Education at a Glance

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FOREWORD

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. As part of its response, the OECD Directorate for Education devotes a major effort to the development and analysis of the quantitative, internationally comparable indicators that it publishes annually in *Education at a Glance*. These indicators enable governments 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.

Education at a Glance addresses the needs of a range of users, from governments seeking to learn policy lessons and academics requiring data for further analysis to the general public wanting to monitor how its nation's schools are progressing in producing world-class students. The publication examines the quality of learning outcomes, the policy levers and contextual factors that shape these outcomes, and the broader private and social returns that accrue to investments in education.

Education at a Glance is the product of a long-standing, collaborative effort between OECD governments, the experts and institutions working within the framework of OECD's indicators of education systems (INES) programme and the OECD Secretariat. The publication was drafted by the Indicators and Analysis Division of the OECD Directorate for Education, under the responsibility of Andreas Schleicher, in co-operation with Etienne Albiser, Eric Charbonnier, Michael Davidson, Stéphane Guillot, Jean-Luc Heller, Alistair Nolan and Karine Tremblay. Research assistance and technical support were provided by Cécile Bily, Manuela de Sousa, Grainne Harrington, Kate Lancaster and Annette Panzera. The development of the publication was steered by INES National Co-ordinators in member countries and facilitated by the financial and material support of the three countries responsible for co-ordinating the INES Networks – the Netherlands, Sweden and the United States. The members of the various bodies as well as the individual experts who have contributed to this publication and to OECD INES more generally are listed at the end of the book.

While much progress has been accomplished in recent years, member countries and the OECD continue to strengthen the link between policy needs and the best available internationally comparable data. In doing so, various challenges and tradeoffs must be faced. First, the indicators need to respond to educational issues that are high on national policy agendas, and where the international comparative perspective can offer important added value to what can be accomplished through national analysis and evaluation. Second, while the indicators need to be as comparable as possible, they also need to be as country-specific as is necessary to allow for historical, systemic and cultural differences between countries. Third, the indicators need to be presented in as straightforward a manner as possible, while remaining sufficiently complex to reflect multi-faceted educational realities. Fourth, there is a general desire to keep the indicator set as small as possible, but it needs to be large enough to be useful to policy makers across countries that face different educational challenges.

The OECD will continue to address these challenges vigorously and to pursue not just the development of indicators in areas where it is feasible and promising to develop data, but also to advance in areas where a considerable investment still needs to be made in conceptual work. The further development of OECD's Programme for International Student Assessment (PISA) and the launch of a new survey on teachers, teaching and learning will be major efforts to this end.

The report is published on the responsibility of the Secretary-General of the OECD.

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EXECUTIVE SUMMARY

Education and lifelong learning today play a critical role in the development of our economies and societies. This is true in the world's most advanced economies as well as in those currently experiencing periods of rapid growth and development. Human capital has long been identified as a key factor in driving economic growth and improving economic outcomes for individuals, while evidence is growing of its influence on non-economic outcomes including health and social inclusion.

Education at a Glance 2005 provides a rich, comparable and up-to-date collection of indicators on the performance of education systems. While the focus is on the 30 OECD countries, the indicators also include an increasing level of coverage of partner countries from throughout the world. The indicators look at who participates in education, what is spent on it, how education and learning systems operate and a wide range of outcomes ranging from how well secondary school children can solve problems to the effect of education on adults' chances of employment.

New material in this edition includes: a presentation of the results of the 2003 survey of the Programme for International Student Assessment (PISA) in Indicators A4, A5 and A6, focusing on the mathematics performance of 15-year-olds; data on earnings distribution by levels of education in Indicator A9; evidence of non-economic outcomes of education in Indicator A10; comparisons of the participation of labour force members in continuing education and training in Indicator C6; an analysis of student learning time out of school in Indicator D1; data on the effect on student performance of the status (public or private) of a school in Indicator D5; and, in Indicator D6, data on whether secondary school systems differentiate among students when organising learning and what impact that has on student performance.

Key findings of this edition are as follows:

More people are studying for longer, but tertiary graduation rates vary widely

Educational attainment continues to grow among the adult population of OECD countries, fed by the rising number of young people obtaining upper secondary and tertiary level qualifications. Adults aged 25 to 64 now have, on average, qualifications that take just over 12 years to complete, about the equivalent of completing upper secondary education. For young people currently completing their studies, upper secondary education has become the norm, with over 70% reaching this level in all but four OECD countries with data, and an average of one in three young people in OECD countries getting higher qualifications at the university (tertiary-type A) level.

The indicators in *Education at a Glance 2005* also show that:

- Many OECD countries where large numbers failed to complete secondary education in the past are rapidly catching up in terms of upper secondary completion. In Belgium, France, Greece, Ireland and Korea, where around half of those born in the 1950s did not complete secondary school, between 72% and 97% of those born in the 1970s have done so. Young adults in Mexico, Portugal and Turkey remain less likely than those in other countries to have finished upper secondary education.
- Advances in tertiary completion rates have been more uneven than for upper secondary. The total pool of graduates in OECD countries has grown largely due to increases in a few countries. Current graduation rates range from less than 20% in Austria, the Czech Republic, Germany and Turkey to more than 40% in Australia, Denmark, Finland, Iceland and Poland. Such differences are associated with different kinds

of tertiary education systems. High graduation rates are more common in countries with more flexible degree structures.

- Females are completing both upper secondary and tertiary education at faster rates than males in most countries. However, females remain both less engaged in mathematics and science at secondary school and less likely to obtain tertiary qualifications in these fields.
- Newly updated data show that the number of science graduates per 100 000 employed persons ranges from below 700 in Hungary, to above 2 200 in Australia, Finland, France, Ireland, Korea, and the United Kingdom.

Student performance varies widely across and between countries, both in curriculum-linked disciplines like mathematics and in students' wider capacity to solve problems

In 2003, PISA reported for the second time on 15-year-olds' knowledge and skills for life, focusing on mathematics. Among OECD countries, students in Finland, Japan, Korea and the Netherlands were the top performers in mathematics overall. Many of the most revealing comparisons concerned sources of variation among students within countries, including the extent to which students in different schools perform differently. Among the survey's key findings:

- At least one in five students are proficient in complex mathematics tasks, at PISA Level 5 or 6, in Australia, Belgium, Canada, Finland, Japan, Korea, the Netherlands, New Zealand and Switzerland. This is an indicator of these countries' pools of people with high-level mathematical skills who are likely to play a crucial role in advancing the knowledge economy.
- Whereas the great majority of students in OECD countries have at least a basic level of mathematical proficiency, being capable of tasks at PISA Level 2, the proportion who lack such proficiency varies widely: from below 10% in Finland and Korea to above one-quarter in Greece, Italy, Mexico, Portugal and Turkey. This is an indicator of how many students are likely to encounter serious problems in using mathematics in their future lives.
- On average, differences between school results account for about one-third of student differences in mathematics performance within each country. However, a number of countries achieve high levels of performance across schools, with low between-school differences. In Finland, for example, less then 5% of the performance variation among students lies between schools and in Canada, Denmark, Iceland and Sweden, other countries that perform well, it is 17 per cent or less.
- PISA 2003 for the first time measured problem-solving skills internationally, assessing how well these skills can be applied in contexts not restricted to a particular area of the school curriculum. The results show wide country variations in the proportion of students able to cope with complex problems, and in those unable to solve even simple ones. For example, in Finland, Japan and Korea, at least seven in ten students can deal successfully with multi-faceted problems involving more than one data source, or requiring the student to reason with the information provided (reaching at least Level 2 on a three-level proficiency scale). On the other hand, in Greece, Mexico, Portugal and Turkey, at most four in ten students can solve problems at this level.

Clear returns to education can be measured in terms of individual job prospects, individual earnings and overall economic growth

Investment in education brings both individual and collective rewards. Better-educated adults are more likely to work, and earn more on average when they do so. These effects vary across countries and educational levels. A particularly strong employment effect applies to males without upper secondary education, who are much less likely to work than those who complete this level. The sharpest earnings effects tend to be between those with tertiary qualifications and those who have only gained upper secondary or post-secondary non-tertiary qualifications. Whole-economy effects are harder to measure accurately, but the indicators show clear effects of human capital on productivity and economic growth. Specific indicators show that:

- Females with low levels of education are particularly unlikely to be in work, both compared with males with low levels of education and females with higher levels of education. This phenomenon is especially pronounced in Greece, Ireland, Italy, Mexico, Spain and Turkey, where fewer than 47% of females aged 25 to 64 without upper secondary completion are working, compared to over 70% of similarly educated males. Moreover, in these countries, the great majority of highly educated females are working: at least 70% of those with tertiary qualifications, except in Turkey, where it is 63%.
- New data on earnings show that, over and above differences in average earnings by educational level, the dispersion of earnings among people with the same educational level varies across countries. For instance, across all educational levels combined, countries such as Belgium, France, Hungary and Luxembourg have relatively few individuals who earn below half of median earnings.
- Rising labour productivity accounted for at least half of GDP per capita growth in most OECD countries from 1990 to 2000. The estimated long-term effect on economic output of one additional year of education in the OECD area generally falls between 3 and 6%. Consideration is also given to the evidence for effects of education on health and social cohesion.

Spending on education is rising, but not always as fast as GDP

OECD countries are expanding the scope of their education systems, but at the same time trying to contain the cost burden on hard-pressed public budgets. Conflicting pressures have produced varying trends. In tertiary education, where student numbers are rising the fastest, pressures to cut unit costs are greatest. In primary and secondary education, where in some cases demography causes a fall in enrolments, spending per student is rising in almost all countries. Specifically:

- Spending per student in non-tertiary education rose by 30% or more between 1995 and 2002 in Australia, Greece, Ireland, the Netherlands, Poland, Portugal, Spain and Turkey. In some other countries it rose by less than 10%, and in Sweden it fell slightly.
- In tertiary education, spending per student has in some cases fallen by over 10%, as spending levels have not kept pace with expanding student numbers. This has occurred in the Czech Republic, Poland and the Slovak Republic, where enrolments have risen rapidly; and in Australia and Sweden, where they have grown at a slower rate. On the other hand, in Greece, Spain, Switzerland and Turkey, spending per student in tertiary education has risen by over 30%.
- In only half of countries did the overall growth in educational expenditure at least keep pace with GDP growth between 1995 and 2002. In Ireland, where the GDP grew particularly rapidly, spending on non-tertiary educational institutions grew only about half as fast, although tertiary spending nearly kept pace with GDP. Spending on educational institutions grew over twice as fast as GDP in New Zealand and Turkey at the non-tertiary level, and in Greece, Hungary, Italy, Japan, Mexico, Poland, Switzerland and Turkey at the tertiary level.

Private spending on education is substantial in some areas, but resources for education continue to depend heavily on the allocation of public budgets

Public funding today provides for most spending by educational institutions, with over 90% of primary and secondary expenditure in OECD countries coming from this source. In tertiary and pre-primary education, private funding is more significant, particularly in certain countries. In recent years, public spending on education has been threatened by a decline in most countries in the percentage of GDP spent publicly overall. However, the allocation of a growing proportion of these budgets to education has helped to reduce the impact. Indicators on public and private spending show that:

- In tertiary education the percentage of funding coming from private sources varies widely, from less than 4% in Denmark, Finland, Greece, Norway to more than 50% in Australia, Japan and the United States, and even above 80% in Korea.
- In some countries, tertiary institutions are now relying more heavily on private sources of funding such as fees than they did in the mid-1990s. Private contribution rose by more than five percentage points in Australia, Mexico, Portugal, the Slovak Republic, Turkey and the United Kingdom from 1995 to 2002. In primary and secondary education, however, the shares of public and private spending have remained broadly unchanged.
- On average in OECD countries, public budgets declined relative to GDP; public education spending grew as a share of those budgets, but grew more slowly than GDP. Denmark, New Zealand and Sweden saw particularly significant shifts in public funding in favour of education.

Educational expectancy has continued to rise, and most young people can now expect to undertake some tertiary education during their lives

A child at the age of five can now expect to undertake between 16 and 21 years of education during his or her lifetime, in most OECD countries, if present patterns of participation continue. In every country, educational expectancy measured in these terms has risen since 1995, as participation has risen in pre-primary, upper secondary and tertiary education. A majority of young people – 53% on average – will undertake at least some tertiary education at university level or equivalent during their lifetimes, based on present patterns.

The indicators show that:

- Expected years in education for a child who was five in 2003 exceeds 16 years in all countries except Luxembourg, Mexico, the Slovak Republic and Turkey, and is greatest in Australia, Belgium, Finland, Iceland, Sweden and the United Kingdom, at between 19 and 21 years.
- In the Czech Republic, Greece, Hungary, Iceland, Korea, Poland, Sweden, Turkey and the United Kingdom, educational expectancy grew by above 15% in the relatively short period from 1995 to 2003.
- Based on current participation rates, 53% of today's young people in OECD countries will attend university level or equivalent programmes during their lifetime. About 16% will enter other types of tertiary programmes (tertiary-type B) – but there is some overlap in these two groups. In Australia, Finland, Hungary, Iceland, New Zealand, Norway, Poland and Sweden, more than 60% of young people will enter tertiary-type A programmes. Other forms of tertiary education are most common in Korea and New Zealand, where more than half of young people can expect to participate in tertiary-type B education.

Students crossing borders represent a growing and changing feature of enrolment in tertiary education

In 2003, 2.12 million people studying in OECD countries were foreign students, *i.e.* enrolled outside their country of origin. This represented an 11.5% increase in total foreign students' intakes reported to the OECD since the previous year. Most notably:

- Australia, France, Germany, the United Kingdom and the United States receive 70% of foreign students in OECD countries. Since 1998, Australia's market share has risen, but those of the United Kingdom and the United States have fallen.
- In absolute numbers, students from France, Germany, Greece, Japan, Korea and Turkey represent the largest sources of intakes from OECD countries. Students from China, India and Southeast Asia comprise the largest numbers of foreign students from partner countries.
- One-third of foreign students studying in OECD countries are enrolled in the United States, but the composition of this intake has changed in recent years. Enrolments by students from the Gulf states, North African and certain Southeast Asian countries have fallen by between 10 and 37%, and students from such countries are now more likely to study in Europe, the Middle East and Asia. However, enrolments in the United States by students from China and India have risen 47 and 12%, respectively.

Participation in continuing education and training of people in the labour force varies markedly between countries

The need for labour force members to continue developing their skills and knowledge is greater now as job tasks become more complex and job mobility increases. However, the extent to which this is happening in countries varies widely.

- In Denmark, Finland, Sweden, Switzerland and the United States, more than 40% of the labour force took part in non-formal job-related education and training within a 12-month period. This contrasts with Greece, Hungary, Portugal and Spain where the rate was less than 10%.
- Adults with tertiary qualifications are, in all countries, more likely to participate in non-formal job-related continuing education and training than adults with lower educational attainment.
- In all countries, workers in upper tier service industries are more likely to participate in non-formal job-related continuing education and training than workers in other industries.

Young adults combine working and learning in different ways, but a substantial number are spending time doing neither

The transition from compulsory education to employment is very protracted in some OECD countries, with learning often interspersed with working. But students who reach their late 20s without gaining qualifications are seriously at risk:

- Those without at least an upper secondary education face higher risk of unemployment. In Belgium, the Czech Republic, France, Germany, Poland and the Slovak Republic, over 15% of 25-to-29-year-olds without upper secondary qualifications are unemployed.
- In some countries young people are spending substantial amounts of time neither in education nor in jobs (either unemployed or outside the labour force). The average time spent in this situation between age 15 and 29 exceeds two years in Belgium, the Czech Republic, Greece, Hungary, Italy, Mexico, Poland, the Slovak Republic, Spain, Turkey and the United States.

- In some countries, education and work largely occur consecutively, while in other countries they are concurrent. Work-study programmes, relatively common in European countries, offer coherent vocational education routes to recognised occupational qualifications. In other countries, initial education and work are rarely associated.

Educational inputs can be measured not just by how many hours children learn and in what size classes, but also by learning outside the classroom

In the compulsory years of education, educational inputs vary by striking amounts across countries. Students can get 50% more instruction time, and be in classes well over 50% larger, in one country compared with another. But not everything occurs in the classroom, and new data from PISA shows that out-of-class learning time also varies greatly across countries. Among the findings on teaching and learning inputs:

- The total number of instruction hours that students are intended to receive between ages 7 and 14 averages 6 852 hours among OECD countries. However, formal requirements range from 5 523 hours in Finland to around 8 000 hours in Australia, Italy, the Netherlands and Scotland.
- When the PISA 2003 survey asked 15-year-old students about learning outside class, they gave very different replies across countries. While in Austria, Belgium, the Czech Republic, Iceland, Japan, Norway, Portugal, Sweden and Switzerland, learning in classroom settings makes up 80% of total school-related learning, students in Greece report spending more than 40% learning in other settings, including through homework and out-of-school classes.
- The average class size in lower secondary education is 24 students per class but varies from 30 or more in Japan, Korea and Mexico to less than 20 in Denmark, Iceland and Switzerland.
- On average for the ten OECD countries with data, 30% of the staff in primary and secondary schools are not teachers, ranging from less than 20% in Korea and New Zealand to over 40% in the Czech Republic and France.

Teachers' pay and contact time varies greatly across countries, and the pay structure is in some cases changing

Relative to GDP per capita, teachers in some countries are paid over twice as much as in others. Teachers also work very different hours across countries. Supply and demand factors are causing some changes in pay structure. The indicators show that:

- Mid-career salaries for teachers in lower secondary education are over twice as high as GDP per capita in Korea and Mexico, whereas in Iceland and the Slovak Republic salaries are less than 75% of GDP per capita.
- Annual teaching hours in lower secondary education ranges from 535 in Japan to over 1 000 hours in Mexico and the United States, with similar variations at other levels.
- On an hourly basis, teachers are much better paid in upper secondary than in primary education. Salary per teaching hour is 80% higher for upper secondary than for primary school teachers in the Netherlands and Spain, but less than 5% higher in New Zealand, Poland, the Slovak Republic and the United States.
- A desire to attract new teachers may have contributed to the faster rise in starting salaries than other salaries for teachers since 1996 in Australia, Denmark, England, Finland and Scotland. However, mid-career salaries have risen relatively quickly in Austria, Japan, Netherlands, New Zealand and Portugal. In New Zealand, top-of-the scale salaries have also risen faster than starting salaries, but in a country

where it only takes eight years to reach to the top of the scale, this is compatible with recruitment incentives for new teachers.

Different types of schools and school systems perform differently, but the effect of these structural differences needs to be interpreted carefully

The PISA 2003 survey of the mathematics performance of 15-year-olds noted significant differences in performance between students in public and private schools, and some differences between outcomes in secondary education systems with greater or lesser differentiation in the grouping of students. However, such comparisons need to be treated with care. The main conclusions were that:

- Private schools outperform public schools on average. Students in private schools score 33 score point higher on average on the mathematics scale, about half a proficiency level. The biggest difference is in Germany (66 points). However, once socio-economic factors are fully taken into account, the performance of private schools no longer tends to be superior.
- Students in more differentiated and selective education systems perform slightly lower on average than those in more comprehensive systems, but this difference is not statistically significant. However, more differentiated systems show much larger variation in performance among students, not only from one school to another, but also when comparing students from more and less advantaged family backgrounds.

INTRODUCTION: THE INDICATORS AND THEIR FRAMEWORK

The organising framework

Education at a Glance – OECD Indicators 2005 provides a rich, comparable and up-to-date array of indicators that reflect a consensus among professionals on how to measure the current state of education internationally. The indicators provide information on the human and financial resources invested in education, on how education and learning systems operate and evolve, and on the returns to educational investments. The indicators are organised thematically, and each is accompanied by relevant background information. The education indicators are presented within an organising framework which:

- Distinguishes between the actors in education systems: individual learners, instructional settings and learning environments, educational service providers, and the education system as a whole;
- Groups the indicators according to whether they speak to learning outcomes for individuals or countries, policy levers or circumstances that shape these outcomes, or to antecedents or constraints that set policy choices into context; and
- Identifies the policy issues to which the indicators relate, with three major categories distinguishing between the quality of educational outcomes and educational provision, issues of equity in educational outcomes and educational opportunities, and the adequacy and effectiveness of resource management.

The following matrix describes the first two dimensions.

		(1)	Education and learning outputs and outcomes	(2)	Policy levers and contexts shaping educational outcomes	(3)	Antecedents or constraints that contextualise policy
(I)	**Individual participants in education and learning**	(1.I)	The quality and distribution of individual educational outcomes	(2.I)	Individual attitudes, engagement, and behaviour	(3.I)	Background characteristics of the individual learners
(II)	**Instructional settings**	(1.II)	The quality of instructional delivery	(2.II)	Pedagogy and learning practices and classroom climate	(3.II)	Student learning conditions and teacher working conditions
(III)	**Providers of educational services**	(1.III)	The output of educational institutions and institutional performance	(2.III)	School environment and organisation	(3.III)	Characteristics of the service providers and their communities
(IV)	**The education system as a whole**	(1.IV)	The overall performance of the education system	(2.IV)	System-wide institutional settings, resource allocations, and policies	(3.IV)	The national educational, social, economic, and demographic contexts

The following sections discuss the matrix dimensions in more detail:

Actors in education systems

The OECD Education Indicators programme seeks to gauge the performance of national education systems *as a whole*, rather than to compare individual institutional or other sub-national entities. However, there is increasing recognition that many important features of the development, functioning and impact of education systems can only be assessed through an understanding of learning outcomes and their relationships to inputs and processes at the level of individuals and institutions. To account for this, the indicator framework distinguishes between a macro level, two meso-levels and a micro-level of education systems. These relate to:

- The education system as a whole;
- The educational institutions and providers of educational services;
- The instructional setting and the learning environment within the institutions; and
- The individual participants in education and learning.

To some extent, these levels correspond to the entities from which data are being collected but their importance mainly centres on the fact that many features of the education system play out quite differently at different levels of the system. For example, at the level of students within a classroom, the relationship between student achievement and class size may be negative, if students in small classes benefit from improved contact with teachers. At the class or school level, however, students are often intentionally grouped such that weaker or disadvantaged students are placed in smaller classes so that they receive more individual attention. At the school level, therefore, the observed relationship between class size and student achievement is often positive (suggesting that students in larger classes perform better than students in smaller classes). At higher aggregated levels of education systems, the relationship between student achievement and class size is further confounded, *e.g.* by the socio-economic intake of schools or by factors relating to the learning culture in different countries. Past analyses which have relied on macro-level data alone have therefore sometimes led to misleading conclusions.

Outcomes, policy levers and antecedents

The second dimension in the organising framework further groups the indicators at each of the above levels:

- Indicators on observed outputs of education systems, as well as indicators related to the impact of knowledge and skills for individuals, societies and economies, are grouped under the sub-heading *output and outcomes of education and learning;*
- The sub-heading *policy levers and contexts* groups activities seeking information on the policy levers or circumstances which shape the outputs and outcomes at each level; and
- These policy levers and contexts typically have *antecedents* – factors that define or constrain policy. These are represented by the sub-heading *antecedents and constraints*. It should be noted that the antecedents or constraints are usually specific for a given level of the education system and that antecedents at a lower level of the system may well be policy levers at a higher level. For teachers and students in a school, for example, teacher qualifications are a given constraint while, at the level of the education system, professional development of teachers is a key policy lever.

Policy issues

Each of the resulting cells in the framework can then be used to address a variety of issues from different policy perspectives. For the purpose of this framework, policy perspectives are grouped into the following three classes which constitute the third dimension in the organising framework for INES:

- Quality of educational outcomes and educational provision;
- Equality of educational outcomes and equity in educational opportunities; and
- Adequacy and effectiveness of resource management.

In addition to the dimensions mentioned above, the time perspective as an additional dimension in the framework, allows dynamic aspects in the development of education systems to be modelled also.

The indicators that are published in *Education at a Glance 2005* fit within this framework, though often they speak to more than one cell. Most of the indicators in **Chapter A**, *The output of educational institutions and impact of learning*, of course relate to the first column of the matrix describing outputs and outcomes of education. Even so, indicators in Chapter A measuring educational attainment for different generations, for instance, not only provide a measure of the output of the educational system but also provide context for current educational policies, helping to shape polices on life-long learning, for example.

Chapter B, examining the *Financial and human resources invested in education*, provides indicators which are either policy levers or antecedents to policy, or sometimes both. For example, expenditure per student is a key policy measure which most directly impacts on the individual learner as it acts as a constraint on the learning environment in schools and student learning conditions in the classroom.

Chapter C turns to issues of *Access to education, participation and progression*. Indicators in this chapter provide a mixture of outcome indicators, policy levers and context indicators. Entry rates and progression rates are, for instance, outcomes measures to the extent that they indicate the results of policies and practices in the classroom, school and system levels. But they can also provide contexts for establishing policy by identifying areas where policy intervention is necessary to, for instance, address issues of inequity.

Chapter D examines the *Learning environment and organisation of schools*. Here, indicators on instruction time, teachers working time and teachers' salaries not only represent policy levers which can be manipulated but also provide contexts for the quality of instruction in instructional settings and for the outcomes of learners at the individual level.

READERS' GUIDE

Coverage of the statistics

Although a lack of data still limits the scope of the indicators in many countries, the coverage extends, in principle, to the entire national education system (within the national territory) regardless of the ownership or sponsorship of the institutions concerned and regardless of education delivery mechanisms. With one exception described below, all types of students and all age groups are meant to be included: children (including students with special needs), adults, nationals, foreigners, as well as students in open distance learning, in special education programmes or in educational programmes organised by ministries other than the Ministry of Education, provided the main aim of the programme is the educational development of the individual. However, vocational and technical training in the workplace, with the exception of combined school and work-based programmes that are explicitly deemed to be parts of the education system, is not included in the basic education expenditure and enrolment data.

Educational activities classified as "adult" or "non-regular" are covered, provided that the activities involve studies or have a subject matter content similar to "regular" education studies or that the underlying programmes lead to potential qualifications similar to corresponding regular educational programmes. Courses for adults that are primarily for general interest, personal enrichment, leisure or recreation are excluded.

Calculation of international means

For many indicators a country mean is presented and for some an OECD total.

The country mean is calculated as the unweighted mean of the data values of all OECD countries for which data are available or can be estimated. The country mean therefore refers to an average of data values at the level of the national systems and can be used to answer the question of how an indicator value for a given country compares with the value for a typical or average country. It does not take into account the absolute size of the education system in each country.

The OECD total is calculated as a weighted mean of the data values of all OECD countries for which data are available or can be estimated. It reflects the value for a given indicator when the OECD area is considered as a whole. This approach is taken for the purpose of comparing, for example, expenditure charts for individual countries with those of the entire OECD area for which valid data are available, with this area considered as a single entity.

Note that both the country mean and the OECD total can be significantly affected by missing data. Given the relatively small number of countries, no statistical methods are used to compensate for this. In cases where a category is not applicable (code "a") in a country or where the data value is negligible (code "n") for the corresponding calculation, the value zero is imputed for the purpose of calculating country means. In cases where both the numerator and the denominator of a ratio are not applicable (code "a") for a certain country, this country is not included in the country mean.

For financial tables using 1995 data, both the country mean and OECD total are calculated for countries providing both 1995 and 2002 data. This allows comparison of the country mean and OECD total over time with no distortion due to the exclusion of certain countries in the different years.

Classification of levels of education

The classification of the levels of education is based on the revised International Standard Classification of Education (ISCED-97). The biggest change between the revised ISCED and the former ISCED (ISCED-76) is the introduction of a multi-dimensional classification framework, allowing for the alignment of the educational content of programmes using multiple classification criteria. ISCED is an instrument for compiling statistics on education internationally and distinguishes among six levels of education. The Glossary at *www.oecd.org/edu/eag2005* describes in detail the ISCED levels of education, and Annex 1 shows corresponding typical graduation ages of the main educational programmes by ISCED level.

Symbols for missing data

Six symbols are employed in the tables and charts to denote missing data:

- *a* Data not applicable because the category does not apply.
- *c* There are too few estimates to provide reliable estimates (*i.e.* there are fewer than 3% of students for this cell or too few schools for valid inferences). However, these statistics were added in the calculation of cross-country averages.
- *m* Data not available.
- *n* Magnitude is either negligible or zero.
- *w* Data has been withdrawn at the request of the country concerned.
- *x* Data included in another category or column of the table (*e.g.* x(2) means that data are included in column 2 of the table).

Further resources

The Web site *www.oecd.org/edu/eag2005* provides a rich source of information on the methods employed for the calculation of the indicators, the interpretation of the indicators in the respective national contexts and the data sources involved. The web site also provides access to the data underlying the indicators as well as to a comprehensive glossary for technical terms used in this publication.

Any post-production changes to *Education at a Glance 2005* are listed at *www.oecd.org/edu/eag2005*.

The Web site *www.pisa.oecd.org* provides information on the OECD Programme for International Student Assessment (PISA), on which many of the indicators in this publication draw.

For the first time, *Education at a Glance* is using the OECD's innovative StatLinks service. Below each table and chart in *Education at Glance 2005* is a url which leads to a corresponding Excel workbook containing the underlying data for the indicator. These urls are stable and will remain unchanged over time. In addition, readers of the *Education at a Glance* e-book will be able to click directly on these links and the workbook will open in a separate window.

Education Policy Analysis is a companion volume to *Education at a Glance*, which takes up selected themes of key importance for governments. The 2005 edition contains four chapters that draw together key findings and policy developments under the following headings: What PISA tells us about gender and learning; Formative assessment as a means of tackling classroom diversity; Internationalisation and higher education; Teacher evaluation and recognition.

Codes used for territorial entities

Australia	AUS	Japan	JPN
Austria	AUT	Korea	KOR
Belgium	BEL	Luxembourg	LUX
Belgium (Flemish Community)	BFL	Mexico	MEX
Belgium (French Community)	BFR	Netherlands	NLD
Canada	CAN	New Zealand	NZL
Czech Republic	CZE	Norway	NOR
Denmark	DNK	Poland	POL
England	ENG	Portugal	PRT
Finland	FIN	Scotland	SCO
France	FRA	Slovak Republic	SVK
Germany	DEU	Spain	ESP
Greece	GRC	Sweden	SWE
Hungary	HUN	Switzerland	CHE
Iceland	ISL	Turkey	TUR
Ireland	IRL	United Kingdom	UKM
Italy	ITA	United States	USA

Countries participating in the OECD/UNESCO World Education Indicators programme

Argentina, Brazil, Chile, China, Egypt, India, Indonesia, Jamaica, Jordan, Malaysia, Paraguay, Peru, Philippines, Russian Federation, Sri Lanka, Thailand, Tunisia, Uruguay and Zimbabwe participate in the OECD/UNESCO World Education Indicators (WEI) programme. Data for these countries are collected using the same standards and methods that are applied for OECD countries and therefore are included in this publication. Israel has observer status in OECD's activities on education.

Chapter

A

THE OUTPUT OF EDUCATIONAL INSTITUTIONS AND THE IMPACT OF LEARNING

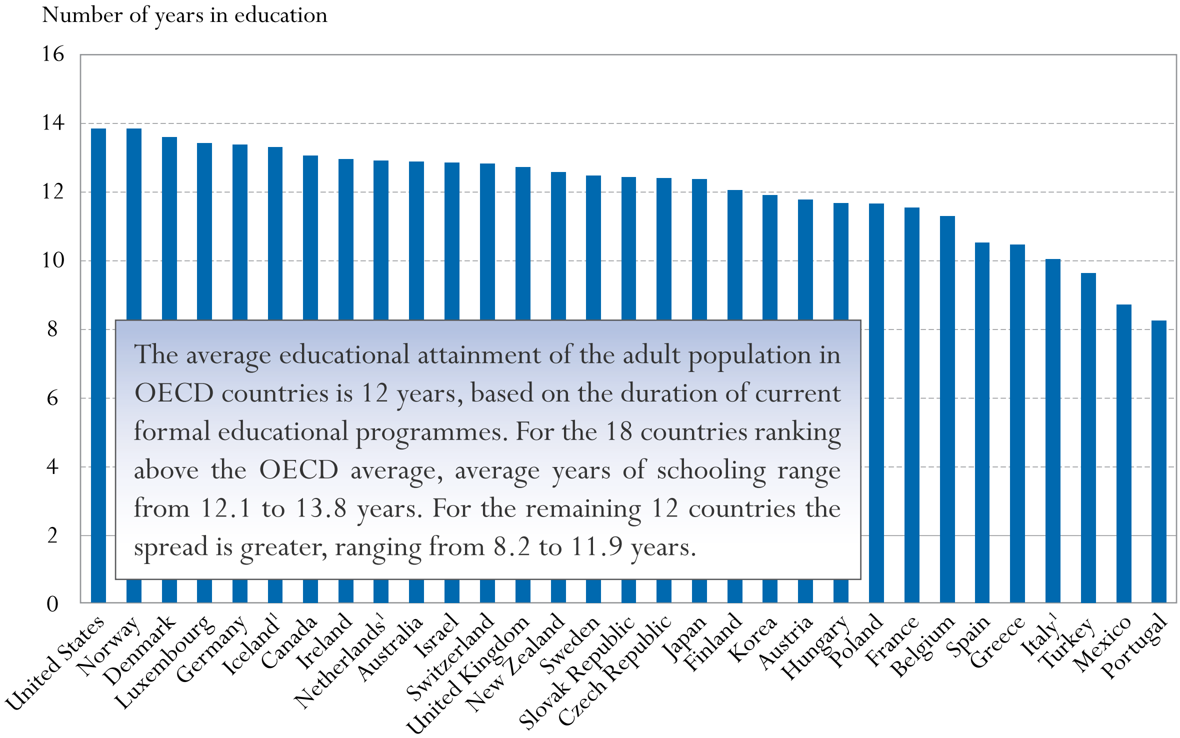
Educational attainment of the adult population

This indicator profiles the educational attainment of the adult population as a proxy for the knowledge and skills available to economies and societies. The educational attainment of the adult population can be summarised by the average years of schooling in formal education.

Key results

Chart A1.1. Educational attainment of the adult population: Average number of years in the education system (2003)

The chart shows the amount of education that has been received by today's 25-to-34-year-olds in terms of the number of years they have spent in formal education. Note that this reflects education received in the past, and an expansion in youth education feeds only slowly into higher adult attainment levels.



1. Year of reference 2002.

Countries are ranked in descending order of the average number of years in the education system of 25-to-34-year-olds.

Source: OECD. Table A1.4. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/684518581842

Other highlights of this indicator

- The proportion of individuals who have completed upper secondary education has been growing in almost all OECD countries, rapidly in some: in 22 countries, the proportion ranges from 71 to 97% among the youngest generation. Many countries with traditionally low levels of education are catching up and completion of upper secondary education has grown almost everywhere, becoming the norm for youth cohorts.
- As measured by educational attainment, there has been an increase in the stock of tertiary level skills in the combined adult populations of OECD countries, but most of that increase is due to significant increases in tertiary graduation rates in a comparatively small number of countries.

Policy context

A well-educated and well-trained population is important for the social and economic well-being of countries and individuals (see Indicator A10). Education plays a key role in providing individuals with the knowledge, skills and competencies to participate effectively in society and the economy. Education also contributes to an expansion of scientific and cultural knowledge. This indicator shows the distribution of levels of educational attainment in the adult population.

The level of educational attainment of the population is a commonly used proxy for the stock of "human capital", that is, the skills available in the population and labour force. Assuming that one year of education is equivalent at all levels, the educational attainment of the adult population can be summarised by the average years of schooling completed. It must be noted, however, that the calculation is based on the length of current educational programmes, rather than an estimate of the actual average duration of studies attained by past populations. Comparing different countries by the average years of schooling also presupposes that the amount and sequence of imparted skills and knowledge per year of education are about the same in each country.

Evidence and explanations

Of the adult population of the OECD countries taken on average, the most numerous group is composed of those who have completed upper secondary education (41%). Nearly one-third of adults (31%) have obtained only the primary education or lower secondary levels and less than one-quarter (24%) achieved a tertiary level of education (Table A1.1a). However, countries differ widely in the distribution of educational attainment across their populations.

In 21 out of the 30 OECD countries, more than 60% of the population aged 25 to 64 years has completed at least upper secondary education (Table A1.1a). However, in some countries, especially in southern Europe, the education levels of the adult population show a different profile. For instance, in Italy, Mexico, Portugal, Spain and Turkey, more than half of the population aged 25 to 64 years has not completed upper secondary education.

The growing skill requirements of labour markets, an increase in unemployment in a number of countries in recent years – and, possibly, higher expectations among individuals – have raised the proportion of young people who obtain at least a tertiary qualification. However, attainment at the tertiary level remains very unequal across countries. Among the population of 25-to-64-year-olds the share of the labor force that attains tertiary education, at either Type B or Type A, varies from below 10% in Italy and Turkey, to 44% in Canada, and equals or exceeds 30% in seven other countries (Table A1.1a).

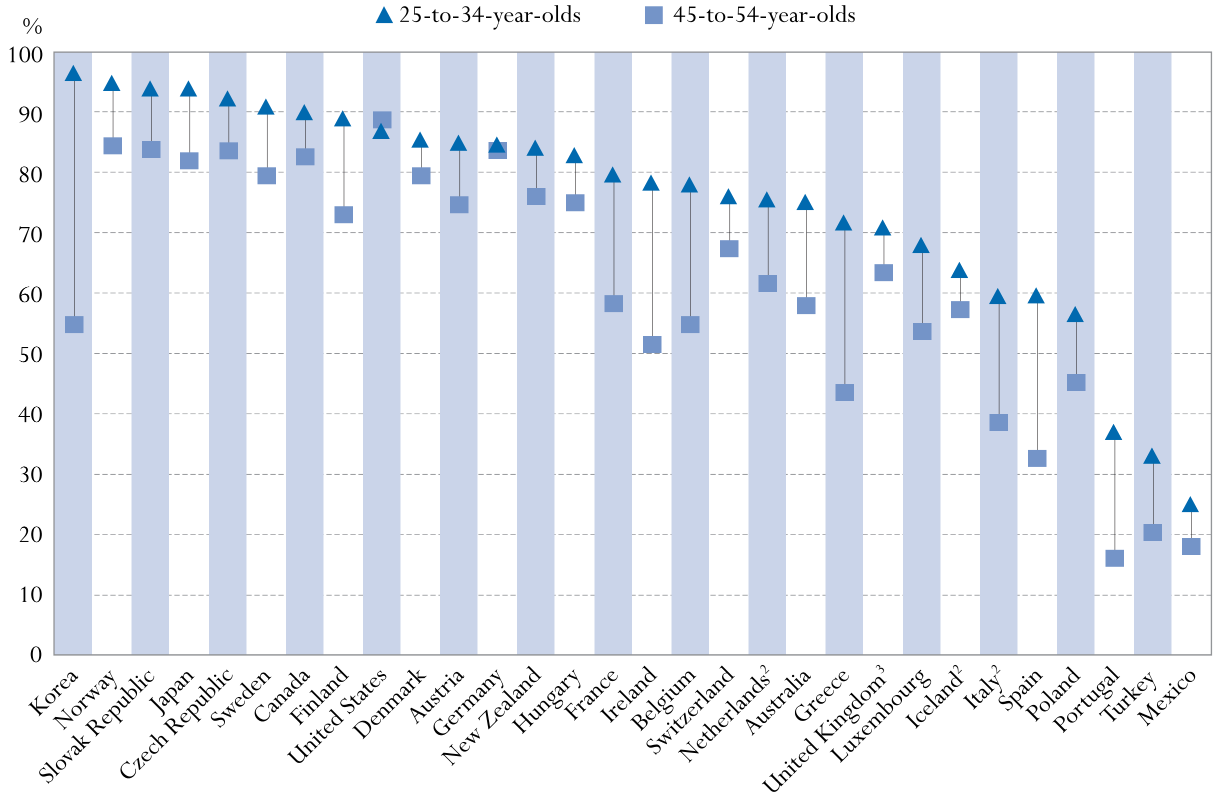
Consequently, in OECD countries the proportion of 25-to-64-year-olds who have completed tertiary-type A or advanced research programmes ranges from less than 10% in Austria, Luxembourg and Portugal to 20% or more in Australia, Canada, Denmark, Iceland, Japan, Korea, the Netherlands, Norway and the United States. However, certain countries also have a tradition of vocational education at the tertiary level (tertiary-type B). The proportion of persons who have attained the tertiary-type B level is equal to or exceeds 15% in Belgium, Canada, Finland, Japan, New Zealand and Sweden (Table A1.1a).

A comparison of the levels of educational attainment in younger and older age groups indicates marked progress with regard to the percentage of the population graduating from upper secondary education (Chart A1.2). On average, 75% of 25-to-34-year-olds have attained upper secondary education compared with only 62% of 45-to-54-year-olds.

In countries whose adult population generally has a high attainment level, differences among age groups in the level of educational attainment are less pronounced (Table A1.2a). Apart from the significant exception

Chart A1.2. Population that has attained at least upper secondary education[1] (2003)

Percentage, by age group



1. Excluding ISCED 3C short programmes.
2. Year of reference 2002.
3. Including some ISCED 3C short programmes.

Countries are ranked in descending order of the percentage of 25- to-34-year-olds who have attained at least upper secondary education.
Source: OECD. Table A1.2a. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/684518581842

of Korea – where the difference between those aged 25 to 34 years and those aged 45 to 54 years reaches 42 percentage points – in countries where more than 80% of 25-to-34-year-olds achieve at least upper secondary attainment, the gain on the previous generation (aged 45 to 54 years) is, on average, only 11 percentage points. In Germany, the proportion of upper secondary attainment is almost the same, at around 85 %, for the three youngest age groups. For other countries, where there is more ground to catch up, the average gain is 16 percentage points. Only four of these countries (Iceland, Mexico, Switzerland and the United Kingdom) show gains of less than 10 percentage points. The others, such as Belgium, France, Greece, Ireland, Italy, Portugal and Spain, show remarkable improvement. Proportionally, the improvement is also important in Mexico and Turkey.

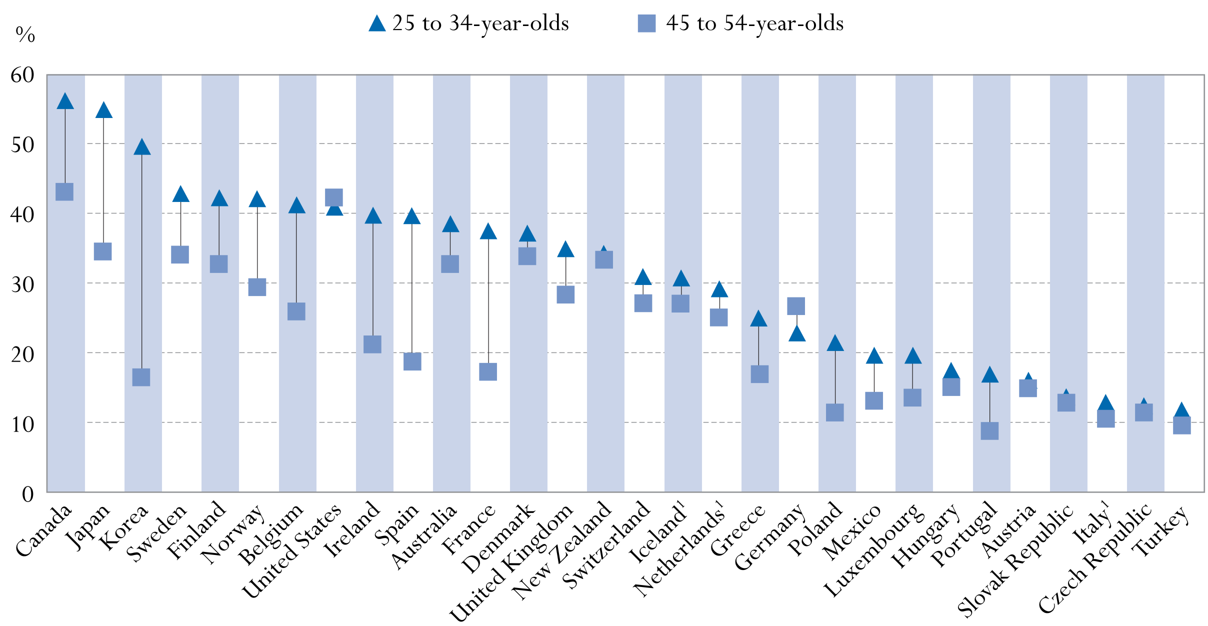
The same type of comparison between the levels reached by groups separated in age by about 20 years reveals a quite different situation as regards tertiary attainment. For tertiary level education the disparities remain important between OECD countries. In countries in which a high proportion of the population achieves the tertiary level, important increases in attainment are generally seen from one generation to another.

The proportion of 25-to-34-year-olds who have attained tertiary education is more than 32% in 15 of the 30 OECD countries. This figure represents the result of a dramatic effort to expand educational attainment over the last 20 years. For countries at the top level, the gap in tertiary attainment between the oldest and youngest age groups (25-to-34-year-olds and 55-to-64-year olds) is about 12 percentage points. The gap is particularly pronounced in France, Japan, Korea and Spain. Considering all tertiary education, across all OECD countries, an average of 29% of 25-to-34-year-olds attained the tertiary level. In contrast, for 45-to-54-year-olds the corresponding share was 22% (Table A1.3a). It should be noted that differences in attainment across generations could occur for different reasons. A country that had a good adult learning policy and set of programmes could have relatively high attainment among older age groups – and consequently a relatively narrow gap between age groups – even if those individuals in aggregate had not emerged from their initial education with a particularly high-level set of qualifications. To assess whether differences in attainment across generations provides a true picture of change in the performance of education systems, data would be required that show not just the current level of attainment among older and younger adults, but also the ages at which those adults in different countries had attained their qualifications.

The average educational attainment of the adult population within OECD countries, considered in terms of years of schooling (of the existing programmes), corresponds to 12 years. For the 18 countries ranking above the average, the dispersion is limited within a range of less than two years, from 12.1 years to 13.8 years. For the six countries below the average the spread is much greater, ranging from 8.2 to 10.5 years (Table A1.4).

Chart A1.3. Population that has attained tertiary education (2003)

Percentage, by age group



1. Year of reference 2002.

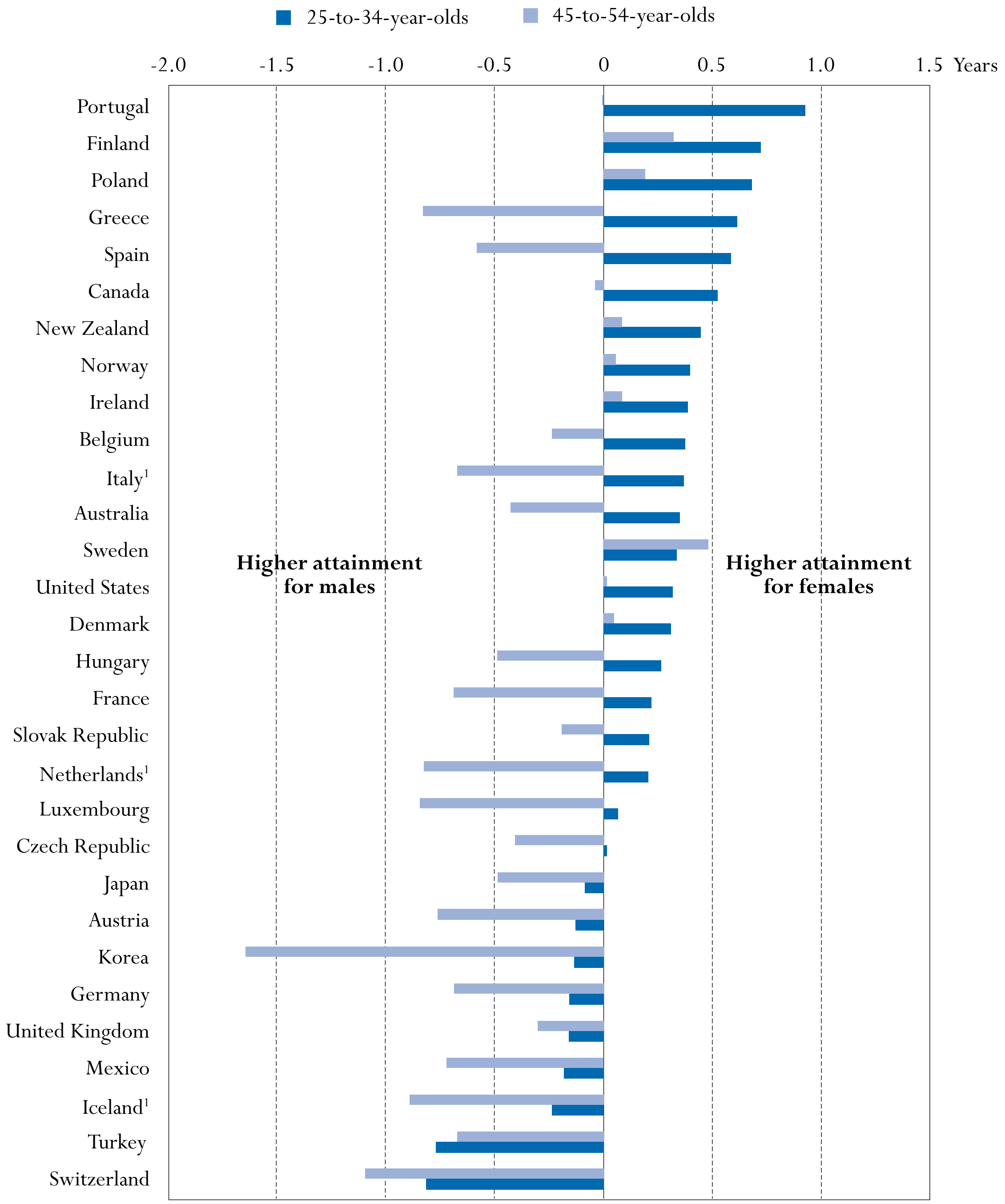
Countries are ranked in descending order of the percentage of 25- to-34-year-olds who have attained tertiary education.

Source: OECD. Table A1.3a. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/684518581842

Chart A1.4. Gender differences in educational attainment expressed in average number of years in formal education (2003)

Years, by age group



1. Year of reference 2002.

Countries are ranked in descending order of the difference between females and males in average enumber of years in formal education.

Source: OECD. Table A1.4. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/684518581842

In 20 OECD countries, males' level of educational attainment – measured by the average number of years of schooling – is still higher than that of females, sometimes considerably, as in Korea and Switzerland. In ten OECD countries (Canada, Denmark, Finland, Ireland, New Zealand, Norway, Poland, Portugal, Sweden and the United States), the educational attainment of females aged 25 to 64 – measured by the average number of years of schooling – is at least slightly higher than that of men.

However, in terms of the entire population of 25-to-64-year olds, the difference in educational attainment for males and females varies across generations (Chart A1.4). For the generation aged 45 to 54 years, the difference expressed in average duration of formal study favours females in only six countries. For the generation around 60 years of age this difference favours females in only two countries (Table A1.4). By contrast, the situation of the generation aged 25 to 34 years testifies to a complete inversion. For those around 30 years old, the average number of years of study completed is higher among females in 20 out of the 30 OECD countries, while differences between the genders were reduced in the other ten countries. Higher attainment for men remains very marked only in Switzerland and Turkey.

Definitions and methodologies

Data on population and educational attainment are taken from OECD and EUROSTAT databases, which are compiled from National Labour Force Surveys. See Annex 3 (*www.oecd.org/edu/eag2005*) for national sources.

The attainment profiles are based on the percentage of the population aged 25 to 64 years that has completed a specified level of education. The International Standard Classification of Education (ISCED-97) is used to define the levels of education. See Annex 3 (*www.oecd.org/edu/eag2005*) for a description of ISCED-97 education programmes and attainment levels and their mappings for each country.

Successful completion of upper secondary education means the achievement of upper secondary programs type A, B or C of a similar length; completion of type C programs (Labour market destination) of significantly shorter duration is not classified as upper secondary attainment.

The calculation of the average number of years in formal education is based upon the weighted theoretical duration of schooling to achieve a given level of education, according to the current duration of educational programmes as reported in the UOE data collection.

Further references

The following additional material relevant to this indicator is available on the Web at *http://dx.doi.org/10.1787/684518581842*:

Educational attainment: adult population, by gender (2003)

Table A1.1b: Males
Table A1.1c: Females

Population that has attained at least upper secondary education1, by gender (2003)

Table A1.2b: Males
Table A1.2c: Females

Population that has attained tertiary education, by gender (2003)

Table A1.3b: Males
Table A1.3c: Females

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A1

Table A1.1a. Educational attainment: adult population (2003)

Distribution of the 25-to-64-year-old population, by highest level of education attained

		Pre-primary and primary education	Lower secondary education	Upper secondary education			Post-secondary non-tertiary education	Tertiary education			All levels of education
				ISCED 3C Short	ISCED 3C Long/3B	ISCED 3A		Type B	Type A	Advanced research programmes	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD COUNTRIES	Australia	x(2)	38	a	11	20	x(5)	11	20	x(8)	100
	Austria	x(2)	21	a	49	7	8	7	7	x(8)	100
	Belgium	17	21	a	8	24	1	16	13	n	100
	Canada	6	11	a	x(5)	28	12	22	22	x(8)	100
	Czech Republic	n	11	2	42	31	1	n	11	1	100
	Denmark	1	17	2	45	4	n	7	25	n	100
	Finland	14	10	a	a	42	n	17	16	1	100
	France	16	20	a	31	10	0	9	14	1	100
	Germany	3	14	a	51	2	6	10	12	2	100
	Greece	37	10	2	3	25	6	6	12	n	100
	Hungary	2	24	a	29	28	2	n	15	n	100
	Iceland[1]	2	32	7	a	23	10	6	19	1	100
	Ireland	19	19	n	a	24	12	10	16	n	99
	Italy[1]	20	33	2	6	26	2	x(8)	10	n	100
	Japan	x(2)	16	a	x(5)	47	a	17	21	x(8)	100
	Korea	14	13	a	x(5)	44	a	8	22	x(8)	100
	Luxembourg	20	10	11	21	14	10	9	4	2	100
	Mexico	53	25	a	6	x(2)	a	2	14	x(8)	100
	Netherlands[1]	12	22	x(4)	24	13	5	3	22	n	100
	New Zealand	x(2)	22	a	20	18	8	15	5	12	100
	Norway	n	12	a	41	12	3	2	28	1	100
	Poland	x(2)	17	34	a	31	3	x(8)	14	x(8)	100
	Portugal	64	13	x(5)	x(5)	12	x(5)	2	8	1	100
	Slovak Republic	1	13	x(4)	38	37	x(5)	n	11	n	100
	Spain	30	27	n	6	11	n	7	18	n	100
	Sweden	7	10	a	x(5)	49	x(7)	15	18	x(8)	100
	Switzerland	3	10	17	30	6	7	9	15	2	100
	Turkey	64	10	a	7	10	a	x(8)	10	x(8)	100
	United Kingdom	n	16	19	22	15	a	9	14	5	100
	United States	5	8	x(5)	x(5)	49	x(5)	9	28	1	100
	Country mean	***14***	***17***	***3***	***16***	***22***	***3***	***8***	***15***	***1***	***100***
PARTNER COUNTRY	Israel	2	16	x(5)	x(5)	39	x(7)	16	26	1	100

1. Year of reference 2002.

Source: OECD. See Annex 3 for a description of ISCED-97 levels and ISCED-97 country mappings (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/684518581842

A1

Table A1.2a. Population that has attained at least upper secondary education[1] (2003)
Percentage, by age group

		Age group				
		25-64	25-34	35-44	45-54	55-64
OECD COUNTRIES	Australia	62	75	64	58	47
	Austria	79	85	83	75	69
	Belgium	62	78	68	55	43
	Canada	84	90	86	83	71
	Czech Republic	86	92	90	84	77
	Denmark	81	86	82	80	74
	Finland	76	89	85	73	55
	France	65	80	69	59	48
	Germany	83	85	86	84	78
	Greece	51	72	60	44	28
	Hungary	74	83	81	75	53
	Iceland[3]	59	64	62	58	48
	Ireland	62	78	67	52	38
	Italy[3]	44	60	50	39	24
	Japan	84	94	94	82	65
	Korea	73	97	83	55	32
	Luxembourg	59	68	61	54	50
	Mexico	21	25	24	18	12
	Netherlands[3]	66	76	71	62	53
	New Zealand	78	84	81	76	64
	Norway	87	95	92	85	76
	Poland	48	57	49	46	40
	Portugal	23	37	22	16	10
	Slovak Republic	87	94	91	84	70
	Spain	43	60	48	33	19
	Sweden	82	91	88	80	69
	Switzerland	70	76	72	68	61
	Turkey	26	33	25	21	16
	United Kingdom[2]	65	71	65	64	57
	United States	88	87	88	89	85
	Country mean	***66***	***75***	***70***	***62***	***51***
PARTNER COUNTRIES	Argentina[3]	42	52	43	38	28
	Brazil[3]	30	35	32	27	16
	Chile	49	63	51	44	30
	Indonesia	24	32	24	17	8
	Israel	82	88	83	78	73
	Jordan	39	m	m	m	m
	Malaysia[3]	42	58	45	27	15
	Paraguay[3]	21	27	22	16	12
	Peru[3]	46	54	48	42	30
	Philippines	36	45	39	31	22
	Russian Federation	88	91	94	89	71
	Thailand	21	30	22	13	7
	Uruguay[3]	33	38	37	33	24

1. Excluding ISCED 3C short programmes.
2. Including some ISCED 3C short programmes.
3. Year of reference 2002.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

StatLink: http://dx.doi.org/10.1787/684518581842

Table A1.3a. Population that has attained tertiary education (2003)

Percentage of the population that has attained tertiary-type B education or tertiary-type A and advanced research programmes, by age group

	Tertiary-type B education					Tertiary-type A and advanced research programmes					Total tertiary				
	25-64	25-34	35-44	45-54	55-64	25-64	25-34	35-44	45-54	55-64	25-64	25-34	35-44	45-54	55-64
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD COUNTRIES															
Australia	11	11	11	11	10	20	25	21	20	14	31	36	32	31	23
Austria	7	7	8	7	6	7	8	8	7	5	15	15	16	14	11
Belgium	16	21	18	14	11	13	18	14	11	8	29	39	31	25	19
Canada	22	25	24	21	16	22	28	22	20	18	44	53	46	41	34
Czech Republic	x(6)	x(7)	x(8)	x(9)	x(10)	12	12	14	11	10	12	12	15	11	10
Denmark	7	8	8	6	5	25	27	26	26	20	32	35	34	32	26
Finland	17	17	21	17	12	16	23	17	14	12	33	40	38	31	24
France	9	16	10	7	4	14	22	13	11	10	23	37	23	18	14
Germany	10	8	11	10	10	14	14	15	15	12	24	22	26	25	22
Greece	6	7	8	4	3	13	17	15	12	7	18	24	22	16	11
Hungary	x(6)	x(7)	x(8)	x(9)	x(10)	15	17	16	15	14	15	17	16	15	14
Iceland[1]	6	6	7	7	4	20	23	22	19	12	26	29	30	26	17
Ireland	10	14	11	8	5	16	23	16	13	9	26	37	27	20	15
Italy[1]	x(6)	x(7)	x(8)	x(9)	x(10)	10	12	11	10	7	10	12	11	10	7
Japan	17	25	20	13	7	21	26	25	20	12	37	52	45	33	19
Korea	8	17	7	2	1	22	30	26	14	9	29	47	32	16	10
Luxembourg	9	12	9	7	6	6	7	7	6	4	15	19	16	13	11
Mexico	2	3	2	1	0	14	16	15	12	7	15	19	17	13	8
Netherlands[1]	3	2	3	2	2	22	25	23	21	17	24	28	26	24	19
New Zealand	15	12	14	17	17	16	21	17	15	10	31	32	31	32	27
Norway	2	2	3	3	2	29	37	30	25	20	31	40	33	28	22
Poland	x(6)	x(7)	x(8)	x(9)	x(10)	14	20	13	11	11	14	20	13	11	11
Portugal	2	3	2	2	2	8	13	9	6	3	11	16	11	9	6
Slovak Republic	1	1	1	0	0	11	13	11	12	8	12	13	11	12	9
Spain	7	12	8	4	2	18	26	19	14	9	25	38	27	18	11
Sweden	15	17	17	15	10	18	24	17	17	16	33	40	35	32	26
Switzerland	9	10	10	9	7	18	20	19	16	15	27	29	29	26	22
Turkey	x(6)	x(7)	x(8)	x(9)	x(10)	10	11	8	9	7	10	11	8	9	7
United Kingdom	9	9	9	9	7	19	24	19	18	14	28	33	28	27	21
United States	9	9	10	9	8	29	30	29	30	27	38	39	39	40	35
Country mean	***8***	***9***	***8***	***7***	***5***	***16***	***20***	***17***	***15***	***12***	***24***	***29***	***26***	***22***	***17***
PARTNER COUNTRIES															
Argentina[1]	5	6	5	4	2	9	9	10	10	6	14	15	15	14	9
Brazil[1]	x(6)	x(7)	x(8)	x(9)	x(10)	8	7	9	10	7	8	7	9	10	7
Chile	1	2	1	1	n	12	16	11	12	8	13	17	12	12	8
Indonesia	2	2	2	2	1	2	3	3	2	1	4	5	5	4	2
Israel	16	15	16	17	17	27	27	27	27	26	43	42	43	44	43
Jordan	12	m	m	m	m	12	m	m	m	m	24	m	m	m	m
Malaysia[1]	x(6)	x(7)	x(8)	x(9)	x(10)	11	16	11	7	5	11	16	11	7	5
Paraguay[1]	3	4	3	2	1	5	5	5	5	4	7	9	8	6	5
Peru[1]	9	12	9	6	3	9	9	10	9	6	18	22	19	15	8
Philippines	x(6)	x(7)	x(8)	x(9)	x(10)	14	17	14	12	10	14	17	14	12	10
Russian Federation	33	34	37	34	26	21	21	21	20	19	54	55	58	54	44
Thailand	3	5	3	1	1	8	13	8	5	2	11	18	12	7	2
Uruguay[1]	x(6)	x(7)	x(8)	x(9)	x(10)	10	9	11	11	8	10	9	11	11	8

1. Year of reference 2002.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/684518581842

Table A1.4. Educational attainment expressed in average number of years in formal education (2003)

The 25-to-64-year-old population, by gender, labour force status and age group

		25-to-64-year-old population																
					Males				Females				Males			Females		
		Total	Males	Females	25-34	35-44	45-54	55-64	25-34	35-44	45-54	55-64	Employed	Unemployed	Not in the labour force	Employed	Unemployed	Not in the labour force
OECD COUNTRIES	Australia	12.9	13.0	12.8	13.3	13.0	12.9	12.4	13.7	12.9	12.5	11.7	13.1	12.3	12.0	13.3	12.2	11.9
	Austria	11.8	12.1	11.5	12.2	12.3	12.0	11.7	12.1	11.7	11.2	10.7	12.3	11.2	11.4	11.9	10.9	10.7
	Belgium	11.3	11.3	11.2	12.4	11.7	10.9	10.1	12.7	11.8	10.6	9.4	11.9	10.3	9.3	12.5	10.8	9.4
	Canada	13.1	13.0	13.1	13.6	13.2	12.9	12.1	14.1	13.5	12.9	11.6	13.3	12.4	11.5	13.7	12.8	11.6
	Czech Republic	12.4	12.5	12.3	12.6	12.7	12.5	12.4	12.6	12.6	12.1	11.8	12.7	11.6	11.8	12.6	11.7	11.7
	Denmark	13.6	13.6	13.7	13.7	13.7	13.6	13.5	14.0	13.9	13.7	13.0	13.8	13.4	12.6	14.1	13.6	12.4
	Finland	12.1	11.9	12.2	12.9	12.6	11.6	10.5	13.6	13.1	12.0	10.4	12.4	11.3	10.1	12.7	11.6	10.8
	France	11.5	11.7	11.4	12.8	12.1	11.3	10.3	13.0	11.9	10.7	9.5	12.1	11.1	10.0	12.1	11.1	9.9
	Germany	13.4	13.7	13.1	13.5	13.7	13.7	13.6	13.4	13.4	13.1	12.4	13.9	12.6	12.9	13.6	12.7	12.2
	Greece	10.5	10.7	10.3	11.8	11.4	10.3	9.0	12.5	11.1	9.5	7.9	10.8	11.1	9.5	11.3	11.1	9.0
	Hungary	11.7	11.8	11.5	12.0	12.0	11.9	11.1	12.3	12.0	11.5	10.3	12.4	10.8	10.3	12.4	10.9	10.3
	Iceland[1]	13.3	13.7	12.9	13.7	13.9	13.7	13.3	13.5	13.2	12.8	11.8	13.7	13.1	12.8	13.1	12.5	11.9
	Ireland	12.9	12.8	13.1	13.9	13.2	12.3	11.1	14.3	13.5	12.3	11.2	13.2	11.7	10.7	14.0	13.2	11.6
	Italy[1]	10.0	10.2	9.9	11.2	10.7	9.9	8.4	11.6	10.7	9.2	7.4	10.6	9.7	8.6	11.5	10.5	8.3
	Japan	12.4	12.6	12.1	13.3	13.3	12.4	11.2	13.2	12.9	11.9	10.5	12.7	11.7	11.1	12.3	12.2	11.9
	Korea	11.9	12.4	11.3	13.6	13.1	11.5	10.1	13.5	12.0	9.8	7.9	12.6	12.6	11.4	11.3	12.0	11.4
	Luxembourg	13.4	13.7	13.2	14.0	13.7	13.5	13.3	14.1	13.4	12.6	12.2	13.8	13.5	12.6	13.6	13.9	12.5
	Mexico	8.7	8.9	8.5	9.5	9.2	8.5	7.7	9.3	8.7	7.8	7.0	8.9	9.8	8.6	9.4	10.5	7.7
	Netherlands[1]	12.9	13.1	12.7	13.4	13.3	13.0	12.6	13.6	13.0	12.2	11.4	13.4	12.6	11.5	13.5	12.6	11.2
	New Zealand	12.6	12.5	12.7	12.8	12.6	12.5	11.9	13.2	12.9	12.6	11.6	12.6	12.2	11.4	13.0	12.7	11.7
	Norway	13.8	13.8	13.9	14.3	14.0	13.6	13.2	14.7	14.2	13.7	13.0	14.0	13.5	12.8	14.2	13.9	12.9
	Poland	11.6	11.5	11.8	12.0	11.6	11.3	10.8	12.7	12.1	11.5	10.4	11.9	10.9	10.5	12.6	11.4	10.6
	Portugal	8.2	8.1	8.4	9.0	8.0	7.7	7.2	10.0	8.5	7.7	6.9	8.2	8.0	7.4	8.9	8.6	7.0
	Slovak Republic	12.4	12.5	12.3	12.8	12.6	12.5	12.2	13.0	12.7	12.3	11.4	12.9	11.5	11.6	13.1	11.6	11.5
	Spain	10.5	10.6	10.4	11.9	11.1	9.9	8.6	12.5	11.2	9.3	7.7	10.9	10.3	9.0	11.9	10.9	8.7
	Sweden	12.5	12.3	12.6	13.1	12.7	12.1	11.2	13.4	12.9	12.6	11.6	12.5	12.3	11.2	13.0	12.1	11.3
	Switzerland	12.8	13.4	12.3	13.6	13.5	13.2	13.0	12.8	12.4	12.1	11.5	13.5	13.2	12.2	12.6	11.8	11.5
	Turkey	9.6	9.9	9.3	10.4	9.9	9.6	9.2	9.6	9.1	9.0	8.7	10.0	9.5	9.6	10.0	10.8	8.9
	United Kingdom	12.7	12.8	12.6	13.1	12.9	12.8	12.4	13.0	12.6	12.5	12.1	13.0	12.3	12.0	12.9	12.2	11.9
	United States	13.8	13.8	13.9	13.7	13.8	14.0	13.8	14.0	14.0	13.9	13.5	14.0	13.0	12.9	14.2	13.2	13.1
	Country mean	***12.0***	***12.1***	***11.9***	***12.7***	***12.4***	***11.9***	***11.3***	***12.9***	***12.3***	***11.5***	***10.6***	***12.4***	***11.6***	***11.0***	***12.5***	***11.9***	***10.9***
PARTNER COUNTRY	Israel	12.8	12.8	12.9	12.8	12.8	12.8	12.6	13.2	12.9	12.8	12.5	13.0	12.3	12.0	13.5	12.8	11.7

1. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

StatLink: http://dx.doi.org/10.1787/684518581842

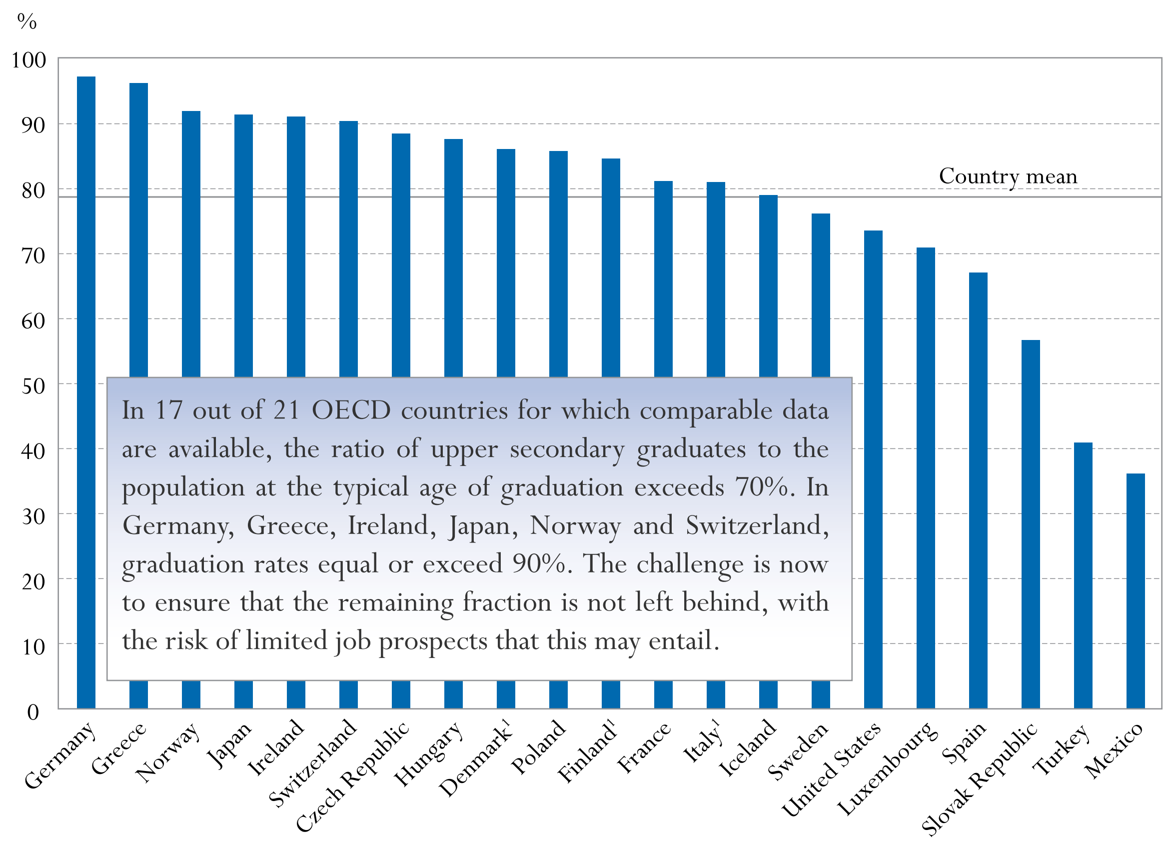
Current upper secondary graduation rates

This indicator shows the current upper secondary graduate output of education systems, *i.e.* the percentage of the typical population of upper secondary school age that follows and successfully completes upper secondary programmes.

Key results

Chart A2.1. Upper secondary graduation rates (2003)

The chart shows the number of students completing for the first time upper secondary education programmes, as a percentage of the age-group normally completing this level. Although not all of the completers are in this age band, this gives an indication of how many of today's young people are completing secondary education.



1. Year of reference 2002.
Countries are ranked in descending order of upper secondary graduation rates.
Source: OECD. Table A2.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/841113053176

Other highlights of this indicator

- Females are now more likely to complete upper secondary education than males in most OECD countries: a reversal of the historical pattern. Today, graduation rates for females exceed those for males in most OECD countries.
- The majority of students graduate from upper secondary programmes that are designed to provide access to further tertiary education.
- Most students are getting upper secondary qualifications giving them access to university-level study (ISCED 5A).
- In many countries, males are more likely to be on vocationally-oriented courses, but in nearly half, there is no gender difference or females are overrepresented on such courses.

Policy context

Rising skill demands in OECD countries have made qualifications at the upper secondary level of education the minimum credential for successful labour market entry. Upper secondary education serves as the foundation for advanced learning and training opportunities, as well as preparation for direct entry into the labour market. Although many countries do allow students to leave the education system at the end of the lower secondary level, young people in OECD countries who leave without an upper secondary qualification tend to face severe difficulties in entering the labour market (see Indicators A8, A9 and A10).

High upper secondary graduation rates do not guarantee that an education system has adequately equipped its graduates with the basic skills and knowledge necessary to enter the labour market because this indicator does not capture the quality of educational outcomes. But these graduation rates do give one signal of the extent to which educational systems succeed in preparing students to meet the minimum requirements of the labour market.

Evidence and explanations

Graduation from upper secondary education is becoming the norm in most OECD countries. In 17 of 21 OECD countries with comparable data, upper secondary graduation rates exceed 70% (Chart A2.1).

In 6 out of the 21 countries for which comparable data on numbers of graduates are available, graduation rates equal or exceed 90% (Germany, Greece, Ireland, Japan, Norway and Switzerland). The challenge is now to ensure that the remaining fraction is not left behind, with the risk of limited job prospects that this could entail.

Gender differences

The balance of educational attainment between males and females in the adult population is unequal in most OECD countries. Historically, females did not have sufficient opportunities and/or incentives to reach the same level of education as males. Females have generally been overrepresented among those who did not proceed to upper secondary education and underrepresented at the higher levels of education. However, these differences are mostly attributable to the large gender differences in older age groups and have been significantly reduced or reversed among younger age groups (Indicator A1).

Today, graduation rates no longer show significant differences between males and females in half of the OECD countries with available data (Table A2.1). Graduation rates for females exceed those for males in 18 out of 21 OECD countries for which total upper secondary graduation rates can be compared between the genders. The exceptions are the Slovak Republic and Turkey, where graduation rates are higher for males. In Poland and Switzerland, graduation rates are similar for both genders, with a less than 1 percentage point difference. The gap is relatively small, up to five percentage points, in the Czech Republic, Germany, Italy, Japan and the United States, but is 10 percentage points or more in Denmark, Finland, Greece, Iceland, Ireland, Luxembourg, Norway and Spain.

Transitions following educational programmes

Graduation from upper secondary education is becoming the norm in most OECD countries, but curriculum content in upper secondary programmes can vary, depending on the type of education or occupation for which the programmes are designed. Most upper secondary programmes in OECD countries are designed primarily to prepare students for tertiary studies, and their orientation can be general, pre-vocational or vocational.

The majority of students graduate from upper secondary programmes that are designed to provide access to further tertiary education (ISCED 3A and 3B). Programmes to facilitate direct entry into tertiary-type A

Box A2.1. Graduation from post-secondary non-tertiary programmes

Post-secondary non-tertiary programmes are offered in 26 OECD countries. From an international comparative point of view such programmes straddle the boundary between upper secondary and post-secondary education, even though they might clearly be considered upper secondary or post-secondary programmes in a national context. Although the content of post-secondary non-tertiary programmes may not be significantly more advanced than upper secondary programmes, they serve to broaden the knowledge of participants who have already gained an upper secondary qualification. The students tend to be older than those enrolled at the upper secondary level. For more information, see *Education at a Glance 2004* (OECD, 2004c), Table A2.3. For a data update, see *Education at a Glance 2005*, Table A2.2, available on the Web at *http://dx.doi.org/10.1787/841113053176*.

education are preferred by students in all countries, except in Austria, Germany and Switzerland where both female and male students are more likely to graduate from upper secondary programs leading to tertiary-type B programmes (Table A2.1).

More males than females graduate from pre-vocational and vocational upper secondary programmes in 14 out of 25 countries with comparable data. Graduation rates for these programmes are higher for female in six countries, and are the same for males and females in the five remaining countries.

Definitions and methodologies

The data for the school year 2002-2003 are based on the UOE data collection on education statistics that is administered annually by the OECD, and on the 2004 World Education Indicators Programme.

Upper secondary graduates are those who successfully complete the final year of upper secondary education, regardless of their age. In some countries, successful completion requires a final examination, and in others it does not.

Upper secondary graduation rates are estimated as the number of persons, regardless of their age, who graduate for the first time from upper secondary programmes per 100 people at the age at which students typically graduate from upper secondary education (see Annex 1). The graduation rates take into account students graduating from upper secondary education at the typical (modal) graduation ages, as well as older students (*e.g.* those in "second chance" programmes). The unduplicated total count of graduates is calculated by netting out those students who graduated from another upper secondary programme in a previous year.

Counts of students for ISCED 3A, 3B and 3C programmes are not unduplicated, however. Gross graduation rates cannot be added, as some individuals graduate from more than one upper secondary programme and would thus be counted twice. The same applies for graduation rates by programme orientation, *i.e.* general or vocational.

Pre-vocational and vocational programmes include both school-based programmes and combined school- and work-based programmes that are recognised as part of the education system. Entirely work-based education and training that is not overseen by a formal education authority is not taken into account.

A2

Table A2.1. Upper secondary graduation rates (2003)

Percentage of upper secondary graduates to the population at the typical age of graduation, by programme destination, programme orientation and gender

	Total (unduplicated)			ISCED 3A (designed to prepare for direct entry to tertiary-type A education)		ISCED 3B (designed to prepare for direct entry to tertiary-type B education)		ISCED 3C (long) similar to duration of typical 3A or 3B programmes		ISCED 3C (short) shorter than duration of typical 3A or 3B programmes		General programmes		Pre-vocational/ vocational programmes	
	M + F	Males	Females	M + F	Females	M + F	Females	M + F	Females	M + F	Females	M + F	Females	M + F	Females
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD COUNTRIES															
Australia	m	m	m	69	75	x(8)	x(9)	47	47	x(8)	x(9)	69	75	47	47
Austria	m	m	m	15	18	54	41	n	n	m	m	15	18	54	41
Belgium	m	m	m	60	65	a	a	19	18	19	25	36	42	61	66
Canada	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Czech Republic	88	86	90	54	65	n	n	33	25	a	a	18	23	71	67
Denmark[1]	86	81	91	54	65	a	a	54	59	a	a	54	65	56	59
Finland[1]	84	77	92	84	92	a	a	a	a	a	a	52	63	69	79
France	81	78	84	52	60	11	9	38	33	3	2	34	41	70	64
Germany	97	95	99	35	38	61	60	a	a	a	a	35	38	62	60
Greece	96	87	105	58	67	a	a	38	38	x(8)	x(9)	58	67	40	40
Hungary	87	84	91	57	65	7	7	22	17	x(8)	x(9)	33	40	53	49
Iceland	79	68	90	57	73	1	1	31	22	17	18	59	75	46	39
Ireland	91	85	97	90	97	a	a	5	5	a	a	66	69	29	33
Italy[1]	81	79	83	73	76	3	4	a	a	19	17	29	38	65	59
Japan	91	90	93	67	71	1	n	23	21	x(8)	x(9)	67	71	24	22
Korea	m	m	m	63	62	a	a	30	30	a	a	63	62	30	30
Luxembourg	71	66	75	41	50	8	7	19	17	a	a	27	32	44	44
Mexico	36	33	39	32	35	a	a	4	4	x(8)	x(9)	32	35	4	4
Netherlands	m	m	m	55	62	a	a	19	21	19	16	32	36	62	64
New Zealand	m	m	m	63	68	22	25	42	50	x(8)	x(9)	125	142	a	a
Norway	92	82	102	59	71	a	a	43	41	m	m	59	71	43	41
Poland	86	86	85	74	76	a	a	a	a	22	15	40	49	56	42
Portugal	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Slovak Republic	56	57	55	42	45	a	a	23	16	1	2	11	13	55	51
Spain	67	59	75	46	54	a	a	17	17	8	9	46	54	25	27
Sweden	76	73	79	75	78	a	a	n	n	a	a	38	44	38	35
Switzerland	90	90	91	30	32	49	41	14	18	m	m	33	37	59	54
Turkey	41	44	37	41	38	a	a	m	m	a	a	27	26	15	11
United Kingdom	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
United States	73	72	75	73	75	m	m	m	m	m	m	73	75	m	m
Country mean	***78***	***75***	***82***	***56***	***62***	***9***	***8***	***19***	***19***	***8***	***8***	***45***	***52***	***45***	***43***
PARTNER COUNTRIES															
Argentina[1]	48	42	55	48	55	a	a	a	a	a	a	12	15	37	40
Brazil[1]	62	55	70	58	65	m	m	a	a	a	a	57	63	2	2
Chile	67	64	70	67	70	a	a	a	a	a	a	33	37	33	32
China	31	33	29	16	14	a	a	13	13	3	2	16	x(12)	15	x(14)
India	21	22	20	21	20	a	a	n	n	a	a	x(4)	x(5)	x(4)	x(5)
Indonesia	41	43	39	27	27	14	13	a	a	a	a	27	27	14	13
Israel	89	86	92	87	91	a	a	3	1	a	a	57	65	32	28
Jamaica	73	70	77	73	77	m	m	a	a	a	a	73	x(12)	m	m
Malaysia[1]	84	77	90	16	20	a	a	84	90	2	1	98	109	2	1
Paraguay[1]	47	44	50	47	50	a	a	m	m	a	a	37	40	10	10
Peru[1]	55	55	55	55	55	a	a	a	a	a	a	55	55	m	m
Philippines	60	52	69	60	69	a	a	a	a	a	a	61	70	m	m
Russian Federation	77	x(1)	x(1)	54	x(4)	14	10	8	3	a	a	52	x(12)	22	13
Thailand	59	53	65	36	42	23	x(6)	a	a	a	a	36	42	23	23
Tunisia	41	35	47	36	44	3	2	2	2	a	a	36	44	2	2

Note: Mismatches between the coverage of the population data and the student/graduate data mean that the participation/graduation rates for those countries that are net exporters of students may be underestimated, for instance Luxembourg, and those that are net importers may be overestimated.

1. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/841113053176

Current tertiary graduation rates

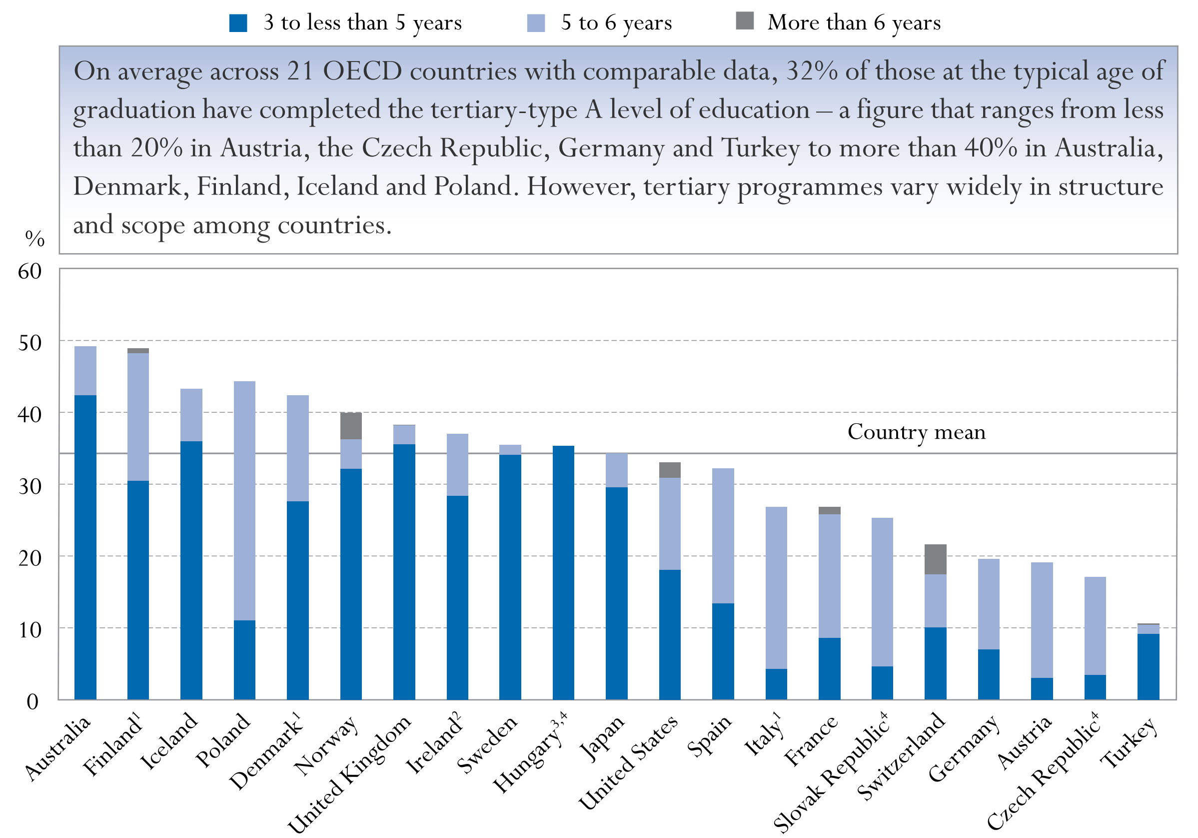
First, this indicator shows the current tertiary graduate output of educational systems, *i.e.* the percentage of the population in the typical age cohort for tertiary education that follows and successfully completes tertiary programmes. Tertiary education covers a wide range of programmes, but overall this is an indicator of the rate at which countries produce advanced knowledge. A traditional university degree is associated with completion of "type A" tertiary courses; "type B" generally refers to shorter and often vocationally oriented courses. The indicator also sheds light on the internal efficiency of tertiary educational systems. Second, this indicator shows the distribution of tertiary graduates across fields of education.

Key results

Chart A3.1. Tertiary-type A graduation rates, by duration of programme (2003)

The chart shows the number of students completing for the first time tertiary-type A programmes, as a percentage of the age-group normally completing this level. Although not all of the completers are in this age band, this gives an indication of how many of today's young people are obtaining a high-level qualification.

On average across 21 OECD countries with comparable data, 32% of those at the typical age of graduation have completed the tertiary-type A level of education – a figure that ranges from less than 20% in Austria, the Czech Republic, Germany and Turkey to more than 40% in Australia, Denmark, Finland, Iceland and Poland. However, tertiary programmes vary widely in structure and scope among countries.



1. Year of reference 2002.
2. 5-to-6-year programmes include programmes of more than six years.
3. 3-to-less-than-5-year programmes include 5-to-more-than-6-year programmes.
4. Gross graduation rate may include some double counting.

Countries are ranked in descending order of tertiary-type A graduation rates.

Source: OECD. Table A3.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/825277215325

Other highlights of this indicator

- The shorter tertiary-type A programmes are, the higher participation is in tertiary education.
- The number of science graduates per 100 000 employed persons ranges from below 700 in Hungary, to above 2 200 in Australia, Finland, France, Ireland, Korea and the United Kingdom.
- Although the majority of tertiary-level graduates are now women, there are still marked differences between the various fields of education. The generally lower share of women among graduates in mathematics and science-related fields is reflected in generally lower levels of engagement and attitudes towards related subjects among 15-year-olds.
- The graduation rate is 9% at the tertiary-type B level and 1.3% for programmes leading to advanced research qualifications, on average across OECD countries with comparable data.

Policy context

Not only is upper secondary graduation becoming more and more the norm, but in addition, the majority of students graduate from upper secondary programmes that are designed to provide access to tertiary education, which is leading to increased enrolment in tertiary programmes (see Indicators A2 and C2).

Tertiary graduation rates show the rate at which each country's education system produces advanced knowledge. Countries with high graduation rates at the tertiary level are also the ones most likely to be developing or maintaining a highly skilled labour force.

Specific skills and knowledge in science are of a particular interest as they increasingly represent a principal source of innovation and growth in knowledge-based economies (see Indicator A10). Differences between countries in the output of tertiary-level science graduates are likely to be influenced by the relative rewards in the labour market for different fields, as well as the degree to which the market drives field selection in a particular country.

Evidence and explanations

Tertiary programmes vary widely in structure and scope among countries. Tertiary graduation rates are influenced both by the degree of access to tertiary programmes and by the demand for higher skills in the labour market. They are also affected by the way in which the degree and qualification structures are organised within countries.

Graduation rates at the tertiary level

This indicator distinguishes among three different categories of tertiary qualifications: degrees at the tertiary-type B level (ISCED 5B); degrees at the tertiary-type A level (ISCED 5A); and advanced research qualifications at the doctorate level (ISCED 6).

Tertiary-type A programmes are largely theoretically based and are designed to provide qualifications for entry into advanced research programmes and professions with high skill requirements. Countries differ in the way in which tertiary-type A programmes are organised. The institutional framework may be universities, but it can also be other institutions. The duration of programmes leading to a first tertiary-type A qualification ranges from three years (*e.g.* the Bachelor's degree in many colleges in Ireland and the United Kingdom in most fields of education, and the *Licence* in France) to five years or more (*e.g.* the *Diplom* in Germany and the *Laurea* in Italy).

Whereas, in many countries, there is a clear distinction between first and second university degrees, *i.e.* undergraduate and graduate programmes, this distinction does not exist in other countries, where degrees that are comparable internationally to a Master's degree level are obtained through a single programme of long duration. To ensure international comparability, it is therefore necessary to compare degree programmes of similar cumulative duration, as well as completion rates for first-degree programmes.

To allow for comparisons that are independent of differences in national degree structures, tertiary-type A degrees are subdivided in accordance with the total theoretical duration of studies at the tertiary level. Specifically, the OECD classification divides degrees into those of medium (three to less than five years), long (five to six years) and very long (more than six years) duration. Degrees obtained from short programmes of less than three years' duration are not considered equivalent to the completion of the tertiary-type A level of education and are therefore not included in this indicator. Second-degree programmes are classified according to the cumulative duration of the first- and second-degree programme. Those individuals who already hold a first degree are netted out.

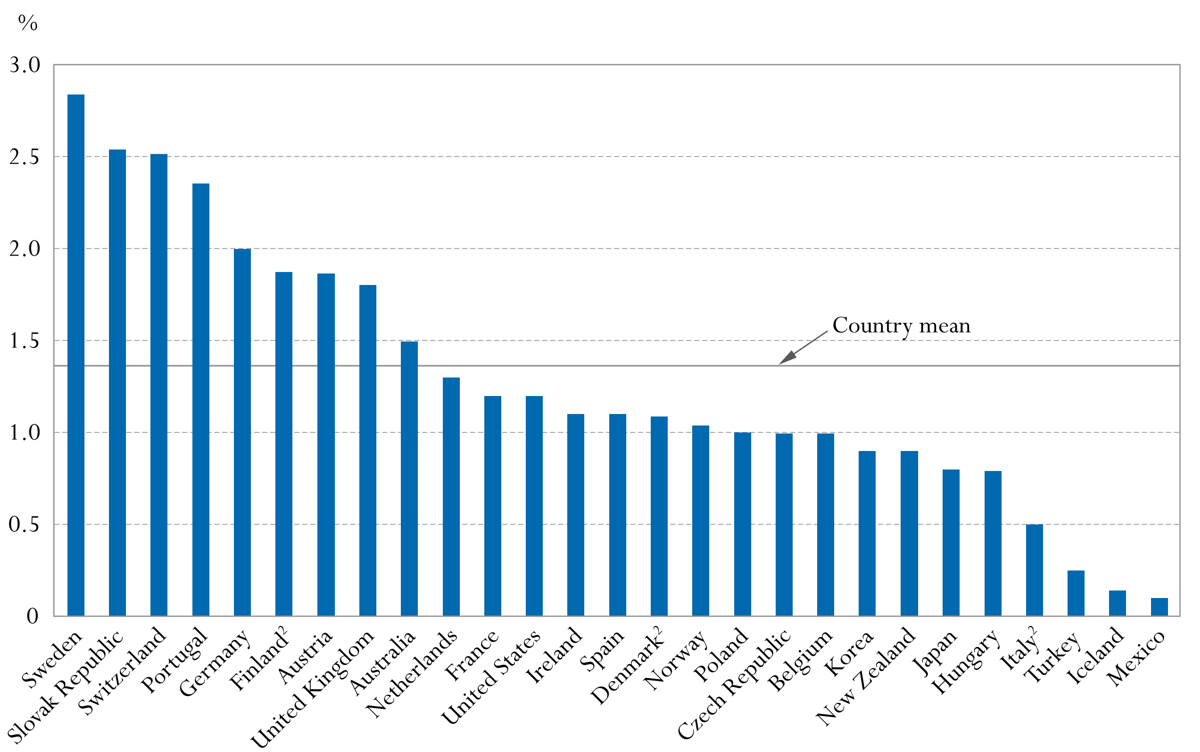
On average across the 21 OECD countries with comparable data, 32.2% of persons at the typical age of graduation have completed tertiary-type A education. This figure ranges from less than 20% in Austria, the Czech Republic, Germany and Turkey to more than 40% in Australia, Denmark, Finland, Iceland and Poland (Table A3.1).

In general, the majority of students in countries with higher graduation rates complete programmes of medium duration (Chart A3.1). In Austria, the Czech Republic, France, Germany, Italy, the Slovak Republic and Switzerland, the majority of students complete programmes of at least five years' duration and graduation rates are 27% or below. Turkey is the exception, with the lowest tertiary-type A graduation rate among OECD countries and low graduation rates for programmes of medium or long duration.

Tertiary-type B programmes are classified at the same level of competencies as tertiary-type A programmes, but are more occupationally oriented and usually lead to direct labour market access. The programmes are typically of shorter duration than type A programmes (usually two to three years) and generally they are not intended to lead to university-level degrees. Graduation rates for tertiary-type B programmes account, on average in 18 OECD countries with comparable data, for 9.3% of an age cohort (Table A3.1). In Japan, 26% of the population at the typical age of graduation have completed the tertiary-type B level of education. This figure is 19% in France, Ireland and Switzerland.

Chart A3.2. Graduation rates for advanced research programmes (2003)

Sum of graduation rates for each year of age[1]



1. Net graduation rate is calculated by summing the graduation rates for each year of age, except for France, Italy, Japan, Korea, Mexico, the Netherlands and the United States. Gross graduation rates were used for these countries, which were calculated as the percentage of graduates to the population at the typical age of graduation.
2. Year of reference 2002.

Countries are ranked in descending order of graduation rates for advanced research programmes.

Source: OECD. Table A3.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/825277215325

On average across the 27 OECD countries with comparable data, 1.3% of the population obtains an advanced research qualification, such as a Ph.D. The percentages range from 0.1% in Iceland and Mexico to 2.0, 2.4, 2.5, 2.8 and 2.5% in Germany, Portugal, the Slovak Republic, Sweden and Switzerland respectively (Chart A3.2).

The shorter tertiary-type A programmes are, the higher participation is in tertiary education

It appears that countries in which the tertiary education system offers only long first tertiary-type A programmes generally have significantly lower overall tertiary-type A graduation rates than those that also offer shorter tertiary-type A programmes. In OECD countries where the majority of first degrees are obtained in programmes of medium duration, graduation rates for all first-degree programmes average around 26% of a typical age cohort. OECD countries that do not offer short programmes, or which primarily offer long programmes, have an average graduation rate of less than 19%.

On average in OECD countries, 19.4% of a typical age cohort complete a first tertiary-type A programme of medium duration (three to less than five years), such as the Bachelor's degree in the United States. In Australia, Finland, Iceland, Norway, Sweden and the United Kingdom, approximately every third person at the typical age of graduation obtains a degree from a tertiary-type A programme of medium duration. By contrast, graduation rates from these programmes are less than 5% in Austria, the Czech Republic, Italy and the Slovak Republic (Table A3.1).

Graduation rates for long first tertiary-type A programmes average 12.2% in OECD countries, and are 17% or above in Finland, France, Italy, Poland, the Slovak Republic and Spain. Graduation rates for very long first tertiary-type A programmes average 0.6% in OECD countries (Table A3.1).

Science graduates among those in employment

Examining the number of science graduates per 100 000 25-to-34-year-olds in employment provides another way of gauging the recent output of high-level skills from different education systems. The number of science graduates per 100 000 employed persons ranges from below 700 in Hungary to above 2 200 in Australia, Finland, France, Ireland, Korea and the United Kingdom (Table A3.2). This indicator does not, however, provide information on the number of graduates actually employed in scientific fields or, more generally, the number of those using their degree-related skills and knowledge at work. Taking the OECD average, the number of tertiary science graduates is three times higher for tertiary-type A education and advanced research programmes than for tertiary-type B education.

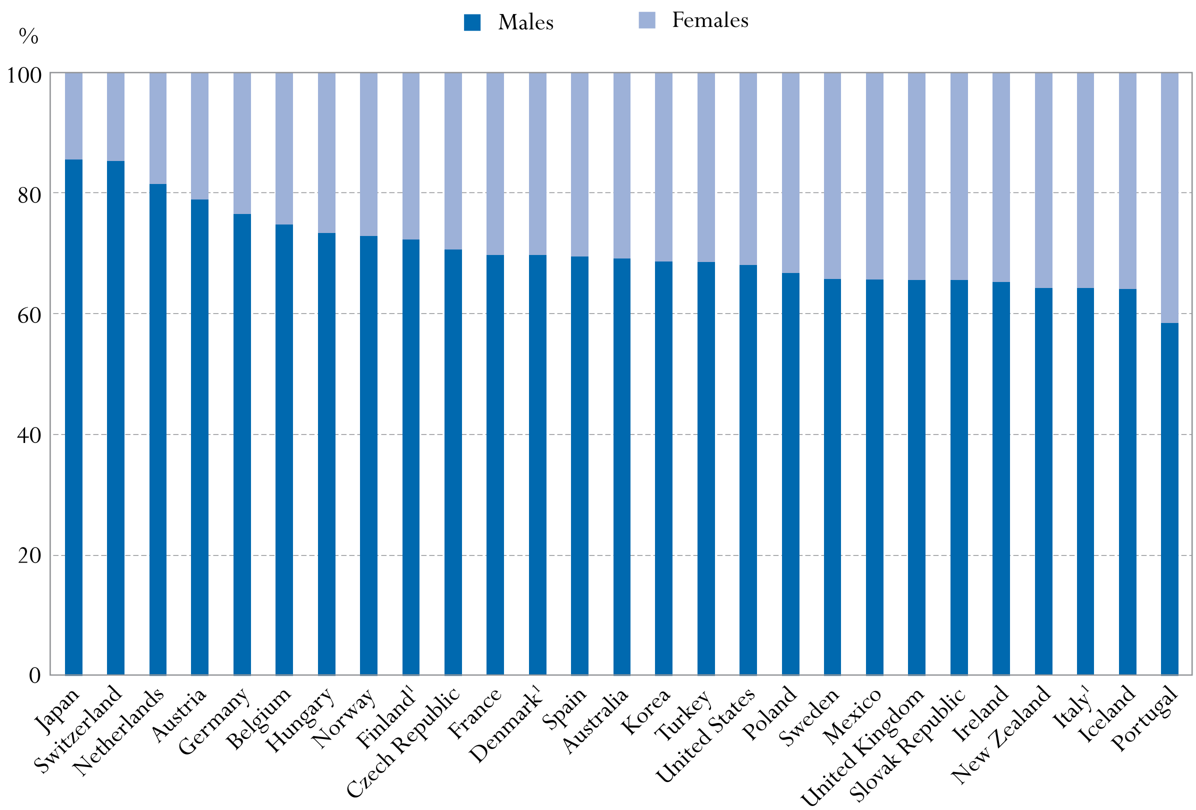
Impact of gender differences in motivation in mathematics on graduation rates

Beyond a general interest in mathematics, how do 15-year-olds assess the relevance of mathematics to their own lives and what role does such external motivation play with regard to their mathematics performance? The OECD's Programme for International Student Assessment (PISA) provides an index of the instrumental motivation of 15-year-olds that is based on students' responses to questions describing to what extent they were encouraged to learn by external rewards such as good job prospects. Specifically, students were asked to what extent they agreed with the following statements: "Making an effort in mathematics is worth it because it will help me in the work that I want to do later", "Learning mathematics is worthwhile for me because it will improve my career prospects", "Mathematics is an important subject for me because I need it for what I want to study later on", and "I will learn many things in mathematics that will help me get a job".

