

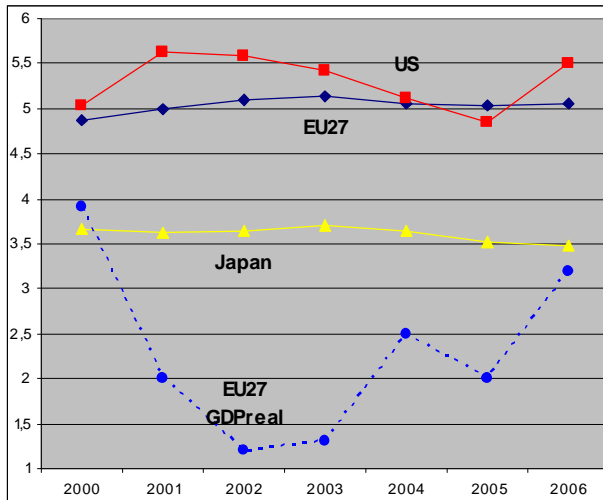
This section analyses the patterns of investment in education in the European countries.⁷ Data on investment in Vocational Education and Training (VET) is not included here. However, it is covered in this report in section II.2 Vocational education and training. The overall level of educational investment in European countries is discussed in the first part of this section. The second part provides some insights into the variety of investment patterns by levels of education.

4.1. Levels of investment in education and training

In 2006 public investment in education in the EU accounted for 5.05 % of GDP There are large variations between European countries in their levels of total public investment on education as a percentage of GDP. In 2006 Denmark had the highest relative investment level in education among the Member States (8% of GDP), followed by Cyprus (7%), Sweden (6.85%) and Finland (6.14%). High level of public investment on education was recorded as well in Iceland (7.55%) and Norway (6.55%). In Slovakia, Turkey and Liechtenstein public investment in education in 2006 was close to or below 4% of GDP. As can be seen in Chart Int.4.1, in 2006 Japan (3.5%) trails the EU (5.05%) and the US (5.5%) on public investment. However, both the US and Japan have much higher levels of private investment in education than any EU member state.

Between 2000 and 2006, in nearly all European countries, the investment patterns followed the trend in enrolments - both in absolute level (i.e. investment in current prices) and in investment per student. Hence the decline in the investment on education as a percentage of GDP observed in most countries during the economic upturn (2005-2006) is due to increases in the GDP levels - following an economic recovery - and should not be seen as a decline in the absolute levels of the investment in education. This pattern suggests that most governments' have expanded spending in line with enrolment levels.

Chart Int.4.1: Public investment on education as a percentage of GDP



Data source: Eurostat (UOE) – Graphical display is based on October 2009 data

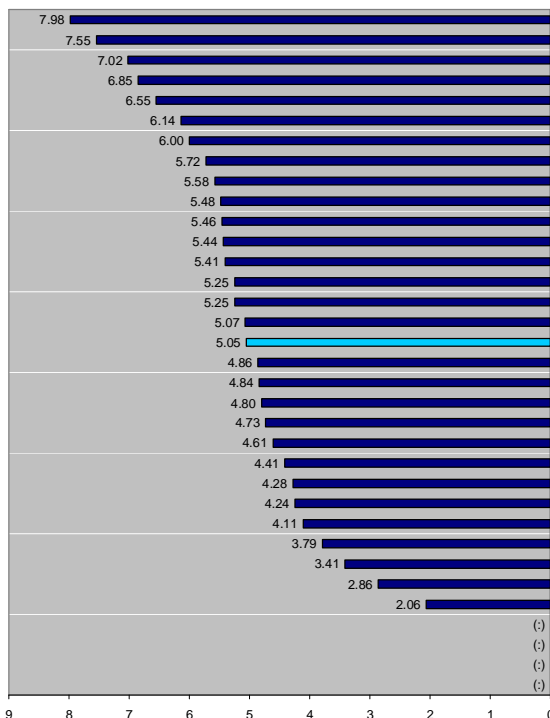
The average annual change in the public investment (chart Int. 4.2) on education as a proportion of GDP between 2000 and 2006 has been positive in ten member states; Cyprus (and Iceland among the EFTA-EEA countries) has recorded the highest annual percentage change (over 4.5%).

