

Education at a Glance 2007

NO MEDIA OR WIRE TRANSMISSION BEFORE 18 SEPTEMBER 2007, 11:00 PARIS TIME

OECD Briefing Note for the United States

Governments are paying increasing attention to international comparisons as they search for effective policies that enhance individuals' social and economic prospects, provide incentives for greater efficiency in schooling, and help to mobilise resources to meet rising demands.

In response to this need, the OECD Directorate for Education devotes a major effort to the development and analysis of quantitative, internationally comparable indicators, which are published annually in *Education at a Glance*. These indicators enable educational policy makers and practitioners alike to see their education systems in the light of other countries' performances and, together with OECD's country policy reviews, are designed to support and review the efforts that governments are making towards policy reform.

This note contrasts **key findings for the United States** with **global trends among OECD countries**, under the headings: quantity and quality challenges, equity challenges, and resource and efficiency challenges.

Education at a Glance 2007, as well as its executive summary, all data and web-only tables, can be downloaded free of charge at www.oecd.org/edu/eag2007.

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QUANTITY AND QUALITY CHALLENGES

*Previous editions of **Education at a Glance** have shown how demands for more and better education have driven a massive quantitative expansion of education systems in OECD countries, particularly in higher education. What has been the impact of this on labour market returns? Has the increasing supply of well-educated labour been matched by the creation of an equivalent number of high-paying jobs? Or one day will everyone have a university degree and work for the minimum wage?*

It is certainly conceivable that at least some new graduates will end up doing jobs that do not require graduate skills and that they will obtain these jobs at the expense of less highly qualified workers. Such a crowding-out effect may be associated with a relative rise in unemployment among people with low qualifications (as higher-qualified workers take their jobs), but also potentially with a reduction in the pay premium associated with having a higher degree (as a rise in graduate supply outstrips any rise in demand for graduate skills).

***Education at a Glance 2007** examines this question and the results suggest that the expansion has had a positive impact for individuals and economies and that there are, as yet, no signs of an “inflation” of the labour-market value of qualifications.*

Global trends

Education systems continue to expand at a rapid pace.

- Although most countries have seen at least some growth in higher education enrolments (Indicator C2) and in higher education attainment, the rate of expansion has varied widely from one country to another and from one time period to another. Much of the growth has come from periods of rapid, policy-driven expansion in certain countries. Korea, Ireland and Spain, for example, more than doubled the proportion of higher education graduates entering the workforce between the late 1970s and the late 1990s from initially low levels. In the **United States** and Germany, however, the proportion remained largely unchanged, with relatively high levels in the **United States** and comparatively low levels in Germany (Indicator A1).
- Current rates of graduation from bachelor and masters programmes range from around 20% or less in Austria, Germany and Turkey to more than 40% in Australia, Denmark, Finland, Iceland, Italy, the Netherlands, New Zealand, Norway and Poland. These graduation rates tend to be higher in countries where the programmes provided are of shorter duration.
- On average across OECD countries, the graduation rate for shorter, vocationally oriented programmes represents 9% of the typical age group, and 1.3% for programmes leading to advanced research qualifications.

Key results for the United States

The United States continues to produce a high proportion of people with higher education qualifications, but other countries have caught up.

- In the **United States** 39% of the adult population aged 25-to-64 years are qualified to the higher education level, well above the OECD average of 26%. However, other countries are now matching and exceeding this level of educational attainment (Table A1.3a).
- Changes over time in the attainment rates of a country can be approximated by comparing the attainment rates for older and younger age groups. In 2005, 37% of 55-to-64-year-olds in 2005 had completed a higher education qualification, which gave the **United States** the most higher education attainment in the period 1962-1972 among OECD countries. It places the **United States** just ahead of Canada (36%) and far ahead of the next countries, Denmark and Finland (both 27%). By contrast, the **United States**' higher education attainment rate of 39% for 25-to-34-year-olds, *i.e.* more recent graduates, is only marginally higher than that for 55-to-64-year-olds, suggesting little change in the attainment rates for this age group over the last 30 years. In contrast, for the OECD as a whole, the proportion of the population aged 25-to-34 with higher education qualifications is some 13 percentage points higher than for the 55-to-64 age group (Table A1.3a).
- As a result of varying dynamics in the expansion of higher education, the **United States** has moved from first place for higher education attainment levels among 55-to-64-year-olds to fourth place among 35-to-44-year-olds and tenth place among 25-to-34-year-olds. Belgium, Canada, Denmark, France, Ireland, Japan, Korea, Norway