The lower the index is, the lower the instrumental motivation of students can be considered to be. The index varies greatly among OECD countries and ranges from less than minus 0.25 in Austria, Belgium, Japan, Korea, Luxembourg and the Netherlands to more than 0.30 in Denmark, Iceland and Mexico

Chart A3.3. Gender breakdown of tertiary science graduates (2003)

Tertiary type-A, type-B and advanced research programmes



Note: Science fields include life sciences; physical sciences; mathematics and statistics; computing; engineering and engineering trades; manufacturing and processing; architecture and building.
1. Year of reference 2002.
Countries are ranked in descending order of the share of the number of male science graduates in the total number of male and female science graduates in tertiary programmes.
Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

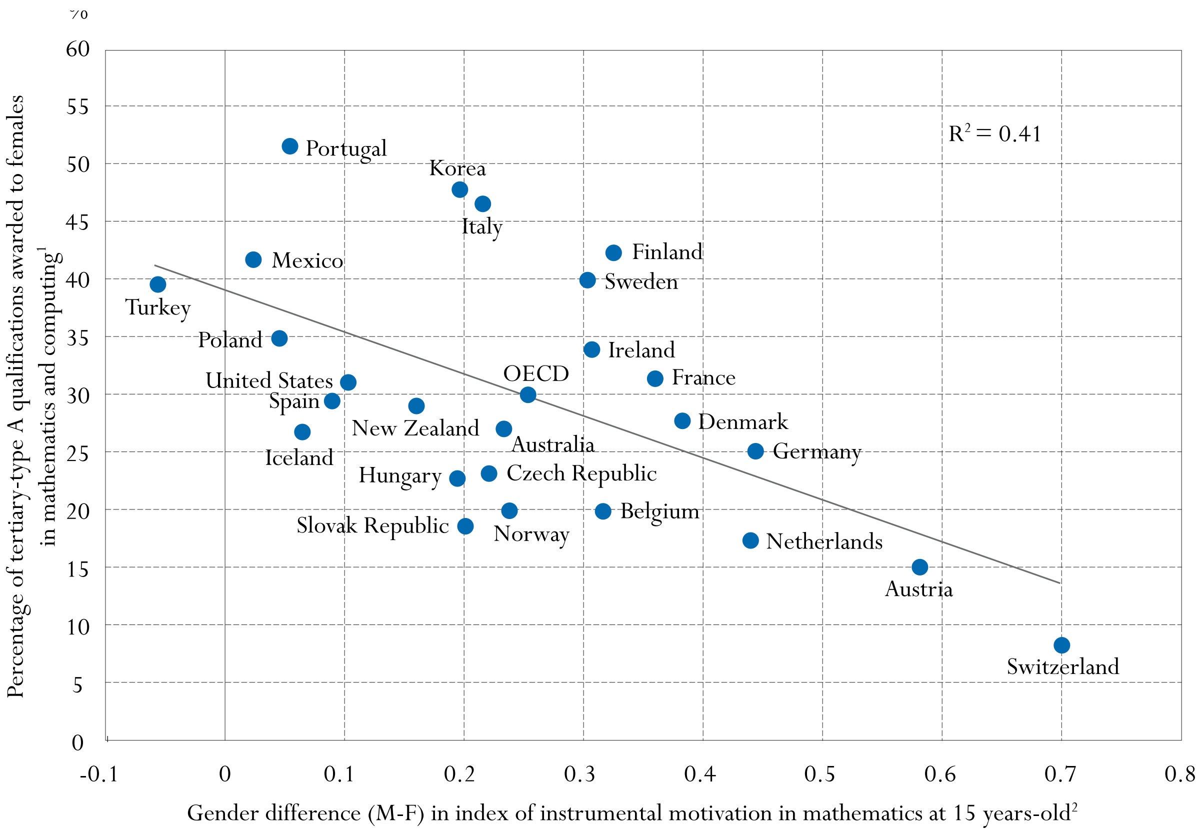
StatLink: http://dx.doi.org/10.1787/825277215325

(Table A3.3). Although the results of PISA 2003 show that the relationship between performance and instrumental motivation is much weaker than with intrinsic motivation (*i.e.* interest in and enjoyment of mathematics), instrumental or extrinsic motivation has been found to be an important predictor for course selection, career choice and performance (Eccles, 1994).

Difference by gender in terms of instrumental motivation can have an influence on the choice to pursue study in the fields of mathematics and computing. Table A3.3 shows that in all the 25 OECD countries for which data are available, the proportion of females graduating from tertiary-type A programmes in mathematics or computing is lower than for all the fields of education, except in Korea. In Austria, Denmark, Hungary, Iceland, the Netherlands, Norway and the Slovak Republic, the difference between the proportion of females graduating in mathematics and computing and the proportion of females graduating in all fields is of 33% or more.

Chart A3.4 shows that in the OECD countries where the difference in instrumental motivation between males and females is largest – namely Austria, Germany, the Netherlands and Switzerland – the share

Chart A3.4. Gender difference in instrumental motivation and tertiary-type A graduates in mathematics (2003)



1. Percentage of females graduated in mathematics and computing for tertiary-type A and advanced research programmes.
2. The greater the gender difference, the less females are motivated compared to males.
Source: OECD and PISA database 2003. Table A3.3. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/825277215325

of women graduating from tertiary-type A programmes in mathematics or computing is also below the OECD average and in some of these countries it is significantly below this benchmark (the gender differences in instrumental motivation in mathematics account for 41% of the cross-country variation in the percentage of tertiary mathematics and computing qualifications awarded to women). There is no direct connection between the 15-year-olds assessed by PISA, and the older age cohorts leaving university studies. Nevertheless, to the extent that the motivational patterns revealed by PISA were similar also in the past, this suggests that gender differences in instrumental motivation among students in school may, combined with other influences, be predictive of the future study and career choice of males and females.

Box A3.1. Graduation rates by field of education and gender

Changing opportunities in the job market, differences in earnings among occupations and sectors, and the admission policies and practices of tertiary education institutions may affect which field students choose to study. In turn, the relative popularity of the various fields of education affects the demand for courses and teaching staff, as well as the supply of new graduates. The distribution of tertiary graduates across fields sheds light on the relative importance of the different fields between countries, as well as on the relative proportion of female graduates in those fields. For more information, see *Education at a Glance 2004* (OECD, 2004c), Table A4.1 and Table A4.2. For a data update, see *Education at a Glance 2005,* Table A3.5. and Table A3.6. on the Web at *http://dx.doi.org/10.1787/825277215325*.

Definitions and methodologies

The data for the academic year 2002-2003 are based on the UOE data collection on education statistics that is administered annually by the OECD.

Tertiary graduates are those who obtain a tertiary qualification in the specified reference year. This indicator distinguishes among different categories of tertiary qualifications: i) tertiary-type B qualifications (ISCED 5B); ii) tertiary-type A qualifications (ISCED 5A); and iii) advanced research degrees of doctorate standard (ISCED 6). For some countries, data are not available for the categories requested. In such cases, the OECD has assigned graduates to the most appropriate category. See Annex 3 *(www.oecd.org/edu/eag2005)* for a list of programmes included for each country at the tertiary-type A and type B levels.

Tertiary-type A degrees are also subdivided by the total theoretical duration of studies at the level of ISCED 5A, to allow for comparisons that are independent of differences in national degree structures.

In Table A3.1, graduation rates for first tertiary programmes (tertiary-type A and tertiary-type B) are calculated as gross graduation rates. In order to calculate gross graduation rates, countries identify the age at which graduation typically occurs (see Annex 1). The graduates themselves, however, may be of any age. The number of graduates is then divided by the population at the typical graduation age. In many countries, defining a typical age of graduation is difficult, however, because graduates are dispersed over a wide range of ages.

A net graduation rate is calculated for advanced tertiary programmes (where duplication of certificates awarded does not pose a problem) as the sum of age-specific graduation rates. The net graduation rate can be interpreted as the percentage of persons within an age cohort who obtain a tertiary qualification, and is thus unaffected by changes in population size or typical graduation age. Gross graduation rates are presented for those countries that cannot provide such detailed data.

Tertiary graduates who receive their qualification in the reference year are classified by fields of education based on their subject of specialisation. These figures cover graduates from all tertiary degrees reported in Table A3.1. The 25 fields of education used in the UOE data collection instruments follow the revised ISCED classification by field of education. The same classification by field of education is used for all levels of education.

The labour force data used in Table A3.2 are taken from the OECD Labour Force database, compiled from National Labour Force Surveys and European Labour Force Surveys.

The Programme for International Student Assessment (PISA) index of instrumental motivation in mathematics was derived from 15 year-old students' responses to a series of related questions and has been undertaken by the OECD. PISA was administered most recently during the 2003 school year. A four-point scale with the response categories "strongly agree", "agree", "disagree" and "strongly disagree" was used. All items were inverted for scaling and positive values on this index indicate higher levels of instrumental motivation to learn mathematics. This index was constructed using an item response model (OECD, 2004a).

Further references

Tertiary level dropout and survival rates can be useful indicators of the internal efficiency of tertiary education systems. On average, one-third of students in OECD countries drop out before they complete their first degree, regardless of whether they are following tertiary-type A or tertiary-type B programmes. For more information, see Table A3.4 on the Web at *http://dx.doi.org/10.1787/825277215325*. For further information on PISA, see *Learning for Tomorrow's World – First Results from PISA 2003* (OECD, 2004a).

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Table A3.1. Tertiary graduation rates (2003)

Percentage of tertiary graduates to the population at the typical age of graduation, by programme destination and duration

		Tertiary-type B programmes (first-time graduation)	Tertiary-type A programmes (first-time graduation)				Advanced research programmes[2]
			All programmes	3 to less than 5 years[1]	5 to 6 years[1]	More than 6 years	
		(1)	(2)	(3)	(4)	(5)	(6)
OECD COUNTRIES	Australia	m	49.0	42.2	6.8	n	1.5
	Austria	m	19.0	3.1	16.0	a	1.9
	Belgium	m	m	m	m	m	1.0
	Canada	m	m	m	m	m	m
	Czech Republic[3]	3.6	17.0	3.4	13.6	a	1.0
	Denmark[4]	9.7	42.2	27.5	14.7	0.1	1.1
	Finland[4]	1.6	48.7	30.4	17.7	0.7	1.9
	France	18.6	26.7	8.6	17.1	1.0	1.2
	Germany	10.0	19.5	7.0	12.5	a	2.0
	Greece	m	m	m	m	m	m
	Hungary[3]	2.3	35.2	x(2)	x(2)	x(2)	0.8
	Iceland	7.0	43.1	35.9	7.3	n	0.1
	Ireland	19.3	36.8	28.2	8.6	x(4)	1.1
	Italy[4]	1.1	26.7	4.3	22.4	a	0.5
	Japan	26.4	34.2	29.5	4.7	a	0.8
	Korea	m	m	m	m	m	0.9
	Luxembourg	m	m	m	m	m	m
	Mexico	m	m	m	m	m	0.1
	Netherlands	m	m	m	m	m	1.3
	New Zealand	m	m	m	m	m	0.9
	Norway	4.5	39.8	32.0	4.1	3.7	1.0
	Poland	n	44.1	11.0	33.1	n	1.0
	Portugal	m	m	m	m	m	2.4
	Slovak Republic[3]	2.4	25.2	4.6	20.5	a	2.5
	Spain	15.7	32.1	13.4	18.7	n	1.1
	Sweden	4.0	35.4	34.0	1.4	a	2.8
	Switzerland	18.7	21.6	10.0	7.4	4.1	2.5
	Turkey	m	10.5	9.1	1.2	0.2	0.2
	United Kingdom	13.8	38.2	35.4	2.6	0.1	1.8
	United States	8.8	32.9	18.0	12.8	2.1	1.2
	Country mean	***9.3***	***32.2***	***19.4***	***12.2***	***0.6***	***1.3***
PARTNER COUNTRY	Israel	m	31.2	31.2	a	a	1.2

Note: Mismatches between the coverage of the population data and the student/graduate data mean that the participation/graduation rates for those countries that are net exporters of students may be underestimated, for instance Luxembourg, and those that are net importers may be overestimated.
1. Excluding students who subsequently completed a longer programme.
2. Net graduation rate is calculated by summing the graduation rates by single year of age, except for France, Italy, Japan, Korea, Mexico, the Netherlands and the United States.
3. Gross graduation rate may include some double counting for tertiary-type A and B programmes.
4. Year of reference 2002.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/825277215325

Table A3.2. Science graduates, by gender (2003)

Per 100 000 persons in the employed 25 to 34 years of age

		Tertiary-type B			Tertiary-type A and advanced research programmes			All tertiary education		
		M + F	Males	Females	M + F	Males	Females	M + F	Males	Females
OECD COUNTRIES	Australia	444	613	229	1 942	2 335	1 441	2 385	2 948	1 670
	Austria	280	437	100	589	848	292	868	1 285	392
	Belgium	542	818	209	760	966	512	1 301	1 784	721
	Canada	m	m	m	m	m	m	m	m	m
	Czech Republic	49	60	33	805	933	606	854	993	639
	Denmark[1]	420	543	272	1 008	1 283	679	1 428	1 826	951
	Finland[1]	61	98	15	2 172	2 842	1 355	2 232	2 940	1 370
	France	865	1 282	354	1 900	2 217	1 511	2 765	3 498	1 865
	Germany	225	385	32	852	1 122	526	1 076	1 507	557
	Greece	m	m	m	m	m	m	m	m	m
	Hungary	68	89	38	615	762	404	683	851	442
	Iceland	67	82	50	1133	1 360	873	1 200	1 442	924
	Ireland	1 323	1 709	854	1 765	1 967	1 519	3 088	3 675	2 373
	Italy[1]	n	n	n	926	1 002	815	926	1 002	815
	Japan	463	638	203	1 140	1 656	372	1 603	2 293	575
	Korea	2 175	2 361	1 870	2 000	2 250	1 589	4 175	4 611	3 459
	Luxembourg	a	a	a	a	a	a	a	a	a
	Mexico	102	107	91	841	863	803	942	970	894
	Netherlands	a	a	a	752	1 140	300	752	1 140	300
	New Zealand	570	729	375	1 543	1 729	1 313	2 114	2 458	1 688
	Norway	71	102	35	972	1 335	565	1 043	1 437	600
	Poland	a	a	a	1 489	1 767	1 131	1 489	1 767	1 131
	Portugal	20	26	14	987	1 095	868	1 007	1 121	881
	Slovak Republic	10	13	5	1 317	1 511	1 059	1 326	1 524	1 064
	Spain	587	802	290	1 070	1 185	912	1 657	1 986	1 202
	Sweden	169	224	108	1 438	1783	1 055	1 607	2 006	1 163
	Switzerland	629	1 054	135	864	1 316	339	1 494	2 370	473
	Turkey	487	469	542	525	456	734	1 013	925	1 277
	United Kingdom	443	603	235	1 926	2 155	1 630	2 368	2 758	1 865
	United States	349	490	177	1 069	1 270	825	1 418	1 760	1 002
	Country mean	***372***	***490***	***224***	***1 157***	***1 398***	***858***	***1 529***	***1 875***	***1 100***
PARTNER COUNTRY	Israel	m	m	m	1 579	1 910	1 185	m	m	m

Note: Science fields include life sciences; physical sciences; mathematics and statistics; computing; engineering and engineering trades; manufacturing and processing; architecture and building.

1. Year of reference 2002.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/825277215325

Table A3.3. Motivation in mathematics and tertiary-type A graduates, by gender (2003)

A3

		Index of instrumental motivation in mathematics at 15-year-old[1]				Percentage of tertiary-type A qualifications awarded to females in mathematics and computing[2]	Percentage of tertiary-type A qualifications awarded to females in all fields of education
		Gender difference (M - F)	All students	Males	Females		
		(1)	(2)	(3)	(4)	(5)	(6)
OECD COUNTRIES	Australia	0.23	0.23	0.34	0.11	27.1	56.0
	Austria	0.58	-0.49	-0.20	-0.78	15.2	48.9
	Belgium	0.32	-0.32	-0.17	-0.49	20.0	51.8
	Canada	0.13	0.23	0.30	0.17	m	m
	Czech Republic	0.22	0.01	0.12	-0.10	23.3	53.6
	Denmark[3]	0.38	0.37	0.57	0.19	27.8	61.4
	Finland[3]	0.32	0.06	0.22	-0.10	42.4	62.2
	France	0.36	-0.08	0.11	-0.25	31.6	56.6
	Germany	0.44	-0.04	0.18	-0.26	25.3	48.2
	Greece	0.27	-0.05	0.09	-0.18	m	m
	Hungary	0.19	-0.11	-0.02	-0.22	22.9	62.2
	Iceland	0.06	0.31	0.34	0.28	26.9	65.8
	Ireland	0.31	0.10	0.25	-0.06	34.1	60.2
	Italy[3]	0.21	-0.15	-0.04	-0.26	46.7	56.7
	Japan	0.32	-0.66	-0.49	-0.81	m	38.6
	Korea	0.20	-0.44	-0.36	-0.55	47.9	46.1
	Luxembourg	0.48	-0.41	-0.16	-0.64	a	a
	Mexico	0.02	0.58	0.59	0.57	41.8	52.5
	Netherlands	0.44	-0.26	-0.04	-0.48	17.5	56.0
	New Zealand	0.16	0.29	0.37	0.21	29.2	60.9
	Norway	0.24	0.15	0.27	0.03	20.1	61.6
	Poland	0.04	0.04	0.06	0.02	35.0	64.9
	Portugal	0.05	0.27	0.30	0.25	51.7	67.4
	Slovak Republic	0.20	-0.05	0.05	-0.15	18.7	53.8
	Spain	0.09	-0.05	0.00	-0.09	29.5	58.7
	Sweden	0.30	0.02	0.17	-0.13	40.1	61.9
	Switzerland	0.70	-0.04	0.30	-0.40	8.4	40.5
	Turkey	-0.06	0.23	0.20	0.26	39.6	45.6
	United States	0.10	0.17	0.22	0.12	31.2	57.2
	Country mean	***0.25***	***0.00***	***0.13***	***-0.13***	***30.1***	***56.6***

1. The greater the gender difference, the less females are motivated compared to males.
2. Percentage of females graduated in mathematics and computing for tertiary-type A and advanced research programmes.
3. Year of reference 2002 for tertiary-type A graduates.
Source: OECD and PISA 2003 database. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/825277215325

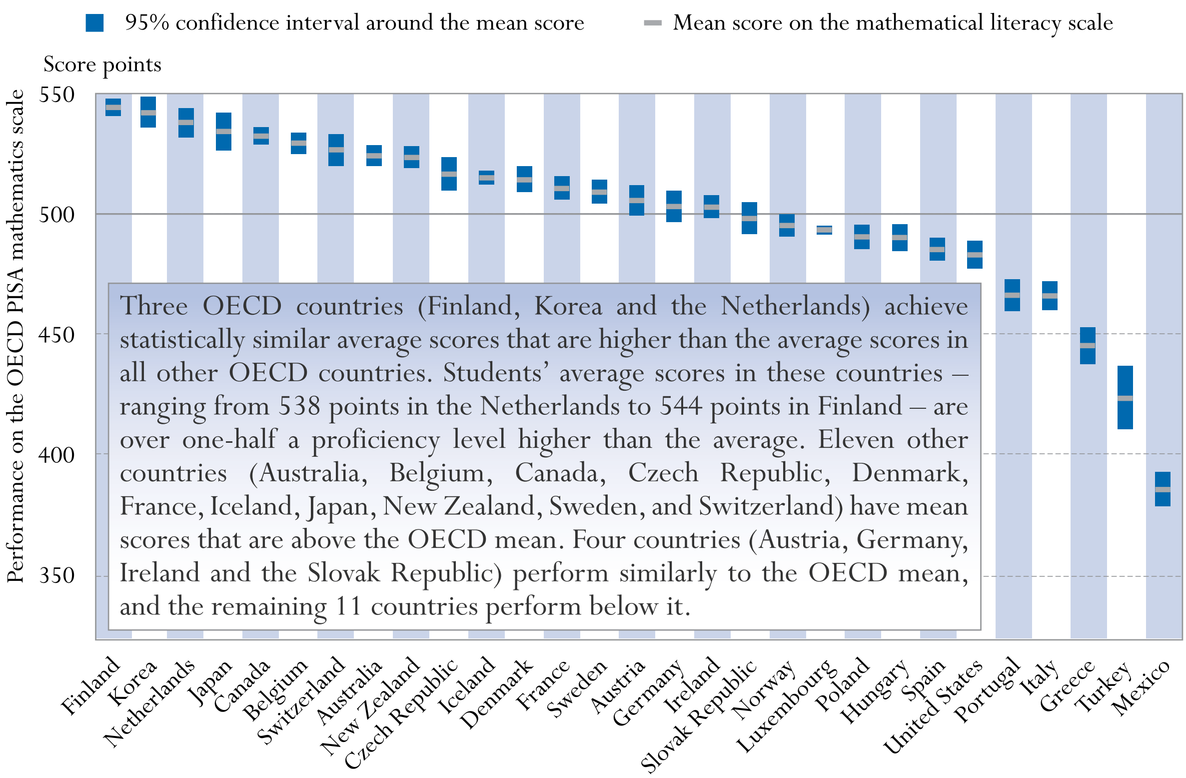
What 15-year-olds can do in mathematics

This indicator examines the mathematics performance of 15-year-old students, drawing on 2003 data from the OECD's Programme for International Student Assessment (PISA). It describes mathematical proficiency in each country in terms of the percentage of students reaching one of six competency levels as well as in terms of the mean scores achieved by students on the overall mathematics scale and on the various aspects of mathematics. It also examines the distribution of student scores within countries.

Key results

Chart A4.1. Distribution of student performance on the OECD PISA mathematics scale (2003)

The chart summarises the overall performance of 15-year-old students in different countries on the OECD PISA 2003 mathematics scale. The width of the symbols indicates the statistical uncertainty with which the mean performance was estimated.



Source: OECD and PISA database 2003. Table A4.3.

StatLink: http://dx.doi.org/10.1787/155512267715

Other highlights of this indicator

- At least 7% of students in Belgium, Japan, Korea, the Netherlands and Switzerland reach the highest level of mathematics proficiency (Level 6). Furthermore, in these countries and in Canada, Finland and New Zealand, over 20% of students reach at least Level 5. In Greece, Mexico, Portugal and Turkey, however, less than 6% of students reach these two levels of proficiency.
- With the exception of Finland and Korea, all OECD countries have at least 10% of students that perform at Level 1 or below, and there are 12 countries in which this exceeds one-fifth of all students. In Mexico and Turkey, a majority of students perform only at Level 1 or below.
- In the majority of countries, the range of performance in the middle half of the students exceeds the magnitude of two proficiency levels, and in Belgium and Germany it is around 2.4 proficiency levels. This suggests that educational programmes, schools and teachers need to cope with a wide range of student knowledge and skills.

Policy context

For much of the last century, the content of school mathematics and science curricula was dominated by the need to provide the foundations for the professional training of a small number of mathematicians, scientists and engineers. With the growing role of science, mathematics and technology in modern life, however, the objectives of personal fulfilment, employment and full participation in society increasingly require that all adults – not just those aspiring to a scientific career – be mathematically, scientifically and technologically literate.

The performance of a country's best students in mathematics and related subjects may have implications for the part a country will play in tomorrow's advanced technology sector and for its general international competitiveness. Conversely, deficiencies of students in key competency areas can have negative consequences for individuals' labour market and earnings prospects and for their capacity to participate fully in society.

Evidence and explanations

PISA starts with a concept of mathematical literacy that is concerned with the capacity of students to analyse, reason and communicate effectively as they pose, solve and interpret mathematical problems in a variety of situations involving quantitative, spatial, probabilistic or other mathematical concepts. When thinking about what mathematics might mean for individuals, one must consider both the extent to which they possess mathematical knowledge and understanding, and the extent to which they can activate their mathematical competencies to solve problems they encounter in life. PISA therefore presents students with problems mainly set in real-world situations. These are crafted in such a way that aspects of mathematics would be of genuine benefit in solving the problem. The objective of the PISA assessment is to obtain measures of the extent to which students presented with these problems can activate their mathematical knowledge and competencies to solve such problems successfully.

Proficiency in mathematics

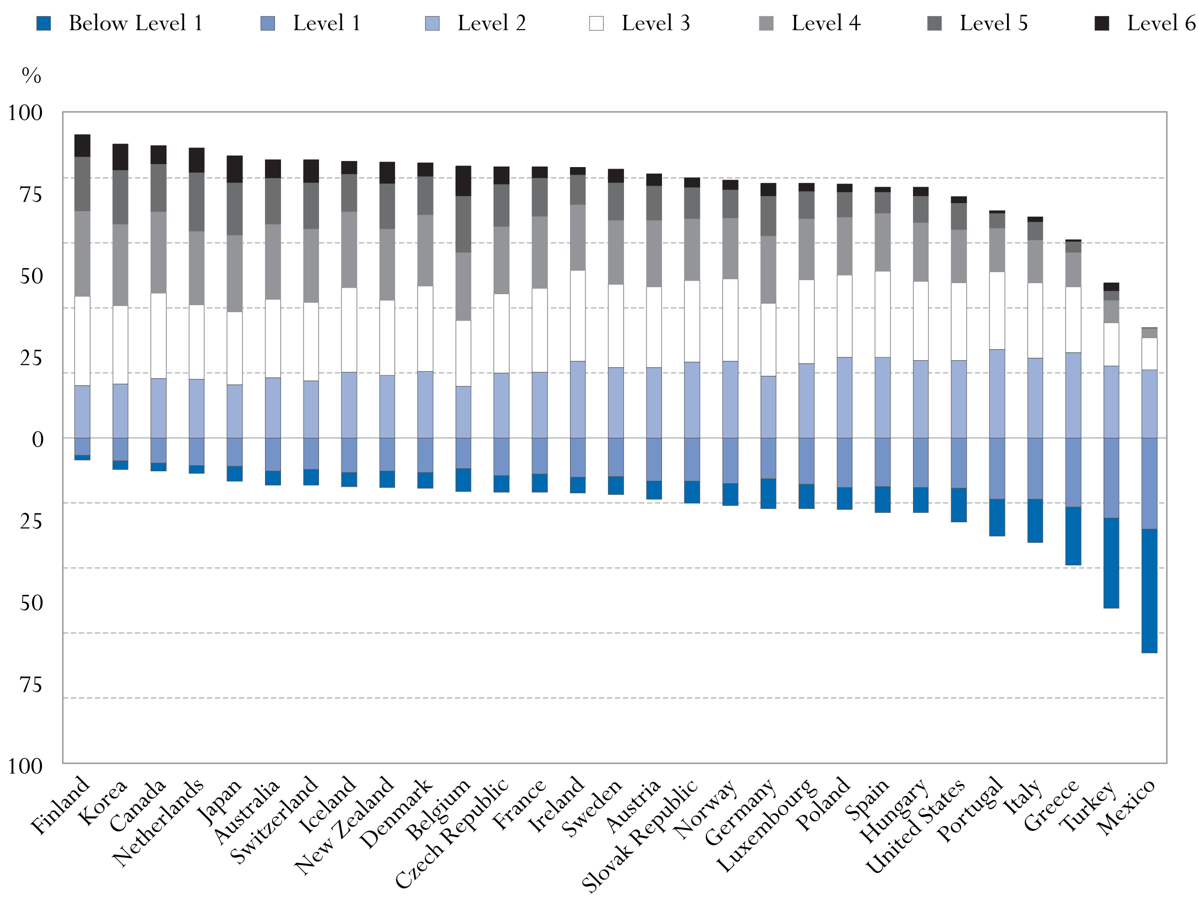
Chart A4.2 presents an overall profile of students' proficiency on the combined mathematics literacy scale with the length of the coloured components of the bars showing the percentage of students proficient at each of six levels that were based on substantive considerations relating to the nature of the underlying competencies (Box A4.2). Across OECD countries, on average, 4% of students reach Level 6 (the highest level of performance), 15% reach Level 5 or higher, 34% reach Level 4 or higher, 58% reach Level 3 or higher, and 79% reach Level 2 or higher. Thirteen percent of students reach Level 1, although 8% of students across OECD countries perform below this level (Table A4.1).

Examining individual countries' performance by proficiency level shows that in Belgium, Japan, Korea, the Netherlands and Switzerland, 7% or more of students reach the highest level of proficiency. In these countries and in Canada, Finland and New Zealand, a significant proportion of students also reach Level 5 or above (over 20% in each case). In contrast, in Greece, Mexico, Portugal and Turkey, less than 6% of students reach these two levels of proficiency.

Although there is general tendency among countries with a high proportion of 15 year-olds scoring at Levels 5 and 6 to have fewer students below the lowest level of proficiency (see, for example, Korea), this is not always the case. For example, while 9% of students in Belgium perform at Level 6, 7% do not reach Level 1.

In 16 OECD countries, at least one-third of students reach Level 4 or beyond on the mathematics scale, and in nine of these countries, the percentage is over 40%. In all but five OECD countries, the percentage of students reaching Level 3 or higher is over 50%, and this extends to 77% in Finland. In all but four OECD countries, the percentage of students reaching Level 2 or higher is over 70%.

Chart A4.2. Percentage of students at each level of proficiency on the OECD PISA mathematics scale (2003)



Countries are ranked in descending order of percentage of 15-year-olds in Levels 2, 3, 4, 5 and 6.
Source: OECD PISA 2003 database. Table A4.1.

StatLink: http://dx.doi.org/10.1787/155512267715

While most students in most OECD countries reach Level 2 or higher on the mathematics scale, there are a number of students performing at Level 1 or below. With the exception of Finland and Korea, all OECD countries have at least 10% of students that perform at Level 1 or below, and there are 12 countries in which this exceeds one-fifth of all students. In Mexico and Turkey, a majority of students are unable to complete tasks above Level 1 on a consistent basis.

Mean scores in mathematics

Another way to summarise student performance and to compare the relative standing of countries in terms of student performance is through the mean scores for students in each country. To the extent that high average performance at age 15 can be considered predictive of a highly skilled future workforce, countries with high average performance will have an important economic and social advantage. This section describes country means on the overall scale, as well as briefly describing countries' relative strengths and weakness on the four scales identified in Box A4.1. (See also Box A4.3 for an indication of how mean scores on select scales differed from the 2000 to the 2003 assessments of PISA.)

Box A4.1. What is mathematical literacy in PISA?

Mathematics in PISA focuses on the capacity of students to analyse, reason, and communicate effectively as they pose, solve and interpret mathematical problems in a variety of situations involving quantitative, spatial, probabilistic, and other mathematical concepts. It defines "mathematical literacy" as an individual's capacity to identify and understand the role that mathematics plays in the world, to make well-founded judgments, and to use and engage with mathematics in ways that meet the needs of that individual's life as a constructive, concerned, and reflective citizen. This definition focuses on the extent to which students possess mathematical knowledge and understanding and the extent to which they can activate their mathematical competencies to solve problems they encounter in life.

What scales are reported? PISA's assessment of mathematics is reported on an overall mathematics scale (reported here) that is comprised of four components. *Space and shape* relates to spatial and geometric phenomena and relationships, drawing on the curricular discipline of geometry. *Change and relationships* involves mathematical manifestations of change as well as functional relationships and dependency among variables; it relates most closely to algebra. *Quantity* involves numeric phenomena as well as quantitative relationships and patterns, which in turn involve familiarity with numbers, representing numbers, understanding the meaning of operations, mental arithmetic and estimating. *Uncertainty* involves probabilistic and statistical phenomena and relationships that become increasingly relevant in the information society.

What do the scale scores mean? The scores on each scale represent degrees of proficiency along each dimension or aspect of mathematics (in this indicator, the combined scale). For example, a low score on a scale indicates that a student has more limited skills, whereas a high score indicates that a student has more advanced skills in this area.

What are proficiency levels? In an attempt to capture this progression, each of the mathematics scales is divided into six levels based on the type of knowledge and skills students need to demonstrate at a particular level. Students at a particular level are not only likely to demonstrate the knowledge and skills associated with that level but are also likely to demonstrate the proficiencies defined by lower levels. Thus, all students proficient at Level 3 are also proficient at Levels 1 and 2.

Chart A4.3 gives a summary of overall student performance in different countries on the combined mathematics scale, in terms of the mean student score, and indicates which countries perform above, at, or below the OECD average, and compares mean scores among pairs of countries. It also indicates the comparative performance of individual countries with each of the other countries.

On the combined mathematics scale, Finland, Korea and the Netherlands are the best performing OECD countries. Students' average scores in these countries – ranging from 538 points in the Netherlands to 544 points in Finland – are over one-half a proficiency level higher than the OECD average. Eleven other OECD countries (Australia, Belgium, Canada, Czech Republic, Denmark, France, Iceland, Japan, New Zealand, Sweden and Switzerland) have mean scores that are above the OECD mean.

Four countries (Austria, Germany, Ireland and the Slovak Republic) perform similarly to the OECD mean, and the remaining 11 OECD countries perform below it.

Box A4.2. What can students at each proficiency level do and what scores are associated with the levels?

- Students proficient at **Level 6 (over 668 points)** can conceptualise, generalise and utilise information based on their investigations and modelling of complex problem situations. They can link different information sources and representations and flexibly translate among them. Students at this level are capable of advanced mathematical thinking and reasoning; they can apply this insight and understanding, along with a mastery of symbolic and formal mathematical operations and relationships, to new approaches and strategies for attacking novel situations. Student at this level can formulate and precisely communicate their actions and reflections regarding their findings, interpretations, arguments and the appropriateness of these to the original situations.

- Students proficient at **Level 5 (607 to 668 points)** can develop and work with models for complex situations, identifying constraints and specifying assumptions. They can select, compare and evaluate appropriate problem solving strategies for dealing with complex problems related to these models. Students at this level can work strategically using broad, well-developed thinking and reasoning skills, appropriate linked representations, symbolic and formal characterisations, and insight pertaining to these situations. They can reflect on their actions and can formulate and communicate their interpretations and reasoning.

- Students proficient at **Level 4 (545 to 606 points)** can work effectively with explicit models for complex concrete situations that may involve constraints or call for making assumptions. They can select and integrate different representations, including symbolic, linking them directly to aspects of real-world situations. Students at this level can utilise well-developed skills and reason flexibly, with some insight, in these contexts. They can construct and communicate explanations and arguments based on their interpretations, arguments and actions.

- Students proficient at **Level 3 (483 to 544 points)** can execute clearly described procedures, including those that require sequential decisions. They can select and apply simple problem solving strategies. Students at this level can interpret and use representations based on different information sources and reason directly from them. They can develop short communications reporting their interpretations, results and reasoning.

- Students proficient at **Level 2 (421 to 482 points)** can interpret and recognise situations in contexts that require no more than direct inference. They can extract relevant information from a single source and make use of a single representational mode. Students at this level can employ basic algorithms, formulae, procedures or conventions. They are capable of direct reasoning and making literal interpretations of the results.

- Students proficient at **Level 1 (358 to 420 points)** can answer questions involving familiar contexts where all relevant information is present and the questions are clearly defined. They are able to identify information and to carry out routine procedures according to direct instructions in explicit situations. They can perform actions that are obvious and follow immediately from the given stimuli.

- Students performing **below Level 1 (below 358 points)** are not able to show routinely the most basic type of knowledge and skills that PISA seeks to measure.

Chart A4.3. Multiple comparisons of mean performance on the OECD PISA mathematics scale (2003)

Mathematics scale	Mean	S.E.	Finland	Korea	Netherlands	Japan	Canada	Belgium	Switzerland	Australia	New Zealand	Czech Republic	Iceland	Denmark	France	Sweden	Austria	Germany	Ireland	Slovak Republic	Norway	Luxembourg	Poland	Hungary	Spain	United States	Portugal	Italy	Greece	Turkey	Mexico
Mean			544	542	538	534	532	529	527	524	523	516	515	514	511	509	506	503	503	498	495	493	490	490	485	483	466	466	445	423	385
S.E.			(1.9)	(3.2)	(3.1)	(4.0)	(1.8)	(2.3)	(3.4)	(2.1)	(2.3)	(3.5)	(1.4)	(2.7)	(2.5)	(2.6)	(3.3)	(3.3)	(2.4)	(3.3)	(2.4)	(1.0)	(2.5)	(2.8)	(2.4)	(2.9)	(3.4)	(3.1)	(3.9)	(6.7)	(3.6)
Finland	544	(1.9)		●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Korea	542	(3.2)	●		●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Netherlands	538	(3.1)	●	●		●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Japan	534	(4.0)	▽	●	●		●	●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Canada	532	(1.8)	▽	▽	●	●		●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Belgium	529	(2.3)	▽	▽	▽	●	●		●	●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Switzerland	527	(3.4)	▽	▽	▽	●	●	●		●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Australia	524	(2.1)	▽	▽	▽	▽	▽	●	●		●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
New Zealand	523	(2.3)	▽	▽	▽	▽	▽	●	●	●		●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Czech Republic	516	(3.5)	▽	▽	▽	▽	▽	▽	▽	●	●		●	●	●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Iceland	515	(1.4)	▽	▽	▽	▽	▽	▽	▽	▽	▽	●		●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Denmark	514	(2.7)	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	●		●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
France	511	(2.5)	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	●	●		●	●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Sweden	509	(2.6)	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	▽	●	●		●	●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Austria	506	(3.3)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	●		●	●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Germany	503	(3.3)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	●	●		●	●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Ireland	503	(2.4)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	●	●		●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Slovak Republic	498	(3.3)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	●	●		●	●	●	●	▲	▲	▲	▲	▲	▲	▲
Norway	495	(2.4)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	▽	●		●	●	●	▲	▲	▲	▲	▲	▲	▲
Luxembourg	493	(1.0)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	●		●	●	▲	▲	▲	▲	▲	▲	▲
Poland	490	(2.5)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	●	●		●	●	●	▲	▲	▲	▲	▲
Hungary	490	(2.8)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	●	●	●		●	●	▲	▲	▲	▲	▲
Spain	485	(2.4)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	●		●	▲	▲	▲	▲	▲
United States	483	(2.9)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	●	●		▲	▲	▲	▲	▲
Portugal	466	(3.4)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽		●	▲	▲	▲
Italy	466	(3.1)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●		▲	▲	▲
Greece	445	(3.9)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽		▲	▲
Turkey	423	(6.7)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽		▲
Mexico	385	(3.6)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	

Range of rank*

OECD countries	Upper rank	1	1	1	2	4	4	4	7	7	9	10	10	11	12	13	14	15	16	18	19	19	19	22	22	25	25	27	28	29
	Lower rank	3	4	5	7	7	8	9	9	10	14	13	14	15	16	18	18	18	21	21	21	23	23	24	24	26	26	27	28	29

* Because data are based on samples, it is not possible to report exact rank order positions for countries. However, it is possible to report the range of rank order positions within which the country mean lies with 95 per cent likelihood.

Instructions:

Read across the row for a country to compare performance with the countries listed along the top of the chart. The symbols indicate whether the average performance of the country in the row is lower than that of the comparison country, higher than that of the comparison country, or if there is no statistically significant difference between the average achievement of the two countries.

▲ Mean performance statistically significantly higher than in comparison country
● No statistically significant difference from comparison country
▽ Mean performance statistically significantly lower than in comparison country

Statistically significantly above the OECD average
Not statistically significantly different from the OECD average
Statistically significantly below the OECD average

StatLink: http://dx.doi.org/10.1787/155512267715

Source: OECD PISA 2003 database.

Table A4.2 compares the performance results in the different content areas of mathematics, allowing an assessment of the relative strengths and weaknesses of countries. Although it is not appropriate to compare numerical scale scores directly between the different content areas of mathematics, it is possible to determine the relative strengths of countries in the different content areas of mathematics, on the basis of their relative positions on the respective scales. The relative probability that a country will assume each position on each scale is determined from the country mean scores, their standard errors and the covariance between the performance scales of two domains. From this, it can be concluded, with a likelihood of 95%, whether a country would rank statistically significantly higher, not statistically differently, or statistically significantly lower in one domain than in the other domain. For details on the methods employed, see the *PISA 2003 Technical Report* (OECD, 2005c).

For some countries – most notably Greece, Italy, Korea, Mexico, Portugal, Spain and Turkey – the relative standing is similar across the four mathematics content areas. By contrast, in Austria, Canada, the Czech Republic, France, Germany, Ireland, Japan, New Zealand, Norway, the Slovak Republic and Switzerland, performance differences among the content areas are particularly large and may warrant attention in curriculum development and implementation. For additional details, see *Learning for Tomorrow's World – First Results from PISA 2003* (OECD, 2004a).

For some countries – most notably Japan – the relative standing is broadly similar in the content areas that were assessed in both 2000 and 2003, while performance is lower on the quantity and uncertainty scales that were newly introduced in 2003. While it would be wrong to conclude that mathematics performance in these countries has declined, the results do suggest that the introduction of the new content areas into the assessment shed a slightly different light on the overall performance of these countries.

Distribution of student performance

While average performance figures can provide a good indication of the overall performance of a country, they may mask significant variation in performance within countries, possibly reflecting different performance among different student groups. Thus, this section presents information on the distribution of mathematics scores, examining the range of performance within countries.

Table A4.3 shows the distribution of student performance within countries. This analysis is different from the examination of the distribution of student performance across the PISA proficiency levels discussed in the first section in the following way. Whereas the distribution of students across proficiency levels indicates the proportion of students in each country that can demonstrate a specified level of knowledge and skills, and thus compares countries on the basis of absolute benchmarks of student performance, the analysis below focuses on the relative distribution of scores, *i.e.* the gap that exists between students with the highest and the lowest levels of performance within each country. This is an important indicator of the equality of educational outcomes in mathematics.

The results show that there is wide variation in overall student performance on the combined mathematics scale within countries. The middle 90% of the population, exceeds by far the range between the mean scores of the highest and lowest performing countries. In almost all OECD countries, this group includes some students proficient at Level 5 and others not proficient above Level 1 (Table A4.3).

In addition, the range of performance in the middle half of the students (*i.e.* the difference between the 75th and 25th percentiles) on the combined mathematics scale ranges from less than 120 score points in Canada, Finland, Ireland and Mexico to more than 140 score points in Belgium and Germany. In the majority of countries, this range exceeds the magnitude of two proficiency levels and in Belgium and Germany it is around 2.4 proficiency levels. In Belgium, this difference can be explained partially by the difference in performance between the Flemish and French Communities. For additional details, see *Learning for Tomorrow's World – First Results from PISA 2003* (OECD, 2004a).

Even countries with similar levels of average performance show considerable variation in the disparities of student performance. For example, Germany and Ireland both have mean scores around the OECD average, but while Ireland shows one of the narrowest distributions, the difference between the 75th and 25th percentiles in Germany is among the widest. Similarly, towards the lower end of the scale, Italy and Portugal show similar levels of average performance, but Italy shows much larger performance variation than Portugal. Among the top performing countries, Finland displays much less performance variation than Korea or the Netherlands (Table A4.3).

Box A4.3. Differences in mathematics in PISA 2000 and PISA 2003

PISA was first administered in 2000, and thus it is possible to estimate differences in mathematics performance between PISA 2000 and PISA 2003 for the two scales that were used in the 2000 assessment: *space and shape* and *change and relationships*. However, in both cases, data should be interpreted with caution. First, since data are only available from two points in time, it is not possible to assess to what extent the observed differences are indicative of trends. Second, while the overall approach to measurement used by PISA is consistent across cycles, small refinements continue to be made, so it would not be prudent to read too much into small changes in results at this stage. Furthermore, sampling and measurement error limit the reliability of comparisons of results over time. Both types of error inevitably arise when assessments are linked through a limited number of common items over time. To account for the effects of such error, the confidence band for comparisons over time has been broadened correspondingly.

With these caveats in mind, performance on the *space and shape* scale has remained broadly similar across countries between 2000 (494 points) and 2003 (496 points), though this varies for individual countries. In four OECD countries, there were statistically significant increases on this scale, ranging from 15 points in Italy to 28 points in Belgium. On the other hand, average performance in Iceland and Mexico decreased by 15 and 18 points, respectively.

On the *change and relationships* scale, among the 25 countries for which data can be compared, the OECD average increased from 488 points in 2000 to 499 points in 2003, the largest observed difference in any areas of the PISA assessment. Again, however, there is wide variation across countries and more countries saw differences on this scale than on the *space and shape* scale. The Czech Republic and Poland both saw increases of around 30 score points (equivalent to about one-half a proficiency level); and in Belgium, Canada, Finland, Germany, Hungary, Korea, Portugal and Spain, increases were between 13 and 22 points. There were no statistically significant increases or decreases in average scores of the remaining countries.

Source: Learning for Tomorrow's World – First Results from PISA 2003 (OECD, 2004a), Tables 2.1c, 2.1d, 2.2c and 2.2d.

Finally, a comparison between the range of performance within a country and its average performance reveals that wide disparities in performance are not a necessary condition for a country to attain a high level of overall performance. For example, Canada, Denmark, Finland, Iceland and Korea all have above-average performance but below-average differences between the 75th and 25th percentiles.

Definitions and methodologies

The achievement scores are based on assessments administered as part of the Programme for International Student Assessment (PISA) undertaken by the Organisation for Economic Co-operation and Development (OECD). PISA was administered most recently during the 2003 school year.

The target population studied for this indicator was 15-year-old students. Operationally, this referred to students who were from 15 years and 3 (completed) months to 16 years and 2 (completed) months at the beginning of the testing period and who were enrolled in an educational institution at the secondary level, irrespective of the grade levels or type of institutions in which they were enrolled, and irrespective of whether they participated in school full-time or part-time.

Further references

For further information about PISA 2003, see *Learning for Tomorrow's World – First Results from PISA 2003* (OECD, 2004a), *Problem Solving for Tomorrow's World – First Measures of Cross-Curricular Competencies from PISA 2003* (OECD, 2004b) and the *PISA 2003 Technical Report* (OECD, 2005c). PISA data is also available on the PISA Web site: *www.pisa.oecd.org*.

Table A4.1. Percentage of students at each level of proficiency on the OECD PISA mathematics scale (2003)

	Proficiency levels													
	Below Level 1 (below 358 score points)		Level 1 (from 358 to 420 score points)		Level 2 (from 421 to 482 score points)		Level 3 (from 483 to 544 score points)		Level 4 (from 545 to 606 score points)		Level 5 (from 607 to 668 score points)		Level 6 (above 668 score points)	
OECD COUNTRIES	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
Australia	4.3	(0.4)	10.0	(0.5)	18.6	(0.6)	24.0	(0.7)	23.3	(0.6)	14.0	(0.5)	5.8	(0.4)
Austria	5.6	(0.7)	13.2	(0.8)	21.6	(0.9)	24.9	(1.1)	20.5	(0.8)	10.5	(0.9)	3.7	(0.5)
Belgium	7.2	(0.6)	9.3	(0.5)	15.9	(0.6)	20.1	(0.7)	21.0	(0.6)	17.5	(0.7)	9.0	(0.5)
Canada	2.4	(0.3)	7.7	(0.4)	18.3	(0.6)	26.2	(0.7)	25.1	(0.6)	14.8	(0.5)	5.5	(0.4)
Czech Republic	5.0	(0.7)	11.6	(0.9)	20.1	(1.0)	24.3	(0.9)	20.8	(0.9)	12.9	(0.8)	5.3	(0.5)
Denmark	4.7	(0.5)	10.7	(0.6)	20.6	(0.9)	26.2	(0.9)	21.9	(0.8)	11.8	(0.9)	4.1	(0.5)
Finland	1.5	(0.2)	5.3	(0.4)	16.0	(0.6)	27.7	(0.7)	26.1	(0.9)	16.7	(0.6)	6.7	(0.5)
France	5.6	(0.7)	11.0	(0.8)	20.2	(0.8)	25.9	(1.0)	22.1	(1.0)	11.6	(0.7)	3.5	(0.4)
Germany	9.2	(0.8)	12.4	(0.8)	19.0	(1.0)	22.6	(0.8)	20.6	(1.0)	12.2	(0.9)	4.1	(0.5)
Greece	17.8	(1.2)	21.2	(1.2)	26.3	(1.0)	20.2	(1.0)	10.6	(0.9)	3.4	(0.5)	0.6	(0.2)
Hungary	7.8	(0.8)	15.2	(0.8)	23.8	(1.0)	24.3	(0.9)	18.2	(0.9)	8.2	(0.7)	2.5	(0.4)
Iceland	4.5	(0.4)	10.5	(0.6)	20.2	(1.0)	26.1	(0.9)	23.2	(0.8)	11.7	(0.6)	3.7	(0.4)
Ireland	4.7	(0.6)	12.1	(0.8)	23.6	(0.8)	28.0	(0.8)	20.2	(1.1)	9.1	(0.8)	2.2	(0.3)
Italy	13.2	(1.2)	18.7	(0.9)	24.7	(1.0)	22.9	(0.8)	13.4	(0.7)	5.5	(0.4)	1.5	(0.2)
Japan	4.7	(0.7)	8.6	(0.7)	16.3	(0.8)	22.4	(1.0)	23.6	(1.2)	16.1	(1.0)	8.2	(1.1)
Korea	2.5	(0.3)	7.1	(0.7)	16.6	(0.8)	24.1	(1.0)	25.0	(1.1)	16.7	(0.8)	8.1	(0.9)
Luxembourg	7.4	(0.4)	14.3	(0.6)	22.9	(0.9)	25.9	(0.8)	18.7	(0.8)	8.5	(0.6)	2.4	(0.3)
Mexico	38.1	(1.7)	27.9	(1.0)	20.8	(0.9)	10.1	(0.8)	2.7	(0.4)	0.4	(0.1)	0.0	(0.0)
Netherlands	2.6	(0.7)	8.4	(0.9)	18.0	(1.1)	23.0	(1.1)	22.6	(1.3)	18.2	(1.1)	7.3	(0.6)
New Zealand	4.9	(0.4)	10.1	(0.6)	19.2	(0.7)	23.2	(0.9)	21.9	(0.8)	14.1	(0.6)	6.6	(0.4)
Norway	6.9	(0.5)	13.9	(0.8)	23.7	(1.2)	25.2	(1.0)	18.9	(1.0)	8.7	(0.6)	2.7	(0.3)
Poland	6.8	(0.6)	15.2	(0.8)	24.8	(0.7)	25.3	(0.9)	17.7	(0.9)	7.8	(0.5)	2.3	(0.3)
Portugal	11.3	(1.1)	18.8	(1.0)	27.1	(1.0)	24.0	(1.0)	13.4	(0.9)	4.6	(0.5)	0.8	(0.2)
Slovak Republic	6.7	(0.8)	13.2	(0.9)	23.5	(0.9)	24.9	(1.1)	18.9	(0.8)	9.8	(0.7)	2.9	(0.4)
Spain	8.1	(0.7)	14.9	(0.9)	24.7	(0.8)	26.7	(1.0)	17.7	(0.6)	6.5	(0.6)	1.4	(0.2)
Sweden	5.6	(0.5)	11.7	(0.6)	21.7	(0.8)	25.5	(0.9)	19.8	(0.8)	11.6	(0.6)	4.1	(0.5)
Switzerland	4.9	(0.4)	9.6	(0.6)	17.5	(0.8)	24.3	(1.0)	22.5	(0.7)	14.2	(1.1)	7.0	(0.9)
Turkey	27.7	(2.0)	24.6	(1.3)	22.1	(1.1)	13.5	(1.3)	6.8	(1.0)	3.1	(0.8)	2.4	(1.0)
United States	10.2	(0.8)	15.5	(0.8)	23.9	(0.8)	23.8	(0.8)	16.6	(0.7)	8.0	(0.5)	2.0	(0.4)
OECD total	***11.0***	***(0.3)***	***14.6***	***(0.3)***	***21.2***	***(0.3)***	***22.4***	***(0.3)***	***17.6***	***(0.2)***	*9.6*	*(0.2)*	*3.5*	*(0.2)*
OECD average	***8.2***	***(0.2)***	***13.2***	***(0.2)***	***21.1***	***(0.1)***	***23.7***	***(0.2)***	***19.1***	***(0.2)***	*10.6*	*(0.1)*	*4.0*	*(0.1)*

Source: OECD PISA 2003 database. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

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Table A4.2. Mean student performance and variation on different aspects of the OECD PISA mathematics scale (2003)

	Space and shape				Change and relationships				Quantity				Uncertainty			
	Mean		Standard deviation		Mean		Standard deviation		Mean		Standard deviation		Mean		Standard deviation	
OECD COUNTRIES	Score	S.E.	S.D.	S.E.	Score	S.E.	S.D.	S.E.	Score	S.E.	S.D.	S.E.	Score	S.E.	S.D.	S.E.
Australia	521	(2.3)	104	(1.7)	525	(2.3)	98	(1.8)	517	(2.1)	97	(1.5)	531	(2.2)	98	(1.6)
Austria	515	(3.5)	112	(1.7)	500	(3.6)	102	(1.8)	513	(3.0)	86	(1.7)	494	(3.1)	94	(1.7)
Belgium	530	(2.3)	111	(1.4)	535	(2.4)	116	(1.6)	530	(2.3)	109	(1.8)	526	(2.2)	106	(1.5)
Canada	518	(1.8)	95	(0.9)	537	(1.9)	92	(0.9)	528	(1.8)	94	(0.9)	542	(1.8)	87	(0.9)
Czech Republic	527	(4.1)	119	(2.3)	515	(3.5)	100	(1.8)	528	(3.5)	98	(2.1)	500	(3.1)	91	(1.7)
Denmark	512	(2.8)	103	(1.6)	509	(3.0)	98	(1.8)	516	(2.6)	92	(1.6)	516	(2.8)	92	(1.6)
Finland	539	(2.0)	92	(1.2)	543	(2.2)	95	(1.4)	549	(1.8)	83	(1.1)	545	(2.1)	85	(1.1)
France	508	(3.0)	102	(2.0)	520	(2.6)	100	(2.1)	507	(2.5)	95	(1.8)	506	(2.4)	92	(1.7)
Germany	500	(3.3)	112	(1.9)	507	(3.7)	109	(1.7)	514	(3.4)	106	(1.9)	493	(3.3)	98	(1.7)
Greece	437	(3.8)	100	(1.6)	436	(4.3)	107	(1.7)	446	(4.0)	100	(1.7)	458	(3.5)	88	(1.5)
Hungary	479	(3.3)	109	(2.2)	495	(3.1)	99	(2.1)	496	(2.7)	95	(1.9)	489	(2.6)	86	(1.8)
Iceland	504	(1.5)	94	(1.5)	509	(1.4)	97	(1.2)	513	(1.5)	96	(1.3)	528	(1.5)	95	(1.4)
Ireland	476	(2.4)	94	(1.5)	506	(2.4)	87	(1.4)	502	(2.5)	88	(1.3)	517	(2.6)	89	(1.4)
Italy	470	(3.1)	109	(1.8)	452	(3.2)	103	(1.9)	475	(3.4)	106	(2.0)	463	(3.0)	95	(1.7)
Japan	553	(4.3)	110	(2.9)	536	(4.3)	112	(3.0)	527	(3.8)	102	(2.5)	528	(3.9)	98	(2.6)
Korea	552	(3.8)	117	(2.5)	548	(3.5)	99	(2.4)	537	(3.0)	90	(1.9)	538	(3.0)	89	(1.9)
Luxembourg	488	(1.4)	100	(1.2)	487	(1.2)	102	(1.0)	501	(1.1)	91	(1.1)	492	(1.1)	96	(1.0)
Mexico	382	(3.2)	87	(1.4)	364	(4.1)	98	(1.9)	394	(3.9)	95	(1.9)	390	(3.3)	80	(1.5)
Netherlands	526	(2.9)	94	(2.3)	551	(3.1)	94	(2.0)	528	(3.1)	97	(2.4)	549	(3.0)	90	(2.0)
New Zealand	525	(2.3)	106	(1.3)	526	(2.4)	103	(1.5)	511	(2.2)	99	(1.3)	532	(2.3)	99	(1.3)
Norway	483	(2.5)	103	(1.3)	488	(2.6)	98	(1.3)	494	(2.2)	94	(1.1)	513	(2.6)	98	(1.1)
Poland	490	(2.7)	107	(1.9)	484	(2.7)	99	(1.7)	492	(2.5)	89	(1.7)	494	(2.3)	85	(1.7)
Portugal	450	(3.4)	93	(1.7)	468	(4.0)	99	(2.2)	465	(3.5)	94	(1.8)	471	(3.4)	83	(1.8)
Slovak Republic	505	(4.0)	117	(2.3)	494	(3.5)	105	(2.3)	513	(3.4)	94	(2.3)	476	(3.2)	87	(1.8)
Spain	476	(2.6)	92	(1.4)	481	(2.8)	99	(1.4)	492	(2.5)	97	(1.3)	489	(2.4)	88	(1.4)
Sweden	498	(2.6)	100	(1.7)	505	(2.9)	111	(1.9)	514	(2.5)	90	(1.7)	511	(2.7)	101	(1.7)
Switzerland	540	(3.5)	110	(2.1)	523	(3.7)	112	(2.2)	533	(3.1)	96	(1.7)	517	(3.3)	100	(2.1)
Turkey	417	(6.3)	102	(5.1)	423	(7.6)	121	(5.4)	413	(6.8)	112	(5.1)	443	(6.2)	98	(5.0)
United States	472	(2.8)	97	(1.4)	486	(3.0)	98	(1.6)	476	(3.2)	105	(1.5)	491	(3.0)	98	(1.5)
OECD total	***486***	***(1.0)***	***112***	***(0.7)***	***489***	***(1.2)***	***113***	***(0.8)***	***487***	***(1.1)***	***108***	***(0.7)***	***492***	***(1.1)***	***102***	***(0.7)***
OECD average	***496***	***(0.6)***	***110***	***(0.4)***	***499***	***(0.7)***	***109***	***(0.5)***	***501***	***(0.6)***	***102***	***(0.4)***	***502***	***(0.6)***	***99***	***(0.4)***

Source: OECD PISA 2003 database. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

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Table A4.3. Mean score and variation in student performance on the OECD PISA mathematics scale (2003)

	Mean		Standard deviation		Percentiles											
					5th		10th		25th		75th		90th		95th	
OECD COUNTRIES	Score	S.E.	S.D.	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.
Australia	524	(2.1)	95	(1.5)	364	(4.4)	399	(3.4)	460	(2.7)	592	(2.5)	645	(3.0)	676	(3.5)
Austria	506	(3.3)	93	(1.7)	353	(6.6)	384	(4.4)	439	(4.0)	571	(4.2)	626	(4.0)	658	(5.0)
Belgium	529	(2.3)	110	(1.8)	334	(6.5)	381	(4.6)	456	(3.4)	611	(2.5)	664	(2.4)	693	(2.4)
Canada	532	(1.8)	87	(1.0)	386	(3.0)	419	(2.5)	474	(2.2)	593	(2.1)	644	(2.6)	673	(3.4)
Czech Republic	516	(3.5)	96	(1.9)	358	(6.2)	392	(5.7)	449	(4.5)	584	(4.0)	641	(4.3)	672	(4.9)
Denmark	514	(2.7)	91	(1.4)	361	(4.4)	396	(4.5)	453	(3.7)	578	(3.1)	632	(3.7)	662	(4.7)
Finland	544	(1.9)	84	(1.1)	406	(3.8)	438	(2.8)	488	(2.2)	603	(2.3)	652	(2.8)	680	(3.1)
France	511	(2.5)	92	(1.8)	352	(6.0)	389	(5.6)	449	(3.7)	575	(3.0)	628	(3.6)	656	(3.5)
Germany	503	(3.3)	103	(1.8)	324	(6.1)	363	(5.6)	432	(4.7)	578	(3.5)	632	(3.5)	662	(3.6)
Greece	445	(3.9)	94	(1.8)	288	(5.4)	324	(5.1)	382	(4.6)	508	(4.3)	566	(5.3)	598	(5.1)
Hungary	490	(2.8)	94	(2.0)	335	(5.6)	370	(4.2)	426	(3.0)	556	(3.9)	611	(4.7)	644	(4.6)
Iceland	515	(1.4)	90	(1.2)	362	(4.0)	396	(2.7)	454	(2.8)	578	(1.9)	629	(3.0)	658	(3.8)
Ireland	503	(2.4)	85	(1.3)	360	(4.7)	393	(3.2)	445	(3.4)	562	(3.0)	614	(3.6)	641	(3.3)
Italy	466	(3.1)	96	(1.9)	307	(6.4)	342	(5.9)	400	(4.3)	530	(3.0)	589	(3.6)	623	(3.7)
Japan	534	(4.0)	101	(2.8)	361	(8.2)	402	(6.3)	467	(5.4)	605	(4.4)	660	(6.1)	690	(6.6)
Korea	542	(3.2)	92	(2.1)	388	(4.6)	423	(4.5)	479	(3.7)	606	(4.2)	659	(5.4)	690	(6.8)
Luxembourg	493	(1.0)	92	(1.0)	338	(3.9)	373	(2.7)	430	(2.2)	557	(1.9)	611	(3.2)	641	(2.7)
Mexico	385	(3.6)	85	(1.9)	247	(5.4)	276	(4.7)	327	(4.3)	444	(4.5)	497	(4.7)	527	(5.6)
Netherlands	538	(3.1)	93	(2.3)	385	(6.9)	415	(5.8)	471	(5.4)	608	(3.8)	657	(3.2)	683	(3.4)
New Zealand	523	(2.3)	98	(1.2)	358	(4.1)	394	(3.9)	455	(2.9)	593	(2.2)	650	(3.2)	682	(2.9)
Norway	495	(2.4)	92	(1.2)	343	(4.0)	376	(3.4)	433	(2.9)	560	(3.3)	614	(3.6)	645	(3.9)
Poland	490	(2.5)	90	(1.3)	343	(5.8)	376	(3.6)	428	(3.1)	553	(2.9)	607	(3.3)	640	(3.5)
Portugal	466	(3.4)	88	(1.7)	321	(6.3)	352	(5.3)	406	(5.0)	526	(3.5)	580	(3.3)	610	(3.7)
Slovak Republic	498	(3.3)	93	(2.3)	342	(6.9)	379	(5.8)	436	(4.6)	565	(3.8)	619	(3.5)	648	(4.1)
Spain	485	(2.4)	88	(1.3)	335	(5.1)	369	(3.5)	426	(3.0)	546	(3.1)	597	(3.5)	626	(3.7)
Sweden	509	(2.6)	95	(1.8)	353	(5.3)	387	(4.4)	446	(3.0)	576	(3.2)	630	(3.8)	662	(4.8)
Switzerland	527	(3.4)	98	(2.0)	359	(4.8)	396	(4.2)	461	(3.6)	595	(4.9)	652	(5.2)	684	(6.8)
Turkey	423	(6.7)	105	(5.3)	270	(5.8)	300	(5.0)	351	(5.3)	485	(8.5)	560	(14.2)	614	(22.7)
United States	483	(2.9)	95	(1.3)	323	(4.9)	356	(4.5)	418	(3.7)	550	(3.4)	607	(3.9)	638	(5.1)
OECD total	*489*	*(1.1)*	*104*	*(0.7)*	*315*	*(2.1)*	*352*	*(1.7)*	*418*	*(1.6)*	*563*	*(1.1)*	*622*	*(1.3)*	*655*	*(1.8)*
OECD average	*500*	*(0.6)*	*100*	*(0.4)*	*332*	*(1.3)*	*369*	*(1.1)*	*432*	*(0.9)*	*571*	*(0.7)*	*628*	*(0.7)*	*660*	*(1.0)*

Source: OECD PISA 2003 database. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

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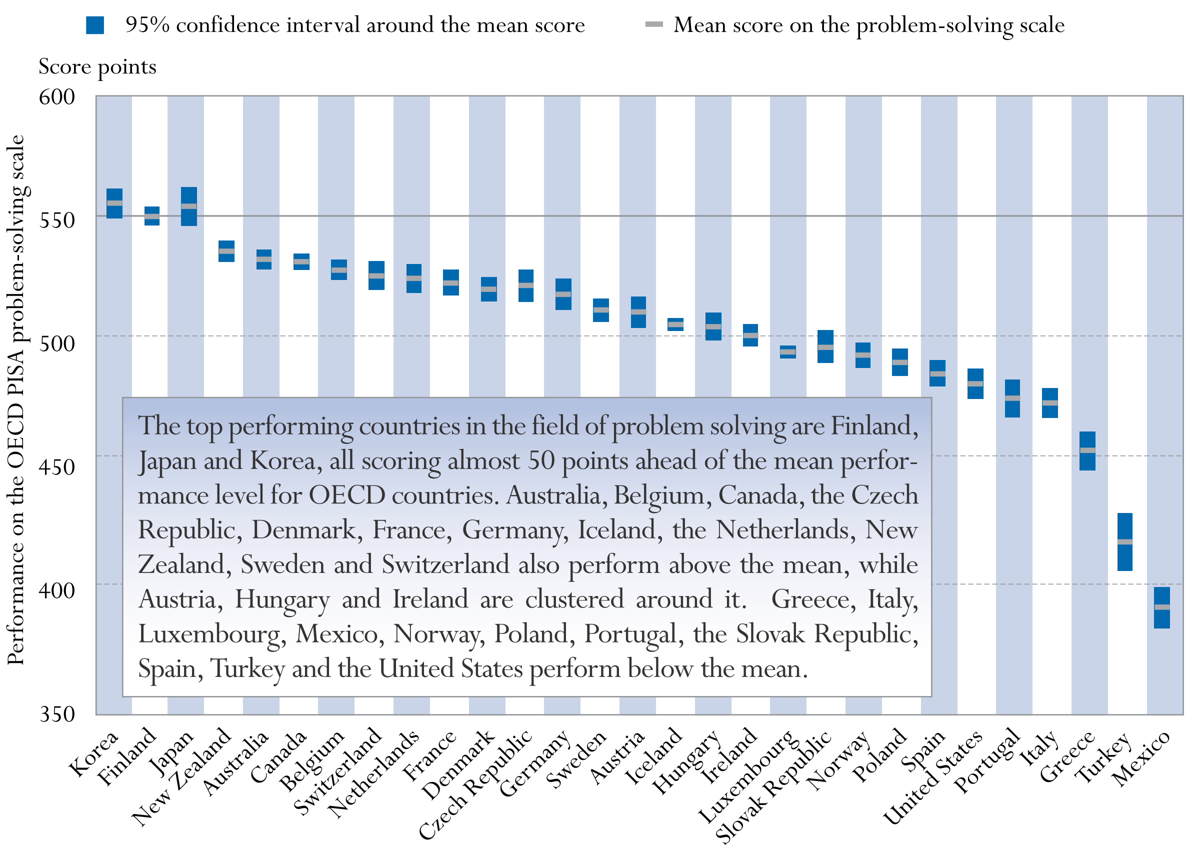
What 15-year-olds can do in problem solving

This indicator examines students' cross-curricular problem-solving skills, drawing upon 2003 data from the Programme for International Student Assessment (PISA) 2003. It profiles 15-year-old students' abilities by examining the percentage of students reaching three levels of problem-solving proficiency, mean scores across countries and the distribution of performance within countries.

Key results

Chart A5.1. Distribution of student performance on the OECD PISA problem-solving scale (2003)

The chart summarises the overall performance of 15-year-old students in different countries on the OECD PISA 2003 problem-solving scale. The width of the symbols indicates the statistical uncertainty with which the mean performance was estimated.



Source: OECD PISA 2003 database. Table A5.2.

StatLink: http://dx.doi.org/10.1787/402381481733

Other highlights of this indicator

- Performance varies significantly across countries. In some, the great majority of students can solve problems at Level 2 (the middle level) or higher while in others, few students achieve that level.
- Students unable to progress beyond Level 1 do not typically deal successfully with multi-faceted problems involving more than one data source or requiring the student to reason with the information provided.
- Within-country variation is also considerable. For example, in the majority of OECD countries, at least 10% of students are proficient at Level 3 (the highest level) and at least 10% perform below Level 1.
- In some countries, large numbers cannot solve simple problems. In Mexico and Turkey over half, in Greece one-third, and in Italy, Portugal and the United States nearly one-quarter of students cannot solve Level 1 problems.

Policy context

In many countries, curricula in various subject areas call for students to confront problem situations by understanding the information given, identifying critical features and any relationships in a situation, constructing or applying one or more external representations, resolving ensuing questions and, finally, evaluating, justifying and communicating results as a means of furthering understanding of the situation. Problem solving is widely seen as providing an essential basis for future learning, effectively participating in society and conducting personal activities.

Evidence and explanations

This indicator profiles 15-year-old students' problem-solving abilities by examining the percentage of students reaching different levels of proficiency, mean scores across countries, and the distribution of performance within countries. Box A5.1 describes how problem solving was measured in PISA 2003.

Proficiency in problem solving

Chart A5.2 and Table A5.1 present the percentage of students reaching each level of proficiency on the problem solving scale. Box A5.2 describes what each proficiency level means. The percentage of students at or below Level 1 appears below the horizontal axis and the percentage at or above Level 2 appears above the same line. This shows how many students have more complex problem-solving skills compared to only basic skills in each country.

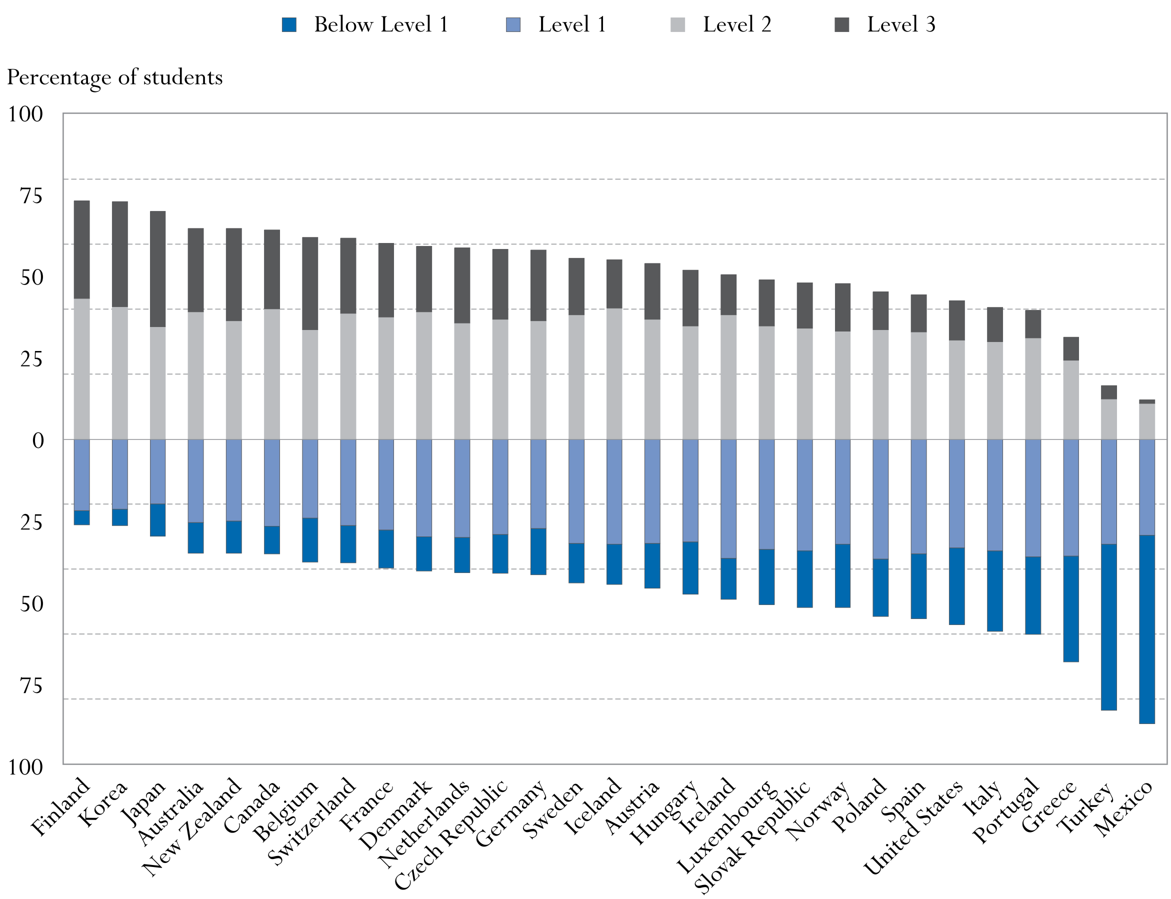
Box A5.1. How problem solving was measured in PISA 2003

The problem-solving assessment in PISA 2003 aimed to parallel situations that students might confront in their future lives, including those that were not routine. The assessment drew on students' prior cross-disciplinary knowledge and required the integration of concepts, representations and processes in order to resolve the problem tasks. PISA 2003 defined problem solving as an individual's capacity to use cognitive processes to confront and resolve real, cross-disciplinary situations where the solution path is not immediately obvious and where the content areas or curricular areas that might be applicable are not within a single subject area of mathematics, science or reading.

With this definition, the problem-solving tasks used were based on the following four components:

- **Problem types**, including decision making, system analysis and design, and trouble shooting, which were chosen because they are widely applicable and occur in a variety of settings;
- **Problem context**, such as those that are found in personal life, work and leisure, and in the community and society, versus in the classroom or based on materials studied in the curriculum;
- **Problem-solving processes**, including understanding, characterising, representing and solving the problem, and reflecting on and communicating the solution of the problem; and
- **Reasoning**, including analytic, quantitative, analogical and combinatorial reasoning skills to be applied in addressing problem tasks.

Chart A5.2. Percentage of students at each level of proficiency on the OECD PISA problem-solving scale (2003)



Countries are ranked in descending order of percentage of 15-year-olds in Levels 2 and 3.
Source: OECD PISA 2003 database. Table A5.1.

StatLink: http://dx.doi.org/10.1787/402381481733

As the figure shows, country results vary greatly, from some countries where the great majority of students can solve problems at least at Level 2, to others where few students achieve that level. At the same time, the variation within countries in problem-solving ability is considerable. For example, in the majority of OECD countries, at least 10% of students are proficient at Level 3 and at least 10% perform below Level 1 (Table 5.1).

Across OECD countries, 18% of students reach Level 3, the highest level of proficiency in problem solving. In all but four OECD countries (Greece, Mexico, Portugal and Turkey), the percentage of students achieving this level is over 10%. In 12 OECD countries, over 20% of students reach this level, and in Japan, it is over one-third of students.

On average across OECD countries, about half of the students score at Level 2 or above. The percentage of students at Level 2 or above ranges from 70% or more in Finland, Japan and Korea, to less than 17% in Mexico and Turkey. In 26 OECD countries, over 30% or more of students reach Level 2 as the highest proficiency level.

Box A5.2. What do the proficiency levels mean and what scores are associated with the levels?

The PISA 2003 problem-solving scale results from an analysis of the theoretical constructs underlying the problem solving components and of students' work in addressing the task problems. The scale runs from students with the weakest problem-solving skills to those with the strongest skills and has three distinct performance intervals, or proficiency levels, at which students are likely to address certain types of tasks successfully.

- Students proficient at **Level 3 (above 592 points)** do not only analyse a situation and make decisions but they also think about the underlying relationships in a problem and relate those to the solution. Students at this level approach problems systematically, construct their own representations to help them solve them and verify that their solutions satisfy all requirements of the problem. These students communicate their solutions to others using accurate written statements and other representations. Students at Level 3 also consider and deal with a large number of conditions, such as monitoring variables and accounting for temporal restrictions and other restraints. Students at the top of Level 3 can cope with multiple interrelated conditions that require them to work back and forth between their solution and the conditions laid out in the problem. These students organise and monitor their thinking while working out the solution. The problems with which Level 3 students are successful are often multi-faceted and require students to manage all their interactions simultaneously and to develop a unique solution.

- Students proficient at **Level 2 (from 499 to 592 points)** use reasoning and analytic processes and solve problems requiring decision-making skills. Students at Level 2 can apply various types of reasoning (such as inductive, deductive or combinatorial) to analyse situations and to solve problems that require them to make a decision among well-defined alternatives. To analyse a system or make decisions, these students combine and synthesise information from a variety of sources. These students may need to combine various forms of representations (*e.g.* a formalised language, numerical information, and graphical information), handle unfamiliar representations (*e.g.* statements in a programming language or flow diagrams related to a mechanical or structural arrangement of components), or draw inferences based on two or more sources of information.

- Students proficient at **Level 1 (from 405 to 499 points)** typically solve problems in which they have to deal with only a single data source containing discrete, well-defined information. They understand the nature of a problem and consistently locate and retrieve information related to the major features of the problem. These students are able to transform the information in the problem to present the problem differently (*e.g.* take information from a table to create a drawing or graph). The students can also apply information to check a limited number of well-defined conditions within the problem. However, students at Level 1 do not typically deal successfully with multi-faceted problems involving more than one data source or requiring the student to reason with the information provided.

- The PISA problem-solving assessment was not designed to assess elementary problem-solving processes. As such, the assessment materials did not contain sufficient tasks to describe fully performances that fall below Level 1. Students that perform **below Level 1 (below 405 points)** consistently fail to understand even the easiest items in the PISA 2003 problem-solving assessment or fail to apply the necessary processes to characterise important features or represent the problems. At most, they can deal with straightforward problems with carefully structured tasks that require the students to give responses based on facts or to make observations with few or no inferences. Students below Level 1 have significant difficulties in making decisions, analyzing or evaluating systems, and trouble-shooting situations.

The percentage of students unable to reach even Level 1 ranges from over half of students in Mexico and Turkey to below 10% in Australia, Canada, Finland and Korea. There are comparatively high proportions of low-performing students in other OECD countries as well: in Italy, Portugal and the United States, nearly one-quarter fall below Level 1, and in Greece roughly one-third do so.

Mean performance on the problem-solving scale

Along with the analysis of how students within countries are distributed by the various levels of proficiency in problem solving, there is interest in an overall measure of performance in problem solving for each country. This is provided by the mean score. When interpreting the results of mean student performance in problem solving for each country, it is important to bear in mind that these figures may mask the variation in student performance that exists within each country, which is the subject of the subsequent section.

Chart A5.3 shows that the top performing countries in terms of mean scores are Finland, Japan and Korea. These three countries perform indistinguishably well and have mean scores that are almost 50 score points, or around one-half of a proficiency level, higher than the mean performance level for OECD countries, which is 500 score points. Other countries performing above this average are Australia, Belgium, Canada, the Czech Republic, Denmark, France, Germany, Iceland, the Netherlands, New Zealand, Sweden and Switzerland. Another three countries, Austria, Hungary and Ireland, are clustered around the OECD mean while the remaining 11 OECD countries all perform below the OECD average. These countries were Greece, Italy, Luxembourg, Mexico, Norway, Poland, Portugal, the Slovak Republic, Spain, Turkey and the United States. Note that while Iceland has a lower mean score than Austria, its standard error is also less than that of Austria. This leads Iceland to be statistically significantly above the OECD average, while Austria is not statistically significantly different from the OECD average.

Distribution of problem-solving capabilities

While comparisons based on country means are useful in establishing overall performance as in Chart A5.3, they do not describe the within-country variation in performance. The within-country variation in performance can be measured by how scores are distributed among the student population at the 5th, 10th, 25th, 75th, 90th, and 95th percentiles (Table A5.2). The focus in this comparison is the relative distance between the various subgroups of students within countries. For example, the distance between the 75th and 25th percentiles shows the range of performance of the middle 50% of students in a country. As well as comparing how wide this range is in different countries, it is also interesting to look at the extremes of performance, for example by comparing the difference between each country's top and bottom 10% of students.

A comparison of, for example, Belgium, a country with an above-average performance overall and Korea, the country with the highest mean score, illustrates how there can be a very different range of performance within each country. Performances at the 95th and 90th percentiles are at similar points in these two countries, indicating that towards the top of the distribution students in Belgium perform at similar levels to their equivalents in Korea. However, further down the distribution, the performance of students in Belgium falls further below their peers than is the case for students in Korea. By the fifth percentile, students in Belgium are 64 score points, equivalent to two-thirds of a proficiency level, behind students in Korea.

Compared to the other three top performing countries, Japan has more students performing at both the highest and lowest levels. The students in Finland and Korea, in contrast, have lower variation between the 5th to 95th percentiles points than other high-performing countries.

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Chart A5.3 Multiple comparisons of mean performance on the OECD PISA problem-solving scale (2003)

Problem-solving scale	Mean	S.E.	Korea	Finland	Japan	New Zealand	Australia	Canada	Belgium	Switzerland	Netherlands	France	Denmark	Czech Republic	Germany	Sweden	Austria	Iceland	Hungary	Ireland	Luxembourg	Slovak Republic	Norway	Poland	Spain	United States	Portugal	Italy	Greece	Turkey	Mexico
Mean			550	548	547	533	530	529	525	521	520	519	517	516	513	509	506	505	501	498	494	492	490	487	482	477	470	469	448	408	384
S.E.			(3.1)	(1.9)	(4.1)	(2.2)	(2.0)	(1.7)	(2.2)	(3.0)	(3.0)	(2.7)	(2.5)	(3.4)	(3.2)	(2.4)	(3.2)	(1.4)	(2.9)	(2.3)	(1.4)	(3.4)	(2.6)	(2.8)	(2.7)	(3.1)	(3.9)	(3.1)	(4.0)	(6.0)	(4.3)
Korea	550	(3.1)		●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Finland	548	(1.9)	●		●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Japan	547	(4.1)	●	●		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
New Zealand	533	(2.2)	▽	▽	▽		●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Australia	530	(2.0)	▽	▽	▽	●		●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Canada	529	(1.7)	▽	▽	▽	●	●		●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Belgium	525	(2.2)	▽	▽	▽	▽	●	●		●	●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Switzerland	521	(3.0)	▽	▽	▽	▽	▽	▽	●		●	●	●	●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Netherlands	520	(3.0)	▽	▽	▽	▽	▽	▽	●	●		●	●	●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
France	519	(2.7)	▽	▽	▽	▽	▽	▽	●	●	●		●	●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Denmark	517	(2.5)	▽	▽	▽	▽	▽	▽	▽	●	●	●		●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Czech Republic	516	(3.4)	▽	▽	▽	▽	▽	▽	▽	●	●	●	●		●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Germany	513	(3.2)	▽	▽	▽	▽	▽	▽	▽	●	●	●	●	●		●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Sweden	509	(2.4)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	●		●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Austria	506	(3.2)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	●		●	●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Iceland	505	(1.4)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	●		●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Hungary	501	(2.9)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	●		●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Ireland	498	(2.3)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	▽	●		●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲
Luxembourg	494	(1.4)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●		●	●	▲	▲	▲	▲	▲	▲	▲	▲
Slovak Republic	492	(3.4)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	●		●	●	▲	▲	▲	▲	▲	▲	▲
Norway	490	(2.6)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	●		●	▲	▲	▲	▲	▲	▲	▲
Poland	487	(2.8)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	●		●	▲	▲	▲	▲	▲	▲
Spain	482	(2.7)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●		●	▲	▲	▲	▲	▲
United States	477	(3.1)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●		●	●	▲	▲	▲
Portugal	470	(3.9)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●		●	▲	▲	▲
Italy	469	(3.1)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	●	●		▲	▲	▲
Greece	448	(4.0)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽		▲	▲
Turkey	408	(6.0)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽		▲
Mexico	384	(4.3)	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	

Range of rank*

OECD countries																													
Upper rank	1	1	1	4	4	4	6	7	7	7	8	8	10	12	13	14	15	17	18	18	19	20	22	23	24	24	27	28	29
Lower rank	3	3	3	6	7	7	9	12	12	13	13	14	15	16	17	17	19	19	21	22	22	23	24	25	26	26	27	28	29

* Because data are based on samples, it is not possible to report exact rank order positions for countries. However, it is possible to report the range of rank order positions within which the country mean lies with 95 per cent likelihood.

Instructions:

Read across the row for a country to compare performance with the countries listed along the top of the chart. The symbols indicate whether the average performance of the country in the row is lower than that of the comparison country, higher than that of the comparison country, or if there is no statistically significant difference between the average achievement of the two countries.

▲ Mean performance statistically significantly higher than in comparison country
● No statistically significant difference from comparison country
▽ Mean performance statistically significantly lower than in comparison country

Statistically significantly above the OECD average
Not statistically significantly different from the OECD average
Statistically significantly below the OECD average

Source: OECD, PISA 2003 database.

StatLink: http://dx.doi.org/10.1787/402381481733

Overall, there is a great deal of variability in patterns of problem-solving capabilities of 15-year-olds in different countries. The difference between the means of the highest and lowest performing OECD country (83 points) is less than the range of performance between the 95th and 5th percentile points within each participating country.

Definitions and methodologies

The achievement scores are based on assessments administered as part of the Programme for International Student Assessment (PISA) undertaken by the Organisation for Economic Co-operation and Development (OECD). PISA was administered most recently in the 2003 school year.

The target population studied for this indicator was 15-year-old students. Operationally, this referred to students whose ages ranged from 15 years and 3 months (completed) to 16 years and 2 months (completed) at the beginning of the testing period and who were enrolled in an educational institution at the secondary level, irrespective of the grade levels or type of institutions in which they were enrolled, and irrespective of whether they participated in school full-time or part-time.

Further references

For further information about PISA 2003, see *Learning for Tomorrow's World – First Results from PISA 2003* (OECD, 2004a), *Problem Solving for Tomorrow's World – First Measures of Cross-Curricular Competencies from PISA 2003* (OECD, 2004b) and the *PISA 2003 Technical Report* (OECD, 2005c). PISA data are also available on the PISA Web site: *www.pisa.oecd.org*.

Table A5.1. Percentage of students at each level of proficiency on the OECD PISA problem-solving scale (2003)

	Proficiency levels							
	Below Level 1 (below 405 score points)		Level 1 (from 405 to 499 score points)		Level 2 (from 499 to 592 score points)		Level 3 (above 592 score points)	
OECD COUNTRIES	%	S.E.	%	S.E.	%	S.E.	%	S.E.
Australia	9	(0.6)	26	(0.7)	39	(0.8)	26	(0.8)
Austria	14	(1.0)	32	(1.1)	37	(1.1)	17	(1.2)
Belgium	14	(0.7)	24	(0.7)	34	(0.8)	28	(0.9)
Canada	8	(0.5)	27	(0.7)	40	(0.7)	25	(0.7)
Czech Republic	12	(1.1)	29	(1.2)	37	(1.1)	22	(1.2)
Denmark	10	(0.8)	30	(0.9)	39	(0.9)	20	(0.9)
Finland	5	(0.5)	22	(0.8)	43	(0.8)	30	(0.9)
France	12	(1.0)	28	(1.0)	37	(1.1)	23	(1.0)
Germany	14	(1.0)	28	(1.1)	36	(1.5)	22	(1.4)
Greece	33	(1.5)	36	(1.0)	24	(1.2)	7	(0.8)
Hungary	16	(1.0)	32	(1.4)	35	(1.2)	17	(1.2)
Iceland	12	(0.7)	32	(1.0)	40	(1.0)	15	(0.6)
Ireland	13	(0.9)	37	(1.2)	38	(1.0)	12	(0.8)
Italy	25	(1.3)	35	(1.2)	30	(1.0)	11	(0.7)
Japan	10	(1.0)	20	(1.0)	34	(1.2)	36	(1.6)
Korea	5	(0.5)	22	(1.0)	41	(1.1)	32	(1.3)
Luxembourg	17	(0.7)	34	(1.0)	35	(1.0)	14	(0.6)
Mexico	58	(1.9)	30	(1.1)	11	(1.0)	1	(0.2)
Netherlands	11	(1.1)	30	(1.3)	36	(1.4)	23	(1.1)
New Zealand	10	(0.8)	25	(0.8)	36	(1.0)	28	(0.9)
Norway	19	(0.9)	33	(1.2)	33	(1.0)	15	(0.8)
Poland	18	(1.0)	37	(1.0)	34	(1.1)	12	(0.7)
Portugal	24	(1.7)	36	(1.1)	31	(1.4)	9	(0.6)
Slovak Republic	17	(1.4)	34	(1.2)	34	(1.3)	14	(1.0)
Spain	20	(0.9)	35	(1.1)	33	(1.2)	12	(0.8)
Sweden	12	(0.9)	32	(1.1)	38	(1.0)	17	(1.0)
Switzerland	11	(0.7)	27	(1.0)	39	(1.1)	23	(1.4)
Turkey	51	(2.5)	33	(1.6)	12	(1.6)	4	(1.2)
United States	24	(1.1)	34	(0.8)	30	(1.0)	12	(0.8)
OECD total	***22***	***(0.4)***	***30***	***(0.3)***	***31***	***(0.4)***	***17***	***(0.3)***
OECD average	***17***	***(0.2)***	***30***	***(0.2)***	***34***	***(0.2)***	***18***	***(0.2)***

Source: OECD PISA 2003 database. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

StatLink: http://dx.doi.org/10.1787/402381481733

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Table A5.2. Mean score and variation in student performance on the OECD PISA problem-solving scale (2003)

	Mean score		Standard deviation		Percentiles											
					5th		10th		25th		75th		90th		95th	
OECD COUNTRIES	Mean	S.E.	S.D.	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.
Australia	530	(2.0)	91	(1.4)	371	(4.1)	409	(3.5)	469	(2.8)	594	(2.1)	644	(2.7)	672	(3.4)
Austria	506	(3.2)	90	(1.7)	357	(5.1)	388	(4.5)	443	(4.1)	569	(4.0)	621	(4.2)	651	(4.6)
Belgium	525	(2.2)	104	(1.5)	340	(5.0)	383	(4.5)	456	(3.3)	602	(2.6)	653	(2.0)	681	(2.0)
Canada	529	(1.7)	88	(0.9)	379	(2.4)	414	(2.8)	471	(2.5)	591	(1.9)	640	(2.1)	669	(2.4)
Czech Republic	516	(3.4)	93	(1.9)	356	(8.6)	394	(6.2)	454	(4.4)	582	(3.6)	634	(3.9)	663	(4.0)
Denmark	517	(2.5)	87	(1.5)	369	(5.0)	402	(4.3)	459	(3.1)	578	(2.8)	627	(3.4)	655	(3.7)
Finland	548	(1.9)	82	(1.2)	409	(4.7)	442	(2.8)	495	(2.5)	604	(2.3)	650	(2.3)	677	(3.6)
France	519	(2.7)	93	(2.1)	358	(6.1)	396	(4.8)	459	(3.9)	586	(3.0)	635	(3.7)	662	(4.5)
Germany	513	(3.2)	95	(1.8)	351	(5.9)	383	(5.3)	447	(4.8)	583	(4.3)	632	(2.7)	658	(3.2)
Greece	448	(4.0)	99	(1.7)	283	(5.6)	319	(5.3)	383	(4.5)	517	(4.6)	574	(5.7)	607	(5.6)
Hungary	501	(2.9)	94	(2.0)	343	(5.8)	378	(4.1)	436	(3.8)	567	(3.9)	622	(4.3)	653	(5.4)
Iceland	505	(1.4)	85	(1.1)	358	(5.5)	393	(3.3)	450	(2.2)	564	(2.0)	609	(2.3)	634	(3.6)
Ireland	498	(2.3)	80	(1.4)	364	(4.5)	395	(3.8)	445	(3.1)	555	(2.7)	601	(2.8)	625	(3.2)
Italy	469	(3.1)	102	(2.1)	289	(8.7)	334	(6.5)	406	(4.7)	540	(3.0)	595	(3.4)	627	(3.6)
Japan	547	(4.1)	105	(2.7)	362	(8.3)	406	(6.8)	481	(5.7)	621	(4.2)	675	(4.6)	705	(6.0)
Korea	550	(3.1)	86	(2.0)	404	(4.6)	438	(5.2)	494	(3.9)	610	(3.5)	658	(4.2)	686	(5.5)
Luxembourg	494	(1.4)	92	(1.0)	339	(3.7)	373	(2.3)	432	(2.4)	558	(2.2)	610	(2.6)	640	(3.4)
Mexico	384	(4.3)	96	(2.0)	227	(5.4)	262	(5.2)	317	(5.2)	451	(5.1)	509	(5.7)	542	(6.5)
Netherlands	520	(3.0)	89	(2.0)	372	(5.9)	401	(5.1)	456	(4.9)	587	(3.6)	636	(3.3)	662	(3.7)
New Zealand	533	(2.2)	96	(1.2)	370	(3.8)	406	(4.2)	468	(3.7)	601	(2.4)	653	(2.5)	682	(2.8)
Norway	490	(2.6)	99	(1.7)	322	(5.5)	361	(4.6)	424	(3.7)	559	(3.3)	615	(4.2)	645	(4.4)
Poland	487	(2.8)	90	(1.7)	338	(5.6)	372	(4.1)	428	(3.1)	548	(3.0)	600	(3.5)	632	(4.5)
Portugal	470	(3.9)	92	(2.1)	311	(7.9)	345	(6.8)	409	(5.7)	534	(3.6)	586	(3.5)	614	(3.5)
Slovak Republic	492	(3.4)	93	(2.4)	337	(7.1)	370	(5.9)	430	(4.7)	558	(3.6)	609	(3.8)	638	(4.2)
Spain	482	(2.7)	94	(1.3)	322	(4.8)	361	(4.1)	421	(3.5)	547	(3.2)	599	(3.9)	629	(3.3)
Sweden	509	(2.4)	88	(1.6)	360	(6.4)	395	(4.4)	451	(3.0)	571	(3.1)	619	(3.8)	647	(3.6)
Switzerland	521	(3.0)	94	(1.9)	358	(5.7)	397	(4.0)	461	(3.3)	587	(3.9)	637	(4.6)	666	(5.2)
Turkey	408	(6.0)	97	(4.4)	257	(7.8)	291	(6.6)	343	(5.2)	466	(7.7)	531	(11.9)	577	(18.6)
United States	477	(3.1)	98	(1.3)	312	(5.6)	347	(4.6)	410	(4.1)	548	(3.3)	604	(4.0)	635	(4.2)
OECD total	***490***	***(1.2)***	***106***	***(0.8)***	***308***	***(2.7)***	***348***	***(2.2)***	***418***	***(1.7)***	***566***	***(1.3)***	***624***	***(1.3)***	***656***	***(1.4)***
OECD average	***500***	***(0.6)***	***100***	***(0.4)***	***Z328***	***(1.7)***	***368***	***(1.3)***	***434***	***(1.1)***	***571***	***(0.8)***	***625***	***(0.8)***	***656***	***(0.8)***

Source: OECD PISA 2003 database. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

StatLink: http://dx.doi.org/10.1787/402381481733

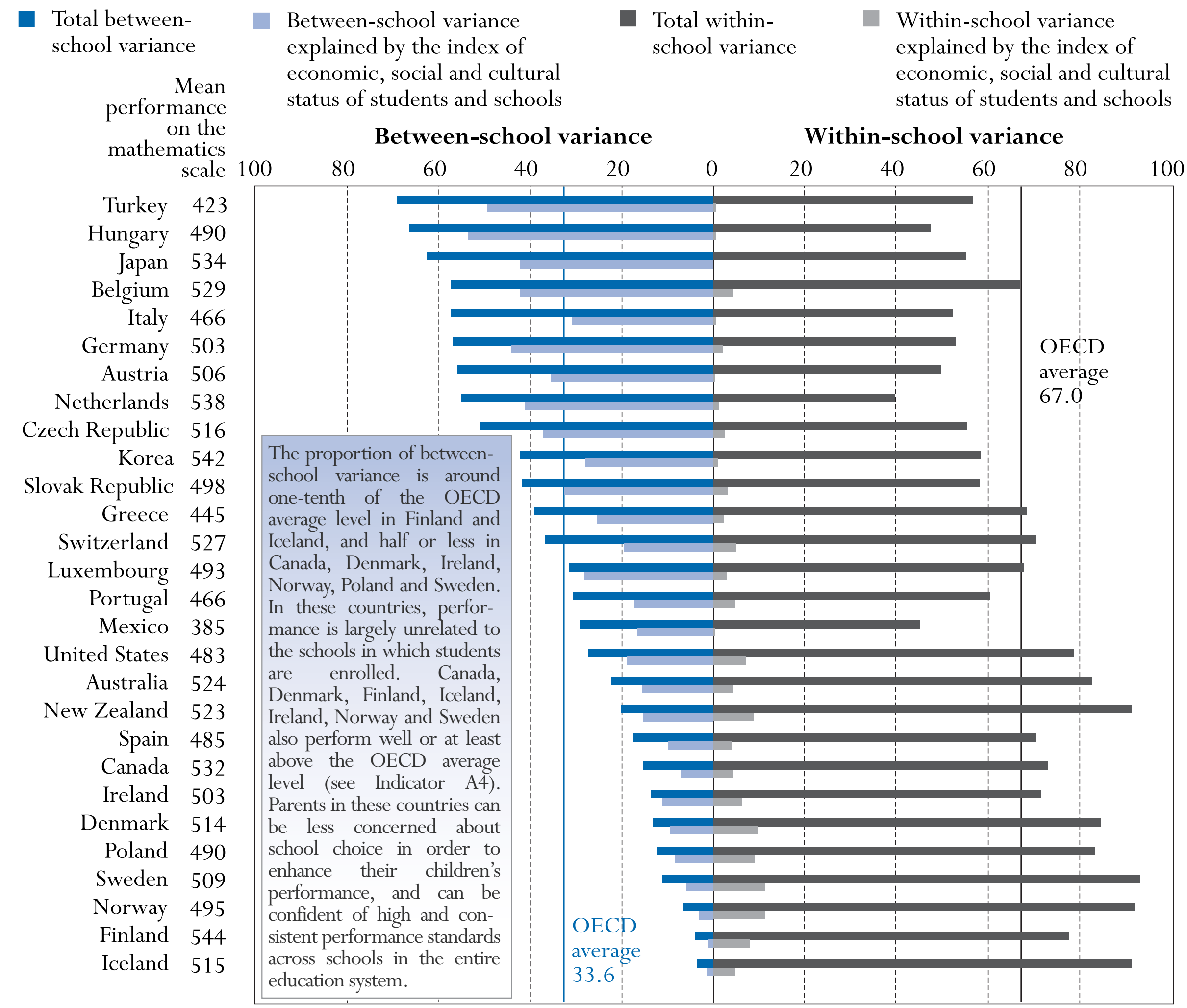
Between- and within-school variation in the mathematics performance of 15-year-olds

This indicator examines the between- and within-school variation in student performance on the OECD PISA mathematics scale. It also compares between-school variation in PISA 2000 and PISA 2003.

Key results

Chart A6.1. Variance in student performance between schools and within schools on the OECD PISA mathematics scale (2003)

The chart shows to what extent mathematics performance varies between schools. The longer the left side of the bar, the greater the performance differences among schools. This is measured by the percentage of the average variance in the performance 15-year-olds on the PISA 2003 mathematics scale in OECD countries that lies between schools. One hundred points on this index is equivalent to the total variation in student performance, between and within schools, on average in OECD countries.



Source: OECD PISA 2003 database. Table A6.1.

StatLink: http://dx.doi.org/10.1787/113723678067

Other highlights of this indicator

- Students in all OECD countries show widely varying performance, but countries vary widely in the extent to which students in different schools perform differently. On average across OECD countries, differences in the performance in mathematics between schools account for 34% of total variation in achievement. However, in nine countries between-school variation is above half the overall variation in OECD countries, while in three countries it is below 10%.
- While some between-school variance is attributable to students' socio-economic backgrounds, some of it also likely reflects the structural features of schools and/or education systems, and/or the policies and practices (Table A7.2) of school administrators and teachers. Thus, there may be an added value associated with attending a particular school.
- Some, though not all, countries that performed well in PISA also showed low or modest levels of between-school variance, suggesting that securing similar student performance among schools is a policy goal that is both important in itself and compatible with the goal of high overall performance standards.

Policy context

Catering for the needs of a diverse student body and narrowing the gaps in student performance represent formidable challenges for all countries. The approaches that countries have chosen to address these demands vary. Some countries have comprehensive school systems with no, or only limited, institutional differentiation. They seek to provide all students with similar opportunities for learning by requiring each school and teacher to provide for the full range of student abilities, interests and backgrounds. Other countries respond to diversity by grouping students through tracking or streaming, whether between schools or between classes within schools, with the aim of serving students according to their academic potential and/or interests in specific programs. In many countries, combinations of the two approaches occur. Even in comprehensive school systems, there may be variation in performance levels between schools, due to the socio-economic and cultural characteristics of the communities that are served, or due to geographical differences (such as between regions, provinces or states in federal systems, or between rural and urban areas). Finally, there may be differences between individual schools, such as the type or quality of instruction. As a result, even in comprehensive systems, the performance levels attained by students may still vary across schools. This indicator examines the between- and within-school variation in students' performance on the mathematics scale.

Evidence and explanations

Chart A6.1 above shows considerable differences in the extent to which mathematics competencies of 15-year-olds vary within each country (Table 6.1). The total length of the bars indicates the observed variance in student performance on the PISA mathematics scale. The values in Chart A6.1 are expressed as percentages of the average variance between OECD countries in student performance on the PISA mathematics scale.

The average is calculated over the OECD countries included in the table. A value larger than 100 indicates that variance in student performance is greater in the corresponding country than on average among OECD countries. Similarly, a value smaller than 100 indicates below-average variance in student performance. For example, the variance in student performance in Finland, Ireland and Mexico is more than 15% below the OECD average variance. By contrast, in Belgium, Japan and Turkey, variance in student performance is at least 15% above the OECD average level. The OECD average level is calculated simply as the arithmetic mean of the respective country values. This average differs from the square of the OECD average standard deviation shown in Chapter 2 of *Learning for Tomorrow's World – First Results from PISA 2003* (OECD, 2004a), since the latter includes the performance variation among countries whereas the former simply averages the within-country performance variation across countries.

