

Education at a Glance 2009

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Summary of key findings

Governments are paying increasing attention to international educational comparisons as they search for effective policies that enhance individuals' social and economic prospects, provide incentives for greater efficiency in the provision of education, and help to mobilise resources to meet rising demands. In response to this need, the OECD 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.

New features in the 2009 edition include an extension of the analysis of the economic returns to education to social outcomes; new data on long-term unemployment and involuntary part-time work among young adults; an analysis of the spending choices that countries make between factors such as teacher compensation, instruction time and class sizes; an analysis on teaching practices as well as teacher appraisal and feedback based on TALIS; and a review of excellence in education for 15-year-olds based on PISA.

Notes on terminology (United States)

The term "tertiary 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.

Education at a Glance 2009 as well as the underlying data can be downloaded free of charge at www.oecd.org/edu/eag2009

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FINDINGS OF THE 2009 EDITION OF EDUCATION AT A GLANCE

The 2009 edition of Education at a Glance.

1. This year's edition of *Education at a Glance* is published at a time when all eyes are focused on addressing the financial crisis and its economic and social fallout. Presenting data up to 2007, this edition cannot yet assess the impact of the crisis on education systems, but its indicators provide insights about how investments in human capital can contribute to the recovery.

Better qualifications or lower pay – a large and growing skills gap.

2. Education has always been a critical investment for the future, for individuals, for economies and for societies at large. The gross earnings premium for males from tertiary education over the working life averages USD 186 000 across OECD countries and exceeds USD 300 000 in Italy and the United States (Table A8.2). When factoring in the direct and indirect costs for education, the net public return from an investment in tertiary education averages USD 52 000 on average for a male student (Table A8.4). This is almost twice the amount of the investment made by the public side (including both public direct costs and public forgone revenue), and as such, provides a strong incentive to expand higher education in most countries through either public or private financing. Furthermore, among the 30 OECD countries with the largest expansion of college education over the last decades, most still see rising earnings differentials for college graduates, suggesting that the increase in advanced qualifications has not necessarily led to a decrease in their pay as has been the case in many countries for individuals with less than upper secondary education (Table A7.2a).

3. The incentives for individuals to stay on in education are likely to rise over the next years given the economic environment: For instance, because the opportunity costs for education decline as the difficulties of finding employment increase and opportunity costs or lost earnings while studying tend to be the largest of all cost components for students (except in the United States where tuition fees are highest) job prospects have a real influence on young individuals decision to continue their education (Table A8.2).

- With few exceptions, the returns for investing in a tertiary education are higher than for upper secondary or post-secondary non- tertiary education. On average across OECD countries, tertiary education generates a private net present value approximately twice that of upper secondary or post-secondary non tertiary education. For males the pay advantage is USD 82 000 compared with USD 40 000, and for females USD 52 000 compared with USD 28 000 (Chart A8.1).
- Although public investments in tertiary education are large in many countries, private investment (mainly through households) exceeds that of governments in most countries. In Austria, Canada, France, Germany, Italy and the United States an individual invests over USD 50 000 to acquire a tertiary qualification, taking into account direct and indirect costs. In the United States this figure is above USD 90 000 with direct costs such as tuition fees making up a significant part of the investment (in all other countries, foregone earnings are the main component). In a time of economic difficulties, the decision to continue education at a tertiary level may thus be challenged, as much is at stake, particularly for young individuals from less affluent backgrounds (Table A8.2).
- Earnings foregone depend on the wage levels one can expect to receive and most notably the probability to find a job. At a time where the labour market for young adults is likely to deteriorate in the coming years (Indicator C3), forgone earnings and thus total costs will fall and thereby also increase the returns for tertiary education. The incentives to invest in education both from the private and public perspective will thus be further advanced across most OECD countries (Tables A8.2 and A8.4).