	<p>and Spain now show higher levels of higher education attainment in the younger population aged 25 to 34.</p> <ul style="list-style-type: none"> •
<p><i>The effects of higher education expansion: a high calibre workforce or the overqualified crowding out the lesser qualified?</i></p> <ul style="list-style-type: none"> • The labour-market and financial incentives for attaining higher education qualifications continue to remain high for both men and women, despite the rapid growth in the number of those obtaining qualifications. This can be seen when contrasting the advantages of higher education for individuals in terms of higher average earnings, lower risks of unemployment and the public subsidies they receive during their studies, with the costs that individuals incur when studying, such as tuition fees, lost earnings during studies and higher tax rates later in life. In all countries with comparable data, the average private rate of return for those who acquire higher education degrees immediately following school is higher than real interest rates, and often significantly so, at at least 9.8% in all eleven countries for which data are available – except for Denmark, New Zealand and Sweden (Table A9.6). (Note that within each country the rates will vary by subject, institution type and duration of programme.) • The average unemployment rate among those only with lower secondary education is 5 percentage points higher than those whose highest level is upper secondary and 7 points higher than those with higher education (Indicator A8). The data show that while unemployment is substantially higher than the average among those with low qualifications, this situation has not worsened in those countries that have expanded higher education. However, in those countries that did not expand higher education, there has been a rise in the relative risk of unemployment for the lesser qualified. Indeed, in these countries a failure to complete upper secondary education is now associated with an 80% greater probability of being unemployed for the lesser qualified, compared to less than 50% in those countries that have increased higher education the most. • Countries expanding higher education attainment more in the late 1990s tended to have a greater fall (or smaller rise) in unemployment between 1995 and 2004 than countries with less higher education expansion. For example, France, Ireland and Korea had the fastest growth in higher education 	<p><i>For the United States, higher education still very much provides a worthwhile investment for individuals.</i></p> <ul style="list-style-type: none"> • On average, people with higher education qualifications command significantly higher salaries than those with only secondary education and in the United States, these wage premiums are particularly high. In 2005, earnings for higher education graduates in the 25-to-64 year old age group were 75% higher on average than those for people with only secondary education, a differential that is greater in only three other countries: Hungary (115%), the Czech Republic (81%) and Portugal (79%) (Table A9.1a). Higher education graduates also have a much greater chance of finding jobs than those that do not attain this level of education (Table A8.1a). • The private financial benefits can be explored more systematically when contrasting the advantages of higher education for individuals in terms of higher average earnings, lower risks of unemployment and the public subsidies they receive during their studies, with the costs that individuals incur when studying, such as tuition fees, lost earnings during studies and higher tax rates later in life. In all countries with comparable data, the private rate of return for those who acquire higher education degrees immediately following school is higher than real interest rates, and often significantly so. In all eleven countries for which data are available – with the exceptions of Denmark, New Zealand, Sweden and Switzerland – the private rate of return for both males and females is at least 10%. In the United States the rates are 14.3% for males and 13.1% for females (Table A9.6). <p><i>Rising levels of higher education attainment seem not to have led to a decrease of the labour-market value of qualifications.</i></p> <ul style="list-style-type: none"> • In general, countries have seen an increase in the earnings advantage for higher education graduates even in countries where higher education expansion has been rapid. • In the United States the earnings advantage of higher education graduates in the 25-to-64-year-old population, relative to upper secondary graduates increased from 68% in 1997 to 75% by 2005. Over the same period, the fastest growing relative earnings returns on higher education degrees were evident in Germany (23 percentage points) and Hungary (36 percentage points) (Table A9.2a).

attainment and close to zero or negative growth in unemployment; Germany, the Czech Republic and the Slovak Republic had low or no growth in higher education attainment but substantial growth in unemployment among the unqualified (Indicator A1, Table A8.4a).

- The indicators provide no evidence that the lesser qualified are crowded out from the labour market and there is much to point to the opposite: that the least educated individuals benefit in terms of better employment opportunities when more people enter higher education. In addition, an analysis of trends in the absolute level of unemployment for upper-secondary educated adults suggests that changes in the level of unemployment during the period 1995 to 2004 are unrelated to changes in higher education attainment levels. In fact, for both upper and lower secondary unemployment, there is no statistically significant correlation between an expansion in higher education attainment and movement in unemployment rates after controlling for growth in GDP. There is, however, a significant correlation between increases in higher education and upper secondary attainments and the fall in relative unemployment for lower-secondary educated adults. All this suggests that employment prospects among the least well-educated are principally tied to growth in the economy and in general to productivity, to which an adequate supply of high-skilled labour can potentially contribute.
- Furthermore, increases in the numbers of those with higher education qualifications do not create unemployment for this group or a slump in their pay. Although this does not imply that higher education graduates enter jobs in line with their qualifications, it still indicates that the benefits of higher education have not deteriorated as higher education has expanded. And while there have been some small rises in the relative risk of unemployment for graduates, this has been no worse where higher education attainment has expanded fastest.
- In all OECD countries higher education graduates face much lower levels of unemployment than do other groups. In terms of pay, the data suggest some curbing of an increasing advantage for higher education graduates where their supply has risen fastest, but not a general fall. This evidence corroborates similar results from cross-sectional studies, suggesting that lesser-educated groups share in the benefit of more higher education in general

- Among the countries in which the higher education attainment grew by 5 percentage points or more between 35-to-44-year-olds and 25-to-34-year-olds, Spain is the only country in which the rapid expansion in higher education attainment was associated with a significant decline in the wage premium that higher education attainment attracts during the period 1997 to 2004. (Tables A1.3a and A9.2a).