In Chart A6.1, a distinction is made for each country between the variation attributable to differences in student results attained by students in different schools (between-school differences) and that attributable to the range of student results within schools (within-school differences). Note that, because of the manner in which students were sampled, the within-school variation includes variation between classes as well as between students. The length of the bars to the left of the central line shows between-school differences, and also serves to order countries in the figure. The length of the bars to the right of the central line shows the within-school differences. Therefore, longer segments to the left of the central line indicate greater variation in the mean performance of different schools while longer segments to the right of the central line indicate greater variation among students within schools.

As presented in Chart A6.1, while all countries show considerable within-school variance, in most countries variance in student performance between schools is also considerable. On average across OECD countries, differences in the performance of 15-year-olds between schools account for 34% of the total variation in student performance in OECD countries. See Box A6.1 for an indication of how between-school variation in PISA 2003 compares to PISA 2000.

In Hungary and Turkey, variation in performance between schools is particularly large and is about twice the OECD average between-school variance. In Austria, Belgium, the Czech Republic, Germany, Italy, Japan and the Netherlands, the proportion of between-school variance is still over one-and-a-half times that of the OECD average level (column 3, Table A6.1). Where there is substantial variation in performance between schools and less variation between students within schools, students tend to be grouped in schools in which other students perform at levels similar to their own. This may reflect school choices made by families or residential location, as well as policies on school enrolment or the allocation of students to different curricula. To capture variation between education systems and regions within countries, some countries have undertaken the PISA assessment at regional levels.

The proportion of between-school variance is around one-tenth of the OECD average level in Finland and Iceland, and half or less in Canada, Denmark, Ireland, Norway, Poland and Sweden. In these countries, performance is largely unrelated to the schools in which students are enrolled (Table A6.1). This suggests that the learning environment is similar in the ways that it affects the performance of students. It is

Box A6.1. Comparing between-school variation in PISA 2000 and PISA 2003

For most countries, the 2003 results are similar to those observed in the PISA 2000 assessment. However, there are some exceptions. For instance, in Poland, the move towards a more integrated education system since 1999 – as a consequence of which institutional differentiation now occurs mainly after the age of 15 – may have contributed to the observed dramatic reduction in the between-school variation in mathematics performance of 15-year-olds. Between-school variance in Poland fell from more than half of the overall performance variation in Poland in 2000 (see *Learning for Tomorrow's World* – First Results from PISA 2003 [OECD, 2004a], Table 4.1b) to just 13% in 2003 (see the same publication, Table 4.1a). Note that in all countries, the changes between 2000 and 2003 are very similar for the two mathematics scales for which trend data can be estimated. For the purpose of this comparison, results are only shown for the overall mathematics scale, even though the PISA 2000 data did not include two of the four mathematical content areas used in PISA 2003. Simultaneously, the average performance of 15-year-olds in Poland is significantly higher in both mathematical content areas, and the overall performance gap between the lower and higher achievers is narrower than it was in 2000. The increase in average mathematics performance is thus mainly attributable to an increase in performance at the lower end of the performance distribution (*i.e.* the 5th, 10th and 25th percentiles). This has occurred to such an extent that in 2003 fewer than 5% of students fell below the performance standards that 10% of Polish students had failed to attain in 2000 (for data, see *www.pisa.oecd.org*).

Performance differences among schools were also lower in some other countries in 2003: for example, in Belgium, Greece and Mexico, the proportion of national variation in student performance attributable to between-school variance is between 8 to 10 percentage points lower than in 2000. Note that in Belgium some of this difference may likely be attributable to changes in the ways in which schools were defined for the purposes of sampling in PISA. In contrast, in Italy, the proportion of variance that lies between schools increased by more than 10 percentage points.

noteworthy that Canada, Denmark, Finland, Iceland, Ireland, Norway and Sweden also perform close to or above the OECD average level. Parents in these countries can be less concerned about school choice in order to enhance their children's performance, and can be confident of high and consistent performance standards across schools in the entire education system.

While some of the variance between schools is attributable to the socio-economic background of students entering the school, some of it is also likely to reflect certain structural features of schools and education systems, particularly in systems where students are tracked by ability. Some of the variance in performance between schools also may be attributable to the policies and practices of school administrators and teachers. In other words, there is an added value associated with attending a particular school.

It is important to note that some, though not all, high-performing countries also show low or modest levels of between-school variance. This suggests that securing similar student performance among schools, perhaps most importantly by identifying and reforming poorly performing schools, is a policy goal that is both important in itself and compatible with the goal of high overall performance standards.

Definitions and methodology

The achievement scores are based on assessments administered as part of the Programme for International Student Assessment (PISA) undertaken by the Organisation for Economic Co-operation and Development (OECD). PISA was administered most recently during the 2003 school year.

The target population studied for this indicator was 15-year-old students. Operationally, this referred to students who were from 15 years and 3 (completed) months to 16 years and 2 (completed) months at the beginning of the testing period and who were enrolled in an educational institution, irrespective of the grade levels or type of institutions in which they were enrolled, and irrespective of whether they participated in school full-time or part-time.

Variation in this indicator is expressed by statistical variance. This is obtained by squaring the standard deviation. The statistical variance rather than the standard deviation is used for this comparison to allow for the decomposition of the components of variation in student performance. For reasons explained in the *PISA 2003 Technical Report* (OECD, 2005c), and most importantly because the data in this table only account for students with valid data on their socio-economic background, the variance may differ from the square of the standard deviation.

The between-school variation is influenced by the ways in which schools are defined and organised within countries and by the units that were chosen for sampling purposes. For example, in some countries some of the schools in the PISA sample were defined as administrative units (even if they spanned several geographically separate institutions, as in Italy; in others they were defined as those parts of larger educational institutions that serve 15-year-olds; in others they were defined as physical school buildings; and in yet others they were defined from a management perspective (*e.g.* entities having a principal). The *PISA 2003 Technical Report* (OECD, 2005c) provides an overview of how schools were defined.

Further references

For further information about PISA 2003, see *Learning for Tomorrow's World – First Results from PISA 2003* (OECD, 2004a), *Problem Solving for Tomorrow's World – First Measures of Cross-Curricular Competencies from PISA 2003* (OECD, 2004b) and the *PISA 2003 Technical Report* (OECD, 2005c). PISA data are also available on the PISA Web site: *www.pisa.oecd.org*.

A6

Table A6.1. Between-school and within-school variance in student performance on the OECD PISA mathematics scale (2003)

OECD COUNTRIES	Total variance in SP[2]	Variance expressed as a percentage of the average variance in student performance (SP) across OECD countries[1]											Total variance between schools expressed as a percentage of the total variance within the country[5]
		Total variance in SP expressed as a percentage of the average variance in student performance across OECD countries[3]	Total variance in SP between schools[4]	Total variance in SP within schools	Variance explained by the international index of economic, social and cultural status of students		Variance explained by the international index of economic, social and cultural status of students and schools		Variance explained by students' study programmes		Variance explained by students' study programmes and the international index of economic, social and cultural status of students and schools		
					Between-school variance explained	Within-school variance explained	Between-school variance explained	Within-school variance explained	Between-school variance explained	Within-school variance explained	Between-school variance explained	Within-school variance explained	
Australia	9 036	105.1	22.0	82.3	9.0	4.2	15.4	4.3	1.8	2.8	16.7	6.8	21.1
Austria	8 455	98.4	55.5	49.5	7.6	0.6	35.2	0.5	42.6	0.4	45.3	0.9	52.9
Belgium	10 463	121.8	56.9	66.7	17.7	4.4	42.0	4.4	49.1	15.8	52.1	17.0	46.0
Canada	7 626	88.7	15.1	72.6	4.7	4.2	7.1	4.3	2.6	5.0	7.0	8.5	17.3
Czech Republic	8 581	99.9	50.5	55.2	13.8	2.5	37.0	2.6	34.1	0.2	41.6	2.7	47.8
Denmark	8 289	96.5	13.1	84.2	7.7	9.7	9.3	9.8	1.6	0.1	9.7	9.9	13.4
Finland	6 974	81.2	3.9	77.3	0.9	7.9	0.9	7.9	0.0	0.0	0.9	7.9	4.8
France	w	w	w	w	w	w	w	w	w	w	w	w	w
Germany	9 306	108.3	56.4	52.6	14.1	2.2	43.8	2.2	47.2	1.1	50.7	3.2	51.7
Greece	8 752	101.8	38.9	68.1	10.3	2.5	25.2	2.3	28.3	0.0	32.9	2.3	36.3
Hungary	8 726	101.5	66.0	47.3	15.6	1.0	53.2	0.7	49.0	-0.1	57.1	0.8	58.3
Iceland	8 123	94.5	3.6	90.9	1.3	4.7	1.3	4.7	0.0	0.0	1.3	4.7	3.8
Ireland	7 213	83.9	13.4	71.2	7.8	6.0	11.1	6.1	1.4	4.4	11.0	10.0	15.9
Italy	9 153	106.5	56.8	52.0	6.6	0.7	30.5	0.7	26.0	0.1	34.6	0.7	52.2
Japan	9 994	116.3	62.1	55.0	3.3	0.1	42.0	0.1	5.2	0.0	42.9	0.1	53.0
Korea	8 531	99.3	42.0	58.2	7.7	1.1	27.8	1.1	21.5	0.6	31.2	1.6	42.0
Luxembourg	8 432	98.1	31.2	67.6	9.3	3.0	27.9	2.9	14.8	14.6	27.8	15.7	31.6
Mexico	7 295	84.9	29.1	44.8	4.2	0.3	16.6	0.4	12.7	0.0	20.8	0.5	39.4
Netherlands	7 897	91.9	54.5	39.5	8.8	1.3	40.7	1.3	50.8	7.8	51.4	8.4	58.0
New Zealand	9 457	110.1	20.1	90.9	9.8	8.7	15.2	8.8	0.8	3.1	15.2	11.4	18.1
Norway	8 432	98.1	6.5	91.7	2.7	11.1	2.9	11.2	0.2	0.1	2.9	11.2	6.6
Poland	8 138	94.7	12.0	83.1	7.1	8.9	8.2	9.0	0.8	0.1	8.3	9.0	12.6
Portugal	7 647	89.0	30.3	60.0	9.5	4.8	17.2	4.8	26.5	8.6	28.6	11.6	33.6
Slovak Republic	8 478	98.7	41.5	58.0	12.9	3.1	32.3	3.1	26.0	0.4	33.6	3.4	41.7
Spain	7 803	90.8	17.2	70.2	6.4	4.1	9.8	4.2	0.0	0.0	9.8	4.2	19.7
Sweden	8 880	103.3	10.9	92.8	4.7	11.2	5.8	11.2	1.5	0.6	6.9	11.6	10.5
Switzerland	9 541	111.0	36.4	70.2	9.4	5.1	19.3	5.1	6.1	1.0	19.8	6.0	34.2
Turkey	10 952	127.4	68.7	56.5	10.1	0.7	49.0	0.6	42.5	3.1	56.0	3.4	54.9
United States	9 016	104.9	27.1	78.3	12.1	7.0	18.7	7.2	3.2	2.8	19.2	9.2	25.7
OECD average	*8 593*	*100.0*	*33.6*	*67.0*	*8.5*	*4.4*	*23.0*	*4.4*	*17.8*	*2.6*	*26.4*	*6.5*	

1. The variance components were estimated for all students in participating countries with data on socio-economic background and study programmes. Students in special education programmes were excluded from these analyses.
2. The total variance in student performance is obtained as the square of the standard deviation shown in *Learning for Tomorrow's World* (OECD. 2004). Chapter 2. The statistical variance in student performance and not the standard deviation is used for this comparison to allow for the decomposition.
3. The sum of the between- and within-school variance components. as an estimate from a sample. does not necessarily add up to the total.
4. In some countries, sub-units within schools were sampled instead of schools and this may affect the estimation of the between-school variance components. In Austria, the Czech Republic, Hungary, Italy and Japan, schools with more than one study programme were split into the units delivering these programmes. In the Netherlands, for schools with both lower and upper secondary programmes, schools were split into units delivering each programme level. In Mexico and Uruguay, schools where instruction is delivered in shifts were split into the corresponding units. In the Flemish part of Belgium, in case of multi-campus schools, implantations (campuses) were sampled whereas in the French part, in case of multi-campus schools the larger administrative units were sampled. In the Slovak Republic, in case of schools with both Slovak and Hungarian as test languages, schools were split into units delivering each language of instruction.
5. This index is often referred to as the intra-class correlation (rho).

Source: OECD PISA 2003 database.

Please refer to the Reader's Guide (www.oecd.org/eag2005) for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/113723678067

Mathematics and science achievement of eighth-grade students (2003 and 1995)

This indicator examines the mathematics and science achievements of eighth-grade students in 2003, and how they have changed since 1995. It draws on data from the International Association for the Evaluation of Educational Achievement's (IEA) Trends in International Mathematics and Science Study (TIMSS) and focuses on the performance of the 12 OECD countries and 2 regions that participated in TIMSS 2003 and the subset of countries that participated in both 1995 and 2003.

Key results

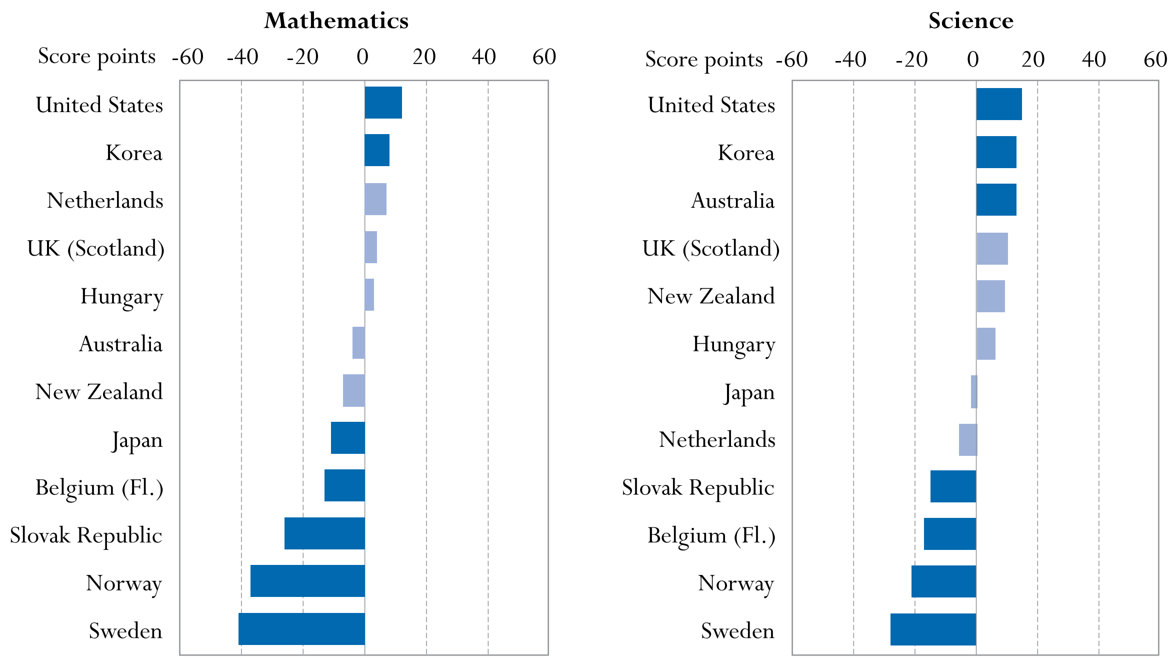
Chart A7.1. Differences in mean performance of eighth-grade students from 1995 to 2003

The chart shows differences in mean performance of eighth-grade students on the IEA TIMSS assessment from 1995 to 2003.

- Mean score in 2003 not significantly different from mean score in 1995.
- Mean score in 2003 significantly higher or lower than mean score in 1995.

Note that only differences that are marked in dark blue are statistically significant.

Difference in scores 1995 to 2003



Note: Does not include Italy, which did not participate in the 1995 eighth-grade assessment.
Source: IEA Trends in International Mathematics and Science Study 1995 and 2003.

StatLink: http://dx.doi.org/10.1787/774732722206

Other highlights of this indicator

- On the TIMSS mathematics scale, students in Korea scored higher than students in any other participating OECD country. Students in Belgium (Flemish Community), Hungary, Japan, and the Netherlands also scored statistically significantly higher than the average of participating OECD countries. The remaining eight countries scored below the OECD average.
- On the science scale, the range in performance across countries was much smaller than in mathematics. Students in Korea performed higher than the other participating OECD countries, while Hungary, Japan and the Netherlands had average scores statistically significantly higher than the average of participating OECD countries. Australia, New Zealand, Sweden and the United States scored similarly to the average of participating OECD countries, whereas Belgium (Flemish Community), Italy, Norway, the Slovak Republic and the United Kingdom (Scotland) scored below it.

Policy context

Knowledge and skills in mathematics and science are important outcomes of education. Many policy makers in OECD countries view students' skills in these two subject areas as important factors in their countries future economic competitiveness, and are therefore increasingly focusing on enhancing students' scientific and mathematical achievements. Aside from workplace requirements, having mathematical and scientific knowledge is important for understanding the environmental, medical and economic issues that are part of living in modern societies increasingly reliant on technological and scientific advances.

Evidence and explanations

TIMSS was first conducted in 1995 in the fourth and eighth grade and at the end of secondary school (however, in some countries TIMSS was conduced in the third and seventh grade instead). The assessment was repeated in 1999 with eighth-grade students and in 2003 with fourth- and eighth-grade students. TIMSS thus provides a picture of students' performance at key primary and lower secondary grades, as well as an eighth-year perspective on fourth-grade performance (Box A7.2) and four- and eighth-year perspectives on eighth-grade performance. For information on differences between the 1995 and 1999 assessments and the 1999 and 2003 assessments, see the *TIMSS 2003 International Mathematics Report: Findings from IEA's Trends in International Mathematics and Science Study at the Fourth and Eighth Grades* (Mullis *et al.,* 2004a) and the *TIMSS 2003 International Science Report Findings From IEA's Trends in International Mathematics and Science Study at the Fourth and Eighth Grades* (Mullis *et al.,* 2004b).

This indicator describes the mean mathematics and science achievement, distribution of achievement, and gender differences in achievement for these countries, and presents information on differences between 1995 and 2003 on these measures for the countries that participated in both years. Box A7.1 provides a brief description of how mathematics and science are defined and assessed in TIMSS.

Mean achievement in mathematics and science

Chart A7.2 provides a summary of eighth-grade student performance in mathematics and science; indicates which countries perform at, above, or below the mean of the OECD countries with available data; and compares mean scores among pairs of countries. Since the means reported in this indicator include only the OECD countries that participated in TIMSS 2003, they differ from the means presented in the TIMSS 2003 international reports, which are based on the data from all participating countries, *i.e.* including those that are not OECD member countries.

On the mathematics scale, students in Korea scored higher than students in the other participating OECD countries, averaging 589 points, 73 points higher than the average of participating OECD countries (herein referred to as the OECD average) of 516 points (data not shown). Belgium (Flemish Community), Hungary, Japan and the Netherlands also displayed scores statistically significantly higher than the OECD average. The remaining eight countries scored below the OECD average. The range among country mean scores was from 461 points (in Norway) to 589 points (in Korea).

On the science scale, the range in performance across countries was much smaller than in mathematics (491 points in Italy to 558 points in Korea). As with eighth-grade mathematics, students in Korea performed higher than all other OECD countries. Hungary, Japan and the Netherlands had average scores statistically significantly higher than the OECD mean of 524 points (data not shown). Australia, New Zealand, Sweden and the United States scored similarly to the OECD average, whereas Belgium (Flemish Community), Italy, Norway, the Slovak Republic and the United Kingdom (Scotland) scored below it.

Chart A7.2. Multiple comparisons of mean performance in the eighth grade on the IEA TIMSS scale (2003)

Mathematics	Mean	SE	Korea	Japan	Belgium (Fl.)	Netherlands[1]	Hungary	Slovak Republic	Australia	United States[2]	Sweden	UK (Scotland)[1]	New Zealand	Italy	Norway	Average age
Mean			589	570	537	536	529	508	505	504	499	498	494	484	462	
SE			(2.2)	(2.1)	(2.8)	(3.8)	(3.2)	(3.3)	(4.6)	(3.3)	(2.6)	(3.7)	(5.3)	(3.2)	(2.5)	
Korea	589	(2.2)		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	14.6
Japan	570	(2.1)	▼		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	14.4
Belgium (Fl.)	537	(2.8)	▼	▼		●	●	▲	▲	▲	▲	▲	▲	▲	▲	14.1
Netherlands[1]	536	(3.8)	▼	▼	●		●	▲	▲	▲	▲	▲	▲	▲	▲	14.3
Hungary	529	(3.2)	▼	▼	●	●		▲	▲	▲	▲	▲	▲	▲	▲	14.5
Slovak Republic	508	(3.3)	▼	▼	▼	▼	▼		●		▲	▲	▲	▲	▲	14.3
Australia	505	(4.6)	▼	▼	▼	▼	▼	●		●	●	●	●	▲	▲	13.9
United States[2]	504	(3.3)	▼	▼	▼	▼	▼		●		●	●	●	▲	▲	14.2
Sweden	499	(2.6)	▼	▼	▼	▼	▼	▼	●	●		●	●	▲	▲	14.9
UK (Scotland)[1]	498	(3.7)	▼	▼	▼	▼	▼	▼	●	●	●		●	▲	▲	13.7
New Zealand	494	(5.3)	▼	▼	▼	▼	▼	▼	●	●	●	●		●	▲	14.1
Italy	484	(3.2)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	●		▲	13.9
Norway	462	(2.5)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼		13.8

Science	Mean	SE	Korea	Japan	Hungary	Netherlands[1]	United States[2]	Australia	Sweden	New Zealand	Slovak Republic	Belgium (Fl.)	UK (Scotland)[1]	Norway	Italy	Average age
Mean			558	552	543	536	527	527	524	520	517	516	512	494	491	
SE			(1.6)	(1.7)	(2.8)	(3.1)	(3.1)	(3.8)	(2.7)	(5.0)	(3.2)	(2.5)	(3.4)	(2.2)	(3.1)	
Korea	558	(1.6)		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	14.6
Japan	552	(1.7)	▼		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	14.4
Hungary	543	(2.8)	▼	▼		●	▲	▲	▲	▲	▲	▲	▲	▲	▲	14.5
Netherlands[1]	536	(3.1)	▼	▼	●		●	●	▲	▲	▲	▲	▲	▲	▲	14.3
United States[2]	527	(3.1)	▼	▼	▼	●		●	●	●	▲	▲	▲	▲	▲	14.2
Australia	527	(3.8)	▼	▼	▼	●	●		●	●	▲	▲	▲	▲	▲	13.9
Sweden	524	(2.7)	▼	▼	▼	▼	●	●		●	●	▲	▲	▲	▲	14.9
New Zealand	520	(5.0)	▼	▼	▼	▼	●	●	●		●	●	●	▲	▲	14.1
Slovak Republic	517	(3.2)	▼	▼	▼	▼	▼	▼	●	●		●	●	▲	▲	14.3
Belgium (Fl.)	516	(2.5)	▼	▼	▼	▼	▼	▼	▼	●	●		●	▲	▲	14.1
UK (Scotland)[1]	512	(3.4)	▼	▼	▼	▼	▼	▼	▼	●	●	●		▲	▲	13.7
Norway	494	(2.2)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼		●	13.8
Italy	491	(3.1)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	●		13.9

Instructions:

Read across the row for a country to compare performance with the countries listed along the top of the chart. The symbols indicate whether the average performance of the country in the row is lower than that of the comparison country, higher than that of the comparison country, or if there is no statistically significant difference between the average achievement of the two countries.

- ▲ Mean performance statistically significantly higher than in comparison country
- ● No statistically significant difference from comparison country
- ▽ Mean performance statistically significantly lower than in comparison country

- Statistically significantly above the OECD average
- Not statistically significantly different from the OECD average
- Statistically significantly below the OECD average

Note: England did not satisfy guidelines for sample participation rates and is not included in the multiple comparisons or calculation of OECD mean for these tables. Countries are presented in descending order of mean performance on the respective scales. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

1. Met sample participation rates only after replacement schools were included.
2. Nearly satisfied guidelines for sample participation rates.

Source: IEA Trends in International Mathematics and Science Study 2003.

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Box A7.1. How are mathematics and science defined in the TIMSS?

The assessment frameworks for both mathematics and science in TIMSS, which were developed collaboratively based on important topics from curricula in participating countries, are organised along two dimensions: a content dimension and a cognitive dimension. The content dimension defines the specific subject matter that is covered by the assessment, while the cognitive domains define the sets of behaviours expected of students as they learn the concepts. The specific students behaviours included in each cognitive domain are made of up outcomes sought by educational planners and practitioners around the world.

How is mathematics defined? The five math content domains are number, algebra (called patterns, equations and relationships at the fourth-grade level), measurement, geometry and data. The four cognitive domains are knowing facts and procedures, using concepts, solving routine problems and reasoning.

How is science defined? The science content dimensions include life science, chemistry, physics, earth science and environmental science. At the fourth-grade level, chemistry and physics are combined as physical science and earth science is not assessed separately. Cognitive domains include factual knowledge, conceptual understanding, and reasoning and analysis. The science framework also includes scientific inquiry, an overarching dimension that includes different content-related contexts and covers a range of cognitive demands.

Most countries perform similarly in both subjects: Hungary, Japan, Korea and the Netherlands perform above the OECD average, whereas Italy, Norway, Slovak Republic and the United Kingdom (Scotland) perform below it on both scales in the eighth grade. However, five countries had performances that were relatively stronger in one subject than the other: Australia, New Zealand, Sweden and the United States, whose students fared relatively better in science, and Belgium (Flemish Community), whose students fared relatively better in mathematics. Again, some of the differences in performance achievement may be related to the age of students, which ranged from 13.7 and 13.8 years in the United Kingdom (Scotland) and Norway to 14.3 to 14.6 years in the four countries performing above the mean in both subjects (Chart A7.2).

In interpreting these results, note that the TIMSS samples were grade-based and resulted in differences in the average age of students across participating OECD countries. In addition, because the sample was of the grade in which there was the greatest number of 13-year-olds, the number of years of formal schooling varied across countries, related to the fact that the age at which students begin school varies from country to country. The different ages of students and number of years of schooling may thus explain some of the performance differences observed. Though these analyses have not yet been performed for TIMSS 2003, an analysis of the IEA's study of fourth-grade reading literacy study, PIRLS, found that the average age of students explained 49% of the cross-country differences in performance in reading literacy.

Differences from 1995 to 2003

As shown in Chart A7.1 at the beginning of this indicator, just over half the participating countries showed differences in eighth-grade mathematics performance between 1995 and 2003. Korea and the United States demonstrated statistically significant improvement in average student performance from 1995 to 2003, with mean scores increasing modestly by 8 and 12 score points, respectively. In contrast, student

Box A7.2. Overview of mathematics and science achievements of fourth-grade students

Nine OECD countries and one region participated in the 2003 fourth-grade assessments – Australia, Belgium (Flemish Community), Hungary, Italy, Japan, Netherlands, New Zealand, Norway, the United Kingdom and the United States.

Mean scores 2003

- Mathematics scores in fourth-grade ranged from 451 score points in Norway to 565 score points in Japan. Similar to the pattern in eighth grade, the range in science scores is somewhat smaller than in mathematics, from 466 score points to 543 score points, again in Norway and Japan.
- Most countries perform similarly, relative to other countries, in the fourth grade as they did in the eighth grade, although there are a few exceptions. For example, the United States in mathematics and Belgium (Flemish Community) and Italy in science perform at the mean in the fourth grade and below it in the eighth grade.

Differences from 1995 to 2003

- Both New Zealand and the United Kingdom (England) improved their scores in both mathematics and science between 1995 and 2003, as did Hungary in science. Among those countries that showed decreases in performance were Japan and Scotland in science and the Netherlands in mathematics. Norway's scores decreased in both subjects between the assessment years.
- With the exception of Japan and Norway, those countries whose scores differed from 1995 to 2003 are different in scores for the fourth grade rather than for the eighth grade.

Gender differences 2003

- The magnitude of gender differences in the fourth grade is relatively similar in mathematics and science, with three to four countries showing differences in favour of males ranging from 5 or 6 to 11 points. In the case of mathematics, the extent of differences is similar to that at the eighth grade, though in science, far fewer countries display the differences favouring boys that show up nearly universally in the eighth grade.
- In the Netherlands, the United Kingdom (Scotland) and the United States, males score statistically significantly higher than females in both mathematics and science. Additionally, males in Italy exhibited statistically higher scores than females on the mathematics scale.

performance in five countries, namely Belgium (Flemish Community), Japan, Norway, the Slovak Republic and Sweden, decreased. In the first two countries, the decreases were modest (11 to 13 score points), whereas in the latter three decreases were larger (from 26 to 41 score points). There were no statistically significant differences in student performance in mathematics in Australia, Hungary, the Netherlands, New Zealand and the United Kingdom (Scotland) at this grade level.

On the science scale, three countries (Australia, Korea and the United States) showed statistically significant improvement in eighth-grade science, with increases from 13 to 15 score points each. Average scores decreased in Belgium (Flemish Community), Norway, the Slovak Republic and Sweden, with the largest decrease in Sweden of 28 score points. Hungary, Japan, the Netherlands, New Zealand, the

United Kingdom (Scotland) showed no statistically significant difference in average eighth-grade science scores between 1995 and 2003.

Although the TIMSS survey was conducted in 1995, 1999 and 2003, only the 1995 and 2003 data have been used. This is because using the third data point would have further reduced the country coverage of this indicator from ten OECD countries and two regions to seven countries and one region. For the countries for which the two data points are used, however, several limitations need to be borne in mind in interpreting the differences. First, with data from only two points in time, it is not possible to assess to what extent the observed differences are indicative of trends. In fact, an examination of the results from the countries with data for all three points in time shows that, for some of them, there is considerable fluctuation in the observed mean performance; the 1995 to 1999 changes and the 1999 to 2003 changes not being consistent with the 1995 to 2003 changes reflected in the indicator. This suggests that, for these countries at least, the indicator may not be registering real performance changes. Second, while the overall approach to measurement used by TIMSS is consistent across assessments, small refinements continue to be made, so it would not be prudent to read too much into small changes in results. Furthermore, errors from sampling, as well as measurement errors, are inevitably introduced when assessments are linked through a limited number of common assessment tasks over time. To account for the latter, the confidence band for comparisons over time has been widened correspondingly and only changes that are indicated as statistically significant in this report should be considered.

Distribution of mathematics and science achievement

While mean scores are useful for obtaining a general picture of performance, they often mask what may be wide variation within countries, which by later years of schooling can be wider than the differences across countries. In this indicator, within-country variation is measured primarily by the inter-quartile range, or the difference in mean scores between students at the 75th percentile and those of students at the 25th percentile – *i.e.* the middle 50% of students.

On the mathematics scale, 8 of the 14 participating OECD countries – Australia, Hungary, Japan, Korea, New Zealand, the Slovak Republic, the United Kingdom (Scotland) and the United States – showed differences of more than 100 points between students at the 25th percentile and those at the 75th percentile, with Australia and the Slovak Republic displaying the largest difference of 111 points. The performance differences between the 75th and 25th percentiles of students were the lowest in Belgium (Flemish Community), where the interquartile ranges was 93 points (Table A7.1).

The distribution of student performance within countries on the science scale was smaller in more countries than on the mathematics scale. Five countries – Australia, Hungary, the Slovak Republic, the United Kingdom (Scotland), and the United States – had interquartile ranges of over 100 score points, with the largest differences in the United States at 110 score points. Again, students in Belgium (Flemish Community) had the smallest differences between these two groups of students, at 84 score points.

These results suggest that wide disparities in achievement are not necessary in order for a country to achieve high overall performance. For example, the Netherlands, which had among the narrowest differences between students at the 25th and 75th percentiles in both mathematics and science, also performed above the OECD mean on these scales.

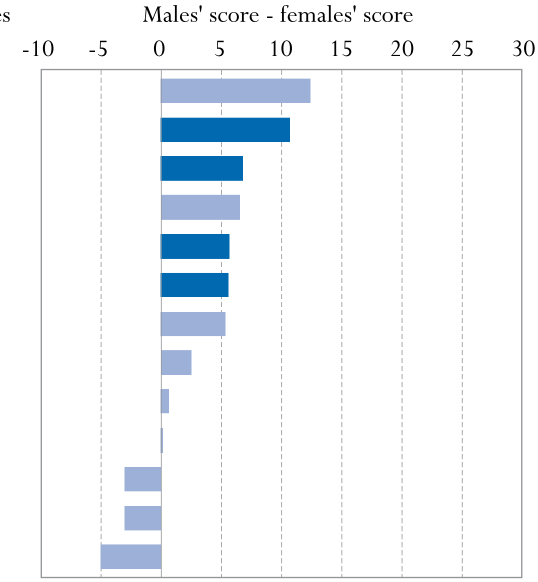
At the same time, there are examples of high performing countries with relatively large internal differences. For example, Hungary, which displayed overall means statistically significantly above the OECD average in mathematics, also showed relatively high differences among the middle 50% of students in mathematics.

Chart A7.3. Gender differences in eighth-grade performance on the IEA TIMSS scale (2003)

- Males' score not significantly different than females' score.
- Males' scores significantly higher or lower than females' score.

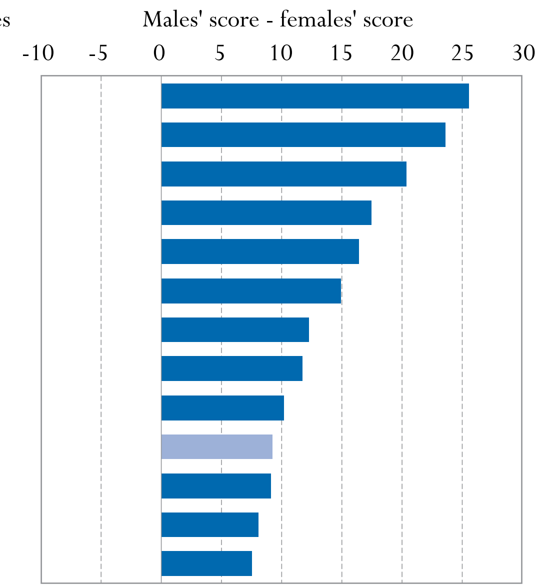
Mathematics

	Females		Males		Difference Males - Females	
Australia	499	(5.8)	511	(5.8)	13	(7.0)
Belgium (Fl.)	532	(3.5)	542	(3.8)	11	(4.8)
Hungary	526	(3.7)	533	(3.5)	7	(3.2)
Netherlands[1]	533	(4.1)	540	(4.5)	7	(3.6)
Italy	481	(3.0)	486	(3.9)	6	(2.8)
United States[2]	502	(3.4)	507	(3.5)	6	(1.9)
Korea	586	(2.7)	592	(2.6)	5	(3.1)
Japan	569	(4.0)	571	(3.6)	3	(6.4)
Sweden	499	(3.0)	499	(2.7)	1	(2.2)
Slovak Republic	508	(3.4)	508	(4.0)	0	(3.5)
New Zealand	495	(4.8)	493	(7.0)	-3	(5.7)
Norway	463	(2.7)	460	(3.0)	-3	(2.8)
UK (Scotland)[1]	500	(4.3)	495	(3.8)	-5	(3.5)



Science

	Females		Males		Difference Males - Females	
Hungary	530	(3.4)	556	(3.0)	26	(5.6)
Belgium (Fl.)	505	(3.0)	528	(3.4)	24	(4.2)
Australia	517	(4.6)	537	(4.6)	20	(3.0)
Slovak Republic	508	(3.8)	525	(3.4)	18	(2.5)
United States[2]	519	(3.2)	536	(3.4)	16	(4.5)
Netherlands[1]	528	(3.3)	543	(3.8)	15	(2.5)
Korea	552	(2.1)	564	(1.9)	12	(3.5)
UK (Scotland)[1]	506	(4.0)	517	(3.5)	12	(5.7)
Italy	486	(2.7)	496	(3.8)	10	(2.9)
New Zealand	515	(4.8)	525	(6.7)	9	(3.6)
Japan	548	(3.0)	557	(2.7)	9	(3.1)
Norway	490	(2.2)	498	(3.0)	8	(2.5)
Sweden	521	(3.2)	528	(2.7)	8	(2.1)



1. Met sample participation rates only after replacement schools were included.
2. Nearly satisfied guidelines for sample participation rates.

Source: IEA Trends in International Mathematics and Science Study 2003. See Annex 3 of this volume for notes *(www.oecd.org/edu/eag2005).*

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The same was true for the United States in science, where above-average performance was coupled with relatively large differences among students.

Table A7.1 also provides information on the distribution of performance in the previous assessment year. It appears that there was more variation in interquartile ranges across countries and fewer differences on this measure between the two assessment years that at the fourth-grade level.

Mathematics and science achievement by gender

Finally, it also is important to examine whether or not there are statistically significant differences in performance between subgroups of students, such as between males and females. Chart 7.3 presents the mean scores for males and females on the eighth-grade mathematics and science scales and calculates the difference in their scores.

In contrast with the results from the fourth grade, where the magnitude of gender differences was roughly similar between mathematics and science, at the eighth grade, gender differences are much more pronounced in science in eighth grade. In all countries except New Zealand, males in the eighth grade outperform their female counterparts, by up to 26 points in Hungary. In mathematics, males outperform females in four countries: Belgium (Flemish Community), Italy, the Netherlands and the United States.

Differences in achievement by gender from 1995 to 2003

In three countries (Norway, the Slovak Republic and Sweden), both males' and females' mathematics scores fell compared with 1995 (Table A7.2). Only in the United States, did the performance in mathematics of both males and females rise between 1995 and 2003. Korea and Scotland both saw the performance of females rise. Additionally, females in Belgium (Flemish Community) did not do as well in 2003 as they did in 1995.

In science, females in three countries (Korea, New Zealand and the United States) showed improved performance between the two assessments, with increases of up to 22 points in Korea. By contrast, females' performance in Belgium (Flemish Community), Norway, the Slovak Republic and Sweden dropped by up to 26 score points. Among males, there were increases in Australia and the United States and decreases in Japan, Norway, the Slovak Republic and Sweden. The largest decrease in scores was among males in Sweden, where this group scored 31 points lower in 2003 than in 1995.

Definitions and methodology

The achievement scores are based on tests administered as part of the Trends in International Mathematics and Science Study, undertaken by the International Association for the Evaluation of Education Achievement (IEA). The target population studied for this indicator refers to students in the upper of the two grades in which most 13-year-olds are enrolled, conventionally referred to as the eighth grade, since in most countries it refers to the eighth year of formal schooling. The United Kingdom (England) fell short of the minimum requirement for response rates for the TIMSS 8th grade assesment and results cannot be considered fully comparable to those of the other countries. Therefore, data for England are included in this indicator only for the 4th grade level.

Further references

TIMSS 2003 International Mathematics Report: Findings from IEA's Trends in International Mathematics and Science Study at the Fourth and Eighth Grades (Mullis *et al.*, 2004a)

TIMSS 2003 International Science Report: Findings From IEA's Trends in International Mathematics and Science Study at the Fourth and Eighth Grades (Mullis *et al.*, 2004b)

A7

Table A7.1. Distribution of TIMSS 8th grade achievement (1995, 2003)

Mathematics	5th percentile		25th percentile		Mean		75th percentile		95th percentile		Interquartile range	
	1995	2003	1995	2003	1995	2003	1995	2003	1995	2003	1995	2003
OECD COUNTRIES												
Australia	363	368	456	450	509	505	568	561	635	634	112	111
Belgium (Flemish Community)	415	398	504	495	550	537	602	588	659	643	98	93
Hungary	393	398	474	476	527	529	582	584	650	656	108	109
Japan	447	433	530	519	581	570	633	623	703	697	103	104
Korea	428	439	530	537	581	589	639	647	708	715	109	110
Netherlands	396	417	482	488	529	536	581	587	644	644	99	99
New Zealand	359	364	447	441	501	494	557	548	634	623	110	106
Norway	--	340	--	414	--	461	--	511	--	573	--	97
Slovak Republic	405	371	483	453	534	508	587	564	655	642	103	111
Sweden	406	378	492	452	540	499	591	548	661	614	99	96
United Kingdom (Scotland)	--	368	--	449	--	498	--	550	--	615	--	101
United States	345	369	438	450	492	504	552	560	621	635	113	110

Science	5th percentile		25th percentile		Mean		75th percentile		95th percentile		Interquartile range	
	1995	2003	1995	2003	1995	2003	1995	2003	1995	2003	1995	2003
OECD COUNTRIES												
Australia	354	397	458	478	514	527	576	580	654	644	119	102
Belgium (Flemish Community)	392	394	491	477	533	516	585	562	642	613	94	84
Hungary	405	415	487	492	537	543	588	595	659	666	101	103
Japan	424	429	505	507	554	552	607	601	673	663	101	95
Korea	402	438	494	513	546	558	604	606	673	666	110	93
Netherlands	406	430	495	496	541	536	592	579	658	631	97	83
New Zealand	358	393	453	471	511	520	571	570	654	637	118	99
Norway	--	372	--	450	--	494	--	542	--	601	--	91
Slovak Republic	396	390	480	467	532	517	586	569	661	637	105	102
Sweden	415	397	499	476	553	524	608	575	685	640	109	99
United Kingdom (Scotland)	--	380	--	462	--	512	--	565	--	630	--	102
United States	340	387	454	474	513	527	580	584	655	653	126	110

Note: Does not include Italy, which did not participate in the 1995 8th grade assessment. Data for distributions for Norway and United Kingdom (Scotland) for 1995 not available. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Source: IEA Trends in International Mathematics and Science Study 1995 and 2003.

StatLink: http://dx.doi.org/10.1787/774732722206

A7

Table A7.2. Differences in TIMSS 8th grade achievement, by gender (1995 to 2003)

▲ Performance in 2003 significantly higher than in 1995.
▼ Performance in 2003 significantly lower than in 1995.

Mathematics (OECD COUNTRIES)

	Females							Males						
	1995		2003		Difference 1995 to 2003			1995		2003		Difference 1995 to 2003		
Australia	511	(4.1)	499	(5.8)	-13	(7.1)		507	(4.7)	511	(5.8)	4	(7.5)	
Belgium (Flemish Community)	553	(8.1)	532	(3.5)	-21	(8.9)	▼	547	(8.7)	542	(3.8)	-4	(9.5)	
Hungary	527	(3.6)	526	(3.7)	-1	(5.2)		527	(3.6)	533	(3.5)	6	(5.1)	
Japan	577	(1.9)	569	(4.0)	-8	(4.5)		585	(2.2)	571	(3.6)	-14	(4.2)	▼
Korea	571	(3.0)	586	(2.7)	15	(4.1)	▲	588	(2.7)	592	(2.6)	3	(3.8)	
Netherlands	522	(6.6)	533	(4.1)	11	(7.8)		534	(6.6)	540	(4.5)	5	(7.9)	
New Zealand	497	(5.3)	495	(4.8)	-1	(7.2)		505	(6.1)	493	(7.0)	-12	(9.3)	
Norway	498	(2.6)	463	(2.7)	-35	(3.8)	▼	499	(2.9)	460	(3.0)	-39	(4.1)	▼
Slovak Republic	532	(3.1)	508	(3.4)	-25	(4.7)	▼	536	(3.7)	508	(4.0)	-28	(5.3)	▼
Sweden	541	(4.6)	499	(3.0)	-43	(5.5)	▼	539	(4.7)	499	(2.7)	-39	(5.4)	▼
United Kingdom (Scotland)	486	(5.4)	500	(4.3)	14	(6.8)	▲	501	(7.0)	495	(3.8)	-5	(7.9)	
United States	490	(4.7)	502	(3.4)	12	(5.8)	▲	495	(5.2)	507	(3.5)	12	(6.3)	▲

Science (OECD COUNTRIES)

	Females							Males						
	1995		2003		Difference 1995 to 2003			1995		2003		Difference 1995 to 2003		
Australia	508	(3.9)	517	(4.6)	10	(6.0)		520	(5.3)	537	(4.6)	18	(7.1)	▲
Belgium (Flemish Community)	524	(8.7)	505	(3.0)	-19	(9.2)	▼	542	(9.0)	528	(3.4)	-14	(9.7)	
Hungary	525	(3.7)	530	(3.4)	5	(4.8)		549	(3.5)	556	(3.0)	7	(4.7)	
Japan	544	(1.9)	548	(3.0)	3	(3.5)		564	(2.2)	557	(2.7)	-7	(3.6)	▼
Korea	530	(2.5)	552	(2.1)	22	(3.2)		559	(2.8)	564	(1.9)	6	(3.4)	
Netherlands	528	(5.7)	528	(3.3)	0	(6.5)		554	(7.4)	543	(3.8)	-11	(8.3)	
New Zealand	497	(5.6)	515	(4.8)	18	(7.5)		524	(6.1)	525	(6.7)	1	(9.0)	
Norway	506	(2.5)	490	(2.2)	-16	(3.4)	▼	523	(3.5)	498	(3.0)	-25	(4.8)	▼
Slovak Republic	520	(4.1)	508	(3.8)	-12	(5.7)	▼	545	(3.3)	525	(3.4)	-20	(4.7)	▼
Sweden	546	(4.8)	521	(3.2)	-26	(6.0)	▼	559	(4.9)	528	(2.7)	-31	(5.5)	▼
United Kingdom (Scotland)	487	(5.2)	506	(4.0)	19	(6.6)	▲	515	(6.7)	517	(3.5)	3	(7.5)	
United States	505	(5.4)	519	(3.2)	14	(6.3)	▲	520	(6.1)	536	(3.4)	16	(6.9)	▲

Note: Does not include Italy, which did not participate in the 1995 8th grade assessment. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Source: IEA Trends in International Mathematics and Science Study 1995 and 2003.

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EDUCATION AT A GLANCE © OECD 2005

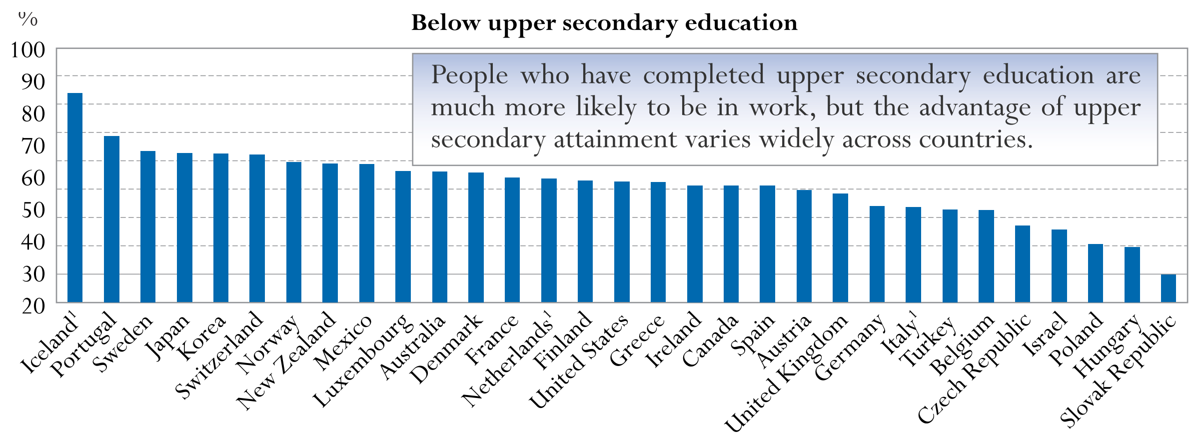
Labour force participation by level of educational attainment

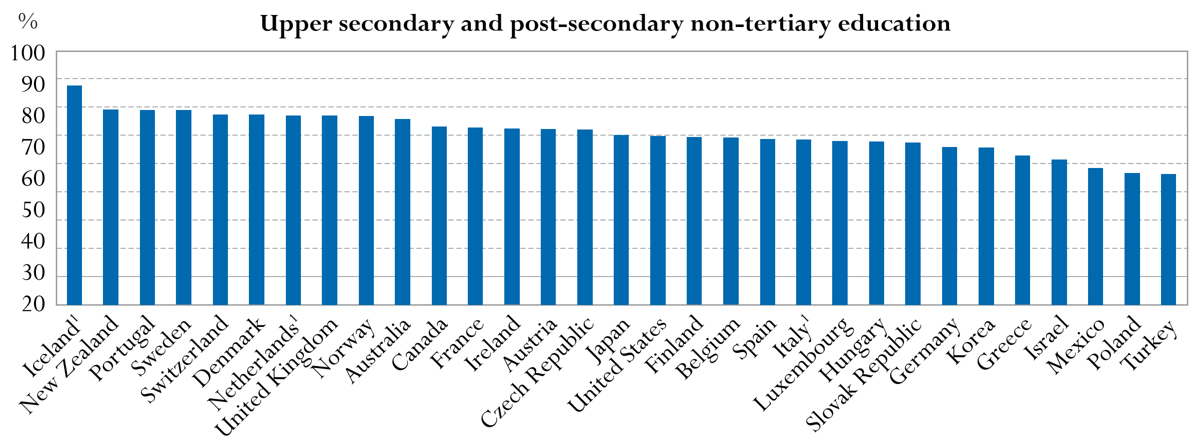
The adequacy of workers' skills and the capacity of the labour market to supply jobs that match those skills are important issues for policy makers. This indicator examines the relationship between educational attainment and labour force activity, first comparing employment rates in general and then unemployment rates by gender and changes over time in unemployment rates. The employment rate is defined as the employment-to-population ratio; the unemployment rate is defined in traditional economic terms as the unemployment-to-labour force ratio.

Key results

Chart A8.1. Employment rates by educational attainment (2003)

The chart shows the percentage of the 25-to-64-year-old population that is employed.





1. Year of reference 2002.

Countries are ranked in descending order of the employment rates.

Source: OECD. Table A8.1b. See Annex 3 for notes *(www.oecd.org/edu/eag2005)*.

StatLink: http://dx.doi.org/10.1787/050732323673

Other highlights of this indicator

- Employment rates rise with educational attainment in most OECD countries. With very few exceptions, the employment rate for graduates of tertiary education is markedly higher than the rate for upper secondary graduates. For males, the gap is particularly wide between upper secondary graduates and those without an upper secondary qualification.
- Differences in employment rates between males and females are wider among less educated groups. The chance of being in employment is 24 points higher for males than for females among those without upper secondary qualifications, falling to 11 per cent for the most highly qualified.
- Those with low educational attainment are both less likely to be labour force participants and more likely to be unemployed. Unemployment rates fall with higher educational attainment. The greatest gender differences in unemployment rates are seen among lower-qualified adults in certain countries. However, in some cases it is unqualified females and in others unqualified males who have the higher unemployment rate.
- Unemployment rates are higher for females at all levels of educational attainment in eight OECD countries. Unemployment rates are higher for men at all levels of educational attainment in only four countries.

Policy content

The economies and labour markets of OECD countries are becoming increasingly dependent on a stable supply of well-educated workers to further their economic development and to maintain their competitiveness. As levels of skill tend to rise with educational attainment, the costs incurred when those with higher levels of education do not work also rise; and as populations in OECD countries age, higher and longer participation in the employed labour force can lower dependency ratios and help to alleviate the burden of financing public pensions.

Evidence and explanations

Employment

Variation among countries in employment among females is a primary factor in the differences in overall employment rates. The overall employment rates for males aged 25 to 64 range from 75% or less in Finland, Hungary, Poland and the Slovak Republic to 86% and above in Iceland, Japan, Korea, Mexico, New Zealand and Switzerland (Table A8.1a). By contrast, reflecting very different cultural and social patterns, employment rates among females ranges from 50% or less in Greece, Italy, Mexico, Spain and Turkey to 77% or over in Iceland, Norway and Sweden. Prolonged education and unemployment are two factors that contribute to these disparities.

Employment rates for males are generally higher among those with higher educational qualifications. With the exception of Mexico and New Zealand, where the pattern is different, the employment rate for graduates of tertiary education is markedly higher – around 5 percentage points on average for OECD countries – than that for upper secondary graduates. The difference ranges from a few percentage points to 11 percentage points and more in Finland, Germany, Poland and the Slovak Republic (Chart A8.2). This may stem mainly from the fact that the less skilled leave the labour market earlier. Those with higher educational attainment tend to remain in employment longer.

The gap in employment rates of males aged 25 to 64 years is particularly wide between upper secondary graduates and those who have not completed an upper secondary qualification. The extreme cases are the Czech Republic, Hungary and the Slovak Republic, where between one-third and around a half of the male population without upper secondary education, but more than 77% with such attainment, are employed. The gap in employment rates between males with and without upper secondary attainment is less than 6 percentage points in Greece, Iceland, Korea, Mexico and Portugal (Chart A8.2 and Table A8.1a).

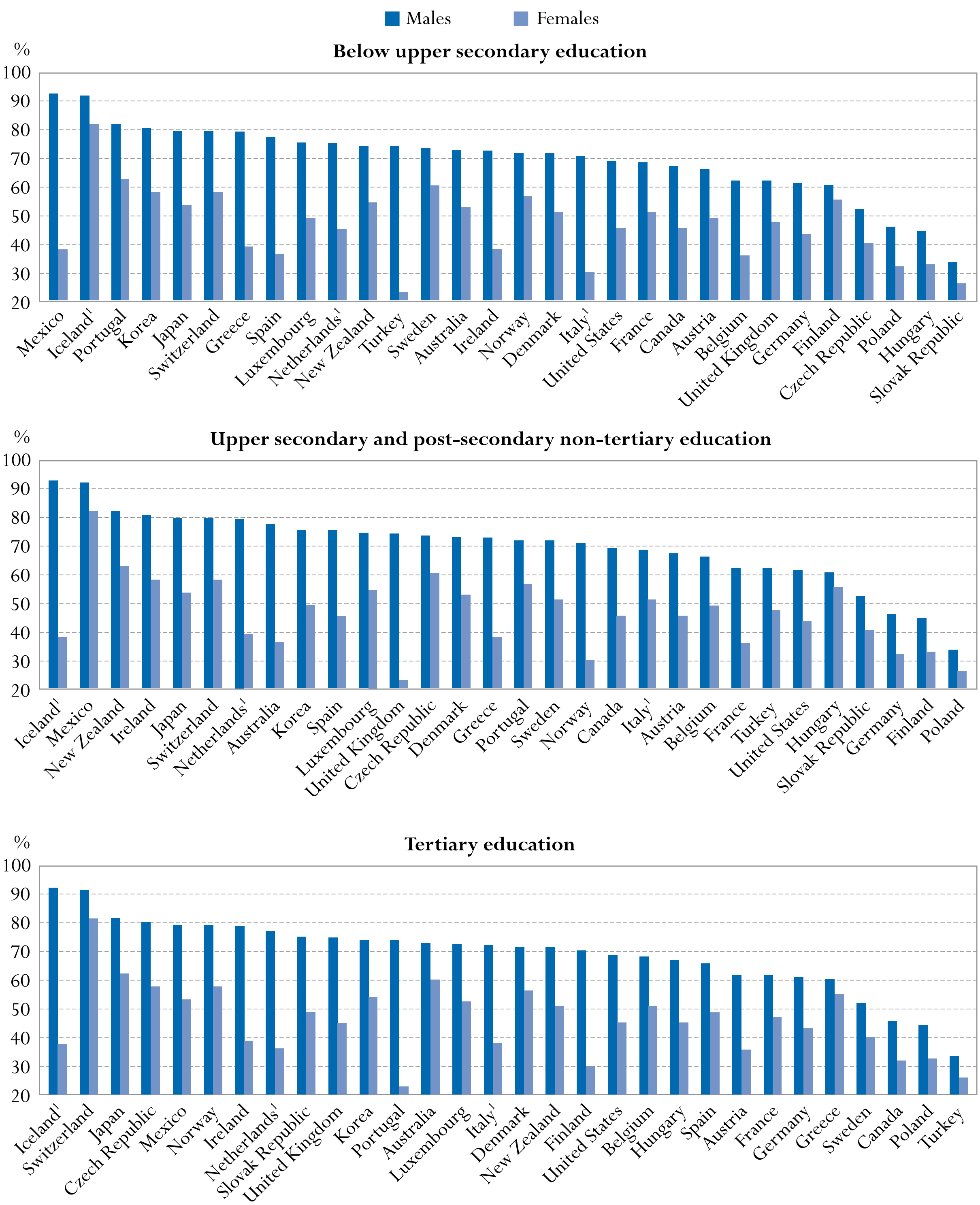
Employment rates for females aged 25 to 64 years show more marked differences, not only between those with below upper secondary and those with upper secondary attainment (15 percentage points or more in 23 out of the 30 OECD countries), but also between those with upper secondary and those with tertiary-type A or advanced research programmes attainment (9 percentage points or more in 24 countries).

Employment rates for females with lower secondary attainment are particularly low, averaging 49% across all OECD countries and standing at around 35% or below in Hungary, Poland, the Slovak Republic and Turkey. Employment rates for females with tertiary type-A attainment equal or exceed 76% everywhere except Japan, Korea, Mexico and Turkey, but remain below those of males in all countries except Sweden (Table A8.1a).

Although the gender gap in employment remains among those with the highest educational attainment, it is much narrower than among those with lower qualifications. On average among OECD countries, with each additional level attained, the difference between the employment rates of males and females decreases

Chart A8.2. Employment rates, by educational attainment (2003)

Percentage of 25-to-64-year-old population who are employed



1. Year of reference 2002.

Countries are ranked in descending order of the employment rate of males having attained less than upper secondary education.

Source: OECD. Table A8.1a. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/050732323673

significantly: from 24 percentage points at below upper secondary level, to over 18 percentage points at upper secondary and 10 percentage points at tertiary level (Chart A8.2).

The gap is unevenly distributed among countries at all levels of attainment. Below upper secondary, it is lower than 8 percentage points in Finland and the Slovak Republic but close to or above 40 percentage points in Greece, Italy, Mexico, Spain and Turkey. At the upper secondary level, again, the gap is below 9 percentage points in Nordic countries and Portugal and remains higher than 34 points in Korea, Greece, Mexico and Turkey. At the tertiary level, the gap tends to be reduced significantly except for Japan, Korea, Mexico and Turkey.

Much of the overall gap between the employment rates of males with differing levels of educational attainment is explained by the large differences within older populations. The patterns reflect a number of underlying causes. Since earnings tend to increase with educational attainment, the monetary incentive to participate is greater for individuals with higher qualifications. In addition, those individuals often work on tasks that are typically more varied and have greater vertical mobility, and hold functions of higher responsibility, which increase their motivation to remain in the labour force. Conversely, hard physical work, generally associated with low levels of education, might lead to a need for early retirement. Moreover, industrial restructuring in many countries has reduced job opportunities for unskilled workers, or for workers with skills that have been made obsolete by new technologies. In countries with well-developed and long-standing pension systems, individuals with low education entered the labour market earlier than those with higher levels and, hence, could draw on pension income often years earlier, even in the absence of any other provisions. A sizeable number of these people have left the labour market either through early retirement schemes or because they encountered only limited job opportunities. The educational attainment of females and their participation in the labour market have historically been lower than those of males. In spite of considerable advances in these areas over the last few decades, current employment rates continue to show the impact of these historical factors (Tables A8.3a, A8.3b and A8.3c).

Unemployment rates fall with higher educational attainment

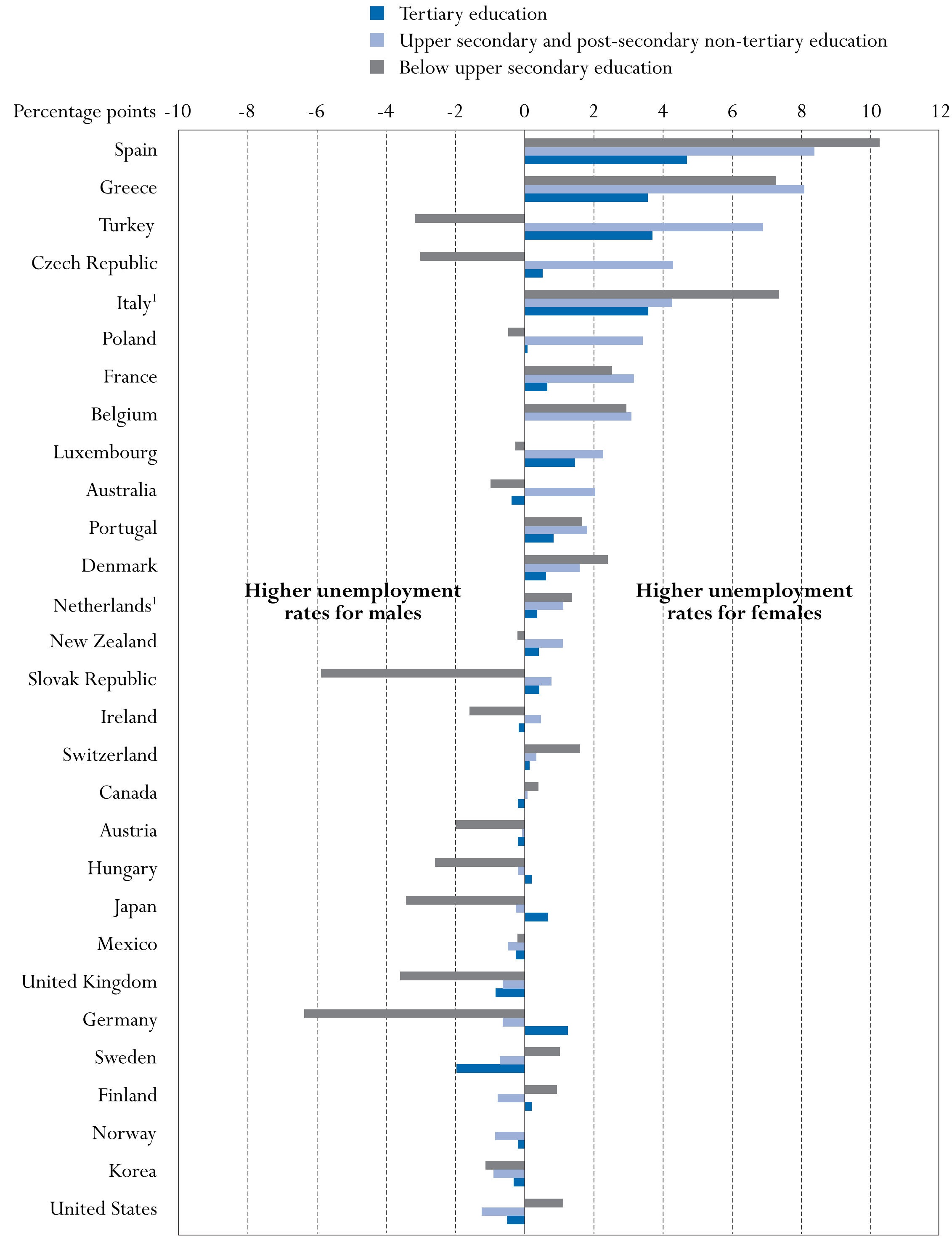
To the extent that educational attainment is an indicator of skill, it can signal to employers the potential knowledge, capacities and workplace performance of candidates for employment. The employment prospects of individuals with varying levels of educational attainment depend both on the requirements of labour markets and on the supply of workers with different skills. Those with low educational qualifications are at particular risk of economic marginalisation since they are both less likely to be labour force participants and more likely to be without a job if they are actively seeking one.

On average in OECD countries, male labour force participants aged 25 to 64 with a qualification below the upper secondary level are more than twice as likely to be unemployed as their counterparts who have completed upper secondary education. In half of the countries, the unemployment rate for male upper secondary graduates is at least 1.5 times the unemployment rate among tertiary graduates. The association between unemployment rates and educational attainment is similar among females, although the gap between upper secondary and tertiary attainment is even wider in many countries.

Higher unemployment rates for females at all levels of educational attainment are seen in 16 OECD countries (Table A8.2a). Combining all levels of education, differences in unemployment rates among males and females are less than half of a percentage point in seven countries: Australia, Austria, Canada, Germany, Iceland, Japan and Mexico. In 13 countries, unemployment rates for females with below upper secondary education are higher than those for males (Chart A8.3).

Chart A8.3. Differences between unemployment rates of females and males, by level of educational attainment (2003)

Percentage points for the 25-to-64-year-old population



1. Year of reference 2002.

Countries are ranked in descending order of the difference in unemployment rates of females and males who have completed upper secondary education or post-secondary non-tertiary education.

Source: OECD. Table A8.2a. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/050732323673

The changes in the value of education with regard to unemployment

The difference between the unemployment rates of 25-to-64-year-olds without upper secondary education and those with upper secondary education is a measure of the benefit of pursuing education up to the upper secondary level; among OECD countries, this is considered to be the minimum level allowing a satisfactory position in the labour market. The different rates may denote the exclusion or discrimination in accessing employment, however, which affects those who have not attained the minimum education level. Depending on the structure of the supply of jobs, the gap is widely variable among countries, generally in disfavour of the less qualified. In addition, the gap has changed over time, as the supply of jobs has also changed within countries.

In recent years, in Greece, Korea and Mexico, completing upper secondary education has not offered a reduced risk of being unemployed (Table A8.4a). The supply of jobs – probably in the agricultural (primary) sector, which does not require secondary qualifications – remains sufficient in relation to the structure of educational attainment of the adult population. A relatively recent similar phenomenon is seen in Norway. In all other countries, the benefit of upper secondary education compared to the below upper secondary level is observed in a lower unemployment rate, by an average of 4 percentage points.

In a number of countries – such as Australia, Canada, Germany, Greece, Japan, Korea, Mexico and Spain – the relative benefit to employment prospects of upper secondary education has remained fairly stable over the last few years. However, since 1991 there has been evidence of increased employment prospects for those with upper secondary education compared with those without this level of attainment. This is the case in countries such as Austria, Finland, Hungary, Poland and Turkey, and particularly in the Czech Republic and the Slovak Republic. It should be noted, however, that a factor which complicates the interpretation of these findings is that over the period since 1991, the overall employment and unemployment rates in countries have changed. In periods of high unemployment, the employment advantage of upper secondary attainment may be greater, regardless of the intrinsic value of an individual's qualifications. In general, however, achieving the threshold of upper secondary education makes less of a difference in the labour market than does the achievement of tertiary education (Table A8.4a).

Lower unemployment rates associated with higher educational attainment are not always guaranteed. The benefit of tertiary education compared to upper secondary level generally confirms the expected trend, but there are nuances for some countries. For four OECD countries – Denmark, Luxembourg, Mexico and New Zealand – the 2003 unemployment rate of the adult population with tertiary education was higher than that for those who attained upper secondary education. This is a recent phenomenon.

Considering all OECD countries since 1995, on average the benefit of tertiary education expressed in terms of lower unemployment rates has decreased slightly, but has remained stable for the last four years. Unemployment rates for those with tertiary education were on average 2.2 percentage points lower than those with upper secondary education in 2003 compared with a difference of 2.8 percentage points in 1995. Countries where this trend has been most evident are Denmark, Portugal and Sweden. The reverse is also evident, with greater labour market advantage accruing to tertiary graduates, as seen, for example, in Poland and the Slovak Republic (Table A8.4a).

Definition and methodologies

Under the auspice of the International Labour Organisation (ILO) and the conferences of labour statisticians, concepts and definitions were progressively established and are now used as a common reference (see the "Resolution Concerning Statistics of the Economically Active Population, Employment, Unemployment and Underemployment" (1982), adopted by the 13th International Conference of Labour Statisticians).

Noting: P: Population

E: Employment

U: Unemployment

L: Labour Force = E + U

I: Population not in the Labour Force = P-L or P-E-U

Consequently: P= E + U + I = L + I

In some specific situations one may find a reference to "Not in employment" or "Not employed", *i.e.* P-E or U+I.

The following rates are usually presented and commented:

Labour force participation rate or participation rate: L/P

Inactivity rate: I/P

Employment rate or employment-to-population ratio: E/P

Unemployment rate: U/(E+U)

The labour force participation rate is defined as the ratio of the labour force to the working age population, expressed in percentages. The labour force participation rate is a measure of the extent of an economy's working-age population that is economically active. It provides an indication of the relative size of the supply of labour available for the production of goods and services. The breakdown of the labour force by sex and age group gives a profile of the distribution of the economically active population within a country. The labour force participation rate is frequently used to show the consequences of the participation in the economic activity (being currently employed or actively seeking a job and being available to work in short notice) according to individual characteristics. This is the potential supply of immediately available workforce even if all are not employed at the moment. Another possible indicator (the employment rate) is more and more used. It focuses on the currently employed, as a pure measure of the effective activity not taking into account the unemployment. Dealing with international comparisons of the differentiated effect of the educational attainment, the results are quite similar.

The inactivity rate is the proportion of the population that is not in the labour force. When added together, the inactivity rate and the labour force participation rate will total 100%.

The employment rates represent persons in employment as a percentage of the population of working age. The employment-to-population ratio is defined as the proportion of an economy's working-age population that is employed. Unemployment rates represent unemployed persons as a percentage of the civilian labour force. The OECD standardised unemployment rate gives the number of unemployed persons as a percentage of the civilian labour force.

The unemployed are defined as individuals who are without work, actively seeking employment and currently available to start work. The employed are defined as those who during the survey reference week: *i*) work for pay (employees) or profit (self-employed and unpaid family workers) for at least one hour; or *ii*) have a job but are temporarily not at work (through injury, illness, holiday, strike or lock-out, educational or training leave, maternity or parental leave, etc.) and have a formal attachment to their job.

Further references

The following additional material relevant to this indicator is available on the Web at *http://dx.doi.org/ 10.1787/050732323673*:

Employment rates and educational attainment

Table A8.1.b: Total adult population

Unemployment rates and educational attainment

Table A8.2.b: Total adult population

Trends in employment rates by educational attainment, by gender

Table A8.3.b: Males
Table A8.3.c: Females

Trends in unemployment rates by educational attainment, by gender

Table A8.4.b: Males
Table A8.4.c: Females

A8

Table A8.1a. Employment rates and educational attainment, by gender (2003)

Number of 25-to-64-year-olds in employment as a percentage of the population aged 25 to 64, by level of education attained and gender

			Pre-primary and primary education	Lower secondary education	Upper secondary education			Post-secondary non-tertiary education	Tertiary education		All levels of education
					ISCED 3C Short	ISCED 3C Long/3B	ISCED 3A		Type B	Type A and advanced research programmes	
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD COUNTRIES	Australia	Males	x(2)	73	a	87	86	x(5)	87	90	83
		Females	x(2)	53	a	66	66	x(5)	74	81	64
	Austria	Males	x(2)	66	a	82	76	87	83	90	80
		Females	x(2)	49	a	66	67	82	79	86	65
	Belgium	Males	48	72	a	82	82	85	87	88	76
		Females	26	45	a	59	65	69	79	82	58
	Canada	Males	56	72	a	x(5)	82	83	87	85	81
		Females	33	52	a	x(5)	69	71	79	78	70
	Czech Republic	Males	c	54	68	83	87	87	87	92	83
		Females	c	41	49	62	70	73	74	79	63
	Denmark	Males	53	73	[73]	85	75	49	86	88	83
		Females	34	52	85	76	60	60	83	83	73
	Finland	Males	x(2)	60	a	a	75	c	83	90	75
		Females	x(2)	55	a	a	71	c	82	85	72
	France	Males	56	77	a	82	82	c	90	84	78
		Females	40	60	a	68	73	[76]	81	76	65
	Germany	Males	53	63	a	75	59	82	83	88	76
		Females	34	45	a	64	49	74	77	79	62
	Greece	Males	77	87	85	87	83	85	83	87	82
		Females	38	42	50	54	47	64	75	78	49
	Hungary	Males	18	47	a	77	79	82	c	87	72
		Females	8	35	a	60	66	72	[93]	79	57
	Iceland[1]	Males	92	92	93	a	91	95	95	98	93
		Females	81	82	85	a	84	85	92	94	86
	Ireland	Males	61	84	c	a	89	91	91	91	83
		Females	30	47	c	a	61	68	79	83	59
	Italy[1]	Males	52	79	80	85	82	85	x(8)	88	77
		Females	18	39	56	62	61	73	x(8)	77	46
	Japan	Males	x(2)	79	a	a	89	a	92	93	89
		Females	x(2)	53	a	a	60	a	63	67	60
	Korea	Males	77	83	a	x(5)	86	a	90	90	86
		Females	57	59	a	x(5)	52	a	58	55	55
	Luxembourg	Males	76	73	82	83	85	90	87	90	83
		Females	52	43	48	55	64	72	73	77	55
	Mexico	Males	91	94	a	93	a	a	95	91	92
		Females	35	44	a	55	a	a	61	71	43
	Netherlands[1]	Males	63	82	x(4)	86	91	82	91	91	84
		Females	35	50	x(4)	71	74	76	80	82	64
	New Zealand	Males	x(2)	74	a	90	88	89	87	88	86
		Females	x(2)	54	a	74	71	74	74	80	70
	Norway	Males	c	73	a	83	82	86	91	91	84
		Females	c	57	a	75	77	84	88	86	77
	Poland	Males	x(2)	46	65	a	73	73	x(8)	85	67
		Females	x(2)	32	47	a	59	65	x(8)	81	54
	Portugal	Males	81	87	x(5)	x(5)	84	x(5)	82	91	83
		Females	60	75	x(5)	x(5)	79	x(5)	77	89	67
	Slovak Republic	Males	c	35	x(4)	72	84	x(5)	88	91	74
		Females	c	27	x(4)	60	69	x(5)	79	84	61
	Spain	Males	69	85	84	88	84	88	89	86	81
		Females	28	46	54	59	60	55	70	78	50
	Sweden	Males	66	79	a	x(5)	83	x(5)	84	87	82
		Females	50	67	a	x(5)	79	x(5)	82	88	78
	Switzerland	Males	72	82	88	90	81	89	95	92	89
		Females	52	60	70	74	72	83	85	82	72
	Turkey	Males	74	77	a	82	80	a	x(8)	81	76
		Females	23	19	a	31	24	a	x(8)	63	26
	United Kingdom	Males	73	62	83	83	88	a	89	91	83
		Females	c	47	70	75	79	a	85	86	72
	United States	Males	66	70	x(5)	x(5)	79	x(5)	83	88	81
		Females	40	48	x(5)	x(5)	68	x(5)	77	78	69
	Country mean	***Males***	***66***	***73***	***80***	***84***	***82***	***84***	***88***	***89***	***81***
		Females	***39***	***49***	***62***	***63***	***65***	***73***	***78***	***79***	***62***
PARTNER COUNTRY	Israel	Males	24	63	x(5)	x(5)	72	x(7)	81	84	74
		Females	9	27	x(5)	x(5)	60	x(7)	69	80	61

Note: Figures in brackets, such as [76], are not statistically significant due to small sample size.

1. Year of reference 2002.

Source: OECD. See Annex 3 for a description of ISCED-97 levels, ISCED-97 country mappings and national data sources (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/050732323673

Table A8.2a. Unemployment rates and educational attainment, by gender (2003)

Number of 25-to-64-year-olds in unemployment as a percentage of the labour force aged 25 to 64, by level of education attained and gender

		Pre-primary and primary education	Lower secondary education	Upper secondary education			Post-secondary non-tertiary education	Tertiary education		All levels of education
				ISCED 3C Short	ISCED 3C Long/3B	ISCED 3A		Type B	Type A and advanced	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD COUNTRIES										
Australia	Males	x(2)	7.5	a	2.5	4.7	x(5)	3.9	2.9	4.6
	Females	x(2)	6.5	a	7.7	5.2	x(5)	3.9	2.2	4.9
Austria	Males	x(2)	9.0	a	3.5	3.7	2.5	2.3	1.9	3.9
	Females	x(2)	7.0	a	3.4	4.4	2.5	c	2.2	3.9
Belgium	Males	13.4	7.5	a	7.4	4.7	6.9	3.4	3.6	6.2
	Females	14.9	11.2	a	10.5	7.8	6.9	3.2	4.2	7.5
Canada	Males	12.7	10.0	a	x(5)	6.6	6.3	5.1	5.5	6.6
	Females	13.7	10.2	a	x(5)	6.5	6.9	5.1	5.2	6.3
Czech Republic	Males	c	21.7	9.9	4.9	2.8	c	c	1.7	4.9
	Females	c	18.6	11.8	11.8	5.8	3.2	c	2.3	8.9
Denmark	Males	c	5.6	c	3.5	c	c	[5.2]	4.1	4.3
	Females	c	8.6	c	5.5	c	c	[5.9]	4.8	5.6
Finland	Males	11.2	10.1	a	a	9.6	c	5.4	3.3	8.0
	Females	10.9	12.4	a	a	8.8	c	4.8	3.8	7.5
France	Males	12.3	10.2	a	5.8	7.2	c	4.3	6.7	7.5
	Females	14.1	13.1	a	10.2	7.7	c	5.0	7.5	9.8
Germany	Males	26.2	20.2	a	10.9	8.5	7.8	5.1	4.5	10.0
	Females	21.9	13.9	a	10.5	10.3	5.6	6.8	5.4	9.7
Greece	Males	3.8	4.4	5.7	6.7	4.9	8.8	4.7	3.7	4.6
	Females	9.3	18.4	[25.3]	19.9	13.0	14.1	7.5	7.6	11.2
Hungary	Males	[30.3]	11.1	a	6.0	3.0	c	c	1.3	5.3
	Females	c	8.9	a	6.5	3.6	c	c	1.5	4.8
Iceland[1]	Males	a	3.2	1.9	a	2.9	1.9	2.9	1.2	2.4
	Females	a	3.2	3.7	a	2.9	1.8	1.1	1.8	2.6
Ireland	Males	8.4	5.5	c	a	[2.7]	[2.6]	[3.1]	[2.4]	4.2
	Females	[5.2]	[5.1]	c	a	[3.1]	[3.3]	[2.7]	[2.3]	3.4
Italy[1]	Males	8.3	6.1	4.3	3.4	4.7	7.2	x(8)	3.6	5.5
	Females	15.0	13.6	14.3	8.0	8.3	12.6	x(8)	7.2	10.5
Japan	Males	x(2)	8.0	a	x(5)	5.5	a	4.8	3.1	5.1
	Females	x(2)	4.6	a	x(5)	5.3	a	4.5	3.3	4.7
Korea	Males	2.5	2.8	a	x(5)	3.5	a	4.4	2.7	3.2
	Females	1.2	1.9	a	x(5)	2.6	a	3.2	2.6	2.3
Luxembourg	Males	[3.6]	c	c	c	c	c	c	c	2.5
	Females	c	c	c	[5.0]	c	c	[6.4]	c	3.9
Mexico	Males	1.5	1.9	a	2.2	a	a	2.0	2.8	1.9
	Females	1.2	2.0	a	1.7	a	a	2.1	2.5	1.7
Netherlands[1]	Males	4.2	2.8	x(4)	1.6	1.7	2.0	1.2	2.1	2.2
	Females	5.5	4.3	x(4)	2.7	2.8	3.5	2.1	2.4	3.1
New Zealand	Males	x(2)	5.0	a	2.3	2.6	2.6	3.2	3.5	3.2
	Females	x(2)	4.8	a	4.2	2.7	4.4	4.3	3.1	3.8
Norway	Males	c	c	a	4.1	c	c	c	2.6	3.6
	Females	c	c	a	3.2	c	c	c	2.3	2.9
Poland	Males	x(2)	26.1	19.0	a	12.3	13.5	x(8)	6.6	16.1
	Females	x(2)	25.6	25.4	a	16.6	14.1	x(8)	6.7	17.7
Portugal	Males	4.9	5.3	a	a	[4.2]	a	c	c	4.9
	Females	6.6	6.9	a	a	6.0	a	c	[5.5]	6.3
Slovak Republic	Males	[87.5]	46.7	x(4)	17.1	7.8	x(5)	c	3.5	14.5
	Females	c	41.2	x(4)	17.9	11.3	x(5)	c	3.7	15.5
Spain	Males	8.2	7.3	c	6.3	5.7	c	5.1	5.6	6.8
	Females	17.5	18.1	c	17.1	12.5	c	13.0	9.2	14.3
Sweden	Males	5.7	5.7	a	a	5.5	a	5.2	4.7	5.3
	Females	7.7	6.2	a	a	4.8	a	3.3	2.6	4.3
Switzerland	Males	[5.1]	5.3	3.8	2.8	[5.3]	[2.3]	[1.5]	3.7	3.2
	Females	[7.2]	6.7	4.3	2.9	4.7	[1.5]	[2.2]	3.4	3.8
Turkey	Males	9.7	8.6	a	6.1	7.2	a	x(8)	5.8	8.5
	Females	5.8	13.1	a	12.0	14.6	a	x(8)	9.4	7.9
United Kingdom	Males	9.4	8.5	5.2	4.4	3.0	a	2.7	2.7	4.2
	Females	21.5	4.8	4.0	3.5	2.7	a	1.7	2.0	3.2
United States	Males	10.1	9.1	x(5)	x(5)	6.7	x(5)	5.2	3.2	5.8
	Females	10.3	10.7	x(5)	x(5)	5.4	x(5)	3.9	2.8	4.8
Country mean	***Males***	***13.3***	***9.8***	***7.1***	***5.3***	***5.3***	***5.4***	***3.8***	***3.5***	***5.6***
	Females	***10.5***	***10.8***	***12.7***	***8.2***	***6.9***	***6.2***	***4.4***	***4.1***	***6.6***
PARTNER COUNTRY										
Israel	Males	[20.3]	14.2	x(5)	x(5)	9.1	x(7)	7.3	5.5	8.6
	Females	c	17.5	x(5)	x(5)	11.8	x(7)	8.3	5.8	9.4

1. Year of reference 2002.

Source: OECD. See Annex 3 for a description of ISCED-97 levels, ISCED-97 country mappings and national data sources (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table A8.3a. Trends in employment rates by educational attainment (1991-2003)

Number of 25-to-64-year-olds in employment as a percentage of the population aged 25 to 64, by level of educational attainment

OECD COUNTRIES		1991	1995	1998	1999	2000	2001	2002	2003
Australia	Below upper secondary	54	60	59	59	61	60	60	61
	Upper secondary and post-secondary non-tertiary	71	75	76	76	77	78	78	79
	Tertiary education	81	83	84	82	83	83	83	83
Austria	Below upper secondary	52	56	53	53	54	54	55	55
	Upper secondary and post-secondary non-tertiary	73	77	75	76	75	75	75	75
	Tertiary education	88	88	86	87	87	86	86	85
Belgium	Below upper secondary	49	47	47	49	51	49	49	49
	Upper secondary and post-secondary non-tertiary	75	72	72	75	75	74	74	73
	Tertiary education	85	84	84	85	85	84	84	84
Canada	Below upper secondary	55	53	54	55	55	55	55	57
	Upper secondary and post-secondary non-tertiary	75	74	74	75	76	76	76	76
	Tertiary education	82	81	82	82	83	82	82	82
Czech Republic	Below upper secondary	m	56	50	47	47	47	45	44
	Upper secondary and post-secondary non-tertiary	m	82	78	76	76	76	76	75
	Tertiary education	m	92	89	87	87	88	87	86
Denmark	Below upper secondary	62	61	61	62	62	62	61	61
	Upper secondary and post-secondary non-tertiary	81	76	79	81	81	81	81	80
	Tertiary education	89	89	87	88	88	87	87	85
Finland	Below upper secondary	64	54	56	59	57	58	58	58
	Upper secondary and post-secondary non-tertiary	78	70	103	74	75	75	74	73
	Tertiary education	88	81	83	85	84	85	85	85
France	Below upper secondary	58	57	56	56	57	58	58	59
	Upper secondary and post-secondary non-tertiary	78	76	75	75	76	77	77	76
	Tertiary education	85	82	82	82	83	84	83	82
Germany	Below upper secondary	51	49	48	49	51	52	51	50
	Upper secondary and post-secondary non-tertiary	74	71	69	70	70	71	70	70
	Tertiary education	86	84	83	83	83	83	84	83
Greece	Below upper secondary	m	56	56	55	56	55	56	58
	Upper secondary and post-secondary non-tertiary	m	62	65	65	65	65	66	67
	Tertiary education	m	79	80	81	81	80	81	82
Hungary	Below upper secondary	m	m	36	36	36	37	37	37
	Upper secondary and post-secondary non-tertiary	m	m	71	72	72	72	72	71
	Tertiary education	m	m	81	82	101	101	82	82
Iceland	Below upper secondary	m	m	85	86	87	87	86	m
	Upper secondary and post-secondary non-tertiary	m	m	89	91	89	89	89	m
	Tertiary education	m	m	100	95	95	95	95	m
Ireland	Below upper secondary	46	49	53	54	56	57	57	57
	Upper secondary and post-secondary non-tertiary	63	67	72	75	77	77	77	76
	Tertiary education	81	83	85	87	88	87	87	86
Italy	Below upper secondary	54	49	47	48	48	49	50	m
	Upper secondary and post-secondary non-tertiary	74	70	70	70	71	72	72	m
	Tertiary education	87	81	81	81	81	82	82	m
Japan	Below upper secondary	m	m	69	68	67	68	67	67
	Upper secondary and post-secondary non-tertiary	m	m	76	74	74	74	74	74
	Tertiary education	m	m	79	79	79	80	79	79
Korea	Below upper secondary	70	71	66	67	68	68	68	67
	Upper secondary and post-secondary non-tertiary	70	71	66	66	69	69	70	70
	Tertiary education	80	80	76	75	75	76	76	76

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table A8.3a. *(continued)* **Trends in employment rates by educational attainment (1991-2003)**

Number of 25-to-64-year-olds in employment as a percentage of the population aged 25 to 64, by level of educational attainment

			1991	1995	1998	1999	2000	2001	2002	2003
OECD COUNTRIES	Luxembourg	Below upper secondary	m	m	m	55	58	58	59	61
		Upper secondary and post-secondary non-tertiary	m	m	m	73	73	74	74	72
		Tertiary education	m	m	m	85	84	86	85	83
	Mexico	Below upper secondary	m	60	64	64	63	63	64	63
		Upper secondary and post-secondary non-tertiary	m	63	64	62	66	64	63	63
		Tertiary education	m	82	84	83	83	81	82	82
	Netherlands	Below upper secondary	50	52	55	57	58	59	59	m
		Upper secondary and post-secondary non-tertiary	73	74	77	113	79	80	80	m
		Tertiary education	85	83	85	87	86	86	87	m
	New Zealand	Below upper secondary	57	58	59	60	61	62	64	63
		Upper secondary and post-secondary non-tertiary	73	80	79	80	80	81	81	82
		Tertiary education	80	82	80	81	81	82	82	81
	Norway	Below upper secondary	62	61	67	65	63	61	61	62
		Upper secondary and post-secondary non-tertiary	80	80	84	83	83	83	81	80
		Tertiary education	90	89	90	90	90	90	89	89
	Poland	Below upper secondary	m	50	49	47	43	41	39	38
		Upper secondary and post-secondary non-tertiary	m	70	71	70	67	65	62	62
		Tertiary education	m	85	87	87	85	84	83	83
	Portugal	Below upper secondary	62	67	72	72	73	73	73	72
		Upper secondary and post-secondary non-tertiary	84	77	80	82	83	83	82	82
		Tertiary education	92	89	89	90	91	91	88	87
	Slovak Republic	Below upper secondary	m	39	37	33	31	30	28	29
		Upper secondary and post-secondary non-tertiary	m	75	75	72	71	70	70	71
		Tertiary education	m	88	89	87	86	87	87	87
	Spain	Below upper secondary	49	46	49	51	54	55	56	57
		Upper secondary and post-secondary non-tertiary	72	65	67	70	72	72	72	72
		Tertiary education	79	75	76	78	80	81	81	82
	Sweden	Below upper secondary	83	78	66	66	68	69	68	68
		Upper secondary and post-secondary non-tertiary	91	84	79	80	82	82	82	81
		Tertiary education	94	89	85	86	87	87	86	86
	Switzerland	Below upper secondary	78	67	69	69	66	69	68	66
		Upper secondary and post-secondary non-tertiary	80	80	81	81	82	81	81	80
		Tertiary education	92	90	90	91	91	91	91	90
	Turkey	Below upper secondary	60	64	57	56	53	52	50	49
		Upper secondary and post-secondary non-tertiary	67	63	66	64	64	62	62	61
		Tertiary education	87	74	81	79	78	78	76	75
	United Kingdom	Below upper secondary	61	55	53	53	54	54	53	54
		Upper secondary and post-secondary non-tertiary	78	77	79	79	79	79	79	80
		Tertiary education	86	86	87	88	88	88	88	88
	United States	Below upper secondary	52	54	58	58	58	58	57	58
		Upper secondary and post-secondary non-tertiary	74	75	76	76	77	76	74	73
		Tertiary education	85	86	85	85	85	84	83	82
	Country mean	***Below upper secondary***	***59***	***57***	***57***	***57***	***57***	***57***	***57***	***56***
		Upper secondary and post-secondary non-tertiary	***76***	***73***	***75***	***76***	***75***	***75***	***75***	***74***
		Tertiary education	***86***	***84***	***85***	***85***	***85***	***85***	***84***	***83***
PARTNER COUNTRY	Israel	Below upper secondary	m	m	m	m	m	m	43	43
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	m	67	66
		Tertiary education	m	m	m	m	m	m	79	79

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table A8.4a. Trends in unemployment rates by educational attainment (1991-2003)

Number of 25-to-64-year-olds in unemployment as a percentage of the labour force aged 25 to 64, by level of educational attainment

OECD COUNTRIES

		1991	1995	1998	1999	2000	2001	2002	2003
Australia	Below upper secondary	9.2	8.7	9.0	8.4	7.5	7.6	7.5	7.0
	Upper secondary and post-secondary non-tertiary	6.8	6.2	5.8	5.1	4.5	4.7	4.3	4.3
	Tertiary education	3.9	4.0	3.3	3.4	3.6	3.1	3.3	3.0
Austria	Below upper secondary	4.8	5.7	6.9	6.1	6.3	6.4	6.9	7.9
	Upper secondary and post-secondary non-tertiary	3.1	2.9	3.6	3.2	3.0	3.0	3.4	3.4
	Tertiary education	1.5	2.0	2.0	1.9	1.6	1.5	1.9	2.0
Belgium	Below upper secondary	11.8	13.4	13.1	12.0	9.8	8.5	10.3	10.7
	Upper secondary and post-secondary non-tertiary	4.2	7.5	7.4	6.6	5.3	5.5	6.0	6.7
	Tertiary education	2.0	3.6	3.2	3.1	2.7	2.7	3.5	3.5
Canada	Below upper secondary	13.8	13.1	11.8	10.7	10.1	10.5	11.0	10.9
	Upper secondary and post-secondary non-tertiary	8.7	8.3	7.5	6.7	5.9	6.2	6.7	6.5
	Tertiary education	6.3	6.2	4.7	4.5	4.1	4.7	5.1	5.2
Czech Republic	Below upper secondary	m	7.7	14.5	18.8	19.3	19.2	18.8	19.8
	Upper secondary and post-secondary non-tertiary	m	2.1	4.6	6.5	6.7	6.2	5.6	6.1
	Tertiary education	m	0.7	1.9	2.6	2.5	2.0	1.8	2.0
Denmark	Below upper secondary	14.2	14.6	7.0	7.0	6.3	5.0	6.2	7.2
	Upper secondary and post-secondary non-tertiary	9.1	9.9	4.6	4.1	3.9	3.3	3.4	4.4
	Tertiary education	4.9	4.6	3.3	3.0	2.6	3.2	3.5	4.7
Finland	Below upper secondary	8.6	21.6	13.8	13.1	12.1	11.4	12.2	11.1
	Upper secondary and post-secondary non-tertiary	7.3	16.7	10.6	9.5	8.9	8.5	8.8	9.2
	Tertiary education	3.4	9.1	5.8	4.7	4.7	4.4	4.5	4.3
France	Below upper secondary	10.6	13.7	14.9	15.3	13.9	11.9	11.8	12.1
	Upper secondary and post-secondary non-tertiary	6.6	9.0	9.6	9.2	7.9	6.9	6.8	7.5
	Tertiary education	3.7	6.5	6.6	6.1	5.1	4.8	5.2	6.1
Germany	Below upper secondary	7.4	13.3	15.4	15.9	13.9	13.5	15.3	18.0
	Upper secondary and post-secondary non-tertiary	4.7	7.9	10.3	8.8	8.1	8.2	9.0	10.2
	Tertiary education	3.2	4.9	5.5	5.0	4.2	4.2	4.5	5.2
Greece	Below upper secondary	m	6.3	7.3	8.3	7.7	7.4	7.2	6.6
	Upper secondary and post-secondary non-tertiary	m	9.0	10.4	10.8	10.9	9.9	9.7	9.1
	Tertiary education	m	8.1	6.2	7.6	7.2	6.7	6.4	5.6
Hungary	Below upper secondary	m	m	11.4	11.1	9.9	10.0	10.5	10.6
	Upper secondary and post-secondary non-tertiary	m	m	6.2	5.8	5.3	4.6	4.4	4.8
	Tertiary education	m	m	1.7	1.4	1.3	1.2	1.5	1.4
Iceland	Below upper secondary	m	m	3.4	2.3	2.5	2.4	3.0	m
	Upper secondary and post-secondary non-tertiary	m	m	c	c	c	c	2.6	m
	Tertiary education	m	m	c	c	c	c	c	m
Ireland	Below upper secondary	20.3	16.4	11.6	9.2	7.0	5.6	5.9	6.3
	Upper secondary and post-secondary non-tertiary	7.3	7.6	4.5	3.5	2.5	2.4	2.8	2.9
	Tertiary education	4.1	4.2	3.0	1.7	1.6	1.4	1.8	2.6
Italy	Below upper secondary	5.7	9.1	10.8	10.6	10.0	9.1	9.0	m
	Upper secondary and post-secondary non-tertiary	7.2	7.9	8.2	8.0	7.4	6.8	6.4	m
	Tertiary education	5.0	7.3	6.9	6.9	5.9	5.3	5.3	m
Japan	Below upper secondary	m	m	4.3	5.6	6.0	5.9	6.6	6.7
	Upper secondary and post-secondary non-tertiary	m	m	3.3	4.4	4.7	4.8	5.3	5.4
	Tertiary education	m	m	2.6	3.3	3.5	3.1	3.8	3.7
Korea	Below upper secondary	0.9	1.0	6.0	5.4	3.4	2.9	2.1	2.1
	Upper secondary and post-secondary non-tertiary	1.9	1.6	6.8	6.4	3.8	3.4	2.8	3.2
	Tertiary education	2.7	2.0	4.9	4.7	3.4	3.4	3.0	3.0

Note: Figures in brackets, such as [76], are not statistically significant due to small sample size.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
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Table A8.4a. (*continued*) **Trends in unemployment rates by educational attainment (1991-2003)**

Number of 25-to-64-year-olds in unemployment as a percentage of the labour force aged 25 to 64, by level of educational attainment

			1991	1995	1998	1999	2000	2001	2002	2003
OECD COUNTRIES	Luxembourg	Below upper secondary	m	m	m	3.7	3.1	[1.8]	3.8	3.3
		Upper secondary and post-secondary non-tertiary	m	m	m	[1.1]	[1.6]	[1.1]	[1.2]	2.6
		Tertiary education	m	m	m	c	c	c	[1.8]	[4.2]
	Mexico	Below upper secondary	m	4.2	1.9	1.4	1.3	1.4	1.5	1.6
		Upper secondary and post-secondary non-tertiary	m	5.2	2.6	1.9	1.6	1.7	1.8	1.9
		Tertiary education	m	4.7	2.5	2.9	2.0	2.2	2.5	2.6
	Netherlands	Below upper secondary	8.6	7.9	0.9	4.9	3.9	2.9	3.8	m
		Upper secondary and post-secondary non-tertiary	4.6	4.8	1.7	2.4	2.3	1.6	2.2	m
		Tertiary education	1.5	4.1	c	1.7	1.9	1.2	2.1	m
	New Zealand	Below upper secondary	12.5	8.2	10.5	8.8	7.8	6.7	5.6	4.9
		Upper secondary and post-secondary non-tertiary	7.3	3.3	4.7	4.6	3.5	3.2	3.3	2.9
		Tertiary education	4.8	3.2	4.5	4.0	3.6	3.2	3.4	3.5
	Norway	Below upper secondary	6.7	6.5	2.9	2.5	2.2	3.4	3.4	3.9
		Upper secondary and post-secondary non-tertiary	4.4	4.0	2.4	2.5	2.6	2.7	2.9	3.6
		Tertiary education	2.0	2.4	1.5	1.4	1.9	1.7	2.1	2.5
	Poland	Below upper secondary	m	13.9	13.9	16.4	20.6	22.6	25.2	25.9
		Upper secondary and post-secondary non-tertiary	m	11.1	9.1	10.7	13.9	15.9	17.8	17.8
		Tertiary education	m	2.8	2.5	3.1	4.3	5.0	6.3	6.6
	Portugal	Below upper secondary	5.3	6.2	4.4	4.0	3.6	3.6	4.4	5.7
		Upper secondary and post-secondary non-tertiary	4.5	6.4	5.1	4.4	3.5	3.3	4.3	5.1
		Tertiary education	c	3.2	[2.8]	[3.0]	[2.7]	[2.8]	3.9	4.9
	Slovak Republic	Below upper secondary	m	24.0	24.3	30.3	36.3	38.7	42.3	44.9
		Upper secondary and post-secondary non-tertiary	m	9.6	8.8	11.9	14.3	14.8	14.2	13.5
		Tertiary education	m	2.7	3.3	4.0	4.6	4.2	3.6	3.7
	Spain	Below upper secondary	13.7	20.6	17.1	14.7	13.7	10.2	11.2	11.2
		Upper secondary and post-secondary non-tertiary	12.2	18.5	15.3	12.9	11.0	8.4	9.5	9.5
		Tertiary education	9.3	14.5	13.1	11.1	9.5	6.9	7.7	7.7
	Sweden	Below upper secondary	2.6	10.1	10.4	9.0	8.0	5.9	5.8	6.1
		Upper secondary and post-secondary non-tertiary	2.3	8.7	7.8	6.5	5.3	4.6	4.6	5.2
		Tertiary education	1.1	4.5	4.4	3.9	3.0	2.6	3.0	3.9
	Switzerland	Below upper secondary	1.2	5.8	5.6	5.0	5.0	3.7	4.6	6.1
		Upper secondary and post-secondary non-tertiary	1.5	2.8	2.8	2.3	2.0	2.0	2.4	3.3
		Tertiary education	1.3	[1.9]	2.8	[1.7]	[1.3]	1.3	2.2	2.9
	Turkey	Below upper secondary	5.7	4.8	4.4	5.3	4.6	6.7	8.5	8.8
		Upper secondary and post-secondary non-tertiary	7.2	6.9	6.6	8.2	5.5	7.4	8.7	7.8
		Tertiary education	3.1	3.3	4.8	5.1	3.9	4.7	7.5	6.9
	United Kingdom	Below upper secondary	10.4	12.8	10.5	10.0	8.9	7.6	8.5	6.9
		Upper secondary and post-secondary non-tertiary	6.5	7.5	5.0	4.9	4.6	3.9	4.1	3.9
		Tertiary education	3.3	3.7	2.6	2.7	2.1	2.0	2.4	2.4
	United States	Below upper secondary	12.3	10.0	8.5	7.7	7.9	8.1	10.2	9.9
		Upper secondary and post-secondary non-tertiary	6.5	5.0	4.5	3.7	3.6	3.8	5.7	6.1
		Tertiary education	2.9	2.7	2.1	2.1	1.8	2.1	3.0	3.4
	Country mean	***Below upper secondary***	***8.9***	***10.8***	***9.5***	***9.5***	***9.1***	***8.7***	***9.4***	***10.2***
		Upper secondary and post-secondary non-tertiary	***5.9***	***7.3***	***6.4***	***6.1***	***5.7***	***5.5***	***5.7***	***6.2***
		Tertiary education	***3.5***	***4.5***	***4.0***	***3.8***	***3.4***	***3.3***	***3.7***	***4.0***
PARTNER COUNTRY	Israel	Below upper secondary	m	m	m	m	m	m	14	15
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	m	10	10
		Tertiary education	m	m	m	m	m	m	6	6

Note: Figures in brackets, such as [76], are not statistically significant due to small sample size.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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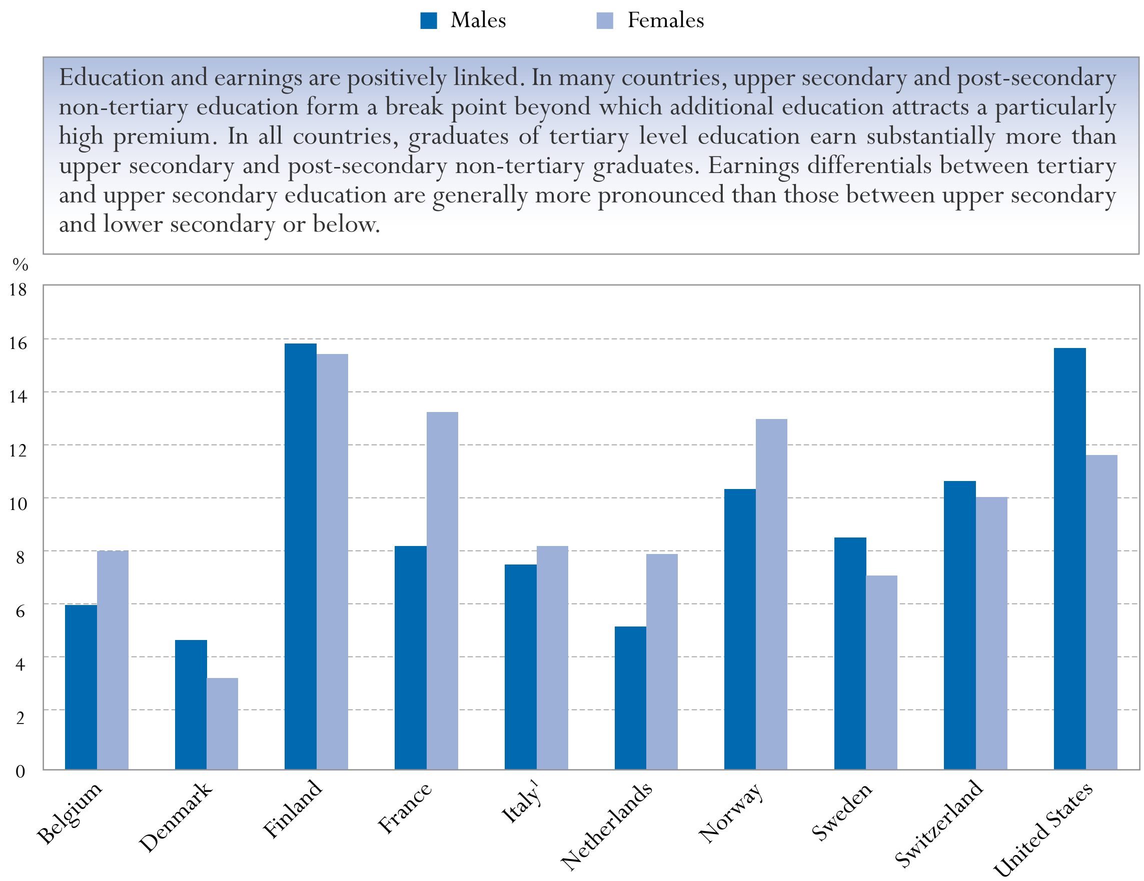
The returns to education: education and earnings

This indicator examines the relative earnings of workers with differing levels of educational attainment as well as the financial returns to investment in different levels of educational attainment. Rates of return are calculated for investments in education that are undertaken as a part of initial education, as well as for the case of a hypothetical 40-year-old who decides to return to education in mid-career. For the first time, this indicator presents newly compiled data that describes the distribution of pre-tax earnings within five (ISCED) levels of educational attainment.