- At the upper secondary level of education, the social safety net in some countries works against females investing in further education. Social transfers remove some of the income differences between those who have obtained an upper secondary education and those who have not. The negative effects of social transfers are particularly strong in Denmark and New Zealand where the returns for females are reduced by USD 25 000 or more (Table A8.1).
- The public returns to tertiary education are substantially higher than for upper secondary or post-secondary non-tertiary education, in part because a larger share of the investment costs are borne by the individuals themselves. The main factors are, however, higher taxes and social contributions, and lower social transfers that flow from the higher income levels of those with tertiary qualifications. In Belgium, the Czech Republic, Germany, Hungary and the United States these benefits exceeds USD 100 000 over an individual's working life (Chart A8.5).

For the last decade now, education systems have responded to these incentives and the volume of educational activity has been expanding rapidly.

4. The share of people participating in education beyond compulsory schooling has grown from a small minority to the vast majority. This expansion continues, as near-universal participation at upper-secondary level is followed by ever-wider enrolment in tertiary-level institutions. The number of individuals that have attained tertiary education has increased, on average, by 4.5% each year since 1998, and by 7% per year or more in Ireland, Poland, Portugal, Spain, and Turkey. In 2007, one-third of the youth cohort (25-34 year-olds) had attained a tertiary level qualification and in some countries (Canada, Japan, Korea and the partner country the Russian Federation), over 50% of the youth cohort have. This implies that overall tertiary attainment levels will continue to rise in the coming years. In France, Ireland, Japan and Korea, there is a difference of 25 percentage points or more in the tertiary attainment of the oldest and youngest age cohorts (Tables A1.3a, A1.4 and A1.5).

- Increases in tertiary graduation rates have been particularly marked over the last decade. On average across OECD countries with available data, university-level graduation rates have virtually doubled from 18% in 1995 to 36% in 2007. As the pace of change has differed widely across countries, the relative standing of countries on this measure has changed dramatically since 1995. At one end of the spectrum, Finland improved its relative performance from Rank 10 in 1995 to Rank 3 in 2007. Conversely, the United States dropped from Rank 2 in 1995 to Rank 14 in 2007 (Table A3.2).
- With the exception of Germany, Japan, Mexico, Poland, Turkey and the United States, the number of individuals available to the labour market with below secondary education decreased between 1998 and 2006, in some countries by very small amounts but in others substantially so (Table A1.5). Therefore, while the labour-market prospects for these individuals remain poor and deteriorating, at least their numbers have declined.
- Tertiary educated young individuals in the Czech Republic, Hungary, Iceland, Luxembourg, the Netherlands, and the Slovak Republic and in the partner country Slovenia continue to have good prospects of finding a skilled job. In these countries, 85% or more of tertiary educated 25-34 year-olds are employed in skilled occupations, indicating that those with higher education are in strong demand. Since 1998, young tertiary educated individuals in Austria, Finland, Germany and Switzerland have improved their prospects of finding a skilled job. At the same time, young workers without a tertiary education appear to have a good chance relative to older workers in finding a skilled job, indicating a potential gap between supply and demand of high-end skills in these countries (Chart A1.5, Table A1.6).

- In the United States, the demand for higher-educated individuals (measured by the percentage point change in the proportion of 25-34 year-olds with tertiary education in skilled jobs between 2006 and 1998) has remained broadly unchanged and the demand for high-end skills (measured by the difference in the population of 25-34 year-olds and 45-54-year-olds with below tertiary education in skilled jobs in percent) has tended to be satisfied by the existing pool of individuals with tertiary education. In the United Kingdom, on the other hand, demand for higher-educated individuals has been slowed, with a preference among employers toward younger individuals over older ones with below tertiary education when staffing skilled jobs (Chart A1.5).

5. In countries without significant household spending on tertiary education, declining opportunity costs can strengthen the case for more household investments because, as the more educated individuals have a stronger attachment to the labour market (Indicator A6), this increases the benefits of education. Conversely, in countries where significant house spending may be a barrier for increasing student participation, additional public spending may leverage additional participants and thus additional public benefits. Last but not least, graduating and entering the labour market in an economic downturn can be expected to become more difficult, as employers cut jobs and young graduates compete with more experienced workers.