<p>and that the extra skills produced have largely been absorbed by the labour market. In tracking these phenomena over time, it is interesting to note that positive effects seem to be more pronounced in recent years, contradicting the notion that higher education, so far, is expanding too rapidly.</p>	
<p><i>Current entry rates to higher education suggest that the expansion will continue.</i></p> <ul style="list-style-type: none"> • In Australia, Finland, Hungary, Iceland, New Zealand, Norway, Poland and Sweden, as well as the partner country the Russian Federation, more than 60% of young people entered university-level programmes (at bachelor or masters level, referred to as tertiary-Type A internationally) in 2005. Entry rates in university-level programmes substantially increased between 1995 and 2005, by 18 percentage points on average in OECD countries. Between 2000 and 2005 alone, the growth exceeded 10 percentage points in more than one-quarter of the 24 OECD countries with comparable data. The proportion of students who enter non-university tertiary programmes (such as a Vocational Associate's Degree Programme, internationally referred to as tertiary-Type B) is generally smaller, with an OECD average of 15% of young people entering such programmes, compared with an average of 54% for university-level programmes. 	<p><i>Entry to university-level programmes in the United States has increased over the last decade.</i></p> <ul style="list-style-type: none"> • The higher education entry rate in the United States was 64% in 2005, compared to 57% in 2000. (Table C2.5). Note that the entry rate estimates of the probability that a young person will enter higher education at some point in his life, based on current patterns of first entry. • The entry rate is 71% among women and 56% among men (Table C2.4). <p><i>A high proportion of entrants do not complete their studies, however.</i></p> <ul style="list-style-type: none"> • Only 54% of entrants to higher education in the United States obtain a degree. Along with New Zealand, this is the lowest survival rate among OECD countries, where the average is 71% and as high as 91% as in Japan (Table A3.6).
<p><i>In most countries, the number of science graduates has increased faster than the overall number of graduates.</i></p> <ul style="list-style-type: none"> • The number of persons completing a higher education science degree each year per 100,000 employed persons ranges from below 700 in Hungary to above 2200 in Australia, Finland, France, Ireland, Korea, New Zealand and the United Kingdom (Table A3.4). • The ratio of younger to older age groups with science as a field of study is 3.0, compared with a ratio for all fields of study of 2.3. In Austria and Canada, the ratio is larger than 4.0, in Hungary and Ireland larger than 6.0, and in Portugal and Spain larger than 8.0 (Table A1.5). 	<p><i>In the United States, the number of science graduates remains below the OECD average.</i></p> <ul style="list-style-type: none"> • The number of people with a higher education science degree per 100 000 employed 25-to-34-year-olds in the United States is 1 100 for university-level qualifications and 301 for non-university tertiary qualifications, such as a Vocational Associate's Degree. Both figures are significantly below the corresponding OECD averages of 1 295 and 384 (Table A3.4).
<p><i>The internationalisation of higher education is proceeding rapidly.</i></p> <ul style="list-style-type: none"> • In 2005, over 2.7 million higher education students were enrolled outside their country of citizenship. 	<p><i>The United States remains the most popular country for foreign study.</i></p> <ul style="list-style-type: none"> • The United States remains by far the most popular destination for international students with 22% of foreign

This represented a 5% increase in total foreign student intake reported to the OECD and the UNESCO Institute for Statistics from the previous year.

- The percentage of international students – *i.e.* international students who travelled to a country different from their own for the purpose of higher education – ranges from below 1 to almost 18% of higher education enrolments. International students constitute the highest percentage of higher education enrolments in Australia, Austria, France, New Zealand, Switzerland and the United Kingdom.
- France, Germany, the United Kingdom and the **United States** receive more than 50% of all foreign students worldwide. In absolute numbers, international students from France, Germany, Japan and Korea represent the largest numbers from OECD countries. Students from China and India comprise the largest numbers of international students from partner economies.
- In Spain, Switzerland and the **United States**, and the partner economy Brazil, more than 15% of international students are enrolled in advanced research programmes.
- 30% or more of international students are enrolled in sciences, agriculture or engineering in Finland, Germany, Hungary, Sweden, Switzerland, the United Kingdom and the **United States**.
- International graduates contribute to 20% or more of the graduate output for tertiary-type A programmes in Australia and the United Kingdom. The same holds for foreigners graduating in Belgium. The contribution of international and foreign graduates to the higher education graduate output is especially high for advanced research programmes in Belgium, Switzerland, the United Kingdom and the **United States**.

students worldwide enrolled in the country. It is almost twice as popular as the United Kingdom (12%), the second most in-demand destination. The next most popular destinations are Germany (10%), France (9%), Australia (6%), Japan (5%) and the Russian Federation, as well as Canada and New Zealand, each with 3% (Chart C3.2; Table C3.8, available on line). However, the **United States**' popularity is largely a function of the size of its higher education system: the percentage of international students in total higher education enrolment is only 3.4% in the **United States**, significantly lower than in Australia (17.3%), New Zealand (17%), the United Kingdom (13.9%), Switzerland (13.2%), Austria (11.0%) or France (10.8%) (Table C3.1).

However, the United States is losing its market share of international students.

- Although international student numbers have increased in the **United States** between 2000 and 2005, other countries have taken more of the increasing market. Compared to 2000, the **United States** saw its share on the international education market decline by 4.5 percentage points from 26 to 22%.
- The largest increases in market shares took place in New Zealand (2.1 percentage points), France (1.1 percentage points) and Japan (1.0 percentage points) (Chart C3.3 and Web-based Table C3.8).

Almost two-thirds of the United States' intake of international students originates from Asia.