Key results

Chart A9.1. Private internal rates of return (RoR) for an individual obtaining a university-level degree (ISCED 5/6) from an upper secondary and post-secondary non-tertiary level of education (ISCED 3/4) (2002)

Education and earnings are positively linked. In many countries, upper secondary and post-secondary non-tertiary education form a break point beyond which additional education attracts a particularly high premium. In all countries, graduates of tertiary level education earn substantially more than upper secondary and post-secondary non-tertiary graduates. Earnings differentials between tertiary and upper secondary education are generally more pronounced than those between upper secondary and lower secondary or below.



1. For reasons of reliability, data on earnings for 15-to-24-year-olds in tertiary education were not used, consequently life income streams are calculated from the data for 25-to-64-year-olds.
Source: OECD. Table A9.6. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

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Other highlights of this indicator

- Females still earn less than males with similar levels of educational attainment. For a given level of educational attainment, women typically earn between 60 and 80% of what men earn.
- Countries differ significantly in the dispersion of earnings among individuals with similar levels of educational attainment, with some countries having relatively modest dispersions of earnings within a category of educational attainment. Although individuals with higher levels of education are more likely to be in the highest earnings group, individuals with higher levels of education can fall into lower categories of earnings. This suggests there may be significant differences in the rates of return to education within countries.
- Countries differ in the relative share of men and women who fall in the upper and lower categories of earnings.
- Attaining higher levels of education can be viewed as an economic investment in which there are costs paid by the individual (including reductions in earnings while receiving education) that typically result in higher earnings over the individual's lifetime. In this context, the investment to obtain a university level degree can produce financial returns as high as a 15.8% annual return on this investment, with most countries having a rate of return under 10%.

Policy context

One way in which markets provide incentives for individuals to develop and maintain appropriate levels of skills is through wage differentials, in particular through the enhanced earnings accorded to persons with higher levels of education. The pursuit of higher levels of education can also be viewed as an investment in human capital. Human capital includes the stock of skills that individuals maintain or develop, usually through education or training that produces an economic return in the form of earnings in the labour market. The higher the earnings that result from increases in human capital, the higher the returns on that investment and the premium paid for enhanced skills and/or for higher productivity.

At the same time, education involves costs, which must be considered when examining the earnings associated with obtaining different levels of education. This indicator examines relative earnings associated with different levels of education, the variation in these earnings, and the estimated rates of return to individuals making investments to obtain higher levels of education.

The dispersion of earnings is also relevant for policies that support attainment of higher levels of education. A finding that a significant share of individuals who have higher levels of education have relatively low levels of earnings suggests that individuals may be receiving relatively low returns to investments in education. Policy makers may wish to examine characteristics of the education programmes which appear to have low rates of return for some people or examine the characteristics of the individuals in these programmes, such as their gender or occupation.

Evidence and explanations

Education and earnings

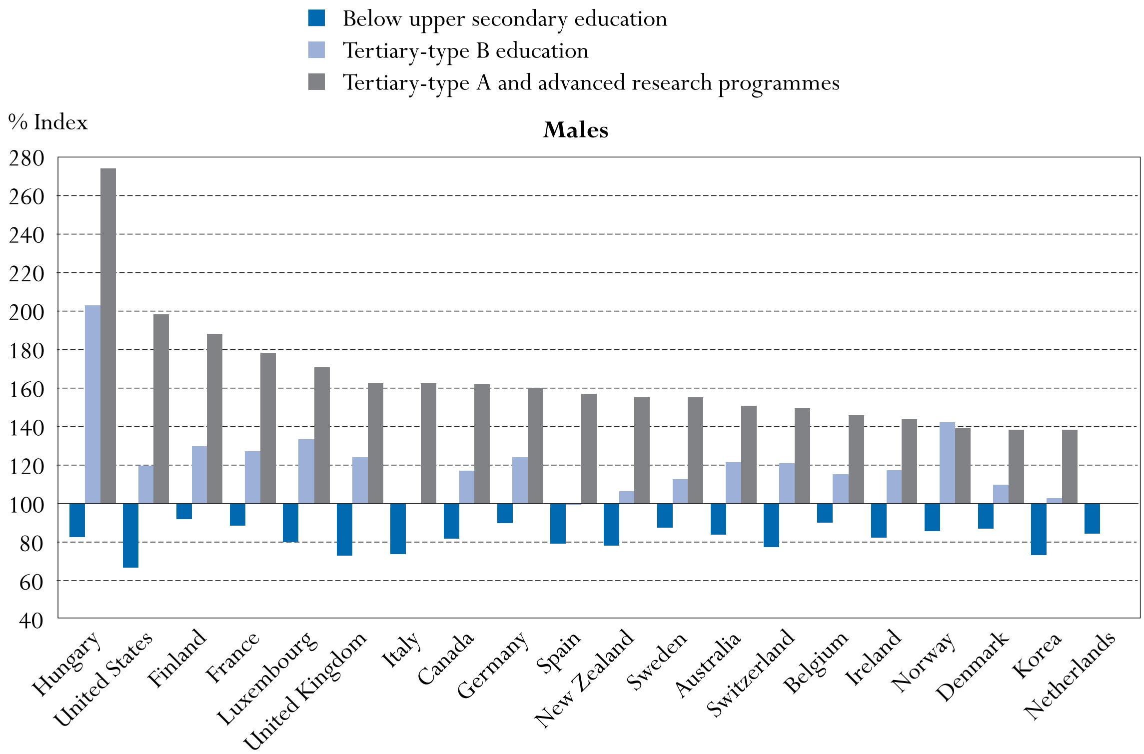
Earnings differentials according to educational attainment

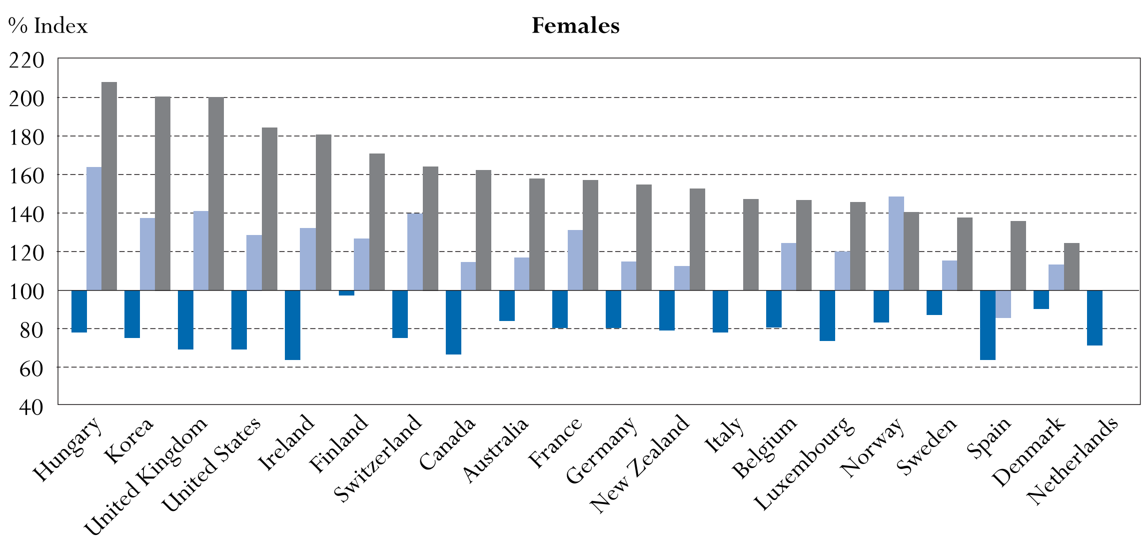
Earnings differentials according to educational attainment are a key measure of the current financial incentives in a particular country for an individual to invest in further education. Earnings differentials may also reflect differences in the supply of educational programmes at different levels or the barriers to access to those programmes. The earnings benefit of completing tertiary education can be seen by comparing the ratio of the mean annual earnings of those who graduated from tertiary education with the mean annual earnings of upper secondary or post-secondary non-tertiary graduates. The earnings disadvantage from not completing upper secondary education is apparent from a similar comparison. Variations in relative earnings (before taxes) among countries reflect a number of factors, including the demand for skills in the labour market, minimum wage legislation, the strength of unions, the coverage of collective bargaining agreements, the supply of workers at the various levels of educational attainment, the range of work experience of workers with high and low levels of educational attainment, the distribution of employment among occupations and the relative incidence of part-time and seasonal work among workers with varying levels of educational attainment.

Chart A9.2 shows a strong positive relationship between educational attainment and average earnings. In all countries, graduates of tertiary-level education earn substantially more than upper secondary and post-secondary non-tertiary graduates. Earnings differentials between those who have tertiary education and those who have upper secondary education are generally more pronounced than the differentials between upper secondary and lower secondary or below, suggesting that in many countries upper secondary (and with a small number of exceptions, post-secondary non-tertiary) education forms a break-point beyond which additional education attracts a particularly high premium. Table A9.1a shows that, among those countries which report gross earnings, the earnings premium for males aged 25 to 64 years with tertiary-level education, relative to upper secondary education, ranges from 27% in Korea to 174% in Hungary.

Chart A9.2. Relative earnings from employment (2003)

By level of educational attainment and gender for 25-to-64-year-olds (upper secondary education =100)





Countries are ranked in descending order of relative earnings of the population having attained the level of tertiary-type A and advanced research programmes.
Source: OECD. Table A9.1a. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

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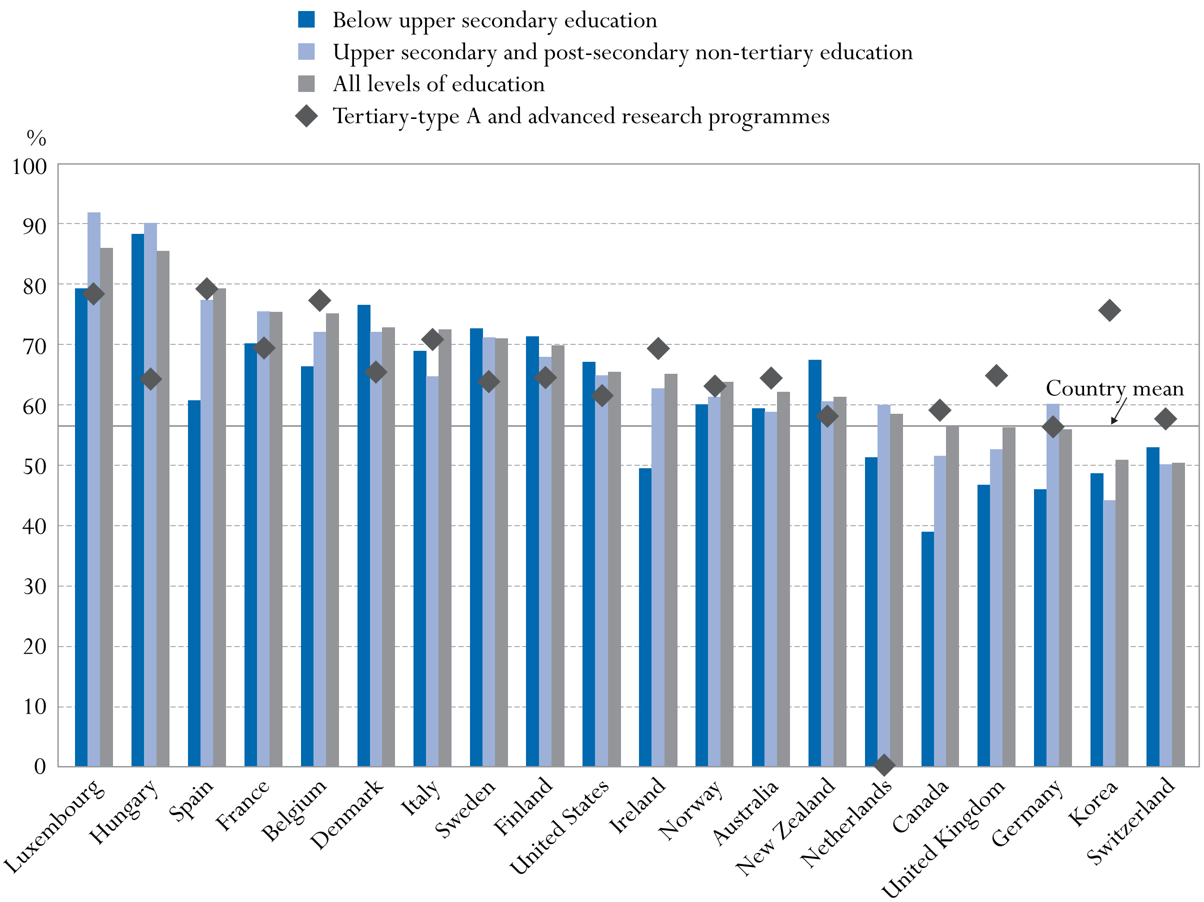
The earnings data shown in this indicator differ across countries in a number of ways. Caution should therefore be exercised in interpreting the results. In particular, in countries reporting annual earnings, differences in the incidence of seasonal work among individuals with different levels of educational attainment will have an effect on relative earnings that is not reflected in the data for countries reporting weekly or monthly earnings (see the Definitions and methodologies section below).

Education and gender disparity in earnings

For 25-to-64-year-olds, tertiary education enhances earnings relative to upper secondary education more for females than for males in Australia, Ireland, Korea, the Netherlands, Norway, Switzerland and the United Kingdom. The reverse is true in the remaining countries, with the exception of Belgium where, relative to upper secondary education, the earnings of males and females are equally enhanced by tertiary education (Table A9.1a).

Chart A9.3. Differences in earnings between females and males (2003)

Average annual earnings of females as a percentage of males (30-to-44 age group), by level of educational attainment



Countries are ranked in descending order of the average annual earnings of women as a percentage of average annual earnings of males, for 30-to-44-year-olds, of all levels of education.
Source: OECD. Table A9.1b. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

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Earnings differentials between males and females with the same educational attainment

Although both males and females with upper secondary, post-secondary non-tertiary or tertiary attainment have substantial earnings advantages compared with those of the same gender who do not complete upper secondary education, earnings differentials between males and females with the same educational attainment remain substantial (Chart A9.3 and Table A9.1b).

When all levels of education are taken together (*i.e.* total earnings are divided by the total number of income earners, by gender) the earnings of females between the ages of 30 and 44 range from 50% of those of males in Switzerland to 86% of those of males in both Hungary and Luxembourg (Chart A9.3 and Table A9.1b).

The gap in earnings between males and females may be explained in part by different choices of career and occupation, differences in the amount of time that males and females spend in the labour force, and the relatively high incidence of part-time work among females (in Table A9.1b, part-time employment is excluded in Belgium, Hungary, Luxembourg and the United States).

The distribution of earnings within levels of educational attainment

Tables A9.4a, A9.4b and A9.4c show the distributions of earnings among 25-to-64-year-olds with income from employment for 15 countries. The tables show these distributions for the combined male and female populations, as well as for males and females separately. There are five categories of the earnings distribution, ranging from "At or below half of the median" to "More than twice the median". For example, in Table A9.4a, for Australia, the figure of 25% is found in the row "Below upper secondary" under the column "At or below half of the median". This means that 25% of Australians who are between the ages of 25 and 64 and whose highest educational attainment is below the upper secondary level have pre-tax earnings at or below half of the median earnings of all Australian 25-to-64-year-olds. Tables A9.4b and A9.4c also present male and female earnings distributions, respectively, relative to the median of the entire adult population.

Data on the distribution of earnings among individuals of similar educational attainment provide information beyond that obtained by looking only at average earnings, which can be affected by having small numbers of individuals with very low or high earnings.

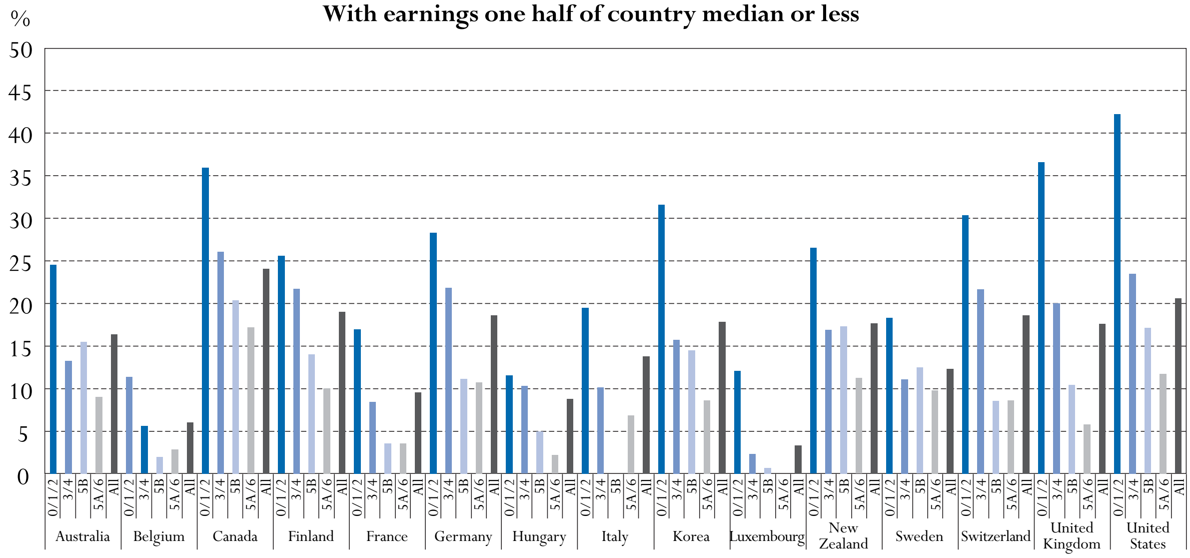
The data show that in most countries the share of individuals in the lowest earnings categories falls as the level of educational attainment rises. This result is simply another way of viewing the well-established positive relationship between earnings and educational attainment. However, it is notable that even at higher levels of education, there are individuals in the lower earnings categories indicating they had experienced a relatively low rate of return to education.

However, countries differ significantly in the dispersion of earnings. For instance, Table A9.4a shows that, considering all levels of educational attainment, and across all countries, an average of 62.8% of the population has earnings above half of the median but less than 1.5 times the median. However, this average includes a range that goes from 47% in Canada and 50% in the United States to 75% in Luxembourg and 81% in Belgium. Across all levels of education, countries such as Belgium, France, Hungary and Luxembourg have relatively few individuals with earnings that are either at or below half the median. Conversely, while across all countries an average of 22% of individuals between the ages of 25 and 64 has pre-tax earnings above 1.5 times the median, this population share is as low as 13% in Belgium and 15% in Sweden.

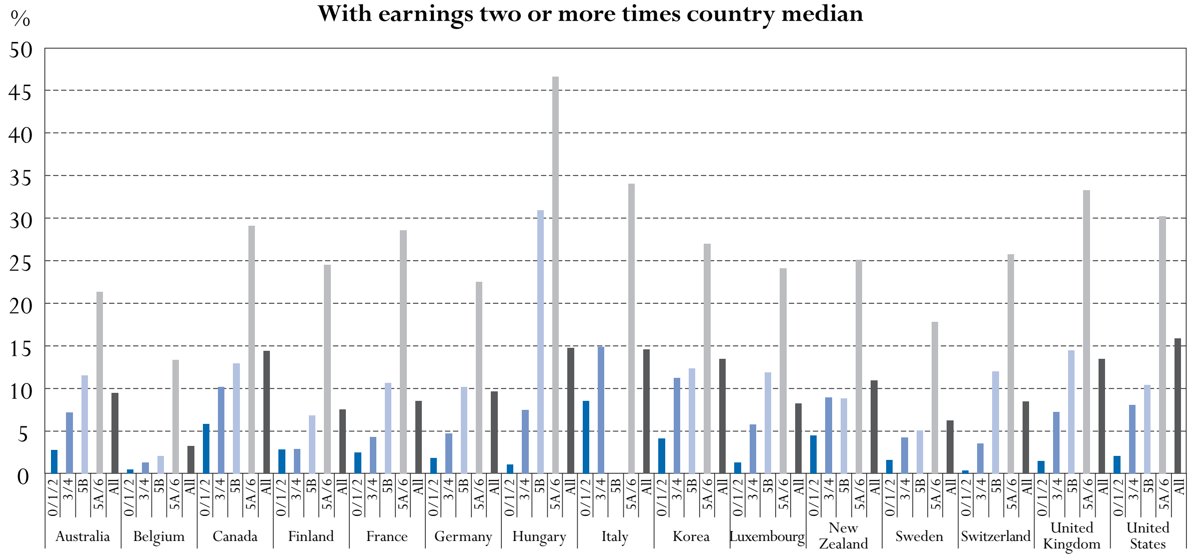
Chart A9.4. Share of 25-to-64-year-olds in earnings category, by level of educational attainment (2003)

0/1/2 = Below upper secondary
3/4 = Upper secondary and post-secondary non-tertiary
5B = Tertiary-type B education
5A/6 = Tertiary-type A and advanced research programme
All = All levels of education

With earnings one half of country median or less



With earnings two or more times country median



Source: OECD. Tables A9.4a. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

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Countries also differ significantly in the shares of individuals in the lowest earnings group that are male or female. For example, taking account of all levels of educational attainment, Hungary is the only country in which the percentage of females in the lowest earnings category is smaller than the percentage of males in the same category. At the opposite end of the spectrum, in Switzerland, 36% of females, and only 4% of males, are found in the lowest earnings category (Table A9.4b and A9.4c).

The interpretation of earnings dispersion data

A wide range of factors – from differences in institutional arrangements to variation in individual abilities – is likely to determine the extent of earnings dispersion among individuals of similar educational attainment. At an institutional level, countries in which wage setting is more centralised would tend to see lower earnings dispersion, owing to a degree of convergence between occupational status and educational attainment. More broadly, the data reflect the fact that educational attainment cannot be fully equated with skills. However, the data do show that in all countries earnings dispersion falls as educational attainment rises. This trend has many possible interpretations, including that greater educational attainment could be providing more information on skills, resulting in a closer link between education and wages. Earnings dispersions can reflect the fact that individuals achieving the same level of education can have different degrees of proficiency, while skills other than those indicated by educational attainment, as well as experience, are also rewarded in the labour market. National differences in the scale and operation of training systems for adult learners could influence national patterns of earnings dispersion. Differences in earnings for individuals of similar educational attainment could likewise reflect non-skills-related considerations in recruitment and remuneration, such as gender, race or age-based discrimination, as well as the relative effectiveness of different national legislative frameworks in countering such problems.

More generally, the data point to gaps in the understanding of earnings determination. Research in the United States has shown that for individuals of the same race and sex, over half of the variance in earnings is not explained by a person's years of schooling, age, duration of labour market experience, or parental schooling, occupation and income. In this connection, research on the determinants of earnings has highlighted the importance that employers accord to non-cognitive skills, thus raising questions about the role of education systems, and particularly early childhood education, in developing and signalling such skills (see the Definitions and methodologies section below).

Internal rates of return to investment in education

This indicator is analysed from three different points of view: rates of return to the individual (Tables A9.5 and A9.6), rates of return to government (Tables A9.7 and A9.8), and rates of return to society as a whole (Tables A9.9 and A9.10). These private, fiscal and social returns are calculated for ten OECD countries.

The analysis focuses on estimating the internal rates of return to formal education when the next highest level of qualification is attained. Internal rates of return are examined for the attainment of two different levels of education: upper secondary education and post-secondary non-tertiary education, following from a lower upper secondary level of attainment (Tables A9.5, A9.7 and A9.9); and tertiary education, following from an upper secondary and post-secondary non-tertiary level of educational attainment (Tables A9.6, A9.8 and A9.10).

In the following calculations, an initial scenario estimates rate of returns to education for an individual who has attained a higher educational level in youth, prior to entering the labour market. Others scenarios include the hypothetical case of a 40-year-old who decides to obtain a higher level of education in mid-career. The analysis explores the impact on rates of return – for individuals, government, and society as a whole – of the costs of education, the magnitude of foregone earnings and the duration of studies. All results are presented separately for males and females.

Private internal rates of return to investment in education

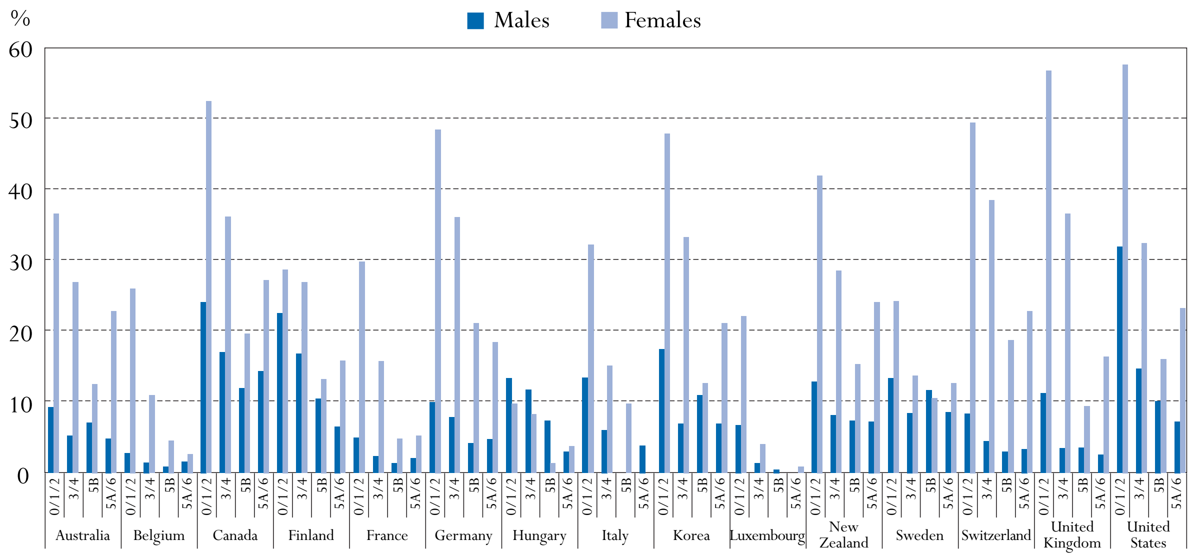
Private rates of return indicate advantages to investing in education for individuals

A private internal rate of return can be estimated on the basis of the additions to after-tax earnings that result from a higher level of educational attainment, net of the additional private costs (tuition and

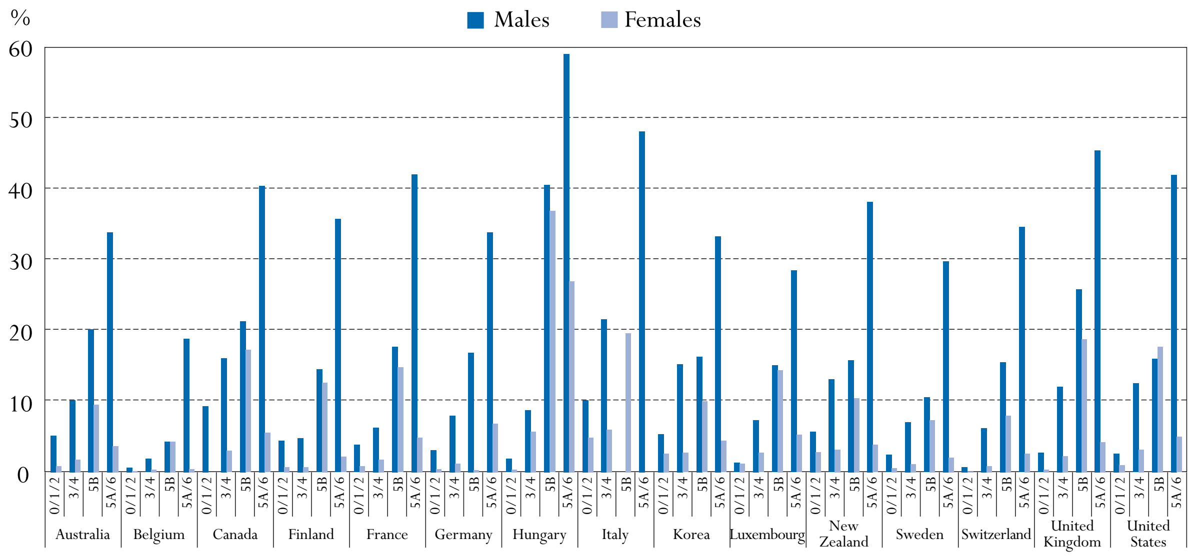
A9

Chart A9.5. Share of 25-to-64-year-olds in earnings category, by level of educational attainment and gender (2003)

With earnings one half of country median or less



With earnings two or more times country median



Note: 0/1/2 = Below upper secondary
3/4 = Upper secondary and post-secondary non-tertiary
5B = Tertiary-type B education
5A/6 = Tertiary-type A and advanced research programme

Source: OECD. Tables A9.4b and A9.4c. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/561264611726

foregone earnings) that attaining this higher level of education requires. Indirect private expenditures are not included in private costs.

Estimates of private rates of return are presented in Tables A9.5 and A9.6. Table A9.5 presents private rates of return for an individual who has invested in obtaining upper secondary or post-secondary non-tertiary education (ISCED level 3/4), from an original lower upper secondary level of education (ISCED level 0/1/2). Table A9.6 presents estimates for an individual who has invested in obtaining a tertiary-level education, up to the attainment of an advanced research qualification (ISCED level 5(A,B)/6), starting from an upper secondary level of education (ISCED level 3/4).

Private rates of return were calculated for the following two scenarios:

- In youth, the individual has continued directly to the next highest level of education before entering the labour market.
- Attaining the next highest level of education has been postponed until the age of 40, when education is resumed on a full-time basis. Two cases are examined here: i) the individual bears the direct costs of tuition (as reported by national education authorities), as well as foregone earnings (net of taxes); and ii) the individual bears no direct tuition costs, but again bears the costs of foregone earnings.

For the first scenario, the results show that in all countries the rates of return to the attainment of upper secondary or post-secondary non tertiary education are often explosive and, in the countries for which data are available, higher than those for tertiary education. At the tertiary level, four countries – Finland, Norway, Switzerland and United States – register private rates of return to tertiary education of around or above 10% (Table A9.6). For the second scenario, the results show that when an individual attains the next higher level of education at age 40, rates of returns to tertiary education are generally higher than those to upper secondary education. The results also show that the additional incentive created by eliminating tuition costs is, on average, weak. Eliminating tuition costs results in a 0.5% increase in the private rate of return for males and 0.6% for females at the upper secondary level of education, and about a 1.0% increase for males and a 1.4% increase for females at the tertiary level. Nevertheless, while in countries such as Denmark, Finland and Norway, the impact of eliminating tuition costs on private rates of return is small, the impact is significantly larger in France, Switzerland and the United States.

In the first scenario, private rates of return at the tertiary level are higher for males than females (except for Belgium, Italy, Netherlands and Norway) (Table A9.6). In the second scenario, in which the individual postpones attainment of the next highest level of education, private rates of return at the tertiary level are again higher for males than females in all countries (except for Belgium, the Netherlands and Switzerland).

Fiscal internal rates of return to investment in education

Fiscal rates of return relate additional public costs to additional income tax revenues

The fiscal internal rate of return is one way of examining the effect on public-sector accounts of individuals' choices to invest in education and the effect of the different policy settings that affect these investments. For the public sector, the costs of education include public direct and indirect expenditures on education, as well as lost income tax revenues on students' foregone earnings. The benefits include increased revenues from income taxes on higher wages. In practice, the achievement of higher levels of education will give rise to a complex set of fiscal effects on the benefit side, beyond the effects of wage-based revenue growth. For instance, better educated individuals generally experience superior health status, lowering public outlays on the provision of health care. And, for some individuals, achieving higher levels of educational attainment may lower the likelihood of committing certain types of crime (see Indicator A10), which, in turn, would reduce public expenditure. However, tax and expenditure data on such indirect effects of education are unavailable for inclusion in these rate-of-return calculations.

Estimates of fiscal rates of return are shown in Tables A9.7 and A9.8. Table A9.7 presents fiscal rates of return for an individual who has invested in obtaining upper secondary or post-secondary non-tertiary education (ISCED level 3/4), from an original lower upper secondary level of education (ISCED level 0/1/2). Table A9.8 concerns an individual who has invested in obtaining a tertiary-level education, up to the attainment of an advanced research qualification (ISCED level 5(A, B)/6), starting from an upper secondary level of education (ISCED level 3/4).

Estimates were calculated for the following three scenarios:

- During initial education, the individual has continued directly to the next highest level of education, before entering the labour market.
- Attaining the next highest level of education has been postponed until the age of 40, when education is resumed on a full-time basis. Two cases are examined here: i) the individual bears the direct costs of tuition (as reported by national education authorities), as well as foregone earnings (net of taxes); and ii) the individual bears no direct tuition costs, but again bears the costs of foregone earnings.
- The individual studies on a part-time basis while continuing to work. The duration of tuition is here assumed to be twice that of the scenario in which the 40-year-old student enters full-time studies.

The results show that, for the achievement of the tertiary level of attainment during initial education, the fiscal rate of return is in all cases lower than the private rate of return (except for Italy and Netherlands). However, in the scenario in which the individual returns to full-time education in mid-career, and when the individual bears the direct costs of tuition and foregone earnings, fiscal rates of return for completing tertiary education are higher than private rates of return in Belgium (for males only), Italy, the Netherlands and the United States.

The results show that, for upper secondary education, the effect of the public sector bearing the individual's tuition costs is to lower the fiscal rate of return by an average of 0.5% for males and 0.6% for females. At the tertiary level, the effect is to lower the fiscal rate of return by about 0.9% for males and 1% for females. Of particular note at the tertiary level is the magnitude of this decline in the fiscal rate of return in the United States – 3.8% for males and 3.9% for females – which is explained by the high costs of tertiary education in the United States.

Tables A9.7 and A9.8 also show that the fiscal rate of return declines still further when the individual at mid-career decides to study part-time and the duration of study is doubled (this fall is generally somewhat more pronounced for females). This effect is explained by the fact that future taxes received are lowered as a consequence of the shorter time horizon over which education-enhanced earnings accrue. This finding highlights that, in the case of individuals in mid-career, positive net revenue effects can arise if governments provide financial incentives to encourage full-time rather than part-time study, for instance through cost-sharing with employers.

Social internal rates of return to investment in education

The social internal rate of return combines private and fiscal internal rates of return

The benefits to society of additional education can be assessed on the basis of social internal rates of return. The social internal rate of return represents the societal perspective, viewed as the sum of the private and public benefits (see Annex 3 at *www.oecd.org/edu/eag2005* for the description of educational expenditures) of additional education. Estimates of social internal rates of return are shown in Tables A9.9 and A9.10. Table A.9.9 presents social internal rates of return for a hypothetical individual who has invested in obtaining upper secondary or post-secondary non-tertiary education (ISCED level 3/4), from an original lower upper secondary level of education (ISCED level 0/1/2). Table A9.10 concerns a hypothetical individual who has invested in obtaining a tertiary-level education, up to the attainment of an advanced research qualification (ISCED level 5(A, B)/6), starting from an upper secondary level of education (ISCED level 3/4).

Tables A9.9 and A9.10 present estimates of the social internal rates of return for three scenarios:

- During initial education, the individual has continued directly to the next highest level of education prior to entering the labour market.
- The individual enters full-time studies at age 40 in order to obtain the next highest level of education.
- The individual studies on a part-time basis while continuing to work. The duration of tuition is here assumed to be twice that of the scenario in which the student in mid-career enters full-time studies.

The social cost of education includes foregone production of output during study periods as well as the full cost of providing education, rather than only the cost borne by the individual. The social benefit includes the increased productivity associated with the investment in education as well as a range of possible indirect benefits, which also have economic repercussions (such as better health, more social cohesion and more informed and effective citizens). While data on social costs are available for most OECD countries, information on the full range of social benefits is less readily available. To the extent that productivity gains are reflected in labour cost differentials, the latter can be used as a measure of the economic gains of education for society. However, the possibility of externalities associated with education suggests that the observed earnings differentials might not fully account for the economy-wide efficiency gains. On the other hand, studies suggest that a (small) part of the wage premiums received by better educated individuals is due to the signals of inherent ability that educational attainments provide to employers, rather than productivity differentials due to increases in human capital. Furthermore, while the indirect benefits of education are important, it is often difficult to translate these into monetary values for inclusion in rate of return calculations.

Given the difficulties of constructing comprehensive social rates of return, these calculations present estimates of a narrow definition that abstracts from any externality effects. To the extent that there are significant positive externalities related to human capital investment by the average student these estimates will thus be biased downwards.

Tables A9.9 and A9.10 do not report separate social internal rates of return for the cases in which the individual does or does not bear tuition costs, as the social rates of return are identical in both instances. The social rate of return is unchanged whether the individual bears the costs of tuition or not because social costs and benefits are simply the addition of individual and public costs and benefits. Thus, costs eliminated for the individual become public costs.

The estimates presented in Tables A9.9 and A9.10 show that social internal rates of return for completing the upper secondary level are particularly high in the Netherlands, Sweden and the United States. In all three countries the social internal rate of return exceeds 20% (except for females in Sweden) when the individual attains the upper secondary level as part of initial education (Table A9.9). At the tertiary level – when the individual completes this level of attainment as part of his or her initial education – the social internal rates of return are above 8% in four countries: Finland, Italy, the Netherlands and the United States (Table A9.10).

For the scenario in which males stay in work but study part-time, it is notable that the rates of return for completing the upper secondary level are on average higher than when males resume full-time studies at age 40. This result is explained by the fact that society does not bear the same loss of output (as proxied by earnings) that would occur if the individual studies on a full-time basis. However, in this scenario, the picture is more mixed for the attainment of tertiary-level qualifications.

In all scenarios, social rates of returns are almost always higher for males than females. At the tertiary level, the exceptions occur in one or more scenarios in Belgium, Italy and the Netherlands. At the upper secondary level, exceptions occur, in only one scenario, in Belgium, Denmark, Finland, France and the Netherlands (although in the scenario in which this occurs in Denmark and Finland, the social internal rate of return for females is just a lower negative rate than the negative rate for males).

The interpretation of the internal rates of return

Few adults currently leave work in mid-career to pursue full-time studies. The scenario considered in the above analyses, in which a working-age adult undertakes part-time studies in order to attain the next highest level of qualification, is more common. However, as described below, the empirical basis for the earnings assumptions is weak. These data also report accounting rates of return only. The results would no doubt differ from econometric estimates that control for the inherent ability, and other features, of those who decide to invest in education.

For persons acquiring upper secondary education, as well as individuals attaining a tertiary level qualification, private internal rates of return in a number of countries are higher than the real interest rate, often significantly. In these countries, human capital investment appears to be an attractive way for the average person to build wealth. In other countries there are weak incentives for investment in education. Furthermore, and with some exceptions, policies that eliminate (or reduce) the direct costs of education have only a modest impact on individuals' decisions to invest in mid-career learning.

In many cases, the reported private and social internal rates of return are above – and in a number of countries significantly above – the risk-free real interest rate. However, returns on human capital accumulation are not risk-free, as indicated by the wide dispersion of earnings among the better educated. Therefore, individuals contemplating an investment in education are likely to require a compensating risk premium. However, in a number of countries, the size of the premium of the internal rates of return over the real interest rate is higher than would seem to be warranted by considerations of risk alone. A policy implication is that if returns to this form of investment are high relative to investments of similar risk there is some obstacle to individuals making the investment. High risk-adjusted private rates of return provide prima facie grounds for policy intervention to alleviate the relevant constraints.

One interpretation of high rates of return is that they indicate a shortage of better-educated workers, driving up earnings for better-qualified workers. Such a situation might be temporary, with high returns to education eventually generating sufficient supply response to push the rates into line with returns to other productive assets. However, the adjustment period could be protracted and the speed of adjustment would depend largely on the capacity of the education system to respond to the derived increase in demand and the capacity of the labour market to absorb the changing relative supplies of labour. The rebalancing mechanism could be accelerated by making better information about the returns to different courses of study available to students, helping them to make more informed choices.

Part of the high returns may also be compatible with market equilibrium. This would be the case if the marginal rates are significantly lower than the average rates. The marginal rate would be lower than the average rate if the students at the margin are of lower ability and motivation than the average students, and thus unlikely to be able to command the average wage premium. According to this interpretation, the high internal rates of return would partly reflect economic rents on a scarce resource, namely ability and motivation. If the returns to education at the margin are lower, the case for public intervention to stimulate human capital accumulation is lessened if the quality of the marginal student cannot be improved. However, to the extent that the education system can improve cognitive and non-cognitive skills of young people, education policy could make a significant contribution to efficiency and equity in the longer run.

Definitions and methodologies

Earnings data in Table A9.1a are annual in Canada, Denmark, Finland, Italy, Korea, Luxembourg, Netherlands, Norway, Spain, Sweden, Switzerland and the United States. Earnings are reported weekly in Australia, Ireland, New Zealand and the United Kingdom, and monthly in Belgium, France, Germany and Hungary. Data on earnings are before income tax, while earnings for Belgium and Korea are net of income tax (the tax treatment is not reported for Canada). Data on earnings for individuals in part-time, part-year or seasonal employment are excluded in Hungary, Luxembourg and the United States. The data exclude bonuses from employers in Belgium and Korea.

The research referred to regarding earnings determination in the United States is described in Bowles and Gintis (2000).

Earnings assumptions were made in calculating rates of return for an individual who recommences work in mid-career after having attained the next highest level of education. The assumptions concerned the immediate earnings increase (10% relative to the level of earnings had at the previous level of educational attainment) and the time required for convergence with the average wage of individuals already holding the next highest level of educational qualification (three years). These assumptions are somewhat ad hoc. Empirical evidence on the earnings of adults who return to work following part-time or full-time studies is scarce, especially for individuals attaining an upper secondary qualification. However, Canadian data indicate a convergence period of just two years for 30-to-49-year-olds who obtain a university degree, with a still shorter catch-up time for those who obtain a tertiary degree (OECD, 2003). It should be noted, nevertheless, that the Canadian data are derived from a small sample of individuals and do not control for the fact that those who invested in education may differ in important ways – such as motivation and inherent ability – by comparison with those who did not. The results presented are somewhat sensitive to assumptions regarding the earnings of working-age individuals who return to the labour force after attaining the next highest level of education. When the earnings convergence period is doubled (from three years to six years), the private rate of return decreases by an average of 1 percentage point.

For the methods employed for the calculation of the rates of return in Tables A9.5 to A9.10, see Annex 3 at *www.oecd.org/edu/eag2005*.

Further references

The following additional material relevant to this indicator is available on the Web at *http://dx.doi.org/10.1787/561264611726* :

Trends in relative earnings, by gender (1997-2003)

Table A9.2b Males
Table A9.2c Females

Table A9.1a. Relative earnings of the population with income from employment

By level of educational attainment and gender for 25-to-64-year-olds and 30-to-44-year-olds (upper secondary education = 100)

OECD COUNTRIES

			Below upper secondary education		Post-secondary non-tertiary education		Tertiary-type B education		Tertiary-type A and advanced research programmes		All tertiary education	
			25-64	30-44	25-64	30-44	25-64	30-44	25-64	30-44	25-64	30-44
Australia	2001	Males	84	82	102	100	121	114	151	152	142	142
		Females	84	82	99	98	117	122	158	166	146	154
		M+F	77	75	91	91	110	107	142	145	132	134
Belgium	2003	Males	90	91	m	m	115	116	146	143	132	130
		Females	81	84	m	m	124	127	147	153	132	136
		M+F	89	91	m	m	114	116	148	148	130	130
Canada	2002	Males	82	83	100	104	117	120	162	164	139	142
		Females	67	68	94	91	115	124	162	172	136	146
		M+F	79	81	100	101	113	116	161	164	136	139
Denmark	2002	Males	87	84	106	107	110	110	138	135	131	128
		Females	90	89	117	118	113	112	125	122	123	121
		M+F	88	86	117	117	113	114	126	123	124	121
Finland	2002	Males	92	88	c	c	130	125	188	176	163	153
		Females	98	93	c	c	127	125	171	167	146	142
		M+F	95	92	c	c	121	115	180	169	150	140
France	2002	Males	88	86	m	m	127	132	178	173	159	157
		Females	81	80	m	m	131	135	157	159	146	148
		M+F	84	84	m	m	125	129	167	165	150	150
Germany	2003	Males	90	92	110	111	124	123	160	154	150	145
		Females	81	70	124	128	115	104	155	144	145	134
		M+F	87	83	114	116	126	123	163	153	153	144
Hungary	2003	Males	83	82	138	136	202	174	274	287	274	286
		Females	78	81	126	124	164	166	208	206	208	206
		M+F	80	80	130	127	172	162	235	236	235	236
Ireland	2000	Males	82	77	79	60	117	123	143	140	135	133
		Females	64	61	94	78	132	126	181	155	161	144
		M+F	87	83	82	67	124	130	163	152	149	143
Italy	2002	Males	74	73	m	m	m	m	162	136	162	136
		Females	78	78	m	m	m	m	147	148	147	148
		M+F	78	80	m	m	m	m	153	137	153	137
Korea	2003	Males	73	83	m	m	103	109	138	132	127	125
		Females	75	91	m	m	138	146	201	227	176	195
		M+F	67	77	m	m	111	122	156	161	141	148
Luxembourg	2002	Males	80	78	115	138	133	140	171	177	150	157
		Females	74	68	121	130	120	126	146	151	131	137
		M+F	79	76	118	121	130	137	166	171	146	152
Netherlands	2002	Males	84	84	m	m	m	m	m	m	143	141
		Females	72	72	m	m	m	m	m	m	155	156
		M+F	84	84	m	m	m	m	m	m	148	147
New Zealand	2003	Males	78	74	115	111	106	108	155	152	135	135
		Females	80	81	101	102	112	108	153	143	132	127
		M+F	77	75	107	105	101	101	150	145	128	126
Norway	2002	Males	86	90	118	114	142	145	139	139	139	139
		Females	83	88	121	116	149	152	141	142	141	143
		M+F	85	91	125	121	155	152	135	135	137	136
Spain	2001	Males	79	82	m	m	99	97	157	135	138	122
		Females	64	65	m	m	86	88	136	138	125	126
		M+F	78	80	m	m	95	95	141	133	129	122
Sweden	2003	Males	90	90	125	133	114	114	155	153	144	143
		Females	91	88	103	105	119	109	140	134	132	125
		M+F	92	90	122	127	111	106	146	141	135	130
Switzerland	2003	Males	77	79	110	105	121	121	149	148	138	138
		Females	76	78	118	110	140	139	164	161	156	154
		M+F	76	79	112	107	141	141	168	165	158	156
United Kingdom	2003	Males	73	72	m	m	124	118	162	164	151	151
		Females	70	64	m	m	141	137	200	202	180	179
		M+F	69	71	m	m	128	123	178	182	162	163
United States	2003	Males	67	67	118	118	120	120	198	202	189	192
		Females	70	69	116	114	129	130	184	191	177	183
		M+F	70	70	116	114	121	121	191	195	183	185

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/561264611726

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Table A9.1b. Differences in earnings between females and males

Average annual earnings of females as a percentage of males by level of educational attainment of 30-to-44-year-olds and 55-to-64-year-olds

			Below upper secondary education		Upper secondary and post-secondary non-tertiary education		Tertiary-type B education		Tertiary-type A and advanced research programmes		All levels of education	
			30-44	55-64	30-44	55-64	30-44	55-64	30-44	55-64	30-44	55-64
OECD COUNTRIES	Australia	2001	59	61	59	60	63	58	64	61	62	60
	Belgium	2003	67	63	72	69	79	78	77	72	75	66
	Canada	2002	50	61	59	60	64	60	65	61	64	60
	Denmark	2002	77	70	72	72	74	75	65	64	73	69
	Finland	2002	72	77	68	77	68	73	65	70	70	72
	France	2002	70	65	76	72	78	68	69	66	76	62
	Germany	2003	46	61	60	52	51	62	56	62	56	55
	Hungary	2003	88	89	90	102	85	116	64	81	86	87
	Ireland	2000	50	48	63	39	64	47	69	80	65	56
	Italy	2002	69	72	65	59	m	m	71	41	73	58
	Korea	2003	49	45	44	52	59	107	76	62	51	37
	Luxembourg	2002	79	83	92	71	83	105	78	131	86	65
	Netherlands	2002	51	47	60	47	m	m	m	m	59	50
	New Zealand	2003	68	59	61	63	62	78	58	61	61	64
	Norway	2002	60	62	61	63	65	66	63	62	64	61
	Spain	2001	61	48	78	74	70	57	79	42	79	47
	Sweden	2003	73	75	72	70	72	76	66	68	73	74
	Switzerland	2003	53	47	50	51	61	51	58	59	59	57
	United Kingdom	2003	47	50	53	56	61	57	65	64	56	54
	United States	2003	67	61	65	62	70	69	62	54	66	56

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/561264611726

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Table A9.2a. Trends in relative earnings: adult population (1997-2003)

By educational attainment, for 25-to-64-year-olds (upper secondary and post-secondary non-tertiary education = 100)

OECD COUNTRIES		1997	1998	1999	2000	2001	2002	2003
Australia	Below upper secondary	79	m	80	m	77	m	m
	Tertiary education	124	m	134	m	133	m	m
Belgium	Below upper secondary	m	m	m	92	m	91	89
	Tertiary education	m	m	m	128	m	132	130
Canada	Below upper secondary	84	78	80	80	77	79	m
	Tertiary education	128	138	137	140	142	136	m
Czech Republic	Below upper secondary	68	68	68	m	m	m	m
	Tertiary education	179	179	179	m	m	m	m
Denmark	Below upper secondary	85	86	86	m	87	88	m
	Tertiary education	123	124	124	m	124	124	m
Finland	Below upper secondary	97	96	96	m	95	95	m
	Tertiary education	148	148	153	m	150	150	m
France	Below upper secondary	84	84	84	m	m	84	m
	Tertiary education	149	150	150	m	m	150	m
Germany	Below upper secondary	81	78	79	75	m	77	87
	Tertiary education	134	130	135	143	m	143	153
Hungary	Below upper secondary	68	68	70	71	71	74	74
	Tertiary education	179	184	200	194	194	205	219
Ireland	Below upper secondary	75	79	m	89	m	m	m
	Tertiary education	146	142	m	153	m	m	m
Italy	Below upper secondary	m	58	m	78	m	78	m
	Tertiary education	m	127	m	138	m	153	m
Korea	Below upper secondary	m	78	m	m	m	m	67
	Tertiary education	m	135	m	m	m	m	141
Luxembourg	Below upper secondary	m	m	m	m	m	78	m
	Tertiary education	m	m	m	m	m	145	m
Netherlands	Below upper secondary	83	m	m	m	m	84	m
	Tertiary education	141	m	m	m	m	148	m
New Zealand	Below upper secondary	77	76	76	74	74	m	76
	Tertiary education	148	136	139	133	133	m	126
Norway	Below upper secondary	85	84	84	m	m	84	m
	Tertiary education	138	132	133	m	m	135	m
Portugal	Below upper secondary	62	62	62	m	m	m	m
	Tertiary education	176	177	178	m	m	m	m
Spain	Below upper secondary	76	80	m	m	78	m	m
	Tertiary education	149	144	m	m	129	m	m
Sweden	Below upper secondary	90	89	89	m	86	87	90
	Tertiary education	129	130	131	m	131	130	132
Switzerland	Below upper secondary	74	75	76	78	m	77	75
	Tertiary education	152	153	151	157	m	156	156
United Kingdom	Below upper secondary	64	65	65	67	67	m	69
	Tertiary education	153	157	159	159	159	m	162
United States	Below upper secondary	70	67	65	65	m	66	66
	Tertiary education	168	173	166	172	m	172	172

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/561264611726

Table A9.3. Trends in differences in earnings between females and males (1997-2003)

Average annual earnings of females as a percentage of males by level of educational attainment of 25-to-64-year-olds

			1997	1998	1999	2000	2001	2002	2003
OECD COUNTRIES	Australia	Below upper secondary	60	m	66	m	62	m	m
		Upper secondary and post-secondary non-tertiary	62	m	64	m	62	m	m
		Tertiary education	62	m	67	m	63	m	m
	Belgium	Below upper secondary	m	m	m	64	m	65	66
		Upper secondary and post-secondary non-tertiary	m	m	m	72	m	72	74
		Tertiary education	m	m	m	74	m	76	74
	Canada	Below upper secondary	54	53	53	53	53	52	m
		Upper secondary and post-secondary non-tertiary	61	61	61	62	60	63	m
		Tertiary education	64	62	62	61	61	63	m
	Czech Republic	Below upper secondary	66	66	66	m	m	m	m
		Upper secondary and post-secondary non-tertiary	69	69	69	m	m	m	m
		Tertiary education	66	65	65	m	m	m	m
	Denmark	Below upper secondary	73	73	73	m	74	75	m
		Upper secondary and post-secondary non-tertiary	72	71	71	m	71	73	m
		Tertiary education	68	66	66	m	67	68	m
	Finland	Below upper secondary	78	77	77	m	76	76	m
		Upper secondary and post-secondary non-tertiary	74	72	72	m	71	72	m
		Tertiary education	66	65	62	m	63	64	m
	France	Below upper secondary	68	68	68	m	m	70	m
		Upper secondary and post-secondary non-tertiary	75	75	75	m	m	77	m
		Tertiary education	69	69	69	m	m	70	m
	Germany	Below upper secondary	63	74	70	56	m	53	54
		Upper secondary and post-secondary non-tertiary	64	67	68	63	m	61	60
		Tertiary education	63	68	60	61	m	60	58
	Hungary	Below upper secondary	79	80	84	83	83	85	89
		Upper secondary and post-secondary non-tertiary	88	86	89	88	88	93	95
		Tertiary education	64	63	62	62	62	67	71
	Ireland	Below upper secondary	46	48	m	46	m	m	m
		Upper secondary and post-secondary non-tertiary	59	63	m	60	m	m	m
		Tertiary education	70	70	m	71	m	m	m
	Italy	Below upper secondary	m	70	m	76	m	70	m
		Upper secondary and post-secondary non-tertiary	m	62	m	65	m	66	m
		Tertiary education	m	52	m	62	m	60	m
	Korea	Below upper secondary	m	56	m	m	m	m	48
		Upper secondary and post-secondary non-tertiary	m	70	m	m	m	m	47
		Tertiary education	m	75	m	m	m	m	65

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table A9.3. (*continued*) **Trends in differences in earnings between females and males (1997-2003)**
Average annual earnings of females as a percentage of males by level of educational attainment of 25-to-64-year-olds

			1997	1998	1999	2000	2001	2002	2003
OECD COUNTRIES	Luxembourg	Below upper secondary	m	m	m	m	m	80	m
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	86	m
		Tertiary education	m	m	m	m	m	75	m
	Netherlands	Below upper secondary	46	m	m	m	m	49	m
		Upper secondary and post-secondary non-tertiary	56	m	m	m	m	58	m
		Tertiary education	57	m	m	m	m	62	m
	New Zealand	Below upper secondary	52	61	65	61	61	m	65
		Upper secondary and post-secondary non-tertiary	62	63	67	64	64	m	63
		Tertiary education	60	59	61	67	67	m	62
	Norway	Below upper secondary	60	60	61	m	m	61	m
		Upper secondary and post-secondary non-tertiary	61	61	62	m	m	63	m
		Tertiary education	63	62	62	m	m	64	m
	Portugal	Below upper secondary	72	71	71	m	m	m	m
		Upper secondary and post-secondary non-tertiary	69	69	69	m	m	m	m
		Tertiary education	66	66	65	m	m	m	m
	Spain	Below upper secondary	60	61	m	m	58	m	m
		Upper secondary and post-secondary non-tertiary	72	76	m	m	71	m	m
		Tertiary education	68	69	m	m	64	m	m
	Sweden	Below upper secondary	73	74	74	m	74	74	75
		Upper secondary and post-secondary non-tertiary	72	72	73	m	71	72	72
		Tertiary education	67	66	67	m	65	67	68
	Switzerland	Below upper secondary	51	51	53	51	m	51	52
		Upper secondary and post-secondary non-tertiary	55	57	58	57	m	53	54
		Tertiary education	60	61	62	62	m	59	60
	United Kingdom	Below upper secondary	47	50	51	50	50	m	52
		Upper secondary and post-secondary non-tertiary	53	53	53	52	52	m	54
		Tertiary education	60	62	63	64	64	m	64
	United States	Below upper secondary	53	60	59	59	m	63	67
		Upper secondary and post-secondary non-tertiary	59	62	61	60	m	63	64
		Tertiary education	59	58	59	56	m	58	61

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/561264611726

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Table A9.4a. Distribution of the 25-to-64-year-old population by level of earnings and educational attainment

OECD COUNTRIES			Level of earnings (%)					
			At or below half of the median	More than half the median but at or below the median	More than the median but at or below 1.5 times the median	More than 1.5 times the median but at or below 2.0 times the median	More than 2 times the median	All categories
Australia	2001	Below upper secondary	25	46	20	6	3	100
		Upper secondary and post-secondary non-tertiary	13	37	31	12	7	100
		Tertiary-type B education	15	28	30	15	12	100
		Tertiary-type A and advanced research programmes	9	19	29	22	21	100
		All levels of education	16	35	27	13	9	100
Belgium	2003	Below upper secondary	11	59	26	3	0	100
		Upper secondary and post-secondary non-tertiary	6	53	34	6	1	100
		Tertiary-type B education	2	37	49	11	2	100
		Tertiary-type A and advanced research programmes	3	17	39	28	13	100
		All levels of education	6	45	36	10	3	100
Canada	2002	Below upper secondary	36	32	17	9	6	100
		Upper secondary and post-secondary non-tertiary	26	29	24	11	10	100
		Tertiary-type B education	20	25	25	17	13	100
		Tertiary-type A and advanced research programmes	17	16	19	19	29	100
		All levels of education	24	25	22	14	14	100
Finland	2002	Below upper secondary	26	37	28	7	3	100
		Upper secondary and post-secondary non-tertiary	22	36	31	8	3	100
		Tertiary-type B education	14	28	39	12	7	100
		Tertiary-type A and advanced research programmes	10	15	27	23	25	100
		All levels of education	19	31	31	11	8	100
France	2002	Below upper secondary	17	51	25	4	2	100
		Upper secondary and post-secondary non-tertiary	8	45	34	8	4	100
		Tertiary-type B education	4	27	41	18	11	100
		Tertiary-type A and advanced research programmes	4	15	32	21	29	100
		All levels of education	10	40	32	10	9	100
Germany	2003	Below upper secondary	28	37	28	5	2	100
		Upper secondary and post-secondary non-tertiary	22	37	29	7	5	100
		Tertiary-type B education	11	31	33	15	10	100
		Tertiary-type A and advanced research programmes	11	19	27	21	22	100
		All levels of education	19	32	29	11	10	100
Hungary	2003	Below upper secondary	12	66	18	3	1	100
		Upper secondary and post-secondary non-tertiary	10	43	29	10	7	100
		Tertiary-type B education	5	26	23	15	31	100
		Tertiary-type A and advanced research programmes	2	5	18	28	47	100
		All levels of education	9	39	24	13	15	100
Italy	2002	Below upper secondary	19	42	22	8	9	100
		Upper secondary and post-secondary non-tertiary	10	35	29	11	15	100
		Tertiary-type B education	m	m	m	m	m	m
		Tertiary-type A and advanced research programmes	7	20	27	12	34	100
		All levels of education	14	36	26	9	15	100

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/561264611726

Table A9.4a. *(continued)* **Distribution of the 25-to-64-year-old population by level of earnings and educational attainment**

OECD COUNTRIES			Level of earnings (%)					
			At or below half of the median	More than half the median but at or below the median	More than the median but at or below 1.5 times the median	More than 1.5 times the median but at or below 2.0 times the median	More than 2 times the median	All categories
Korea	2003	Below upper secondary	32	43	19	3	4	100
		Upper secondary and post-secondary non-tertiary	16	35	30	9	11	100
		Tertiary-type B education	15	31	31	11	12	100
		Tertiary-type A and advanced research programmes	9	18	30	17	27	100
		All levels of education	18	32	27	9	13	100
Luxembourg	2002	Below upper secondary	12	60	22	5	1	100
		Upper secondary and post-secondary non-tertiary	2	52	28	12	6	100
		Tertiary-type B education	1	29	42	17	12	100
		Tertiary-type A and advanced research programmes	0	14	37	25	24	100
		All levels of education	3	45	30	13	8	100
New Zealand	2003	Below upper secondary	26	44	20	6	4	100
		Upper secondary and post-secondary non-tertiary	17	33	30	10	9	100
		Tertiary-type B education	17	30	31	12	9	100
		Tertiary-type A and advanced research programmes	11	19	27	17	25	100
		All levels of education	18	32	28	11	11	100
Sweden	2003	Below upper secondary	18	44	31	5	2	100
		Upper secondary and post-secondary non-tertiary	11	42	35	8	4	100
		Tertiary-type B education	12	31	40	12	5	100
		Tertiary-type A and advanced research programmes	10	20	37	16	17	100
		All levels of education	13	37	35	9	6	100
Switzerland	2003	Below upper secondary	30	48	19	2	0	100
		Upper secondary and post-secondary non-tertiary	22	33	34	8	4	100
		Tertiary-type B education	9	18	42	20	12	100
		Tertiary-type A and advanced research programmes	9	16	26	23	26	100
		All levels of education	19	29	32	12	8	100
United Kingdom	2003	Below upper secondary	37	42	16	5	1	100
		Upper secondary and post-secondary non-tertiary	20	36	26	11	7	100
		Tertiary-type B education	10	27	30	18	14	100
		Tertiary-type A and advanced research programmes	6	13	22	25	33	100
		All levels of education	18	30	24	14	13	100
United States	2003	Below upper secondary	42	40	12	4	2	100
		Upper secondary and post-secondary non-tertiary	23	35	22	11	8	100
		Tertiary-type B education	17	31	27	15	10	100
		Tertiary-type A and advanced research programmes	12	19	22	17	30	100
		All levels of education	21	29	21	13	16	100

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/561264611726

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Table A9.4b. Distribution of 25-to-64-year-old males by level of earnings and educational attainment

OECD COUNTRIES			Level of earnings (%)					
			At or below half of the median	More than half the median but at or below the median	More than the median but at or below 1.5 times the median	More than 1.5 times the median but at or below 2.0 times the median	More than 2 times the median	All categories
Australia	2001	Below upper secondary	9	44	30	12	5	100
		Upper secondary and post-secondary non-tertiary	5	32	36	17	10	100
		Tertiary-type B education	7	17	32	23	20	100
		Tertiary-type A and advanced research programmes	5	11	24	26	34	100
		All levels of education	7	30	31	18	15	100
Belgium	2003	Below upper secondary	3	55	37	5	1	100
		Upper secondary and post-secondary non-tertiary	1	43	44	10	2	100
		Tertiary-type B education	1	22	53	20	4	100
		Tertiary-type A and advanced research programmes	2	11	35	34	19	100
		All levels of education	2	38	42	14	5	100
Canada	2002	Below upper secondary	24	30	23	14	9	100
		Upper secondary and post-secondary non-tertiary	17	26	26	15	16	100
		Tertiary-type B education	12	20	25	22	21	100
		Tertiary-type A and advanced research programmes	15	11	16	18	40	100
		All levels of education	17	22	23	17	21	100
Finland	2002	Below upper secondary	23	29	33	10	4	100
		Upper secondary and post-secondary non-tertiary	17	27	39	12	5	100
		Tertiary-type B education	11	18	35	22	15	100
		Tertiary-type A and advanced research programmes	7	9	22	27	36	100
		All levels of education	16	23	34	16	12	100
France	2002	Below upper secondary	5	50	34	7	4	100
		Upper secondary and post-secondary non-tertiary	2	40	41	11	6	100
		Tertiary-type B education	1	19	41	22	18	100
		Tertiary-type A and advanced research programmes	2	10	24	22	42	100
		All levels of education	3	36	36	13	12	100
Germany	2003	Below upper secondary	10	35	43	9	3	100
		Upper secondary and post-secondary non-tertiary	8	35	38	11	8	100
		Tertiary-type B education	4	20	38	21	17	100
		Tertiary-type A and advanced research programmes	5	12	25	25	34	100
		All levels of education	7	27	35	16	16	100
Hungary	2003	Below upper secondary	14	57	22	5	2	100
		Upper secondary and post-secondary non-tertiary	12	41	27	11	9	100
		Tertiary-type B education	7	21	17	14	41	100
		Tertiary-type A and advanced research programmes	3	7	12	19	59	100
		All levels of education	10	37	23	12	17	100
Italy	2002	Below upper secondary	14	42	25	9	10	100
		Upper secondary and post-secondary non-tertiary	6	31	29	12	22	100
		Tertiary-type B education	m	m	m	m	m	m
		Tertiary-type A and advanced research programmes	4	13	21	14	48	100
		All levels of education	10	35	26	11	19	100

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table A9.4b. *(continued)* **Distribution of 25-to-64-year-old males by level of earnings and educational attaiment**

			Level of earnings (%)					
			At or below half of the median	More than half the median but at or below the median	More than the median but at or below 1.5 times the median	More than 1.5 times the median but at or below 2.0 times the median	More than 2 times the median	All categories
OECD COUNTRIES Korea	2003	Below upper secondary	18	44	29	4	5	100
		Upper secondary and post-secondary non-tertiary	7	30	37	10	15	100
		Tertiary-type B education	11	23	37	13	16	100
		Tertiary-type A and advanced research programmes	7	13	28	18	33	100
		All levels of education	10	27	33	12	18	100
Luxembourg	2002	Below upper secondary	7	61	25	6	1	100
		Upper secondary and post-secondary non-tertiary	1	52	27	13	7	100
		Tertiary-type B education	0	24	42	19	15	100
		Tertiary-type A and advanced research programmes	0	11	34	27	28	100
		All levels of education	2	44	30	14	10	100
New Zealand	2003	Below upper secondary	13	46	27	8	6	100
		Upper secondary and post-secondary non-tertiary	8	28	36	14	13	100
		Tertiary-type B education	7	25	36	16	16	100
		Tertiary-type A and advanced research programmes	7	16	23	16	38	100
		All levels of education	9	29	32	14	16	100
Sweden	2003	Below upper secondary	14	36	42	7	2	100
		Upper secondary and post-secondary non-tertiary	8	28	44	12	7	100
		Tertiary-type B education	12	19	40	19	10	100
		Tertiary-type A and advanced research programmes	9	13	29	20	28	100
		All levels of education	10	27	41	13	10	100
Switzerland	2003	Below upper secondary	8	52	36	3	1	100
		Upper secondary and post-secondary non-tertiary	5	27	49	13	6	100
		Tertiary-type B education	3	12	44	26	16	100
		Tertiary-type A and advanced research programmes	3	10	24	28	35	100
		All levels of education	4	23	41	18	14	100
United Kingdom	2003	Below upper secondary	11	50	27	9	3	100
		Upper secondary and post-secondary non-tertiary	3	29	37	18	12	100
		Tertiary-type B education	4	16	30	25	26	100
		Tertiary-type A and advanced research programmes	3	8	18	26	45	100
		All levels of education	4	25	30	20	21	100
United States	2003	Below upper secondary	32	44	16	5	3	100
		Upper secondary and post-secondary non-tertiary	15	31	26	15	13	100
		Tertiary-type B education	10	25	29	19	16	100
		Tertiary-type A and advanced research programmes	7	14	18	18	42	100
		All levels of education	14	26	22	16	22	100

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table A9.4c. Distribution of 25-to-64-year-old females by level of earnings and educational attainment

OECD COUNTRIES

			Level of earnings (%)					
			At or below half of the median	More than half the median but at or below the median	More than the median but at or below 1.5 times the median	More than 1.5 times the median but at or below 2.0 times the median	More than 2 times the median	All categories
Australia	2001	Below upper secondary	37	47	13	2	1	100
		Upper secondary and post-secondary non-tertiary	27	46	22	3	2	100
		Tertiary-type B education	23	38	28	8	4	100
		Tertiary-type A and advanced research programmes	13	25	33	19	10	100
		All levels of education	27	40	22	7	4	100
Belgium	2003	Below upper secondary	26	66	7	1	0	100
		Upper secondary and post-secondary non-tertiary	11	67	20	1	0	100
		Tertiary-type B education	3	47	45	4	0	100
		Tertiary-type A and advanced research programmes	5	27	46	17	4	100
		All levels of education	11	56	28	4	1	100
Canada	2002	Below upper secondary	53	35	9	2	c	100
		Upper secondary and post-secondary non-tertiary	37	32	22	6	3	100
		Tertiary-type B education	28	30	25	12	6	100
		Tertiary-type A and advanced research programmes	20	21	22	20	17	100
		All levels of education	32	30	21	10	6	100
Finland	2002	Below upper secondary	29	47	21	3	1	100
		Upper secondary and post-secondary non-tertiary	27	47	22	2	1	100
		Tertiary-type B education	16	34	41	6	2	100
		Tertiary-type A and advanced research programmes	13	21	33	20	13	100
		All levels of education	22	39	28	6	3	100
France	2002	Below upper secondary	30	52	15	2	1	100
		Upper secondary and post-secondary non-tertiary	16	52	26	5	2	100
		Tertiary-type B education	5	33	42	15	5	100
		Tertiary-type A and advanced research programmes	5	21	39	20	15	100
		All levels of education	17	44	27	8	4	100
Germany	2003	Below upper secondary	49	39	11	1	0	100
		Upper secondary and post-secondary non-tertiary	36	40	20	3	1	100
		Tertiary-type B education	21	47	25	6	0	100
		Tertiary-type A and advanced research programmes	19	29	30	15	7	100
		All levels of education	32	38	21	6	3	100
Hungary	2003	Below upper secondary	10	74	14	2	0	100
		Upper secondary and post-secondary non-tertiary	8	46	31	9	6	100
		Tertiary-type B education	4	28	26	16	27	100
		Tertiary-type A and advanced research programmes	1	4	23	35	37	100
		All levels of education	7	41	25	14	12	100
Italy	2002	Below upper secondary	33	42	17	4	5	100
		Upper secondary and post-secondary non-tertiary	15	40	30	9	6	100
		Tertiary-type B education	m	m	m	m	m	100
		Tertiary-type A and advanced research programmes	10	27	34	10	20	m
		All levels of education	20	38	26	7	8	100

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table A9.4c. *(continued)* **Distribution of 25-to-64-year-old females by level of earnings and educational attainment**

				Level of earnings (%)					
				At or below half of the median	More than half the median but at or below the median	More than the median but at or below 1.5 times the median	More than 1.5 times the median but at or below 2.0 times the median	More than 2 times the median	All categories
OECD COUNTRIES	Korea	2003	Below upper secondary	48	41	7	1	3	100
			Upper secondary and post-secondary non-tertiary	34	45	13	5	3	100
			Tertiary-type B education	21	47	19	8	4	100
			Tertiary-type A and advanced research programmes	13	30	34	14	10	100
			All levels of education	33	41	16	6	4	100
	Luxembourg	2002	Below upper secondary	22	59	14	3	1	100
			Upper secondary and post-secondary non-tertiary	4	53	30	10	3	100
			Tertiary-type B education	1	38	42	14	5	100
			Tertiary-type A and advanced research programmes	0	22	42	21	14	100
			All levels of education	6	48	31	10	4	100
	New Zealand	2003	Below upper secondary	42	42	11	2	3	100
			Upper secondary and post-secondary non-tertiary	29	41	22	5	3	100
			Tertiary-type B education	24	34	28	10	4	100
			Tertiary-type A and advanced research programmes	16	24	31	19	10	100
			All levels of education	28	37	23	8	5	100
	Sweden	2003	Below upper secondary	24	56	18	2	1	100
			Upper secondary and post-secondary non-tertiary	14	57	24	3	1	100
			Tertiary-type B education	13	38	40	8	2	100
			Tertiary-type A and advanced research programmes	11	27	43	12	7	100
			All levels of education	15	49	29	5	2	100
	Switzerland	2003	Below upper secondary	50	45	5	0	0	100
			Upper secondary and post-secondary non-tertiary	39	38	19	3	1	100
			Tertiary-type B education	23	32	36	7	3	100
			Tertiary-type A and advanced research programmes	19	29	31	13	8	100
			All levels of education	36	37	20	4	2	100
	United Kingdom	2003	Below upper secondary	57	34	7	1	0	100
			Upper secondary and post-secondary non-tertiary	37	43	15	4	2	100
			Tertiary-type B education	17	36	31	12	4	100
			Tertiary-type A and advanced research programmes	10	20	27	24	19	100
			All levels of education	32	36	18	8	6	100
	United States	2003	Below upper secondary	58	34	5	1	1	100
			Upper secondary and post-secondary non-tertiary	33	40	18	6	3	100
			Tertiary-type B education	24	36	25	11	5	100
			Tertiary-type A and advanced research programmes	16	24	26	16	18	100
			All levels of education	28	33	20	10	9	100

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table A9.5. Private internal rates of return (RoR) for an individual obtaining an upper secondary or post-secondary non-tertiary education (ISCED 3/4) from a lower upper secondary level of education (ISCED 0/1/2) (2002)

		RoR when the individual immediately acquires the next higher level of education		RoR when the individual, at age 40, begins the next higher level of education in full-time studies, and the individual bears…			
				direct costs and foregone earnings		no direct costs but foregone earnings	
		Males	Females	Males	Females	Males	Females
OECD COUNTRIES	Belgium	(1)	(1)	0.4	4.6	0.6	5.0
	Denmark	(1)	(1)	-4.0	-1.1	-3.9	-1.1
	Finland	(1)	(1)	(2)	(2)	(2)	(2)
	France	17.5	14.6	-7.9	-0.3	-7.2	1.4
	Italy	(1)	12.6	10.8	10.2	10.9	10.4
	Netherlands	(1)	(1)	1.9	3.7	2.1	4.2
	Norway	(1)	(1)	0.3	1.3	0.4	1.4
	Sweden	(1)	(1)	-4.2	-5.7	-4.2	-5.7
	Switzerland	16.9	18.9	5.8	3.0	7.5	4.0
	United States	(1)	(1)	13.9	13.2	14.4	14.1

(1) Negligible or zero costs cause excessively high estimates.
(2) Negative benefits owing to tax effects cause excessively low estimates.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

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Table A9.6. Private internal rates of return (RoR) for an individual obtaining a university-level degree (ISCED 5/6) from an upper secondary and post-secondary non-tertiary level of education (ISCED 3/4) (2002)

		RoR when the individual immediately acquires the next higher level of education		RoR when the individual, at age 40, begins the next higher level of education in full-time studies, and the individual bears…			
				direct costs and foregone earnings		no direct costs but foregone earnings	
		Males	Females	Males	Females	Males	Females
OECD COUNTRIES	Belgium	6.1	8.1	0.8	2.7	1.9	4.2
	Denmark	4.8	3.4	3.3	0.5	3.4	0.7
	Finland	15.8	15.4	10.8	8.3	11.0	8.6
	France	8.3	7.2	8.6	5.4	10.4	7.6
	Italy	7.6[1]	8.3[1]	12.4	3.4	13.1	4.5
	Netherlands	5.3	8.0	-0.4	3.1	0.3	4.6
	Norway	10.4	13.0	6.6	6.4	6.8	6.7
	Sweden	8.6	7.2	7.8	5.1	8.5	5.9
	Switzerland	10.7[2]	10.1[2]	a	a	6.1	9.5
	United States	12.6	9.4	8.3	3.9	11.6	8.4

1. For reasons of reliability, data on earnings for 15-to-24-year-olds in tertiary education were not used, consequently life income streams are calculated from
data for 25-to-64-year-olds.
2. The ROR is overestimated because direct private expenditures for tertiary level of education are missing.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/561264611726

Table A9.7. Fiscal internal rates of return (RoR) for an individual obtaining an upper secondary or post-secondary non-tertiary education (ISCED 3/4) from a lower upper secondary level of education (ISCED 0/1/2) (2002)

	RoR when the individual immediately acquires the next higher level of education		RoR when the individual, at age 40, begins the next higher level of education in full-time studies, and the individual bears… direct costs and foregone earnings		RoR when the individual, at age 40, begins the next higher level of education in full-time studies, and the individual bears… no direct costs but foregone earnings		RoR when the individual returns, at age 40, to acquire next higher level of education in part-time studies (duration is doubled)	
OECD COUNTRIES	Males	Females	Males	Females	Males	Females	Males	Females
Belgium	10.3	9.0	5.6	5.1	5.4	4.9	3.0	0.8
Denmark	9.1	7.4	-1.4	-1.7	-1.4	-1.7	-3.1	-3.7
Finland	9.7	7.3	6.1	4.3	6.0	4.2	0.9	-1.1
France	5.3	4.0	2.6	0.9	1.9	0.3	-3.3	-5.1
Italy	12.0	8.1	11.5	8.6	11.3	8.4	3.0	-5.1
Netherlands	13.8	12.8	12.9	8.1	12.1	7.3	8.0	2.2
Norway	7.4	5.4	3.2	0.8	3.2	0.7	-0.5	-3.6
Sweden	10.8	7.3	6.1	3.8	6.1	3.8	0.8	-1.6
Switzerland	3.2	1.0	-0.4	-3.6	-3.0	-6.7	-8.3	-12.0
United States	13.0	10.9	13.0	8.2	12.4	7.6	6.8	-2.6

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

StatLink: http://dx.doi.org/10.1787/561264611726

Table A9.8. Fiscal internal rates of return (RoR) for an individual obtaining a university-level degree (ISCED 5/6) from an upper secondary and post-secondary non-tertiary level of education (ISCED 3/4) (2002)

	RoR when the individual immediately acquires the next higher level of education		RoR when the individual, at age 40, begins the next higher level of education in full-time studies, and the individual bears… direct costs and foregone earnings		RoR when the individual, at age 40, begins the next higher level of education in full-time studies, and the individual bears… no direct costs but foregone earnings		RoR when the individual returns, at age 40, to acquire the next higher level of education in part-time studies (duration is doubled)	
OECD COUNTRIES	Males	Females	Males	Females	Males	Females	Males	Females
Belgium	5.3	5.3	1.5	1.0	0.8	0.3	-2.6	-3.5
Denmark	4.8	3.2	2.8	-0.1	2.7	-0.2	-0.3	-3.8
Finland	7.7	5.4	6.2	2.9	6.0	2.7	0.8	-2.5
France	6.7	5.0	6.4	3.0	5.5	2.1	0.4	-2.9
Italy	9.5[1]	9.2[1]	14.1	6.8	13.1	5.7	11.2	1.7
Netherlands	10.7	9.6	9.2	6.5	8.0	5.2	4.1	-0.2
Norway	4.1	2.9	1.0	-1.6	0.8	-1.7	-3.1	-6.4
Sweden	1.7	2.2	-0.9	-3.8	-1.3	-4.2	-6.1	-9.1
Switzerland	1.1	-0.6	a	a	-3.6	-6.5	-9.1	-12.2
United States	12.3	9.0	9.9	4.9	6.1	1.0	1.9	-3.8

1. For reasons of reliability, data on earnings for 15-to-24-year-olds in tertiary education were not used, consequently life income streams are calculated from data for 25-to-64-year-olds.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table A9.9. Social internal rates of return (RoR) for an individual obtaining an upper secondary or post-secondary non-tertiary education (ISCED 3/4) from a lower upper secondary level of education (ISCED 0/1/2) (2002)

		RoR when the individual immediately acquires the next higher level of education		RoR when the individual, at age 40, begins the next higher level of education in full time studies		RoR when the individual returns, at age 40, to acquire the next higher level of education in part-time studies (duration is doubled)	
		Males	Females	Males	Females	Males	Females
OECD COUNTRIES	Belgium	13	12.2	3.4	4.9	6	4.5
	Denmark	18.4	15.8	-2.4	-1.4	0.6	0.2
	Finland	19.4	15.5	-4.2	-4.1	-0.5	-2.1
	France	6.0	5.3	-0.5	0.6	-2.5	-2.8
	Italy	17.5	9.6	11.1	9.4	16.6	11.5
	Netherlands	22.3	23.0	5.9	5.6	13.0	7.7
	Norway	14.4	12.1	1.7	1.1	4.6	1.3
	Sweden	23.3	18.5	1.0	-0.3	3.9	0.9
	Switzerland	10.2	9.4	4.4	3.2	5.6	1.3
	United States	21.8	21.4	13.5	10.7	15.8	4.3

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

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Table A9.10. Social internal rates of return (RoR) for an individual obtaining a university-level degree (ISCED 5/6) from an upper secondary and post-secondary non-tertiary level of education (ISCED 3/4) (2002)

		RoR when the individual immediately acquires the next higher level of education		RoR when the individual, at age 40, begins the next higher level of education in full time studies		RoR when the individual returns, at age 40, to acquire the next higher level of education in part-time studies (duration is doubled)	
		Males	Females	Males	Females	Males	Females
OECD COUNTRIES	Belgium	5.6	6.3	1.2	1.6	0.9	0.2
	Denmark	4.8	3.3	3.0	0.1	3.8	-0.5
	Finland	11.0	8.7	8.7	5.6	9.0	4.5
	France	7.3	5.8	7.3	3.9	5.1	1.1
	Italy	8.4[1]	8.7[1]	13.1	5.2	18.9	7.0
	Netherlands	8.4	8.9	4.7	5.0	7.2	3.7
	Norway	6.8	6.5	4.0	2.2	4.6	0.8
	Sweden	5.2	4.7	4.1	1.0	3.4	-0.7
	Switzerland	6.1	5.1	a	a	2.9	0.0
	United States	12.4	9.2	8.9	4.3	9.6	2.7

1. For reasons of reliability, data on earnings for 15-to-24-year-olds in tertiary education were not used, consequently life income streams are calculated from data for 25-to-64-year-olds.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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The returns to education: links between education, economic growth and social outcomes

This indicator focuses on the role of human capital as a determinant of the level and rate of growth of output per capita within countries. The indicator complements Indicator A9, which examines the relationship between human capital and economic returns at the individual level. While Indicator A9 examines what happens to the earnings of an individual as his or her level of schooling rises, Indicator A10 seeks to capture the effects of changes in a country's overall stock of human capital on labour productivity, holding the aggregate stock of physical capital constant. Considering the relationship between education and broader social outcomes, this indicator also examines how schooling affects both health status and social cohesion.

Key results

- The estimated long-term effect on economic output of one additional year of education in the OECD area generally falls between 3 and 6%. Analyses of human capital across 14 OECD economies – based on literacy scores – also suggest significant positive effects on growth within countries.
- An analysis by the OECD Secretariat of the causes of economic growth shows that rising labour productivity accounted for at least half of GDP per capita growth in most OECD countries from 1990 to 2000.
- Many analyses indicate a positive causal relationship between higher educational attainment and better mental and physical health, with the mechanisms operating through income and employment, behavioural and psycho-social effects.

Policy context

Since the mid-1980s, economic growth has occupied centre-stage in macroeconomic research. Research has gained impetus from new theoretical insights – in particular new-growth theory – and new approaches to the empirics of growth. Human capital – the knowledge and skills embodied in workers – has been critical to renewed thinking about growth. Significant differences among OECD member countries in their recent macroeconomic performance have also spurred interest in the causes of economic growth.

Comparisons of micro-level estimates of returns to education for individuals (such as those portrayed in Indicator A9) and macro-econometric estimates as reflected in this indicator, are potentially of great policy relevance. Discrepancies between the two approaches can point to differences in the private and public returns to schooling that may call for corrective policy action. For instance, following a rise in school attainment, if productivity at the aggregate level of the economy is raised in ways additional to the increases in productivity of each worker, then this will generate a tendency for underinvestment in education. This will be because individuals will fail to take into account the wider economic benefits that can arise from their schooling choices. In this context, micro-econometric estimates of wage equations with individual cross-section data for a given country only pick up the effects on individuals of schooling, whereas macro-econometric estimates with cross-country data should also capture the wider economic impacts.

This year, Indicator A10 also reviews linkages between educational attainment and physical and mental health, as well as those between education and various dimensions of social cohesion. Much is already known about a variety of positive associations between educational attainment and physical and mental well-being. However, definitive evidence is lacking on the forms, magnitudes and causal nature of spillovers from education to a number of specific aspects of health. Further evidence on these relationships could have significant policy implications. This is especially so given that in many countries, the overall cost of health care is rising faster than the rate of economic growth. The results of international comparative research on the relationship between educational attainment and social cohesion are, generally, less clear-cut than is the case for health. However, this issue is also likely to grow in importance in the light of a range of challenges to social cohesion associated with globalisation and immigration.

Estimating the macroeconomic returns to education: challenges and outstanding questions

A large body of empirical research has confirmed a positive link between education and productivity. Better educated employees are generally more productive, and may also raise the productivity of co-workers. Higher stocks of human capital facilitate investments in physical capital and enhance the development and diffusion of new technologies, which in turn affects output per worker. Indeed, during the 1990s, in the OECD countries for which data are available, the rise in the number of knowledge workers (scientists, engineers and others, such as ICT specialists and technicians who generate knowledge) accounted for nearly 30% of recorded net employment growth. Wages have followed a similar pattern. For example, in the United States, between 1985 and 1998, real earnings of knowledge-intensive workers grew by almost 17%, cumulatively, compared with 5.3% for the average employee. During the same period goods-producing occupations suffered a decline in their real earnings of nearly 2.5%.

A range of indirect benefits from education are also likely to have positive economic consequences. For instance, greater education is associated with superior health status, lower risks of unemployment and increases in some aspects of social cohesion and political participation. Accurate assessment of macroeconomic returns can identify externalities associated with education. Such externalities provide a necessary rationale for public action. Knowledge of the macroeconomic returns to education can also indicate whether investment in human capital represents a better use of public resources than investment in alternative assets.

Studies of the macroeconomic returns to education are methodologically diverse and based on two broad theoretical approaches. The first, a neo-classical approach, models the relationship between the stock of education and the long-run level of GDP. Most studies follow this tradition. A second approach derives from new-growth theory and models the relationship between the stock of education and the rate of growth of GDP. Whether increases in the stock of education primarily affect the level of output, or its growth rate, is still unclear. Concerning the magnitude of the returns, the available studies indicate that in the neo-classical models a one-year increase in average education raises the level of output per capita by between 3 to 6 percentage points. Studies of the new-growth variety find that the same increase in average education raises the rate of growth of output by around 1 percentage point. The two theoretical approaches yield results that differ significantly in magnitude over the medium-to-long term. This is because the absolute effect on output of a cumulative 1 percentage point increase in the rate of growth soon exceeds a once-only increment to the level of output of even 6 percentage points (the upper boundary). However, over a period of a few years the absolute size of the predicted effects on output is comparable in both theoretical frameworks.

Various conceptual and methodological hurdles have hindered the estimation of education's impact on growth. A central issue relates to the direction of causality in the growth relationship: does education spur growth, or does growth cause individuals to consume more education? In practice, it is likely that causality operates in both directions. In a related manner, efficiency in producing educational outputs may simply be positively associated with efficiency in other areas of the economy as well. The results of many studies have also been weakened by data deficiencies. For instance, low correlations have been observed between measures of education from some key sources of educational data. Furthermore, growth studies have relied on a variety of proxies for human capital, such as average years of education, adult literacy rates and school enrolment ratios, and different studies have used a variety of dependent variables. Such proxies pose a number of difficulties. For instance, they include formal education only, omitting the skills and competencies acquired through on-the-job training, experience and other channels, as well as the loss of skills caused, for instance, by disuse. Similarly, adult literacy rates capture only one dimension of human capital, omitting such competencies as numeracy and technical knowledge. And variations in the quality of education systems mean that indicators of educational attainment are often not fully comparable across countries. However, international surveys, such as the Adult Literacy and Life Skills survey, as well as the OECD's Programme for the International Assessment of Adult Competencies, which is currently under development, can provide internationally comparable multidimensional indicators of skills. Indeed, different specifications of human capital lead to major divergences in estimates of the stock of human capital across countries. Different types of education can also be expected to have varied impacts on growth: a cohort of graduates in engineering disciplines is likely to affect productivity in different ways than a similar-sized cohort of graduates in the arts. But this differential effect is not captured in the usual aggregated proxies of human capital.

Cross-country growth regressions also usually assume that the impact of education is linear and constant across countries. However, research suggests that the assumption of constant growth effects of education across countries is unfounded. There is also evidence of diminishing effects on growth above an average of 7.5 years of education (see the Definitions and methodologies section). This is well below the average years of education across the OECD as a whole (in 1998, this was 11.3 years, across 20 OECD member countries for which data were available).

Much remains uncertain in education-growth research. As noted above, it is still unclear whether education and increases in the stock of human capital affect the level of GDP or its growth rate. Policy-relevant questions that could be addressed by further research include:

- How is growth affected by investment in different stages of education (from pre-school to advanced tertiary education and work-related training)?
- After how many years, and at which levels of education, do diminishing growth returns become important?
- How is growth affected by investment in different types of education, such as engineering disciplines or the arts?
- How is growth affected by the quality of education?
- How, if at all, are growth effects from the expansion of one stage of education affected by the level of attainment achieved at an earlier stage?

Evidence and explanations

The OECD Growth Project

Reporting on the OECD Growth Project findings, *Education at a Glance: 2003 Edition* (OECD, 2003) and *Education at a Glance 2004* (OECD, 2004c) noted that in 2000 most OECD countries lagged behind per capita GDP in the United States by 25 to 35 percentage points. For each country, productivity differences were broken down into three components: demographic effect, labour utilisation and labour productivity. The demographic effect refers to the ratio of the working age population to total population, and in most countries accounted for only a minor part of productivity differences relative to the United States. Analysis of the utilisation of available labour (employment rates combined with hours worked) showed a number of countries (*e.g.* Japan and the United States) with high employment rates and higher than average hours worked. While most of the Nordic countries had higher employment rates, this was offset by fewer hours worked. In some countries that combined low employment rates with relatively low hours (*e.g.* Belgium, France, Italy and the Netherlands), almost all of the gap between their per capita GDP and that of the United States was attributable to lower labour utilisation. Labour utilisation is therefore an important factor in accounting for differences in GDP per capita across countries. Of the 25 countries for which data were available, only five (Belgium, Ireland, Italy, the Netherlands and Norway) surpassed the United States in terms of labour productivity (GDP per hour worked). For a number of countries in which labour utilisation was relatively high (such as the Czech Republic, Iceland, Japan, Korea, Mexico and New Zealand), differences in GDP per capita as compared to the United States were attributable principally to a significantly lower level of labour productivity.

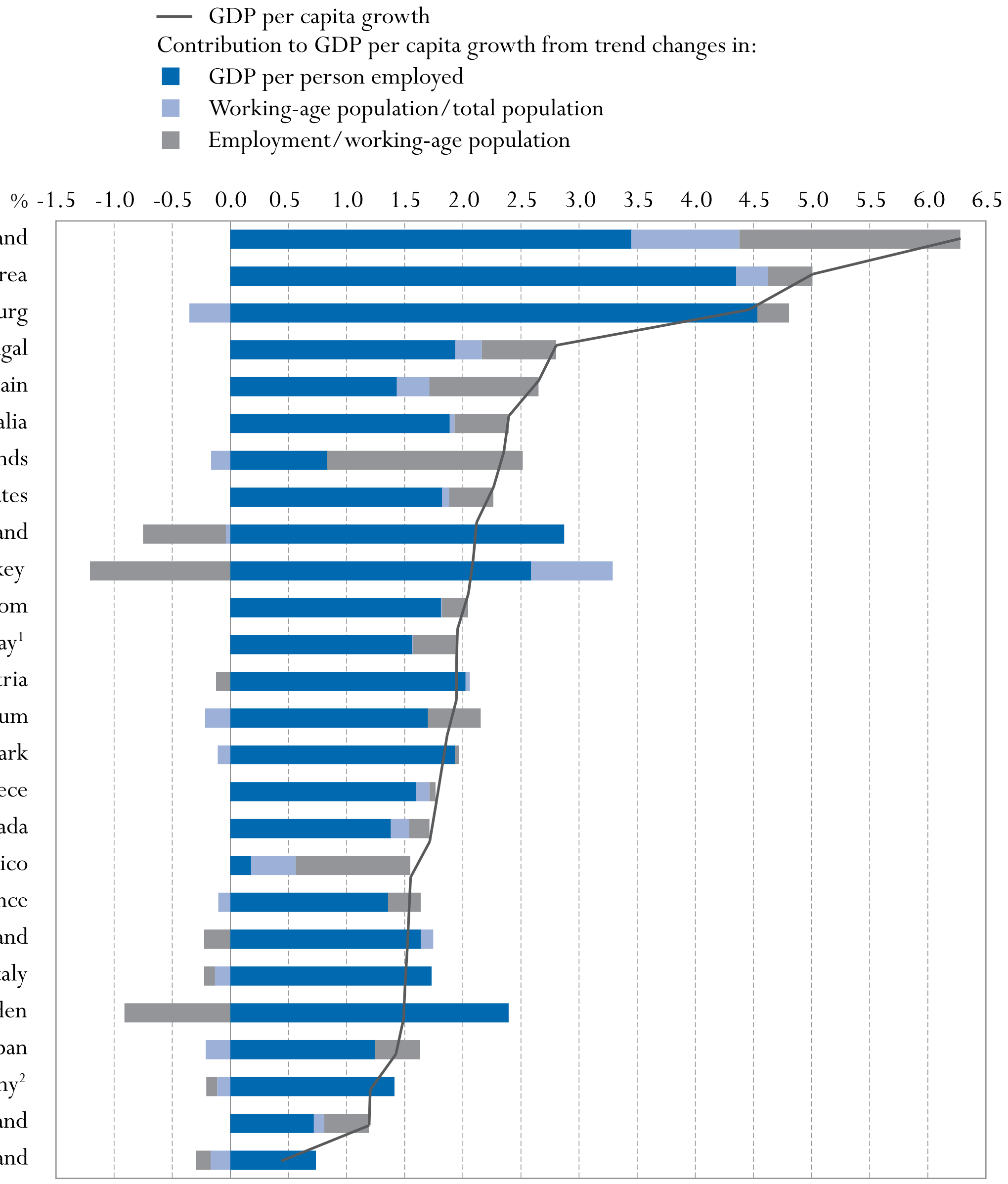
The critical roles of labour productivity and human capital

Illustrating the relative importance of the key drivers of growth in GDP per capita over the years 1990 to 2000, Chart A10.1 shows that, for most OECD countries, demographic change had a relatively minor impact. The only countries where demographic change made a positive and significant contribution to growth in GDP per capita were Ireland, Korea, Mexico and Turkey. However, in some OECD countries (such as Belgium, Denmark, France, Germany, Italy, Japan, Luxembourg, the Netherlands and Switzerland) demographic trends have begun (in this accounting sense) to act as a slight drag on growth in GDP per capita. This tendency is set to strengthen in the future as the total population ages more rapidly.

Chart A10.1 shows that rising labour productivity accounted for at least half of GDP per capita growth in most OECD countries over the 1990s. Indeed, in a number of countries, growth in labour productivity produced almost all of the increase in GDP per capita (this includes Austria, Denmark, Finland, Germany, Greece, Italy, Korea, Luxembourg, Sweden and the United Kingdom).

Chart A10.1. The driving forces of GDP per capita growth (1990-2000)

Trend series, average annual percentage change



1. Mainland only.
2. Years of reference 1991-2000.
Countries are ranked in descending order of GDP per capita growth.
Source: OECD.

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Box A10.1. Literacy and growth in 14 OECD member countries

Recent research has sought to estimate the relationship between human-capital and economic growth using a direct measure of human capital based on internationally comparable literacy scores. This approach helps avoid the problem of the imperfect comparability of measures of educational attainment across different national education systems. The literacy measures were obtained from the 1994 International Adult Literacy Survey (IALS), which tested the skills of 16-to-64-year-olds in prose, quantitative and document literacy. The data cover 14 OECD countries. Using these survey findings, a synthetic time series was constructed for 1960-1995. The literacy results of 17-to-25-year-olds in a given period were then used as proxies for investment in human capital during the previous period (the imputation of literacy skills early in life, based on data collected in adulthood, requires adjustment for the changes in human capital that occur over the life-cycle, and this adjustment was not made, representing a disadvantage of this synthetic indicator in comparison to indicators of schooling). Time series and cross-country information was pooled in a panel data set. The non-inclusion of information on immigration flows in this indicator may be seen as a weakness.

The research indicates that literacy scores, as a direct measure of human capital, perform better in growth regressions than indicators of schooling. A country able to attain literacy scores 1 per cent higher than the international average will achieve levels of labour productivity and GDP per capita that are 2.5% and 1.5% higher, respectively, than those of other countries. IALS offers two explanations as to why literacy data should contain more information on the relative well-being of nations than data on years of schooling: that literacy might be a superior measure of some key driver of growth, such as social infrastructure; and that data on literacy skills might be more comparable across countries than data on years of schooling. To assess these interpretations, the study proposes future research using both indicators to compare growth effects across regions within a given country. This could help to surmount problems of imperfect international comparability, as the relative performance of the two would reveal which performed best as a measure of human capital and which was most closely associated with economic growth.