In 2006 almost 90% of investment on educational institutions (all levels combined) at European level was covered by public sources. Private sources represented around 10% of total investment on educational institutions. In some Nordic countries like Finland and Sweden, less than 3% is covered from private sources. For another group of countries (Czech Republic, Spain, Latvia, Austria and Slovenia) private sources of funding accounted for 10 to 15% of total investment on educational institutions. In six member states (the United Kingdom, Cyprus, the Netherlands, Bulgaria, Germany and Slovakia), educational institutions are funded from private sources in a proportion of 15 to 25%. This compared to 32% in the United States, 33% in Japan and 41% in Korea.

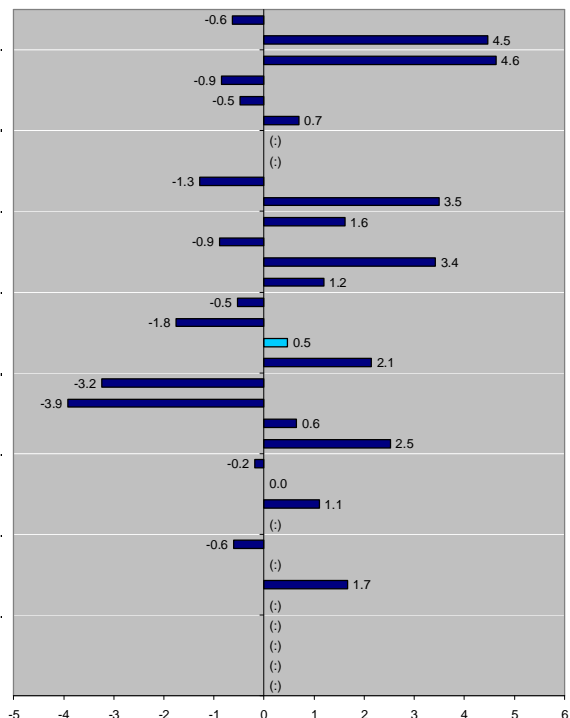
Between 2000 and 2006 in one-third of European countries for which comparable data are available, the private sources of funding for all combined levels of education have increased as a percentage of GDP (see table Ann. Int. 5). However, in the large majority of the member states for which data are available this trend reversed between 2005 and 2006.

Chart Int. 4.2: Public investment on education as a percentage of GDP in European countries (2006p)

Public expenditure on all levels of education as a % of GDP



Average Annual percentage change



Data source: Eurostat (UOE) – Graphical display is based on October 2009 data

(:) Not available - *MK= former Yugoslav Republic of Macedonia - Additional notes: see Table Ann. Int. 7

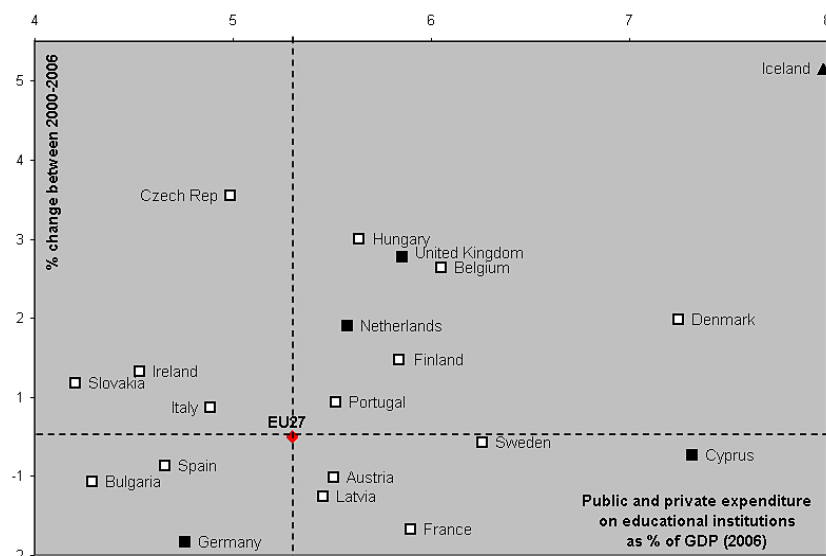
As concerns the trend in relative investment on educational institutions over the past six years, Bulgaria, Germany and Spain, are falling behind the EU average in public and private investments on educational institutions as a percentage of GDP