- Students from Asian countries predominate the international student community in the **United States**. In total, Asian students comprise some 63% of the foreign student intake to higher education in 2005, with 16% of international students coming from China, 14% from India, 9% from Korea and 8% from Japan (Table C3.2). Indeed, for students from Japan, Korea and India, the **United States** is by far the most popular destination for foreign study with over 50% of international students from these countries choosing to study in the **United States**. For students from China, however, though the **United States** remains the most popular single destination, the market is more widely spread with Australia, Japan and the United Kingdom also being popular destinations for study.

EQUITY CHALLENGES

While individuals with high level qualifications continue to see strong labour-market returns, those without strong baseline qualifications, defined by the OECD as those who have not attained a qualification at the upper secondary level, have seen rapidly deteriorating labour-market prospects in most countries. It is therefore increasingly important for education and training systems to ensure that young adults leave schools with strong baseline qualifications or attain these subsequently.

Education at a Glance 2007 completes the data on the graduate output at the upper secondary level and the incidence and intensity of job-related non-formal education with new data on the relationship between social background and both learning outcomes at schools and participation in university-level education. The strength of the relationship between the socio-economic background of individuals and their educational outcomes provides one way of examining to what extent countries are using their potential in generating future human capital and allows for assessment of equity in the distribution of learning opportunities.

Global trends

In most OECD countries, upper secondary education is becoming universal, but in some countries a sizeable minority is left behind.

- The proportion of individuals in the population who have successfully completed upper secondary education (see notes on definition at the end) has been rising in almost all OECD countries, and rapidly in some. In more than half of all OECD countries the proportion of 25-to-34-year-olds with upper secondary qualifications now exceeds 80%, and in Canada, the Czech Republic, Korea, the Slovak Republic and Sweden it exceeds 90% (Table A1.2a).
- Those who have attained at least upper secondary education enjoy substantial earnings advantages (Chart A9.4). For some countries, the earnings disadvantage of those without upper secondary qualifications has significantly worsened (Table A9.2a).
- Gender differences in employment and unemployment rates are largest among those without upper secondary education (Chart A8.2)

Key results for the United States

Attainment levels at upper secondary level have long been high in the United States, but have stalled while other countries continue to progress.

- The **United States** has traditionally had a high proportion of the adult population who have completed upper secondary education. The rate for the **United States** in 2005 was 87% for 25-to-34-year-olds, well above the OECD average. In Canada, the Czech Republic, Korea, the Slovak Republic and Sweden it now exceeds 90%. Changes over time can be approximated by looking at the attainment of younger and older age cohorts. Ranked by upper secondary educational attainment in the population, the **United States** occupies first place among 55-to-64-year-olds in OECD countries (*i.e.* those who completed school some 40 years ago), fifth among 35-to-44-year-olds and tenth among 25-to-34-year-olds. By contrast, Korea ranks twenty-third among 55-to-64-year-olds but first among 25-to-34-year-olds (Table A1.2a).
- The contrast is even more pronounced when comparing the current output of high schools: After Mexico, Turkey, Spain, New Zealand and Luxembourg, the **United States** has, at 76%, the sixth-lowest upper secondary graduation rate. In contrast, in Greece, Germany, Japan, Korea, Norway and Ireland the upper secondary graduation rate now exceeds 90% (Table A2.2). The discrepancy between the comparatively low high school graduation rate and the relatively high rate of upper secondary qualifications in the population is, in part, explained by the acquisition of the GED after school.

Those without upper secondary education face considerable and increasing penalties in the labour

	<p><i>market.</i></p> <ul style="list-style-type: none"> • The penalties from not completing upper secondary education are visible in earnings levels and their distribution and these penalties are more severe in the United States than in almost every other OECD country. For instance, the earnings of a 25-to-64-year-old without upper secondary completion in the United States are only 67% of someone who has these qualifications. And after Portugal and Turkey, the United States has the greatest income disadvantage of all OECD countries reporting data (Table A9.1a). • The severe earnings disadvantage for those in the United States without upper secondary qualifications is further illustrated by an examination of the distribution of earnings. Some 42% of those without upper secondary qualifications in the United States have low incomes (defined here as half of the country median or less), a higher proportion than all other countries (Table A9.4a). • Moreover, in general across OECD countries, people without upper secondary qualifications are less likely to be in employment than those that have these qualifications. In the United States, the employment rates for those aged 25 to 64 who do not have upper secondary level education are 69% for men and 46% for women, which is below the corresponding OECD averages of 73% and 49% (Table A8.1a).
<p><i>Schools and societies face major challenges in integrating immigrants.</i></p> <ul style="list-style-type: none"> • Among the 14 OECD countries with significant immigrant populations, foreign-born students lag 48 score points behind their native counterparts on the PISA mathematics scale, equivalent to more than a school year's progress, on average. The performance disadvantage of second-generation students also remains significant, at 40 score points. The disadvantage of students with an immigrant background varies widely across countries, from insignificant amounts in Australia, Canada, New Zealand and Macao-China to more than 90 score points in Belgium and Germany even for second-generation children. • Second-generation students (who were born in the country of the assessment) tend to perform better than their first-generation counterparts (who were born in another country), as one might expect since they did not need to make transitions across systemic, cultural and linguistic borders. However, the gains vary widely across countries. In Canada, Luxembourg, 	<p><i>15-year-old students with an immigrant background perform well relative to their native peers, but fall well below the performance standards in other countries.</i></p> <ul style="list-style-type: none"> • Foreign-born 15-year-old students in the United States performed 36 score points below their native peers on the OECD/PISA 2003 mathematics assessment. This performance difference is significantly lower than the average level among OECD countries with significant immigrant populations (48 score points). Furthermore, the mean performance score of foreign-born students in the United States was 453 score points, considerably below the OECD average (475 score points), because native 15-year-olds in the United States perform significantly below the OECD average (Table A6.1a). • Second-generation immigrant students in the United States still performed 22 score points below their native peers on the PISA 2003 mathematics assessment. Also, this difference was only about one-half as big as the average difference among OECD countries with significant immigrant populations. The mean performance score of second-generation students was 468 score points, also considerably below that at the