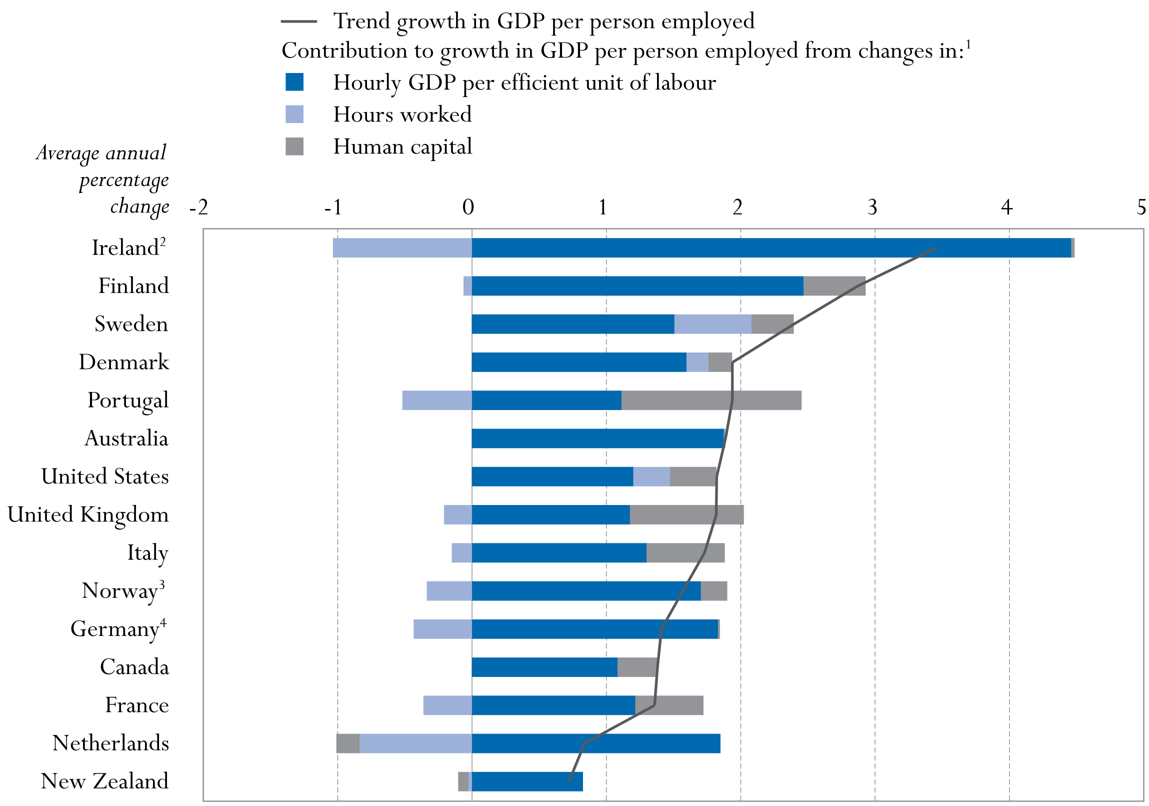
Measures based on average literacy scores across all individuals were shown to serve as much better indicators of aggregate human capital than measures based on the share of individuals attaining high levels of literacy. This finding is in line with the idea that the principal impact of education on growth is to raise the productivity of the whole workforce, rather than to increase the number of individuals able to bring about radical innovations. Strikingly, increases in literacy skills among women have a much larger effect on growth than increases in literacy among men. Various explanations are possible: investment in the education of women may have been provided to particularly high-ability individuals who were previously held back by social barriers; the rate of return to education among women may have been high owing to low initial levels of literacy; increased education might allow a reallocation of male and female labour across occupations, allowing more men and women to subsequently work in occupations for which they have a comparative advantage; if male and female labour is not perfectly substitutable, increased education of women might be associated with a period of rapid growth, rebalancing of the stock of human and physical capital prior to achieving a new steady state level; possible statistical effects stemming from greater variation in women's literacy scores across countries; and the possible association of women's literacy with omitted variables that affect growth, such as a country's level of social development.

Source: Coulombe *et al.* (2004).

Labour productivity can be increased in several ways: by improving the quality of labour used in the production process, by increasing the use of capital per worker and improving its quality, or by attaining greater overall efficiency in how these factors of production are used together, which economists call multi-factor productivity. Multi-factor productivity reflects many types of efficiency improvements, such as improved managerial practices and organisational changes, and innovations leading to more valuable output being produced with a given combination of capital and labour. The skills and competencies embodied in workers – or human capital – play a fundamental role in raising labour productivity. Rising levels of educational attainment among workers during the 1990s is only one sign of this role. Increases in the level of post-educational skills may be even more important, although few hard measures are available. Consequently, as a variety of empirical studies have found (Box A10.1), human capital is a significant determinant of economic growth. The OECD Growth Project estimated that in the OECD area, the long-term effect on output of one additional year of education in the adult population generally falls between 3 and 6%.

Chart A10.2. Enhancements in human capital contributing to labour productivity growth (1990-2000)

Average annual percentage change



1. Based on the following decomposition: growth in GDP per person employed = (changes in hourly GDP per efficient unit of labour) + (changes in average hours worked) + (changes in human capital).
2. Year of reference 1990-1999.
3. Mainland only.
4. Year of reference 1991-2000.

Countries are ranked in descending order of trend growth in GDP per person employed.

Source: OECD.

StatLink: http://dx.doi.org/10.1787/685273465727

Chart A10.2 shows that growth in output per employed person is partly attributable to increases in the human capital of those in employment. The chart displays the impact of changes in the average human capital of workers on growth in cyclically adjusted GDP per hour worked. Essentially, the chart decomposes average annual percentage changes in GDP per capita over the period 1990 to 2000 into three components: i) changes in average hours worked, ii) changes in average years of formal education (used here as a proxy for changes in the quality of labour), and iii) changes in the hourly GDP per efficient unit of labour, which is equivalent to changes in GDP per worker once changes in working hours and changes in the average quality of labour are accounted for. The latter is based on a measure of labour input that sums the shares of workers with different levels of formal education, each weighted by their relative wage. Two assumptions underlie this measure: educational attainment accounts for a good proportion of human capital embodied in workers, and relative wages provide a reasonable quantitative proxy for the relative productivity of workers with different levels of education.

Education and health: an overview of the connections

More education and higher levels of qualification are positively associated with a lower incidence of a variety of physical and mental health complaints. These relationships have been observed across countries, as well as across income, age and ethnic groups. The interactions involved are direct and indirect, and in some instances vary over the lifecycle (an ongoing OECD project, entitled the Social Outcomes of Learning, is examining a range of outcomes from education, including those in specific areas of health).

A large number of studies suggest that education has a positive causal impact on good health, although the methodological challenges to establishing causality are significant. For instance, physical and mental ability, as well as the characteristics of parents, may bring about both higher educational attainment and increased health status. And individuals' time preferences – whether they are more oriented to the present or future – will partly determine individuals' investments in both education and health. From the other direction, health status is positively associated with educational attainment, although the effect of health on educational achievement may be small for adults. Research suggests three key routes through which higher levels of education can affect individuals' health status:

- *Effects on incomes and employment* Better educated individuals have lower probabilities of unemployment – a state associated with low physical and mental health. They are also more likely to work in occupations that they find fulfilling, and in which physical hazards are less serious. The better educated also generally have higher wages and occupational status. Higher incomes can facilitate access to health care (depending on the terms of health care provision in each country) and help to avoid stresses resulting from financial insecurity. The higher wages brought about by greater educational attainment also raise the opportunity cost of behaviours likely to impair health. In the United States, it is estimated that economic factors are responsible for around half of the impact of education on physical health in adults over the age of 60.
- *Effects on health-related behaviours* Behavioural change may have many causes, including increased awareness of health issues and superior access to and comprehension of relevant information (although some studies show schooling to have a positive effect on health even when health knowledge is held constant). Education may also make individuals more future oriented, thus raising their incentives to make longer-term investments in health. The impact of behavioural change stemming from more education varies across health conditions. Research has found positive associations between higher levels of education and healthier dietary practices, lower smoking participation, a lower incidence of excessive alcohol consumption, increased levels of exercise, and even the more frequent use of seat-belts. Education is also positively associated with the way in which health-related services are used. For instance, evidence from the United States indicates that less literate men tend to present for prostate cancer at a more

advanced stage of the disease. And lower reading ability in women is associated with lower utilisation of mammography. Analytical and policy interest has increasingly been focused on health literacy – the capacities of individuals to "obtain, process, and understand basic health information and services needed to make appropriate health decisions" (Rudd *et al.,* 1999). Large numbers of adults possess a level of literacy below the reading requirements of health-related documentation, especially among at-risk population subgroups. Research on 958 English-speaking patients presenting for non-urgent care at a walk-in clinic in Atlanta, Georgia, in the United States, showed that almost half of those studied were unable or limited in their ability to understand directions for medication or hospital documents (Rudd *et al.,* 1999). When health literacy is inadequate, access to care can be curtailed and the efficacy of treatment impaired. Lower functional health literacy may also be associated with higher overall costs in health care. Furthermore, deficient literacy skills give rise to ethical considerations in the context of procedures that require informed consent from patients. Indeed, the full impact of inadequate health literacy has not yet been measured.

- *Psychosocial effects* In a variety of ways, education affects how people cope with a range of stresses encountered in daily life. Education can augment individuals' self-esteem, problem-solving and social skills, personal control, and social engagement, all of which can increase the capacity to respond positively to adversity. Evidence from the United Kingdom has shown that among both men and women a low level of basic skills more than doubles the likelihood of experiencing depressive symptoms. However, research indicating a decline in mental health among adolescents and young adults in a number of OECD countries has raised concern about the possible deleterious effects of academic stress and competitive and/or unsupportive learning environments.

However, a positive relationship between education and better health does not hold across all conditions (and in some instances, the relationship only exists for lower levels of education). More education is not linked to lower rates of anxiety disorders. And higher levels of education are associated with a higher incidence of eating disorders and complaints such as allergies and chronic fatigue syndrome (a relationship that may reflect diagnostic biases).

The educational attainment of parents also affects the health of their children in a variety of ways. Increased parental schooling has been found to have a positive effect on childhood and adolescent health, even accounting for such variables as birth-weight, the age at which a woman becomes a mother, family income and congenital abnormalities. And more educated mothers are less likely to engage in a range of behaviours damaging to the foetus or young child.

More research is required on the ways in which schooling affects health. Better identification of the full range and magnitude of the effects of education on health could provide a new calculus for public investment decisions in education. More specifically, the precise role of education and instructional modalities in the mental health of young adults is unclear, and merits further research. Research might also help to elucidate how specific interventions in education affect health outcomes. For instance, due in part to the difficulty of directly measuring time preference, evidence on the relationship between schooling and time preference is incomplete. Confirmation that schooling – and/or parental practices – causes time preferences to change could be of direct policy relevance. For example, such evidence might lead to a conclusion that general interventions focused on increasing students' future orientation could be more beneficial than specific health campaigns (in this regard, it is noteworthy that in many countries information on the dangers of smoking is readily available, and yet more educated individuals still smoke less then others. This fact might reflect greater future orientation stemming from greater educational attainment).

Box A10.2. Education and social cohesion

Social cohesion is a complex concept encompassing a number of dimensions. The incidence of crime, civic behaviour, political participation and income equality, as well as trust and tolerance (especially as regards ethnic or racial difference), have all been invoked in analyses of social cohesion. Different dimensions of social cohesion are often hard to measure, especially in an international comparative context. This text box briefly reviews evidence on the relationship between education and civic participation, crime and racial tolerance.

At a societal level, research has so far failed to establish clear causal relationships between education and active citizenship. In many OECD countries, increases in average educational attainment have been accompanied by falling voter participation. However, individuals with greater civic knowledge have been found to exhibit higher levels of civic participation (and research demonstrates considerable variation in civic knowledge across countries among adolescents). In some countries, a positive relationship has been identified between literacy and participation in voluntary community activities. But these relationships appear to be mediated by country-specific contextual conditions. So countries with higher levels of literacy and civic knowledge do not automatically show greater political participation. IALS revealed a strong association between a country's literacy level and the number of female parliamentarians, although the causal mechanisms in question are again unclear.

Differences across countries in the methods for defining and counting crime hinder cross-national research on the relationship with education. The available evidence provides little indication that educational attainment is directly related to crime. However, early childhood education and greater time spent in education have both been found to have a negative association with crime. Research also shows that for individuals, educational failure is positively related to crime. There is much evidence however linking low levels of educational attainment to juvenile delinquency. Aggregate-level data show indirect effects of education on crime not evident in micro-social data. In particular, research in a variety of contexts shows that the incidence of crime is positively related to socio-economic inequality. Socio-economic inequality has, in turn, been directly related to educational inequality. Studies of violence in some youth subcultures have also shown positive associations with marginalisation in labour and housing markets – among other factors – which is itself related to poor educational performance.

Tolerance of difference, particularly ethnic and racial difference, is a concern for policy makers in many societies. There are at least two routes through which education could affect the incidence of racial intolerance. Education can increase the cognitive skills that allow individuals to critically appraise causal relations and statements relevant to race and ethnicity. And education can influence the formation of values. There is evidence that for individuals, in certain social circumstances, more education is associated with greater tolerance of other cultures. Research has also shown that years and levels of education are negatively associated with the expression of racist views. However, data gathered through the Eurobarometer and European Values Study surveys indicate that rising educational attainment in Europe has not lead to an increase in racial tolerance. Evidence also exists that, in some countries, the prevalence of racial intolerance has remained unchanged over decades, despite attempts to counter such views through formal education. Consequently, it has been conjectured that one effect of education may be to alter the likelihood that some individuals will state, rather than hold, racially intolerant opinions. There is considerable evidence that the impact of education on tolerance is also mediated by other factors, such as conditions in housing and labour markets, the scale of immigration, and community-level policies.

Sources: Preston and Green, (2003); OECD/Statistics Canada (2003).

Definitions and methodologies

In connection with the sub-section "Estimating the macroeconomic returns to education: challenges and outstanding questions", an assessment of how different specifications of human capital affect international comparative estimates of stocks of human capital is provided in Wösmann (2003). Evidence that the growth effects of education are not constant across countries and diminish above an average of 7.5 years of education is provided in Krueger and Lindhal (2001). This section has also drawn heavily on Sianesi and Van Reenan (2003) and on De la Fuente and Ciccone (2003).

In the Evidence and explanations section, human capital was estimated on the basis of completed levels of education and average years of schooling at each level in the working-age population. This measure of human capital was derived from OECD data combined with data from De la Fuente and Doménech (2000). For further information on definitions, methods and sources see *The Sources of Economic Growth in OECD Countries* (OECD, 2003b) and *The New Economy: Beyond the Hype* (OECD, 2001). The figures shown are as published in these reports and do not take account of the subsequent revisions that have been made to some countries' GDP data. These revisions do not, however, affect the general messages from the analysis.

The sub-section "Education and health: an overview of the connections" has drawn on Grossman and Kaestner (1997), Hammond (2002), Groot and van den Brink (2004), The Nuffield Foundation (2004) and Rudd *et al.* (1999).

Chapter

B

FINANCIAL AND HUMAN RESOURCES INVESTED IN EDUCATION

Classification of educational expenditure

Educational expenditure in this indicator are classified through three dimensions:

- The first dimension – represented by the horizontal axis in the diagram below – relates to the location where spending occurs. Spending on schools and universities, education ministries and other agencies directly involved in providing and supporting education is one component of this dimension. Spending on education outside these institutions is another.
- The second dimension – represented by the vertical axis in the diagram below – classifies the goods and services that are purchased. Not all expenditure on educational institutions can be classified as direct educational or instructional expenditure. Educational institutions in many OECD countries offer various ancillary services – such as meals, transports, housing, etc. – in addition to teaching services to support students and their families. At the tertiary level spending on research and development can be significant. Not all spending on educational goods and services occurs within educational institutions. For example, families may purchase textbooks and materials themselves or seek private tutoring for their children.
- The third dimension – represented by the colours in the diagram below – distinguishes among the sources from which funding originates. These include the public sector and international agencies (indicated by the light blue colour), and households and other private entities (indicated by the mid-blue colour). Where private expenditure on education is subsidised by public funds, this is indicated by cells in the dark blue colour. The diagram is repeated at the beginning of each indicator to illustrate each indicator visually.

	Spending on educational institutions *(e.g. schools, universities, educational administration and student welfare services)*	**Spending on education outside educational institutions** *(e.g. private purchases of educational goods and services, including private tutoring)*
Spending on educational core services	*e.g.* public spending on instructional services in educational institutions	*e.g.* subsidised private spending on books
	e.g. subsidised private spending on instructional services in educational institutions	*e.g.* private spending on books and other school materials or private tutoring
	e.g. private spending on tuition fees	
Spending on research and development	*e.g.* public spending on university research	
	e.g. funds from private industry for research and development in educational institutions	
Spending on educational services other than instruction	*e.g.* public spending on ancillary services such as meals, transport to schools, or housing on the campus	*e.g.* subsidised private spending on student living costs or reduced prices for transport
	e.g. private spending on fees for ancillary services	*e.g.* private spending on student living costs or transport

Public sources of funds **Private sources of funds** **Private funds publicly subsidised**

Educational expenditure per student

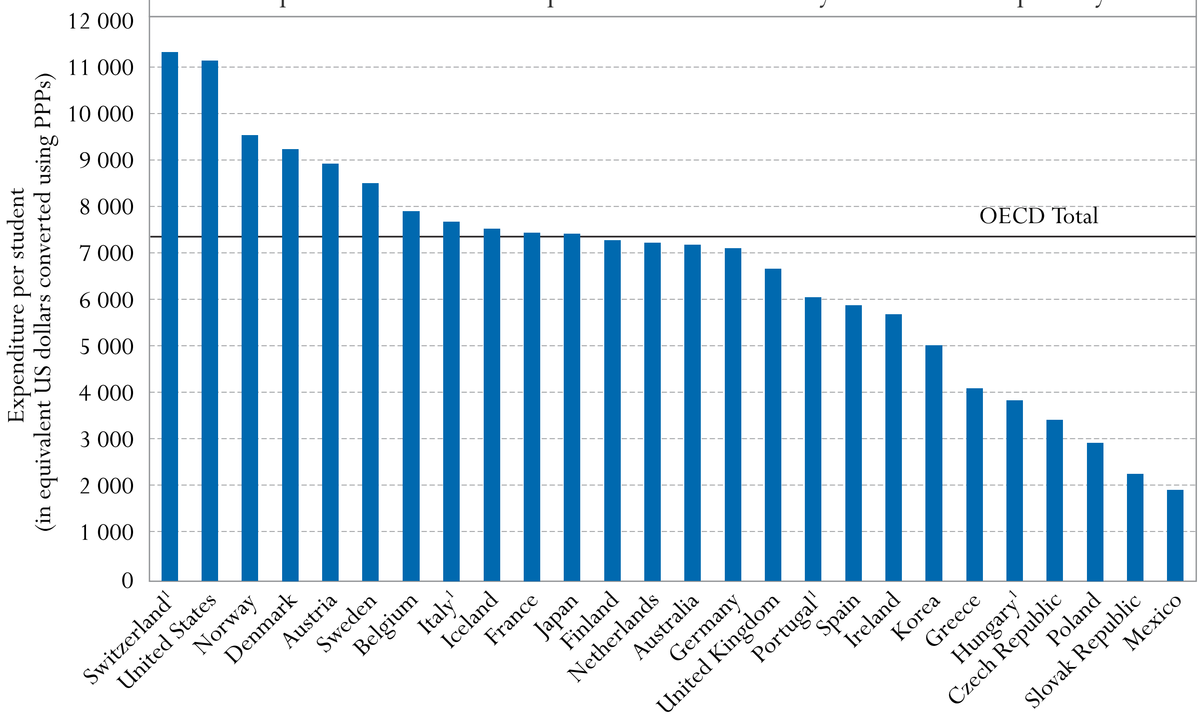
This indicator provides an assessment of the investment made on each student. Expenditure per student is largely influenced by teacher salaries (see Indicators B6 and D3), pension systems, teaching materials and facilities, the programme orientation proposed to pupils/students (see Indicator C2) and the number of students enrolled in the education system (see Indicator C1). Policies put in place to attract new teachers or to reduce average class size or staffing patterns (see Indicator D2) have led to changes in expenditure per student.

Key results

Chart B1.1. Annual expenditure on educational institutions per student between primary and tertiary education (2002)

Expenditure on educational institutions per student gives a measure of unit costs in formal education. This chart expresses annual expenditure on educational institutions per student in equivalent US dollars converted using purchasing power parities, based on full-time equivalents.

OECD countries as a whole spend US$ 7 343 per student between primary and tertiary education, US$ 5 273 per primary student, US$ 6 992 per secondary student and US$ 13 343 per tertiary student, but these averages mask a broad range of expenditure across countries. On average, as represented by the simple mean across all OECD countries, countries spend 2.2 times as much per student at the tertiary level than at the primary level.

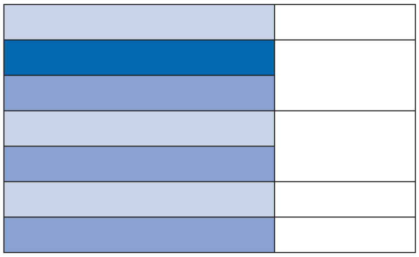


1. Public institutions only.
Countries are ranked in descending order of expenditure per student.
Source: OECD. Table B1.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005)*.

StatLink: http://dx.doi.org/10.1787/040455163621

Other highlights of this indicator

- Excluding R&D activities, expenditure in tertiary educational institutions represents on average US$ 7 299 and ranges from US$ 4 500 or below in Greece, Poland, the Slovak Republic and Turkey to more than US$ 8 500 in Australia, Denmark, the United Kingdom and the United States.
- In some OECD countries, low annual expenditure per tertiary student still translates into high overall costs per tertiary student because students participate in tertiary studies over a long period of time.
- Lower expenditure cannot automatically be equated with a lower quality of educational services. Australia, Belgium, the Czech Republic, Finland, Japan, Korea, the Netherlands and New-Zealand, which have moderate expenditure on education per student at the primary and lower secondary levels, are among the OECD countries with the highest levels of performance by 15-year-old students in mathematics.
- Expenditure on education tends to rise over time in real terms, as teachers' pay (the main component of costs) rises in line with general earnings. However the rate of the rise may indicate the extent to which countries contain costs and raise productivity. This differs considerably across educational sectors. Expenditure per primary, secondary and post-secondary non-tertiary student increased by 30% or more between 1995 and 2002 in Australia, Greece, Ireland, the Netherlands, Poland, Portugal, Spain and Turkey. In tertiary education, on the other hand, spending per student has in some cases fallen, as spending levels do not keep up with expanding student numbers.
- Despite the fact that tertiary spending per student has risen less consistently than at lower levels, countries still spend on average over twice as much per student at the tertiary level than at either primary or secondary levels.



Coverage diagram (see page 157 for explanations)

B1

Policy context

Annual and cumulative expenditure on education per student in absolute terms and relative to GDP per capita

Effective schools require the right combination of trained and talented personnel, adequate facilities, state-of-the-art equipment and motivated students ready to learn. The demand for high-quality education, which can translate into higher costs per student, must be balanced against placing undue burden on taxpayers.

As a result, the question of whether the resources devoted to education yield adequate returns to the investments made figures prominently in the public debate. Although it is difficult to assess the optimal volume of resources required to prepare each student for life and work in modern societies, international comparisons of spending on education per student can provide a starting point for evaluating the effectiveness of different models of educational provision.

Trends in the development of expenditure on education per student

Policy makers must balance the importance of improving the quality of educational services with the desirability of expanding access to educational opportunities, notably at the tertiary level. The comparative review of how trends in educational expenditure per student have evolved shows that in many OECD countries the expansion of enrolments, particularly in tertiary education, has not always been paralleled by changes in educational investment.

Finally, decisions on the allocation of funds among the various levels of education are also important. For example, some OECD countries emphasise broad access to higher education while others invest in near-universal education for children as young as three or four years of age.

Evidence and explanations

What this indicator covers and what it does not cover

The indicator shows direct public and private expenditure on educational institutions in relation to the number of full-time equivalent students enrolled in these institutions.

Public subsidies for students' living expenses have been excluded to ensure international comparability of the data. Expenditure data for students in private educational institutions are not available for certain OECD countries, and some other countries do not report complete data on independent private institutions. Where this is the case, only the expenditure on public and government-dependent private institutions has been taken into account. Note that variation in expenditure on education per student may reflect not only variation in the material resources provided to students (*e.g.* variations in the ratio of students to teaching staff) but also variation in relative salary levels.

At the primary and secondary levels, educational expenditure is dominated by spending on instructional services; at the tertiary level other services, particularly those related to R&D activities or ancillary services, can account for a significant proportion of educational spending. Indicator B6 provides further information on how spending is distributed by different types of services provided.

Expenditure on education per student in equivalent US dollars

Annual per-student expenditure on educational institutions between primary and tertiary education provides an assessment of the investment made in each student. OECD countries as a whole spend annually US$ 7 343 per student between primary and tertiary education. In 9 out of 26 countries, spending on education falls between US$ 7 000 and 8 000 per student. Spending on education at these levels ranges from US$ 4 000 per student or less in the Czech Republic, Hungary, Mexico, Poland and the Slovak Republic to more than US$ 8 500 per student in Austria, Denmark, Norway, Sweden, Switzerland and the

United States (Table B1.1). The drivers of expenditure per student vary across countries: among the five countries with the highest expenditure per student between primary and tertiary education, Switzerland and the United States are two of the countries with the highest teachers' salaries at secondary level of education (see Indicator D3) whereas Austria, Denmark and Norway are among the countries with the lowest student to teaching staff ratio (see Indicator D2).

Even if overall spending per student is similar in some OECD countries, the ways in which resources are allocated across the different levels of education varies widely. OECD countries as a whole spend US$ 5 273 per student at the primary level, US$ 6 992 per student at the secondary level and US$ 13 343 per student at the tertiary level. At the tertiary level, these totals are influenced by high expenditure in a few large OECD countries, most notably Switzerland and the United States. Spending on education per student in the typical OECD country, as represented by the simple mean across all OECD countries, amounts to US$ 5 313 at the primary level, US$ 7 002 at the secondary level and US$ 10 655 at the tertiary level of education (Table B1.1).

These averages mask a broad range of expenditure on education per student across OECD countries. At the primary level, expenditure on educational institutions ranges from US$ 1 467 per student in Mexico to US$ 10 611 per student in Luxembourg. Differences among OECD countries are even greater at the secondary level, where spending on education per student varies by a factor of 8.5, from US$ 1 768 in Mexico to US$ 15 195 in Luxembourg. Expenditure on education per tertiary student ranges from US$ 4 731 in Greece to more than US$ 20 000 in Switzerland and the United States (Table B1.1).

These comparisons are based on purchasing power parities for GDP, not market exchange rates. They therefore reflect the amount of a national currency required to produce the same basket of goods and services in a given country as that produced by the US dollar in the United States.

Research and development (R&D) expenditure in tertiary institutions

R&D spending in tertiary educational institutions depends on both total R&D expenditure in a country, and the national infrastructure for R&D activities. Naturally, OECD countries in which most R&D is performed by tertiary educational institutions tend to report higher expenditure per tertiary student than countries in which a large part of R&D is performed in other public institutions or by industry. Excluding R&D activities, expenditure in tertiary educational institutions represents on average US$ 7 299 and ranges from US$ 4 500 or below in Greece, Poland, the Slovak Republic and Turkey to more than US$ 8 500 in Australia, Denmark, the United Kingdom and the United States (Table B1.1).

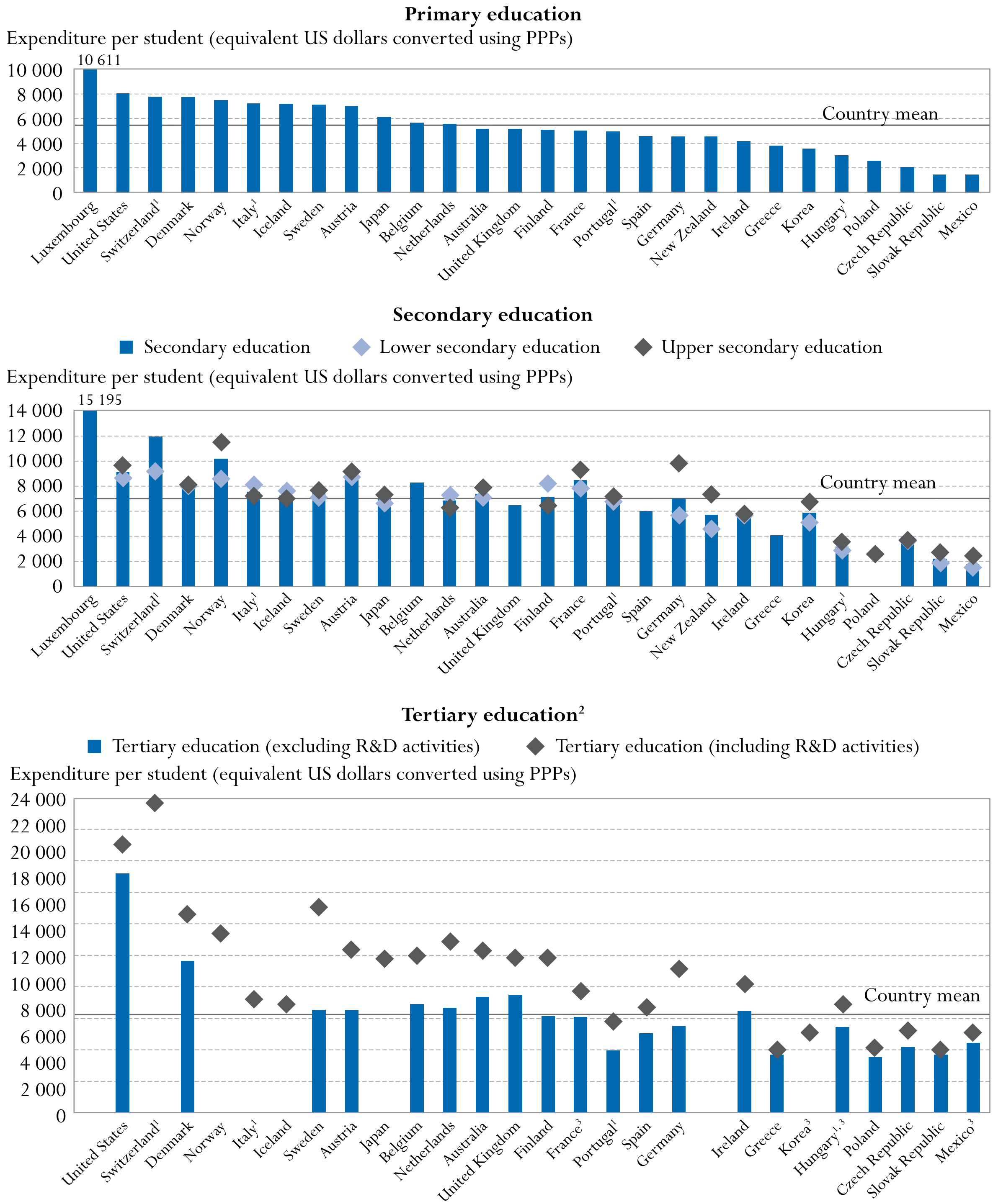
On average, expenditure on R&D at the tertiary level represents one-quarter of all tertiary expenditure. In 5 out of 20 OECD countries for which tertiary expenditure are separated by type of services, R&D expenditure in tertiary institutions represents more than 35% of tertiary expenditure. On a per student-basis this can translate into significant amounts, as in Austria, Finland, Germany, the Netherlands and Sweden, where expenditure for R&D in tertiary institutions amounts to more than US$ 4 000 per student (Chart B1.2 and Tables B1.1 and B6.2).

Differences in educational expenditure per student between levels of education

Expenditure on education per student exhibits a common pattern throughout OECD countries: in each OECD country, spending rises sharply from primary to tertiary education. This pattern can be understood by looking at the main determinants of expenditure, particularly the location and mode of educational provision. The vast majority of education still takes place in traditional school settings with (generally) similar organisation, curriculum, teaching style and management. These shared features are likely to lead to similar patterns of unit expenditure.

Chart B1.2. Annual expenditure on educational institutions per student, by level of education (2002)

In equivalent US dollars converted using PPPs, based on full-time equivalents

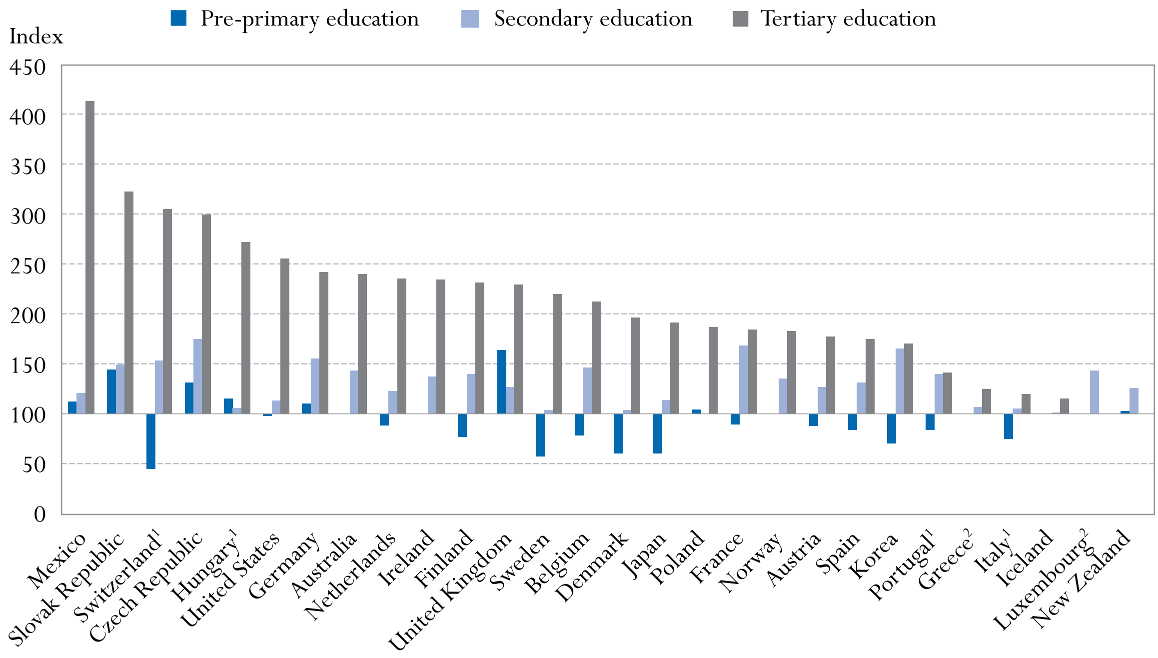


1. Public institutions only.
2. The bar represents total expenditure at the tertiary level and excludes research and development expenditure.
3. Research and development expenditure at the tertiary level and thus total expenditure including R&D activities are underestimated.
Countries are ranked in descending order of expenditure per student in primary education.
Source: OECD. Tables B1.1 and B6.2. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/040455163621

Chart B1.3. Expenditure on educational institutions per student at various levels of education relative to primary education (2002)

primary education = 100



Notes: A ratio of 300 for tertiary education means that expenditure on educational institutions per tertiary student is three times the expenditure on educational institutions per primary student. A ratio of 50 for pre-primary education means that expenditure on educational institutions per pre-primary student is half the expenditure on educational institutions per primary student.
1. Public institutions only.
2. Primary includes pre-primary education.
Countries are ranked in descending order of expenditure on educational institutions per student in tertiary education relative to primary education.
Source: OECD. Table B1.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/040455163621

Comparisons of the distribution of expenditure between levels of education indicate the relative emphasis placed on education at different levels in various OECD countries, as well as of the relative costs of providing education at those levels.

Although expenditure on education per student rises with the level of education (from primary to tertiary) in almost all OECD countries, the relative sizes of the differentials vary markedly among countries (Chart B1.3). At the secondary level, expenditure on education per student is, on average, 1.3 times that at the primary level, although the difference ranges from 1.0 in Denmark, Iceland, Italy and Sweden to 1.6 or more in the Czech Republic, France and Korea, three OECD countries that have increased significantly the proportion of the population attaining upper secondary education during the last four decades (see Indicator A1).

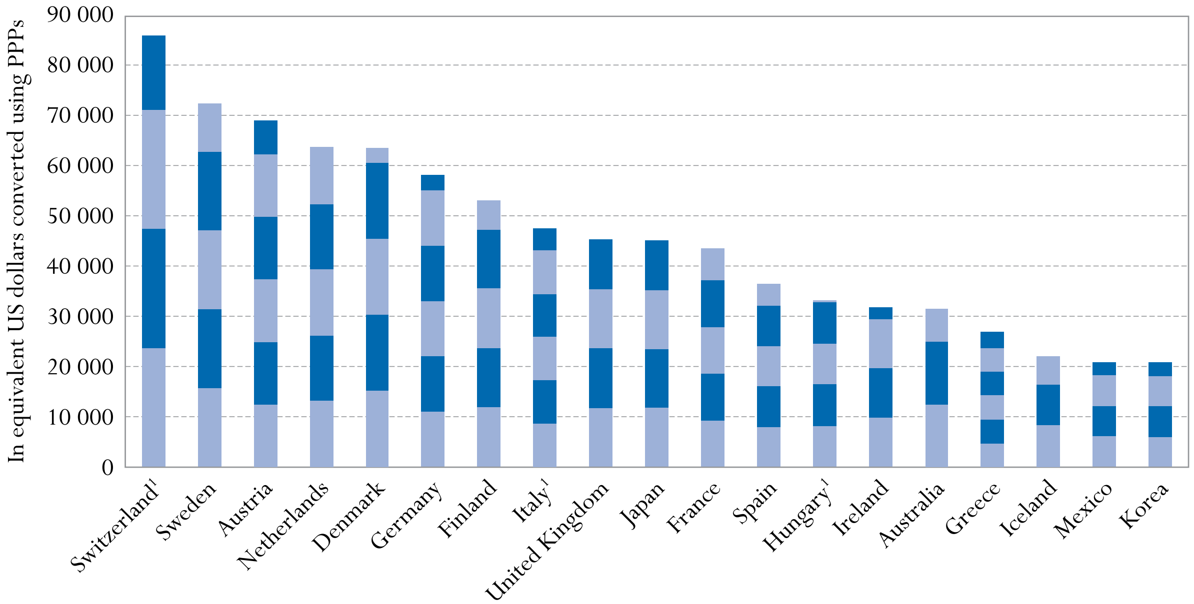
Although OECD countries spend, on average, 2.2 times as much on education per student at the tertiary level than at the primary level, spending patterns vary widely among countries. For example, whereas Greece, Iceland and Italy only spend between 1.1 and 1.3 times as much on a tertiary student as on a primary student, the Czech Republic, Mexico, the Slovak Republic and Switzerland spend more than 3.0 to 4.2 times as much (Chart B1.4).

B1

Educational expenditure per student over the average duration of tertiary studies

Chart B1.4. Cumulative expenditure on educational institutions per student over the average duration of tertiary studies (2002)

Annual expenditure on educational institutions per student multiplied by the average duration of studies, in equivalent US dollars converted using PPPs



Note: Each segment of the bar represents the annual expenditure on educational institutions per student. The number of segments represents the number of years a student remains on average in tertiary education.
1. Public institutions only.
Countries are ranked in descending order of the total expenditure on educational institutions per student over the average duration of tertiary studies.
Source: OECD. Table B1.3. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/040455163621

Both the typical duration and the intensity of tertiary education vary among OECD countries. Therefore, the differences among countries in annual expenditure on educational services per student, as shown in Chart B1.2, do not necessarily reflect the variation in the total cost of educating the typical tertiary student.

Today, students can choose from a range of institutions and enrolment options to find the best fit for their degree objectives, abilities and personal interests. Many students enrol on a part-time basis while others work while studying or attend more than one institution before graduating. These varying enrolment patterns can affect the interpretation of expenditure on education per student.

In particular, comparatively low annual expenditure on education per student can result in comparatively high overall costs of tertiary education if the typical duration of tertiary studies is long. Chart B1.4 shows the average expenditure that is incurred per student throughout the course of tertiary studies. The figures account for all students for whom expenditure is incurred, including those who do not finish their studies. Although the calculations are based on a number of simplified assumptions and therefore should be treated with some caution (see Annex 3 at *www.oecd.org/edu/eag2005*), some striking shifts in the rank order of OECD countries between the annual and aggregate expenditure can be noted.

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For example, annual spending per tertiary student in Japan is about the same as in Austria (US$ 11 716 in Japan compared with US$ 12 448 in Austria) (Table B1.1). But because of differences in the tertiary degree structure (see Indicator A2), the average duration of tertiary studies is a little bit less than two years longer in Austria than in Japan (5.5 years in Austria, compared with 3.8 years in Japan). As a consequence, the cumulative expenditure for each tertiary student is almost US$ 20 000 higher in Austria than in Japan (US$ 68 959 compared with US$ 45 095) (Chart B1.4 and Table B1.3).

The total cost of tertiary-type A studies in Switzerland (US$ 139 177) is more than twice as high as in the other reporting countries, except Austria and Germany (Table B1.3). These differences must, of course, be interpreted in light of differences in national degree structures as well as possible differences among OECD countries in the academic level of the qualifications of students leaving university. While similar trends are observed in tertiary-type B studies, the total cost of these studies tends to be much lower than those of tertiary type-A programmes, largely because of their shorter duration.

Relationship between PISA performance in mathematics at age 15 and cumulative expenditure per student between the ages of 6 and 15

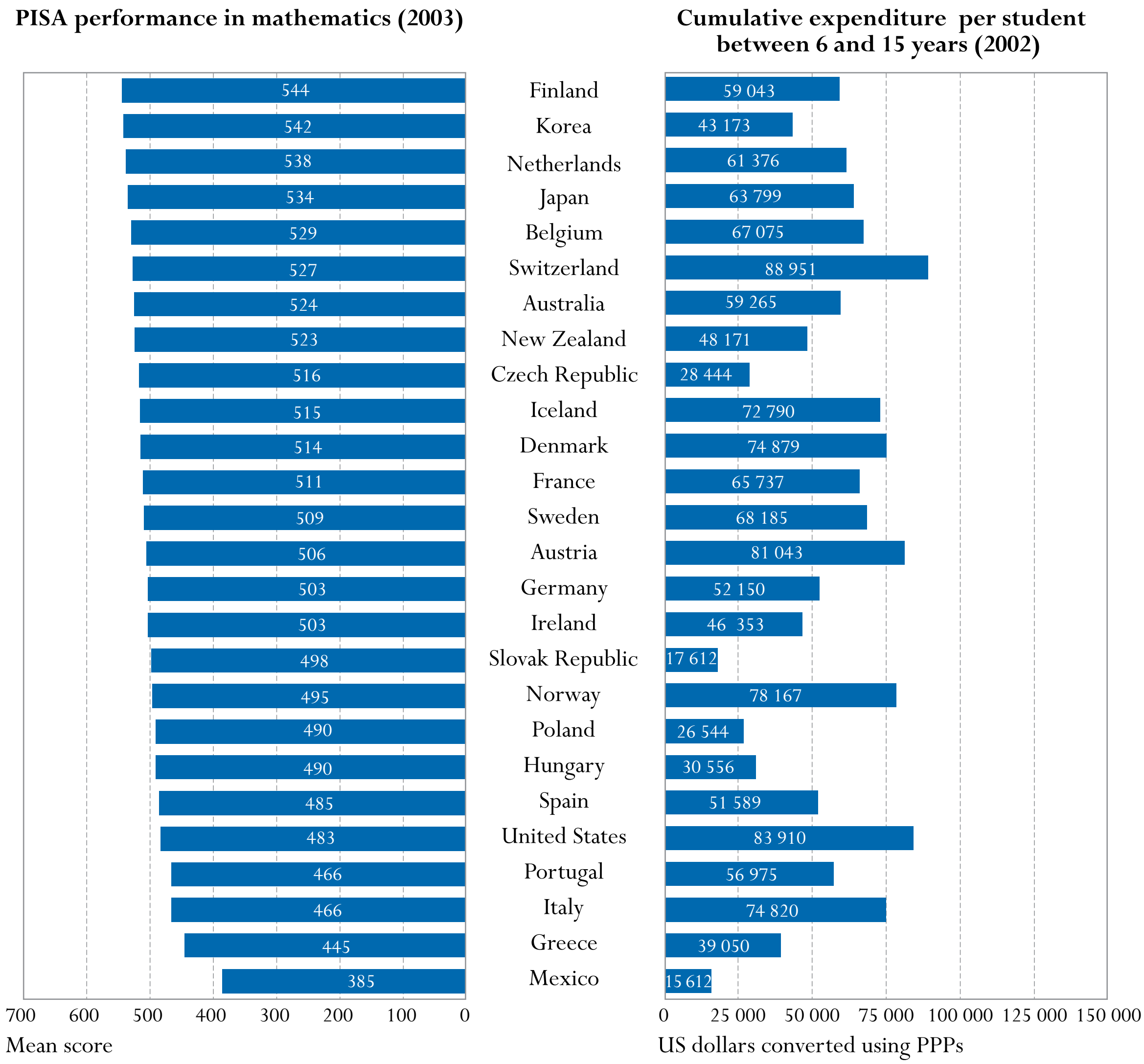
Chart B1.5 compares countries' actual spending per student, on average, from age 6, the typical beginning of primary education up to the age of 15, with average student performance in mathematics at age 15. Spending per student is approximated by multiplying public and private expenditure on educational institutions per student in 2002 at each level of education by the theoretical duration of education at the respective level, up to the age of 15. The results are expressed in United States dollars (US$) using purchasing power parities.

While there are many factors involved in the relationship, the data show clearly that lower unit expenditure cannot simply be equated with lower student performance. Spending per student up to the age of 15 years in the Czech Republic is roughly one-third of, and in Korea roughly one-half of, spending levels in the United States, but while both the Czech Republic and Korea are among the top ten performers in PISA, students in the United States perform below the OECD average. Similarly, students in Spain and the United States perform almost equally well, but while the United States spends US$ 83 910 per student up to the age of 15 years, in Spain this figure is US$ 51 589. Countries that perform significantly higher than would be expected from their spending per student alone include Australia, Belgium, the Czech Republic, Finland, Japan, Korea, the Netherlands and New Zealand. Countries that perform significantly below the level of performance predicted from spending per student include Greece, Italy, Mexico, Norway, Portugal, Spain and the United States. In summary, the results suggest that, while spending on educational institutions is a necessary prerequisite for the provision of high-quality education, spending alone is not sufficient to achieve high levels of outcomes (Chart B1.5).

Educational expenditure per student in relation to GDP per capita

Expenditure on education per student relative to GDP per capita is a spending measure that takes OECD countries' relative wealth into account. Since education is universal at lower levels, spending on education per student relative to GDP per capita at the lower levels of education can be interpreted as the resources spent on young people relative to a country's ability to pay. At higher levels of education, this measure is affected by a combination of national income, spending and enrolment rates. At the tertiary level, for example, OECD countries can be relatively high on this measure if a relatively large proportion of their wealth is spent on educating a relatively small number of students. For the OECD as a whole, expenditure on education per student averages 20% of GDP per capita at the primary level, 26% at the secondary level and 43% at the tertiary level (Table B1.2).

Chart B1.5. Relationship between PISA performance in mathematics at age 15 and cumulative expenditure per student between 6 and 15 years (2002, 2003)



Countries are ranked in descending order of the PISA perfomance in mathematics of 15-year-olds.
Source: OECD and PISA 2003 databases. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

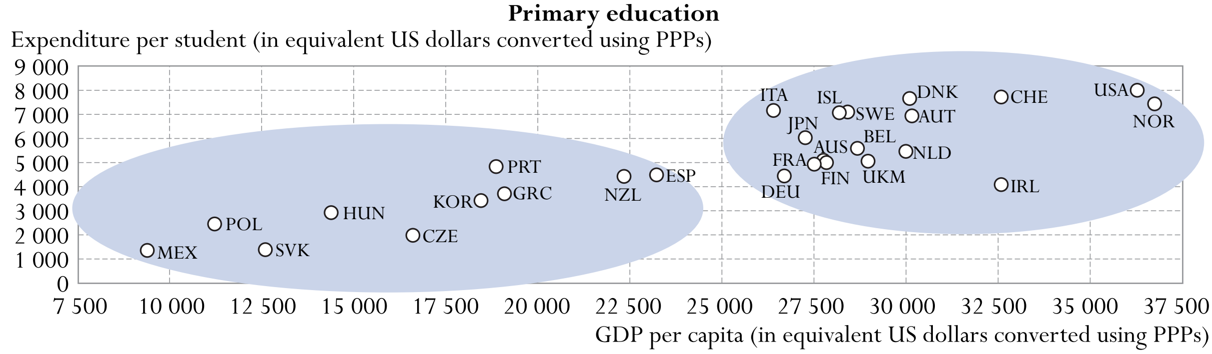
StatLink: http://dx.doi.org/10.1787/040455163621

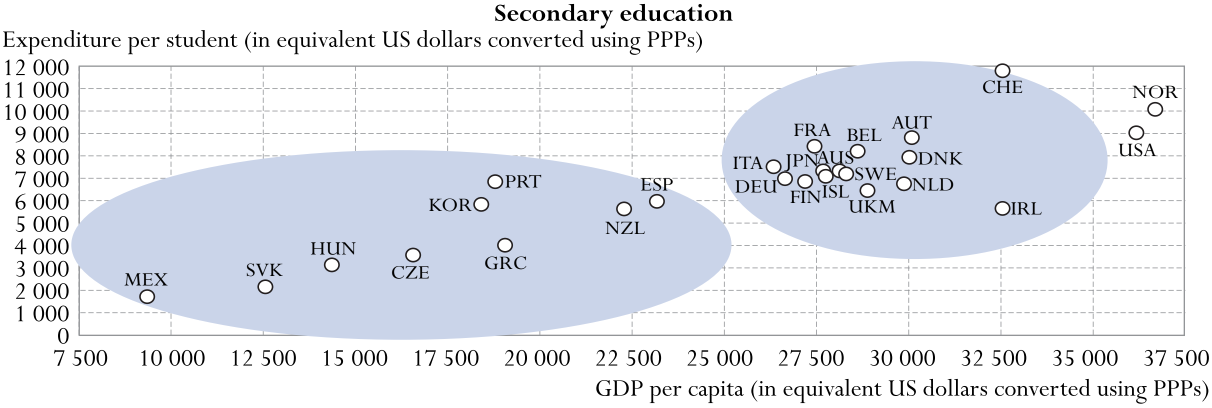
The relationship between GDP per capita and expenditure per student is complex. Chart B1.6 shows the co-existence of two different relationships between two distinct groups of countries (see ovals in Chart B1.6). Countries with a GDP per capita equivalent to less than around US$ 25 000 demonstrate a clear positive relationship between spending on education per student and GDP per capita at primary and secondary levels of education. In this group, including the Czech Republic, Greece, Hungary, Korea, Mexico, New Zealand, Poland, Portugal, the Slovak Republic and Spain, poorer OECD countries tend to spend less per student than richer OECD countries.

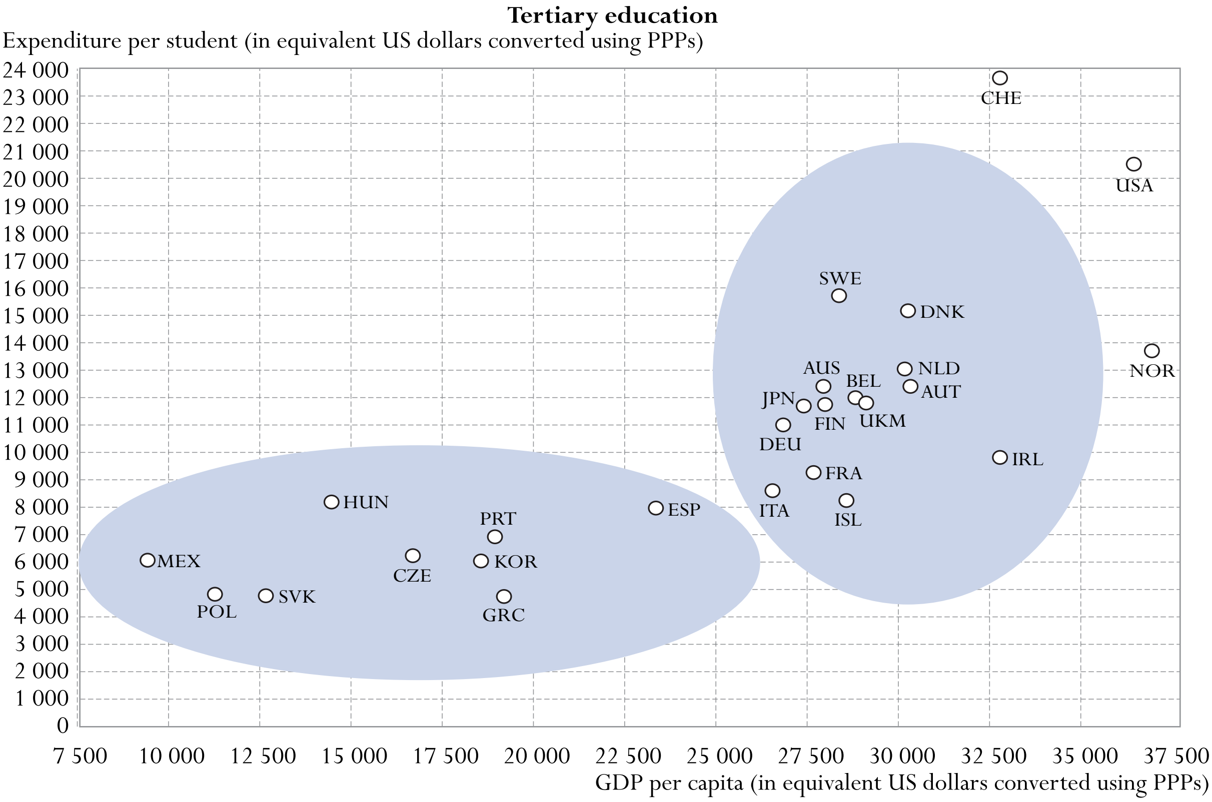
There is a considerable variation in spending on education per student among OECD countries with a GDP per capita greater than US$ 25 000 (see ovals in Chart B1.6), where the higher GDP per capita, the greater the variation in expenditure devoted to students. Australia, Finland and France, for example, are countries

Chart B1.6. Annual expenditure on educational institutions per student relative to GDP per capita (2002)

In equivalent US dollars converted using PPPs, by level of education







Note: Please refer to the Reader's Guide for the list of country codes used in this chart.
Source: OECD. Tables B1.1, B1.2 and Annex 2. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/040455163621

with similar levels of GDP per capita that spend very different proportions of their GDP per capita on both the secondary and tertiary levels of education. Thus, the proportion of GDP per capita spent per secondary student in Australia and Finland (27 and 26% respectively) is at the level of the OECD average, while for France (at 31%) the proportion is above average. However, France spends 34% of GDP per capita per tertiary student, whereas Australia and Finland spent 45 and 42% respectively (Table B1.2).

Countries with very different levels of GDP per capita can nevertheless show similar distributions of investment by level of education. For example, Korea – a country with expenditure per student and GDP per capita below the OECD average at secondary level of education – spend the same proportion of money per student as Austria, France and Italy, and more than the United States, which has one of the highest GDP per capita. Similarly, Mexico spends about 65% of GDP per capita on each tertiary-level student, the highest proportion after Switzerland, which spends 73% of GDP per capita on each tertiary-level student (Table B1.2 and Annex 2).

Change in expenditure on education per student between 1995 and 2002

The number of young people in a population influences both the enrolment rate and the amount of resources and organisational effort which a country must invest in its education system. Thus, the size of the youth population in a given country shapes the potential demand for initial education and training. The higher the number of young people, the greater the potential demand for educational services. Table B1.4 and Chart B1.7 show in absolute terms and at 2002 constant prices the effects, on spending on education per student, of changes in enrolment and in expenditure between 1995 and 2002.

Expenditure per primary, secondary and post-secondary non-tertiary student increased by 30% or more between 1995 and 2002 in Australia, Greece, Ireland, the Netherlands, Poland, Portugal, Spain and Turkey. In 13 out of the 23 OECD countries for which data are available, changes still exceed 20% between 1995 and 2002. Sweden saw a decline in expenditure on education per primary, secondary and post-secondary non-tertiary student by 4%. (Chart B1.7).

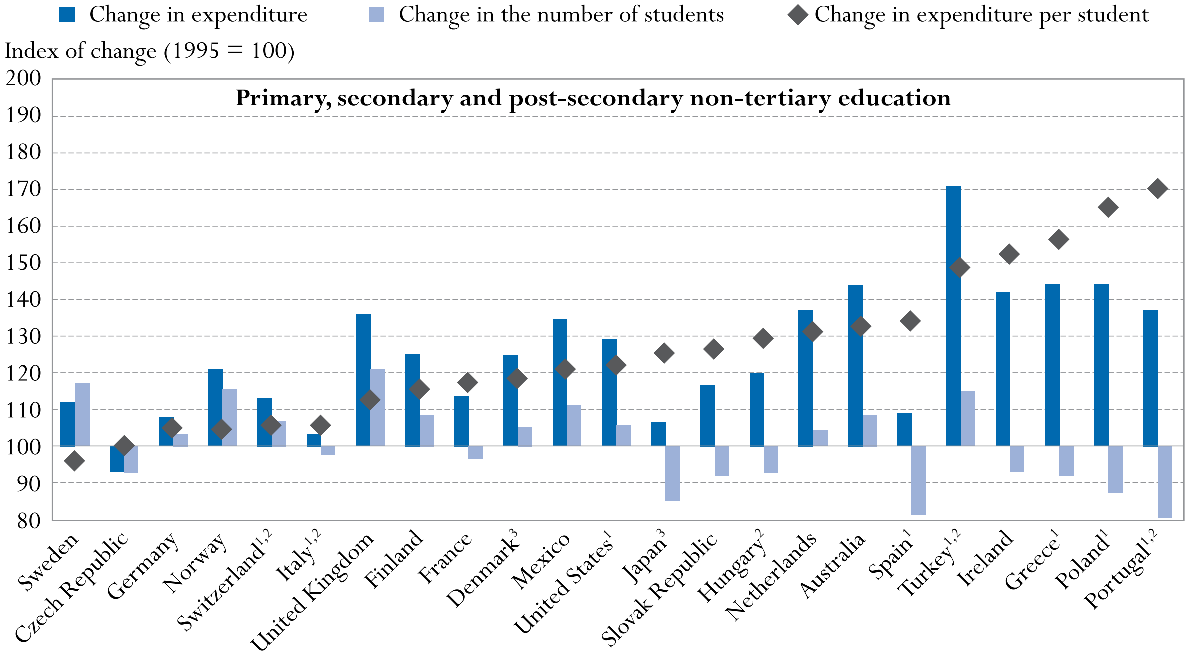
Although institutional arrangements are often slow in adapting to changing demographic conditions, changes in enrolments do not seem to have been the main factor driving changes in expenditure per primary, secondary and post-secondary non-tertiary student. Japan, Poland, Portugal and Spain are exceptions to this pattern, where a drop of more than 10% in enrolments combined with a slight rise in expenditure on education for Japan and Spain, and a sharp spending increase for Poland and Portugal have led to a significant increase in spending on education per student. In contrast, in France, Greece, Hungary, Ireland, Italy and the Slovak Republic, an increase of 3 to 44% in education budgets, coupled with a slight decrease in enrolments, has led to an increase in spending per primary, secondary and post-secondary non-tertiary student (Table B1.4 and Chart B1.7).

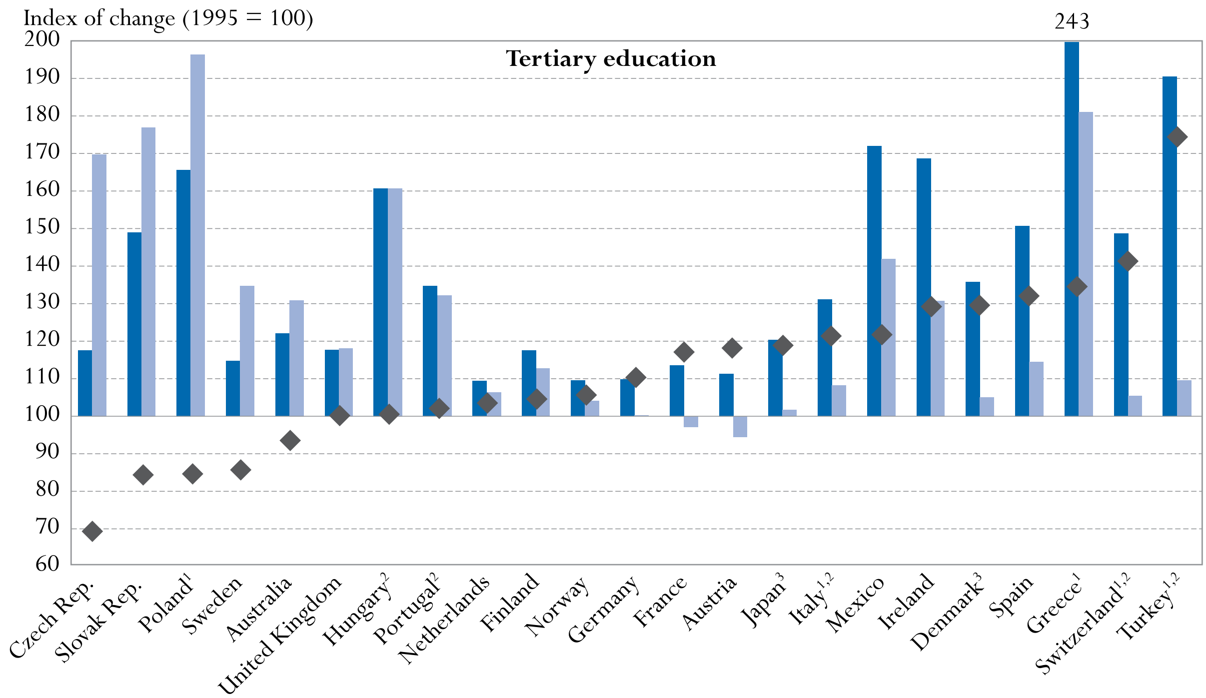
Other exceptions are Mexico, Norway, Sweden, Turkey and the United Kingdom, the five OECD countries with the highest increases in the aggregated number of primary, secondary and post-secondary non-tertiary students between 1995 and 2002. These countries present different patterns, though in Mexico, Norway, Turkey and the United Kingdom, increases in expenditure outpaced rising enrolments, leading to an increase in expenditure per student. In contrast, in Sweden, an increase in student numbers has not been counterbalanced by a similar increase in educational spending (Table B1.4 and Chart B1.7).

The pattern is different at the tertiary level of education. In 5 out of 23 OECD countries for which data are available – Australia, the Czech Republic, Poland, the Slovak Republic and Sweden – expenditure on tertiary education per student declined between 1995 and 2002. In all of these countries, this was mainly the result of a rapid increase (more than 30%) in the number of tertiary students during the same period (Chart B1.7).

Chart B1.7. Changes in the number of students as well as changes in expenditure on educational institutions per student, by level of education (1995, 2002)

Index of change between 1995 and 2002 (1995=100, 2002 constant prices)





1. Public expenditure only.
2. Public institutions only.
3. Post-secondary non-tertiary included in both upper secondary and tertiary education.

Countries are ranked in ascending order of change in expenditure on educational institutions per student.

Source: OECD. Table B1.4. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/040455163621

On the other hand, expenditure per tertiary student rose significantly in Greece, Ireland and Mexico despite a growth in enrolment of 81, 31 and 42%, respectively. Austria and France were the only OECD countries in which the number of tertiary students declined (Table B1.4 and Chart B1.7).

Definitions and methodologies

Data refer to the financial year 2002 and are based on the UOE data collection on education statistics administered by the OECD in 2004 (for details see Annex 3 at *www.oecd.org/edu/eag2005*). Expenditure on education per student at a particular level of education is calculated by dividing the total expenditure on educational institutions at that level by the corresponding full-time equivalent enrolment. Only those educational institutions and programmes for which both enrolment and expenditure data are available are taken into account. Expenditure in national currency is converted into equivalent US dollars by dividing the national currency figure by the purchasing power parity (PPP) index for GDP. The PPP exchange rate is used because the market exchange rate is affected by many factors (interest rates, trade policies, expectations of economic growth, etc.) that have little to do with current relative domestic purchasing power in different OECD countries (Annex 2 gives further details).

The country mean is calculated as the simple average over all OECD countries for which data are available. The OECD total reflects the value of the indicator if the OECD region is considered as a whole (see Reader's Guide for details).

Table B1.4 shows the changes in expenditure on educational institutions per student between financial years 2002 and 1995. The data on expenditure for 1995 were obtained by a special survey conducted in 2002 and updated in 2003. OECD countries were asked to collect the 1995 data according to the definitions and the coverage of the UOE 2004 data collection. All expenditure data, as well as the GDP for 1995, are adjusted to 2002 prices using the GDP price deflator.

Expenditure on education per student relative to GDP per capita is calculated by expressing expenditure on education per student in units of national currency as a percentage of GDP per capita, also in national currency. In cases where the educational expenditure data and the GDP data pertain to different reference periods, the expenditure data are adjusted to the same reference period as the GDP data, using inflation rates for the OECD country in question (see Annex 2).

Expected expenditure over the average duration of tertiary studies (Table B1.3) is calculated by multiplying current annual expenditure by the typical duration of tertiary studies. The methodology used for the estimation of the typical duration of tertiary studies is described in Annex 3 (*www.oecd.org/edu/eag2005*). For the estimation of the duration of tertiary education, data are based on a special survey carried out in OECD countries in 1997.

The ranking of OECD countries by annual expenditure on educational services per student is affected by differences in how countries define full-time, part-time and full-time equivalent enrolment. Some OECD countries count every participant at the tertiary level as a full-time student while others determine a student's intensity of participation by the credits which he or she obtains for successful completion of specific course units during a specified reference period. OECD countries that can accurately account for part-time enrolment will have higher expenditure per full-time equivalent student than OECD countries that cannot differentiate between different modes of student attendance. Note that data appearing in earlier editions of this publication may not always be comparable to data shown in the 2005 edition due to changes in definitions and coverage that were made as a result of the OECD expenditure comparability study (see Annex 3 at *www.oecd.org/edu/eag2005* for details on changes).

Further references

The following additional material relevant to this indicator is available on the Web at *http://dx.doi.org/10.1787/040455163621*:

Table B1.5 Distribution of expenditure on educational institutions compared to number of students enrolled at each level of education (2002)

B1

Table B1.1. Annual expenditure on educational institutions per student (2002)

In equivalent US dollars converted using PPPs for GDP, by level of education, based on full-time equivalents

	Pre-primary education (for children 3 years and older)	Primary education	Secondary education			Post-secondary non-tertiary education	Tertiary education (including R&D activities)			All tertiary education exluding R&D activities	Primary to tertiary education
			Lower secondary education	Upper secondary education	All secondary education		All tertiary education	Tertiary-type B education	Tertiary-type A and advanced research programmes		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
OECD COUNTRIES											
Australia	m	5 169	7 063	7 908	7 375	7 121	12 416	7 544	13 410	8 816	7 209
Austria	6 169	7 015	8 683	9 125	8 887	12 471	12 448	9 584	12 701	7 781	8 943
Belgium	4 420	5 665	x(5)	x(5)	8 272	x(5)	12 019	x(7)	x(7)	8 302	7 933
Canada	m	m	m	m	m	m	m	m	m	m	m
Czech Republic	2 724	2 077	3 601	3 657	3 628	1 623	6 236	2 703	6 671	4 963	3 449
Denmark	4 673	7 727	7 949	8 054	8 003	x(4,7)	15 183	x(7)	x(7)	11 604	9 261
Finland	3 929	5 087	8 197	6 455	7 121	x(5)	11 768	3 185	11 833	7 332	7 304
France	4 512	5 033	7 820	9 291	8 472	6 897	9 276	9 801	9 132	7 302	7 467
Germany	4 999	4 537	5 667	9 835	7 025	9 896	10 999	5 739	11 860	6 617	7 129
Greece	x(2)	3 803	x(5)	x(5)	4 058	2958	4 731	2 840	5 646	4 372	4 136
Hungary[1]	3 475	3 016	2 836	3 573	3 184	5 383	8 205	8 691	8 187	6 498	3 872
Iceland	m	7 171	7 532	7 001	7 229	x(4,7)	8 251	12 869	8 232	m	7 548
Ireland	m	4 180	5 698	5 758	5 725	5 978	9 809	x(7)	x(7)	7 721	5 711
Italy[1]	5 445	7 231	8 073	7 221	7 568	m	8 636	7 429	8 649	m	7 708
Japan	3 691	6 117	6 607	7 274	6 952	x(4,7)	11 716	9 580	11 984	m	7 438
Korea	2 497	3 553	5 036	6 747	5 882	a	6 047	3 772	7 630	m	5 053
Luxembourg	x(2)	10 611	x(5)	x(5)	15 195	x(5)	m	m	m	m	m
Mexico	1 643	1 467	1 477	2 378	1 768	a	6 074	x(7)	x(7)	5 298	1 950
Netherlands	4 923	5 558	7 257	6 256	6 823	5 872	13 101	7 622	13 163	7 977	7 241
New Zealand	4 650	4 536	4 540	7 330	5 698	m	m	m	m	m	m
Norway	m	7 508	8 536	11 510	10 154	x(5)	13 739	x(7)	x(7)	m	9 560
Poland	2 691	2 585	x(2)	2 599	m	2 896	4 834	x(7)	x(7)	4 204	2 962
Portugal[1]	4 158	4 940	6 727	7 155	6 921	a	6 960	x(7)	x(7)	4 693	6 080
Slovak Republic	2 125	1 471	1 806	2 694	2 193	x(4)	4 756	x(4)	4 756	4 407	2 300
Spain	3 845	4 592	x(5)	x(5)	6 010	x(5)	8 020	7 718	8 074	6 030	5 914
Sweden	4 107	7 143	7 075	7670	7 400	3 952	15 715	x(7)	x(7)	7 832	8 520
Switzerland[1]	3 450	7 776	9 200	14 693	11 900	8 591	23 714	7 286	25 524	m	11 334
Turkey[1]	m	m	a	m	m	a	m	m	m	4 267	m
United Kingdom	8 452	5 150	x(5)	x(5)	6 505	x(5)	11 822	x(7)	x(7)	8 966	6 691
United States	7 881	8 049	8 669	9 607	9 098	m	20 545	x(7)	x(7)	18 574	11 152
Country mean	*4 294*	*5 313*	*6 089*	*7 121*	*7 002*	*4 602*	*10 655*	~	~	*7 299*	*6 687*
OECD total	*4 922*	*5 273*	~	~	*6 992*	~	*13 343*	~	~	*11 945*	*7 343*
PARTNER COUNTRIES											
Argentina	1 305	1 241	1 286	2 883	1 918	a	3 235	3 891	2 777	m	1 755
Brazil[1,2]	965	842	913	1 008	944	a	10 361	x(7)	x(7)	m	1 121
Chile[3]	2 232	2 211	2 217	2 387	2 324	a	7 023	3 351	7 758	m	3 446
China	m	m	m	m	m	m	m	m	m	m	m
Egypt	m	m	m	m	m	m	m	m	m	m	m
India[2]	79	396	397	1 155	712	571	2486	x(7)	x(7)	m	606
Indonesia	64	110	278	379	315	a	1 296	x(7)	x(7)	m	262
Israel	3 663	4 770	x(5)	x(5)	5 767	4 165	11 295	7 762	12 325	m	6 140
Jamaica	707	640	909	1 029	950	m	m	m	m	m	m
Jordan[1]	393	805	830	852	837	a	m	m	m	m	m
Malaysia[1]	552	1 897	x(5)	x(5)	2 923	10 520	14 405	10 769	15 276	m	3 239
Paraguay	800	676	747	1 168	919	x(5)	2 791	2 109	2 966	m	939
Peru[1]	357	354	753	x(3)	503	m	1 346	739	1 749	m	1 473
Philippines[1]	62	491	452	452	452	2 452	1 730	x(7)	x(7)	m	548
Russian Federation[1]	1 092	x(5)	x(5)	x(5)	904	x(5)	m	987	m	m	m
Sri Lanka	m	m	m	m	m	m	m	m	m	m	m
Thailand	m	m	m	m	m	m	m	m	m	m	m
Tunisia[1]	m	x(5)	x(5)	x(5)	2 583	x(5)	3 674	x(7)	x(7)	m	m
Uruguay[1]	1 038	844	921	544	732	a	1 721	x(7)	x(7)	m	898
Zimbabwe	m	m	m	m	m	m	m	m	m	m	m

1. Public institutions only.
2. Year of reference 2001.
3. Year of reference 2003.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/040455163621

B1

Table B1.2. Annual expenditure on educational institutions per student relative to GDP per capita (2002)

By level of education, based on full-time equivalents

	Pre-primary education (for children 3 years and older)	Primary education	Secondary education			Post-secondary non-tertiary education	Tertiary education (including R&D activities)			All tertiary education exluding R&D activities	Primary to tertiary education
			Lower secondary education	Upper secondary education	All secondary education		All tertiary education	Tertiary-type B education	Tertiary-type A and advanced research programmes		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
OECD COUNTRIES											
Australia	m	19	25	29	27	26	45	27	48	32	26
Austria	20	23	29	30	30	41	41	32	42	26	30
Belgium	15	20	x(5)	x(5)	29	x(5)	42	x(7)	x(7)	29	28
Canada	m	m	m	m	m	m	m	m	m	m	m
Czech Republic	16	13	22	22	22	10	38	16	40	30	21
Denmark	16	26	26	27	27	x(4,7)	51	x(7)	x(7)	39	31
Finland	14	18	29	23	26	x(5)	42	11	43	26	26
France	16	18	28	34	31	25	34	36	33	27	27
Germany	19	17	21	37	26	37	41	22	44	25	27
Greece	x(2)	20	x(5)	x(5)	21	16	25	15	30	23	22
Hungary[1]	24	21	20	25	22	37	57	61	57	45	27
Iceland	m	25	27	25	25	x(4,7)	29	45	29	m	27
Ireland	m	13	18	18	18	18	30	x(7)	x(7)	24	18
Italy[1]	21	27	31	27	29	m	33	28	33	m	29
Japan	14	22	24	27	26	x(4,7)	43	35	44	m	27
Korea	14	19	27	37	32	a	33	20	41	m	27
Luxembourg	x(2)	20	x(5)	x(5)	29	x(5)	m	m	m	m	m
Mexico	18	16	16	25	19	a	65	x(7)	x(7)	57	21
Netherlands	16	19	24	21	23	20	44	25	44	27	24
New Zealand	21	20	20	33	26	m	m	m	m	m	m
Norway	m	20	23	31	28	x(5)	37	x(7)	x(7)	m	26
Poland	24	23	x(2)	23	m	26	43	x(7)	x(7)	38	26
Portugal[1]	22	26	36	38	37	a	37	x(7)	x(7)	25	32
Slovak Republic	17	12	14	21	17	x(4)	38	x(4)	38	35	18
Spain	17	20	x(5)	x(5)	26	x(5)	35	33	35	26	25
Sweden	15	25	25	27	26	14	56	x(7)	x(7)	28	30
Switzerland[1]	11	24	28	45	37	26	73	22	78	m	35
Turkey[1]	m	m	a	m	m	a	m	m	m	65	m
United Kingdom	29	18	x(5)	x(5)	23	x(5)	41	x(7)	x(7)	31	23
United States	22	22	24	27	25	m	57	x(7)	x(7)	51	31
Country mean	***18***	***20***	***23***	***28***	***26***	***19***	***43***	***29***	***42***	***34***	***26***
PARTNER COUNTRIES											
Argentina	12	11	11	25	17	a	29	34	24	m	15
Brazil[1,2]	13	11	12	13	12	a	135	x(7)	x(7)	m	15
Chile[3]	23	23	23	25	24	a	72	35	80	m	36
China	m	m	m	m	m	m	m	m	m	m	m
Egypt	m	m	m	m	m	m	m	m	m	m	m
India[2]	3	15	15	43	26	21	92	x(7)	x(7)	m	22
Indonesia	2	3	9	12	10	a	41	x(7)	x(7)	m	8
Israel	18	24	x(5)	x(5)	29	21	56	39	62	m	31
Jamaica	18	16	23	26	24	m	m	m	m	m	m
Jordan[1]	10	20	20	21	20	a	m	m	m	m	m
Malaysia[1]	6	21	x(5)	x(5)	32	117	160	119	169	m	36
Paraguay	16	14	15	24	19	x(5)	57	43	60	m	19
Peru[1]	7	7	15	x(3)	10	m	27	15	35	m	9
Philippines[1]	1	12	11	11	11	59	41	x(7)	x(7)	m	13
Russian Federation[1]	13	11	x(2)	x(2)	x(2)	x(2)	m	12	m	m	m
Sri Lanka	m	m	m	m	m	m	m	m	m	m	m
Thailand	m	m	m	m	m	m	m	m	m	m	m
Tunisia[1]	m	38	x(2)	x(2)	x(2)	x(2)	54	x(7)	x(7)	m	m
Uruguay[1]	13	11	12	7	9	a	22	x(7)	x(7)	m	12
Zimbabwe	m	m	m	m	m	m	m	m	m	m	m

1. Public institutions only.
2. Year of reference 2001.
3. Year of reference 2003.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table B1.3. Cumulative expenditure on educational institutions per student over the average duration of tertiary studies (2002)

In equivalent US dollars converted using PPPS for GDP, by type of programme

		Average duration of tertiary studies (in years)[2]			Cumulative expenditure per student over the average duration of tertiary studies		
		All tertiary education	Tertiary-type B education	Tertiary-type A and advanced research programmes	All tertiary education	Tertiary-type B education	Tertiary-type A and advanced research programmes
OECD COUNTRIES	Method[1]	(1)	(2)	(3)	(4)	(5)	(6)
Australia	CM	2.53	1.57	2.56	31 412	11 845	34 331
Austria	AF	5.54	2.82	6.33	68 959	27 026	80 400
Canada	CM	m	m	m	m	m	m
Denmark	AF	4.19	2.10	4.43	63 617	x(4)	x(4)
Finland	CM	4.48	a	4.48	53 066	a	53 066
France	AF	4.68	2.77	5.31	43 428	27 129	48 453
Germany	CM	5.28	2.37	6.50	58 036	13 608	77 089
Greece	AF	5.67	3.49	8.10	26 806	9 898	45 718
Hungary[3]	CM	4.05	2.00	4.05	33 229	17 383	33 156
Iceland	CM	2.68	1.96	2.84	22 111	25 224	23 378
Ireland	CM	3.24	2.21	4.02	31 782	x(4)	x(4)
Italy[3]	CM	5.49	3.27	5.57	47 410	24 294	48 176
Japan	CM	3.85	2.06	4.57	45 095	19 706	54 798
Korea	CM	3.43	2.07	4.22	20 740	7 808	32 198
Mexico	AF	3.42	x(1)	x(1)	20 787	x(4)	x(4)
Netherlands	CM	4.87	x(1)	x(1)	63 802	x(4)	x(4)
Norway	CM	m	m	m	m	m	m
Poland	CM	m	m	3.68	m	m	m
Spain	AF	4.55	1.49	4.71	36 493	11 493	38 002
Sweden	CM	4.61	2.58	4.71	72 408	x(4)	x(4)
Switzerland[3]	CM	3.62	2.19	5.45	85 946	15 933	139 177
United Kingdom	CM	3.83	x(1)	x(1)	45307	x(4)	x(4)
Country mean		***4.21***	***2.18***	***4.72***	***45 812***	~	~

1. Either the Chain Method (CM) or an Approximation Formula (AF) was used to estimate the duration of tertiary studies.
2. The duration of tertiary studies is obtained by a special survey conducted in 1997 for the academic year 1995. Data for Austria, Finland, Greece, Germany, Japan, the Netherlands, United Kingdom have been updated and corresponds to the academic year 2002.
3. Public institutions only.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table B1.4. Changes in expenditure on educational institutions per student relative to different factors, by level of education (1995, 2002)

Index of change between 1995 and 2002 (GDP deflator 1995=100, 2002 constant prices)

		Primary, secondary and post-secondary non-tertiary education				Tertiary education		
		Change in expenditure	Change in the number of students	Change in expenditure per student		Change in expenditure	Change in the number of students	Change in expenditure per student
OECD COUNTRIES	Australia	144	108	132	Australia	122	131	93
	Austria	107	m	m	Austria	111	94	118
	Belgium	m	m	m	Belgium	m	m	m
	Canada	m	m	m	Canada	m	m	m
	Czech Republic	93	93	100	Czech Republic	118	170	69
	Denmark[1]	125	105	118	Denmark[1]	136	105	129
	Finland	125	108	115	Finland	118	113	104
	France	114	97	118	France	114	97	117
	Germany	108	103	104	Germany	110	100	110
	Greece[2,3]	144	92	156	Greece[2]	243	181	134
	Hungary[4]	120	93	129	Hungary[4]	161	161	100
	Iceland	m	m	m	Iceland	m	m	m
	Ireland	142	93	152	Ireland	169	131	129
	Italy[2,4]	103	98	106	Italy[2,4]	131	108	121
	Japan[1]	107	85	125	Japan[1]	120	102	118
	Korea	m	91	m	Korea	m	158	m
	Luxembourg	m	m	m	Luxembourg	m	m	m
	Mexico	135	111	121	Mexico	172	142	121
	Netherlands	137	104	131	Netherlands	110	107	103
	New Zealand[2]	148	m	m	New Zealand[2]	106	m	m
	Norway[3]	121	116	105	Norway	110	104	105
	Poland[2]	144	87	165	Poland[2]	166	197	84
	Portugal[2,4]	137	81	170	Portugal[4]	135	132	102
	Slovak Republic	117	92	127	Slovak Republic	149	177	84
	Spain[2]	109	81	134	Spain	151	115	132
	Sweden	112	117	96	Sweden	115	135	85
	Switzerland[2,4]	113	107	106	Switzerland[2,4]	149	106	141
	Turkey[2,4]	171	115	148	Turkey[2,4]	191	110	174
	United Kingdom	136	121	112	United Kingdom	118	118	100
	United States[2]	129	106	122	United States	m	117	m
PARTNER COUNTRIES	Brazil[2,5]	122	117	104	Brazil[2,5]	125	142	88
	Chile[6]	200	117	171	Chile[6]	176	151	116
	India[2,5]	201	138	146	India[2,5]	204	136	150
	Jamaica	137	98	140	Jamaica	m	152	m
	Malaysia[2]	233	113	206	Malaysia[2]	360	238	151
	Paraguay	215	122	176	Paraguay[2]	187	255	73
	Philippines[2]	160	127	126	Philippines[2]	158	167	94
	Thailand[2]	122	79	154	Thailand[2]	m	314	m
	Tunisia[2]	131	105	125	Tunisia[2]	146	189	77
	Uruguay	m	122	m	Uruguay	m	120	m

1. Post-secondary non-tertiary included in both upper secondary and tertiary education.
2. Public expenditure only.
3. Pre-primary included in primary, secondary and post-secondary non-tertiary education
4. Public institutions only.
5. Year of reference 2001.
6. Year of reference 2003.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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B1

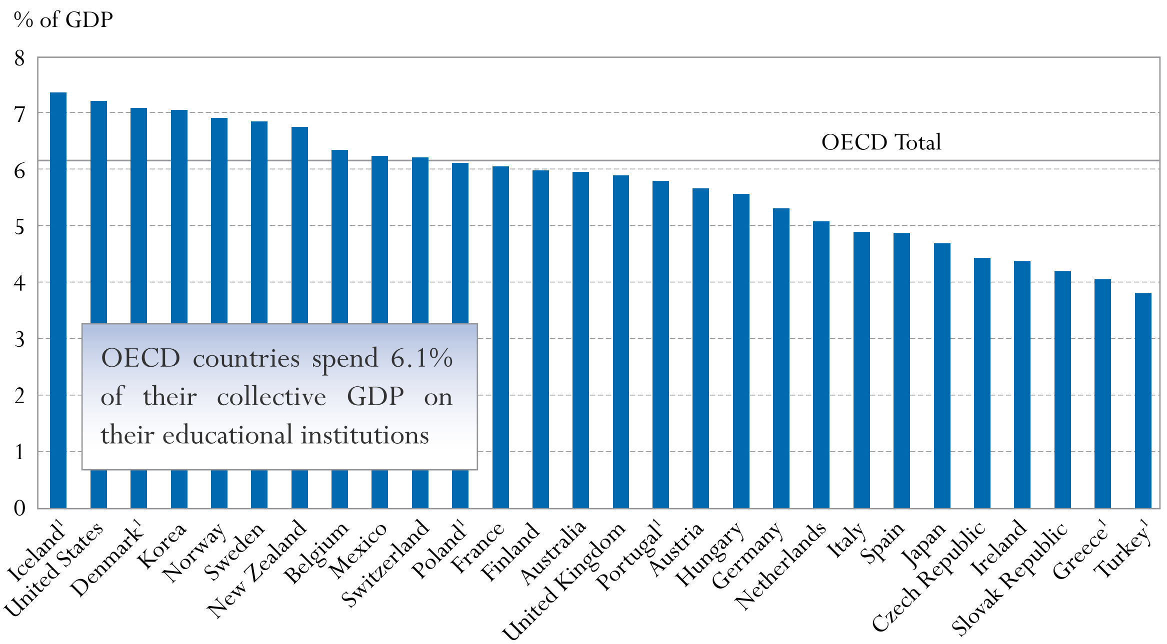
Expenditure on educational institutions relative to Gross Domestic Product

Education expenditure as a percentage of GDP shows how a country prioritises education in relation to its overall allocation of resources. Tuition fees and investment in education from private entities other than households (see Indicator B3) have a strong impact on differences in the overall amount that OECD countries devote to their education systems, especially at the tertiary level.

Key results

Chart B2.1 Expenditure on educational institutions as a percentage of GDP for all levels of education (2002)

The chart measures educational investment through the share of national income that each country devotes to spending on educational institutions. It captures both direct and indirect expenditure on educational institutions and covers both public and private sources of funds.

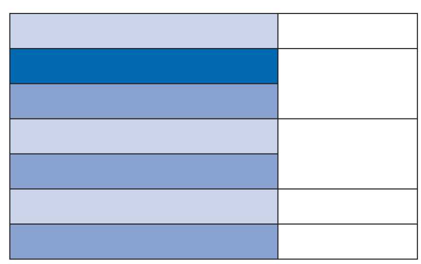


1. Public subsidies included in private funds.
Countries are ranked in descending order of total expenditure from both public and private sources on educational institutions.
Source: OECD. Table B2.1a. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

StatLink: http://dx.doi.org/10.1787/016047041005

Other highlights of this indicator

- Two-thirds of expenditure on educational institutions, or 3.8% of the combined GDP in the OECD area, are devoted to primary, secondary and post-secondary non-tertiary education.
- More than one-quarter of the combined OECD expenditure on educational institutions is accounted for by tertiary education.
- Korea and the United States spend 2.2 and 2.6%, respectively, of their GDP on tertiary institutions. These two countries are also those with the highest proportion of private expenditure at the tertiary level of education.
- More people are completing upper secondary and tertiary education than ever before and in many countries, the expansion has been accompanied by massive financial investments. In all the OECD countries for which data are available, public spending on educational institutions increased by more than 5% between 1995 and 2002.
- The increase in spending on education between 1995 and 2002 tended to fall behind the growth in national income in around half of the 21 OECD countries for which data are available. Most notable differences are observed in Austria, the Czech Republic, Ireland, Slovak Republic and Spain where the proportion of GDP spent on education decreased by 0.4 or more percentage points between 1995 and 2002.



Coverage diagram (see page 157 for explanations)

Policy context

Investing in early childhood education is of key importance in order to build a strong foundation for lifelong learning and to ensure equitable access to learning opportunities later in school. This indicator provides a measure of the relative proportion of a nation's wealth that is invested in educational institutions. Expenditure on education is an investment that can help to foster economic growth, enhance productivity, contribute to personal and social development, and reduce social inequality. Relative to gross domestic product, expenditure on education shows the priority given to education in a country in terms of allocating its overall resources. The proportion of total financial resources devoted to education is one of the key choices made in each OECD country; this is an aggregate choice made by government, enterprise and individual students and their families. If the social and private returns on the investment in education are sufficiently large, there is an incentive for enrolment to expand and total investment to increase.

The indicator also includes a comparative review of changes in educational investment over time. In appraising how much is spent on education, governments must assess demands for increased spending in areas such as teachers' salaries and educational facilities. This indicator can provide a point of reference as it shows how the volume of educational spending, relative to the size of national wealth and in absolute terms, has evolved over time in various OECD countries.

Evidence and explanations

What this indicator covers and what it does not cover

This indicator covers expenditure on schools, universities and other public and private institutions involved in delivering or supporting educational services. Expenditure on institutions is not limited to expenditure on instructional services but also includes public and private expenditure on ancillary services for students and families, where these services are provided through educational institutions. At the tertiary level, spending on research and development can also be significant and is included in this indicator, to the extent that the research is performed by educational institutions.

Not all spending on educational goods and services occurs within educational institutions. For example, families may purchase textbooks and materials commercially or seek private tutoring for their children outside educational institutions. At the tertiary level, student living costs and forgone earnings can also account for a significant proportion of the costs of education. All such expenditure outside educational institutions is excluded from this indicator, even if it is publicly subsidised. Public subsidies for educational expenditure outside institutions are discussed in Indicators B4 and B5.

Overall investment relative to GDP

All OECD countries invest a substantial proportion of national resources in education. Taking into account both public and private sources of funds, OECD countries as a whole spend 6.1% of their collective GDP on their educational institutions at the pre-primary, primary, secondary and tertiary levels. Under current conditions of tight constraints on public budgets, such a large spending item is subject to close scrutiny by governments looking for ways to reduce or limit the growth of expenditure.

The highest spending on educational institutions can be observed in Denmark, Iceland, Korea and the United States, with more than 7.0% of GDP accounted for by public and private spending on educational institutions, followed by Belgium, New Zealand, Norway and Sweden with more than 6.3%. Nine out of 28 OECD countries for which data are available, however, spend less than 5% of GDP on educational institutions, and in Greece, the Slovak Republic and Turkey this figure is only between 3.8 and 4.2% (Table B2.1a).

The national resources devoted to education depend on a number of inter-related factors of supply and demand. For example, OECD countries with high spending levels may be enrolling larger numbers of students, while countries with low spending levels may either be limiting access to higher levels of education or delivering educational services in a particularly efficient manner. The distribution of enrolments among sectors and fields of study may also differ, as may the duration of studies and the scale and organisation of related educational research. Finally, large differences in GDP among OECD countries imply that similar percentages of GDP spent on education can translate into very different absolute amounts per student (see Indicator B1).

Expenditure on educational institutions by level of education

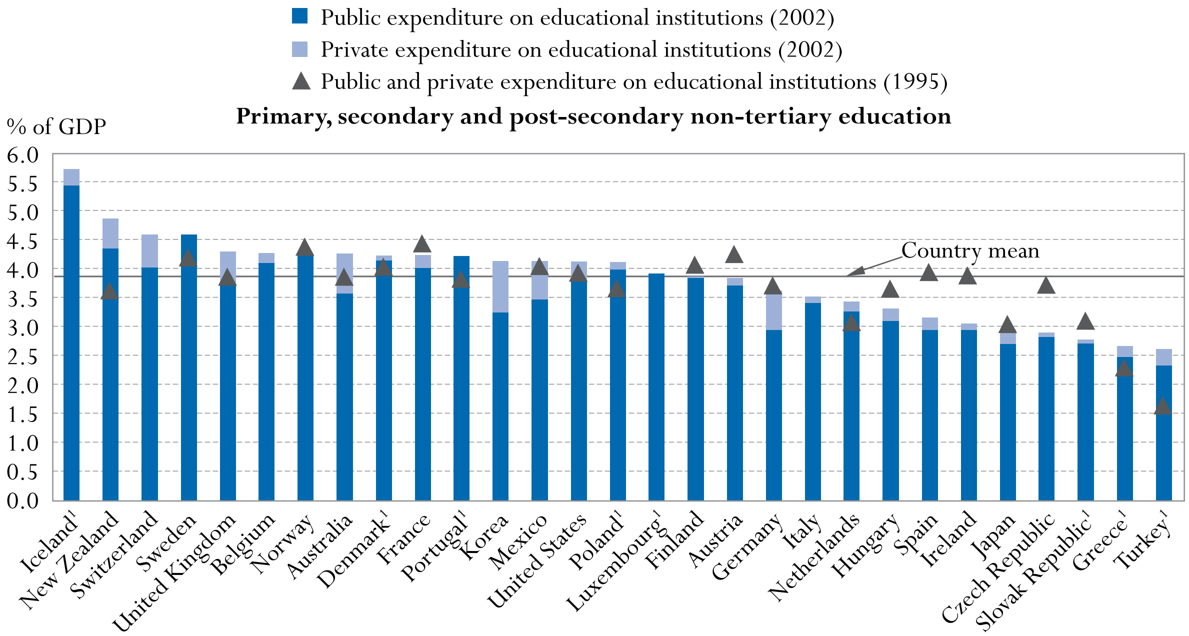
Differences in spending on educational institutions are most striking at the pre-primary level of education. Here, spending ranges from less than 0.2% of GDP in Australia and Ireland to 0.7% or more in Denmark, France, Hungary and Norway (Table B2.1c). Differences at the pre-primary level can be explained mainly by participation rates among younger children (see Indicator C1) but are sometimes also an artefact of the extent to which private early childhood education is covered by this indicator. In Ireland, for example, the majority of early childhood education is delivered in private institutions that are not yet covered in the Irish data collection leading to low spending in percentage of GDP. Moreover, high-quality early childhood education and care are not only provided by the educational institutions covered by this indicator but often also in more informal settings. Inferences on access to and quality of early childhood education and care should therefore be made with caution.

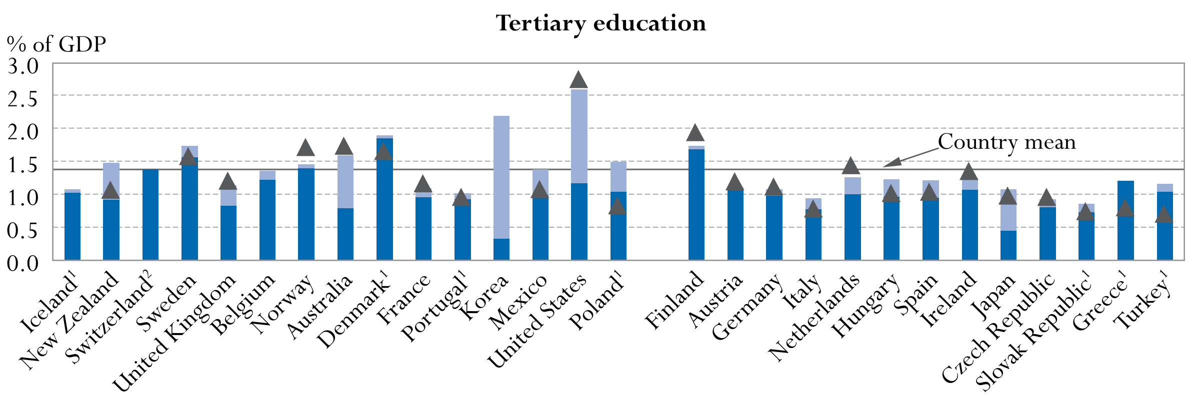
Around two-thirds of expenditure on educational institutions is devoted to primary, secondary and post-secondary non-tertiary education. Because of the largely universal enrolment at the primary and lower secondary levels of education in OECD countries, and the high participation rates in upper secondary education (see Indicators C1 and C2), these levels account for the bulk of expenditure on educational institutions, 3.8% of the combined OECD GDP (Chart B2.2). At the same time, significantly higher spending on education per student at the upper secondary and tertiary levels of education causes the overall investment in these levels to be higher than enrolment numbers alone would suggest.

More than one-quarter of combined OECD expenditure on educational institutions is accounted for by tertiary education. At this level of education, pathways available to students, programme durations and the organisation of teaching vary greatly between OECD countries, which leads to greater differences in the level of expenditure allocated to tertiary education. Korea and the United States spend 2.2 and 2.6%, respectively, of their GDP on tertiary institutions and these two countries are also those with the highest proportion of private expenditure at the tertiary level of education. Australia, Denmark, Finland and Sweden also show high spending levels, with 1.6% or more of GDP devoted to tertiary institutions. On the other hand, France, Iceland, Mexico, Portugal, Switzerland and the United Kingdom spend slightly below the average proportion of GDP on tertiary institutions but are among the OECD countries with the highest proportion of GDP spent on primary, secondary and post-secondary non-tertiary education (Chart B2.2). In Switzerland, a moderate proportion of GDP spent on tertiary institutions translates into one of the highest levels of spending per tertiary student, because of a comparatively low tertiary enrolment rate and a high GDP level (Tables B2.1b and B1.3).

Chart B2.2. Expenditure on educational institutions as a percentage of GDP (1995, 2002)

From public and private sources, by level of education, source of funds and year





1. Public subsidies included in private expenditure.
2. Public expenditure only.
Countries are ranked in descending order of expenditure from both public and private sources on educational institutions in 2002 in primary, secondary and post-secondary non-tertiary education.
Source: OECD. Table B2.1b. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/016047041005

Changes in overall educational spending between 1995 and 2002

More people are completing upper secondary and tertiary education than ever before (see Indicator A1) and in many countries, this expansion has been accompanied by massive financial investments. In 15 out of the 16 OECD countries for which comparable trend data are available, public and private investment in education increased by 5% or more between 1995 and 2002 in real terms. Australia, Denmark, Hungary and the United Kingdom increased expenditure on education by between 30 and 40%, and Ireland and Mexico increased spending by more than 40%. The trend is similar when public investment is considered separately and public expenditure on educational institutions rose by 5% or more in all the 24 OECD countries for which data are available between 1995 and 2002. Greece, New Zealand and Turkey, for which no data on private spending are available, showed considerable growth in public spending on educational institutions (Table B2.2).

Countries vary in the levels of education at which spending has increased. Denmark, Finland, France, Germany, Portugal, Sweden and Turkey – OECD countries with a comparably high increase in absolute spending on educational institutions between 1995 and 2002 – invested additional resources in similar proportions in primary, secondary and post-secondary non-tertiary and tertiary education combined (Chart B2.3 and Table B2.2). Australia, the Netherlands, New Zealand, Norway and the United Kingdom invested most of the increases between 1995 and 2002 into primary, secondary and post-secondary non-tertiary education. Conversely, in Greece, Hungary, Ireland, Mexico, Poland, the Slovak Republic, Spain and Switzerland, spending on tertiary education increased by more than 20% between 1995 and 2002, while spending on lower levels increased much more slowly (Chart B2.3).

However, the increase in spending on education between 1995 and 2002 tended to fall behind the growth in national income in around half of the 21 OECD countries for which data are available. Most notable differences are observed in Austria, the Czech Republic, Ireland, the Slovak Republic and Spain where the proportion of GDP spent on education decreased by 0.4 or more in percentage points between 1995 and 2002 (Table B2.1a). While the strong growth of GDP in Ireland hides significant increases in spending on educational institutions when spending on education is considered as a proportion of GDP, education in the Czech Republic did not benefit significantly from growth in GDP. Both countries were already among the OECD countries spending a lower proportion of GDP on education in 1995 and have now fallen further behind (Table B2.1a and Chart B2.3). By contrast, the proportion of GDP spent on education increased by more than 0.8 percentage points between 1995 and 2002 in Denmark, Greece and Turkey, three OECD countries that increased significantly their investment at the tertiary level of education between 1995 and 2002 (Table B2.1a and Chart B2.3).

Important factors influencing national expenditure on education

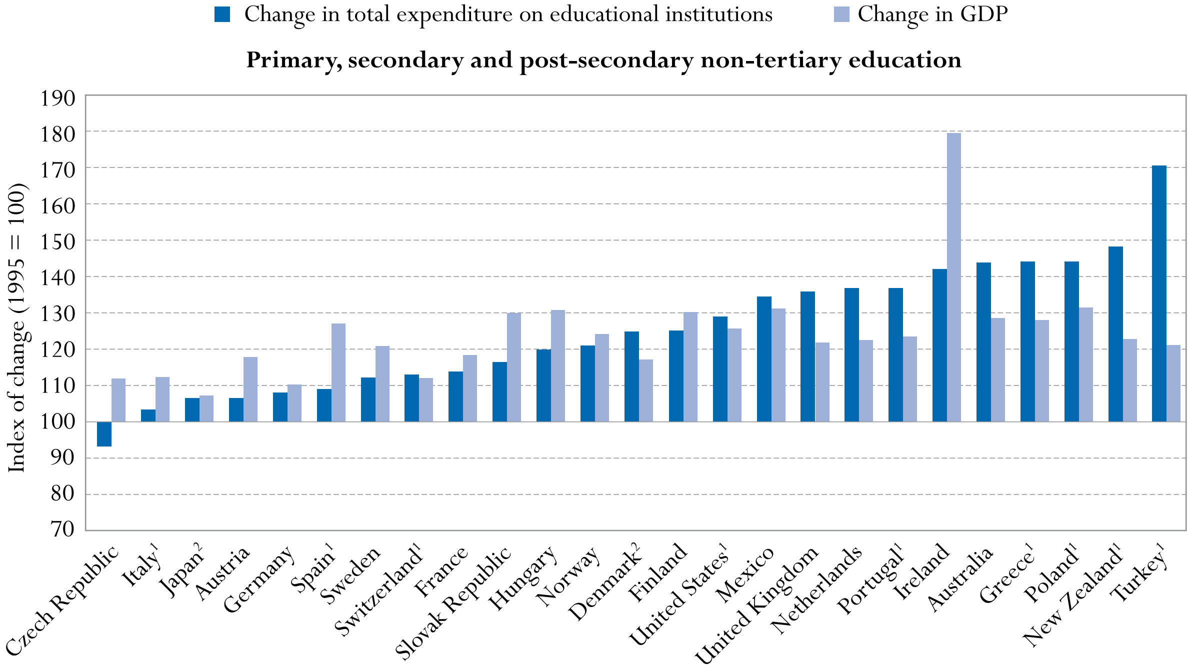
The national resources devoted to education depend on a number of interrelated factors of supply and demand, such as the demographic structure of the population, enrolment rates, income per capita, national levels of teachers' salaries and the organisation and delivery of instruction.