(countries in the lower-left quadrant). Countries like Cyprus, Latvia, France, Sweden, Austria (lower-right quadrant) are presently above the EU average (Cyprus for both public and private investments) but are 'losing momentum' in terms of investment on

educational institutions as a percentage of GDP. Only four countries with lower levels of GDP invested on educational institutions than the EU

average, Slovakia, Czech Republic, Italy and Ireland are catching up (upper-left quadrant).

Chart Int.4.3: Changes in the public and private investments in education in European countries (2000-2006)



Source: CRELL; Data source: Eurostat (UOE) – Graphical display is based on October 2009 data
 Legend:

- EU member state with private investment as a % of GDP higher than the EU27 average
- EU member state with private investment as a % of GDP lower than EU27 average
- European country with private investment as a % of GDP higher than EU27 average

Countries in the upper-right quadrant (Iceland, Hungary, United Kingdom, the Netherlands, Finland, Portugal, Belgium, Denmark) all perform above the EU average level (with IS, UK and NL for both public and private investments) and are moving further ahead (See Chart Int. 4.3.).

The upward trend noted between 2000 and 2006 in some countries with low levels of investment in education could be seen as a sign of giving priority to investment on education.

4.2. National priorities for investment in education

At the EU level, public investment in primary level of education amounted to 1.17%. Investment in the secondary level of education, accounts for the bulk of investment – some 2.24% of GDP whereas tertiary education accounts for close to 1.13% of GDP. As regards secondary education Cyprus and Denmark show the highest investment levels as a percentage of GDP (3% or close), while Bulgaria, Croatia and in particular Turkey show relatively lower levels. Slovenia is the only Member State with a higher level of investment in primary than in secondary education (see Table Ann. Int. 6).

Investments per student follow a common pattern throughout European countries: it increases substantially with the level of education. On average, investments per student at the secondary level, is 15 percent higher than investments per primary student in Europe (see Table Ann. Int. 7). Differences in student-

teaching staff ratios, staffing patterns, teachers' salaries, teaching materials and facilities, duration of studies, largely account for the cost differences between levels of education. In 2006 the European countries as a whole invested between 1700 (Bulgaria) and 7900 (Norway) PPS Euro per primary student, respectively between 1700 (Bulgaria) and 9500 (Norway) PPS Euro per secondary student. These investment levels mask a broad variance between levels of education.

Between 2001 and 2006, investments on educational institutions per student increased by 29 percentage points at primary level, respectively by 15 percentage points at the secondary level and 12 percentage points at tertiary level.⁸ This pattern may indicate efforts to improve education through substantial investment. In many Central and Eastern European Member States, a decline in cohort size combined with rapid economic growth offered an opportunity to increase investments per pupil considerably in real terms.