<p>Sweden and Switzerland and the partner economy Hong Kong-China, second-generation students perform significantly better than first-generation students, with the performance gap reduced by 31 score points in Switzerland and 58 score points in Sweden, while in Germany and New Zealand second-generation students born in these countries perform worse than first-generation students (Table A6.1a).</p> <ul style="list-style-type: none"> • The mathematics achievement of the highest performers among students with an immigrant background varies much less across countries than the achievement of the lowest performing students with an immigrant background (Chart A6.2). • Despite performing less well on the whole than native students and generally coming from less advantaged families, students who have experienced immigration first-hand tend to report, throughout the OECD area, higher levels of interest and motivation in mathematics. 	<p>OECD average level (483 score points) (Table A6.1a).</p>
<p><i>Countries vary greatly in how well they succeed in enabling students from blue-collar backgrounds to participate in higher education.</i></p> <ul style="list-style-type: none"> • Based on a comparison of ten countries, Ireland and Spain stand out as providing the most equitable access to higher education, whereas in Austria, France, Germany and Portugal students from a blue-collar background are about one-half as likely to be in higher education as compared with what their proportion in the population would suggest (Indicator A7). • When measuring the socio-economic status of students in higher education by their fathers' educational background large differences between countries emerge. In the ten countries examined in A7, students are substantially more likely to be in higher education if their fathers completed higher education. Students from such a background are more than twice as likely to be in higher education in Austria, France, Germany, Portugal and the United Kingdom than are students whose fathers did not complete higher education. In Ireland and Spain this ratio drops to 1.1 and 1.5, respectively. • Among the ten countries providing information on the socio-economic status of students in higher education it appears that inequalities in previous schooling are reflected in the intake of students from less advantaged backgrounds. Countries providing more equitable access to higher education – such as Finland, Ireland and Spain – were also the countries 	<ul style="list-style-type: none"> • No comparable data available for the United States.

<p>with the most equal between-school performances, as show by data collected in 2000 by OECD PISA.</p>	
<p><i>Initial education alone can no longer satisfy the rising and changing demand for skills, but job-related education and training is still least common among those who need it most.</i></p> <ul style="list-style-type: none"> • In many countries, non-formal continuing education and training now also plays a significant role in raising the stock of knowledge and skills. In Denmark, Finland, Sweden and the United States, more than 35% of employees take part in non-formal job-related education and training each year. At 27%, the corresponding participation rate in the United Kingdom is also still well above the OECD average of 18%. At the other end of the scale, Greece, Hungary, Italy, the Netherlands, Poland, Portugal and Spain provide such training to fewer than 10% of employees (Table C5.1a). • In OECD countries, on average, the participation rate in non-formal continuing education and training among employees who have not completed upper secondary education is less than half of the rate among those with upper secondary education and less than a quarter of the rate seen among those with higher education. In the United Kingdom these differences are significantly larger than in most OECD countries. 	<p><i>Participation in non-formal job-related education and training is high in the United States.</i></p> <ul style="list-style-type: none"> • In the United States, along with Denmark, Finland and Sweden, more than 35% of employees took part in non-formal job-related education and training in 2003, the highest participation rate among OECD countries (Table C5.1a). • The intensity of participation in non-formal job-related education and training in the United States is comparatively high. In the United States, between the ages of 25 and 64, the total expected number of hours in non-formal job-related training per worker is 471, well above the OECD average of 389 hours (Table C5.1a). <p><i>Nevertheless, job-related education and training is still least common among those who need it most.</i></p> <ul style="list-style-type: none"> • As in all OECD countries, on average, the participation rate in non-formal continuing education and training among employees in the United States is much less for those who have not completed upper secondary education than it is for those with upper secondary education and much less still than those with higher education. In the United States, only 12% of those who have not completed upper secondary education and training participated in 2003 in non-formal continuing education and training, compared with 32% for those with upper secondary qualifications and 56% for those with higher education qualifications. These findings are important because they show continuing inequalities in terms of access to job-related continuing education and training in the United States, as is the case in other countries. They also suggest that continuing education and training currently do not succeed in making up for skill gaps emerging from initial education but rather they tend to reinforce disparities that result from initial education (Table C5.1a).