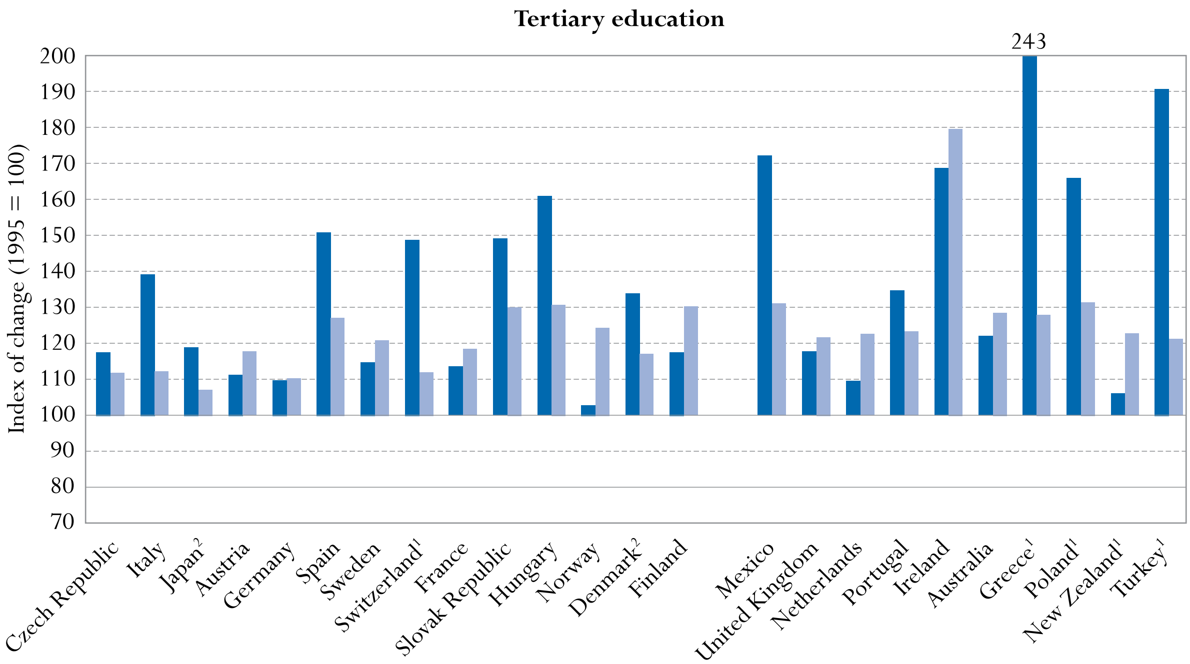
The size of the school-age population in a particular country – see Indicator A1 from *Education at a Glance 2001* (OECD, 2001b) – shapes the potential demand for initial education and training. The larger the number of young people, the greater the potential demand for educational services. Among OECD countries of comparable national income, a country with a relatively large youth population will have to spend a higher percentage of its GDP on education so that each young person in that country has the opportunity to receive the same quantity of education as young people in other OECD countries. Conversely, if the youth population is relatively small, the same country will be required to spend less of its wealth on education in order to achieve similar results.

Variations in enrolment rates among OECD countries reflect differences in the demand for education, from pre-primary to tertiary education, as well as the supply of programmes at all levels. The higher the enrolment rate, the more financial resources will be required. Indicator C1 shows that the number of years that a 5-year-old child can expect to spend in education ranges from 13 to 21 years among OECD countries. The variation in expected years in tertiary education is even wider, from one year in Mexico to more than four years in Finland (see Indicator C2).

Chart B2.3. Changes in expenditure on educational institutions from public and private sources and changes in GDP (1995, 2002)

Index of change between 1995 and 2002 (1995 = 100, 2002 constant prices)





1. Public expenditure only.
2. Post-secondary non-tertiary included in both upper secondary and tertiary education.

Countries are ranked in ascending order of changes in total expenditure on educational institutions in primary, secondary and post-secondary non-tertiary education between 1995 and 2002.

Source: OECD. Table B2.2 and Annex 2. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/016047041005

Definitions and methodologies

Data refer to the financial year 2002 and are based on the UOE data collection on education statistics administered by the OECD in 2004 (for details see Annex 3 at *www.oecd.org/edu/eag2005*). Expenditure on educational institutions, as covered by this indicator, includes expenditure on instructional educational institutions as well as expenditure on non-instructional educational institutions. Instructional educational institutions are educational institutions which directly provide instructional programmes (*i.e.* teaching) to individuals in an organised group setting or through distance education. Business enterprises or other institutions providing short-term courses of training or instruction to individuals on a one-to-one basis are not included. Non-instructional educational institutions provide administrative, advisory or professional services to other educational institutions, although they do not enrol students themselves. Examples include national, state and provincial ministries or departments of education; other bodies that administer education at various levels of government or analogous bodies in the private sector; and organisations that provide such education-related services as vocational or psychological counselling, placement, testing, financial aid to students, curriculum development, educational research, building operations and maintenance services, transportation of students, and student meals and housing.

This broad definition of institutions ensures that expenditure on services, which are provided in some OECD countries by schools and universities and in others by agencies other than schools, are covered on a comparable basis.

The distinction by source of funds is based on the initial source of funds and does not reflect subsequent public-to-private or private-to-public transfers. For this reason, subsidies to households and other entities, such as subsidies for tuition fees and other payments to educational institutions, are included in public expenditure in this indicator. Payments from households and other private entities to educational institutions include tuition and other fees, net of offsetting public subsidies. A detailed discussion of public subsidies can be found in Indicator B5.

The country mean is calculated as the simple average over all OECD countries for which data are available. The OECD total reflects the value of the indicator if the OECD region is considered as a whole (see the Reader's Guide for details).

Tables B2.1a, B2.1b and B2.2 show expenditure on educational institutions for the financial year 1995. The data on expenditure for 1995 were obtained by a special survey in 2002 and updated in 2003; expenditure for 1995 was adjusted to methods and definitions used in the 2003 UOE data collection.

Data for 1995 are expressed in 2002 price levels. Chart B2.3 and Table B2.2 present an index of change in expenditure on institutions and GDP between 1995 and 2002. All expenditure, as well as 1995 GDP, is adjusted to 2002 prices using the GDP deflator.

For comparisons over time, the country mean accounts only for those OECD countries for which data are available for all reported reference years.

Note that data appearing in earlier editions of this publication may not always be comparable to data shown in the 2005 edition due to changes in definitions and coverage that were made as a result of the OECD expenditure comparability study (for details on changes, see Annex 3 at *www.oecd.org/edu/eag2005*).

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Table B2.1a. Expenditure on educational institutions as a percentage of GDP for all levels of education (1990, 1995 and 2002)

From public and private sources, by source of fund and year

		2002			1995			1990		
		Public[1]	Private[2]	Total	Public[1]	Private[2]	Total	Public[1]	Private[2]	Total
OECD COUNTRIES	Australia	4.4	1.5	6.0	4.5	1.2	5.7	4.2	0.8	5.0
	Austria	5.4	0.3	5.7	5.9	0.3	6.1	m	m	m
	Belgium	6.1	0.3	6.4	m	m	m	m	m	m
	Canada	m	m	m	6.2	0.8	7.0	m	m	m
	Czech Republic	4.2	0.2	4.4	4.7	0.7	5.4	m	m	m
	Denmark[3]	6.8	0.3	7.1	6.1	0.2	6.3	m	m	m
	Finland	5.9	0.1	6.0	6.2	x	6.3	m	m	m
	France	5.7	0.4	6.1	5.9	0.4	6.3	5.1	0.5	5.7
	Germany	4.4	0.9	5.3	4.5	0.9	5.4	m	m	m
	Greece[3]	3.9	0.2	4.1	3.1	n	3.2	m	m	m
	Hungary	5.0	0.6	5.6	4.9	0.6	5.5	m	m	m
	Iceland[3]	6.8	0.6	7.4	m	m	m	m	m	m
	Ireland	4.1	0.3	4.4	4.7	0.5	5.3	m	m	m
	Italy	4.6	0.3	4.9	4.7	m	m	m	m	m
	Japan	3.5	1.2	4.7	3.5	1.1	4.7	m	m	m
	Korea	4.2	2.9	7.1	m	m	m	m	m	m
	Luxembourg	m	m	m	m	m	m	m	m	m
	Mexico	5.1	1.1	6.3	4.6	1.0	5.6	m	m	m
	Netherlands	4.6	0.5	5.1	4.5	0.4	4.9	m	m	m
	New Zealand	5.6	1.2	6.8	4.8	m	m	m	m	m
	Norway	6.7	0.3	6.9	6.8	0.4	7.1	8.1	m	m
	Poland[3]	5.5	0.7	6.1	5.7	m	m	m	m	m
	Portugal[3]	5.7	0.1	5.8	5.3	n	5.3	m	m	m
	Slovak Republic	4.0	0.2	4.2	4.6	0.1	4.7	4.8	0.3	5.1
	Spain	4.3	0.5	4.9	4.5	0.9	5.4	4.4	0.7	5.1
	Sweden	6.7	0.2	6.9	6.1	0.1	6.2	5.1	n	5.1
	Switzerland	5.7	0.5	6.2	5.4	m	m	m	m	m
	Turkey[3]	3.4	0.4	3.8	2.3	n	2.3	2.8	n	2.8
	United Kingdom	5.0	0.9	5.9	4.8	0.7	5.5	4.2	0.1	4.3
	United States	5.3	1.9	7.2	5.0	2.2	7.2	4.9	2.2	7.1
	Country mean	***5.1***	***0.7***	***5.8***	~	~	~	~	~	~
	OECD total	***4.9***	***1.2***	***6.1***	~	~	~	~	~	~
PARTNER COUNTRIES	Argentina[3]	3.9	0.8	4.7	m	m	m	m	m	m
	Brazil[3, 4]	4.0	m	m	3.3	m	m	m	m	m
	Chile[5]	4.0	3.2	7.3	2.9	2.2	5.1	m	m	m
	China	m	m	m	m	m	m	m	m	m
	Egypt	m	m	m	m	m	m	m	m	m
	India[4]	3.4	1.4	4.8	3.3	0.2	3.5	m	m	m
	Indonesia[3, 6]	1.2	0.6	1.9	m	m	m	m	m	m
	Israel	7.5	1.7	9.2	6.9	1.5	8.4	m	m	m
	Jamaica	6.1	5.9	12.1	m	m	m	m	m	m
	Jordan	4.4	m	m	m	m	m	m	m	m
	Malaysia[3]	8.1	m	m	4.5	m	m	m	m	m
	Paraguay	4.5	2.1	6.6	3.1	m	m	m	m	m
	Peru[3]	2.7	1.9	4.6	m	m	m	m	m	m
	Philippines	3.1	2.0	5.2	3.0	m	m	m	m	m
	Russian Federation[3]	3.7	m	m	m	m	m	m	m	m
	Sri Lanka	m	m	m	m	m	m	m	m	m
	Thailand[3]	4.6	2.2	6.8	4.0	m	m	m	m	m
	Tunisia[3]	6.4	m	m	6.6	m	m	m	m	m
	Uruguay[3, 6]	2.6	0.2	2.8	3.3	m	m	m	m	m
	Zimbabwe	5.6	m	m	m	m	m	m	m	m

1. Including public subsidies to households attributable for educational institutions. Including direct expenditure on educational institutions from international sources.
2. Net of public subsidies attributable for educational institutions.
3. Public subsidies to households not included in public expenditure, but in private expenditure.
4. Year of reference 2001.
5. Year of reference 2003.
6. Direct expenditure on educational institutions from international sources exceeds 1.5% of all public expenditure.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/016047041005

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Table B2.1b. Expenditure on educational institutions as a percentage of GDP, by level of education (1995, 2002)

From public and private sources, by source of fund and year

	Primary, secondary and post-secondary non-tertiary education				Tertiary education			
	2002			1995	2002			1995
	Public[1]	Private[2]	Total	Total	Public[1]	Private[2]	Total	Total
OECD COUNTRIES								
Australia	3.6	0.7	4.2	3.9	0.8	0.8	1.6	1.7
Austria	3.7	0.1	3.8	4.2	1.1	n	1.1	1.2
Belgium[3]	4.1	0.2	4.3	m	1.2	0.1	1.4	m
Canada[4]	m	m	m	4.3	m	m	m	2.3
Czech Republic	2.8	0.1	2.9	3.7	0.8	0.1	0.9	1.0
Denmark[5, 6]	4.1	0.1	4.2	4.0	1.9	n	1.9	1.6
Finland	3.8	n	3.9	4.0	1.7	n	1.8	1.9
France	4.0	0.2	4.2	4.4	1.0	0.1	1.1	1.1
Germany	3.0	0.7	3.6	3.7	1.0	0.1	1.1	1.1
Greece[5]	2.5	0.2	2.7	2.3	1.2	n	1.2	0.8
Hungary	3.1	0.2	3.3	3.6	1.0	0.3	1.2	1.0
Iceland[5,6]	5.4	0.3	5.7	m	1.0	n	1.1	m
Ireland[3]	3.0	0.1	3.1	3.9	1.1	0.2	1.3	1.3
Italy	3.4	0.1	3.5	m	0.8	0.2	0.9	0.8
Japan[6]	2.7	0.2	3.0	3.0	0.4	0.6	1.1	1.0
Korea	3.3	0.9	4.1	m	0.3	1.9	2.2	m
Luxembourg[5]	3.9	n	3.9	m	m	m	m	m
Mexico	3.5	0.7	4.1	4.0	1.0	0.4	1.4	1.1
Netherlands	3.3	0.2	3.4	3.1	1.0	0.3	1.3	1.4
New Zealand	4.4	0.5	4.9	3.6	0.9	0.6	1.5	1.1
Norway	4.2	n	4.3	4.3	1.4	0.1	1.5	1.7
Poland[5]	4.0	0.1	4.1	3.6	1.1	0.5	1.5	0.8
Portugal[5]	4.2	n	4.2	3.8	0.9	0.1	1.0	0.9
Slovak Republic[3, 5]	2.7	0.1	2.8	3.1	0.7	0.1	0.9	0.8
Spain	2.9	0.2	3.2	3.9	1.0	0.3	1.2	1.0
Sweden[3]	4.6	n	4.6	4.2	1.6	0.2	1.8	1.6
Switzerland	4.0	0.6	4.6	m	1.4	m	m	m
Turkey[5]	2.3	0.3	2.6	1.7	1.0	0.1	1.2	0.7
United Kingdom	3.7	0.6	4.3	3.9	0.8	0.3	1.1	1.2
United States	3.8	0.3	4.1	3.9	1.2	1.4	2.6	2.7
Country mean	***3.6***	***0.3***	***3.8***	~	***1.1***	***0.3***	***1.4***	~
OECD total	***3.5***	***0.4***	***3.8***	~	***1.0***	***0.8***	***1.7***	~
Country mean for countries with 1995 and 2002 data	~	~	***3.7***	***3.7***	~	~	***1.3***	***1.3***
PARTNER COUNTRIES								
Argentina[5]	2.9	0.4	3.3	m	0.7	0.4	1.1	m
Brazil[5, 7]	2.9	m	m	2.7	0.8	m	m	0.7
Chile[8]	3.2	1.3	4.6	m	0.4	1.8	2.2	m
China	m	m	m	m	m	m	m	m
Egypt	m	m	m	m	m	m	m	m
India[4, 7]	2.7	1.1	3.8	2.8	0.7	0.2	0.8	0.7
Indonesia[3, 5]	0.9	0.3	1.2	m	0.3	0.4	0.7	m
Israel	5.0	0.3	5.3	5.0	1.2	0.8	2.1	1.8
Jamaica	4.7	4.1	8.7	3.8	1.1	1.5	2.6	0.9
Jordan[3]	4.4	m	m	m	m	m	m	m
Malaysia[5]	5.3	m	m	m	2.7	m	m	m
Paraguay	3.5	1.1	4.6	3.4	0.7	0.9	1.6	0.7
Peru[5]	1.9	1.3	3.1	m	0.3	0.6	0.9	m
Philippines	2.6	m	m	m	0.4	m	m	m
Russian Federation	2.2	m	m	m	0.6	m	m	m
Sri Lanka	m	m	m	m	m	m	m	m
Thailand[5]	2.8	m	m	2.5	0.6	m	m	0.4
Tunisia[5]	4.9	m	m	5.3	1.5	m	m	1.4
Uruguay[3, 5]	1.8	0.2	1.9	m	0.6	n	0.6	m
Zimbabwe	m	m	m	m	m	m	m	m

1. Including public subsidies to households attributable for educational institutions. Including direct expenditure on educational institutions from international sources.
2. Net of public subsidies attributable for educational institutions.
3. Direct expenditure on tertiary-level educational institutions from international sources exceeds 1.5% of all public expenditure. International sources at primary and secondary levels exceed 1.5% in Uruguay.
4. Post-secondary non-tertiary included in tertiary education.
5. Public subsidies to households not included in public expenditure, but in private expenditure.
6. Post-secondary non-tertiary included in both upper secondary and tertiary education.
7. Year of reference 2001.
8. Year of reference 2003.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table B2.1c. Expenditure on educational institutions as a percentage of GDP, by level of education (2002)

From public and private sources[1]

		Pre-primary education (for children 3 years and older)	Primary, secondary and post-secondary non-tertiary education				Tertiary education			All levels of education combined (including undistributed and advanced research programmes)
			All primary, secondary and post-secondary non-tertiary education	Primary and lower secondary education	Upper secondary education	Post-secondary non-tertiary education	All tertiary education	Tertiary-type B education	Tertiary-type A education	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD COUNTRIES	Australia	0.1	4.2	3.2	0.9	0.1	1.6	0.2	1.4	6.0
	Austria	0.5	3.8	2.5	1.3	n	1.1	0.1	1.0	5.7
	Belgium[2]	0.6	4.3	1.5	2.8	x(4)	1.4	x(6)	x(6)	6.4
	Canada	m	m	m	m	m	m	m	m	m
	Czech Republic	0.5	2.9	1.8	1.1	n	0.9	n	0.9	4.4
	Denmark	0.8	4.2	3.0	1.2	x(4,6)	1.9	x(6)	x(6)	7.1
	Finland	0.4	3.9	2.5	1.4	x(4)	1.8	n	1.8	6.0
	France	0.7	4.2	2.7	1.5	n	1.1	0.2	0.8	6.1
	Germany	0.5	3.6	2.2	1.2	0.2	1.1	0.1	1.0	5.3
	Greece[2]	x(2)	2.7	1.2	1.4	0.1	1.2	0.2	1.0	4.1
	Hungary	0.8	3.3	2.0	1.1	0.2	1.2	n	1.2	5.6
	Iceland	m	5.7	x(2)	x(2)	x(4,6)	1.1	n	1.1	7.4
	Ireland	n	3.1	2.3	0.7	0.2	1.3	x(6)	x(6)	4.4
	Italy	0.4	3.5	2.2	1.3	n	0.9	0.1	0.9	4.9
	Japan	0.2	3.0	2.1	0.9	x(4,6)	1.1	0.1	1.0	4.7
	Korea	0.2	4.1	2.7	1.4	a	2.2	0.6	1.6	7.1
	Luxembourg[2]	x(2)	3.9	2.1	1.8	x(2)	m	m	m	m
	Mexico	0.6	4.1	3.3	0.8	a	1.4	x(6)	x(6)	6.3
	Netherlands	0.4	3.4	2.7	0.8	n	1.3	n	1.3	5.1
	New Zealand	0.3	4.9	3.1	1.5	0.2	1.5	0.3	1.2	6.8
	Norway	1.0	4.3	2.8	1.4	x(4)	1.5	x(6)	x(6)	6.9
	Poland	0.5	4.1	2.9	1.2	0.1	1.5	x(6)	x(6)	6.1
	Portugal	0.3	4.2	3.0	1.2	m	1.0	x(6)	x(6)	5.8
	Slovak Republic	0.5	2.8	1.6	1.2	x(4)	0.9	x(4)	0.9	4.2
	Spain	0.5	3.2	x(2)	x(2)	x(2)	1.2	0.2	1.0	4.9
	Sweden	0.5	4.6	3.2	1.4	n	1.8	x(6)	x(6)	6.9
	Switzerland	0.2	4.6	2.8	1.7	0.1	1.4	n	1.3	6.2
	Turkey	m	2.6	1.8	0.8	a	1.2	x(6)	x(6)	3.8
	United Kingdom[2]	0.5	4.3	1.4	2.9	x(4)	1.1	x(6)	x(6)	5.9
	United States	0.5	4.1	3.1	1.0	m	2.6	x(6)	x(6)	7.2
	Country mean	***0.5***	***3.8***	***2.4***	***1.3***	***0.1***	***1.4***	***0.1***	***1.1***	***5.7***
	OECD total	***0.4***	***3.8***	***2.6***	***1.2***	***0.1***	***1.7***	***x(6)***	***x(6)***	***6.1***
PARTNER COUNTRIES	Argentina	0.3	3.3	2.2	1.1	a	1.1	0.5	0.6	4.7
	Brazil[3,4]	0.3	2.9	2.3	0.5	a	0.8	x(6)	x(6)	4.0
	Chile[5]	0.5	4.6	3.1	1.5	a	2.2	0.2	2.0	7.3
	China	m	m	m	m	m	m	m	m	m
	Egypt	m	m	m	m	m	m	m	m	m
	India[4]	0.1	3.8	2.4	1.4	n	0.8	x(6)	x(6)	4.8
	Indonesia	n	1.2	0.9	0.3	a	0.7	x(6)	x(6)	1.9
	Israel	0.9	5.3	2.8	2.5	n	2.1	x(6)	x(6)	9.2
	Jamaica	0.8	8.7	6.4	1.6	0.8	2.6	0.6	1.9	12.1
	Jordan	n	4.4	3.7	0.6	m	m	m	m	m
	Malaysia[3]	0.1	5.3	2.5	2.7	n	2.7	0.4	2.3	8.1
	Paraguay	0.4	4.5	3.5	1.0	m	1.6	0.2	1.4	6.6
	Peru	0.3	3.1	2.7	0.4	n	0.9	0.2	0.7	4.6
	Philippines[3]	n	2.5	2.4	0.1	n	0.4	x(6)	x(6)	5.2
	Russian Federation[3]	0.6	2.2	m	m	m	0.6	0.2	0.4	m
	Sri Lanka	m	m	m	m	m	m	m	m	m
	Thailand[3]	0.5	2.8	2.7	0.1	a	0.6	x(6)	x(6)	4.6
	Tunisia[3]	m	4.9	x(2)	x(2)	a	1.5	x(6)	x(6)	6.4
	Uruguay	0.3	1.9	1.6	0.3	a	0.6	x(6)	x(6)	2.8
	Zimbabwe	m	m	m	m	m	m	m	m	m

1. Including international sources.
2. Column 3 only refers to primary education and column 4 refers to all secondary education.
3. Including only direct public expenditure on educational institutions.
4. Year of reference 2001.
5. Year of reference 2003.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/016047041005

B2

Table B2.2. Change in expenditure on educational institutions (1995, 2002)

Index of change between 1995 and 2002 in expenditure on educational institutions from public and private sources, by level of education (GDP deflator (1995=100), 2002 constant prices)

		All levels of education			Primary, secondary and post-secondary non-tertiary education			Tertiary education		
		Public expenditure on educational institutions	Private expenditure on educational institutions	Total expenditure on educational institutions from both public and private sources	Public expenditure on educational institutions	Private expenditure on educational institutions	Total expenditure on educational institutions from both public and private sources	Public expenditure on educational institutions	Private expenditure on educational institutions	Total expenditure on educational institutions from both public and private sources
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD COUNTRIES	Australia	129	168	137	141	160	144	92	178	122
	Austria	109	110	109	106	112	107	106	239	111
	Belgium	m	m	m	m	m	m	m	m	m
	Canada	m	m	m	m	m	m	m	m	m
	Czech Republic	106	43	98	100	27	93	144	52	118
	Denmark[1]	132	150	132	125	113	125	134	482	136
	Finland	123	m	124	124	m	125	116	m	118
	France	115	105	114	114	106	114	115	103	114
	Germany	109	107	108	109	104	108	108	129	110
	Greece[2]	174	m	m	144	m	m	243	m	m
	Hungary	134	123	133	123	89	120	158	174	161
	Ireland	156	97	149	142	140	142	212	81	169
	Italy	107	m	m	103	m	m	131	174	139
	Japan[1]	109	114	110	107	106	107	119	121	120
	Mexico	145	161	147	133	140	135	158	221	172
	Netherlands	128	127	128	137	m	137	106	m	110
	New Zealand	142	m	m	148	m	m	106	m	m
	Norway[2]	121	87	115	122	77	121	110	62	103
	Poland	135	m	m	144	m	m	166	m	m
	Portugal	134	m	m	137	m	m	128	337	135
	Slovak Republic	114	200	117	115	284	117	132	406	149
	Spain	121	m	m	109	m	m	155	140	151
	Sweden	111	168	113	m	m	112	m	m	115
	Switzerland	120	m	m	113	m	m	149	m	m
	Turkey	176	m	m	171	m	m	191	m	m
	United Kingdom	127	161	131	133	160	136	106	165	118
	United States	m	m	m	129	m	m	m	m	m
PARTNER COUNTRIES	Brazil[3]	129	m	m	122	m	m	125	m	m
	Chile[4]	193	195	194	200	202	200	137	189	176
	India[3]	205	m	m	201	m	m	204	m	m
	Israel	123	135	126	124	120	124	117	148	129
	Jamaica	m	m	m	120	164	137	m	m	m
	Malaysia	264	m	m	233	m	m	360	m	m
	Paraguay	229	m	m	216	212	215	187	m	m
	Philippines	158	m	m	160	m	m	158	m	m
	Thailand	m	m	m	122	m	m	m	m	m
	Tunisia	134	m	m	131	m	m	146	m	m
	Zimbabwe	m	m	m	272	m	m	m	m	m

1. Post-secondary non-tertiary included in both upper secondary and tertiary education.
2. Pre-primary included in primary, secondary and post-secondary non-tertiary education.
3. Years of reference 1995, 2001.
4. Years of reference 1995, 2003.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/016047041005

B3

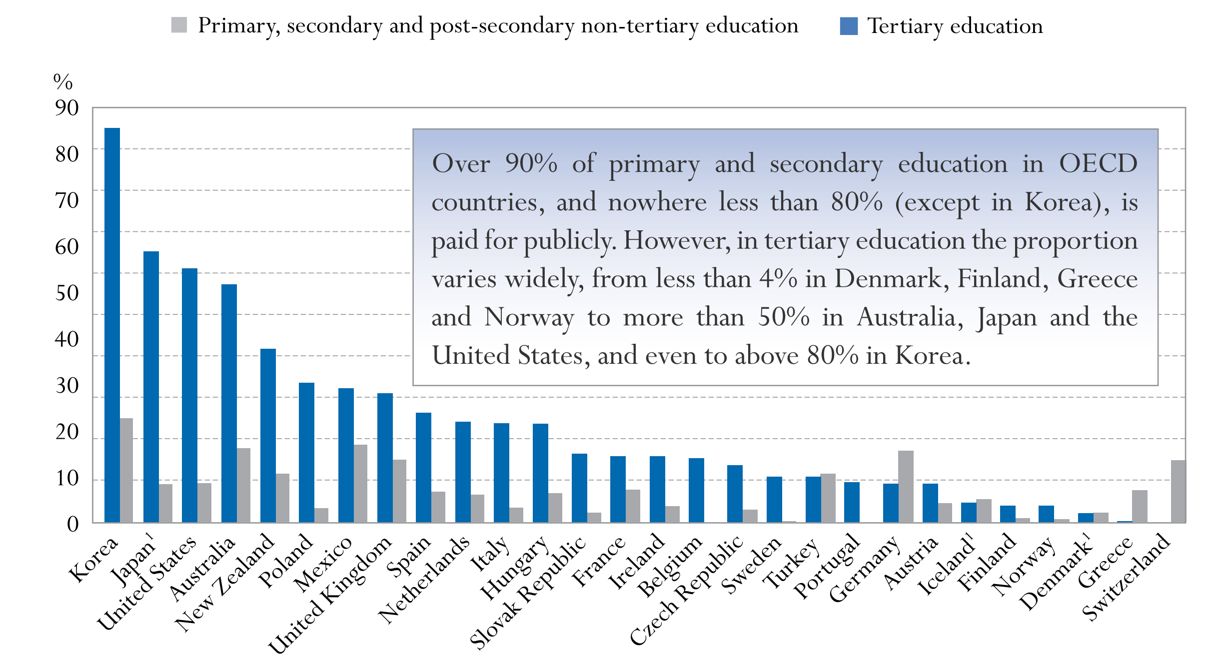
Public and private investment in educational institutions

This indicator examines the proportion of public and private funds allocated to educational institutions for each level of education. It also provides the breakdown of private funds between household expenditure and expenditure from private entities other than households. This indicator sheds some light on the widely debated issue of how the financing of educational institutions should be shared between private entities and the public, particularly those at the tertiary level. The higher the amount of household expenditure required for educational institutions, the stronger the pressure on the families. Thus, access to tertiary studies may be influenced both by the amount of private expenditure needed and by the financial subsidies to households that are analysed in Indicator B5.

Key results

Chart B3.1. Share of private expenditure on educational institutions between primary and tertiary education(2002)

The chart shows private spending on educational institutions as a percentage of total spending on educational institutions. This includes all money transferred to such institutions through private sources, including public funding via subsidies to households, private fees for educational services or other private spending (e.g. on accommodation) that passes through the institution.



1. Post-secondary non-tertiary included in both upper secondary and tertiary education.
Countries are ranked in descending order of the share of private expenditure on educational institutions for tertiary education.
Source: OECD. Tables B3.2a and B3.2b. See Annex 3 for notes *(www.oecd.org/edu/eag2005)*.
StatLink: http://dx.doi.org/10.1787/528506342466

Other highlights of this indicator

- Between 1995 and 2002, among countries for which comparable data are available, the share of public funding for all levels of education combined decreased in as many countries as it increased.
- The share of tertiary spending from private sources rose substantially in some countries between 1995 and 2002, but this was not the case at other levels of education. Overall, at the tertiary level of education the share of public funding rose in as many countries as it fell.
- 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: respectively 22% and 18% of funds at these levels come from private sources.
- In tertiary education, 80% of private expenditure are covered by households, even if private expenditure from other private entities are significant and represent 10% or more in Australia, Hungary, Korea, the Netherlands, Sweden, the United Kingdom and the United States.

Coverage diagram (see page 157 for explanations)

Policy context

Cost-sharing between participants in the education system and society as a whole is an issue that is under discussion in many OECD countries. This question is especially relevant at the beginning and ending stages of initial education, pre-primary and tertiary education, where full or nearly full public funding is less common.

As new client groups increasingly 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 to pay for education and to share costs and benefits more equitably.

As a result, public funding is now seen increasingly as providing only a part (although a very important part) of investment in education and the role of private sources has become more important. Some stakeholders are concerned that this balance should not become so tilted as to lead potential learners away from learning, instead of towards it. Thus, changes in a country's public/private funding shares can provide important context for changing patterns and levels of participation within its educational system.

Evidence and explanations

What this indicator covers and what it does not cover

Governments can spend public funds directly on educational institutions or use them to provide subsidies to private entities for the purpose of education. When reporting on the public and private proportions of educational expenditure, it is therefore important to distinguish between the initial sources of funds and the final direct purchasers of educational goods and services.

Initial public spending includes both direct public expenditure on educational institutions and transfers to the private sector. To gauge the level of public expenditure, it is necessary to add together the components showing direct public expenditure on educational institutions and public subsidies for education. Initial private spending includes tuition fees and other student or household payments to educational institutions, less the portion of such payments offset by public subsidies.

The final public and private proportions are the percentages of educational funds spent directly by public and private purchasers of educational services. Final public spending includes direct public purchases of educational resources and payments to educational institutions and other private entities. Final private spending includes tuition fees and other private payments to educational institutions.

Not all spending on instructional goods and services occurs within educational institutions. For example, families may purchase textbooks and materials commercially or seek private tutoring for their children outside educational institutions. At the tertiary level, student living costs and forgone earnings can also account for a significant proportion of the costs of education. All such expenditure outside educational institutions, even if it is publicly subsidised, is excluded from this indicator. Public subsidies for educational expenditure outside institutions are discussed in Indicators B4 and B5.

Public and private expenditure on educational institutions at all levels of education

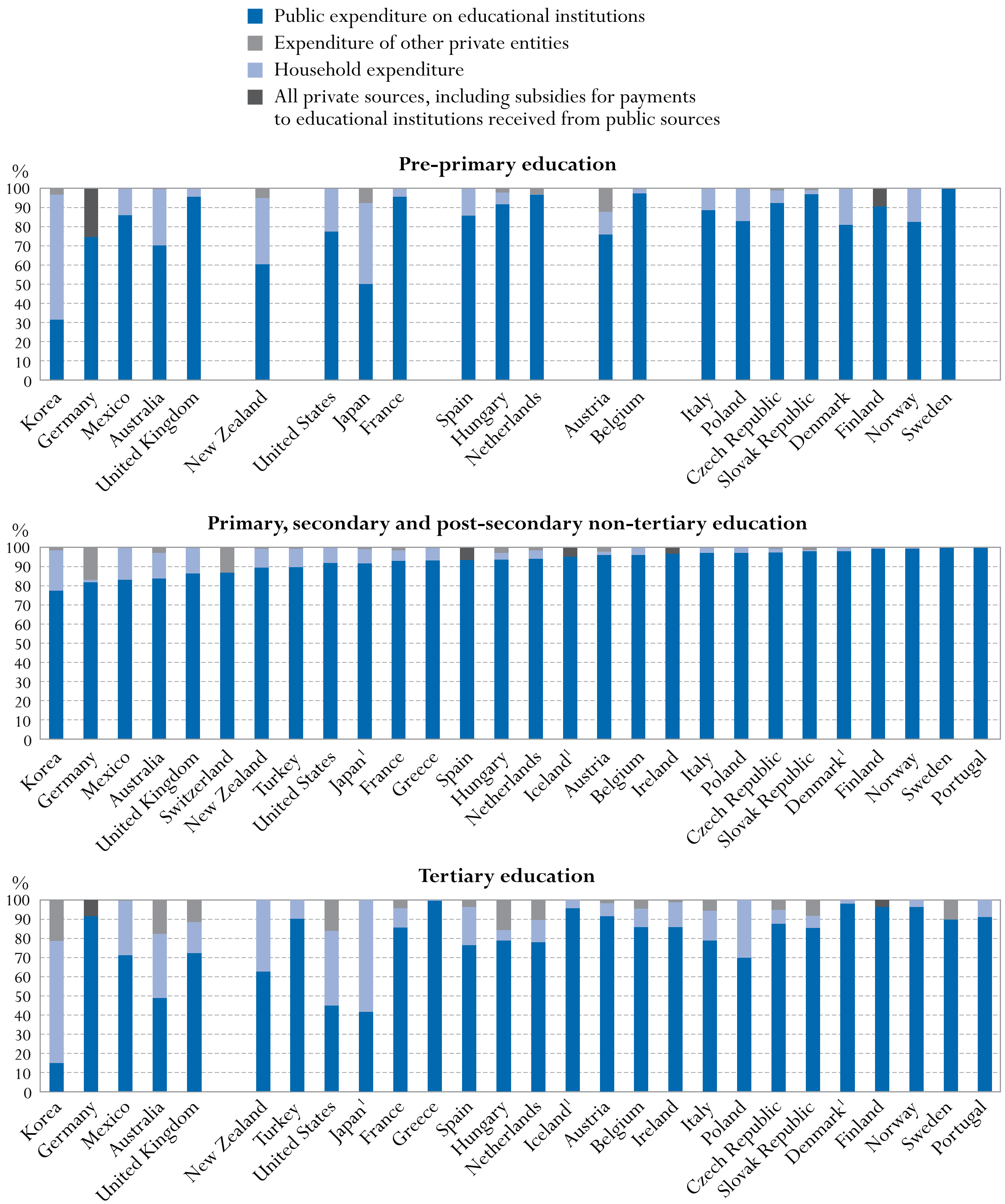
Educational institutions are still mainly publicly funded, although there is a substantial and growing degree of private funding. On average across OECD countries, 88% of all funds for educational institutions come directly from public sources. In addition, 0.6% is channelled to institutions via public subsidies to households (Table B3.1).

In all the OECD countries for which comparable data are available, private funding represents, on average, 12% of all funds. This proportion varies widely among countries and only eight OECD countries report

B3

Chart B3.2. Distribution of public and private expenditure on educational institutions (2002)

By level of education



1. Post-secondary non-tertiary included in both upper secondary and tertiary education.

Countries are ranked in ascending order of the proportion of public expenditure on educational institutions in primary, secondary and post-secondary non-tertiary education.

Source: OECD. Tables B3.2a and B3.2b. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/528506342466

a share of private funds above the average. In Australia, Japan and the United States it reaches one-quarter of all funds, and is slightly over 40% in Korea (Table B3.1). In Australia, the share of private funding has increased since 1995 whereas it has decreased in the United States during the same period. The main reason for the increase in the private share of spending on tertiary institutions for Australia was changes to the Higher Education Contribution Scheme (HECS) that took place in 1997. The changes in HECS were part of a reform process aimed at providing more funds in total for higher education, partly through increased student/former student contributions.

Public and private expenditure on educational institutions in pre-primary, primary, secondary and post-secondary non-tertiary education

The share of private expenditure on education and how this varies among countries depends on the level of education in question.

Investment in early childhood education is of key importance in order to build a strong foundation for lifelong learning and to ensure equitable access to learning opportunities later in school. In pre-primary education, the private share of total payments to educational institutions represents on average 18%, but this proportion is very uneven between countries, ranging from 5% or less in France, the Netherlands, the Slovak Republic and the United Kingdom, to well over 25% in Australia, Germany and New Zealand, to around 50% in Japan, and over 68% in Korea (Table B3.2a). Except in Austria and the Netherlands, the major part of private funding is covered by households.

Public funding very much dominates the primary, secondary and post-secondary non-tertiary levels of education in OECD countries: on average the rate of public funding among OECD countries is 93%. Nevertheless, the proportions of private funding exceed 13% in Australia, Germany, Korea, Mexico, Switzerland and the United Kingdom (Table B3.2a and Chart B3.2). The importance of public funding may result from the fact that primary, secondary and post-secondary non-tertiary education are usually perceived as a public good with mainly public returns. In most countries, at the primary, secondary and post-secondary non-tertiary level as well as at the tertiary level, the share of private expenditure results from household expenditure. However, in Germany and Switzerland, most private expenditure is accounted for by contributions from the business sector to the dual system of apprenticeship at the upper secondary and post-secondary non-tertiary levels. By comparison, among the OECD countries reporting data, private expenditure in most countries comprises mainly household expenditure on tuition and other fees at tertiary institutions.

Between 1995 and 2002, among the 19 countries with comparable data available over this period, there is no clear trend towards an increase or a decrease in the share of public funding. Eight countries recorded shifts from public to private funding but the increase in the private share is more than 1 percentage point only in Australia (from 14.5 to 16.1%), the Slovak Republic (from 0.9 to 2.1%), Switzerland (10.9 to 13.4%), the United Kingdom (from 11.5 to 13.5%) and the United States (6.6 to 8.4%). Funding shifts in the opposite direction, towards public funding, is notable in other countries: the public funding share of expenditure increased by between 1 and 7 percentage points in the Czech Republic (from 90.9 to 97.4%), Hungary (from 91.7 to 93.8%) and Spain (86.6 to 93.5%) (Chart B3.3 and Table B3.2a).

Public and private expenditure on educational institutions in tertiary institutions

In all OECD countries except Germany, Greece, Iceland and Turkey, the private proportion of educational expenditure is far higher at the tertiary level than at the primary, secondary and post-secondary non-tertiary levels and represents on average more than one fifth of total expenditure on educational institutions at this level. At the tertiary level, the high private returns in the form of better employment and income

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opportunities (see Indicator A9) suggest that a greater contribution by individuals to the costs of tertiary education may be justified, provided, of course, that governments can ensure that funding is accessible to students irrespective of their economic background (see also Indicator B5).

Among countries with comparable data in 1995 and 2002, the share of the financial burden borne by private entities increased in countries such as Australia, Austria, Germany, Hungary, Italy, Mexico, the Netherlands, Portugal, the Slovak Republic, Turkey and the United Kingdom (Chart B3.3). In many OECD countries, the growth in tertiary participation (see Indicator C2) represents a response to heavy demand, both individual and social. Just as many tertiary structures and programmes were designed for a different era, so too were its funding mechanisms.

The proportion of expenditure on tertiary institutions covered by individuals, businesses and other private sources, including private payments that are subsidised, ranges from less than 5% in Denmark, Finland, Greece, Iceland and Norway, to more than 50% in Australia, Japan and the United States, and over 85% in Korea (Chart B3.2 and Table B3.2b). In Korea, more than 80% of tertiary students are enrolled in private universities, where more than 70% of budgets derives from tuition fees in private universities. The contribution of private entities other than households to the financing of educational institutions is on average higher for tertiary education than for other levels of education. In one-quarter of the countries – Australia, Hungary, Korea, the Netherlands, Sweden, the United Kingdom and the United States – the proportion of expenditure on tertiary institutions covered by private entities other than households represents 10% or more.

The amounts paid by students and their families to cover tuition fees and other education-related expenditures differ among OECD countries according to taxation and spending policies, and the willingness of governments to support students. This willingness is influenced by students' enrolment status (full-time or part-time), age and residency (whether they are living at home). To some extent, however, the guidelines used in establishing eligibility for these subsidies are breaking down. Mature students, whose numbers are increasing, are more likely to have established their own households and to prefer part-time or distance learning to full-time, on-campus study.

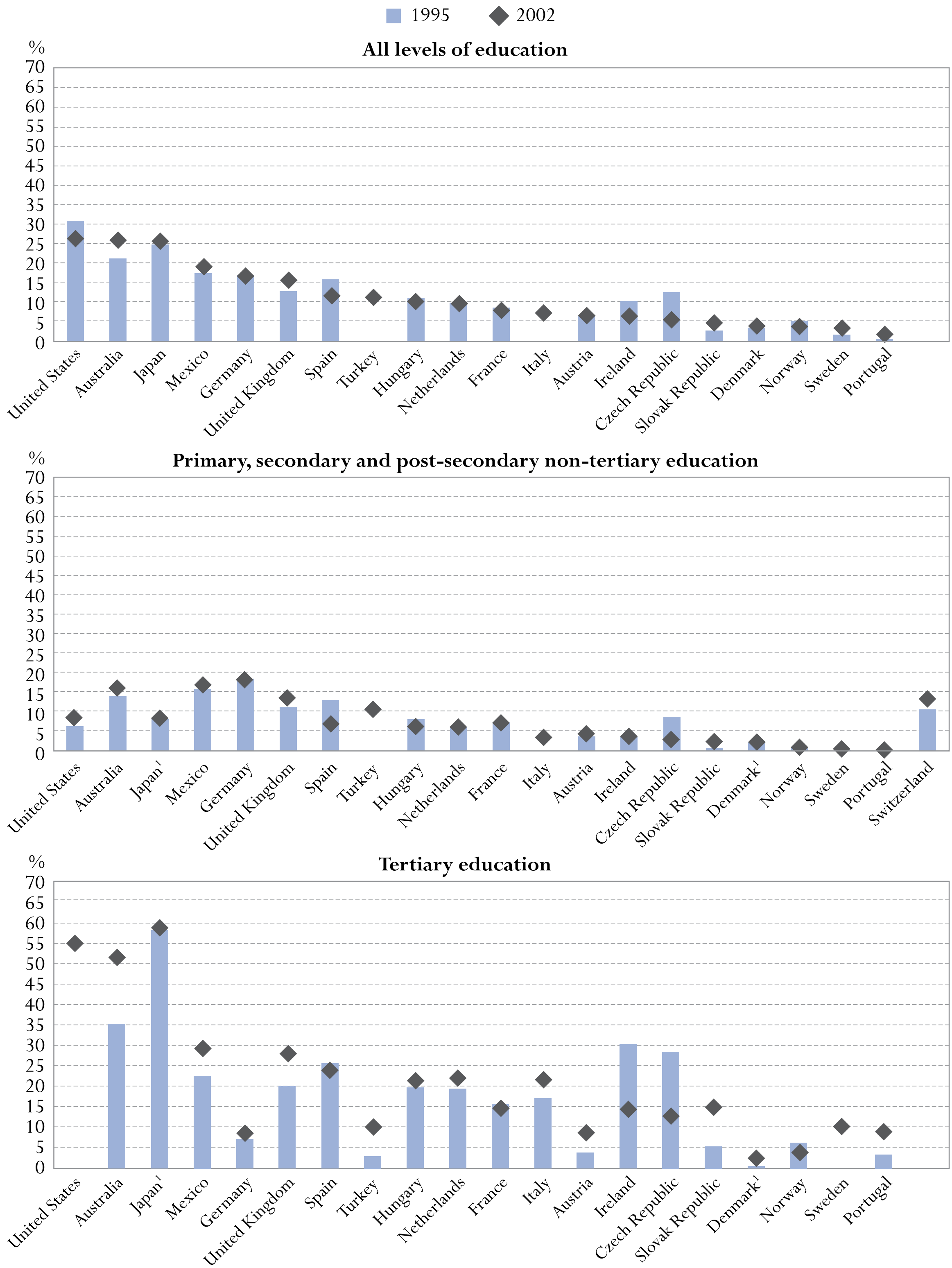
Changes in the proportion of private expenditure compared to changes in the real level of public-sector spending on tertiary education

It is notable that rises in private educational expenditure have not generally been accompanied by cuts (in real terms) in public expenditure on education at the tertiary level or at the primary, secondary and post-secondary non-tertiary level. On the contrary, public investment in education has increased in most of the OECD countries for which 1995 to 2002 data are available, regardless of changes in private spending (see Table B2.2). In fact, many OECD countries with the highest growth in private spending have also shown the highest increase in public funding of education. This indicates that increasing private spending on tertiary education tends to complement, rather than replace, public investment. The main exception to this is Australia, where the shift towards private expenditure at tertiary level has been accompanied by a fall in the level of public expenditure in real terms.

B3

Chart B3.3. Share of private expenditure on educational institutions (1995, 2002)

Percentage



1. Post-secondary non-tertiary included in both upper secondary and tertiary education.

Countries are ranked in descending order of the share of private expenditure on educational institutions in 2002 for all levels of education.

Source: OECD. Tables B3.1, B3.2a and B3.2b. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/528506342466

Definitions and methodologies

Data refer to the financial year 2002 and are based on the UOE data collection on education statistics administered by the OECD in 2004 (for details see Annex 3 at *www.oecd.org/edu/eag2005*).

The public and private proportions of expenditure on educational institutions are the percentages of total spending originating in, or generated by, the public and private sectors. Private spending includes all direct expenditure on educational institutions, whether partially covered by public subsidies or not. Public subsidies attributable to households, included in private spending, are shown separately.

Parts of the budgets of educational institutions are related to ancillary services offered to students, including student welfare services, such as student meals, housing and transportation. Some of the costs for these services are covered by fees collected from students, which are included.

Other private entities include private businesses and non-profit organisations, including religious organisations, charitable organisations, and business and labour associations. It also includes expenditure by private companies on the work-based element of school and work-based training of apprentices and students.

The data on expenditure for 1995 were obtained by a special survey updated in 2003 in which expenditure for 1995 was adjusted to methods and definitions used in the current UOE data collection.

The glossary at *www.oecd.org/edu/eag2005* gives a definition of public, government-dependent private and independent private institutions.

Note that data appearing in earlier editions of this publication may not always be comparable to data shown in the 2005 edition due to changes in definitions and coverage that were made as a result of the OECD expenditure comparability study (for details on changes, see Annex 3 at *www.oecd.org/edu/eag2005*).

Further references

The following additional material relevant to this indicator is available on the Web at *http://dx.doi.org/10.1787/528506342466*:

Table B3.3 Distribution of total public expenditure on education (2002): Public expenditure on education transferred to educational institutions and public transfers to the private sector as a percentage of total public expenditure on education, by level of education

Table B3.1. Relative proportions of public and private expenditure on educational institutions for all levels of education (1995, 2002)

Distribution of public and private sources of funds for educational institutions after transfers from public sources, by year

	2002					1995				
		Private sources					Private sources			
	Public sources	Household expenditure	Expenditure of other private entities	All private sources[1]	Private: of which: subsidised	Public sources	Household expenditure	Expenditure of other private entities	All private sources[1]	Private: of which: subsidised
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD COUNTRIES										
Australia	**74.2**	19.0	6.8	**25.8**	0.2	**78.9**	13.7	7.4	**21.1**	0.5
Austria	**93.3**	3.7	3.0	**6.7**	2.2	**93.4**	3.4	3.2	**6.6**	1.5
Belgium	**94.2**	4.9	1.0	**5.8**	0.9	**m**	m	m	**m**	m
Canada	**m**	m	m	**m**	m	**81.2**	7.7	11.1	**18.8**	m
Czech Republic	**94.5**	3.5	2.0	**5.5**	m	**87.5**	x(9)	x(9)	**12.5**	6.2
Denmark	**96.1**	3.9	n	**3.9**	m	**96.5**	3.5	n	**3.5**	n
Finland	**97.8**	x(4)	x(4)	**2.2**	n	**m**	m	m	**m**	m
France	**92.1**	6.1	1.8	**7.9**	1.7	**91.4**	6.9	1.6	**8.6**	1.9
Germany	**83.3**	x(4)	11.4	**16.7**	a	**83.0**	x(9)	11.8	**17.0**	a
Greece	**95.4**	4.6	m	**4.6**	m	**m**	m	m	**m**	m
Hungary	**89.8**	4.1	6.1	**10.2**	n	**89.0**	5.0	6.0	**11.0**	n
Iceland	**91.9**	8.1	m	**8.1**	n	**m**	m	m	**m**	m
Ireland	**93.4**	6.2	0.4	**6.6**	n	**89.8**	9.7	0.5	**10.2**	m
Italy	**92.6**	6.2	1.1	**7.4**	0.8	**m**	m	m	**m**	m
Japan	**74.5**	23.0	2.5	**25.5**	m	**75.4**	22.7	2.0	**24.6**	m
Korea	**58.3**	33.7	8.0	**41.7**	0.9	**m**	m	m	**m**	m
Luxembourg	**m**	m	m	**m**	m	**m**	m	m	**m**	m
Mexico	**81.0**	18.7	0.2	**19.0**	0.8	**82.6**	17.4	m	**17.4**	m
Netherlands	**90.3**	5.7	4.0	**9.7**	0.8	**90.2**	6.4	3.4	**9.8**	1.8
New Zealand	**82.5**	17.0	0.6	**17.5**	m	**m**	m	m	**m**	m
Norway	**96.2**	3.8	m	**3.8**	n	**94.8**	x(9)	x(9)	**5.2**	n
Poland	**89.2**	10.8	m	**10.8**	m	**m**	m	m	**m**	a
Portugal	**98.4**	1.6	m	**1.6**	m	**99.4**	0.6	m	**0.6**	m
Slovak Republic	**95.3**	2.2	2.5	**4.7**	m	**97.2**	x(9)	x(9)	**2.8**	m
Spain	**88.4**	10.8	0.9	**11.6**	0.5	**84.2**	x(9)	x(9)	**15.8**	0.4
Sweden	**96.7**	n	3.3	**3.3**	m	**98.3**	0.1	1.6	**1.7**	m
Switzerland	**m**	m	m	**m**	m	**m**	m	m	**m**	m
Turkey	**88.7**	10.9	0.4	**11.3**	m	**m**	m	m	**m**	m
United Kingdom	**84.4**	13.4	2.2	**15.6**	0.1	**87.3**	x(9)	x(9)	**12.7**	3.5
United States	**73.8**	20.4	5.8	**26.2**	m	**69.3**	x(9)	x(9)	**30.7**	m
Country mean	**88.4**	***9.7***	***3.0***	**11.6**	***0.6***	~	~	~	~	~
PARTNER COUNTRIES										
Argentina	**83.1**	15.0	1.9	**16.9**	0.3	**m**	m	m	**m**	m
Chile[2]	**54.8**	44.3	0.8	**45.2**	0.7	**56.4**	x(9)	x(9)	**43.6**	m
India[3]	**71.9**	26.2	1.8	**28.1**	m	**95.5**	x(9)	x(9)	**4.5**	m
Indonesia	**64.3**	32.5	3.3	**35.7**	m	**m**	m	m	**m**	m
Israel	**79.1**	15.6	5.3	**20.9**	2.5	**80.5**	13.0	6.4	**19.5**	1.3
Jamaica	**49.6**	47.9	2.5	**50.4**	1.1	**66.8**	x(9)	x(9)	**33.2**	m
Malaysia	**99.9**	0.1	n	**0.1**	a	**m**	m	m	**m**	m
Paraguay	**67.8**	32.2	n	**32.2**	m	**76.7**	x(9)	x(9)	**23.3**	m
Peru	**59.1**	40.9	n	**40.9**	m	**m**	m	m	**m**	m
Philippines	**60.0**	40.0	n	**40.0**	0.2	**m**	m	m	**m**	m
Tunisia	**100.0**	n	n	**n**	a	**100.0**	n	n	**n**	m
Uruguay	**92.3**	7.1	0.6	**7.7**	a	**m**	m	m	**m**	m

1. Including subsidies attributable to payments to educational institutions received from public sources.
2. Year of reference 2003.
3. Year of reference 2001.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/528506342466

Table B3.2a. Relative proportions of public and private expenditure on educational institutions, by level of education (1995, 2002)

Distribution of public and private sources of funds for educational institutions after transfers from public sources, by year

		Pre-primary education (for children 3 years and older)					Primary, secondary and post-secondary non-tertiary education					Primary, secondary and post-secondary non-tertiary education				
		2002					2002					1995				
			Private sources					Private sources					Private sources			
		Public sources	Household expenditure	Expenditure of other private entities	All private sources[1]	Private: of which: subsidised	Public sources	Household expenditure	Expenditure of other private entities	All private sources[1]	Private: of which: subsidised	Public sources	Household expenditure	Expenditure of other private entities	All private sources[1]	Private: of which: subsidised
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD COUNTRIES	Australia	**70.5**	29.1	0.4	**29.5**	n	**83.9**	13.2	2.9	**16.1**	n	**85.5**	10.5	4.0	**14.5**	0.7
	Austria	**76.2**	11.6	12.2	**23.8**	4.2	**96.0**	1.9	2.2	**4.0**	1.0	**96.2**	1.9	1.9	**3.8**	0.6
	Belgium	**97.4**	2.6	m	**m**	a	**96.1**	3.9	m	**m**	0.1	**m**	m	m	**m**	m
	Canada[2]	**m**	m	m	**m**	m	**m**	m	m	**m**	m	**93.7**	3.0	3.4	**6.3**	m
	Czech Republic	**92.7**	6.1	1.2	**7.3**	m	**97.4**	1.9	0.7	**2.6**	m	**90.9**	x(14)	x(14)	**9.1**	6.8
	Denmark[3]	**81.1**	18.9	n	**18.9**	m	**98.0**	2.0	m	**2.0**	m	**97.8**	2.2	m	**2.2**	n
	Finland	**90.9**	x(4)	x(4)	**9.1**	n	**99.2**	x(9)	x(9)	**0.8**	n	**m**	m	m	**m**	m
	France	**95.9**	4.1	n	**4.1**	n	**93.0**	5.5	1.5	**7.0**	1.8	**92.5**	6.2	1.3	**7.5**	2.1
	Germany	**74.6**	x(4)	x(4)	**25.4**	n	**81.7**	x(9)	16.8	**18.3**	n	**80.9**	x(14)	x(14)	**19.1**	a
	Greece	**x(6)**	x(7)	x(8)	**x(9)**	m	**93.1**	6.9	m	**6.9**	m	**m**	m	m	**m**	m
	Hungary	**91.7**	6.2	2.1	**8.3**	n	**93.8**	3.3	2.9	**6.2**	n	**91.7**	4.4	3.9	**8.3**	n
	Iceland[3]	**m**	m	m	**m**	m	**95.1**	x(9)	x(9)	**4.9**	x(9)	**m**	m	m	**m**	m
	Ireland	**m**	m	m	**m**	m	**96.5**	x(9)	x(9)	**3.5**	m	**96.5**	x(14)	x(14)	**3.5**	m
	Italy	**88.8**	11.2	n	**11.2**	n	**96.9**	3.1	0.1	**3.1**	n	**m**	m	m	**m**	m
	Japan[3]	**50.1**	42.4	7.5	**49.9**	n	**91.7**	7.4	0.9	**8.3**	m	**91.7**	7.4	0.9	**8.3**	m
	Korea	**31.8**	65.1	3.2	**68.2**	1.1	**77.4**	20.8	1.7	**22.6**	1.4	**m**	m	m	**m**	m
	Luxembourg	**m**	m	m	**m**	m	**m**	m	m	**m**	m	**m**	m	m	**m**	m
	Mexico	**86.1**	13.8	0.1	**13.9**	0.3	**83.1**	16.8	0.2	**16.9**	1.0	**83.8**	16.2	m	**16.2**	m
	Netherlands	**96.7**	0.6	2.7	**3.3**	a	**94.1**	4.1	1.8	**5.9**	0.7	**93.9**	5.1	1.0	**6.1**	1.4
	New Zealand	**60.6**	34.5	4.9	**39.4**	5.4	**89.6**	9.9	0.5	**10.4**	m	**m**	m	m	**m**	m
	Norway	**82.7**	17.3	m	**17.3**	n	**99.4**	x(9)	x(9)	**0.6**	x(9)	**99.0**	x(14)	x(14)	**1.0**	m
	Poland	**82.8**	17.2	m	**17.2**	m	**97.1**	2.9	m	**2.9**	m	**m**	m	m	**m**	m
	Portugal	**m**	m	m	**m**	m	**99.9**	0.1	a	**0.1**	m	**100.0**	n	a	**n**	m
	Slovak Republic	**97.1**	2.3	0.5	**2.9**	a	**97.9**	0.8	1.2	**2.1**	a	**99.1**	x(14)	x(14)	**0.9**	m
	Spain	**85.8**	14.2	m	**14.2**	n	**93.5**	x(9)	x(9)	**6.5**	x(9)	**86.6**	12.5	0.9	**13.4**	m
	Sweden	**100.0**	a	a	**a**	n	**99.9**	0.1	m	**0.1**	a	**99.9**	0.2	a	**0.2**	m
	Switzerland	**m**	m	m	**m**	m	**86.6**	n	13.4	**13.4**	1.0	**89.1**	n	10.9	**10.9**	1.1
	Turkey	**m**	m	m	**m**	m	**89.6**	9.9	0.5	**10.4**	m	**m**	m	m	**m**	m
	United Kingdom	**95.8**	4.2	n	**4.2**	a	**86.5**	13.5	n	**13.5**	n	**88.5**	11.5	n	**11.5**	n
	United States	**77.6**	22.4	n	**22.4**	m	**91.6**	8.4	n	**8.4**	m	**93.4**	x(14)	x(14)	**6.6**	m
	Country mean	**82.1**	*16.2*	*2.2*	**17.9**	*0.6*	**92.8**	*6.1*	*2.6*	**7.2**	*0.5*	~	~	~	~	~
PARTNER COUNTRIES	Argentina	**100.0**	n	n	**n**	a	**87.7**	12.3	a	**12.3**	m	**m**	m	m	**m**	m
	Chile[4]	**72.8**	27.1	0.1	**27.2**	n	**71.3**	28.2	0.5	**28.7**	a	**71.8**	x(14)	x(14)	**28.2**	m
	India[2, 5]	**70.9**	26.0	3.0	**29.1**	n	**70.7**	27.0	2.2	**29.3**	m	**94.6**	x(14)	x(14)	**5.4**	m
	Indonesia	**5.3**	94.7	n	**94.7**	m	**76.2**	22.3	1.4	**23.8**	m	**m**	m	m	**m**	m
	Israel	**77.0**	21.4	1.6	**23.0**	n	**93.3**	4.6	2.1	**6.7**	1.4	**93.1**	3.5	3.4	**6.9**	0.8
	Jamaica	**49.8**	50.2	n	**50.2**	n	**52.4**	46.6	1.0	**47.6**	1.1	**61.0**	x(14)	x(14)	**39.0**	m
	Malaysia	**89.6**	10.4	n	**10.4**	m	**m**	m	m	**m**	m	**100.0**	a	a	**a**	a
	Paraguay	**81.6**	18.4	n	**18.4**	n	**74.3**	25.7	m	**25.7**	m	**73.9**	x(14)	x(14)	**26.1**	m
	Peru[2]	**87.1**	12.9	n	**12.9**	m	**59.3**	40.7	n	**40.7**	m	**m**	m	m	**m**	m
	Uruguay	**86.2**	13.8	n	**13.8**	a	**92.0**	8.0	a	**8.0**	a	**100.0**	a	a	**a**	a

1. Including subsidies attributable to payments to educational institutions received from public sources.
To calculate private funds net of subsidies, subtract public subsidies (columns 5,10,15) from private funds (columns 4,9,14).
To calculate total public funds, including public subsidies, add public subsidies (columns 5,10,15) to direct public funds (columns 1,6,11).
2. Post-secondary non-tertiary included in tertiary education.
3. Post-secondary non-tertiary included in both upper secondary and tertiary education.
4. Year of reference 2003.
5. Year of reference 2001.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/528506342466

B3

Table B3.2b. Relative proportions of public and private expenditure on educational institutions, for tertiary education (1995, 2002)

Distribution of public and private sources of funds for educational institutions after transfers from public sources, by year

		Tertiary education									
		2002					1995				
			Private sources					Private sources			
		Public sources	Household expenditure	Expenditure of other private entities	All private sources[1]	Private: of which: subsidised	Public sources	Household expenditure	Expenditure of other private entities	All private sources[1]	Private: of which: subsidised
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD countries	Australia	**48.7**	33.7	17.6	**51.3**	0.9	**64.8**	20.0	15.2	**35.2**	n
	Austria	**91.6**	6.8	1.6	**8.4**	5.5	**96.1**	1.9	2.0	**3.9**	4.6
	Belgium	**86.0**	9.4	4.6	**14.0**	4.2	**m**	m	m	**m**	m
	Canada[2]	**m**	m	m	**m**	m	**56.6**	16.7	26.7	**43.4**	22.3
	Czech Republic	**87.5**	7.4	5.1	**12.5**	m	**71.5**	3.3	25.2	**28.5**	8.7
	Denmark[3]	**97.9**	2.1	n	**2.1**	m	**99.4**	0.6	n	**0.6**	n
	Finland	**96.3**	x(4)	x(4)	**3.7**	n	**m**	m	m	**m**	m
	France	**85.7**	10.1	4.1	**14.3**	2.4	**84.3**	11.8	3.9	**15.7**	2.6
	Germany	**91.6**	x(4)	x(4)	**8.4**	n	**92.9**	x(9)	x(9)	**7.1**	a
	Greece	**99.6**	0.4	m	**0.4**	m	**m**	m	m	**m**	m
	Hungary	**78.7**	5.4	15.9	**21.3**	n	**80.3**	4.8	14.9	**19.7**	n
	Iceland[3]	**95.6**	4.4	m	**4.4**	n	**m**	m	m	**m**	m
	Ireland	**85.8**	12.9	1.4	**14.2**	m	**69.7**	28.3	2.0	**30.3**	m
	Italy	**78.6**	15.7	5.7	**21.4**	4.2	**82.9**	12.7	4.4	**17.1**	0.1
	Japan[3]	**41.5**	58.5	n	**58.5**	m	**42.0**	58.0	n	**58.0**	m
	Korea	**14.9**	63.8	21.3	**85.1**	0.2	**m**	m	m	**m**	m
	Luxembourg	**m**	m	m	**m**	m	**m**	m	m	**m**	m
	Mexico	**71.0**	28.5	0.5	**29.0**	0.6	**77.4**	22.6	m	**22.6**	m
	Netherlands	**78.1**	11.4	10.5	**21.9**	1.3	**80.6**	10.1	9.3	**19.4**	2.5
	New Zealand	**62.5**	37.5	m	**37.5**	m	**m**	m	m	**m**	m
	Norway	**96.3**	3.7	m	**3.7**	a	**93.7**	x(9)	x(9)	**6.3**	n
	Poland	**69.7**	30.3	m	**30.3**	m	**m**	m	m	**m**	m
	Portugal	**91.3**	8.7	m	**8.7**	m	**96.5**	3.5	m	**3.5**	m
	Slovak Republic	**85.2**	6.7	8.1	**14.8**	a	**94.6**	x(9)	x(9)	**5.4**	m
	Spain	**76.3**	20.2	3.5	**23.7**	2.1	**74.4**	19.4	6.2	**25.6**	2.0
	Sweden	**90.0**	m	10.0	**10.0**	a	**m**	m	m	**m**	a
	Switzerland	**m**	m	m	**m**	m	**m**	m	m	**m**	m
	Turkey	**90.1**	9.9	m	**9.9**	m	**97.0**	3.0	m	**3.0**	0.7
	United Kingdom	**72.0**	16.6	11.4	**28.0**	0.6	**80.0**	x(9)	x(9)	**20.0**	n
	United States	**45.1**	38.9	16.0	**54.9**	m	**m**	m	m	**m**	m
	Country mean	**78.1**	*18.5*	*7.6*	**21.9**	*1.3*	~			~	
Partner countries	Argentina	**64.3**	27.3	8.4	**35.7**	n	**m**	m	m	**m**	m
	Chile[4]	**17.0**	81.4	1.6	**83.0**	2.4	**25.1**	x(9)	x(9)	**74.9**	m
	India[2, 5]	**77.8**	22.2	n	**22.2**	m	**99.7**	x(9)	x(9)	**0.3**	m
	Indonesia	**43.8**	49.4	6.8	**56.2**	m	**m**	m	m	**m**	m
	Israel	**53.4**	33.2	13.4	**46.6**	6.3	**59.2**	24.3	16.5	**40.8**	3.0
	Jamaica	**40.1**	51.7	8.2	**59.9**	1.4	**m**	m	m	**m**	m
	Malaysia	**100.0**	a	a	**a**	a	**100.0**	a	a	**a**	a
	Paraguay	**45.7**	54.3	n	**54.3**	m	**90.1**	x(9)	x(9)	**9.9**	m
	Peru[2]	**36.4**	63.6	n	**63.6**	m	**m**	m	m	**m**	m
	Uruguay	**96.9**	n	3.1	**3.1**	a	**100.0**	a	a	**a**	a

1. Including subsidies attributable to payments to educational institutions received from public sources.
To calculate private funds net of subsidies, subtract public subsidies (columns 5,10) from private funds (columns 4,9).
To calculate total public funds, including public subsidies, add public subsidies (columns 5,10) to direct public funds (columns 1,6).
2. Post-secondary non-tertiary included in tertiary education.
3. Post-secondary non-tertiary included in both upper secondary and tertiary education.
4. Year of reference 2003.
5. Year of reference 2001.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Total public expenditure on education

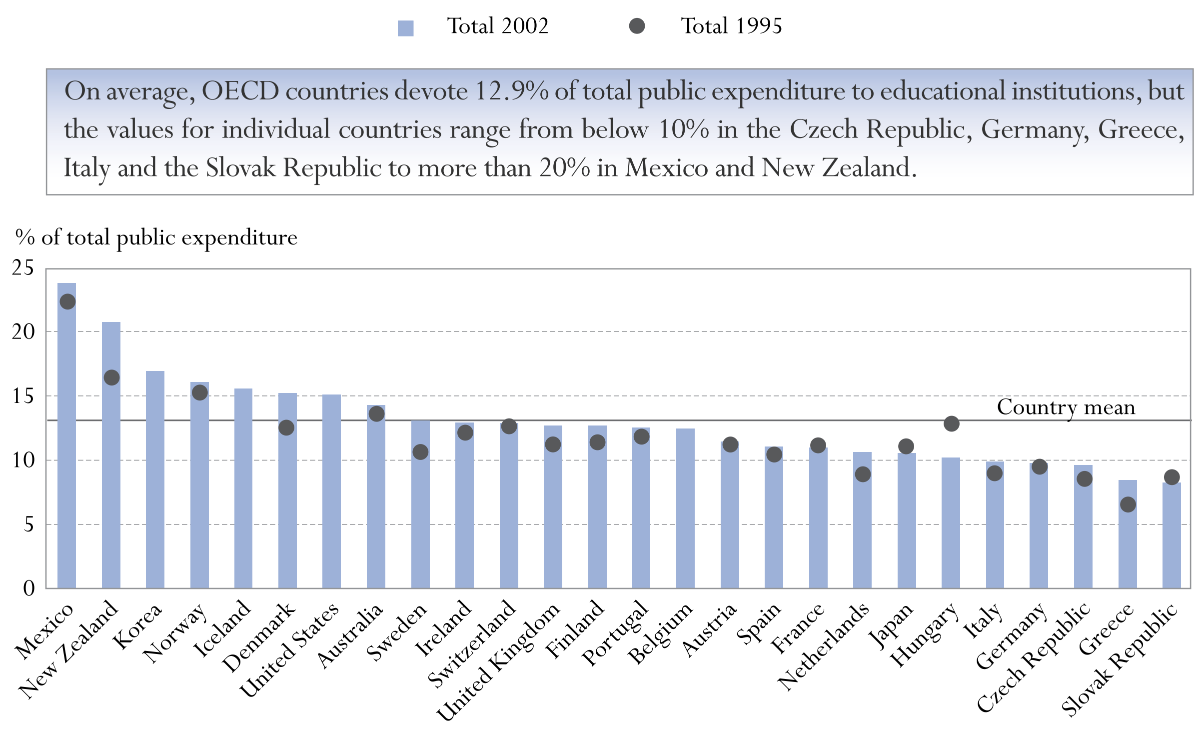
Public expenditure on education as a percentage of total public expenditure indicates the value of education relative to that of other public investments such as health care, social security, defence and security. It provides an important context for the other indicators on expenditure, particularly for Indicator B3 (the public and private shares of educational expenditure), as well as quantification of an important policy lever in its own right.

Key results

Chart B4.1. Total public expenditure on education as a percentage of total public expenditure (1995, 2002)

The chart shows direct public expenditure on educational institutions plus public subsidies to households (which include subsidies for living costs), and other private entities as a percentage of total public expenditure, by level of education and year. It indicates the value given to education relative to that of other public investments such as health care, social security, defence and security. This must be interpreted in the context of public sectors that differ in the size and breadth of responsibility in each country.

On average, OECD countries devote 12.9% of total public expenditure to educational institutions, but the values for individual countries range from below 10% in the Czech Republic, Germany, Greece, Italy and the Slovak Republic to more than 20% in Mexico and New Zealand.



Countries are ranked in descending order of total public expenditure on education at all levels of education as a percentage of total public expenditure in 2002.
Source: OECD. Table B4.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/824650556340

Other highlights of this indicator

- Public funding of education is a social priority, even in OECD countries with little public involvement in other areas.
- In OECD countries, public funding of primary, secondary and post-secondary non-tertiary education is on average three times that of tertiary education, mainly due to largely universal enrolment rates but also because the private share in expenditure tends to be higher at the tertiary level. This ratio varies by country from less than double in Denmark, Finland and Greece to as high as nearly 10 times in Korea. The latter figure is indicative of the relatively high proportion of private funds that go into tertiary education in Korea.
- Between 1995 and 2002, public budgets were mainly shrinking as a percentage of GDP. Education, however, took a growing share of these budgets in most countries, although it did not on average grow as fast as GDP. In Denmark, New Zealand and Sweden, there have been particularly significant shifts in public funding in favour of education.
- About one-quarter of public funds on education go to tertiary institutions on average. In some countries it is as high as one-third, but in Korea, where tertiary education is largely funded privately, it takes up only about one-tenth of public education funds.

Coverage diagram (see page 157 for explanations)

Policy context

If the public benefits from a particular service are greater than the private benefits, then markets alone may fail to provide these services adequately and governments may need to become involved. Education is one area where all governments intervene to fund or direct the provision of services. As there is no guarantee that markets will provide equal access to educational opportunities, government funding of educational services ensures that education is not beyond the reach of some members of society.

This indicator focuses on public expenditure on education but also evaluates how public expenditure has changed over time in absolute terms and relative to total governmental spending. Since the second half of the 1990s, most OECD countries have made serious efforts to consolidate public budgets. Education has had to compete with a wide range of other areas covered in government budgets for public financial support. To examine this, the indicator evaluates the change in educational expenditure in absolute terms, and relative to changes in the size of public budgets.

Evidence and explanations

What this indicator covers and what it does not cover

This indicator shows total public expenditure on education. This expenditure includes direct public expenditure on educational institutions as well as public subsidies to households (*e.g.* scholarships and loans to students for tuition fees and student living costs) and to other private entities for education (*e.g.* subsidies to companies or labour organisations that operate apprenticeship programmes). Unlike the preceding indicators, this indicator also includes public subsidies that are not attributable to household payments for educational institutions, such as subsidies for student living costs.

OECD countries differ in the ways in which they use public money for education. Public funds may flow directly to schools or may be channelled to institutions via government programmes or via households; they may also be restricted to the purchase of educational services or be used to support student living costs.

Total public expenditure on all services, excluding education, includes expenditure on debt servicing (*e.g.* interest payments) that are not included in public expenditure on education. The reason for this exclusion is that some countries cannot separate interest payment outlays for education from those for other services. This means that public expenditure on education as a percentage of total public expenditure can be underestimated in countries where interest payments represent a high proportion of total public expenditure on all services.

It is important to examine public investment in education in conjunction with private investment, as shown in Indicator B3.

Overall level of public resources invested in education

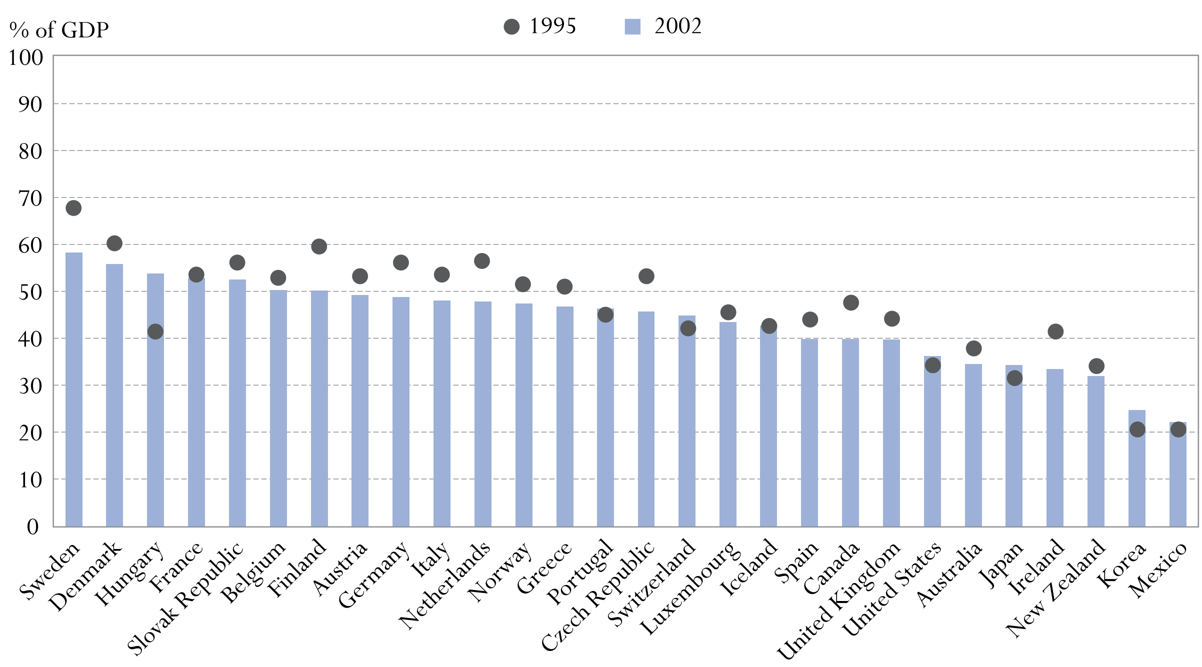
On average, in 2002 OECD countries devoted 12.9% of total public expenditure to education. However, the values for individual countries range from below 10% in the Czech Republic, Germany, Greece, Italy and the Slovak Republic, to more than 20% in Mexico and New Zealand (Chart B4.1). As in the case of spending on education in relation to GDP per capita, these values must be interpreted in the context of student demography and enrolment rates.

The public-sector proportion of funding of the different levels of education varies widely among OECD countries. In 2002, OECD countries spent between 5.3 (Greece) and 16.2% (Mexico) of total public expenditure on primary, secondary and post-secondary non-tertiary education, and between 1.4 (Korea) and 5.2% (New Zealand) on tertiary education. On average in OECD countries, public funding of primary, secondary and post-secondary non-tertiary education is three times that of tertiary education, mainly due to enrolment rates (see Indicator C1) or because the private share in expenditure tends to be higher at the teriary level. This ratio varies by country from less than two times in Denmark, Finland and Greece to as high as nearly ten times in Korea. The latter figure is indicative of the relatively high proportion of private funds that go into tertiary education in Korea (Table B4.1).

Public funding of education is a social priority, even in OECD countries with little public involvement in other areas. When public expenditure on education is examined as a proportion of total public spending, the relative sizes of public budgets (as measured by public spending in relation to GDP) must be taken into account.

Across OECD countries, when the size of public budgets relative to GDP is compared with the proportion of public spending committed to education, it is evident that even in countries with relatively low rates of public spending, education is awarded a very high level of priority. For instance, the share of public spending that goes to education in Iceland, Korea, Mexico, New Zealand and the United States is among the highest of OECD countries (Chart B4.1); yet total public spending accounts for a relatively low proportion of GDP in these countries (Chart B4.2).

Chart B4.2. Total public expenditure as a percentage of GDP (1995, 2002)



Note: This chart represents public expenditure on all services and not simply public expenditure on education.
Countries are ranked in descending order of total public expenditure as a percentage of GDP in 2002.
Source: OECD. Annex 2. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/824650556340

Although the overall pattern is not clear, there is some evidence to suggest that countries with high rates of public spending spend proportionately less on education; only two of the top ten countries for public spending on public services overall – Denmark and Sweden – are in the top ten public spenders on education (Charts B4.1 and B4.2).

Typically, public expenditure on education grew faster than total public spending, but not as fast as national income from 1995 to 2002. The process of budget consolidation puts pressure on education along with every other service. Nevertheless, with the exception of France, Hungary, Japan and the Slovak Republic, spending on education grew at least as fast as spending in other public areas between 1995 and 2002; the proportion of public budgets spent on education grew, on average, from 11.9% in 1995 to 12.9% in 2002. The figures suggest that the greatest increases in the share of public expenditure on education between 1995 and 2002 took place in Denmark (increasing from 12.7% to 15.3%), New Zealand (16.5% to 20.8%) and Sweden (10.7% to 13.1%).

Definitions and methodologies

Data refer to the financial year 2002 and are based on the UOE data collection on education statistics administered by the OECD in 2004 (for details see Annex 3 at *www.oecd.org/edu/eag2005*). Educational expenditure is expressed as a percentage of a country's total public sector expenditure and as a percentage of GDP. Public educational expenditure includes expenditure on educational institutions and subsidies for students' living costs and for other private expenditure outside institutions. Public expenditure on education includes expenditure by all public entities, including ministries other than the ministry of education, local and regional governments and other public agencies.

Total public expenditure, also referred to as total public spending, corresponds to the non-repayable current and capital expenditure of all levels of government: central, regional and local. Current expenditure includes final consumption expenditure, property income paid, subsidies and other current transfers (*e.g.* social security, social assistance, pensions and other welfare benefits). Figures for total public expenditure have been taken from the OECD National Accounts Database (see Annex 2) and use the System of National Accounts 1993. In previous editions of *Education at a Glance*, total public expenditure was based on the System of National Accounts 1968. The change in the system of national accounts may explain differences in this indicator in comparison with previous editions of this publication.

Note that data appearing in earlier editions of this publication may not always be comparable to data shown in the 2005 edition due to changes in definitions and coverage that were made as a result of the OECD expenditure comparability study (for details on changes, see Annex 3 at *www.oecd.org/edu/eag2005*).

Further references

The following additional material relevant to this indicator is available on the Web at *http://dx.doi.org/10.1787/824650556340*:

Table B4.2a. Initial sources of public educational funds and final purchasers of educational resources by level of government for primary, secondary and post-secondary non-tertiary education (2002)

Table B4.2b. Initial sources of public educational funds and final purchasers of educational resources by level of government for tertiary education (2002)

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Table B4.1. Total public expenditure on education (1995, 2002)

Direct public expenditure on educational institutions plus public subsidies to households (which include subsidies for living costs, and other private entities) as a percentage of GDP and as a percentage of total public expenditure, by level of education and year

	Public expenditure[1] on education as a percentage of *total public expenditure*				Public expenditure[1] on education as a percentage of *GDP*			
	2002			1995	2002			1995
	Primary, secondary and post-secondary non-tertiary education	Tertiary education	All levels of education combined	All levels of education combined	Primary, secondary and post-secondary non-tertiary education	Tertiary education	All levels of education combined	All levels of education combined
OECD COUNTRIES								
Australia	10.6	3.5	14.3	13.7	3.7	1.2	5.0	5.2
Austria	7.6	2.6	11.5	11.3	3.8	1.3	5.7	6.0
Belgium	8.3	2.7	12.5	m	4.2	1.4	6.3	m
Canada	m	m	m	13.1	m	m	m	6.5
Czech Republic	6.5	1.9	9.6	8.7	3.0	0.9	4.4	4.6
Denmark[2]	8.7	4.9	15.3	12.7	4.8	2.7	8.5	7.7
Finland	7.9	4.1	12.7	11.5	4.0	2.1	6.4	6.8
France	7.7	1.9	11.0	11.3	4.1	1.0	5.8	6.0
Germany	6.4	2.4	9.8	9.7	3.1	1.2	4.8	4.6
Greece	5.3	2.7	8.4	6.6	2.5	1.3	4.0	3.1
Hungary	6.2	2.3	10.3	12.9	3.3	1.3	5.5	5.4
Iceland[2]	12.0	2.9	15.6	m	5.5	1.3	7.1	m
Ireland	9.2	3.6	13.0	12.2	3.1	1.2	4.4	5.1
Italy	7.2	1.8	9.9	9.1	3.5	0.9	4.7	4.9
Japan[2]	8.0	1.6	10.6	11.1	2.7	0.5	3.6	3.6
Korea	13.2	1.4	17.0	m	3.3	0.3	4.2	m
Luxembourg	9.2	m	m	m	4.0	m	m	m
Mexico	16.2	4.7	23.9	22.4	3.6	1.0	5.3	4.6
Netherlands	7.2	2.7	10.6	9.0	3.4	1.3	5.1	5.1
New Zealand	14.7	5.2	20.8	16.5	4.7	1.7	6.7	5.7
Norway	9.4	4.4	16.1	15.3	4.5	2.1	7.6	7.4
Poland	m	m	m	11.9	4.1	1.1	5.6	5.3
Portugal	9.2	2.2	12.6	11.9	4.3	1.0	5.8	5.4
Slovak Republic	5.5	1.7	8.3	8.8	2.9	0.9	4.3	5.0
Spain	7.5	2.5	11.1	10.6	3.0	1.0	4.4	4.7
Sweden	8.5	3.7	13.1	10.7	5.0	2.2	7.6	7.2
Switzerland	9.1	3.1	12.9	12.8	4.1	1.4	5.8	5.4
Turkey	m	m	m	m	2.4	1.2	3.6	2.4
United Kingdom	9.0	2.6	12.7	11.4	3.7	1.1	5.3	5.2
United States	10.3	3.8	15.2	m	3.8	1.4	5.6	m
Country mean	***8.9***	***3.0***	***12.9***	***11.9***	***3.7***	***1.3***	***5.4***	***5.3***
PARTNER COUNTRIES								
Argentina	10.3	2.4	13.8	m	3.0	0.7	4.0	m
Brazil[3]	8.4	2.6	12.0	11.2	3.0	0.9	4.2	3.4
Chile[4]	15.0	2.5	19.1	14.5	3.3	0.5	4.2	3.0
India[3, 5]	9.0	2.2	11.4	11.2	2.7	0.7	3.4	3.4
Indonesia	4.6	1.4	5.9	m	0.9	0.3	1.2	m
Israel	9.1	2.3	13.6	13.3	5.0	1.3	7.5	8.5
Jamaica	8.5	2.1	11.3	8.2	4.7	1.2	6.3	3.3
Jordan	m	m	m	m	4.4	m	m	m
Malaysia	18.4	9.4	28.1	18.5	5.3	2.7	8.1	4.6
Paraguay	8.6	1.9	11.4	7.6	3.3	0.7	4.5	3.2
Peru	10.6	1.9	15.7	m	1.9	0.3	2.7	m
Philippines	11.8	1.8	14.0	12.3	2.6	0.4	3.1	3.0
Russian Federation	6.1	1.7	10.4	m	2.2	0.6	3.7	m
Sri Lanka	m	m	m	m	m	m	m	m
Thailand	15.4	5.3	27.5	20.2	2.8	1.0	5.0	4.1
Tunisia	14.2	4.0	18.2	m	4.9	1.5	6.4	6.7
Uruguay	6.5	2.1	9.6	m	1.7	0.6	2.6	4.1

1. Public expenditure presented in this table includes public subsidies to households for living costs, which are not spent on educational institutions. Thus the figures presented here exceed those on public spending on institutions found in Table B2.1b.
2. Post-secondary non-tertiary included in both upper secondary and tertiary education.
3. Year of reference 2001.
4. Year of reference 2003.
5. Post-secondary non-tertiary included in tertiary education.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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B4

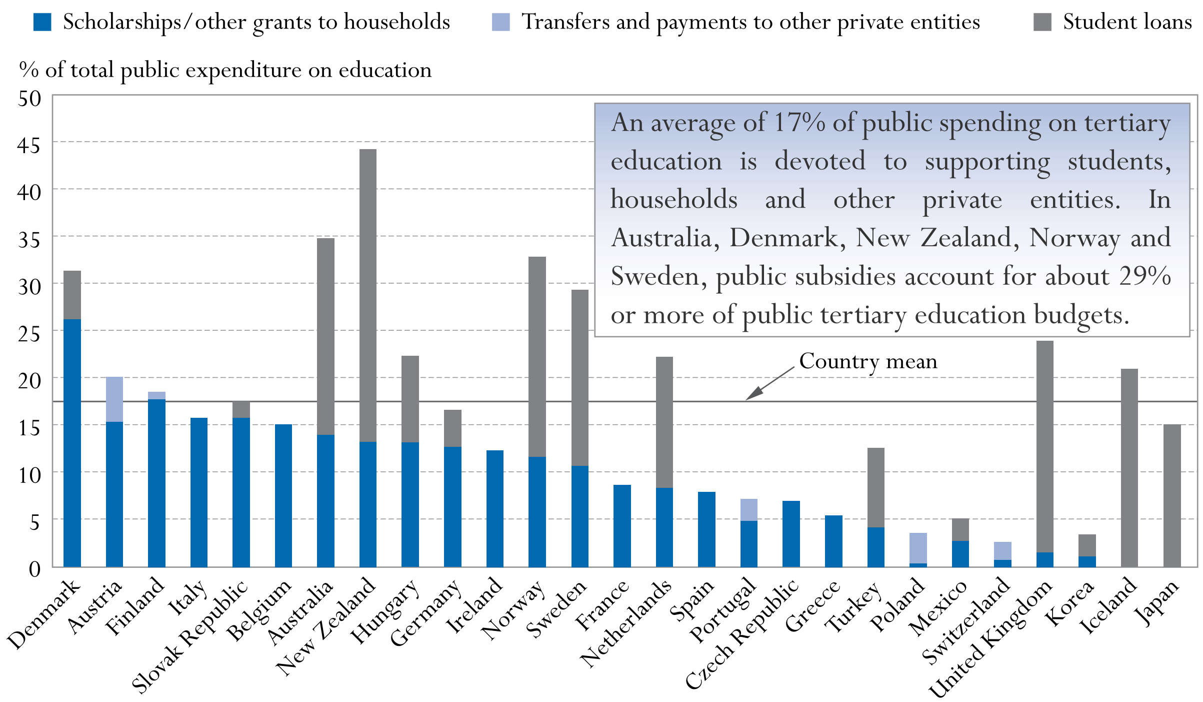
Support for students and households through public subsidies

This indicator examines direct and indirect public spending on educational institutions, as well as public subsidies to households for student living costs, and considers whether financial subsidies for households are provided in the form of grants or loans. Are loans an effective means to help increase the efficiency of financial resources invested in education and shift some of the cost of education to the beneficiaries of educational investment? Or are student loans less appropriate than grants in encouraging low-income students to pursue their education? This indicator cannot answer these questions, but presents the policies for subsidies in different OECD countries.

Key results

Chart B5.1. Public subsidies for education in tertiary education (2002)

The chart shows different forms of public subsidies for education to households and other private entities as a percentage of total public expenditure on education, by type of subsidy. Public subsidies to households provide finance in the form of grants or loans that help pay for the direct or indirect costs of study. Such subsidies include: i) grants/scholarships; ii) public student loans; iii) family or child allowances contingent on student status; iv) public subsidies in cash or kind expenses such as housing or transport; and v) subsidies to permit low-interest loans from private lenders.



Countries are ranked in descending order of the share of scholarships/other grants to households and transfers and payments to other private entities in total public expenditure on education.
Source: OECD. Table B5.2. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/478067742186

Other highlights of this indicator

- Subsidies are generally found more often in education systems where students are expected to pay for at least part of the cost of their education.
- Subsidised student loan systems may operate in countries with high levels of participation at the tertiary level. It is notable, for instance, that Australia, New Zealand, Norway and Sweden, which are among countries reporting the largest subsidies in the form of student loans at tertiary education, also have some of the highest rates of entry into tertiary education of OECD countries.

Coverage diagram (see page 157 for explanations)

Policy context

This indicator examines direct and indirect public spending on educational institutions as well as public subsidies to households for student living costs. Subsidies to students and their families are policy levers through which governments can encourage participation in education, particularly among students from low-income families, by covering part of the cost of education and related expenses. Governments can thereby seek to address issues of access and equality of opportunity. The success of such subsidies must therefore be judged, at least in part, through examination of indicators of participation, retention and completion. Furthermore, public subsidies play an important role in indirectly financing educational institutions.

Channelling funding for institutions through students may also help to increase competition between institutions. Since aid for student living costs can serve as a substitute for work as a financial resource, public subsidies may enhance educational attainment by enabling students to study full-time and to work fewer hours or not at all.

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 of an incentive for low-income students to participate in education than means-tested subsidies. However, they may still help reduce disparities between households with and without children in education.

Evidence and explanations

What this indicator covers and what it does not cover

This indicator shows the proportion of public spending on education transferred to students, families and other private entities. Some of these funds are spent indirectly on educational institutions, for example, when subsidies are used to cover tuition fees. Other subsidies for education do not relate to educational institutions, such as subsidies for student living costs.

The indicator distinguishes between scholarships and grants, which are non-repayable subsidies, and loans, which must be repaid. The indicator does not, however, distinguish among different types of grants or loans, such as scholarships, family allowances and subsidies in kind.

Governments can also support students and their families by providing tax reductions and tax credits. These subsidies are not covered by this indicator.

The indicator reports the full volume of student loans in order to provide information on the level of support which current students receive. The indicator does not take repayments into account, even though these can reduce the real costs of loans substantially. The gross amount of loans, including scholarships and grants, provides an appropriate measure of financial aid to current participants in education. Although interest payments and repayments of the principal by borrowers would be taken into account in order to assess the net cost of student loans to public and private lenders, such payments are not usually made by current students but rather by former students. In most countries, moreover, loan repayments do not flow to the education authorities, and thus the money is not available to them to cover other educational expenditures.

Given that no internationally comparable method is currently available to calculate the net costs of student loan programmes, loans must be treated according to the likely use of the data. The OECD indicators therefore take the full amount of scholarships and loans (gross) into account when discussing financial aid to current students.

It is also common for governments to guarantee the repayment of loans to students made by private lenders. In some OECD countries, this indirect form of subsidy is as significant as, or more significant than, direct financial aid to students. However, for reasons of comparability, the indicator only takes into account the amounts relating to public transfers for private loans that are made to private entities (not the total value of loans generated).

Some OECD countries also have difficulties quantifying the amount of loans attributable to students. Therefore, data on student loans should be treated with some caution.

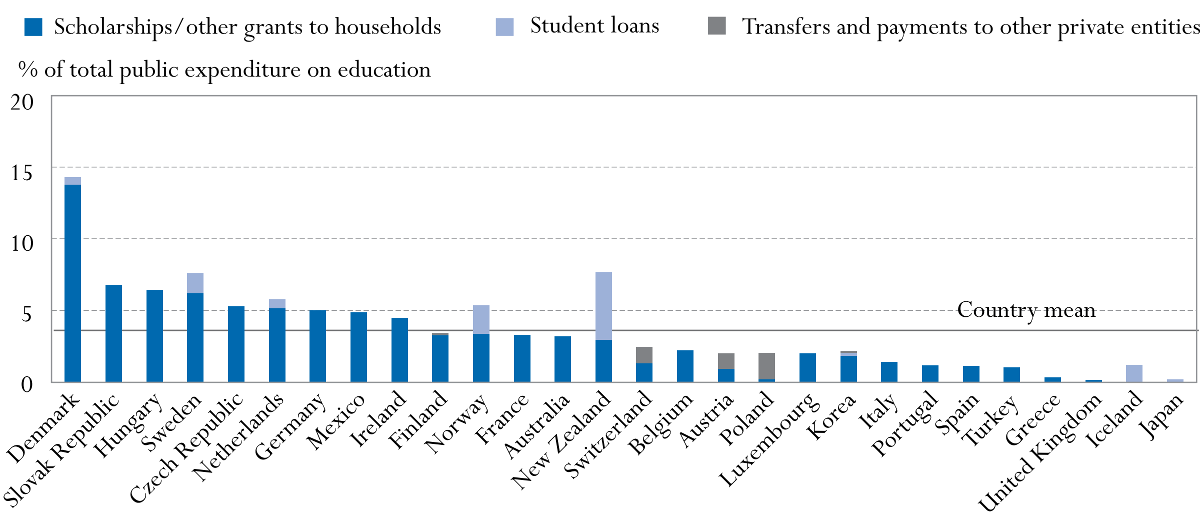
Public subsidies to households and other private entities

OECD countries spend an average of 0.4% of their GDP on public subsidies to households and other private entities for all levels of education combined. The subsidies are largest in relation to GDP in Denmark (1.55% of GDP), followed by New Zealand (1.10%) and Sweden (1.01%). Furthermore, on average across OECD countries, most of these amounts are devoted to the tertiary level of education, except in the Czech Republic, France, Korea, Mexico, Poland, the Slovak Republic and Switzerland, where more than 50% of subsidies for education to private entities are devoted to primary, secondary and post-secondary non-tertiary education (Tables B5.1 and B5.2).

At the primary, secondary and post-secondary non-tertiary levels, public subsidies account for a comparatively small proportion of public spending on education. Most OECD countries offer public subsidies to households from upper secondary education onwards. There are usually few subsidies available before the upper secondary level, since in most OECD countries education up to that level is compulsory, free of charge, predominantly provided by the public sector and largely provided at the point of residence

Chart B5.2. Public subsidies for education in primary, secondary and post-secondary non-tertiary education (2002)

Public subsidies for education to households and other private entities as a percentage of total public expenditure on education, by type of subsidy



Countries are ranked in descending order of the share of scholarships/other grants to households and transfers and payments to other private entities in total public expenditure on education.
Source: OECD. Table B5.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

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of students and their families. In 4 out of 29 OECD countries for which data are available, subsidies to households and private entities therefore account for 1% or less of total public spending on primary, secondary and post-secondary non-tertiary education. However, in Hungary, New Zealand, the Slovak Republic and Sweden, public subsidies account for between 6 and 8% of public expenditure on primary, secondary and post-secondary non-tertiary education; they reach 14.3% in Denmark (Chart B5.2). In most of the OECD countries with high proportions of subsidies at the primary, secondary and post-secondary non-tertiary levels of education, these subsidies are directed at adults re-entering secondary education.

The proportion of educational budgets spent on subsidies to households and private entities is much higher at the tertiary level. OECD countries spend, on average, 17% of their public budgets for tertiary education on subsidies to households and other private entities (Chart B5.1). In Australia, Denmark, New Zealand, Norway and Sweden, public subsidies account for 29% or more of public spending on tertiary education. Only Korea, Poland and Switzerland spend less than 5% of their total public spending on tertiary education on subsidies (Table B5.2).

OECD countries use different mixtures of grants and loans to subsidise students' educational costs

A key question in many OECD countries is whether financial subsidies for households should primarily be provided in the form of grants or loans. Governments choose to subsidise students' living costs or educational costs through different mixtures of grants and loans. Advocates of student loans argue that money spent on loans goes further: if the amount spent on grants were used to guarantee or subsidise loans instead, more aid would be available to students in total, and overall access would be increased. Loans also shift some of the cost of education to those who benefit most from educational investment. Opponents of loans argue that student loans are less effective than grants in encouraging low-income students to pursue their education. They also argue that loans may be less efficient than anticipated because of the various subsidies provided to borrowers or lenders, and due to costs of administration and servicing. Cultural differences across and within countries may also affect students' willingness to take out a student loan.

Chart B5.1 presents the proportion of public educational expenditure spent on loans, grants and scholarships and other subsidies to households at the tertiary level. Grants and scholarships include family allowances and other specific subsidies, but exclude tax reductions. Twelve out of 27 reporting OECD countries rely exclusively on grants or scholarships and transfers and payments to other private entities. The remaining OECD countries provide both grants or scholarships and loans to students (except Iceland, which relies only on students loans). In general, the highest subsidies to students are provided by those OECD countries offering student loans; in most cases these countries spend an above-average proportion of their budgets on grants and scholarships alone (Chart B5.1 and Table B5.2).

The motivation for governments to introduce a student loan system can often be to better reduce the cost of an expanding tertiary sector. The largest subsidies in the form of student loans may operate in countries with the highest participation rates in tertiary education. It is notable, for instance, that Australia, New Zealand, Norway and Sweden, which are among countries reporting the largest subsidies in the form of student loans, also have some of the highest rates of entry into tertiary education of OECD countries (see Indicator C2). There are exceptions. Finland has the fourth highest tertiary-type A entry rates but does not operate a publicly-funded student loan system whereas the United Kingdom has a tertiary-type A entry rates below the average and one of the largest subsidies in the form of student loans.

Repayments of loans

Repayments of public loans can be a substantial source of income for governments and can decrease the costs of loan programmes significantly. The current reporting of household expenditure on education as part of private expenditure (see Indicator B4) does not take into account the repayment by previous recipients of public loans. These repayments can be a substantial burden to individuals and have an impact on the decision to participate in tertiary education. However, many OECD countries make the repayment of loans dependent on graduates' later level of income.

Given that repayments to loan programmes are made by former students who took out loans several years earlier, it is difficult to estimate the real costs of loan programmes. Loans are therefore reported on a gross basis only. International comparisons of total repayments in the same reference period cannot be made, since they are heavily influenced by changes in schemes for the distribution of loans and by changes in the numbers of students receiving loans.

How subsidies are used: student living costs and tuition fees

In most OECD countries, the bulk of public payments to households for education are not earmarked; that is, their use is determined by the beneficiaries, namely students and their families. In a few OECD countries, however, public subsidies are earmarked for payments to educational institutions. Australia, New Zealand and the United Kingdom, for example, earmark public subsidies for tuition fees. In Australia, loans and tuition fees are closely regulated through the Higher Education Contribution Scheme (HECS). Under HECS, students can elect to pay their contributions for their university education in advance, semester by semester, and receive a 25% discount, or, they can repay their accumulated contribution through the tax system when their annual income exceeds a minimum threshold. For the purpose of the OECD education indicators, HECS is counted as a loan scheme, although students may not view the delayed payments as a loan. In OECD countries where tuition fees are substantial, a proportion of the public subsidy to households is effectively earmarked for payments to educational institutions, even without an official policy.

B5

In OECD countries where students are required to pay tuition fees, public subsidies are of particular importance in order to provide students with access to educational opportunities, regardless of their financial situation. Indicator B3 shows what proportion of funding of educational institutions originates from private sources.

In 9 out of the 15 OECD countries with levels of private involvement in the funding of tertiary educational institutions below the OECD average, the level of public subsidies is also below the OECD average. The main exception to this pattern is Korea, where despite the fact that around 85% of all expenditure on tertiary institutions originates from private sources, the level of subsidies to support tuition payments to institutions is, at 1%, comparatively low (Tables B5.2 and B3.2b).

Subsidies spent outside educational institutions

Scholarships and other grants attributable to students are largely spent outside educational institutions. They support educational expenses other than tuition fees. In Denmark, Finland and Slovak Republic, scholarships and other grants not attributable for tuition fees to educational institutions account for more than 15% of the total public spending on tertiary education. Korea, Poland, Switzerland and the United Kingdom are the only OECD countries where scholarships and other grants attributable for expenditure outside educational institutions amount to 1% or less of total public spending on education (Table B5.2).