Early childhood education has been another area where significant progress has been achieved.

6. The expansion of education systems has been very dynamic also in early childhood education. While in 1998 there were, on average across OECD countries, 40% of children four years and younger as a percentage of 3-4 year-olds enrolled in educational institutions, in 2007 it was 71%. In fact, in Turkey, Mexico, Korea, Poland, Sweden, Switzerland and Germany this proportion more than doubled over this period. In Sweden, for example, enrolment in early childhood education stood at 42% in 1998 while in 2007 it was, at 98%, virtually universal. In half the OECD countries, enrolment in early childhood education is now 80% or higher (1998 edition of Education at a Glance and Table C1.1).

There are important equity-related considerations which arise from the deteriorating job prospects for the less-well qualified.

7. While enrolments for 15-19 year-olds have been steadily rising in most countries (Table C1.2), this still leaves an important minority who leave education without acquiring a baseline qualification. Across OECD countries, 42% of the 25-64 year-olds with less than an upper secondary qualification are not even employed (Table A6.2a). Even those with higher levels of education are vulnerable if they become unemployed. Young people with lower qualifications who become unemployed are also more likely to spend a long time out of work: in most countries over half of low-qualified unemployed 25-34 year-olds are long-term unemployed (Table C3.5). In contrast, as noted before, those in work enjoy high wage premiums for completing tertiary education – over 50% in most countries.

8. Opportunities for continuing education and training are often designed to make up for deficiencies in initial education, but the data suggest that participation among individuals with strong initial qualifications is significantly higher than among the least qualified, such that these opportunities often do not reach those who need them most (2008 edition of Education at a Glance).

9. Moreover if the demand for education and qualifications continues to rise as labour market prospects weaken, the gaps in educational attainment between the younger and older adult cohorts are likely to widen further. The vulnerability of older, often less qualified, adults to chronic long-term economic inactivity may thus become more acute.

- In contrast with much higher levels of educational participation among those in their twenties, less than 6% (5.9%) of the 30-39 year-old population across OECD countries are enrolled full- or part-time (Table C1.1). While in some countries it is significantly higher than this, at more than 1 in 10 (Australia, Finland, Iceland, New Zealand and Sweden), in others participation is less than 3% of 30-39 year-olds (France, Germany, Korea, Luxembourg, the Netherlands, and Turkey and

partner country the Russian Federation), with even lower levels than 1% for over 40s in Austria, the Czech Republic, France, Germany, Hungary, Ireland, Italy, Korea, Luxembourg, Mexico, the Netherlands, Portugal, the Slovak Republic, Switzerland, Turkey and the partner countries Chile, Estonia, the Russian Federation and Slovenia. With lifelong learning more essential than ever, public policy needs to ask how adequately education and training systems are addressing the learning needs of older adults who are in need of new skills.

As far-reaching as the labour market impacts of the crisis are, the potential social consequences may last even longer.

10. The data on the economic outcomes of education are this year complemented by a new indicator on social outcomes (Indicator A9). The focus is on three aspects that reflect the health and cohesiveness of society: self-assessed health, political interest and interpersonal trust. All of these social outcomes have a positive relationship to educational attainment, but they differ in terms of which level appears to confer the greatest advantage. Students who complete upper secondary education are much more likely to report good health than those who do not. Increase in political interest and the belief that most people try to be fair are in contrast more related to the attainment of a tertiary level of education.

- For self-reported health, an increase in educational attainment from below-upper secondary to upper secondary level is associated with a stronger and more consistent increase in health outcomes, compared to an increase in educational attainment from upper secondary to tertiary level, in all surveyed countries except Poland (Table A9.1). For political interest and interpersonal trust, an increase in educational attainment from upper secondary to tertiary level is broadly associated with stronger and more consistent increases in social outcomes, compared to an increase in educational attainment at the lower level (Tables A9.3 and A9.4).
- The association between educational attainment and social outcomes generally weakens after controlling for household income, suggesting that income is one pathway to explaining this relationship. However, in most countries, the association between education and social outcomes remains strong after adjusting for household income. Hence, what individuals potentially acquire through education – e.g. competencies and psycho-social features such as attitudes and resilience – may have an important role in raising social outcomes, independent of education's effect on income.