Table Int.4.1: Public investment on tertiary education as a percentage of GDP

Country	Public		Of which direct public spending	Of which on R&D In % of direct spending
	2001	2006	2006	2006
EU-27	1.08	1.12	0.97	:
Belgium	1.34	1.32	1.14	32.5
Bulgaria	0.82	0.73	0.66	4.0
Czech Republic	0.79	1.23	1.18	18.4
Denmark	2.71	2.38 ⁰⁵	1.60	:
Germany	1.10	1.11	0.89	37.3
Estonia	1.03	0.93 ⁰⁵	0.77	:
Ireland	1.22	1.14	0.97	:
Greece	1.07	1.44 ⁰⁵	1.42 ⁰⁵	15.1 ⁰⁵
Spain	0.97	0.95	0.88	:
France	1.21	1.19	1.10	34.6
Italy	0.80	0.80	0.67	51.2
Cyprus	1.14	1.65	0.74	17.3
Latvia	0.89	0.91	0.84	27.1
Lithuania	1.33	1.00	0.84	26.7
Luxembourg	:	:	:	:
Hungary	1.08	1.04	0.88	21.8
Malta	0.88	1.06 ^b	0.46 ⁰⁵	15.4
Netherlands	1.36	1.50	1.06	41.3
Austria	1.37	1.48	1.11	36.0
Poland	1.04	1.19 ⁰⁵	0.95	18.2
Portugal	1.03	1.00	0.88	31.6
Romania	0.78	0.90	0.76 ⁰⁵	:
Slovenia	1.28	1.24	0.95	19.6
Slovakia	0.82	0.90	0.77	13.3
Finland	1.99	1.94	1.62	32.8
Sweden	2.00	1.84	1.36	44.4
UK	0.79	1.10	0.81	43.2
Croatia	:	0.88	0.85	5.7
MK*	:	:	:	:
Turkey	0.87	:	0.76	:
Iceland	1.07	1.36	1.03	:
Liechtenstein	:	0.19	:	13.4
Norway	1.84	2.07	1.21	30.6

Source: Eurostat (UOE data collection). Spending on the tertiary level includes R&D spending at universities.

Additional notes: *MK= former Yugoslav Republic of Macedonia
http://epp.eurostat.ec.europa.eu/portal/page?_pageid=0,1136184,0_45572595&_dad=portal&_schema=PORTAL

The Commission has proposed the goal of investing 2% of GDP in higher education from public and private sources combined. The current level in the EU is 1.2% of which public investment accounts for about 1.13% of GDP. In Denmark, total public investments in higher education alone already surpasses 2% of GDP (from all sources); a large share of this, however (as in Finland and Sweden) is direct financial aid to students. Direct public investments on higher education institutions in these countries is hence considerably lower. On the other hand the share direct public investment is below 1% in 7 EU countries, including Italy, Spain and Romania.

Table Int. 4.2: Private and total investment on tertiary education as a percentage of GDP

Country	Private payments to educational institutions	House hold payments	Total private	Total private plus direct public
	2006	2006	2006	2006
EU-27	0.2	0.1	0.3	1.2
Belgium	0.1	0.2	0.3	1.3
Bulgaria	0.5	0.3	0.8	1.2
Czech Republic	0.2	0.0	0.3	1.4
Denmark	0.1	0.7	0.7	2.3
Germany	0.2	0.1	0.2	1.1
Estonia	0.3	:	0.3	1.1
Ireland	0.2	:	0.2	1.1
Greece	:	0.1 ⁰⁵	:	1.5 ⁰⁵
Spain	0.2	:	0.2	1.1
France	0.2	0.1	0.3	1.3
Italy	0.3	0.1	0.4	0.9
Cyprus	0.7	0.1	0.8	1.4
Latvia	0.5	0.3	0.9	1.4
Lithuania	0.4	0.1	0.5	1.3
Luxembourg	:	:	:	:
Hungary	0.3	:	0.3	1.1
Malta	0	:	:	1.1 ⁰⁵
Netherlands	0.4	0.1	0.5	1.4
Austria	0.2	:	0.2	1.3
Poland	0.4	0.1	0.5	1.3
Portugal	0.4	:	0.4	1.3
Romania	0.4	:	0.4	1.1 ⁰⁵
Slovenia	0.3	:	0.3	1.2
Slovakia	0.2	0.2	0.4	0.9
Finland	0.1	:	0.1	1.7
Sweden	0.2	:	0.2	1.5
UK	0.4	0.2	0.6	1.3
Croatia	0.3	:	0.3	1.2
MK*	:	:	:	0.4 ⁰³
Turkey	:	:	:	0.8
Iceland	0.1	:	0.1	1.1
Norway	0.0	:	:	1.2