Definitions and methodologies

Data refer to the financial year 2002 and are based on the UOE data collection on education statistics administered by the OECD in 2004 (for details see Annex 3 at *www.oecd.org/edu/eag2005*).

Public subsidies to households include the following categories: *i)* grants/scholarships; *ii)* public student loans; *iii)* family or child allowances contingent on student status; i*v)* public subsidies in cash or kind specifically for housing, transportation, medical expenses, books and supplies, social, recreational and other purposes; and *v)* interest-related subsidies for private loans.

Expenditure on student loans is reported on a gross basis, that is, without subtracting or netting out repayments or interest payments from the borrowers (students or households). This is because the gross amount of loans including scholarships and grants provide an appropriate measure of the financial aid to current participants in education.

Public costs related to private loans guaranteed by governments are included as subsidies to other private entities. Unlike public loans, only the net cost of these loans is included.

The value of tax reductions or credits to households and students is not included.

Note that data appearing in earlier editions of this publication may not always be comparable to data shown in the 2005 edition due to changes in definitions and coverage that were made as a result of the OECD expenditure comparability study (for details on changes, see Annex 3 at *www.oecd.org/edu/eag2005*).

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Table B5.1. Public subsidies for households and other private entities as a percentage of total public expenditure on education and GDP, for primary, secondary and post-secondary non-tertiary education (2002)

Direct public expenditure on educational institutions and subsidies for households and other private entities

		Direct expenditure for institutions	Subsidies for education to private entities					Subsidies for education to private entities as a percentage of GDP
			Financial aid to students			Transfers and payments to other private entities	Total	
			Scholarships/ other grants to households	Student loans	Total			
OECD COUNTRIES	Australia	**96.8**	3.2	n	3.2	n	**3.2**	0.12
	Austria	**98.0**	1.0	a	1.0	1.1	**2.0**	0.08
	Belgium	**97.8**	2.2	n	2.2	n	**2.2**	0.09
	Canada	**m**	m	m	m	m	**m**	m
	Czech Republic	**94.7**	5.3	a	5.3	n	**5.3**	0.16
	Denmark	**85.7**	13.8	0.5	14.3	n	**14.3**	0.69
	Finland	**96.6**	3.3	n	3.3	0.1	**3.4**	0.14
	France	**96.7**	3.3	a	3.3	a	**3.3**	0.13
	Germany	**95.0**	5.0	n	5.0	n	**5.0**	0.16
	Greece	**99.7**	0.3	m	0.3	a	**0.3**	0.01
	Hungary	**93.5**	6.5	n	6.5	n	**6.5**	0.21
	Iceland	**98.8**	x	1.2	1.2	x	**1.2**	0.06
	Ireland	**95.5**	4.5	n	4.5	n	**4.5**	0.14
	Italy	**98.6**	1.4	n	1.4	n	**1.4**	0.05
	Japan	**99.8**	m	0.2	0.2	n	**0.2**	n
	Korea	**97.8**	1.9	0.2	2.1	0.1	**2.2**	0.07
	Luxembourg	**98.0**	2.0	n	2.0	m	**2.0**	0.08
	Mexico	**95.1**	4.9	n	4.9	n	**4.9**	0.18
	Netherlands	**94.2**	5.2	0.6	5.8	n	**5.8**	0.20
	New Zealand	**92.3**	3.0	4.7	7.7	n	**7.7**	0.36
	Norway	**94.6**	3.4	2.0	5.4	n	**5.4**	0.24
	Poland	**98.0**	0.2	a	0.2	1.8	**2.0**	0.08
	Portugal	**98.8**	1.2	m	1.2	m	**1.2**	0.05
	Slovak Republic	**93.2**	6.8	a	6.8	m	**6.8**	0.20
	Spain	**98.9**	1.1	a	1.1	n	**1.1**	0.03
	Sweden	**92.4**	6.2	1.4	7.6	a	**7.6**	0.38
	Switzerland	**97.5**	1.3	n	1.3	1.1	**2.5**	0.10
	Turkey	**99.0**	1.0	a	1.0	m	**1.0**	0.02
	United Kingdom	**99.8**	0.2	a	0.2	n	**0.2**	0.01
	United States	**m**	m	m	m	m	**m**	m
	Country mean	***96.4***	***3.3***	***0.4***	***3.4***	***0.2***	***3.6***	***0.14***
PARTNER COUNTRIES	Argentina	**97.5**	2.1	a	2.1	0.4	**2.5**	0.10
	Brazil[1]	**96.8**	n	a	n	3.2	**3.2**	0.10
	Chile[2]	**99.8**	0.2	a	0.2	a	**0.2**	n
	India[1]	**99.9**	0.1	a	0.1	a	**0.1**	n
	Indonesia	**96.6**	3.4	m	3.4	m	**3.4**	n
	Israel	**98.5**	1.5	n	1.5	n	**1.5**	0.07
	Jamaica	**97.6**	2.4	n	2.4	n	**2.4**	0.10
	Malaysia	**99.6**	0.4	a	0.4	a	**0.4**	n
	Paraguay	**100.0**	a	a	a	a	**a**	a
	Peru	**100.0**	a	n	n	n	**n**	m
	Philippines	**99.3**	a	a	a	0.7	**0.7**	n
	Thailand	**97.4**	m	2.6	2.6	m	**2.6**	0.07
	Tunisia	**100.0**	a	a	a	a	**a**	a
	Uruguay	**99.9**	0.1	a	0.1	a	**0.1**	n

1. Year of reference 2001.
2. Year of reference 2003.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/478067742186

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Table B5.2. Public subsidies for households and other private entities as a percentage of total public expenditure on education and GDP, for tertiary education (2002)

Direct public expenditure on educational institutions and subsidies for households and other private entities

		Direct expenditure for institutions	Subsidies for education to private entities						Subsidies for education to private entities as a percentage of GDP
			Financial aid to students						
			Scholarships/ other grants to households	Student loans	Total	Scholarships/ other grants to households attributable for educational institutions	Transfers and payments to other private entities	Total	
OECD COUNTRIES	Australia	**65.2**	14.1	20.8	34.8	1.2	n	**34.8**	0.42
	Austria	**79.8**	15.4	a	15.4	m	4.8	**20.2**	0.26
	Belgium	**84.9**	15.1	n	15.1	4.1	n	**15.1**	0.21
	Canada	**m**	m	m	m	m	m	**m**	m
	Czech Republic	**93.0**	7.0	a	7.0	m	n	**7.0**	0.06
	Denmark	**68.7**	26.2	5.1	31.3	m	n	**31.3**	0.85
	Finland	**81.5**	17.8	n	17.8	n	0.8	**18.5**	0.38
	France	**91.3**	8.7	a	8.7	2.5	a	**8.7**	0.09
	Germany	**83.4**	12.7	3.9	16.6	a	n	**16.6**	0.20
	Greece	**94.5**	5.5	m	5.5	m	a	**5.5**	0.07
	Hungary	**77.6**	13.2	9.1	22.4	n	n	**22.4**	0.28
	Iceland	**79.0**	n	21.0	21.0	n	n	**21.0**	0.28
	Ireland	**87.7**	12.3	n	12.3	m	n	**12.3**	0.15
	Italy	**84.2**	15.8	n	15.8	4.5	n	**15.8**	0.14
	Japan	**83.7**	1.1	15.1	16.3	m	n	**16.3**	0.09
	Korea	**96.5**	1.2	2.3	3.5	1.0	n	**3.5**	0.01
	Luxembourg	**m**	m	m	m	m	m	**m**	m
	Mexico	**94.9**	2.8	2.3	5.1	0.8	n	**5.1**	0.05
	Netherlands	**77.7**	8.4	13.8	22.3	1.3	n	**22.3**	0.28
	New Zealand	**55.8**	13.3	30.9	44.2	m	n	**44.2**	0.74
	Norway	**67.1**	11.6	21.2	32.9	a	a	**32.9**	0.69
	Poland	**96.4**	0.4	a	0.4	m	3.2	**3.6**	0.04
	Portugal	**92.8**	4.9	a	4.9	m	2.3	**7.2**	0.07
	Slovak Republic	**82.5**	15.8	1.7	17.5	a	m	**17.5**	0.15
	Spain	**92.1**	7.9	n	7.9	2.6	n	**7.9**	0.08
	Sweden	**70.7**	10.7	18.6	29.3	a	a	**29.3**	0.63
	Switzerland	**97.4**	0.7	n	0.7	m	1.9	**2.6**	0.04
	Turkey	**87.4**	4.2	8.4	12.6	n	m	**12.6**	0.15
	United Kingdom	**76.1**	1.6	22.4	23.9	0.6	n	**23.9**	0.26
	United States	**m**	m	m	m	m	m	**m**	m
	Country mean	*83.0*	*9.2*	*7.6*	*16.5*	*1.1*	*0.5*	*17.0*	*0.25*
PARTNER COUNTRIES	Argentina	**99.6**	0.3	n	0.3	m	0.1	**0.4**	n
	Brazil[1]	**88.1**	6.4	4.7	11.2	m	0.8	**11.9**	0.11
	Chile[2]	**69.0**	13.0	18.1	31.0	9.7	n	**31.0**	0.17
	India[1]	**99.7**	0.3	n	0.3	n	a	**0.3**	n
	Israel	**88.0**	10.3	1.7	12.0	10.3	n	**12.0**	0.15
	Jamaica	**87.3**	4.1	8.6	12.7	3.1	n	**12.7**	0.15
	Malaysia	**97.8**	2.2	a	2.2	a	a	**2.2**	0.06
	Paraguay	**100.0**	n	a	n	a	a	**n**	n
	Peru	**100.0**	m	m	m	m	n	**n**	n
	Philippines	**97.9**	2.0	0.1	2.1	2.0	a	**2.1**	0.01
	Russian Federation	**m**	m	a	m	a	m	**m**	m
	Thailand	**63.2**	m	36.8	36.8	m	m	**36.8**	0.36
	Tunisia	**100.0**	a	a	a	a	a	**a**	a
	Uruguay	**100.0**	n	a	n	a	a	**n**	n

1. Year of reference 2001.
2. Year of reference 2003.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/478067742186

Expenditure in institutions by service category and by resource category

This indicator compares OECD countries with respect to the division of spending between current and capital expenditure, and the distribution of current expenditure by resource category. This indicator is largely influenced by teacher salaries (see Indicator D1), pension systems, the proportion of new teachers (see Indicator D7) and the size of the non-teaching staff employed in education (see Indicator D3). This indicator also compares how OECD countries' spending is distributed by different functions of educational institutions.

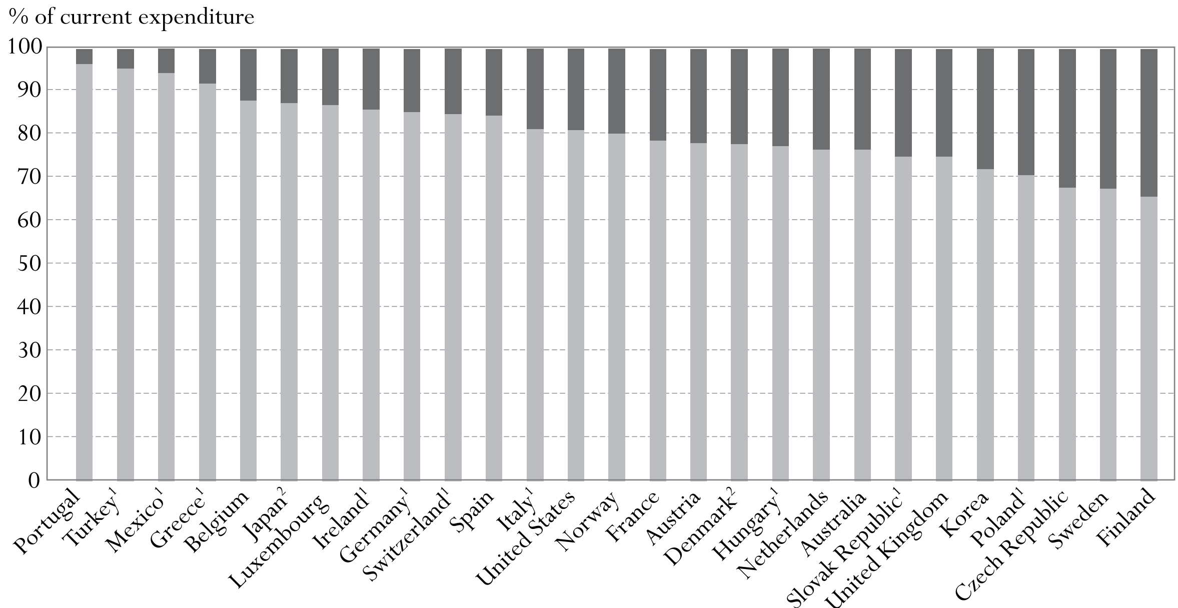
Key results

Chart B6.1 Distribution of current expenditure on educational institutions for primary, secondary and post-secondary non-tertiary education (2002)

The chart shows the distribution of current spending on educational institutions by resource category. Spending on education can be broken down into capital and current expenditure. Within current expenditure, one can distinguish resource categories compared to other items and service categories such as spending on instruction compared to ancillary and R&D services. The biggest item in current spending, teacher compensation, is examined further in Indicator D3.

Compensation of all staff   Other current expenditure

In primary, secondary and post-secondary non-tertiary education combined, current expenditure accounts for an average of 92% of total spending across OECD countries. In all but three OECD countries, 70% or more of primary, secondary and post-secondary non-tertiary current expenditure is spent on staff salaries.

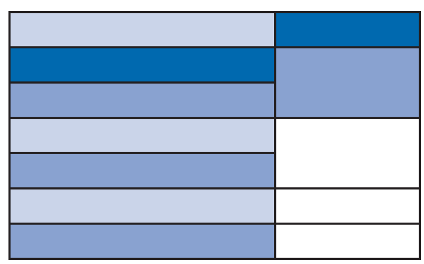


1. Public institutions only.
2. Post-secondary non-tertiary included in both upper secondary and tertiary education.
Countries are ranked in descending order of the share of compensation of all staff on primary, secondary and post-secondary non-tertiary education.
Source: OECD. Table B6.3. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/304877012572

Other highlights of this indicator

- OECD countries, on average, spend 34% of current expenditure at the tertiary level on purposes other than the compensation of educational personnel. This is explained by the higher costs of facilities and equipment in higher education.
- On average, OECD countries spend 0.2% of their GDP on subsidies for ancillary services provided by primary, secondary and post-secondary non-tertiary institutions. This represents 5% of total spending on these institutions. At the high end, the Czech Republic, Finland, France, Hungary and Sweden spend about 10% or more of total spending per student on educational institutions on ancillary services.
- A distinctive feature of tertiary institutions is high spending on R&D, which on average comprises over a quarter of spending at this level. The fact that some countries spend much more on this item than others helps explain the wide country differences in overall tertiary spending. Significant differences among OECD countries in the emphasis on R&D in tertiary institutions explain part of the large differences in expenditure per tertiary student.
- The payment of instructional staff is not as great a share of spending in tertiary institutions as at other levels, because of the higher cost of facilities and equipment.



Coverage diagram (see page 157 for explanations)

Policy context

How spending is apportioned between different categories of expenditure can affect the quality of services (*e.g.* teachers' salaries), the condition of educational facilities (*e.g.* school maintenance) and the ability of the education system to adjust to changing demographic and enrolment trends (*e.g.* the construction of new schools).

Comparisons of how different OECD countries apportion educational expenditure among the various resource categories can also provide some insight into variation in the organisation and operation of educational institutions. Decisions on the allocation of resources made at the system level, both budgetary and structural, eventually feed through to the classroom and affect the nature of instruction and the conditions under which it is provided.

This indicator also compares how OECD countries' spending is distributed by different functions of educational institutions. Educational institutions offer a range of educational services in addition to instruction. At the primary, secondary and post-secondary non-tertiary levels of education, institutions may offer meals, and free transport to and from school or boarding facilities. At the tertiary level, institutions may offer housing and often perform a wide range of research activities as an integral part of tertiary education.

Evidence and explanations

What this indicator covers and what it does not cover

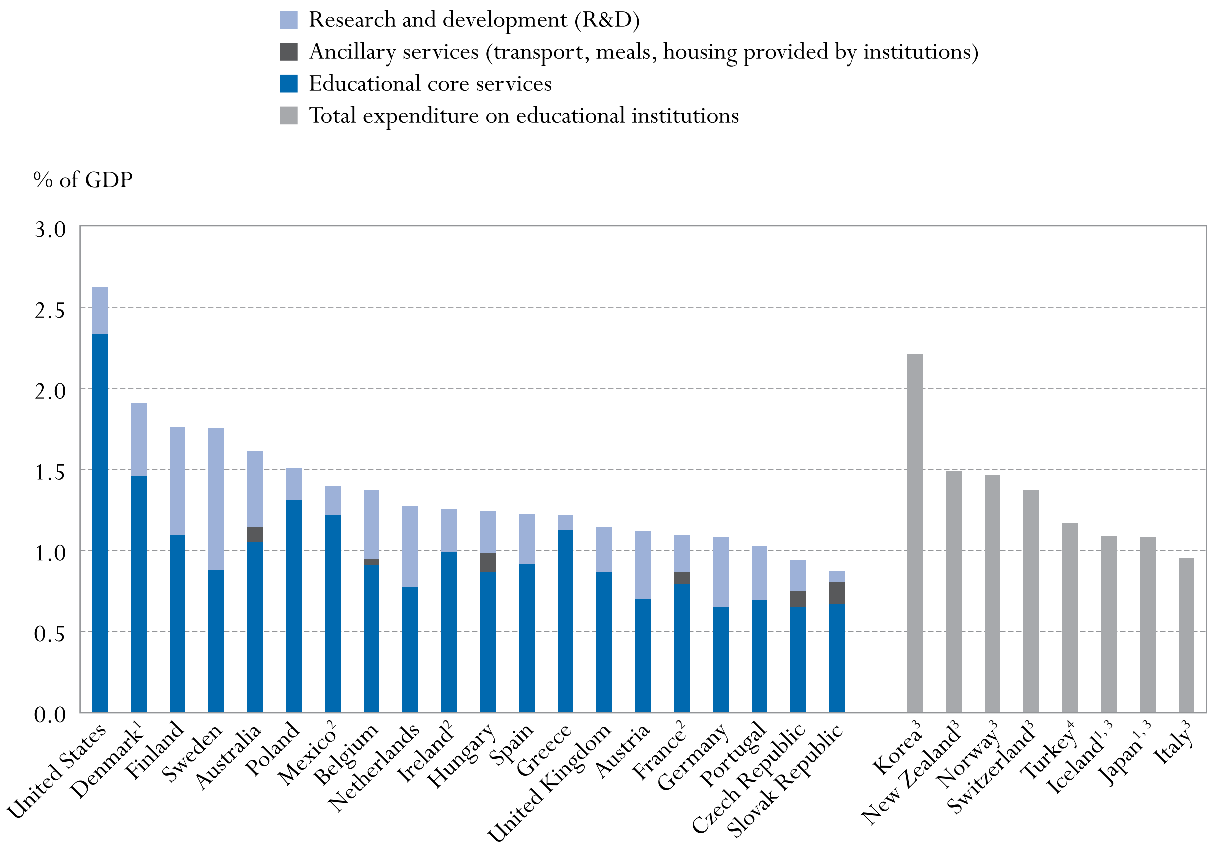
This indicator breaks down educational expenditure by current and capital expenditure and the three main functions typically fulfilled by educational institutions. This includes costs directly attributable to instruction, such as teachers' salaries or school materials, and costs indirectly related to the provision of instruction, such as expenditure on administration, instructional support services, development of teachers, student counselling, or the construction and/or provision of school facilities. It also includes spending on ancillary services, such as student welfare services provided by educational institutions. Finally, it includes spending attributable to research and development (R&D) performed at tertiary educational institutions, either in the form of separately funded R&D activities or in the form of those proportions of salaries and current expenditure in general education budgets that are attributable to the research activities of staff.

The indicator does not include public and private R&D spending outside educational institutions, such as R&D spending in industry. A comparative review of R&D spending in sectors other than education is provided in the OECD Science and Technology Indicators. Expenditure on student welfare services at educational institutions only includes public subsidies for those services. Expenditure by students and their families on services that are provided by institutions on a self-funding basis is not included.

Expenditure on instruction, R&D and ancillary services

Below the tertiary level educational expenditure is dominated by spending on educational core services. At the tertiary level other services, particularly those related to R&D activities, can account for a significant proportion of educational spending. Differences among OECD countries in expenditure on R&D activities can therefore explain a significant part of the differences among OECD countries in overall educational expenditure per tertiary student (Chart B6.2). High levels of R&D spending in tertiary educational institutions in Australia, Austria, Belgium, Denmark, Finland, Germany, the Netherlands and Sweden (between 0.4 and 0.9% of GDP), for example, imply that spending on education per student in these OECD countries would be considerably lower if the R&D component were excluded (Table B6.1).

Chart B6.2. Expenditure on educational core services, R&D and ancillary services in tertiary educational institutions as a percentage of GDP (2002)



1. Post-secondary non-tertiary included in both upper secondary and tertiary education.
2. Research and development (R&D) expenditure at tertiary level only and thus total expenditure is underestimated.
3. Total expenditure at tertiary level including research and development (R&D) expenditure.
4. Total expenditure at tertiary level excluding research and development (R&D) expenditure.

Countries are ranked in descending order of total expenditure on educational institutions in tertiary institutions.

Source: OECD. Table B6.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

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Student welfare services

Student welfare services and, sometimes, services for the general public are integral functions of schools and universities in many OECD countries. Countries finance these ancillary services with different combinations of public expenditure, public subsidies and fees paid by students and their families.

On average, OECD countries spend 0.2% of their GDP on subsidies for ancillary services provided by primary, secondary and post-secondary non-tertiary institutions. This represents 5% of total spending on these institutions. At the high end, the Czech Republic, Finland, France, Hungary and Sweden spend about 10% or more of total spending per student on educational institutions on ancillary services. In real terms, this expenditure represents annually more than US$ 300 (PPP) per student in the Czech Republic, Hungary, Italy, Korea and the United Kingdom, and even more than US$ 650 (PPP) per student in Finland, France and Sweden (Tables B6.1 and B6.2).

In more than two-thirds of OECD countries, the amount spent on ancillary services is higher than the amount spent on subsidies to households at the primary, secondary and post-secondary non-tertiary levels. Exceptions to this pattern are Germany, Ireland, the Netherlands and the Slovak Republic, where expenditure on subsidies to households is higher (Tables B5.1 and B6.1).

On average, expenditure on subsidies for ancillary services at the tertiary level amounts to less than 0.1% of GDP. Nevertheless, on a per-student basis this can translate into significant amounts, as in Australia, the Czech Republic, France, Hungary and the Slovak Republic, where subsidies for ancillary services amount to more than US$ 500 (PPP). At the tertiary level, ancillary services are more often provided on a self-financed basis (Tables B6.1 and B6.2).

Current and capital expenditures, and the distribution of current expenditure by resource category

Educational expenditure can first be divided into current and capital expenditure. Capital expenditure comprises spending on assets that last longer than one year and includes spending on the construction, renovation and major repair of buildings. Current expenditure comprises spending on school resources used each year for the operation of schools.

Current expenditure can be further sub-divided into three broad functional categories: compensation of teachers, compensation of other staff, and other current expenditures (on, for example, teaching materials and supplies, maintenance of school buildings, preparation of student meals and renting of school facilities). The amount allocated to each of these functional categories will depend in part on current and projected changes in enrolment, on the salaries of educational personnel and on costs of maintenance and construction of educational facilities.

Education takes place mostly in school and university settings. The labour-intensive technology of education explains the large proportion of current spending within total educational expenditure. In primary, secondary, and post-secondary non-tertiary education combined, current expenditure accounts for nearly 92% of total spending on average across all OECD countries.

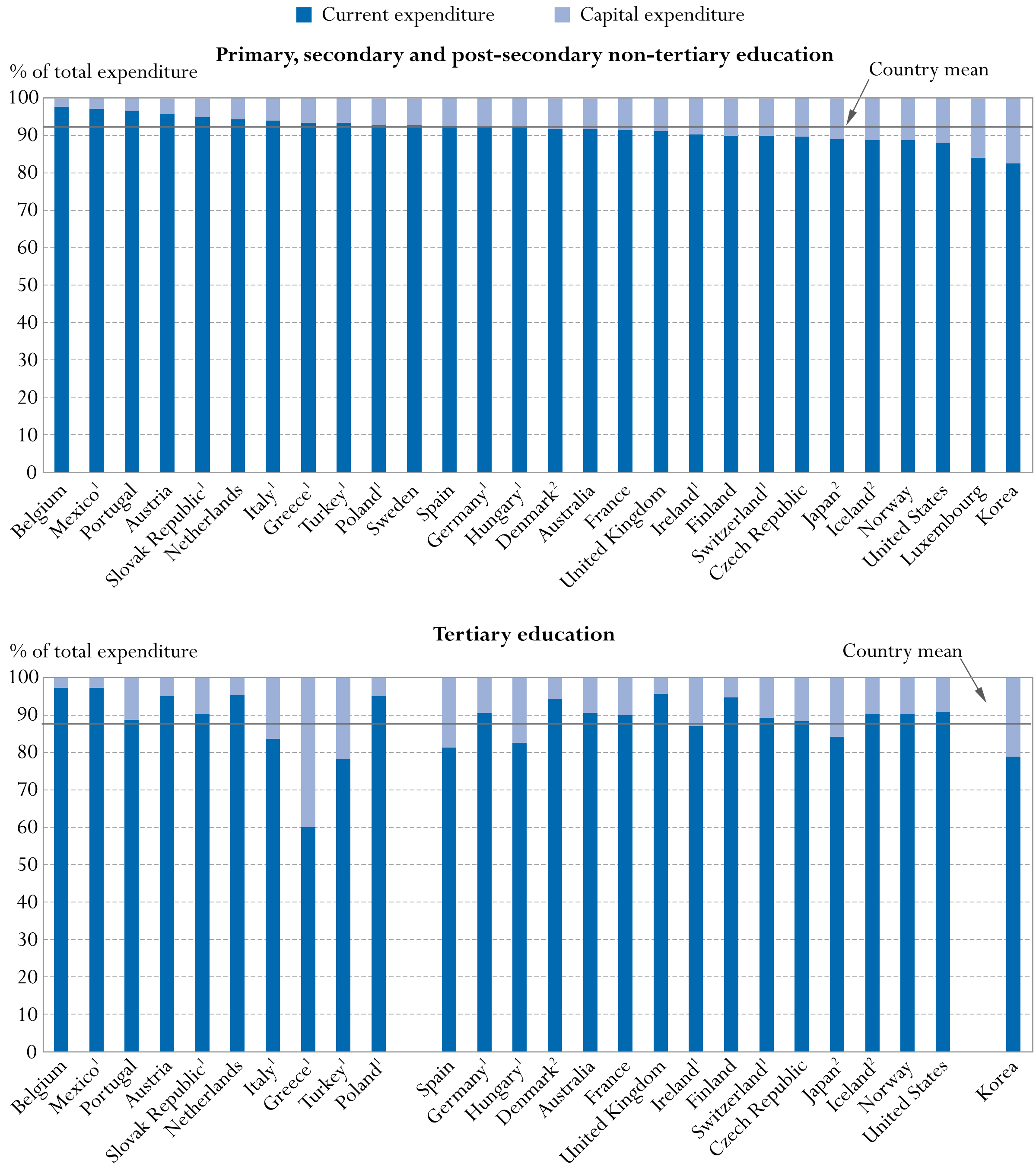
There is some noticeable variation among OECD countries with respect to the relative proportions of current and capital expenditure: at the primary, secondary and post-secondary non-tertiary levels combined, the proportion of current expenditure ranges from 84% or less in Korea and Luxembourg to 96% or more in Austria, Belgium, Mexico and Portugal (Chart B6.3).

The salaries of teachers and other staff employed in education account for the largest proportion of current expenditure in all OECD countries. On average across OECD countries, expenditure on the compensation of educational personnel accounts for 81% of current expenditure at the primary, secondary and post-secondary non-tertiary levels of education combined. In all except three OECD countries – the Czech Republic, Finland and Sweden – 70% or more of current expenditure at the primary, secondary and post-secondary non-tertiary levels is spent on staff salaries. The proportion devoted to the compensation of educational personnel is 90% or more in Greece, Mexico, Portugal and Turkey (Chart B6.1).

OECD countries with relatively small education budgets (*e.g.* Mexico, Portugal and Turkey) tend to devote a larger proportion of current educational expenditure to the compensation of personnel and a smaller proportion to services that are sub-contracted or bought in, such as support services (*e.g.* maintenance of school buildings), ancillary services (*e.g.* preparation of meals for students), and renting of school buildings and other facilities.

Chart B6.3. Distribution of current and capital expenditure on educational institutions (2002)

By resource category and level of education



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1. Public institutions only.
2. Post-secondary non-tertiary included in both upper secondary and tertiary education.
Countries are ranked in descending order of the share of current expenditure on primary, secondary and post-secondary non-tertiary education.
Source: OECD. Table B6.3. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/304877012572

Proportions of current expenditure allocated to the compensation of teachers and other staff

In Denmark and the United States, around one quarter of current expenditure in primary, secondary and post-secondary non-tertiary education combined goes towards compensation of non-teaching staff, while in Austria, Ireland, Korea and Spain this figure is 10% or less. These differences are likely to reflect the degree to which educational personnel specialise in non-teaching activities in a particular country, for example, principals who do not teach, guidance counsellors, bus drivers, school nurses, janitors and maintenance workers (Table B6.3).

At the tertiary level, the proportion of total expenditure spent on capital outlays is larger than at the primary, secondary and post-secondary non-tertiary levels, generally because of more differentiated and advanced teaching facilities. In 12 out of 27 OECD countries for which data are available, the proportion spent on capital expenditure at the tertiary level is 10% or more, and in Greece, Korea and Turkey it is above 20% (Chart B6.3).

Differences are likely to reflect how tertiary education is organised in each OECD country, as well as the degree to which expansion in enrolments requires the construction of new buildings.

OECD countries, on average, spend 34% of current expenditure at the tertiary level on purposes other than the compensation of educational personnel. This is explained by the higher cost of facilities and equipment in higher education (Table B6.3).

Definitions and methodologies

Data refer to the financial year 2002 and are based on the UOE data collection on education statistics administered by the OECD in 2004 (for details see Annex 3 at *www.oecd.org/edu/eag2005*).

The distinction between current and capital expenditure is the standard definition used in national income accounting. Current expenditure refers to goods and services consumed within the current year, and requiring recurrent production in order to sustain the provision of educational services. Capital expenditure refers to assets which last longer than one year, including spending on construction, renovation or major repair of buildings and new or replacement equipment. The capital expenditure reported here represents the value of educational capital acquired or created during the year in question – that is, the amount of capital formation – regardless of whether the capital expenditure was financed from current revenue or by borrowing. Neither current nor capital expenditure includes debt servicing.

Calculations cover expenditure by public institutions or, where available, that of public and private institutions combined.

Current expenditure other than on the compensation of personnel includes expenditure on services which are sub-contracted or bought in, such as support services (*e.g.* maintenance of school buildings), ancillary services (*e.g.* preparation of meals for students) and renting of school buildings and other facilities. These services are obtained from outside providers, unlike the services provided by the education authorities or by the educational institutions themselves using their own personnel.

Expenditure on R&D includes all expenditure on research performed at universities and other tertiary education institutions, regardless of whether the research is financed from general institutional funds or through separate grants or contracts from public or private sponsors. The classification of expenditure is based on data collected from the institutions carrying out R&D rather than on the sources of funds.

Ancillary services are services provided by educational institutions that are peripheral to the main educational mission. The two main components of ancillary services are student welfare services and services for the general public. At primary, secondary, and post-secondary non-tertiary levels, student welfare services include meals, school health services, and transportation to and from school. At the tertiary level, it includes halls of residence (dormitories), dining halls, and health care. Services for the general public include museums, radio and television broadcasting, sports and recreational and cultural programmes. Expenditure on ancillary services, including fees from students or households, is excluded.

Educational core services are estimated as the residual of all expenditure, *i.e.* total expenditure on educational institutions net of expenditure on R&D and ancillary services.

Note that data appearing in earlier editions of this publication may not always be comparable to data shown in the 2005 edition due to changes in definitions and coverage that were made as a result of the OECD expenditure comparability study (see Annex 3 at *www.oecd.org/edu/eag2005* for details on changes).

Table B6.1. Expenditure on educational institutions by service category as a percentage of GDP (2002)

Expenditure on educational core services, R&D and ancillary services in educational institutions and private expenditure on educational goods purchased outside educational institutions

OECD COUNTRIES	Primary, secondary and post-secondary non-tertiary education				Tertiary education				
	Expenditure on educational institutions				Expenditure on educational institutions				
	Educational core services	Ancillary services (transport, meals, housing provided by institutions)	Total	Private payments on instructional services/goods outside educational institutions	Educational core services	Ancillary services (transport, meals, housing provided by institutions)	Research and development at tertiary institutions	Total	Private payments on instructional services/goods outside educational institutions
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Australia	4.07	0.18	4.25	0.12	1.05	0.09	0.47	1.61	0.15
Austria	x(3)	x(3)	3.83	m	0.70	x(5)	0.42	1.11	m
Belgium	4.09	0.17	4.26	0.12	0.91	0.04	0.42	1.37	0.11
Canada	m	m	m	m	m	m	m	m	m
Czech Republic	2.60	0.31	2.90	m	0.65	0.10	0.19	0.94	m
Denmark[1]	x(3)	x(3)	4.23	0.69	1.46	m	0.45	1.91	0.85
Finland	3.45	0.41	3.87	m	1.09	n	0.66	1.76	m
France[2]	3.66	0.57	4.23	0.14	0.79	0.07	0.23	1.10	0.08
Germany	3.54	0.08	3.61	0.18	0.65	n	0.43	1.08	0.08
Greece[3]	x(3)	x(3)	2.66	n	1.12	m	0.09	1.22	m
Hungary[3]	2.97	0.34	3.31	m	0.86	0.12	0.26	1.24	m
Iceland[1]	x(3)	x(3)	5.71	m	x(8)	x(8)	x(8)	1.09	m
Ireland[2]	3.01	0.05	3.06	m	0.99	m	0.27	1.26	m
Italy	3.38	0.14	3.53	0.43	0.91	0.03	m	0.95	0.14
Japan[1]	x(3)	x(3)	2.95	0.78	x(8)	x(8)	x(8)	1.08	m
Korea	3.81	0.32	4.13	m	x(8)	x(8)	x(8)	2.21	m
Luxembourg	x(3)	x(3)	3.91	m	m	m	m	m	m
Mexico[2]	4.13	m	4.13	0.26	1.21	m	0.18	1.39	0.07
Netherlands	3.39	0.05	3.44	0.19	0.77	n	0.50	1.27	0.06
New Zealand	x(3)	x(3)	4.86	0.01	x(8)	x(8)	x(8)	1.49	m
Norway	x(3)	x(3)	4.26	m	x(8)	x(8)	x(8)	1.46	m
Poland[3]	3.89	0.21	4.10	0.18	1.31	n	0.20	1.51	0.07
Portugal	x(3)	x(3)	4.22	0.05	0.69	m	0.33	1.02	0.07
Slovak Republic	2.58	0.19	2.77	0.94	0.67	0.14	0.06	0.87	0.23
Spain	3.04	0.11	3.15	m	0.92	m	0.31	1.22	m
Sweden	4.13	0.45	4.59	m	0.87	a	0.88	1.75	m
Switzerland	x(3)	x(3)	4.59	m	x(8)	x(8)	x(8)	1.37	m
Turkey[2,3]	2.51	0.10	2.61	0.67	1.17	m	m	1.17	0.11
United Kingdom	4.04	0.25	4.29	m	0.87	m	0.28	1.15	0.23
United States	4.12	x(1)	4.12	a	2.33	x(5)	0.29	2.62	a
Country mean	***3.49***	***0.23***	***3.85***	***0.30***	***1.00***	***0.05***	***0.35***	***1.36***	***0.16***

1. Post-secondary non-tertiary included in both upper secondary and tertiary education.
2. Research and development expenditure and thus total expenditure is underestimated.
3. Ancillary services in public institutions only. Other ancillary services included in educational core services.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/304877012572

Table B6.2. Annual expenditure per student on educational core services, ancillary services and R&D (2002)

Expenditure on educational institutions in US dollars converted using PPPs from public and private sources, by type of service and level of education

	Primary, secondary and post-secondary non-tertiary education			Tertiary education			
	Expenditure on educational institutions			Expenditure on educational institutions			
	Educational core services	Ancillary services (transport, meals, housing provided by institutions)	Total	Educational core services	Ancillary services (transport, meals, housing provided by institutions)	Research and development	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
OECD COUNTRIES							
Australia	5 953	257	6 210	8 113	703	3 600	12 416
Austria	x(3)	x(3)	8 266	7781	x(4)	4 667	12 448
Belgium	6 868	282	7 150	7 967	335	3 717	12 019
Canada	m	m	m	m	m	m	m
Czech Republic	2 697	318	3 015	4 308	654	1 273	6 236
Denmark[1]	x(3)	x(3)	7 875	11604	m	3 579	15 183
Finland	5 566	664	6 230	7 332	n	4 436	11 768
France[2]	6 155	953	7 108	6721	581	1 974	9 276
Germany	6 314	136	6 450	6 617	n	4 382	10 999
Greece	x(3)	x(3)	3 911	4372	m	358	4 731
Hungary[3]	2 878	332	3 209	5 720	778	1 706	8 205
Iceland[1]	x(3)	x(3)	7 426	x(7)	x(7)	x(7)	8 251
Ireland[2]	4 799	75	4 874	7 721	m	2 088	9 809
Italy[3]	7171	303	7 474	8 331	305	m	8 636
Japan[1]	x(3)	x(3)	6 561	x(7)	x(7)	x(7)	11 716
Korea	4 281	363	4 645	x(7)	x(7)	x(7)	6 047
Luxembourg	x(3)	x(3)	12 361	m	m	m	m
Mexico[2]	1587	m	1 587	5 298	m	776	6 074
Netherlands	6 123	89	6 212	7 977	n	5 124	13 101
New Zealand	x(3)	x(3)	5 259	m	m	m	m
Norway	x(3)	x(3)	8 412	x(7)	x(7)	x(7)	13 739
Poland	2 459	134	2 593	4 204	n	630	4 834
Portugal[3]	x(3)	x(3)	5 888	4 693	m	2 267	6 960
Slovak Republic	1 845	135	1 980	3 655	751	349	4 756
Spain	5 172	190	5 362	6 030	m	1 990	8 020
Sweden	6 536	715	7 251	7 832	a	7 883	15 715
Switzerland[3]	x(3)	x(3)	8 404	x(7)	x(7)	x(7)	237 14
Turkey[2,3]	m	m	m	4 267	m	m	m
United Kingdom	5 650	347	5996	8 966	m	2856	11 822
United States	8 556	x(1)	8 556	18 292	x(4)	2 254	20 545
Country mean	***5 034***	***331***	***6 081***	***7 173***	***342***	***2 795***	***10 655***

1. Post-secondary non-tertiary included in both upper secondary and tertiary education.
2. Research and development expenditure and thus total expenditure is underestimated.
3. Public institutions only.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table B6.3. Expenditure on educational institutions by resource category and level of education (2002)

Distribution of total and current expenditure on educational institutions from public and private sources

	Primary, secondary and post-secondary non-tertiary education						Tertiary education					
	Percentage of total expenditure		Percentage of current expenditure				Percentage of total expenditure		Percentage of current expenditure			
	Current	Capital	Compen-sation of teachers	Compen-sation of other staff	Compen-sation of all staff	Other current	Current	Capital	Compensa-tion of teachers	Compensa-tion of other staff	Compen-sation of all staff	Other current
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD COUNTRIES												
Australia	92.0	8.0	59.8	16.9	76.7	23.3	90.4	9.6	32.0	27.6	59.6	40.4
Austria	95.9	4.1	70.3	8.1	78.4	21.6	95.0	5.0	42.9	19.6	62.5	37.5
Belgium	98.0	2.0	70.3	17.9	88.2	11.8	97.1	2.9	56.3	15.7	72.1	27.9
Canada	m	m	m	m	m	m	m	m	m	m	m	m
Czech Republic	89.8	10.2	51.1	16.8	67.9	32.1	88.3	11.7	27.7	20.6	48.3	51.7
Denmark[1]	92.0	8.0	51.9	26.3	78.2	21.8	94.3	5.7	52.1	25.1	77.2	22.8
Finland	90.1	9.9	54.1	11.9	66.0	34.1	94.7	5.3	34.7	27.1	61.8	38.2
France	91.7	8.3	x(5)	x(5)	79.0	21.0	89.8	10.2	x(11)	x(11)	70.1	29.9
Germany[2]	92.3	7.7	x(5)	x(5)	85.4	14.6	90.3	9.7	x(11)	x(11)	71.9	28.1
Greece[2]	93.5	6.5	x(5)	x(5)	92.0	8.0	59.9	40.1	x(11)	x(11)	46.7	53.3
Hungary[2]	92.2	7.8	x(5)	x(5)	77.6	22.4	82.7	17.3	x(11)	x(11)	65.7	34.3
Iceland[1]	89.0	11.0	m	m	m	m	90.1	9.9	x(11)	x(11)	80.4	19.6
Ireland[2]	90.4	9.6	78.3	7.6	85.9	14.1	86.9	13.1	45.4	22.9	68.3	31.7
Italy[2]	94.1	5.9	65.6	15.8	81.5	18.5	83.4	16.6	42.4	20.8	63.1	36.9
Japan[1]	89.2	10.8	x(5)	x(5)	87.7	12.3	84.3	15.7	x(11)	x(11)	68.2	31.8
Korea	82.7	17.3	63.3	8.9	72.2	27.8	78.8	21.2	38.7	12.4	51.2	48.8
Luxembourg	84.0	16.0	74.8	12.2	87.0	13.0	m	m	m	m	m	m
Mexico[2]	97.3	2.7	82.4	12.0	94.4	5.6	97.3	2.7	59.0	18.3	77.3	22.7
Netherlands	94.6	5.5	x(5)	x(5)	76.7	23.3	95.1	4.9	x(11)	x(11)	75.2	24.8
New Zealand	m	m	m	m	m	m	m	m	m	m	m	m
Norway	89.0	11.0	x(5)	x(5)	80.4	19.6	90.2	9.8	x(11)	x(11)	62.7	37.3
Poland	92.7	7.3	x(5)	x(5)	71.0	29.0	94.9	5.1	x(11)	x(11)	57.5	42.5
Portugal	96.6	3.4	x(5)	x(5)	96.7	3.3	88.5	11.5	x(11)	x(11)	90.3	9.7
Slovak Republic[2]	95.1	5.0	61.5	13.6	75.1	24.9	90.1	9.9	31.9	24.2	56.1	43.9
Spain	92.7	7.4	75.2	9.4	84.6	15.4	81.2	18.8	57.6	21.3	78.9	21.1
Sweden	92.7	7.3	50.7	16.9	67.8	32.2	m	m	x(11)	x(11)	58.7	41.3
Switzerland[2]	90.0	10.0	71.6	13.2	84.8	15.2	89.3	10.7	53.9	23.3	77.2	22.8
Turkey[2]	93.5	6.5	x(5)	x(5)	95.5	4.5	78.0	22.0	x(11)	x(11)	71.0	29.0
United Kingdom	91.4	8.6	53.2	21.9	75.0	25.0	95.7	4.3	32.7	25.0	57.7	42.3
United States	88.1	11.9	55.5	25.6	81.1	18.9	90.8	9.2	27.0	29.0	56.1	43.9
Country mean	***91.8***	***8.2***	***64.1***	***15.0***	***81.0***	***19.0***	***88.4***	***11.6***	***42.3***	***22.2***	***66.1***	***33.9***
PARTNER COUNTRIES												
Argentina[2]	99.1	0.9	73.5	16.3	89.8	10.2	99.1	0.9	54.4	34.9	89.3	10.7
Brazil[2, 3]	92.2	7.8	x(5)	x(5)	80.5	19.5	92.9	7.1	x(11)	x(11)	80.1	19.9
Chile[2, 4]	86.9	13.1	x(5)	x(5)	68.4	31.6	93.2	6.8	x(11)	x(11)	66.3	33.7
India[2, 3, 5]	94.4	5.6	80.5	8.0	88.5	11.5	98.9	1.1	x(11)	x(11)	99.7	0.3
Indonesia[2]	93.9	6.1	78.0	7.8	85.8	14.2	82.0	18.0	87.2	11.8	99.0	1.0
Israel	92.1	7.9	x(5)	x(5)	75.2	24.8	89.9	10.1	x(11)	x(11)	74.5	25.5
Jamaica[2]	94.5	5.5	70.9	14.9	85.8	14.2	94.4	5.6	57.6	24.4	82.1	17.9
Jordan[2]	95.4	4.6	89.3	6.4	95.6	4.4	a	a	a	a	a	a
Malaysia[2]	60.4	39.6	69.4	12.3	81.8	18.2	53.0	47.0	24.6	10.5	35.1	64.9
Paraguay[2]	95.5	4.5	73.4	12.9	86.3	13.7	98.7	1.3	76.0	16.4	92.4	7.6
Peru[2]	97.7	2.3	x(5)	x(5)	94.8	5.2	93.5	6.5	x(11)	x(11)	63.9	36.1
Philippines[2]	96.5	3.5	x(5)	x(5)	90.6	9.4	97.8	2.2	x(11)	x(11)	83.5	16.5
Tunisia[2]	92.3	7.7	m	m	m	m	75.2	24.8	m	m	m	m
Uruguay[2]	91.0	9.0	44.6	13.9	58.5	41.5	94.3	5.7	55.9	25.9	81.7	18.3

1. Post-secondary non-tertiary included in both upper secondary and tertiary education.
2. Public institutions only.
3. Year of reference 2001.
4. Year of reference 2003.
5. Post-secondary non-tertiary included in tertiary education.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Chapter

C

ACCESS TO EDUCATION, PARTICIPATION AND PROGRESSION

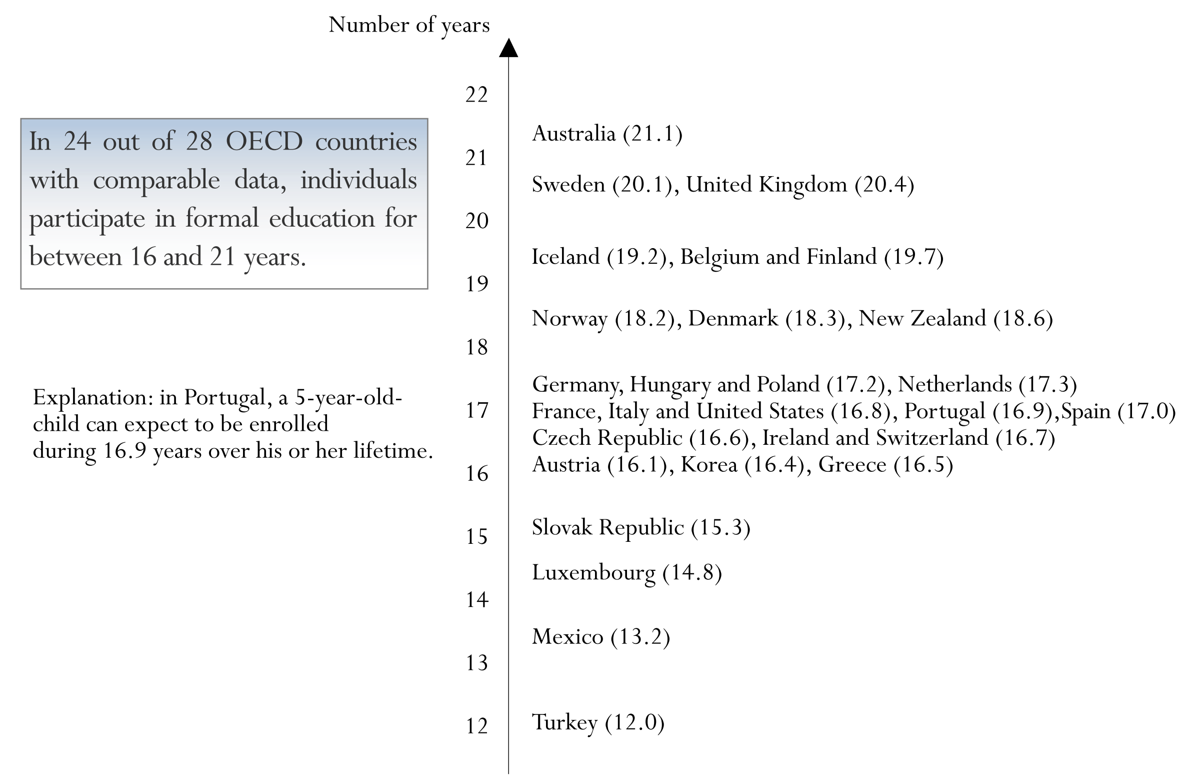
Enrolment in education from primary education to adult life

This indicator provides a picture of the structure of the education systems in terms of student participation. It examines enrolment at all levels of education: first by using the number of years, or education expectancy, of full-time and part-time education in which a 5-year-old can expect to enrol over his or her lifetime, and second by using information on enrolment rates at various levels of education to examine the access to education. Finally, trends in enrolments are used to compare the evolution of access to education with 1995.

Key results

Chart C1.1. Education expectancy (2003)

The chart shows the average years a 5-year-old can expect to be formally enrolled in education during his or her lifetime. The education expectancy is calculated by adding the net enrolment rates for each single year of age from five onwards. When comparing data on education expectancy, however, it must be borne in mind that neither the length of the school year nor the quality of education is necessarily the same in each country.



Source: OECD. Table C1.1.

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Other highlights of this indicator

- In most OECD countries, virtually all young people have access to at least 12 years of formal education. At least 90% of students are enrolled in an age band spanning 14 or more years in Belgium, France, Iceland, Japan and Spain. Mexico and Turkey, by contrast, have enrolment rates exceeding 90% for a period of seven and six years.
- Education expectancy increased between 1995 and 2003 in all OECD countries reporting comparable data.
- In half of the OECD countries, 70% of children aged three to four are enrolled in either pre-primary or primary programmes.
- In OECD countries, a 5-year-old can expect to stay 17.3 years in education, females receiving 0.7 more years of education, on average, than males.
- A 17-year-old can expect to spend an average of 2.8 years in tertiary education.

Policy context

A well-educated population is critical for a country's economic and social development. Societies therefore have an intrinsic interest in ensuring broad access to a wide variety of educational opportunities for children and adults. Early childhood programmes prepare children for primary education, and can help to combat linguistic and social disadvantages as well as provide opportunities to enhance and complement home educational experiences. Primary and secondary education lay the foundations for a wide range of competencies, and prepare young people to become lifelong learners and productive members of society. Tertiary education, either directly after initial schooling or later in life, provides a range of options for acquiring advanced knowledge and skills.

Evidence and explanations

Virtually all young people in OECD countries have access to basic education. But patterns of participation in and progression through education over the life cycle vary widely among countries.

Overall participation in education

Both the timing and the rate of participation in the pre-school years and after the end of compulsory education differ considerably between countries.

Average length of schooling in 2003

In 24 out of 28 OECD countries, individuals are expected to participate in formal education for between 16 and 21 years. In OECD countries, a child in Luxembourg, Mexico, the Slovak Republic and Turkey can expect to be in education for less than 16 years, compared to 19 or more years in Australia, Belgium, Finland, Iceland, Sweden and the United Kingdom (Chart C1.2).

Most of the variation in education expectancy among OECD countries comes from differences in enrolment rates in upper secondary education. Relative differences in participation are large at the tertiary level, but apply to a smaller proportion of the cohort and therefore have less of an effect on education expectancy (Chart C1.2).

Measures of the average length of schooling like education expectancy are affected by enrolment rates over the life cycle and therefore underestimate the actual number of years of schooling in systems where access to education is expanding.

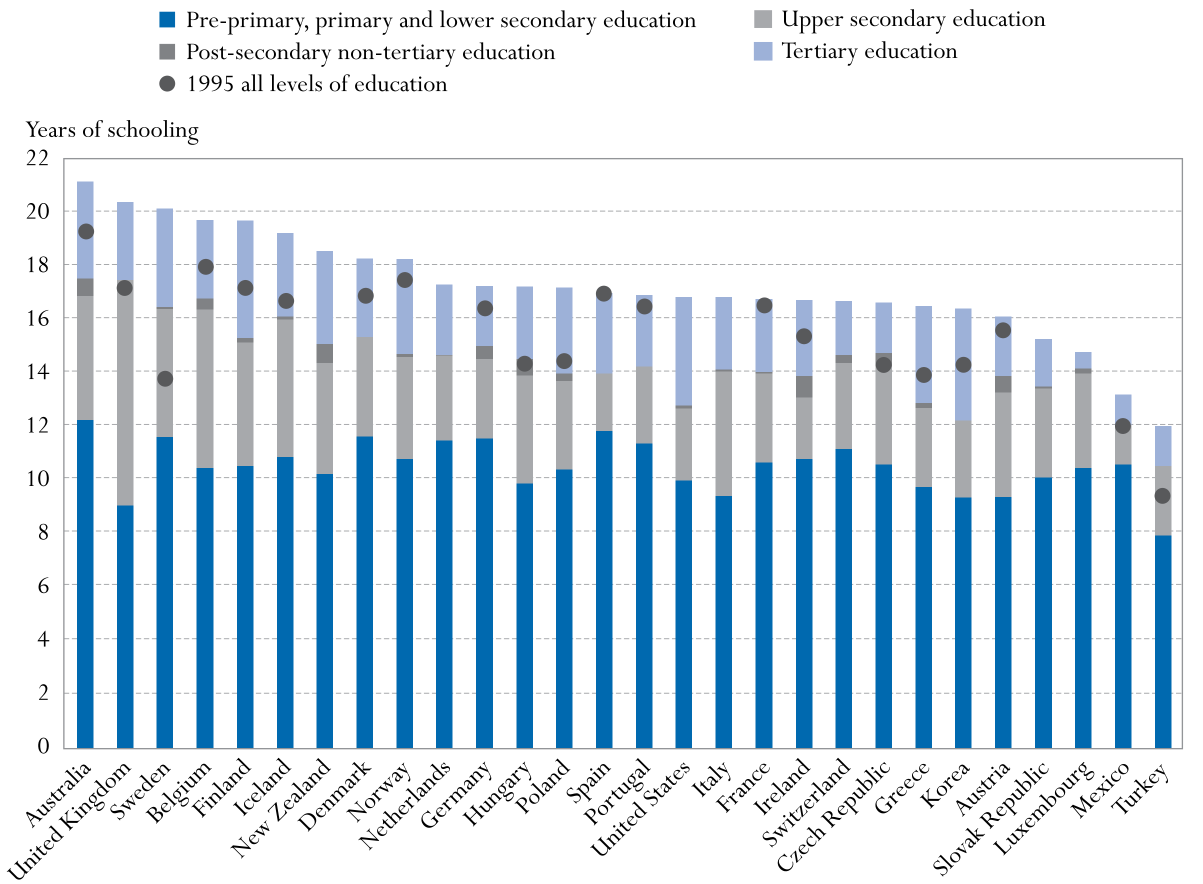
Nor does this measure distinguish between full-time and part-time participation. OECD countries with a relatively large proportion of part-time enrolments will therefore tend to have relatively high values. In Australia, Belgium, New Zealand, Sweden and the United Kingdom, part-time education accounts for three or more years of education expectancy (Table C1.1).

In OECD countries where education expectancy at a given level of education exceeds the number of grades at that level, repeating a level (or, in the case of Australia, the number of adults enrolling in those programmes) has a greater impact on education expectancy than the proportion of students leaving school before completing that level of education.

Enrolment rates are influenced by entry rates into a particular level of education and by the typical duration of studies. A high number of expected years in education, therefore, does not necessarily imply that all young people will participate in education for a long time. Belgium, where 5-year-olds can expect to be in school for more than 19 years, has nearly total enrolment (more than 90%) for 15 years of education. Conversely, Australia, Finland, Sweden and the United Kingdom which have equally high school expectancy, have nearly total enrolment (more than 90%) for only 13 or less years of education (Tables C1.1 and C1.2). Enrolment rates in Iceland are in the middle, with nearly total enrolment but for 14 years of education.

Chart C1.2. Education expectancy, by level of education (2003)

Under current conditions (excluding education for children under the age of five)



Countries are ranked in descending order of the education expectancy for all levels of education.
Source: OECD. Table C1.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/584515228875

In most OECD countries, virtually all young people have access to at least 12 years of formal education. At least 90% of students are enrolled in an age band spanning 14 or more years in Belgium, France, Iceland, Japan and Spain. Mexico and Turkey, by contrast, have enrolment rates exceeding 90% for a period of seven and six years (Table C1.2).

Gender differences

In OECD countries, a 5-year-old can expect to stay 17.3 years in education. The variation in education expectancy is generally greater for females than for males. In OECD countries, females can expect to receive 0.7 more years, on average, of education than males. The expected duration of enrolment for females exceeds that of males by one year or more in Belgium, Denmark, Finland, Iceland, Ireland, New Zealand, Norway, Poland, Sweden, the United Kingdom and the United States (in Sweden and in the United Kingdom, the difference is respectively 2.9 and 2.7 years). The opposite is true in Germany and the Netherlands, where males can expect to receive 0.2 years more education than females, but particularly in Korea, Switzerland and Turkey, with, respectively, 1.8, 0.6 and 2.0 years more education for males (Table C1.1).

Trends in participation in education

Education expectancy increased between 1995 and 2003 in all OECD countries for which comparable trend data are available, showing a general increase of participation in education (Table C1.1). In the Czech Republic, Greece, Hungary, Iceland, Korea, Poland, Sweden, Turkey and the United Kingdom, the increase was 15% or higher during this relatively short period.

Some countries have extended participation in education, for example, by making pre-school education almost universal by the age of three, by retaining the majority of young people in education until the end of their teens, or by maintaining 10 to 20% participation among all age groups up to the late 20s.

Participation in early childhood education

In the majority of OECD countries, full enrolment, which is defined here as enrolment rates exceeding 90%, starts between the ages of five and six years. However, in Belgium, the Czech Republic, Denmark, France, Germany, Hungary, Iceland, Italy, Japan, New Zealand, Norway, Portugal, the Slovak Republic, Spain, Sweden and the United Kingdom, 70% of children aged three to four are already enrolled in either pre-primary or primary programmes (Table C1.2). The enrolment rates range from less than 20% in Korea to over 90% in Belgium, France, Iceland, Italy and Spain.

Given the impact that early childhood education and care has on building a strong foundation for lifelong learning and on ensuring equitable access to learning opportunities later, pre-primary education is very important. However, institutionally based pre-primary programmes covered by this indicator are not the only form of quality early childhood education and care. Inferences about access to and quality of pre-primary education and care should therefore be made very carefully.

Participation towards the end of compulsory education and beyond

Several factors, including a higher risk of unemployment and other forms of exclusion for young people with insufficient education, influence the decision to stay enrolled beyond the end of compulsory education. In many OECD countries, the transition from education to employment has become a longer and more complex process that provides the opportunity or the obligation for students to combine learning and work to develop marketable skills (see Indicator C4).

Compulsory education in OECD countries ends between the ages of 14 (Korea, Portugal and Turkey) and 18 (Belgium, Germany and the Netherlands), and in most countries at age 15 or 16 (Table C1.2). However, the statutory age at which compulsory education ends does not always correspond to the age at which enrolment is universal.

While participation rates in most OECD countries tends to be high until the end of compulsory education, in Belgium, Germany, Mexico, the Netherlands, New Zealand, Turkey, the United Kingdom and the United States, rates drop to below 90% before the age at which students are no longer legally required to be enrolled in school. More than 10% of students also never finish compulsory education in these countries. In Belgium, Germany, the Netherlands and the United States, this may be due in part to the fact that compulsory education ends at age 18 (age 17, on average, in the United States). By contrast, in 21 OECD countries, virtually all children remain in school beyond the age at which compulsory education ends (Table C1.2).

In most OECD countries, enrolment rates gradually decline starting in the last years of upper secondary education. There are several noteworthy exceptions, however, where enrolment rates remain relatively high until the age of 20 to 29: in Australia, Denmark, Finland, Iceland and Sweden, enrolment rates for 20-to-29-year-olds still exceed 30% (Table C1.2).

Both graduates from upper secondary programmes who decide not to enter the labour market directly and people who are already working and want to upgrade their skills can choose from a wide range of post-secondary programmes.

The transition to post-secondary education

Upper secondary students in many education systems can enrol in relatively short programmes (less than two years) to prepare for trades or specific vocational fields. Some OECD countries delay vocational training until after graduation from upper secondary education. While these programmes are offered as advanced or second upper secondary programmes in some OECD countries (*e.g.* Austria, Hungary and Spain), they are offered in the post-secondary education in others (*e.g.* Canada and the United States), although these post-secondary programmes often resemble upper secondary level programmes.

From an internationally comparable point of view, these programmes straddle upper secondary and tertiary education and are therefore classified as a different level of education (post-secondary non-tertiary education).

Participation in post-secondary non-tertiary education

In 25 out of 30 OECD countries, these kinds of programmes are offered to upper secondary graduates. A 17-year-old can expect to receive 0.2 years of post-secondary non-tertiary education on average in OECD countries. This expectation ranges from 0.1 years in Iceland, Italy, Norway, the Slovak Republic, Sweden and the United States to 0.6 years and more in Australia, Austria, Hungary, Ireland and New Zealand (Table C1.1).

Participation in tertiary education

Graduates of upper secondary programmes and people in employment who want to upgrade their skills can also choose from a wide range of tertiary programmes.

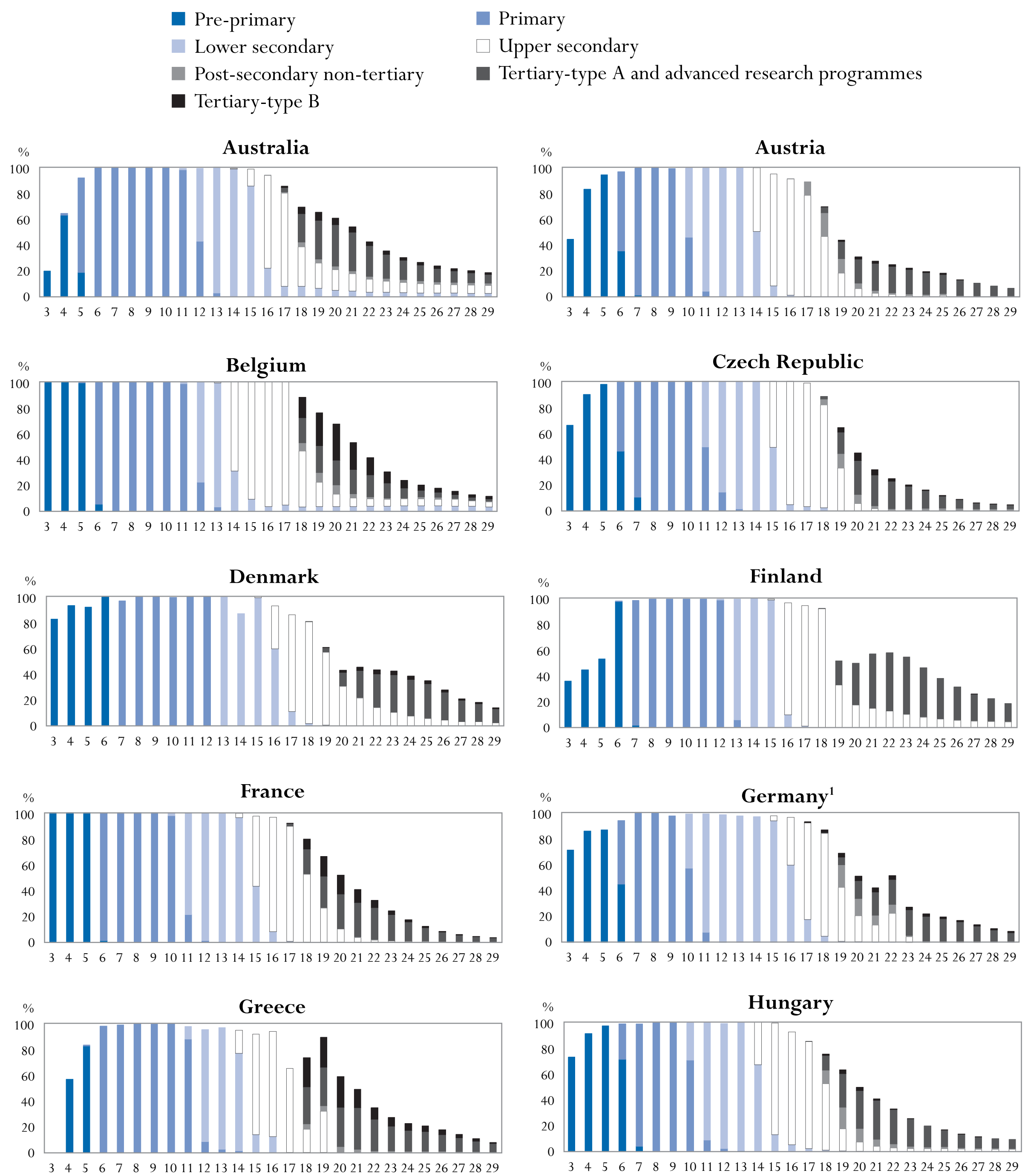
This indicator distinguishes among different categories of tertiary qualifications: i) degrees at tertiary-type B level (ISCED 5B); ii) degrees at tertiary-type A level (ISCED 5A); and iii) advanced research qualifications at the doctorate level (ISCED 6). Tertiary-type A programmes are largely theoretically based and designed to provide qualifications for entry into advanced research programmes and professions with high skill requirements. Tertiary-type B programmes are classified at the same level of competencies as tertiary-type A programmes, but are more occupationally oriented and lead to direct labour market access. The programmes are typically of shorter duration than type A programmes (typically two to three years), and generally they are not deemed to lead to university-level degrees. The institutional location of programmes used to give a relatively clear idea of their nature (*e.g.* university versus non-university institutions of higher education), but these distinctions have become blurred and are therefore not applied in the OECD indicators.

On average in OECD countries, a 17-year-old can expect to receive 2.8 years of tertiary education. Both tertiary entry rates and the typical duration of study affect the expectancy of tertiary education. In Australia, Finland, Greece, Iceland, Korea, New Zealand, Norway, Poland, Spain, Sweden and the United States, the figure is three years or more. In Luxembourg, Mexico, the Slovak Republic and Turkey, by contrast, the expectancy of tertiary education is 1.8 years or less (Table C1.1 and Indicator C2).

Policies to expand education have increased pressure for greater access to tertiary education in many OECD countries. Thus far, this pressure has more than compensated the declines in cohort sizes which had led, until recently, to predictions of stable or declining demand from school leavers in several OECD countries. Whereas some OECD countries are now showing signs of a levelling demand for tertiary education, the overall trend remains on an upward course.

Chart C1.3. Net enrolment rates, by age and level of education (2003)

Based on head counts



1. Germany: data are missing for advanced research programmes.
Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

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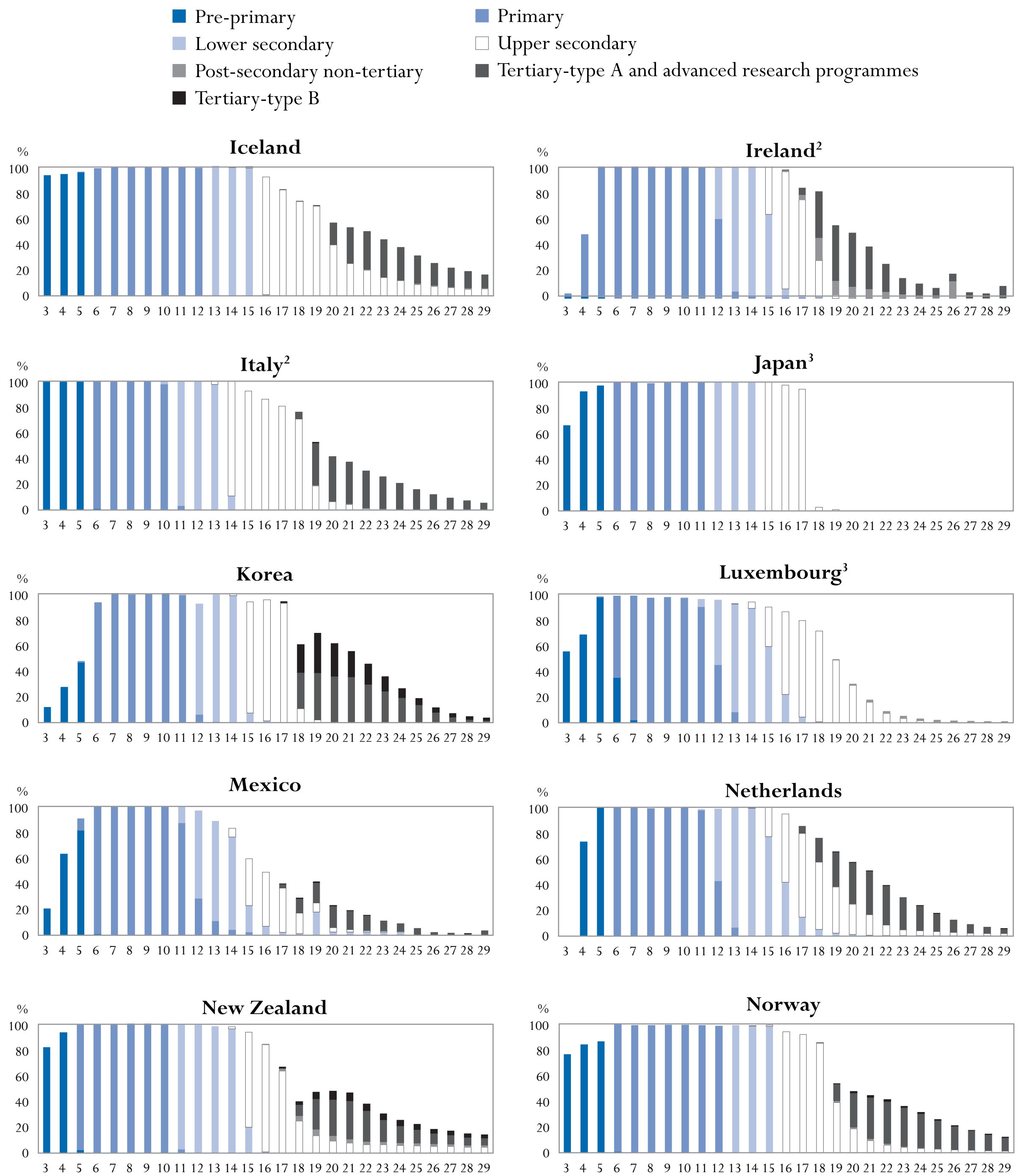
Chart C1.3. (*continued*) **Net enrolment rates, by age and level of education (2003)**

Based on head counts

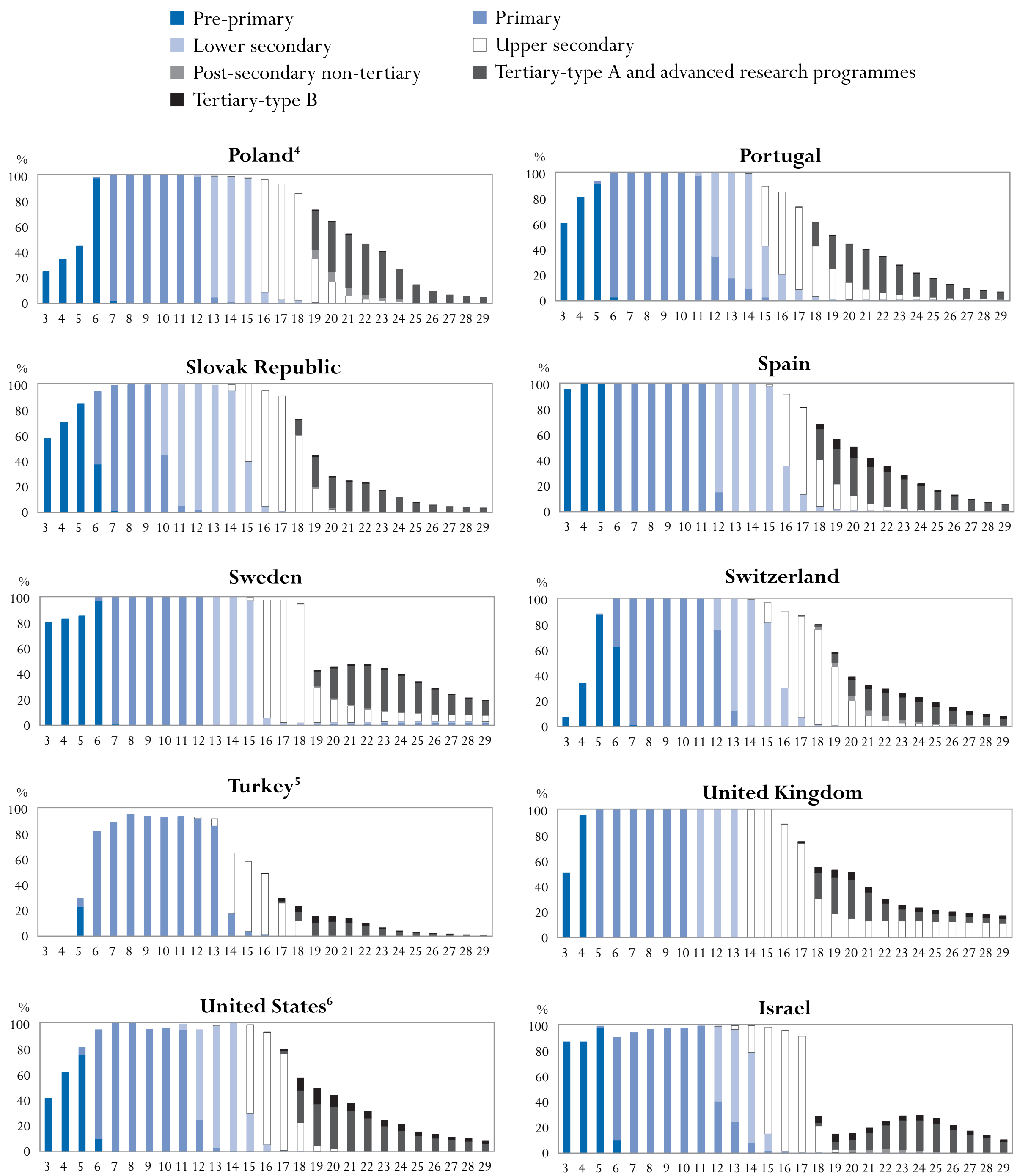


2. Ireland, Italy: Tertiary-type A and advanced research programmes includes data for tertiary-type B programmes.
3. Japan and Luxembourg: no age breakdown available for tertiary education.
Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/584515228875

Chart C1.3. (*continued*) **Net enrolment rates, by age and level of education (2003)**

Based on head counts



4. Poland: no age breakdown available except for tertiary-type A and advanced research programmes for 25 year olds and over.
5. Turkey: there is no lower secondary education.
6. United States: no age breakdown available for post-secondary non-tertiary.
Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

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Box C1.1. Participation in education over the life cycle

Enrolment rate by age and level of education

The participation in education over the life cycle is influenced both by participation to the different levels of education and by the typical duration of studies of each of these levels. For instance, only Austria has over 10% of 17-year-olds enrolled at the post-secondary non-tertiary level. Most other countries see the major transitions from upper secondary to post-secondary non-tertiary education at the age of 18. An exception is Germany, where the transition occurs mainly at ages 19 and 20 (around 15% of 19- and 20-year-olds are enrolled in post-secondary non-tertiary education). The transition from secondary education to post-secondary education occurs at different ages in different countries. For the patterns of participation in education of OECD countries, see Chart C1.3.

Behind these overall figures, important structural differences exist: for instance, part-time education is pursued only at the tertiary level in some countries, while in others part-time education is also available and sought after at the secondary education level. See Table C1.3 (available on the Web at *http://dx.doi.org/10.1787/584515228875*).

End of compulsory education and decline in enrolment rates

An analysis of the rate of participation by level of education and single year of age shows there is no close correspondence between the end of compulsory education and the decline in enrolment rates. In 20 out of 27 OECD countries, the sharpest decline in enrolment rates occurs not at the end of compulsory education but at the end of upper secondary education. After the age of 16, however, enrolment rates begin to decline in all OECD countries. On average in OECD countries, the enrolment rate falls from 90% at the age of 16 to 83% at the age of 17, 71% at the age of 18, and 58% at the age of 19. In the Czech Republic, Finland, France, Japan, Korea, Norway, Poland and Sweden, more than 93% of all 17-year-olds are still enrolled, even though the ending age of compulsory education is under 17 years of age. See *Education at a Glance 2004* (OECD, 2004c), Table C1.3. For a data update, see Table C1.4 (available on the Web at *http://dx.doi.org/10.1787/584515228875*).

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Definitions and methodologies

Data for the school year 2002-2003 are based on the UOE data collection on education statistics that is administered annually by the OECD, and on the 2004 World Education Indicators Programme.

Except where otherwise noted, figures are based on head counts; that is, they do not distinguish between full-time and part-time study. A standardised distinction between full-time and part-time participants is very difficult because the concept of part-time study is not recognised by some countries. For other OECD countries, part-time education is covered only partially by the reported data.

The average length of time a 5-year-old can expect to be formally enrolled in education during his/her lifetime, or education expectancy, is calculated by adding the net enrolment rates for each single year of age from five onwards (Table C1.1). The education expectancy for a cohort will reflect any tendency to lengthen (or shorten) studies in subsequent years. When comparing data on education expectancy, however, it must be borne in mind that neither the length of the school year nor the quality of education is necessarily the same in each country. Education expectancy gives a domestic measure of the overall participation to education for a country as the UOE data collection covers all of a country's domestic educational activity (*i.e.* within its own territory), regardless of the ownership or sponsorship of the institution – whether public or private, national or foreign – which organises the activity and regardless of the delivery mechanism. Table C1.1 also shows the index of change in education expectancy between 1995 and 2003.

Net enrolment rates expressed as percentages in Table C1.2 are calculated by dividing the number of students of a particular age group enrolled in all levels of education by the size of the population of that age group.

Data for 1994-1995 are based on a special survey carried out in OECD countries in 2000. OECD countries were asked to report according to the ISCED-97 classification.

Table C1.1. Education expectancy (2003)

Expected years of education under current conditions (excluding education for children under the age of five)

	Full-time and part-time							Full-time	Part-time	Index of change in education expectancy for all levels of education (1995=100)
	All levels of education			Primary and lower secondary education	Upper secondary education	Post-secondary non-tertiary education	Tertiary education	All levels of education		
	M+F	Males	Females	M+F				M+F		M+F
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD COUNTRIES										
Australia	21.1	20.8	21.4	11.7	4.6	0.6	3.6	14.8	6.3	110
Austria	16.1	16.0	16.2	8.1	3.9	0.6	2.2	15.9	0.2	103
Belgium	19.7	19.1	20.2	9.4	5.9	0.4	2.9	16.4	3.3	110
Canada	m	m	m	m	m	m	m	m	m	m
Czech Republic	16.6	16.5	16.8	9.0	3.7	0.5	1.9	16.3	0.3	117
Denmark	18.3	17.6	18.9	9.7	3.7	n	2.9	17.2	1.0	108
Finland	19.7	19.0	20.4	9.0	4.6	0.2	4.4	17.8	1.9	114
France	16.8	16.5	17.0	9.5	3.3	n	2.7	16.8	n	101
Germany	17.2	17.3	17.1	10.2	3.0	0.5	2.2	17.1	0.1	105
Greece	16.5	16.2	16.8	8.9	2.9	0.2	3.6	16.3	0.1	118
Hungary	17.2	16.8	17.6	8.1	4.0	0.6	2.7	15.3	1.9	120
Iceland	19.2	18.2	20.2	9.9	5.1	0.1	3.1	16.9	2.4	115
Ireland	16.7	16.1	17.4	10.8	2.3	0.8	2.8	15.7	1.0	109
Italy	16.8	16.4	17.1	8.3	4.7	0.1	2.7	16.7	0.1	m
Japan	m	m	m	9.1	3.0	m	m	m	m	m
Korea	16.4	17.3	15.5	8.9	2.9	a	4.2	16.4	n	115
Luxembourg	14.8	14.7	14.9	9.1	3.5	0.2	0.6	14.6	0.2	m
Mexico	13.2	13.0	13.4	9.7	1.5	a	1.1	13.2	n	110
Netherlands	17.3	17.4	17.2	10.5	3.2	n	2.6	16.7	0.6	m
New Zealand	18.6	17.5	19.5	10.2	4.1	0.7	3.5	15.5	3.0	m
Norway[1]	18.2	16.6	18.1	9.9	3.8	0.1	3.5	16.8	1.4	104
Poland	17.2	16.7	17.7	9.0	3.3	0.3	3.2	14.4	2.8	119
Portugal	16.9	16.5	17.3	10.4	2.9	a	2.6	16.2	0.7	103
Slovak Republic	15.3	15.1	15.4	8.9	3.3	0.1	1.8	14.6	0.7	m
Spain	17.0	16.6	17.4	10.8	2.2	a	3.0	16.4	0.6	100
Sweden	20.1	18.7	21.6	9.8	4.8	0.1	3.7	16.9	3.3	146
Switzerland	16.7	17.0	16.4	9.6	3.2	0.3	2.0	16.1	0.5	m
Turkey	12.0	12.8	10.8	7.7	2.6	a	1.5	12.0	n	127
United Kingdom	20.4	19.0	21.7	9.1	8.4	x(5)	2.9	14.9	5.5	119
United States	16.8	16.3	17.4	9.2	2.7	0.1	4.1	14.9	2.0	m
Country mean	***17.3***	***16.9***	***17.6***	***9.5***	***3.7***	***0.2***	***2.8***	***15.8***	***1.5***	***113***
PARTNER COUNTRIES										
Argentina[2]	17.6	16.9	18.4	10.7	2.4	a	3.5	15.1	2.6	m
Brazil[2]	16.1	15.8	16.4	10.8	2.8	a	1.2	16.1	n	m
Chile	15.0	15.2	14.8	8.3	3.8	a	2.0	15.0	n	m
China	11.9	m	m	9.0	1.4	m	m	m	m	m
Egypt	12.0	10.8	10.4	8.1	2.2	0.1	1.5	m	m	m
India[2]	9.8	10.2	9.3	6.9	1.6	n	0.5	m	m	m
Indonesia	11.9	12.0	11.7	9.2	1.4	a	0.8	11.9	n	m
Israel	15.9	15.6	16.2	8.6	3.2	0.1	2.9	15.3	0.6	m
Jamaica	12.6	12.6	12.5	8.4	1.6	0.1	m	12.6	m	m
Jordan[2]	12.6	12.3	13.0	9.4	1.4	a	1.5	12.6	n	m
Malaysia[2]	12.7	12.3	13.2	8.3	1.9	0.4	1.4	12.6	0.1	m
Paraguay[2]	13.8	13.7	13.9	9.9	1.8	m	1.2	12.8	n	m
Peru[2]	14.5	14.5	14.5	10.1	1.6	m	m	m	m	m
Philippines	11.8	11.5	12.3	9.3	0.6	0.2	1.4	11.3	m	m
Russian Federation	14.9	14.6	15.7	8.1	1.7	0.1	3.3	12.1	2.8	m
Thailand	15.1	14.9	15.3	9.3	2.2	m	2.1	12.3	2.8	m
Tunisia	13.4	13.1	13.6	9.5	2.5	n	1.2	13.4	n	m
Uruguay[2]	16.4	15.5	17.3	10.1	2.9	0.1	1.9	16.4	n	m
Zimbabwe	11.3	11.9	10.7	8.8	1.1	m	0.2	11.2	0.1	m

Note: Mismatches between the coverage of the population data and the student/graduate data mean that the participation/graduation rates for those countries that are net exporters of students may be underestimated, for instance Luxembourg, and those that are net importers may be overestimated.

1. The total (males + females) includes the 5-year-olds for Norway but is not reported in the distribution of 5-year-olds by sex.

2. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/584515228875

C1

Table C1.2. Enrolment rates, by age (2003)

Full-time and part-time students in public and private institutions

	Ending age of compulsory education	Number of years at which over 90% of the population is enrolled	Age range at which over 90% of the population is enrolled	Students aged: 4 and under as a percentage of the population of 3-to-4-year-olds	5-14 as a percentage of the population of 5-to-14-year-olds	15-19 as a percentage of the population of 15-to-19-year-olds	20-29 as a percentage of the population of 20-to-29-year-olds	30-39 as a percentage of the population of 30-to 39-year-olds	40 and over as a percentage of the population of over 40-year-olds
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD COUNTRIES									
Australia	15	12	5 - 16	41.8	98.2	82.1	33.4	15.1	6.8
Austria	15	12	5 - 16	65.6	98.5	77.3	18.1	3.3	0.3
Belgium[1]	18	15	3 - 17	120.7	100.3	93.9	29.0	8.4	3.4
Canada	16	m	m	m	m	m	m	m	m
Czech Republic	15	13	5 - 17	82.8	99.8	90.1	16.6	2.9	0.2
Denmark	16	12	4 - 16	88.0	99.1	84.7	31.9	5.7	0.9
Finland	16	13	6 - 18	40.2	94.6	86.0	40.4	10.9	2.3
France[1]	16	15	3 - 17	118.9	101.4	87.2	20.4	2.4	a
Germany	18	12	6 - 17	78.7	97.6	89.0	26.7	2.9	0.2
Greece	14.5	11	6 - 16	28.5	96.7	82.6	25.8	0.5	n
Hungary	16	13	4 - 16	82.6	100.4	83.4	22.3	4.9	0.5
Iceland[1]	16	14	3 - 16	146.8	98.8	83.0	35.6	9.6	2.6
Ireland	16	12	5 - 16	26.1	100.4	84.4	19.3	2.8	x(8)
Italy	15	13	3 - 15	104.1	101.9	77.8	19.3	2.7	n
Japan	15	14	4 - 17	79.8	100.7	m	m	m	m
Korea	14	12	6 - 17	19.9	93.2	81.7	27.3	1.9	0.4
Luxembourg	15	11	5 - 15	61.6	96.7	75.4	6.5	0.4	n
Mexico	15	7	6 - 12	42.1	96.9	43.9	9.7	3.4	0.5
Netherlands	18	12	5 - 16	36.4	99.7	84.9	24.9	3.0	0.8
New Zealand	16	12	4 - 15	88.1	100.1	67.0	28.7	11.3	4.5
Norway	16	12	6 - 17	80.4	98.1	85.3	28.6	7.0	1.8
Poland	15	12	6 - 17	30.6	94.2	88.2	29.0	4.4	x(8)
Portugal	14	10	5 - 14	70.3	105.3	70.9	21.9	3.6	0.5
Slovak Republic	16	12	6 - 17	72.4	97.3	79.7	13.2	1.8	0.2
Spain[1]	16	14	3 - 16	115.9	102.5	78.5	21.9	2.8	0.4
Sweden	16	13	6 - 18	81.1	98.6	86.8	34.5	13.6	3.4
Switzerland	15	11	6 - 16	22.7	99.3	83.1	20.8	3.6	0.3
Turkey	14	6	8 - 13	n	82.0	34.8	6.0	0.3	n
United Kingdom	16	12	4 - 15	77.2	100.5	75.9	26.3	15.7	7.8
United States	17	11	6 - 16	51.5	97.1	75.4	22.2	5.9	1.7
Country mean	*16*	*12*		*69.8*	*98.3*	*79.1*	*23.6*	*5.4*	*1.6*
PARTNER COUNTRIES									
Argentina[2]	14	11	5 - 15	41.3	104.3	71.3	27.6	6.8	1.4
Brazil[2]	14	8	7 - 14	16.4	91.8	73.9	22.2	7.8	2.3
Chile	14	9	7 - 15	28.3	90.8	70.2	3.0	0.8	0.3
China	14	7	6 - 13	15.7	85.9	13.7	m	m	m
Egypt	13	5	6 - 10	7.3	86.8	m	m	m	m
India	14	1	6 - 7	2.5	65.7	m	m	m	m
Indonesia	15	7	6 - 13	n	89.2	51.5	3.9	n	n
Israel	15	12	5 - 17	102.4	96.8	65.6	20.7	5.0	0.9
Jamaica	12	5	7 - 13	6.3	82.4	40.3	m	m	m
Jordan	15	4	6 - 9	16.3	90.6	42.2	m	m	m
Malaysia[2]	12	7	6 - 12	13.6	90.1	56.0	8.4	1.2	0.2
Paraguay[2]	14	7	6 - 12	9.4	95.0	55.0	7.1	0.8	0.2
Peru[2]	16	9	6 - 14	50.2	98.5	55.5	9.6	1.9	0.5
Philippines	12	8	7 - 17	n	82.4	52.3	4.1	0.4	n
Russian Federation	15	9	3 - 14	80.7	94.2	29.3	m	m	m
Thailand	14	8	4 - 13	55.4	97.4	59.8	13.5	1.4	0.3
Tunisia	16	6	6 - 11	x(5)	86.8	57.3	3.9	n	n
Uruguay[2]	15	10	6 - 15	25.4	98.6	71.8	22.6	4.6	0.6
Zimbabwe	12	7	7 - 13	n	81.6	30.0	n	n	n

Note: Ending age of compulsory education is the age at which compulsory schooling ends. For example, an ending age of 18 indicates that all students under 18 are legally obliged to participate in education. Mismatches between the coverage of the population data and the student/graduate data mean that the participation/graduation rates for those countries that are net exporters of students may be underestimated, for instance Luxembourg, and those that are net importers may be overestimated.

1. The rates "4 and under as a percentage of the population of 3-to-4-year-olds" is overestimated. A significant number of students are younger than 3 years old. The net rates between 3 and 5 years old are around 100%.

2. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/584515228875

C1

C2

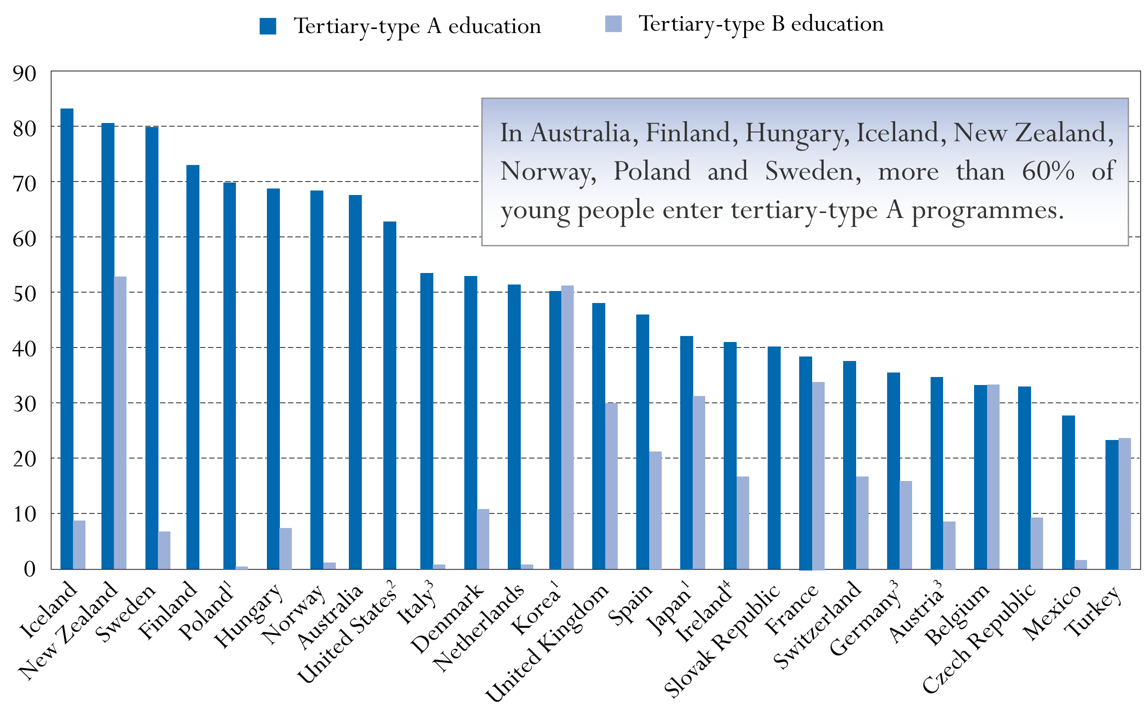
Participation in secondary and in tertiary education

This indicator shows patterns of participation at the secondary level of education and the percentage of the youth cohort that will enter different types of tertiary education during their lives. Entry and participation rates reflect both the accessibility of tertiary education and the perceived value of attending tertiary programmes.

Key results

Chart C2.1. Entry rates into tertiary education (2003)

The chart shows the proportion of people who enter tertiary education for the first time. Entry rates measure the inflow into education in a particular period rather than the stock of students who are there. They have the advantage over enrolment rates in that the comparability between countries in not distorted by different course lengths.



Note: Net entry rates for tertiary-type A and B programmes cannot be added due to double counting.
1. Entry rate for tertiary-type A and B programmes calculated as gross entry rate.
2. Tertiary-type A education includes tertiary-type B education.
3. Entry rate for tertiary-type B programmes calculated as gross entry rate.
4. Full-time entrants only.
Countries are ranked in descending order of the entry rates for tertiary-type A education.
Source: OECD. Table C2.2. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/675381330517

Other highlights of this indicator

- In 16 OECD countries, the majority of upper secondary students attend vocational or apprenticeship programmes. Vocational education is school based in most OECD countries.
- Today, 53% of today's young people in OECD countries will enter tertiary-type A programmes during their lifetime. The proportion of people who enter tertiary-type B programmes is generally smaller. In OECD countries with available data, 16% of young people, on average, will enter tertiary-type B programmes.
- Traditionally, students typically enter tertiary-type A programmes immediately after having completed upper secondary education, and this remains true in many OECD countries.

Policy context

Graduation from upper secondary education is becoming the norm in most OECD countries. Most of these upper secondary programmes are primarily designed to prepare students for tertiary studies (see Indicator A2).

High tertiary entry and participation rates help to ensure the development and maintenance of a highly educated population and labour force. Tertiary education programmes are generally associated with better access to employment (see Indicator A8) and higher earnings (see Indicator A9). Rates of entry into tertiary education are a partial indication of the degree to which a population is acquiring high-level skills and knowledge valued by the labour market in today's knowledge society.

As students have become more aware of the economic and social benefits of tertiary education, entry rates into tertiary-type A and tertiary-type B programmes have risen. The continued growth in participation and a widening diversity of the backgrounds and interests of those aspiring to tertiary studies means that tertiary institutions will need to expand the number of students they admit and adapt their programmes and teaching to the diverse needs of new generations of students.

Evidence and explanations

A range of factors, including an increased risk of unemployment and other forms of exclusion of young people with insufficient education, has strengthened the incentive for young people to stay enrolled beyond the end of compulsory education and to graduate from upper secondary education.

Graduation from upper secondary education is also becoming the norm in most OECD countries, but the curricular content in upper secondary programmes can vary, depending on the type of education or occupation for which the programmes are designed, and their orientation can be general, pre-vocational or vocational. Students can choose from a wide range of post-secondary programmes as well (see Indicator C1).

Participation in upper secondary vocational education

In most OECD countries, students do not follow a uniform curriculum at the upper secondary level. Programmes at the upper secondary level are subdivided into three categories based on the degree to which they are oriented towards a specific class of occupations or trades and lead to a labour-market relevant qualification:

- Type 1 (general) education programmes are not designed explicitly to prepare participants for specific occupations or trades, or for entry into further vocational or technical education programmes.
- Type 2 (pre-vocational or pre-technical) education programmes are mainly designed to introduce participants to the world of work and to prepare them for entry into further vocational or technical education programmes. Successful completion of such programmes does not lead to a labour-market relevant vocational or technical qualification. At least 25% of the programme content should be vocational or technical.
- Type 3 (vocational or technical) education programmes prepare participants for direct entry into specific occupations without further training. Successful completion of such programmes leads to a labour-market relevant vocational or technical qualification.

The degree to which a programme has a vocational or general orientation does not necessarily determine whether participants have access to tertiary education. In several OECD countries, vocationally oriented programmes are designed to prepare students for further studies at the tertiary level, while in other countries, many general programmes do not provide direct access to further education.

In all OECD countries, students can choose vocational, pre-vocational or general programmes. In 16 OECD countries, the majority of upper secondary students attend vocational or apprenticeship programmes. In OECD countries with dual-system apprenticeship programmes (Austria, Germany, Luxembourg, the Netherlands and Switzerland) and in Australia, Belgium, the Czech Republic, the Slovak Republic and the United Kingdom, 60% or more of upper secondary students are enrolled in vocational programmes. The exceptions are Iceland, Spain and Turkey where the majority of students are enrolled in general programmes even though dual-system apprenticeship programmes are offered (Table C2.1).

In most OECD countries, vocational education is school based. In Austria, the Czech Republic, Iceland and the Slovak Republic, however, about half of the vocational programmes have combined school-based and work-based elements. In Denmark, Germany, Hungary and Switzerland, around 80% or more of vocational programmes have both school-based and work-based elements.

Beyond the secondary level, a number of options exist for further education. One avenue is relatively short, vocationally oriented programmes at the tertiary level. Another is theoretically based programmes, which are designed to provide sufficient qualifications for entry into advanced research programmes and professions with high skill requirements. These are mainly, but not exclusively, taught at universities.

Overall access to tertiary education

In OECD countries, tertiary programmes vary in the extent to which they are theoretically based and designed to prepare students for advanced research programmes or professions with high skill requirements (tertiary-type A), or focus on occupationally specific skills so that students can directly enter the labour market (tertiary-type B). For a classification of national educational programmes into these categories, see Annex 3 (*www.oecd.org/edu/eag2005*).

Today, 53% of today's young people in OECD countries will enter tertiary-type A programmes during their lifetime, assuming that current entry rates continue. In fact, in Australia, Finland, Hungary, Iceland, New Zealand, Norway, Poland and Sweden, more than 60% of young people enter tertiary-type A programmes. The United States has an entry rate of 63%, but both type A and type B programmes are including in the type A columns as noted in Table C2.2.

In other OECD countries, the rates of first-time entry into tertiary-type A programmes are considerably lower: the estimated first-time entry rates for Austria, Belgium, the Czech Republic, Germany and Switzerland are around 35%. The first-time entry rates are particularly low in Mexico and Turkey with respectively 28% and 23%.

The proportion of people who enter tertiary-type B programmes is generally smaller than the proportion entering tertiary-type A programmes. In OECD countries with available data, 16% of young people, on average, will enter tertiary-type B programmes. The figures range from 4% or less in Italy, Mexico, the Netherlands, Norway, Poland and the Slovak Republic to more than 30% in Belgium, France, Japan and the United Kingdom, and more than 50% in Korea and New Zealand (Table C2.2. and Chart C2.1).

In Belgium, wide access into tertiary-type B programmes counterbalances comparatively low rates of entry into tertiary-type A programmes. Other OECD countries, most notably Norway, Poland and Sweden, have entry rates above the OECD average for tertiary-type A programmes, and comparatively very low rates of entry into tertiary-type B programmes. New Zealand stands out as a country with entry rates at both levels that are the highest among OECD countries.

Net rates of entry into tertiary education should also be considered in light of participation in post-secondary non-tertiary programmes, which are an important alternative to tertiary education in some OECD countries (see Indicator C1).

Tertiary-type A programmes dominate the stock of tertiary enrolments and therefore the volume of resources required as they tend to be longer than other tertiary programmes (see Indicator B1, Table B1.3).

The age structure of entrants into tertiary education varies among OECD countries. Upper secondary graduates may have gone directly to the labour market before enrolling in a tertiary education programme. People entering tertiary-type B programmes may also enter tertiary-type A programmes later in their lives. Tertiary-type A and B entry rates cannot therefore be added together to obtain overall tertiary-level entry rates because entrants might be double counted.

Age of new entrants into tertiary education

Traditionally, students typically enter tertiary-type A programmes immediately after having completed upper secondary education, and this remains true in many OECD countries. In Belgium, France, Ireland, the Slovak Republic and Spain, for example, more than 80% of all first-time entrants to tertiary-type A programmes are under 23 years of age (Table C2.2).

In other OECD countries, the transition to the tertiary level is often delayed, in some cases by some time spent in the labour force. In these countries, first-time entrants into tertiary-type A programmes are typically older and show a much wider range of entry ages. In Denmark, Iceland, New Zealand and Sweden, for example, more than half the students enter this level for the first time at the age of 22 or after (Table C2.2). The proportion of older first-time entrants to tertiary-type A programmes may, among other factors, reflect the flexibility of these programmes and their suitability to students outside the typical or modal age cohort. It may also reflect a specific view of the value of work experience for higher education studies, which is characteristic of the Nordic countries and common in Australia, the Czech Republic, Hungary, New Zealand and Switzerland where a sizeable proportion of new entrants is much older than the typical age of entry. In Australia, New Zealand and the Nordic countries, more than 20% of first-time entrants are 28 years of age or older.