Opportunities for effective vocational education and training involving a work-based component may be at a particular risk.

11. At a time when it is so important to invest in knowledge, skills and capacities that are relevant to economies and societies, particular pressures will be faced in those systems which rely on a major component of work-based training as part of vocational education and training at the secondary or tertiary levels. Companies struggling to cut costs and avoid lay-offs may well find it increasingly hard to place trainees. Systems are not in the same position in this regard: in many, only a small number of months are spent by 15-29 year-olds on average in both education and employment combined. But in some, to be “in education” means to be simultaneously “in employment” for many young people, including on work study programmes. In Denmark, Germany, Hungary, Ireland, Switzerland and the partner country Estonia, around 75% of upper secondary students in vocational programmes are enrolled in programmes which combine school- and workbased elements (Table C1.4). In Australia, Denmark, Iceland (in the case of women only), the Netherlands and Switzerland, more than half of the time in education between ages 15 and 29 will have the double status combining it with employment (Table C3.1a).

All this being said, it is inevitable that the significant public and household spending on education is being scrutinised.

12. OECD countries as a whole spend 6.1% of their collective GDP on education, all levels combined. In Denmark, Iceland, Korea, the United States and the partner country Israel, it is over 7% (Table B2.1). As a share of total public expenditure, the 2006 OECD average for education stood at 13.3%, ranging from less than 10% in Germany, Italy and Japan to the far higher figure of 22% in Mexico (Table B4.1).

13. Expressed on a per-student basis OECD countries spend, on average, USD 93 775 per student over the duration of primary and secondary studies, ranging from less than USD 40 000 in Mexico and the Slovak Republic, and the partner countries Brazil, Chile and the Russian Federation, to USD 100 000 or more in Austria, Denmark, Iceland, Ireland, Italy, Luxembourg, Norway, Switzerland, the United Kingdom and the United States (all figures are corrected for cross-country differences in purchasing power) (Table B1.3a).

At the tertiary level, and excluding R&D activities and ancillary services, expenditure is, on average, USD 8 418 per student per year, ranging from USD 5 000 or less in Hungary, Poland, the Slovak Republic, Turkey and the partner country Estonia to more than USD 10 000 in Austria, Canada, Norway, Switzerland, the United States and the partner country Brazil (Table B1.2).

14. It is noteworthy that expenditure per student on primary and secondary schools increased in every country, on average, by 40% between 1995 and 2006, a period of relatively stable student numbers. The pattern is different at the tertiary level where spending per student has fallen in one third of OECD and partner countries; expenditure has not kept up with the expansion in student numbers. However, from 2000 to 2006, expenditure on educational institutions per student increased by 11 percentage points on average in OECD countries after having remained stable between 1995 and 2000 (Table B1.5). This shows governments' efforts to deal with the expansion of tertiary education through massive investment. Five out of the 11 countries (the Czech Republic, Mexico, Poland, the Slovak Republic and Switzerland) in which student enrolments in tertiary education increased by more than 20 percentage points between 2000 and 2006 increased their expenditure on tertiary educational institutions by at least the same proportion over the period, whereas Hungary, Iceland, Ireland and the partner countries Brazil, Chile and Israel did not (Table B1.5).

Countries vary not just in how much they spend on education, but also in how they spend their money.

15. The case for education's role in the recovery will require a demonstration that education is capable of transforming itself to improve outcomes and value for money. It is difficult to establish the right combination of well-trained and talented personnel, appropriate instructional time and material, and adequate facilities. However, Indicator B7 sheds some light on this by examining the choices countries make when investing their resources in primary and secondary education, such as trade-offs between the hours that students spend in the classroom, the number of teaching hours of teachers, class sizes (proxy measure), teachers' salaries and the proportion of teacher's working time that is devoted to teaching.