Source: Eurostat (UOE)

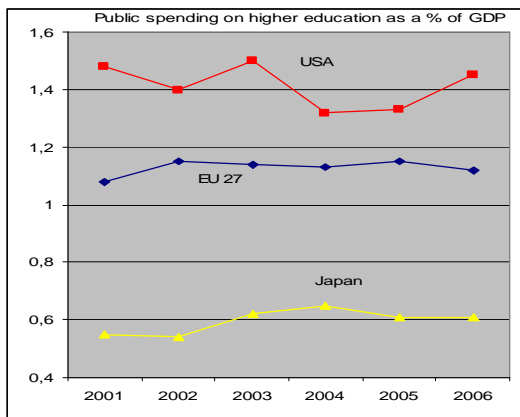
Additional notes:

*MK= former Yugoslav Republic of Macedonia

ISCED 5-6: tertiary education.

Direct public expenditure does not include transfers to private entities. If public and private spending are added up, it is preferable to use direct public expenditure (instead of total expenditure) to avoid double-counting.

While public investment in tertiary-level education in the EU is only slightly below the level in the USA, it is nearly twice as high as in Japan (Chart Int 4.4) However, private investment in higher education is much higher in both the USA and Japan. As a result, total investment on higher education institutions in the EU (for all activities, including both education and research) was in 2006, 1.2% of GDP, far below the level in the USA (2.9%) and also lower than in Japan (1.5%) and Korea (2.3%, 2004), but higher than in Brazil (0.9%), Russia (0.7%), China (0.5%) and India (0.4%).

Chart Int.4.4: Public investment on tertiary education as a percentage of GDP

Data source: Eurostat (UOE) – Graphical display is based on September 2009 data

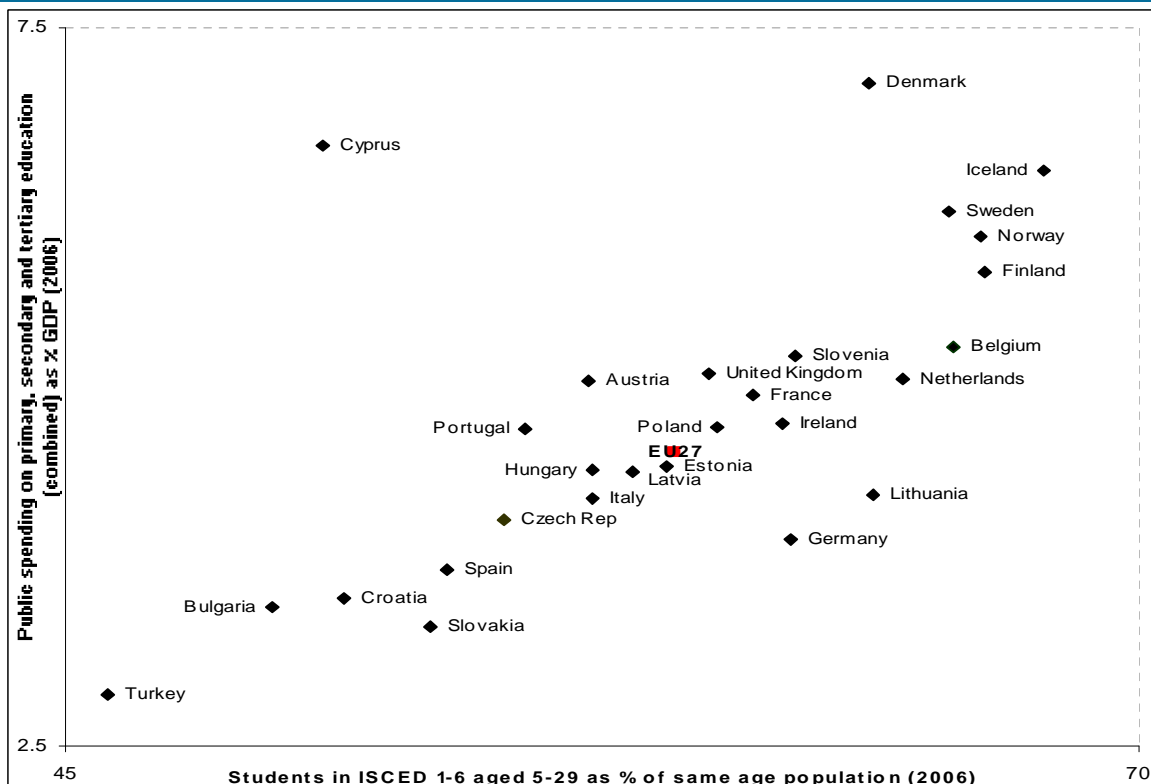
The higher education investment gap between the EU and the USA currently thus amounted in 2006 to about 1.7% of GDP (about 200 billion Euro) or over 10 000 Euro per student (per full time equivalent student the gap even amounted to nearly 13 000 Euro PPS, 21540 in the US and 8590 in the EU). As a result of limited progress in increasing investment in EU countries the gap has not closed in recent years. The impact of the financial crisis still has to be seen. The crisis has already considerably reduced the value of endowment funds of leading private US institutions.