RESOURCE AND EFFICIENCY CHALLENGES

*The expansion of education has been accompanied by massive financial investments. **Education at a Glance 2007** shows that between 1995 and 2004, and for all levels of education combined, expenditure on educational institutions increased by an average of 42% in OECD countries. The sustainability of the continued expansion will, however, depend on re-thinking how education is financed and how to ensure that it is more efficient. In some countries, spending per student has already begun to decline – most notably in the Czech Republic, Hungary, the United Kingdom and Poland – as enrolments rose faster than spending on higher education.*

While significant additional investments in education will be important, it is equally clear that more money alone will not be enough. Investments in education will also need to become more efficient. The education sector has not yet re-invented itself in ways that other professions have done to improve outcomes and raise productivity. Indeed, the evidence suggests the reverse, namely that productivity in education has generally declined because the quality of schooling has broadly remained constant, while the price of the inputs has markedly increased. As the place and mode of educational provision have largely remained unchanged, the labour-intensiveness of education and the predominance of teachers' salaries in overall costs (with pay scales based on qualifications and automatic increases) have made personnel costs rise over time.

Global trends

OECD countries spend 6.2% of their collective GDP on educational institutions, but the increase in spending on education between 1995 and 2004 fell behind growth in national income. There is further scope for enhancing the efficiency of educational spending.

- More people are completing upper secondary and higher education than ever before, and in many countries the expansion has been accompanied by massive financial investments. Between 1995 and 2004 and for all levels of education combined, expenditure on educational institutions increased in the 24 countries with comparable data for the period. The increase was, on average, 42% in OECD countries. The increase is usually larger for higher education than for primary to post-secondary non-tertiary levels of education combined.
- At the level of higher education, the increase of expenditure over the period 1995-2004 was more pronounced from 2000 onward than before 2000 in nearly one-half of OECD countries. Between 2000 and 2004, expenditure increased by more than 30 percentage points in the Czech Republic, Greece, Mexico, Poland, the Slovak Republic and Switzerland and the partner economy Chile.
- It is important to relate overall spending on education to the investment made per student. OECD countries as a whole spend USD 7 572 per student annually between primary and higher education, that is – USD 5 331 per primary student,

Key results for the United States

Education spending levels in the United States are some of the highest amongst OECD countries.

- Spending on educational institutions in the **United States** as a percentage of GDP was at 7.4% in 2004, the second highest level among OECD countries. For the **United States**, educational expenditure has matched or exceeded growth in national income so that the percentage of expenditure relative to GDP has increased over the years from 6.6% in 1995 and 7.0% in 2000. This is not true of all OECD countries as one-third of the countries with available data saw expenditure as a proportion of GDP decline over this period (Chart B2.1, Table B2.1a).
- The **United States** devotes a larger part of expenditure to higher education than do all other OECD countries (36.4%, against 23.9% on average) and a smaller part to primary, secondary and post-secondary non-tertiary (such as a Vocational Certificate) (57.8% against 66.5% on average), although the distribution of students across the different levels of education in the **United States** does not differ very much from that in other countries (Table B1.2).

Such spending accounts for an above average share of the public spending budget generally.

- The spending commitment on education from public sources accounts for 14.4% of total public expenditure. This is above the OECD average of 13.4%, but below the highest levels recorded by Mexico (23.1%) and New Zealand (21%) (Table B4.1).

USD 7 163 per secondary student and USD 14 027 per higher education student, but these averages mask a broad range of expenditure across countries. As represented by the simple average across all OECD countries, countries spend twice as much per student at the higher education level than at the primary level.

- Lower unit expenditure does not necessarily lead to lower achievement and it would be misleading to equate lower unit expenditure generally with lower quality of educational services. For example, the cumulative expenditure of Korea and the Netherlands is below the OECD average and yet both are among the best-performing countries in the OECD PISA 2003 survey.
- Countries with low levels of expenditure per student can nevertheless show distributions of investment relative to GDP per capita similar to those countries with high levels of spending per student. For example, Hungary, Korea, Poland and Portugal, and the partner economy Estonia – countries with expenditure per student and GDP per capita below the OECD average at primary, secondary and post-secondary non-tertiary level of education – spend a higher proportion of money per student relative to GDP per capita than the OECD average for at least some education levels.
- Expenditure per student at primary, secondary and post-secondary non-tertiary levels increased by 50% or more between 1995 and 2004 in Greece, Hungary, Ireland, Poland, Portugal, the Slovak Republic and Turkey, and the partner economy Chile. On the other hand, spending per student at the higher education level has in some cases fallen, as expenditure does not keep up with expanding student numbers
- The relationship between spending per student between the ages of 6 and 15 and student outcomes as measured by PISA is weak. This suggests that there is scope in many OECD to use resources better. It is estimated that across OECD countries, there is potential for increasing learning outcomes by 22% while maintaining current levels of resources (output efficiency). The scope for reducing the resources devoted to education while maintaining the current levels of outcomes is slightly larger, at 30% (input efficiency). Differences in estimates of efficiency for different types of school (e.g. public and private) tend to be modest, when looking at the OECD as whole, though efficiency savings are greater for smaller

A comparatively small proportion of these resources are invested in teachers.

- In 2004, 88.9% of expenditure on primary and secondary institutions in the **United States** was devoted to current expenditure (OECD average 91%), of which only 55% was devoted to the compensation of teachers (OECD average 63.5%), 25.7% of current expenditure was devoted to the compensation of other staff (OECD average 15.5%) and 19% to other current expenditure (OECD average 19.9%) (Table B6.2).

At primary, secondary and higher education levels, spending per student is above the OECD average.