- First of all, salary cost per student at upper secondary level varies significantly between countries, from 3.6% of GDP per capita in the Slovak Republic (less than half of the OECD average rate of 11.4%) to over six times that rate in Portugal (22%, nearly twice the OECD average) (Table B7.3). Four factors influence these differences – salary level, instruction time for students, teaching time of teachers and average class size – so that a given level of salary cost per student can result from many different combinations of the four factors. As a result, similar levels of expenditure among countries in primary and secondary education can mask a variety of contrasting policy choices. For example, in Korea and Luxembourg salary costs per student as a percentage of GDP per capita is both around 15% at the upper secondary level. However, while Korea uses very large class sizes to pay high teacher salaries, finance above-average instruction time for students and provide teachers with time for other things than teaching, Luxembourg has invested most of its resources into small class sizes, at the expense of below-average instruction time and salaries (Table B7.3).

- The higher the level of education analysed, the higher the impact of teachers' salaries and the lower the impact of class size on salary cost per student as a percentage of GDP (compared to the OECD average). The main examples of this pattern are Austria, Belgium (Flemish Community), France, Norway, Switzerland and Turkey, where the main drivers of salary cost per student are teachers' salaries at the upper secondary level, and class size at the primary level (Chart B7.3).
- Together, class size and teaching time have more impact on the measure of salary cost per student at the lower secondary level, whereas teachers' salaries are the main driver for salary cost per student at upper secondary level (see Box B7.2). However, lower secondary levels of education present similar patterns to upper secondary levels of education with respect to the main drivers of above and below OECD average levels of salary cost per student as a percentage of GDP per capita.
- At the primary level of education, similarities and differences between countries are less obvious than at the upper secondary level of education, but class size is the main driver for the difference with average salary cost per student as a percentage of GDP per capita in 16 out of the 29 OECD countries with available data (Box B7.2).

16. For education systems and the actors within them to improve their effectiveness and efficiency, there need to be mechanisms in place to appraise performance and to provide incentives for continuous improvement. Indicator D5, presenting data from the new OECD Teaching and Learning International Survey (TALIS) shows that these mechanisms are lacking in many cases:

- A number of countries have relatively weak evaluation structures: one-third or more of lower secondary teachers are in schools in Portugal (33%), Austria (35%) and Ireland (39%) that had no form of school evaluation in the previous five years.
- On average across TALIS countries, 13% of lower secondary teachers did not receive any feedback or appraisal on their work in their current school.
- Most lower secondary teachers work in schools where they feel offer no rewards or recognition for their efforts: Three-quarters of responding teachers felt that they would receive no rewards or recognition for improving the quality of their work.

Effective cost-sharing between participants in the education system and society as a whole is another aspect...

17. It is especially relevant for pre-primary and tertiary education, for which full or nearly full public funding is less common. As new client groups participate in a wider range of educational programmes and choose among more opportunities from increasing numbers of providers, governments are forging new partnerships to mobilise the necessary resources for education and to share costs and benefits more equitably. As a result, public funding more often provides only a part (albeit a very large part) of investment in education, and the role of private sources, mainly through households, has become more important. Some stakeholders are concerned that this balance should not become so tilted as to discourage potential students to access to tertiary education. Thus, changes in a country's public/private funding shares can provide important information on changing patterns and levels of participation within its educational system. Indicator B3 shows that while in all countries for which comparable data are available public funding on educational institutions increased between 2000 and 2006, household spending increased at an even greater rate in nearly three-quarters of these countries, even if in 2006, 85% of expenditure, on average, for all levels of education combined, was still from public sources (Table B3.1).