Total public investment on higher education as a percentage of GDP in 2006 increased in 11 EU countries while decreasing in 8. The Czech Republic,

Romania and Slovakia showed the biggest increases. Public investment accounts for more than 85% of the amount invested in tertiary education institutions in Europe. Cyprus and Latvia are the two EU-27 countries with the lowest share of public funding: up to 60% of the amount invested in higher education institutions there comes from private sources. Conversely, in Denmark, Greece, Malta and Finland higher education institutions are almost entirely funded by public resources.

The Member States are marked by great differences in the share of public investment on higher education going to research and development. Those Member States that have high overall levels of R&D spending have also high shares of R&D in investment on higher education. The large Member States and the Nordic countries often show R&D shares of above 30% (Table Int 4.1).

The proportion of the school-age population is only one determinant of the level of investment in education. Countries with similar proportions of the population in education may spend different shares of their GDP, according to the priority they give to different levels of education. Investments on higher education are more strongly affected by participation rates than compulsory education where all pupils of a cohort participate in education. Nevertheless adequate investment levels are especially important for countries that face low levels of participation in education and where current investment levels may not be adequate to increasing the proportion of population which participates in lifelong learning.

Chart Int.4.5: Public investment and participation in primary and secondary education (2006)

Source: CRELL, Joint Research Centre. Graphical display is based on June 2009 data.

As can be seen in Chart Int. 4.5 among the European countries there is a clear link between the public investment levels (measured by the proportion of public investment on education in the GDP) and the participation patterns in education. Participation in education is much higher in the Nordic countries (which also allocate high proportion of public spending) whereas countries like Turkey, Slovakia, Romania, Bulgaria or Croatia will have difficulties to increase their participation levels from the population if investment levels do not increase.

As a result of the current economic downturn many European countries will be increasingly limited in the amount of resources that they have at their disposal and in the ways in which they may use them. In some member states, infrastructure budgets will be at risk whereas in others, investment in education (school infrastructure, hiring new teachers, etc.) is part of the recovery plan; this investment will assist in the short-term re-launch of the economy and is expected to enhance the long-term economic perspectives.

Countries have to make difficult choices on investment levels in education due to the economic downturn. The higher education level is much more constrained during an economic downturn as a result of possible increases in student numbers (young people postpone their entry into the labour market) but also risking falling or stagnating investment levels⁹ - some predictions show that public funding for higher education will be cut in seven Member States (by around 6-10%).¹⁰ In addition, many universities fear that private investment will fall in the near future.