- To assess their potential impact on the quality of educational services, the resources invested in education need to be seen in relation to the number of students enrolled. On that measure, spending per student across all levels of education (excluding pre-primary education) in the **United States** was, in 2004, at USD 12 092 (equivalent), higher than all other OECD countries (OECD average USD 7 061). At USD 19 842 (excluding research expenditures), spending at the higher education level is more than twice the OECD average of USD 7 951 (Table B1.1a).
- However, when expenditure per student is compared to GDP per capita, the **United States** is still among the countries with the highest expenditure for primary to higher education education, but a few other countries spend as much (Denmark, Portugal) or even more (Switzerland) (Table B1.4).

The United States also stands out in respect of the high level of spending per child at the pre-primary level, but with relatively low participation rates.

- In 2004, the **United States** invested more than any other country other than the United Kingdom per child at the pre-primary level (at USD 7 896) considerably more than the OECD average spending per child of USD 4 741 (Table B1.1a). And yet, the **United States** has one of the lowest rates of participation amongst under 5-year-olds in education. The rate of participation of 4-year-olds and under as a percentage of the 3-to-4-year-old population in 2005 stands at only 50%, below the OECD average of 68.5% and well below the highest rates of participation, many of which are approaching 100% (Table C2.1). Part of the explanation for this high level of expenditure per pupil lies in the low student to contact staff ratios at the pre-primary level in the **United States** which at 11.9 pupils per contact staff member are well below the OECD average of 14.8 students per contact staff member (Table

<p>schools than for larger schools (Indicator B7).</p>	<p>D2.2).</p> <ul style="list-style-type: none"> • Different supply and demand factors have influenced variation in spending per student across countries. In the United States, spending on primary and secondary education increased between 1995 and 2004 by 40% while enrolments rose by 7%, resulting in a spending increase per student of 30% between 1995 and 2004. This is less than the OECD average increase of 38% in per-student spending for the same period. At the higher education level, spending increased by 63% over the same period, compared with a 24% increase in student numbers, such that spending per higher education student increased by 32%, an increase that is well above the OECD average level of 9% (Table B1.5).
<p><i>Instruction time, teachers' salaries, and student-teacher ratios vary widely among countries.</i></p> <ul style="list-style-type: none"> • The choices countries make about how many hours and years students spend in the classroom and the subjects they study reflect national priorities and preferences. Budgetary considerations also help shape education: Teachers' salaries represent the largest single cost in providing school education and, as such, are a critical consideration for policy-makers striving to both maintain the quality of education and to contain spending. While class size has become a hot topic in many OECD countries, evidence on its impact on student performance is mixed. Among the findings on these nuts-and-bolts educational policy issues: • Students in OECD countries are expected to receive, on average, 6 898 hours of instruction between the ages of 7 and 14, of which: 1 586 hours are between ages 7 and 8; 2 518 hours between ages 9 and 11; and 2 794 hours between ages 12 and 14. The large majority of intended hours of instruction are compulsory. • In OECD countries, students between the ages of 7 and 8 receive an average of 769 hours per year of compulsory instruction time and 793 hours per year of intended instruction time in the classroom. Students between the ages of 9 and 11 receive about 45 hours more per year, and those aged between 12 and 14 receive just over 90 hours more per year than those aged between 9 and 11. • Salaries for teachers with at least 15 years' experience in lower secondary education are over twice the level of GDP per capita in Korea and Mexico; in Iceland, Norway and the partner 	<p><i>Despite high spending per student, class sizes in primary schools remain above average in the United States.</i></p> <ul style="list-style-type: none"> • Despite above average spending per primary-level student, the United States has, with 23.1 students per class (considering public and private institutions together), class sizes that are above the OECD average of 21.5 (Table D2.1). • In lower secondary education, and considering public and private institutions together, there are on average 24.3 students per class in the United States, which is about the same as the OECD average level of 24.1 (Table D2.1). <p><i>Teacher salaries are high in absolute terms, but low relative to GDP per capita.</i></p> <ul style="list-style-type: none"> • Above-average teacher salaries provide part of the explanation for this. At USD 40 734 for a primary school teacher with minimum training and 15 years of experience, salaries in the United States are well above the OECD average of USD 37 603 (equivalent) (Table D3.1). • However, while teacher salaries appear high in absolute terms when compared with those in other countries, relative to GDP per capita teachers' pay in the United States is among the lowest in OECD countries. The ratio of the salary of a primary teacher after 15 years of experience with minimum training to GDP per capita is 0.97 in the United States, compared with an OECD average of 1.28. Hungary, Iceland, Luxembourg, Norway and Sweden are the only other OECD countries with ratios below 1. <p><i>The teaching load is comparatively high in the United States.</i></p>

economy Israel, salaries are 75% or less than GDP per capita. Those salaries range from less than USD 16 000 in Hungary to USD 51 000 or more in Germany, Korea and Switzerland, and more than USD 88 000 in Luxembourg.

- The average class size in primary education is 22 students per class, but varies between countries from 33 in Korea to less than half that number in Luxembourg and the partner economy the Russian Federation. From 2000 to 2005, the average class size did not vary significantly, but the differences in class size between OECD countries seem to have diminished. Class size tends to have decreased in countries that had had relatively large class sizes (for example, in Japan, Korea and Turkey) whereas class size tends to have increased in countries with relatively small class sizes (for example, Iceland) (see 2000 data in Table D2.4 on the web only).
- The number of students per class increases by an average of nearly three students between primary and lower secondary education, but ratios of students to teaching staff tend to decrease with increasing levels of education due to more annual instruction time, though this pattern is not uniform among countries.
- In primary and secondary education, OECD countries spend 91% on current expenditure of which 63.5% is for the compensation of teachers, 15.5% for the compensation of other staff, and 19.9% for other current expenditure. At the level of higher education, 89.3% is devoted to current expenditure, of which 42.7% is for the compensation of teachers, 23.6% for the compensation of other staff, and 33.8% for other current expenditure (Table B6.2).