On average over 90% of primary, secondary and post-secondary non-tertiary education in OECD countries, and never less than 80% (except in Korea, the United Kingdom and in the partner country Chile), is paid

for publicly (Table B3.2a). However, in tertiary education the proportion funded privately varies widely, from less than 5% in Denmark, Finland and Norway, to more than 40% in Australia, Canada, Japan and the United States and in the partner country Israel, and to over 75% in Korea and the partner country Chile (Table B3.2b). As with tertiary graduation and entry rates, the proportion of household funding can be influenced by the incidence of international students which form a relatively high proportion in Australia and New Zealand.

- On average among the 18 OECD countries for which trend data are available, the share of public funding in tertiary institutions decreased slightly from 78% in 1995 to 76% in 2000 and to 72% in 2005 and 2006. This trend is mainly influenced by non-European countries in which tuition fees are generally higher and enterprises participate more actively by providing grants to finance tertiary institutions. However, the increase in household spending has gone hand in hand with increased public financing (Table B3.3).
- Compared to other levels of education, tertiary institutions and to a lesser extent pre-primary institutions obtain the largest proportions of funds from private sources, at 27% and 19%, respectively.
- In tertiary education, households account for most private expenditure in most countries for which data are available. Exceptions are Austria, Canada and Sweden where private expenditure from entities other than households is more significant.

...and one where countries differ in their approaches particularly when it comes to tuition.

18. In the context of the debate of how the benefits and costs of education should be shared, decisions taken by policy makers on the tuition fees charged by educational institutions affect both the cost of tertiary studies to students and the resources available to tertiary institutions. It is noteworthy that OECD countries in which students are required to pay tuition fees and can benefit from particularly large public subsidies do not show lower levels of access to university-level education than the OECD average. For example, Australia (86%) and New Zealand (76%) have among the highest entry rates to university-level education, and the Netherlands (60%) and the United States (65%) are above the OECD average. The higher entry rates to university-level education in Australia and New Zealand are, however, also due to high proportion of international students (Table A2.4, 2007 reference year).

- There are large differences among OECD and partner countries for which data are available in the average tuition fees charged by university-level public institutions. In eight OECD countries public institutions charge no tuition fees, but in one-third of countries with available data public institutions charge annual tuition fees for national students in excess of USD 1 500. Among the EU19 countries for which data are available, only Italy, the Netherlands, Portugal and the United Kingdom (government-dependent institutions) have annual tuition fees that represent more than USD 1 100 per full-time student (Table B5.1a).
- An average of 19% of public spending on tertiary education is devoted to supporting students, households and other private entities. In Australia, Denmark, the Netherlands, New Zealand, Norway, Sweden, the United Kingdom and the United States and the partner country Chile, public subsidies to households account for more than 25% of public tertiary education budgets (Table B5.4). Such public subsidies come in many forms: as means-based subsidies, as family allowances for all students, as tax allowances for students or their parents, or as other household transfers. Unconditional subsidies (such as tax reductions or family allowances) may provide less support for low-income students than means-tested subsidies. However, they may still help reduce financial disparities among households with and without children in education (Table B5.2).

- Low annual tuition fees charged by university-level institutions are not systematically associated with a low proportion of students who benefit from public subsidies. In university-level education, the tuition fees charged by public institutions for national students are negligible in the Nordic countries and in the Czech Republic. Yet, at the same time, more than 55% of the students enrolled in university-level education in these countries benefit from scholarships/grants and/or public loans (Table B5.2). Moreover, Finland, Norway and Sweden are among the seven countries with the highest entry rate to university-level education.

Demographic developments may help to alleviate some of the acute budgetary problems.

19. Last but not least, demographic developments may help to alleviate some of the acute budgetary problems in countries such as Korea, Poland and the Slovak Republic where falling rolls of around 20% are expected in schools over the next decade. Moreover, not all countries are expecting falling school enrolments – in Ireland, Spain and the partner country Israel, the 5-14 year-old population is set to rise by more than 15% by 2015 (Indicator B2) and in tertiary education it is not clear how demographic trends will interact with rising enrolment.