- At the primary level teachers in the **United States** are required to teach 1 080 hours per year, which is more than in any other OECD country and considerably higher than the OECD average of 803 hours (Table D4.1). The picture is similar for secondary education, with the gap between the teaching hours in the United States and the OECD average particularly marked for upper secondary education.

Private sources of funding for education are becoming increasingly important.

- On average, over 90% of primary and secondary education in OECD countries, and nowhere less than 80% (except in Korea and in the partner economy Chile), is paid for publicly. However, in higher education the proportion funded privately varies widely, from less than 5% in Denmark, Finland and Greece, to more than 50% in Australia, Japan and the **United States** and in partner economy Israel, and to above 75% in Korea and in the partner economy Chile.
- In all countries for which comparable data are available, for all levels of education combined,

An above-average share of spending on schools comes from private sources.

- The extent of private funding of education in the **United States** is higher than in any other OECD country, except Korea, and it has increased since 1995. In 2004, 31.6% of funding for all levels of education in total was provided by private sources in the **United States**, significantly more than the OECD average of 13%, but some way behind the country that relies most heavily on private funding, Korea (39.5%). While spending overall has increased since 1995, the proportion of funding called on from private sources has also increased, from 29% in 1995 to 31.6% in 2005 (Table B3.1).
- Private spending originates both in households and other

<p>public funding increased between 1995 and 2004. However, private spending increased even more in nearly three-quarters of these countries. Nevertheless, in 2004, on average 87% of expenditure, for all levels of education combined, was still from public sources.</p> <ul style="list-style-type: none"> • The share of higher education spending from private sources rose substantially in some countries between 1995 and 2004, but this was not the case at other levels of education. • On average among the 18 OECD countries for which trend data are available, the share of public funding in higher education institutions decreased slightly between 1995 and 2000, as well as every year between 2001 and 2004. However, in general the increase of private investment has not displaced public financing, but rather complemented it. • In higher education, households cover the majority of all private expenditure in all countries with available data, except Greece, Hungary and Sweden. Private expenditure from other entities than households is still significant, representing 10% or more in Australia, Hungary, Italy, Korea, the Netherlands, Sweden, the United Kingdom and the United States, and the partner economy Israel. 	<p>private entities (<i>e.g.</i> companies, charities) and can go to private as well as public institutions. Much of the difference between the United States and Korea in the extent of private expenditure arises from household expenditure. While both countries call on some 9% to 12% of funding from other private entities, the funding from household amount to 30.1% of all funding in Korea, but only 20.0% in the United States (Table B3.1).</p>
<p><i>OECD countries where students are required to pay tuition fees can nevertheless have also large access to higher education.</i></p> <ul style="list-style-type: none"> • OECD countries where students are required to pay tuition fees and can benefit from particularly large public subsidies do not show lower levels of access to full-length, theory-based bachelor and masters degree university-level programmes, compared to the OECD average. For example, Australia (82%) and New Zealand (79%) have one of the highest entry rates to tertiary-type A education and the Netherlands (59%) and the United States (64%) are above the OECD average. The United Kingdom (51%) is just below the OECD average (54%), although entry to tertiary-type A education increased by 4 percentage points between 2000 and 2005. 	<p><i>Higher education institutions in the United States charge the highest level of fees among OECD countries.</i></p> <ul style="list-style-type: none"> • The average annual tuition fee charged by public institutions for full-time students in the United States is USD 5 027 (equivalent), the highest among OECD countries (Table B5.1a). At the same time, a comparatively high proportion of students in the United States benefit from public loans and/or scholarships or grants (Table B5.1b).
<p style="text-align: center;">NOTES</p> <ul style="list-style-type: none"> • In <i>Education at a Glance 2007</i>, the term “tertiary-level education” is defined as higher education (HE). Indicators cover both the current performance of the HE system and the proportion of the adult population (25-to-64-year-olds) who have attained HE qualifications. There are splits by type of course – divided into vocational courses 	

(such as a Vocational Associate's Degree Programme) (Type B) and full-length (duration of more than three years) theory-based degrees (Type A), including bachelor and masters degrees. Graduation rate is defined as the ratio of tertiary graduates to the population at typical age of graduation.

- “Lower secondary education” is defined as schooling between the ages of 11 and 13.
- “Upper secondary education” identifies a level of attainment, not necessarily reached while the individual was actually participating in secondary education. In the United States it means the completion of high school or completion of a GED or High School Equivalent Programme.
- “Statutory salaries” is definite as salaries based on pay scales. The data on teacher pay are based on statutory pay in 2004 and do not attempt to capture actual average pay which will include discretionary allowances for extra duties as well as reflecting the age structure of the teacher labour force. Furthermore, the figures are for classroom teachers and so do not reflect the pay of teachers promoted to heads and deputy headships. They also do not include bonuses and supplementary payments, which are considerable in some countries.