Box C2.1. Participation in tertiary education

The expectancy of tertiary education gives an overall measure of the amount of tertiary education undertaken by an age cohort rather than by individual participants. On average in OECD countries, a 17-year-old can expect to receive 2.8 years of tertiary education of which 2 years will, on average, be full-time. Expectancy of enrolment in tertiary-type A programmes (2.3 years) is far higher than that in tertiary-type B programmes (0.5 years).

Participation in tertiary education grew in all OECD countries between 1995 and 2003. In half of the OECD countries with available data, the number of students enrolled in tertiary education increased by over 30%, and in the Czech Republic, Greece, Hungary, Iceland and Poland, enrolment grew by 70, 89, 119, 83 and 161%, respectively. For more information, see *Education at a Glance 2004* (OECD, 2004c), Table C2.4. For a data update, see Table C2.3 (available on the Web at *http://dx.doi.org/10.1787/675381330517*).

Definitions and methodologies

Data for the school year 2002-2003 are based on the UOE data collection on education statistics that is administered annually by the OECD, and on the 2004 World Education Indicators Programme.

Table C2.1 shows the distribution of enrolled students in upper secondary education by programme orientation. Pre-vocational and vocational programmes include both school-based programmes and combined school- and work-based programmes that are recognised as part of the education system. Entirely work-based education and training that is not overseen by a formal education authority is not taken into account.

Table C2.2 shows, for all ages, the sum of net entry rates. The net entry rate of a specific age is obtained by dividing the number of first-time entrants of that age to each type of tertiary education by the total population in the corresponding age group. The sum of net entry rates is calculated by adding the rates for each year of age. The result represents the proportion of people in a synthetic age-cohort who enter tertiary education, irrespective of changes in population sizes and of differences between OECD countries in the typical entry age. Table C2.2 shows also the 20th, 50th and 80th percentiles of the age distribution of first-time entrants, *i.e.* the age below which 20%, 50% and 80% of first-time entrants are to be found.

New (first-time) entrants are students who are enrolling at the relevant level of education for the first time. Foreign students enrolling for the first time in a post-graduate programme are considered first-time entrants.

Not all OECD countries can distinguish between students entering a tertiary programme for the first time and those transferring between different levels of tertiary education or repeating or re-entering a level after an absence. Thus, first-time entry rates for each level of tertiary education cannot be added up to total tertiary-level entrance rate because it would result in double-counting entrants.

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Data for 1994-1995 are based on a special survey carried out in OECD countries in 2000. OECD countries were asked to report according to the ISCED-97 classification.

Further references

The majority of primary and secondary students are enrolled in public institutions in OECD countries. For more information, see *Education at a Glance 2004* (OECD, 2004c), Tables C2.3 and C2.4. For a data update, see Tables D5.1 and D5.2 in Indicator D5 and on the Web at *http://dx.doi.org/10.1787/675381330517*.

C2

Table C2.1. Upper secondary enrolment patterns, by programme orientation (2003)
Percentage of students in public and private institutions

		Programme orientation			
		General	Pre-vocational	Vocational	of which: combined school and work-based
		(1)	(2)	(3)	(4)
OECD COUNTRIES	Australia	35.8	a	64.2	x(3)
	Austria	20.8	7.4	71.8	34.7
	Belgium	29.7	a	70.3	3.4
	Canada	m	m	m	m
	Czech Republic	20.5	0.2	79.3	37.2
	Denmark	46.4	0.3	53.3	53.3
	Finland	41.2	a	58.8	10.9
	France	43.6	a	56.4	11.7
	Germany	37.8	a	62.2	49.0
	Greece	64.0	a	36.0	a
	Hungary	50.2	37.0	12.8	12.8
	Iceland	64.9	1.1	34.0	16.0
	Ireland	71.7	28.3	a	a
	Italy	36.2	37.8	26.0	a
	Japan	74.5	0.8	24.7	a
	Korea	69.3	a	30.7	a
	Luxembourg	35.3	a	64.7	13.2
	Mexico	89.1	a	10.9	a
	Netherlands	30.9	a	69.1	23.6
	New Zealand	100.0	a	a	a
	Norway	40.8	a	59.2	m
	Poland	45.7	a	54.3	a
	Portugal	71.5	0.4	28.1	m
	Slovak Republic	24.6	a	75.4	38.9
	Spain	62.8	n	37.2	4.3
	Sweden	47.1	a	52.9	a
	Switzerland	35.0	a	65.0	58.9
	Turkey	62.0	a	38.0	8.4
	United Kingdom	30.8	x(3)	69.2	a
	United States	100.0	a	a	a
	Country mean	***51.0***	***4.0***	***45.1***	***15.1***
PARTNER COUNTRIES	Argentina[1]	19.3	a	80.7	a
	Brazil[1]	95.3	a	4.7	a
	Chile	63.1	a	36.9	a
	China	95.9	m	4.1	m
	Egypt	36.1	a	63.9	m
	India	99.9	a	0.1	a
	Indonesia	64.7	a	35.3	m
	Israel	65.0	a	35.0	3.8
	Jamaica	99.5	a	0.5	a
	Jordan	75.1	5.3	19.6	a
	Malaysia[1]	85.1	a	14.9	m
	Paraguay[1]	79.6	a	20.4	a
	Peru[1]	100.0	a	a	a
	Philippines	100.0	a	a	a
	Russian Federation	67.4	a	32.6	m
	Thailand	70.6	a	29.4	a
	Tunisia	94.6	2.3	3.0	a
	Uruguay[1]	81.3	a	18.7	a

1. Year of reference 2002.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/675381330517

Table C2.2. Entry rates into tertiary education and age distribution of new entrants (2003)

Sum of net entry rates for each year of age, by gender and programme destination

		Tertiary-type B			Tertiary-type A					
		Net entry rates			Net entry rates			Age at:		
		M+F	Males	Females	M+F	Males	Females	20th percentile[1]	50th percentile[1]	80th percentile[1]
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD COUNTRIES	Australia	m	m	m	68	63	73	18.6	21.1	28.7
	Austria[2]	9	8	10	35	32	38	19.3	20.6	23.3
	Belgium	33	27	39	34	31	34	18.3	18.9	22.0
	Canada	m	m	m	m	m	m	m	m	m
	Czech Republic	9	7	12	33	31	35	19.6	20.7	27.3
	Denmark	11	12	10	53	42	65	21.1	22.8	27.0
	Finland	a	a	a	73	66	81	19.8	21.3	26.1
	France	34	25	44	39	31	46	18.4	19.4	21.5
	Germany[2]	16	11	21	36	35	37	20.0	21.4	24.2
	Greece	m	m	m	m	m	m	m	m	m
	Hungary	7	6	9	69	61	77	19.3	21.2	27.4
	Iceland	9	9	8	83	60	107	20.9	23.3	30.5
	Ireland[3]	17	17	16	41	37	46	18.1	18.9	19.9
	Italy[2]	1	1	1	54	47	60	19.2	19.8	<40
	Japan[4]	31	22	40	42	48	35	m	m	m
	Korea[4]	51	49	54	50	53	47	m	m	m
	Luxembourg	m	m	m	m	m	m	m	m	m
	Mexico	2	2	1	28	28	28	18.3	19.5	23.6
	Netherlands	1	1	1	52	48	55	18.4	19.8	23.3
	New Zealand	53	46	59	81	66	95	19.4	22.6	<40
	Norway	1	1	1	68	56	82	19.1	20.9	<40
	Poland[4]	1	n	1	70	x(4)	x(4)	m	m	m
	Portugal	m	m	m	m	m	m	m	m	m
	Slovak Republic	3	1	6	40	39	41	18.7	19.7	22.7
	Spain	21	20	22	46	39	54	18.4	19.2	22.5
	Sweden	7	7	6	80	64	97	20.4	22.9	<40
	Switzerland	17	19	15	38	39	36	20.1	21.8	27.3
	Turkey	24	30	18	23	26	20	18.5	19.9	23.4
	United Kingdom	30	26	34	48	45	52	18.4	19.4	24.9
	United States	x(4)	x(5)	x(6)	63	56	70	19.4	21.2	24.0
	Country mean	***16***	***14***	***17***	***53***	***47***	***57***	***19.2***	***20.8***	***24.9***
PARTNER COUNTRIES	Argentina[5]	41	26	55	62	55	69	19.0	20.9	28.3
	Chile	17	19	16	53	55	52	m	m	m
	Indonesia	6	7	5	15	17	13	18.9	19.7	20.7
	Israel	25	22	27	58	52	64	21.3	23.6	27.9
	Jordan	22	15	29	m	m	m	m	m	m
	Malaysia[5]	41	40	42	32	27	36	19.9	21.0	23.9
	Paraguay[5]	7	5	9	m	m	m	m	m	m
	Peru[5]	19	17	21	m	m	m	m	m	m
	Philippines	m	m	m	12	10	13	m	m	m
	Russian Federation	37	x(1)	x(1)	61	x(4)	x(4)	m	m	m
	Thailand	19	19	20	50	46	54	m	m	m
	Tunisia	m	m	m	m	m	m	m	m	m
	Uruguay[5]	23	8	39	32	24	41	18.4	19.9	25.0
	Zimbabwe	4	5	4	2	3	2	m	m	m

Note: Mismatches between the coverage of the population data and the student/graduate data mean that the participation/graduation rates for those countries that are net exporters of students may be underestimated, for instance Luxembourg, and those that are net importers may be overestimated.

1. Respectively, 20%, 50% and 80% of new entrants are below this age.
2. Entry rate for tertiary-type B programmes calculated as gross entry rate.
3. Full-time entrants only.
4. Entry rate for tertiary-type A and B programmes calculated as gross entry rate.
5. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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C2

Foreign students in tertiary education

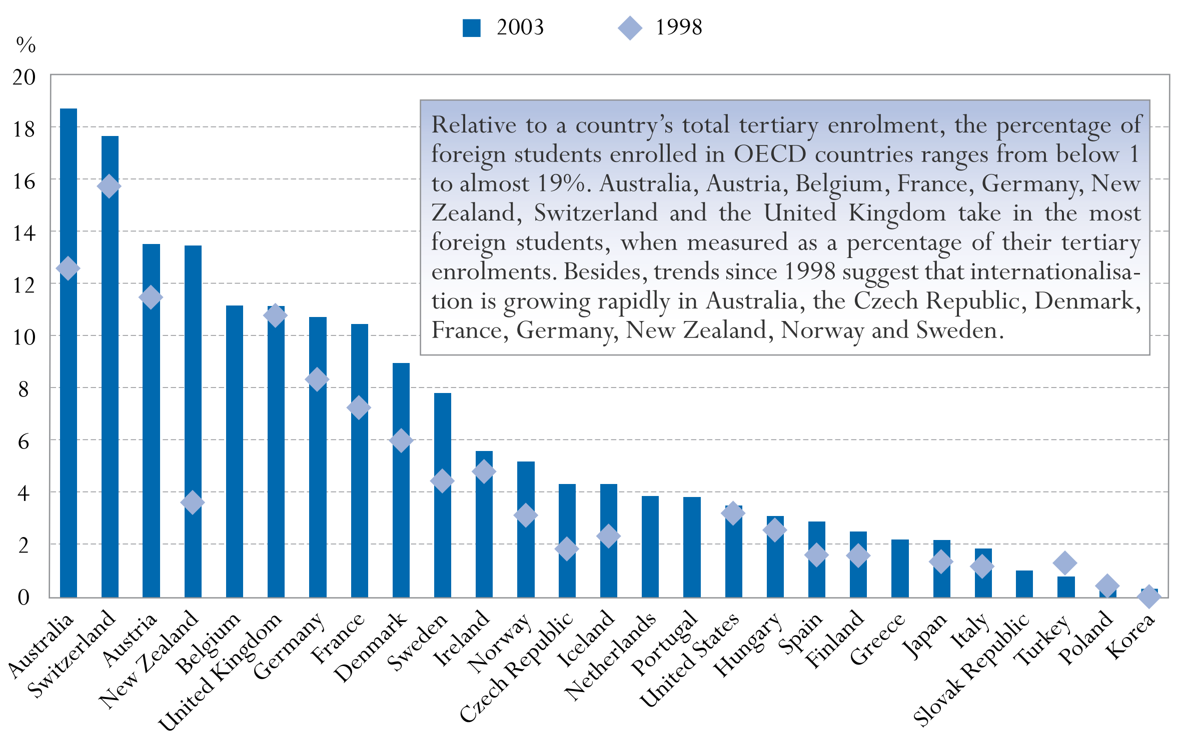
This indicator provides a picture of the internationalisation of tertiary education in OECD countries and of recent trends observed in these countries. It highlights the major destinations of foreign students and some of the factors underlying their choice of a country of study. In addition, the indicator looks at the distribution of foreign students by countries and regions of origin, the relative importance of internationalisation in countries of destination and the distribution of students enrolled outside of their country of citizenship by destination. The net balance of incoming and outgoing students and trade implications are also examined.

The proportion of foreign students in tertiary enrolments provides a good indication of the magnitude of internationalisation in different countries and key trends in this respect.

Key results

Chart C3.1. Percentage of foreign students in tertiary education (1998, 2003)

The chart shows the percentage of tertiary students enrolled who are not citizens of the country of study. Note that in some countries with stringent immigration and naturalisation policies, high percentages of foreign students reflect both incoming mobility of foreigners for the purpose of study as well as the tertiary participation of foreign/immigrant students residing in the country.



Countries are ranked in descending order of the percentage of foreign students in tertiary education.
Source: OECD. Table C3.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/501101611002

Other highlights of this indicator

- In 2003, 2.12 million tertiary students were enrolled outside their country of origin. This represented an 11.5% increase in total foreign student intakes reported to the OECD since the previous year.
- Australia, France, Germany, the United Kingdom and the United States receive 70% of all foreign students studying in the OECD area.
- In absolute numbers, students from France, Germany, Greece, Korea, Japan and Turkey represent the largest sources of intakes from OECD countries. Students from China, India and Southeast Asia comprise the largest numbers of foreign students from partner countries.
- In Finland, Spain and Switzerland, more than one in six foreign students are enrolled in highly theoretical advanced research programmes.
- As far as fields of education are concerned, 30% or more of foreign students in a country are enrolled in sciences or engineering in Australia, Finland, Germany, Sweden and the United States.
- The composition of the United States' intake of foreign students has changed quite significantly, with decreases of between 10 and 37% of students from the Gulf states, North African and certain Southeast Asian countries, and the Comoros. This has, however, been outweighed by large increases of students from China (47%) and India (12%). Students from the Gulf states and North African and certain Southeast Asian countries relocated towards new destinations in Europe (Denmark, France, Greece, Hungary, Ireland, Italy, the Slovak Republic and Sweden), the Middle East (Jordan) and Asia (India and the Philippines).

Policy contents

The international dimension of tertiary education receives great attention from multiple perspectives.

Internationalisation of tertiary education as a means to develop internationally minded citizens and workers

The general trend towards freely circulating capital, goods and services coupled with changes in the openness of labour markets have increased the demand for new kinds of educational provision in OECD countries. Governments as well as individuals are looking increasingly to higher education to play a role in broadening the horizons of students and allowing them to develop a deeper understanding of the multiplicity of languages, cultures and business methods in the world. One way for students to expand their knowledge of other societies and languages and hence to leverage their labour market prospects is to study in tertiary educational institutions in countries other than their own. Indeed, several OECD governments have set up schemes and policies to promote such mobility, especially so in the EU.

Economic returns to internationalisation of tertiary education

The internationalisation of tertiary education yields economic costs and benefits at the individual and macroeconomic levels.

For individuals, the returns of studying abroad depend to a large extent on sending countries' policies regarding financial aid to students going abroad for study and the policies of countries of destination on tuition fees and financial support for international students. The cost of living in countries of study and exchange rates also impact on the cost of international education. On the other side, the long-term returns of an international educational experience depend to a large extent on how international degrees are signalled and valued by local labour markets.

From the macroeconomic perspective, while the direct short-term monetary costs and benefits of international education are relatively easy to measure, the long-term social and economic outcomes are far more difficult to quantify.

International negotiations on trade liberalisation of services highlight the economic implications of the internationalisation of education services' provision. The trend towards greater internationalisation of education is likely to have a growing impact on countries' balances of payments, and some OECD countries already show signs of specialisation in education exports. In this perspective, it is worth noting that in addition to student mobility across borders, the cross-border electronic delivery of flexible educational programmes and campuses abroad are also relevant to the internationalisation and cross-border dimension of higher education, although no comparable data exist yet.

The internationalisation of higher education, however, has many more economic outcomes in addition to those reflected in the trade balance. The internationalisation of education can also be seen as an opportunity for smaller and/or less developed educational systems to improve the cost efficiency of their education provision. Indeed, training opportunities abroad may constitute a cost-efficient alternative to national provision, and allow countries to focus limited resources on educational programmes where economies of scale can be generated.

Internationalisation of tertiary education also yields costs and benefits at the level of institutions. From the perspective of institutions, foreign enrolments constrain the instructional settings and processes insofar as the curriculum and teaching methods may have to be adapted to a culturally and linguistically diverse student body. These constraints are, however, outweighed by the numerous benefits to host institutions. Indeed, foreign enrolments can help institutions to reach the critical mass needed to diversify the range of educational programmes offered, and may compensate for variations in domestic enrolment rates. They can also increase tertiary institutions' financial resources when foreign students bear the full cost of their education. A consequence may then be for institutions to have greater incentives in enrolling international students, thereby restricting access of domestic students. There is, however, limited evidence of such a phenomenon, with the exception of some prestigious, highly demanded programmes of elite institutions (OECD, 2004d).

The numbers and trends in students enrolled in other countries can provide some idea of the extent of internationalisation of tertiary education. In the future, it will also be important to develop ways to quantify and measure other components of cross-border education.

Evidence and explanations

Overall picture and trends in foreign student numbers

In 2003, 2.12 million tertiary students were enrolled outside their country of origin, of which 1.98 million (or 93%) studied in the OECD area. According to available data, this represents an 11.5% increase in total foreign enrolments since the previous year – or 219 000 additional individuals in absolute numbers.

Overall the number of foreign tertiary students enrolled in OECD and partner countries reporting data to the OECD has increased by 31% in the first three years of the new millennium. Looking at the OECD countries only allows comparisons to be made over a longer time span, and to identify trends over the past five years. Since 1998, the absolute number of foreign students reported in the OECD area has increased by nearly 50%, which amounts to a 8.3% annual increase on average (Table C3.6).

Major destinations of foreign students

In 2003, as in previous years, seven out of ten foreign students are attracted to a relatively small number of destinations. Indeed, only five countries enrol the vast majority of foreign students studying in the OECD area and in other partner countries reporting such data. The United States receives the most foreign students (in absolute terms) with 28% of the total of all foreign students, followed by the United Kingdom (12%), Germany (11%), France (10%) and Australia (9%). Altogether, these five major destinations account for 70% of all tertiary students pursuing their studies abroad (Chart C3.2).

Within these five top destinations, it is noteworthy that although all five countries have experienced an increase in absolute numbers of foreign student between 2002 and 2003, this increase has been marginal in the United States. As a result, the share of the United States in total foreign students reported to the OECD decreased by 2 percentage points between 2002 and 2003. The increase in the share of foreign students in France over the same period results in part from an improved coverage of the data on foreign students (see Indicator C3, *Education at a Glance 2004* [OECD, 2004c]).

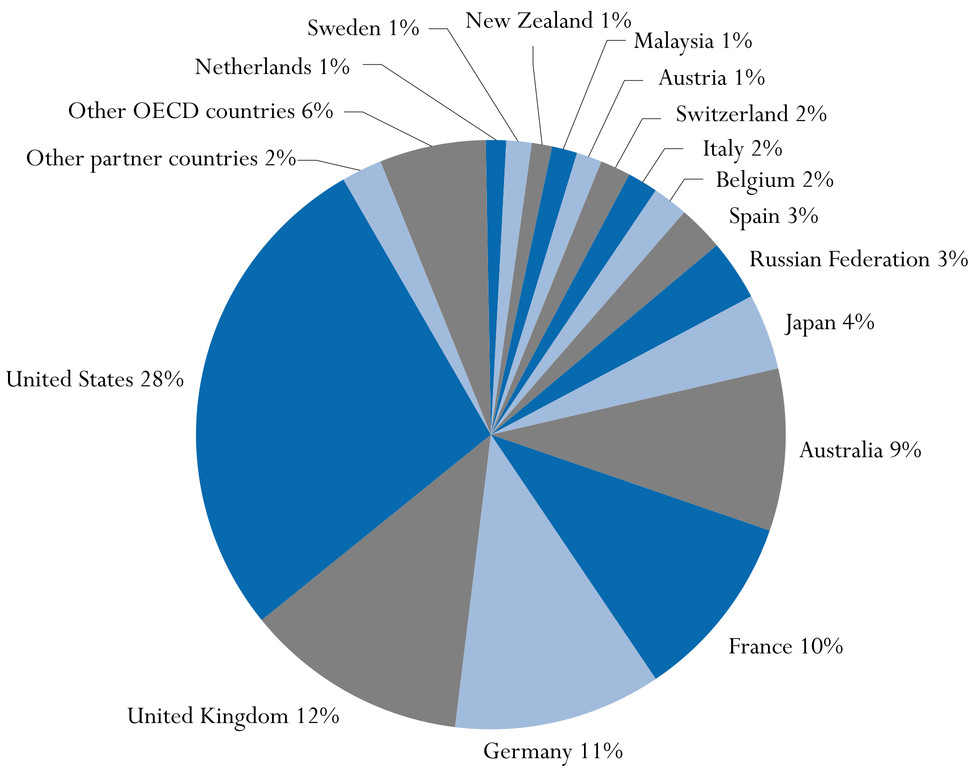
Besides these five major destinations, significant numbers of foreign students are also attracted to Japan (4%), the Russian Federation (3%) and Spain (3%) to pursue their studies. Among other destinations, Malaysia is also playing an increasing role in international education, with rapidly growing numbers of foreign students, mainly from China, India and neighbouring Asian countries (including Oman).

When interpreting the shares of Chart C3.2, it should be borne in mind that not all foreign students reported in this indicator came to their country of destination expressly with the intention to study.

Indeed, this indicator refers to foreign students as individuals who are not citizens of the country in which they study. This concept differs from that of student mobility. In most countries, it is not yet possible to distinguish between foreign students who are residents in the country as a result of immigration –

Chart C3.2. Distribution of foreign students by country of destination (2003)

Percentage of foreign tertiary students reported to the OECD who are enrolled in each country of destination



Source: OECD. Table C3.7 (available on the Web at *http://dx.doi.org/10.1787/501101611002*).

StatLink: http://dx.doi.org/10.1787/501101611002

by themselves or by their parents – and non-resident foreigners who came to the country expressly to pursue their education. This leads to an overestimation of the foreign student numbers in countries with comparatively low immigrants' naturalisation rates.

For example, Chart C3.2 indicates that Germany is a high-ranking destination for foreign students but the actual number of non-resident students registered in German tertiary education institutions accounts for only 72% of all foreign students in tertiary-type A programmes. This is because a significant number of resident foreigners – mainly children of migrant workers – are considered foreign for the purposes of this indicator, despite having grown up in Germany, holding permanent residence in this country and having obtained their higher education entrance qualification there. By contrast, data on the United States cover only non-resident foreign students.

In addition, the foreign student body comprises some distance-learning students who are not, strictly speaking, mobile students. This pattern of distance enrolments is fairly common in tertiary institutions of Australia and the United Kingdom (OECD, 2004d).

As a result, interpretations of the data in terms of student mobility need to be made cautiously (see Annex 3 at *www.oecd.org/edu/eag2005* for country-specific coverage and definitions of foreign students).

Language of instruction: a critical factor in the choice of a country of study

The language spoken and used in instruction is critical for selecting a foreign country in which to study. Therefore, countries whose language of instruction is widely spoken and read (*e.g.* English, French and German) dominate in the destinations of foreign students, be it in absolute or relative terms.

The dominance of English-speaking countries such as Australia, the United Kingdom and the United States (in absolute numbers) may be largely attributable to the fact that students intending to study abroad are most likely to have learnt English in their home country, and/or wish to improve their English language skills through immersion and study abroad. The rapid increase in foreign enrolments in Ireland (11%) and New Zealand (49%) between 2002 and 2003 can to some extent be attributed to similar linguistic considerations, other things being equal (see Indicator C3, *Education at a Glance 2004* [OECD, 2004c]).

Given this pattern, an increasing number of institutions in non-English-speaking countries now offer courses in English to overcome their linguistic disadvantage in attracting foreign students. Box C3.1 shows that this trend is especially noticeable in Nordic countries. This comparatively new feature of educational provision may explain the comparatively large increase in the proportion of foreign students enrolled in Iceland, Norway and Sweden between 1998 and 2003, with an overall increase in the proportion of foreign students enrolled in the tertiary programmes of these countries ranging between 65 and 81% (Table C3.1).

Box C3.1. OECD countries offering tertiary programmes in English (2003)

Use of English language in instruction	Countries
All or nearly all education programmes in the country are offered in English	Australia, Ireland, New Zealand, United Kingdom, United States
Many education programmes in the country are offered in English	Canada, Finland (about 400 programmes), Netherlands (over 1 000 programmes), Sweden (about 200 master programmes)
Some education programmes in the country are offered in English	Czech Republic (about 50 programmes), Denmark (about 150 programmes), France (about 250 programmes), Germany (about 300 programmes), Hungary (about 160 programmes), Iceland (about 270 courses), Japan (about 80 programmes), Korea (about 10 English-only universities), Norway (about 100 programmes), Poland (about 55 universities and tertiary institutions), Slovak Republic, Switzerland, Turkey (about 45 universities)
None or nearly no education programmes in the country are offered in English	Austria, Belgium, Greece, Italy, Luxembourg, Mexico, Portugal, Spain

Note: Assessing the extent to which a country offers a few or many programmes in English is subjective. In doing so, the size of the countries of destination has been taken into account, hence the classification of France and Germany among countries with comparatively few English programmes, despite having more English programmes than Sweden in absolute terms.
Source: OECD, compiled from brochures for prospective international students by OAD (Austria), CHES and NARIC (Czech Republic), Cirius (Denmark), CIMO (Finland), EduFrance (France), DAAD (Germany), Campus Hungary (Hungary), University of Iceland (Iceland), JPSS (Japan), NIIED (Korea), NUFFIC (Netherlands), SIU (Norway), CRASP (Poland), Swedish Institute (Sweden) and Middle-East Technical University (Turkey).

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Impact of tuition fees and cost of living on foreign student destinations

Tuition fees and cost of living are equally important factors for prospective international students when deciding in which country to study.

Box C3.2. Level of tuition fees in public universities for international students compared to domestic students (2003)

Tuition fee structure	Countries
Higher tuition fees for international students than for domestic students	Australia, Austria[1], Belgium[1], Canada, Ireland[1], Netherlands[1], New Zealand, Slovak Republic, United Kingdom[1], United States[2]
Same tuition fees for international and domestic students	France, Greece, Hungary, Iceland, Italy, Japan, Korea, Mexico[3], Portugal, Spain, Switzerland[3]
No tuition fees for either international or domestic students	Czech Republic, Denmark, Finland, Germany, Norway, Poland, Sweden

1. For non-European Union or non-European Economic Area students.
2. In public institutions in the United States, foreign students pay the same fees as domestic out-of-state students. However since most out-of-state students enrolled by public institutions are foreigners, it can be considered that foreign students pay higher tuition fees than most domestic students in practice.
3. A few institutions charge higher tuition fees for international students.
Source: Updated table. See OECD (2004d).

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Box C3.2 shows that in countries such as the Czech Republic, Denmark, Finland, Germany, Norway, Poland and Sweden, tuition fees do not exist for domestic and foreign students alike. This cost pattern associated with the existence of programmes in English probably explains part of the rapid growth in the proportion of foreigners enrolled in these countries between 1998 and 2003 (Table C3.1). However, high unit costs in tertiary education at no fee incur a high monetary burden for the countries of destination (see Table B1.1). As a result, Denmark has recently adopted tuition fees for international students and students not from the EU; similar debates are currently underway in Finland, Norway and Sweden.

Indeed, the international trade benefits of international education are all the more important as countries charge the full cost of education to their foreign students. Several governments in the Asia-Pacific region have actually made international education an explicit part of their socio-economic development strategies and have initiated policies to attract foreign students in their tertiary education institutions, often on a revenue-generating or at least self-financing basis. Australia, New Zealand and the United Kingdom have successfully adopted differentiated tuition fees for foreigners, highlighting that tuition costs do not necessarily discourage prospective foreign students as long as the quality of education provided and its likely returns for individuals make the investment worthwhile. However, in choosing between similar educational opportunities, cost considerations may play a role, especially for students originating from developing countries.

Other important factors guiding the destinations of foreign students relate to the academic reputation of particular institutions or programmes, the flexibility of programmes with respect to counting time spent abroad towards degree requirements, the limitations of higher education provision in the home country, restrictive university admission policies at home, geographical trade or historical links between countries, future job opportunities, cultural aspirations, and government policies to facilitate credit transfer between home and host institutions. The transparency and flexibility of courses and degree requirements also count.

Trends in market shares of international tertiary education

Chart C3.3 compares the shares of the OECD countries on the international tertiary education market in 1998 and five years later in 2003. Due to differences in the number of countries reporting data to the OECD for these two periods, this comparison is limited to a theoretical market comprising only the destinations for which both 1998 and 2003 data are available. Although this limited group of countries only provides an imperfect approximation of the global market for international education, Chart C3.2 shows that the main countries of destination are covered hence the bias resulting from the exclusion of some destinations is likely to be rather limited.

Chart C3.3 underlines trends on the international tertiary education market. In particular, it highlights the strong progression of some destinations such as Australia, Japan and New Zealand. The market shares of the Czech Republic, Spain and Sweden have also progressed over the five-year period, although to a more limited extent. By contrast, the positions of the United Kingdom and the United States and to a lesser extent Austria, Germany and Turkey on the international education market have declined over the past five years.

These trends underline the different dynamics of international education in OECD countries, and reflect different emphases of internationalisation policies, ranging from pro-active marketing policies in the Asia-Pacific region to a more passive approach in the traditionally dominant United States.

Distribution of foreign students by countries of origin

Increasing importance of Asia among regions of origin

Similar to last year, the increase in the overall number of foreign students between 2002 and 2003 has been associated with a change in the geographic composition of the foreign students' intake.

In 2003, Asian students form the largest group of foreign students enrolled in reporting OECD and partner countries, with 46% of the total. The Asian group is followed by Europeans (29%), in particular citizens of the European Union (17%). Students from Africa account for 11% of all foreign students, while those from North America account for only 6%. Finally, students from Latin America represent less than 4% of the total. Altogether, 36% of foreign students enrolled in reporting OECD and partner countries are citizens of an OECD country (Table C3.2).

Between 2002 and 2003, the share of Asian students among all foreign students pursued its upward trend, increasing by 0.5 percentage points. By contrast, the share of foreign students of European origin dropped from 30 to 29% of the total. This trend suggests that the demand for training abroad increased faster in Asia than in Europe (see Indicator C3, *Education at a Glance 2004* [OECD, 2004c]).

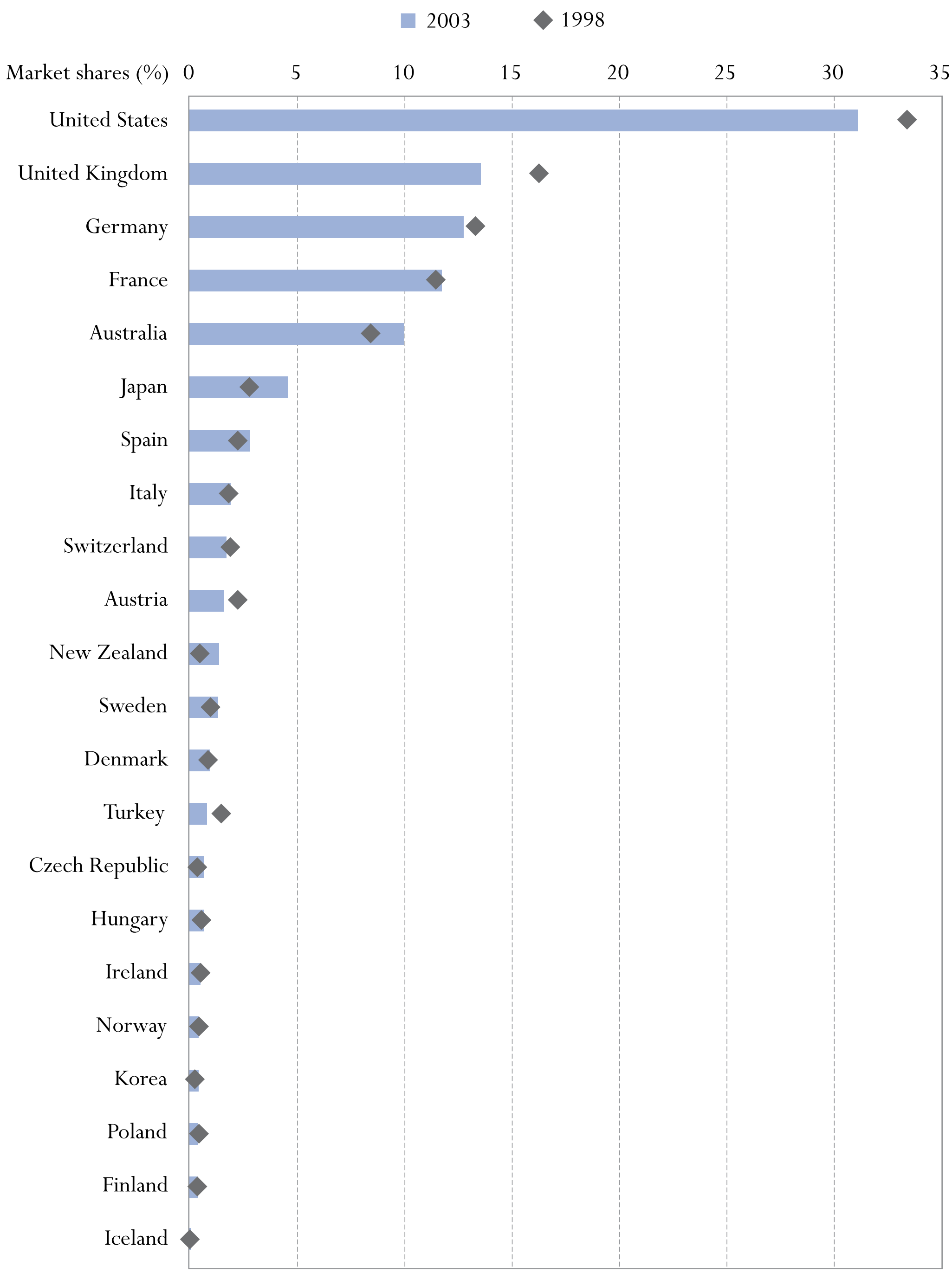
Main countries of origin of foreign students

The predominance of students from Asia and Europe among foreign intakes is also noticeable when focusing on OECD countries. Students from Korea and Japan comprise the largest groups of all foreign students, at 4.2 and 3% of the total respectively, followed by students from Germany (2.9%), France (2.5%), Turkey and Greece (2.2% each). Together, these countries account for 17% of all foreign students enrolled in reporting OECD and partner countries (Table C3.2).

With respect to foreign students originating from partner countries, students from China represent by far the largest group, with 12.8% of all foreign students (not including an additional 1.6% from Hong Kong, China). The proportion of Chinese students in total foreign enrolments reported has increased dramatically over last year's share of 9.6%. Students from China are followed by those from India (5%), Morocco (2.5%), Malaysia (1.9%) and Indonesia (1.7%). Another 2.3% of all foreign

Chart C3.3. Trends in international education market shares (1998, 2003)

Percentage of all foreign tertiary students enrolled in a selection of OECD countries, by destination



Note: For the sake of comparability over time, the market considered in this chart covers only the OECD countries for which both 1998 and 2003 data are available. As a result, the market shares for 2003 are different from those presented in Chart C3.2.
Countries are ranked in descending order of the 2003 market shares.
Source: OECD. Table C3.7 (available on the Web at *http://dx.doi.org/10.1787/501101611002*).
StatLink: http://dx.doi.org/10.1787/501101611002

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students originate from Singapore and Thailand in Southeast Asia (see Table C3.7, available on the Web at *http://dx.doi.org/10.1787/501101611002*).

Impact of the events of 11 September 2001 on foreign students' numbers and destinations

In the aftermath of the events of 11 September 2001 in New York City and Washington, D.C., the United States adopted the Border Security and Visa Entry Reform Act which affects the conditions of entry for international students. This new legislation has tightened entry conditions through rigorous background checks, and the rules covering the granting of visas are more conservative than before. This new legislation has generated a debate on the impact of this new immigration legislation on foreign students' applications and enrolments and on the composition the foreign student body by countries of origin. The OECD 2003 data makes it possible to examine the impact of these events, since foreign students enrolled in the United States during the 2002-2003 academic year applied for visas after the attacks and the subsequent adoption of the new legislation in May 2002. Furthermore, OECD data allows the examination of the full consequences of these events, not only for the United States' intake of foreign students, but also with respect to the relocation of foreign students towards alternative countries of destination.

First, it is noteworthy that the number of foreign students enrolled in the United States in 2003 is actually higher than it was in 2002. This increase has however been modest – only 0.6% – in comparison with both other major destinations and previous annual growth rates in the United States.

Notwithstanding this modest overall growth, changes in foreign enrolments show decreases in the number of foreign students enrolled in the United States of more than 10% between 2002 and 2003 for a number of countries of origin. Among these, the enrolments in the United States for students from many Gulf states, North African and certain Southeast Asian countries, and the Comoros has decreased, most notably Brunei Darussalam (by 37%), the Comoros (30%), Kuwait, Saudi Arabia and Bahrain (25% each), Libya (21%), Tunisia (17%), the United Arab Emirates (16%), Yemen and Iraq (14% each), Oman and Syria (13% each), Malaysia and Egypt (11% each) and Indonesia, Jordan and Algeria (10% each). Obviously, these trends cannot be solely attributed to the tightening of immigration conditions as suggested by similar evolutions in other countries in Africa (Botswana, Burundi, Congo, Guinea-Bissau, Malawi and Rwanda), in Europe (Cyprus, Finland, Greece, Iceland, Malta, Norway and Spain), and in Asia (Laos and Thailand). Other factors behind these trends may be changing preferences of prospective foreign students, the development of new tertiary education opportunities at home or in nearby countries, or economic difficulties and an unfavourable exchange rate in the country of origin of students that increases the cost of education in the United States.

Overall, despite the drop in foreign students from the above countries, the intake in United States of foreign students has increased slightly, thanks to a strong rise in the enrolment of students from China (47%) and India (12%).

Besides the impact of the events of 11 September 2001 on foreign students' numbers and composition in the United States, it is also interesting to explore to what extent students with a lower propensity to study in the United States in 2003 have enrolled in greater numbers in alternative countries of destination. The comparison between 2002 and 2003 of enrolments from the above countries in reporting OECD and partner countries suggests the existence of such a phenomenon. Indeed, students from the traditionally Muslim countries listed above have enrolled in greater numbers in Denmark (up by 68%), Italy (62%) and Greece (48%), as well as to a lesser extent in France (increase of 25%), Ireland (23%), the Slovak Republic (22%), Sweden (18%) and Hungary (12%). Their numbers have also increased dramatically in some non-OECD partner countries, in particular in the Philippines (158%, mainly attributed to Indonesian students), Jordan (where enrolments from neighbouring Egypt, Irak and Yemen more than doubled in 2003), and to a lesser extent in India (33%, mostly from Malaysia). Other countries of destination have registered important increases in enrolments from specific countries of origin, *e.g.* students from Bahrain, Kuwait and Oman in Australia (45, 43 and 54% growth respectively), students from Malaysia in Ireland (28%) and students from Bahrain, Yemen and Syria in the United Kingdom (44, 55 and 23% respectively).

Foreign student intakes as a proportion of total enrolments

The foregoing analysis has focused on the distribution and trends in the absolute numbers of foreign students by countries of destination and origin. One way to take the size of the different tertiary education systems into account is to examine the intake of foreign tertiary students in a particular country as well as the number of its citizens studying abroad relative to its tertiary enrolments.

Wide variations in the percentage of foreign students enrolled in OECD countries

Australia and Switzerland receive the largest proportion of foreign students relative to their total tertiary enrolment, with nearly one in five tertiary students enrolled in the country being foreign (19% in Australia and 18% in Switzerland). Foreign enrolments are also significant in relative terms in Austria, Belgium, France, Germany, New Zealand and the United Kingdom, with foreign students representing 10 to 14% of tertiary domestic enrolments. By contrast, the proportion of foreign students in tertiary enrolment remains below 2% in Italy, Korea, Poland, the Slovak Republic and Turkey (Chart C3.1).

In comparison with OECD countries, partner countries receive marginal numbers of foreign students relative to their size, with the exception of Jordan and Malaysia where foreign students reach about 8 and 4% of enrolments respectively (Table C3.1).

Trends show the emergence of new players on the global education market

Compared to 1998, several OECD countries have experienced a dramatic increase in the proportion of foreign students enrolled in their education system. This upward trend is especially noticeable in the Czech Republic, Iceland, Italy, Japan, Korea, New Zealand, Norway, Spain and Sweden, with indexes of change of around 150 or above (Table C3.1).

This trend of growing internationalisation of enrolments is also visible in several of the top receiving countries relative to their size, namely Australia (with an index of change of 149), France (143), Germany (132) and most significantly New Zealand. In the latter country, the proportion of foreign students in domestic enrolments rocketed from 3.7 to 13.5% (index of 368), thereby positioning New Zealand among the key players in the international education market. While there has been a significant increase in New Zealand, the size of its role in the overall international market is still relatively small. By contrast, the proportion of foreign students enrolled in Switzerland, the United Kingdom or the United States has not changed dramatically over the past five years.

Citizens enrolled studying abroad relative to total enrolments

It is also possible to estimate the extent to which students study abroad by comparing the number of students of a particular citizenship studying abroad with domestic tertiary enrolments. The measure used here only covers students leaving their country to study in OECD and partner countries that report data. It does not cover students who study abroad in countries other than those reporting their intakes in column 1 of Table C3.1. The indicator is thus likely to underestimate the proportion of students enrolled abroad. Another potential source of underestimation may be that the indicator is calculated on a full-year basis whereas many students study abroad for less than a full academic year. For example, the majority of students from the United States who study abroad do so for half a year or less.

Wide variations in the percentage of students receiving their education abroad

The ratio of students studying abroad to total enrolment in the country of origin varies widely, from below 2% in the United States (0.2%), Australia (0.6%), Mexico (0.9%), the United Kingdom (1.2%), Poland (1.3%), Spain (1.5%) and Japan (1.6%) to as much as 22.3% in Iceland and 211.6% in Luxembourg (column 6 in Table C3.1). The latter case is specific, however, because Luxembourg only offers post-secondary non-tertiary programmes or the first year at the tertiary level. Since students in Luxembourg must continue their studies abroad, a large number of students are enrolled outside the country relative to those enrolled domestically.

In partner countries, Zimbabwe, Malaysia and Tunisia have the largest proportion of students enrolled abroad relative to their domestic enrolments, at 11.6, 6.5 and 4.7%, respectively.

Net balance of international student exchange

Although the United States receives over 550 000 foreign students more than the total number of US students going abroad, other countries have much larger net intakes of students when the size of their tertiary systems is taken into account. In Australia, Switzerland and the United Kingdom, the net intake is between 5.2 and 8% of their tertiary enrolment (column 7 in Table C3.1). Conversely, Greece, Iceland, Ireland, Norway and the Slovak Republic show the highest relative net outflow of students, between 4 and 19% of total tertiary enrolments. The balances of student intakes and outflows take only students to and from reporting OECD and partner countries into account. The absolute balance for countries that accept a significant number of students from non-reporting countries or that send students to non-reporting countries may differ from these figures.

Net intake of foreign students as an indication of the economic benefits of internationalisation

The tuition fee revenues and most importantly the domestic consumption of foreign students in their country of study both appear in the balance of current accounts as exports of educational services. The intake of foreign students therefore yields an economic gain whose magnitude is highest when a full-fee tuition policy for international students is in place. By contrast in countries where tuition fees charged to foreign students are below the cost of education provision, the net gain depends on the extent of foreign students' domestic consumption. In top receiving countries like Australia and New Zealand, exports of educational services ranked third in terms of services exports in 2003.

In addition to the direct benefits of internationalised tertiary education, a higher client base at tertiary level may result in indirect gains whereby net receiving countries generate economies of scale in tertiary education and can therefore diversify their range of programmes and/or reduce their unit costs. This can be particularly important for host countries with a relatively small population (*e.g.* Switzerland).

The presence of a potential foreign client base also compels higher education institutions to offer quality programmes that stand out among competitors, which may contribute to the development of a highly reactive, client-driven higher education, especially so in institutions where foreign students represent a high proportion of enrolment.

Finally, the intake of foreign students can to some extent involve technology transfers (especially in advanced research programmes), foster intercultural contacts and help to build social networks for the future.

Profile of the foreign intake in different destinations

Foreign students' intake by level and type of tertiary education highlights specialisations

In some countries a comparatively large proportion of foreign students is enrolled in tertiary-type B programmes. This is the case in Belgium (43.8%), New Zealand (32.6%), Korea (25.1%) and Greece (23.4%) among OECD countries and to an even larger extent in Malaysia (52.4%), outside of the OECD (Table C3.4).

By contrast, other countries see a large proportion of their foreign students enrolling in highly theoretical advanced research programmes. This is most notably the case in Spain (21.9%), Switzerland (18.4%) and Finland (17.8%), suggesting that these countries offer attractive advanced programmes to prospective foreign graduate students. This concentration can also be observed – although to a more limited extent – in Sweden (12.7%), the Czech Republic (12.3%), Korea (11.1%) and the United Kingdom (9.4%). All of these countries are likely to benefit from larger contributions of these high level foreign students to domestic research and development. In addition, this specialisation can also generate higher tuition revenue per foreign student in the countries charging full tuition costs to foreign students (Table C3.4).

Foreign students' intake by field of education underlines magnet centres

Table C3.5 shows that sciences attract more than one in five foreign students in Australia (21.2%), but less than one in fifty in Japan (1.7%) and Poland (1.8%). Other countries where a large proportion of foreign students is enrolled in sciences are the United States (19.5%), Norway (19.1%), New Zealand (16.1%), Germany (15.7%), Switzerland and the United Kingdom (14.3% each), and Sweden (12.9%).

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When considering scientific disciplines in a broader sense – *i.e.* adding engineering, manufacturing and construction programmes to those in sciences – the picture changes slightly. Finland now receives the largest proportion of its foreign students' intake in these fields, at 39.3%. The proportion of foreign students enrolled in sciences or engineering is also high in the United States (37%), Australia (33.2%), Germany (32.9%), Sweden (31.9%), Switzerland (29.6%) and the United Kingdom (29.4%). By contrast, few foreign students are enrolled in sciences and engineering in Poland, Belgium, Japan and Iceland (Chart C3.4).

It is noteworthy that most countries enrolling large proportions of their foreign students in the sciences and engineering fields deliver programmes in the English language. In the case of Germany, the large proportion of foreign students in scientific disciplines may also reflect the strong tradition of the country in these fields.

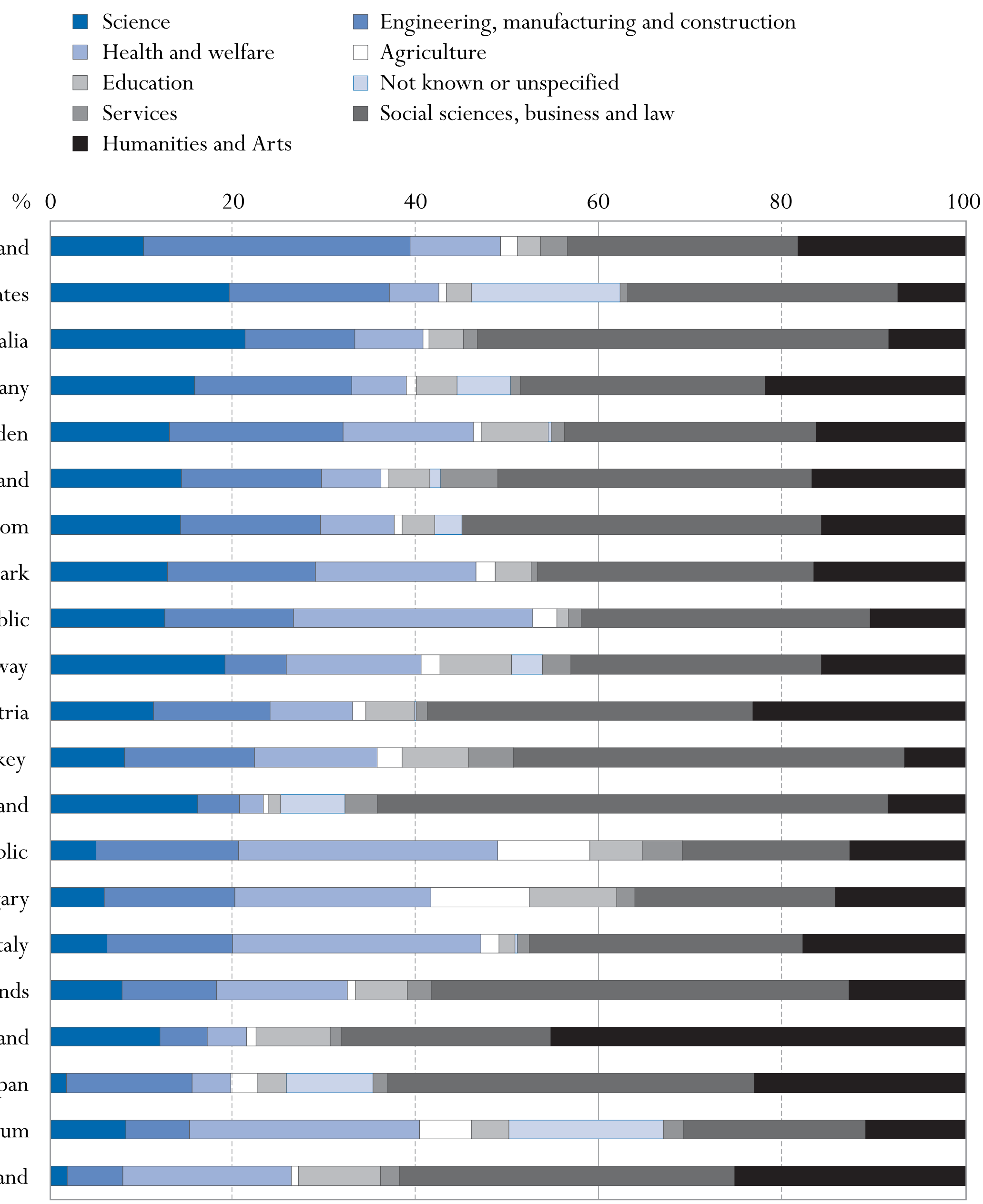
By contrast, non-Anglophone countries tend to enrol a higher proportion of their foreign students in the humanities and arts field, not surprisingly given the nature of these programmes' content. Indeed, humanities and arts are favoured by 45.3% of foreign students in Iceland, and by about one in four foreign students in Poland (25.2%), Austria (23.3%), Japan (23.1%) and Germany (21.9%).

Social sciences, business and law programmes also attract foreign students in large numbers. In Australia, the Netherlands and New Zealand, these fields of education enrol about half of all foreign students (at 45, 45.7 and 55.8% respectively). The proportion of foreign students enrolled in social sciences, business and law is also high in Turkey (42.8%) and Japan (40.1%).

The situation of health and welfare educational programmes is fairly specific since it depends to a large extent on national policies of medical degree recognition. Health and welfare programmes attract large proportions of foreign students in EU and acceding countries, most notably in the Slovak Republic (28.3% of foreign students), Italy (27.1%), the Czech Republic (26.1%), Belgium (25.2%) and Hungary (21.5%).

Chart C3.4. Distribution of foreign students by field of education (2003)

Percentage of foreign tertiary students who are enrolled in different fields of education



Countries are ranked in descending order of the proportion of foreign students enrolled in sciences, engineering, manufacturing and construction.
Source: OECD. Table C3.5. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

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This pattern is clearly related to the existence of quotas in many European countries restricting the domestic educational programmes in the medical field. This increases the demand for training abroad in other EU countries to bypass these quotas, and to take advantage of EU countries' automatic recognition of medical degrees under the European Medical Directive.

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Overall, the concentration of foreign students in specific disciplines in each country of destination highlights magnet programmes which attract students from abroad in large numbers. This attraction results from many factors on both the supply and demand side.

On the supply side, some destinations offer centres of excellence or traditional expertise able to attract students from other countries in large numbers (*e.g.* Finland and Germany in the sciences and engineering fields). In the humanities and arts, some destinations also have a natural monopoly in the offer of some programmes. This is especially obvious for linguistic or cultural studies (*e.g.* Germany, Austria, Iceland and Japan).

On the demand side, the characteristics of foreign students can explain their concentration in some fields of education. For instance, students in scientific disciplines are usually less likely to be fluent in many different languages, which may explain their stronger propensity to study in countries offering education programmes in English, and their lesser propensity to enrol in Japan. Similarly, the demand of many Asian students for business training may explain the strong concentration of foreign students in social sciences, business and law in neighbouring Australia and New Zealand. Last, EU provisions for the recognition of medical degrees clearly drive the concentration of foreign students in health and welfare programmes in EU countries.

Definitions and methodologies

Data sources, definitions and reference period

Data on foreign students are based on the UOE data collection on education statistics that is administered annually by the UNESCO, OECD and Eurostat.

Students are classified as foreign students if they are not citizens of the country in which the data are collected. While pragmatic and operational, this classification yields some inconsistencies as a result of differing national policies regarding the naturalisation of immigrants and the inability of several countries to report foreign students net of foreigners who are permanent resident in their country of study. Indeed, countries that naturalise immigrants stringently overestimate the size of their foreign student body compared to more lenient countries. Bilateral comparisons of the data on foreign students should therefore be made with caution since countries differ in the definition and coverage of their foreign students. In particular, some countries only report foreigners who have come to their country expressly for the purpose of pursuing their education, while other countries report both resident and non-resident foreign students (see Annex 3 at *www.oecd.org/edu/eag2005* for country-specific definitions and coverage).

Unless mentioned otherwise, data refer to the academic year 2002-2003.

Methodologies

Data on foreign students are obtained from enrolments in their countries of destination. The method of obtaining data on foreign students is therefore the same as that used for collecting data on total enrolments, *i.e.* records of regularly enrolled students in an educational programme are used. Domestic and foreign students are usually counted on a specific day or period of the year. This procedure allows to measure the proportion of foreign enrolments in an education system, but the actual number of individuals involved in foreign exchange may be much higher, since many students study abroad for less than a full academic year, or participate in exchange programmes that do not require enrolment (*e.g.* inter-university exchange or advanced research short-term mobility).

Furthermore, since data on foreign students are obtained from tertiary enrolments in their country of destination, the data therefore relate to students that are coming in rather than to students going abroad. Countries of destination covered by this indicator are all of the OECD countries (with the exception of Canada, Luxembourg and Mexico) and the partner countries Argentina, Brazil, Chile, India, Indonesia, Jordan, Malaysia, the Philippines, the Russian Federation, Thailand and Tunisia. This indicator does not include students studying in OECD countries that did not report foreign students nor in partner countries other than those mentioned above. All statements on students studying abroad therefore underestimate the real number of citizens studying abroad (Tables C3.1 and C3.3), especially so for countries where numerous citizens study in countries that do not report their foreign students to the OECD.

Table C3.1. shows foreign enrolment as well as citizens studying abroad as a proportion of the total tertiary enrolment. Total tertiary enrolment, used as a denominator, comprises all persons studying in the country (including citizens and all foreign students) but excludes all students from that country who study abroad.

The index of intensity of foreign students' intake shown in Table C3.1 compares the proportions of foreign students in total enrolments with the average order of magnitude for OECD countries. This makes it possible to refine the scale of foreign student intakes based on the size of the tertiary education system. An index higher (lower) than 1 reflects a higher (lower) intake as a proportion of enrolments compared with the OECD mean. Alternatively, this index can also be interpreted in terms of a comparison of the weight of a country in OECD foreign student intakes with its weight in OECD enrolments. If so, an index higher (lower) than 1 reflects a higher (lower) foreign student intake than the country's weight in OECD enrolments would suggest.

Tables C3.2, C3.4 and C3.5 show the distribution of foreign students enrolled in an education system according to their country of origin in Table C3.2, according to their level and type of tertiary education in Table C3.4, and according to the field of education in which they are enrolled for Table C3.5.

Table C3.3 shows the distribution of citizens of a given country enrolled abroad according to their country of destination (or country of study). As mentioned above, the total number of students enrolled abroad used as a denominator covers only students enrolled in other countries reporting data. Therefore, the resulting proportions can be biased and overestimated for countries where large numbers of students study in non-reporting countries.

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Table C3.6 shows trends in the absolute number of foreign students reported by OECD and partner countries, and the indexes of change between 2002 and 2003 and since 1998 and 2000. It should be noted that the figures are based on the number of foreign students enrolled in countries reporting data to the OECD. The coverage of these reporting countries has evolved over time, therefore the figures are not strictly comparable and caution should be taken in interpreting these trends.

Lastly, Table C3.7 (available on the Web at *http://dx.doi.org/10.1787/501101611002*) provides the matrix of foreign students numbers by country of origin and country of destination.

Further references

The expected years of tertiary education is biased upwards in countries with a large proportion of foreign students in tertiary enrolments. This pattern should be borne in mind when interpreting trends or differences between countries in expected years of tertiary education (see Indicators C1 and C2).

Similarly, the relative importance of foreign students in the education system impacts on tertiary graduation rates and may artificially increase them in some fields or levels of education (see Indicator A3).

Foreign students enrolled in a country different from their own are only one aspect of internationalisation of tertiary education. New forms of cross-border education have emerged in the last decade, including the mobility of educational programmes and institutions across borders. Yet, cross-border post-secondary education has developed quite differently and in response to different rationales in different world regions. For a detailed analysis of these issues, as well as trade and policy implications of internationalisation of tertiary education see *Internationalisation and Trade in Higher Education: Opportunities and Challenges* (OECD, 2004d).

The importance of human capital and education to economic growth and broader societal outcomes has been emphasized in recent research (see Indicator A10). As a result, worldwide competition for highly skilled workers is currently taking place. As part of this phenomenon, foreign students are increasingly regarded as a potential source of highly skilled immigrants by some OECD countries. Indeed foreign students master their country of study's language, are familiar with its culture and their diplomas are known to local employers, thereby making them directly employable on the labour market of their country of destination. Several OECD countries have therefore softened their immigration policies to encourage the temporary or permanent immigration of some foreign students, which may entail some extent of human capital losses for countries of origin, as discussed in *Trends in International Migration – 2004 Edition* (OECD, 2005a) and "Academic Mobility and Immigration" (Tremblay, 2005).

Table C3.1. Exchange of students in tertiary education (2003)

Foreign students enrolled as a percentage of all students (foreign plus domestic) and exchange of students as a percentage of total tertiary enrolment

Reading the first column: 13.5% of all students in tertiary education in Austria are foreign students (from throughout the world).
Reading the fourth column: Australia enrols 2.9 times more foreign tertiary students than the average OECD country, while Finland's proportion of foreign students is 0.4 times the OECD average.
Reading the fifth column: Foreign tertiary students from other countries that report foreign students represent 9.2% of all tertiary students in Austria.
Reading the sixth column: 5.5% of all tertiary students in Austria study in other countries that report foreign students.
Column 7 represents the difference between column 5 and column 6.

		Foreign students from throughout the world as a percentage of all tertiary enrolment (foreign and domestic students)			Index of intensity of foreign students' intake relative to OECD reference area[1]	Exchange of students with other reporting countries[2] (as a percentage of total tertiary enrolment)			Foreign enrolment by gender	
		2003	1998	Index of change (1998=100)		Intake of students from other reporting countries	Citizens enrolled abroad in other reporting countries	Net intake of foreign students from other reporting countries	% Males	% Females
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD COUNTRIES	Australia	18.7	12.6	149	2.9	8.6	0.6	8.0	53.1	46.9
	Austria	13.5	11.5	118	2.1	9.2	5.5	3.8	48.1	51.9
	Belgium	11.2	m	m	1.8	5.7	3.1	2.7	m	m
	Canada	m	2.8	m	m	m	m	m	m	m
	Czech Republic	4.3	1.9	229	0.7	2.8	2.4	0.4	51.4	48.6
	Denmark	9.0	6.0	149	1.4	3.4	3.3	0.1	45.9	54.1
	Finland	2.5	1.7	146	0.4	0.9	3.5	-2.6	53.5	46.5
	France	10.5	7.3	143	1.6	2.5	2.5	n	51.3	48.7
	Germany[3]	10.7	8.2	132	1.7	5.3	2.8	2.5	50.7	49.3
	Greece	2.2	m	m	0.3	0.1	8.4	-8.3	m	m
	Hungary	3.1	2.6	120	0.5	1.2	2.1	-0.9	53.8	46.2
	Iceland	4.3	2.4	181	0.7	3.3	22.3	-19.0	34.7	65.3
	Ireland	5.6	4.8	116	0.9	4.0	8.7	-4.7	49.7	50.3
	Italy	1.9	1.2	152	0.3	0.8	2.2	-1.4	43.7	56.3
	Japan	2.2	1.4	154	0.3	0.7	1.6	-0.9	51.9	48.1
	Korea	0.2	0.1	253	n	0.1	2.8	-2.7	52.9	47.1
	Luxembourg	m	30.5	m	m	m	211.6	m	m	m
	Mexico	m	m	m	m	m	0.9	m	m	m
	Netherlands[3]	3.9	m	m	0.6	2.5	2.4	0.1	46.1	53.9
	New Zealand	13.5	3.7	368	2.1	3.5	3.5	n	50.1	49.9
	Norway	5.2	3.2	165	0.8	2.2	7.1	-4.9	43.1	56.9
	Poland[3, 4]	0.4	0.5	84	0.1	0.1	1.3	-1.2	45.9	54.0
	Portugal	3.9	m	m	0.6	1.2	3.0	-1.8	49.9	50.1
	Slovak Republic	1.0	m	m	0.2	0.3	9.1	-8.8	61.7	38.3
	Spain	2.9	1.7	175	0.5	1.9	1.5	0.4	44.0	56.0
	Sweden	7.8	4.5	175	1.2	4.6	3.6	1.0	43.4	56.6
	Switzerland	17.7	15.9	111	2.8	12.4	4.7	7.6	55.2	44.8
	Turkey[3]	0.8	1.3	62	0.1	0.1	2.5	-2.4	69.3	30.7
	United Kingdom	11.2	10.8	103	1.8	6.5	1.2	5.2	51.7	48.3
	United States	3.5	3.2	109	0.6	1.7	0.2	1.5	m	m
	Country mean	***6.4***	***5.8***[5]		***1.0***	***3.2***	***4.0***	***-1.1***	***50.0***	***50.0***
PARTNER COUNTRIES	Argentina[3, 6, 7, 8]	0.2	m	m	n	n	0.4	-0.4	m	m
	Brazil[7, 8]	n	m	m	n	n	0.5	-0.5	m	m
	Chile	0.9	m	m	0.1	0.5	1.1	-0.6	m	m
	China	m	m	m	m	m	1.8	m	m	m
	Egypt	m	m	m	m	m	0.3	m	m	m
	India	0.1	m	m	n	n	0.9	-0.9	m	m
	Indonesia	n	m	m	n	n	1.0	-1.0	m	m
	Israel	m	m	m	m	m	3.3	m	m	m
	Jordan[4]	8.5	m	m	1.3	0.5	3.0	-2.5	m	m
	Malaysia[7]	4.4	m	m	0.7	1.2	6.5	-5.3	m	m
	Paraguay	m	m	m	m	m	0.8	m	m	m
	Peru	m	m	m	m	m	1.0	m	m	m
	Philippines	0.2	m	m	n	0.1	0.3	-0.2	m	m
	Russian Federation[3]	0.8	m	m	0.1	m	0.3	m	m	m
	Thailand[4, 8]	0.2	m	m	n	n	1.0	-1.0	m	m
	Tunisia	0.9	m	m	0.1	m	4.7	m	m	m
	Uruguay	m	m	m	m	m	1.6	m	m	m
	Zimbabwe	m	m	m	m	m	11.6	m	m	m

1. The index compares the numbers of foreign students as a proportion of domestic enrolments with the average order of magnitude for OECD countries. This makes it possible to refine the scale of foreign student intakes based on the size of the tertiary education system. An index higher (lower) than 1 reflects a higher (lower) intake as a proportion of enrolments compared with the OECD mean.
2. Only those OECD and partner countries which report the intake of foreign tertiary students in their system are considered to derive the net balance of student exchange. Therefore data in column 5 are not comparable to those reported in column 1.
3. Excluding advanced research programmes.
4. Excluding tertiary-type B programmes.
5. Country mean excludes Luxembourg.
6. Excluding tertiary-type A programmes.
7. Year of reference 2002.
8. The number of foreign students is significantly underestimated. See Annex 3 for details *(www.oecd.org/edu/eag2005)*.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/501101611002

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Table C3.2. Foreign students in tertiary education, by country of origin (2003)

Number of foreign students enrolled in tertiary education from a given country of origin as a percentage of all foreign students in the country of destination, based on head counts

The table shows for each country the proportion of foreign students in tertiary education that have citizenship of a given country of origin.
Reading the third column: 27.3% of Belgium foreign tertiary students are French citizens, 6.6% of Belgium foreign students are Dutch citizens, etc.
Reading the first row: 0.2% of foreign tertiary students in Denmark are Australian citizens, 0.5% of foreign tertiary students in Ireland are Australian citizens, etc.

		Countries of destination																	
	Countries of origin	Australia	Austria	Belgium	Czech Republic[1]	Denmark	Finland	France	Germany[2]	Greece	Hungary	Iceland	Ireland	Italy	Japan	Korea	Netherlands[2]	New Zealand	Norway
OECD COUNTRIES	Australia	a	0.1	0.1	n	0.2	0.4	0.1	0.1	n	n	0.3	0.5	0.1	0.4	0.3	0.2	a	0.3
	Austria	0.1	a	0.1	0.1	0.2	0.4	0.2	2.9	n	0.2	2.1	0.3	0.5	n	n	0.6	0.1	0.3
	Belgium	0.1	0.2	a	n	0.1	0.4	1.2	0.4	n	n	0.5	0.6	0.4	n	0.1	9.7	n	0.3
	Canada	1.7	0.1	0.2	0.2	0.4	0.9	0.6	0.2	n	0.5	2.2	2.6	0.3	0.3	1.2	0.3	0.9	0.6
	Czech Republic	0.1	1.4	0.1	a	0.1	0.6	0.3	1.0	0.1	0.2	1.0	0.2	0.4	n	n	0.3	n	0.4
	Denmark	0.1	0.2	0.1	n	a	0.6	0.2	0.3	n	n	10.9	0.2	0.1	n	n	0.4	0.2	10.5
	Finland	0.1	0.5	0.1	n	0.7	a	0.2	0.4	n	0.1	6.9	1.0	0.2	n	n	0.7	0.1	3.6
	France	0.3	1.3	27.3	0.1	1.0	1.7	a	2.7	n	0.1	4.5	4.9	1.8	0.3	0.1	1.6	0.4	1.4
	Germany	1.0	18.2	1.1	0.5	3.9	4.0	3.1	a	0.6	4.2	10.3	4.6	3.3	0.3	0.4	25.6	2.0	5.4
	Greece	n	0.8	1.2	1.5	0.2	0.5	1.1	3.2	a	1.7	0.5	0.5	22.1	n	n	0.7	n	0.2
	Hungary	n	4.1	0.2	0.1	0.3	1.5	0.3	1.3	0.1	a	0.3	0.1	0.4	0.1	0.1	0.5	n	0.4
	Iceland	n	0.1	n	n	6.0	0.4	n	0.1	n	0.1	a	n	n	n	n	0.2	n	3.0
	Ireland	0.3	0.1	0.1	0.1	0.3	0.4	0.3	0.2	n	n	0.3	a	n	n	n	0.3	n	0.4
	Italy	0.2	19.8	5.2	n	0.6	1.5	2.1	3.3	0.2	0.1	3.6	1.5	a	0.1	0.1	1.6	n	0.7
	Japan	1.8	0.8	0.4	0.1	0.3	1.3	1.1	1.0	n	0.1	1.0	0.5	0.4	a	12.0	0.3	2.1	0.3
	Korea	2.3	1.0	0.1	0.1	0.1	0.4	1.2	2.3	n	0.1	0.2	0.1	0.3	22.0	a	0.3	3.7	0.1
	Luxembourg	n	0.9	3.1	n	n	n	0.8	0.8	n	n	n	0.1	0.1	n	n	0.1	n	n
	Mexico	0.2	0.2	0.2	n	0.3	0.3	0.7	0.3	n	n	0.5	0.1	0.3	0.1	0.1	0.2	0.2	0.4
	Netherlands	0.2	0.3	6.6	n	0.6	0.7	0.3	0.8	n	n	1.4	0.6	0.3	0.1	n	a	0.1	2.0
	New Zealand	2.6	n	n	n	0.1	0.1	n	n	n	n	n	0.1	n	0.1	0.3	n	a	0.1
	Norway	1.9	0.2	0.1	0.6	8.4	0.9	0.2	0.3	n	5.3	6.0	1.8	0.2	n	n	0.5	0.8	a
	Poland	0.2	3.8	0.7	0.9	1.8	1.2	1.4	5.7	0.3	1.2	2.1	0.5	2.2	0.1	0.1	1.3	n	1.2
	Portugal	n	0.2	1.5	0.3	0.2	0.3	1.3	0.8	n	n	n	0.1	0.2	n	n	0.7	0.1	0.3
	Slovak Republic	0.1	4.5	0.1	55.6	0.1	0.3	0.2	0.6	n	20.0	0.3	0.1	0.4	n	n	0.3	n	0.2
	Spain	0.1	1.0	2.5	n	0.8	1.4	1.9	2.5	n	n	3.3	2.4	0.8	0.1	0.1	3.6	n	0.7
	Sweden	0.7	0.7	0.1	0.4	4.6	7.6	0.4	0.3	n	0.8	8.4	0.7	0.3	0.1	0.1	0.5	0.5	13.4
	Switzerland	0.2	0.8	0.3	n	0.3	0.6	0.6	0.8	n	0.1	0.9	0.2	2.6	n	n	0.3	0.1	0.4
	Turkey	0.2	5.9	0.8	0.1	1.0	0.7	1.1	11.3	0.4	0.3	0.7	n	0.4	0.1	0.3	3.8	n	0.5
	United Kingdom	3.1	0.6	0.6	1.9	2.3	2.2	1.4	0.9	0.1	0.2	3.1	20.9	0.5	0.4	0.1	2.9	0.9	4.2
	United States	2.2	1.0	0.5	0.5	1.4	2.3	1.4	1.4	0.2	1.7	6.9	19.1	0.8	1.4	5.2	1.4	3.7	3.6
PARTNER COUNTRIES	Argentina	0.1	0.1	0.1	n	0.1	0.2	0.4	0.2	n	n	0.2	n	0.9	0.1	0.4	0.1	0.1	0.1
	Brazil	0.2	0.1	0.4	n	0.3	0.3	0.8	0.7	n	n	0.3	0.1	1.3	0.5	0.2	0.3	0.1	0.4
	Chile	0.1	0.1	0.2	n	0.2	0.2	0.3	0.2	n	n	n	n	0.3	n	0.1	0.1	0.2	0.8
	China	12.5	1.7	2.5	0.1	5.8	15.0	4.8	8.4	0.1	0.6	1.7	6.3	0.6	59.7	51.3	6.7	62.5	3.8
	Egypt	0.1	0.4	0.1	0.1	0.1	0.2	0.4	0.5	0.3	0.1	n	0.1	0.3	0.3	0.1	0.1	n	0.1
	India	6.6	0.2	0.4	0.3	0.8	1.0	0.3	1.4	n	0.5	0.2	2.9	0.6	0.3	1.1	0.4	4.6	1.6
	Indonesia	7.0	0.1	0.2	n	0.1	0.4	0.1	1.0	n	n	n	0.1	n	1.6	0.9	3.4	1.2	0.2
	Israel	0.2	0.1	0.1	0.7	0.3	0.3	0.2	0.4	0.2	5.4	0.2	0.1	2.5	n	n	0.6	0.1	0.3
	Jamaica	n	n	n	n	n	n	n	n	n	0.1	n	n	n	n	n	n	n	n
	Jordan	0.2	0.1	n	0.2	0.1	0.2	0.1	0.4	0.5	0.2	n	0.2	0.4	n	n	n	n	0.1
	Malaysia	10.3	n	n	n	n	0.2	0.1	0.1	n	n	n	6.5	n	1.9	1.2	0.1	3.2	0.1
	Paraguay	n	n	n	0.1	n	n	n	n	n	n	n	n	n	0.1	0.5	n	n	n
	Peru	n	0.2	0.2	0.1	0.1	0.3	0.2	0.4	n	n	n	0.1	1.4	0.2	0.1	0.1	n	0.4
	Philippines	0.5	0.1	0.1	n	0.2	0.4	n	0.1	n	n	0.7	n	0.1	0.5	1.6	0.2	0.3	0.2
	Russian Federation	0.4	0.9	0.7	2.4	1.7	14.7	1.1	4.2	0.8	1.9	3.6	0.7	1.0	0.4	2.0	1.3	0.4	6.6
	Sri Lanka	1.6	n	n	n	0.1	0.1	0.1	0.1	n	n	n	0.1	0.1	0.5	0.2	n	0.5	0.8
	Thailand	3.0	0.1	0.1	n	0.2	0.2	0.3	0.3	n	n	n	n	0.1	1.6	0.4	0.1	1.3	0.2
	Tunisia	n	0.1	0.4	n	n	0.1	4.2	0.7	n	n	n	n	0.4	n	n	0.1	n	0.1
	Uruguay	n	n	n	n	n	n	n	n	n	n	n	n	0.1	n	n	n	n	n
	Zimbabwe	0.5	n	n	n	0.1	0.1	n	n	n	n	n	0.1	n	n	n	n	0.1	0.2
	Total from Africa	***3.7***	***2.0***	***17.5***	***2.0***	***3.6***	***11.3***	***48.1***	***9.4***	***1.9***	***1.6***	***1.6***	***5.8***	***8.6***	***0.9***	***1.1***	***12.0***	***0.7***	***10.2***
	Total from Asia	***71.4***	***13.3***	***7.3***	***7.4***	***13.6***	***26.1***	***15.7***	***35.4***	***85.1***	***14.2***	***5.2***	***27.1***	***11.1***	***92.9***	***87.0***	***21.3***	***84.2***	***15.8***
	Total from Europe	***9.5***	***82.0***	***54.1***	***70.4***	***42.2***	***55.0***	***23.1***	***49.8***	***12.2***	***81.8***	***80.5***	***43.8***	***71.3***	***2.7***	***3.4***	***57.5***	***6.0***	***66.5***
	of which, from EU countries	***2.9***	***44.7***	***49.5***	***7.5***	***15.4***	***21.5***	***14.4***	***19.6***	***1.1***	***7.6***	***55.9***	***38.3***	***31.5***	***1.5***	***0.9***	***49.0***	***4.5***	***48.8***
	Total from North America	***4.2***	***1.4***	***1.2***	***0.9***	***2.3***	***4.0***	***3.5***	***2.4***	***0.3***	***2.3***	***10.3***	***22.3***	***2.2***	***1.9***	***6.5***	***2.1***	***4.8***	***4.9***
	Total from Oceania	***3.9***	***0.1***	***0.1***	***n***	***0.3***	***0.5***	***0.2***	***0.2***	***n***	***n***	***0.3***	***0.7***	***0.1***	***0.6***	***0.6***	***0.3***	***3.9***	***0.4***
	Total from Latin America	***1.0***	***0.9***	***1.7***	***0.6***	***1.1***	***1.3***	***2.9***	***2.1***	***0.1***	***0.1***	***1.7***	***0.3***	***6.1***	***1.0***	***1.4***	***6.1***	***0.5***	***2.2***
	Not specified	***6.3***	***0.4***	***18.1***	***1.5***	***36.9***	***1.8***	***6.6***	***0.7***	***0.5***	***a***	***0.3***	***a***	***0.4***	***n***	***a***	***0.7***	***n***	***34.1***
	Total from all countries of origin	***100***	***100***	***100***	***100***	***100***	***100***	***100***	***100***	***100***	***100***	***100***	***100***	***100***	***100***	***100***	***100***	***100***	***100***

Note: x indicates that the data are included in the totals for Africa [x(Af)], Asia [x(As)], Europe [x(Eu)], North America [x(NA)], Oceania [x(Oc)], Latin America [x(LA)] or not specified country of origin [x(ns)].

1. The distribution by country of citizenship is based on partial coverage of foreign students. See Annex 3 for details *(www.oecd.org/edu/eag2005)*.
2. Excluding advanced research programmes.
3. Excluding tertiary-type B programmes.
4. Excluding tertiary-type A programmes.
5. Year of reference 2002.
6. The number of foreign students is significantly underestimated. See Annex 3 for details *(www.oecd.org/edu/eag2005)*.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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C3

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Table C3.2. (continued) Foreign students in tertiary education, by country of origin (2003)

Number of foreign students enrolled in tertiary education from a given country of origin as a percentage of all foreign students in the country of destination, based on head counts

The table shows for each country the proportion of foreign students in tertiary education that have citizenship of a given country of origin.
Reading the third column: 27.3% of Belgium foreign tertiary students are French citizens, 6.6% of Belgium foreign students are Dutch citizens, etc.
Reading the first row: 0.2% of foreign tertiary students in Denmark are Australian citizens, 0.5% of foreign tertiary students in Ireland are Australian citizens, etc.

Countries of destination

	Countries of origin	Poland[2,3]	Portugal	Slovak Republic	Spain	Sweden	Switzerland	Turkey[1,2]	United Kingdom	United States	Argentina[2,4,5]	Brazil[1,5,6]	Chile	India	Indonesia	Jordan[3]	Malaysia[5]	Philippines	Russian Federation[2]	Thailand[3,6]	Total all reporting destinations
OECD COUNTRIES	Australia	0.1	0.2	n	0.1	1.0	0.2	0.2	0.5	0.5	x(Oc)	0.1	1.1	0.1	5.6	n	0.1	0.4	x(Oc)	0.2	0.3
	Austria	0.2	0.1	0.2	1.4	1.5	2.6	0.1	0.5	0.2	x(Eu)	0.1	0.1	0.1	n	n	n	n	x(Eu)	n	0.6
	Belgium	0.1	0.5	0.1	2.7	0.8	0.9	n	0.9	0.1	x(Eu)	0.1	0.2	0.1	0.3	n	n	0.1	x(Eu)	n	0.5
	Canada	1.7	1.3	0.7	0.1	1.4	0.7	n	1.3	4.5	x(NA)	0.2	1.2	1.0	n	0.3	n	1.2	x(NA)	0.3	1.8
	Czech Republic	3.2	n	19.1	0.5	0.7	0.5	n	0.2	0.2	x(Eu)	m	0.1	n	n	n	n	n	x(Eu)	n	0.3
	Denmark	0.1	n	n	0.6	3.9	0.3	n	0.7	0.2	x(Eu)	m	0.3	n	0.3	n	0.1	n	x(Eu)	0.3	0.3
	Finland	0.1	0.1	n	0.9	15.9	0.3	n	0.9	0.1	x(Eu)	m	0.2	n	0.5	n	0.2	n	x(Eu)	n	0.5
	France	0.4	7.6	0.1	11.0	5.1	10.8	0.1	4.9	1.2	x(Eu)	1.0	3.0	0.2	1.9	0.1	0.1	0.1	x(Eu)	0.5	2.5
	Germany	1.9	2.0	0.5	9.6	9.5	20.8	0.7	5.2	1.6	x(Eu)	1.2	3.6	0.2	4.0	0.1	0.1	0.2	x(Eu)	0.3	2.9
	Greece	0.3	0.1	7.2	0.7	1.1	0.8	7.7	8.8	0.4	x(Eu)	m	n	0.1	n	n	n	n	x(Eu)	n	2.2
	Hungary	0.9	0.1	1.0	0.3	0.7	0.6	n	0.2	0.2	x(Eu)	m	n	n	0.8	n	n	n	x(Eu)	n	0.4
	Iceland	n	n	n	0.1	1.7	n	n	0.1	0.1	x(Eu)	m	n	n	n	n	n	n	x(Eu)	n	0.1
	Ireland	n	0.1	n	0.6	0.5	0.1	n	4.8	0.2	x(Eu)	m	n	n	n	n	n	n	x(Eu)	n	0.7
	Italy	0.3	1.1	0.1	11.8	2.7	13.5	0.1	2.2	0.6	x(Eu)	1.2	0.8	n	n	n	n	n	x(Eu)	n	2.0
	Japan	0.2	0.1	0.2	0.2	0.8	0.8	0.1	2.2	7.8	x(As)	0.8	0.4	0.7	41.1	n	0.4	2.0	x(As)	2.1	3.0
	Korea	0.3	n	0.1	0.1	0.3	0.5	0.2	1.0	8.8	x(As)	0.2	0.6	1.4	21.2	n	1.2	23.1	x(As)	1.9	4.2
	Luxembourg	n	0.3	n	n	n	0.8	n	0.3	n	x(Eu)	m	n	n	n	n	n	n	x(Eu)	n	0.3
	Mexico	0.1	0.1	n	4.1	0.6	0.3	n	0.6	2.2	x(NA)	1.0	2.6	n	n	n	n	n	x(NA)	n	1.0
	Netherlands	n	0.3	n	1.8	2.5	0.9	n	0.9	0.3	x(Eu)	0.3	0.3	n	1.9	n	n	0.1	x(Eu)	0.4	0.6
	New Zealand	n	n	n	n	0.1	n	n	0.2	0.2	x(Oc)	m	0.3	0.1	1.6	n	n	0.1	x(Oc)	0.1	0.3
	Norway	5.4	0.1	0.9	0.5	5.5	0.4	n	1.4	0.3	x(Eu)	m	0.4	n	n	n	n	0.1	x(Eu)	0.3	0.7
	Poland	a	0.5	1.4	1.4	3.3	1.4	n	0.3	0.5	x(Eu)	m	0.1	0.2	n	n	n	n	x(Eu)	n	1.2
	Portugal	0.1	a	n	4.1	0.6	1.7	n	0.9	0.2	x(Eu)	1.9	n	n	n	n	n	0.1	x(Eu)	n	0.6
	Slovak Republic	2.4	n	a	0.2	0.2	0.5	n	0.1	0.1	x(Eu)	m	n	n	n	n	n	n	x(Eu)	n	0.7
	Spain	0.2	3.1	0.1	a	3.5	4.8	n	2.9	0.6	x(Eu)	0.6	2.6	0.1	n	0.1	n	0.1	x(Eu)	n	1.3
	Sweden	1.3	0.1	0.2	1.0	a	0.7	n	1.4	0.6	x(Eu)	m	1.5	n	0.5	n	n	0.1	x(Eu)	0.3	0.7
	Switzerland	0.1	0.4	0.2	0.5	1.0	a	n	0.5	0.3	x(Eu)	m	0.4	n	n	n	n	n	x(Eu)	n	0.4
	Turkey	0.1	n	0.1	n	0.6	2.0	a	0.6	2.0	x(As)	m	n	0.1	1.9	0.3	0.2	0.2	x(As)	0.7	2.2
	United Kingdom	0.3	0.6	0.2	4.2	3.3	1.0	0.7	a	1.4	x(Eu)	0.2	1.1	0.7	3.2	n	0.2	1.0	x(Eu)	0.6	1.3
	United States	4.7	3.2	0.4	1.1	3.7	1.2	0.1	5.3	a	x(NA)	0.6	21.3	3.2	6.9	0.9	0.1	15.5	x(NA)	3.4	1.7
PARTNER COUNTRIES	Argentina	n	0.2	0.1	4.0	0.2	0.4	n	0.1	0.6	a	6.9	8.0	n	n	n	n	n	x(LA)	n	0.4
	Brazil	0.4	11.4	0.1	2.6	0.4	0.7	n	0.4	1.4	5.5	a	3.2	0.1	n	0.1	n	n	x(LA)	n	0.9
	Chile	n	n	0.1	2.4	1.1	0.3	n	0.1	0.3	21.8	1.8	a	n	n	n	n	n	x(LA)	n	0.3
	China	0.5	0.3	0.1	0.5	3.4	2.1	0.7	12.0	15.8	x(As)	0.3	1.5	0.2	0.5	0.1	39.1	22.9	x(As)	23.1	12.8
	Egypt	n	n	1.2	0.1	0.2	0.2	0.2	0.3	0.4	x(Af)	m	n	n	n	0.9	0.1	n	x(Af)	n	0.3
	India	0.4	0.1	0.3	0.1	1.2	0.8	n	4.1	12.7	x(As)	0.1	0.1	a	0.3	n	3.5	3.9	x(As)	2.5	5.0
	Indonesia	0.1	n	0.1	n	0.2	0.1	n	0.4	1.8	x(As)	0.1	0.1	0.7	a	0.3	17.1	5.5	x(As)	0.6	1.7
	Israel	0.6	n	6.7	0.2	0.1	0.2	0.2	0.5	0.6	x(As)	m	0.2	0.1	n	6.7	n	n	x(As)	0.1	0.5
	Jamaica	n	n	n	n	n	n	n	0.3	0.8	x(NA)	m	0.1	0.2	n	n	n	n	x(NA)	n	0.3
	Jordan	0.5	n	0.7	0.1	0.1	0.1	1.1	0.3	0.4	x(As)	m	n	0.5	0.3	a	0.5	0.1	x(As)	n	0.3
	Malaysia	n	n	n	n	n	n	n	3.8	1.1	x(As)	m	n	10.2	n	2.5	a	0.4	x(As)	1.4	1.9
	Paraguay	n	n	0.1	0.1	n	n	n	n	0.1	11.8	1.3	0.9	n	n	n	n	n	x(LA)	n	0.1
	Peru	n	0.1	0.2	2.6	0.3	0.5	n	0.1	0.6	10.5	6.1	13.9	n	n	n	n	n	x(LA)	n	0.4
	Philippines	0.1	n	n	0.1	0.1	0.1	n	0.2	0.6	x(As)	m	n	n	0.5	0.2	0.5	a	x(As)	0.9	0.3
	Russian Federation	4.5	0.2	1.9	0.4	2.5	1.5	4.6	0.6	1.1	x(Eu)	0.3	0.1	0.1	n	0.3	0.1	n	a	0.5	1.3
	Sri Lanka	n	n	n	n	0.2	0.1	n	0.7	0.4	x(As)	m	n	5.1	n	n	0.8	0.2	x(As)	0.4	0.4
	Thailand	n	0.1	0.1	n	0.4	0.1	n	1.0	1.7	x(As)	m	n	3.8	2.1	0.4	2.7	3.0	x(As)	a	1.1
	Tunisia	0.1	n	n	0.1	n	0.8	n	n	0.1	x(Af)	m	n	n	n	0.1	n	n	x(Af)	n	0.6
	Uruguay	n	n	n	0.4	0.1	0.1	n	n	0.1	15.2	2.1	1.2	n	n	n	n	n	x(LA)	n	0.1
	Zimbabwe	n	0.1	0.1	n	n	n	n	1.1	0.4	x(Af)	m	n	0.1	n	n	0.1	n	x(Af)	n	0.3
	Total from Africa	*3.5*	*57.0*	*8.0*	*8.7*	*3.0*	*6.8*	*2.4*	*8.3*	*6.9*	*x(Af)*	*2.8*	*0.2*	*24.5*	*0.8*	*4.0*	*8.7*	*3.3*	*x(ns)*	*0.4*	*11.2*
	Total from Asia	*14.8*	*2.5*	*27.0*	*2.4*	*13.1*	*9.1*	*45.2*	*40.8*	*62.8*	*2.1*	*2.1*	*3.2*	*57.5*	*70.6*	*92.8*	*86.9*	*76.2*	*41.9*	*74.6*	*45.8*
	Total from Europe	*74.2*	*18.1*	*63.2*	*58.2*	*73.6*	*77.7*	*32.9*	*40.3*	*13.1*	*6.1*	*7.8*	*15.4*	*1.8*	*13.5*	*1.4*	*1.9*	*2.3*	*22.6*	*3.3*	*28.8*
	of which, from EU countries	*5.5*	*16.0*	*8.6*	*50.5*	*50.7*	*60.1*	*9.4*	*35.3*	*7.7*	*x(Eu)*	*6.6*	*13.9*	*1.3*	*12.5*	*0.5*	*0.7*	*2.0*	*x(Eu)*	*2.3*	*16.9*
	Total from North America	*6.5*	*4.8*	*1.0*	*8.0*	*6.2*	*2.6*	*0.2*	*8.5*	*10.4*	*x(NA)*	*5.7*	*33.3*	*4.4*	*6.9*	*1.6*	*0.2*	*16.8*	*x(ns)*	*3.8*	*5.9*
	Total from Oceania	*0.1*	*0.2*	*n*	*0.1*	*1.1*	*0.2*	*0.2*	*0.8*	*0.8*	*x(Oc)*	*0.1*	*1.3*	*0.5*	*8.2*	*n*	*0.2*	*1.2*	*x(ns)*	*0.3*	*0.8*
	Total from Latin America	*0.8*	*15.6*	*0.8*	*22.6*	*2.6*	*3.4*	*0.1*	*1.0*	*6.0*	*88.6*	*25.9*	*46.6*	*0.1*	*n*	*0.1*	*n*	*0.1*	*x(ns)*	*n*	*3.7*
	Not specified	*0.1*	*1.7*	*a*	*n*	*27.6*	*0.2*	*a*	*0.3*	*n*	*3.3*	*55.6*	*a*	*11.1*	*a*	*0.1*	*2.0*	*n*	*35.5*	*17.6*	*4.0*
	Total from all countries of origin	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*

Note: x indicates that the data are included in the totals for Africa [x(Af)], Asia [x(As)], Europe [x(Eu)], North America [x(NA)], Oceania [x(Oc)], Latin America [x(LA)] or not specified country of origin [x(ns)].

1. The distribution by country of citizenship is based on partial coverage of foreign students. See Annex 3 for details *(www.oecd.org/edu/eag2005)*.
2. Excluding advanced research programmes.
3. Excluding tertiary-type B programmes.
4. Excluding tertiary-type A programmes.
5. Year of reference 2002.
6. The number of foreign students is significantly underestimated. See Annex 3 for details *(www.oecd.org/edu/eag2005)*.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table C3.3. Citizens studying abroad in tertiary education, by country of destination (2003)

Number of students enrolled in tertiary education in a given country of destination as a percentage of all students enrolled abroad, based on head counts

The table shows for each country the proportion of students studying in tertiary education abroad that study in a given country of destination.
Reading the second column: 6.5% of Czech tertiary students enrolled abroad study in Austria, 9.1% of German tertiary students enrolled abroad study in Austria, etc.
Reading the first row: 4.1% of Australian tertiary students enrolled abroad study in France, 23.2% of Australian tertiary students enrolled abroad study in the United Kingdom, etc.

	Countries of destination																		
	Countries of origin	Australia	Austria	Belgium	Czech Republic[1]	Denmark	Finland	France	Germany[2]	Greece	Hungary	Iceland	Ireland	Italy	Japan	Korea	Netherlands[2]	New Zealand	Norway
OECD COUNTRIES	Australia	a	0.4	0.5	n	0.7	0.5	4.1	5.0	0.1	0.1	n	0.9	0.7	5.7	0.4	0.8	a	0.4
	Austria	1.9	a	0.4	0.1	0.2	0.3	3.8	54.5	n	0.2	0.1	0.2	1.4	0.3	n	1.0	0.2	0.2
	Belgium	0.9	0.6	a	n	0.2	0.2	23.3	9.3	0.1	n	n	0.6	1.4	0.3	n	17.3	0.1	0.2
	Canada	8.5	0.1	0.3	0.1	0.2	0.2	3.8	1.4	n	0.2	n	0.7	0.3	0.6	0.3	0.2	0.6	0.1
	Czech Republic	2.3	6.5	0.8	a	0.3	0.7	8.6	34.4	0.1	0.3	0.1	0.3	2.0	0.5	n	0.9	0.1	0.5
	Denmark	3.3	1.0	0.5	n	a	0.6	5.1	9.9	n	n	0.9	0.3	0.6	0.4	n	1.3	0.8	13.1
	Finland	1.4	1.4	0.4	n	1.2	a	3.6	9.4	n	0.1	0.4	1.0	0.8	0.3	n	1.4	0.1	3.0
	France	1.2	0.7	21.5	n	0.3	0.2	a	12.2	n	n	n	0.9	1.2	0.4	n	0.6	0.2	0.2
	Germany	2.9	9.1	0.7	0.1	1.1	0.5	11.1	a	0.1	0.8	0.1	0.8	1.9	0.4	n	8.4	0.8	0.7
	Greece	0.2	0.5	1.1	0.4	0.1	0.1	5.2	16.6	a	0.4	n	0.1	17.0	n	n	0.3	n	n
	Hungary	n	15.9	1.2	0.2	0.6	1.4	7.2	39.7	0.2	a	n	0.1	1.9	1.3	n	1.2	0.1	0.4
	Iceland	0.5	0.8	0.4	n	36.3	1.0	1.6	5.4	n	0.4	a	0.1	0.4	0.2	n	1.2	n	8.4
	Ireland	3.1	0.2	0.3	0.1	0.3	0.2	4.1	3.2	n	n	n	a	0.1	0.1	n	0.4	0.1	0.2
	Italy	0.7	14.3	5.1	n	0.3	0.2	11.0	18.7	0.1	n	n	0.4	a	0.2	n	0.7	n	0.1
	Japan	5.4	0.4	0.2	n	0.1	0.2	3.9	3.8	n	n	n	0.1	0.2	a	1.5	0.1	0.9	n
	Korea	4.8	0.3	0.1	n	n	n	3.0	6.1	n	n	n	n	0.1	21.4	a	0.1	1.1	n
	Luxembourg	0.1	4.5	19.8	n	n	n	26.5	30.1	n	n	n	0.1	0.4	n	n	0.3	n	n
	Mexico	1.9	0.2	0.4	n	0.2	0.1	7.8	3.6	n	n	n	0.1	0.6	0.4	n	0.2	0.2	0.1
	Netherlands	3.5	0.8	22.2	n	0.8	0.4	5.3	15.1	n	n	0.1	0.5	0.8	0.5	n	a	0.2	1.3
	New Zealand	73.1	n	n	n	0.2	0.1	0.6	0.9	n	n	n	0.2	0.1	1.1	0.3	0.1	a	0.1
	Norway	23.6	0.4	0.2	0.5	10.0	0.4	2.3	5.5	n	4.2	0.2	1.2	0.5	0.1	n	0.7	1.4	a
	Poland	1.1	4.5	1.1	0.4	1.3	0.3	11.6	52.0	0.1	0.5	n	0.2	3.0	0.3	n	1.0	n	0.4
	Portugal	0.6	0.4	5.1	0.3	0.3	0.2	23.4	16.1	n	n	n	0.1	0.6	0.3	n	1.2	0.1	0.2
	Slovak Republic	0.9	9.6	0.3	48.1	0.1	0.1	2.9	10.5	n	16.9	n	n	0.9	0.2	n	0.5	n	0.1
	Spain	0.5	1.1	3.8	n	0.5	0.4	15.2	22.0	n	n	0.1	0.9	1.1	0.2	n	2.7	n	0.2
	Sweden	8.6	1.4	0.2	0.3	5.6	3.8	5.5	5.7	n	0.7	0.3	0.5	0.8	0.4	n	0.7	0.9	7.5
	Switzerland	3.3	2.9	1.4	n	0.5	0.5	15.6	23.1	n	0.1	0.1	0.2	10.8	0.3	n	0.8	0.3	0.4
	Turkey	0.7	3.8	0.7	n	0.4	0.1	5.1	57.3	0.1	0.1	n	n	0.3	0.3	n	1.6	n	0.1
	United Kingdom	20.8	0.6	0.8	0.8	1.5	0.6	10.5	7.6	n	0.1	0.1	7.5	0.6	1.3	n	2.1	0.9	1.2
	United States	11.6	0.8	0.5	0.2	0.7	0.5	8.5	9.6	0.1	0.6	0.1	5.4	0.8	3.2	1.1	0.8	2.7	0.8
PARTNER COUNTRIES	Argentina	1.7	0.2	0.5	n	0.2	0.1	9.1	5.7	n	n	n	n	3.5	0.8	0.3	0.2	0.2	0.1
	Brazil	2.4	0.2	0.8	n	0.3	0.1	9.5	8.9	n	n	n	n	2.6	2.2	0.1	0.4	0.1	0.2
	Chile	3.9	0.3	1.7	n	0.5	0.2	9.1	9.4	n	n	n	n	1.8	0.5	0.1	0.4	0.6	1.1
	China	8.6	0.2	0.4	n	0.4	0.4	3.9	7.4	n	n	n	0.2	0.1	19.0	1.5	0.5	6.1	0.1
	Egypt	2.1	2.2	0.8	0.1	0.3	0.2	13.7	20.7	0.6	0.3	n	0.2	1.8	3.8	0.1	0.3	n	0.2
	India	11.7	0.1	0.2	n	0.1	0.1	0.6	3.2	n	0.1	n	0.3	0.2	0.2	0.1	0.1	1.1	0.1
	Indonesia	37.7	0.1	0.2	n	n	0.1	0.6	6.9	n	n	n	n	n	3.9	0.2	2.0	0.9	0.1
	Israel	3.3	0.3	0.5	0.9	0.5	0.2	3.4	9.7	0.3	6.7	n	0.1	9.2	0.3	n	1.3	0.2	0.2
	Jamaica	0.4	n	0.1	n	0.1	n	0.3	0.1	n	0.1	n	n	n	0.1	n	n	0.1	n
	Jordan	5.8	0.8	0.2	0.5	0.2	0.3	4.2	18.2	1.2	0.4	n	0.4	2.8	0.5	n	0.1	0.1	0.1
	Malaysia	47.6	n	n	n	n	n	0.5	0.6	n	n	n	1.6	n	4.0	0.2	0.1	2.0	n
	Paraguay	0.3	0.2	0.3	0.7	0.2	n	4.2	3.3	n	n	n	n	1.5	3.9	3.3	0.1	0.3	0.1
	Peru	1.0	0.7	1.1	0.1	0.3	0.3	5.1	9.9	0.1	n	n	0.1	5.7	1.5	n	0.3	0.1	0.3
	Philippines	14.4	0.2	0.8	n	0.5	0.5	0.9	3.6	n	n	0.1	n	0.7	6.5	1.9	0.5	1.1	0.3
	Russian Federation	2.3	1.0	1.0	1.1	1.1	3.8	9.0	36.0	0.4	0.8	0.1	0.2	1.3	1.2	0.5	1.0	0.4	1.9
	Sri Lanka	33.8	0.1	0.2	0.1	0.2	0.1	2.9	2.5	n	n	n	0.1	0.4	4.8	0.2	0.1	1.4	0.7
	Thailand	24.6	0.2	0.1	n	0.2	0.1	2.4	3.4	n	n	n	n	0.1	6.0	0.1	0.1	1.5	0.1
	Tunisia	0.1	0.3	1.3	n	0.1	0.1	76.6	13.5	n	n	n	n	1.3	0.3	n	0.1	n	n
	Uruguay	1.3	0.3	0.5	0.1	0.3	0.1	5.0	2.8	n	0.1	n	0.2	2.2	0.3	n	0.2	0.7	0.1
	Zimbabwe	15.4	0.1	0.2	0.1	0.2	0.1	0.1	0.8	n	n	n	0.2	0.2	0.1	n	0.2	0.4	0.3

Note: The proportion of students abroad is based only on the total of students enrolled in countries reporting data to the OECD. The resulting proportions are therefore overestimated, especially so for countries sending large number of students to countries that do not report to the OECD.
1. The distribution by country of citizenship is based on partial coverage of foreign students. See Annex 3 for details *(www.oecd.org/edu/eag2005)*.
2. Excluding advanced research programmes.
3. Excluding tertiary-type B programmes.
4. Excluding tertiary-type A programmes.
5. Year of reference 2002.
6. The number of foreign students is significantly underestimated. See Annex 3 for details *(www.oecd.org/edu/eag2005)*.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table C3.3. (*continued*) **Citizens studying abroad in tertiary education, by country of destination (2003)**

Number of students enrolled in tertiary education in a given country of destination as a percentage of all students enrolled abroad, based on head counts

The table shows for each country the proportion of students studying in tertiary education abroad that study in a given country of destination.
Reading the second column: 6.5% of Czech tertiary students enrolled abroad study in Austria, 9.1% of German tertiary students enrolled abroad study in Austria, etc.
Reading the first row: 4.1% of Australian tertiary students enrolled abroad study in France, 23.2% of Australian tertiary students enrolled abroad study in the United Kingdom, etc.

		Countries of destination																				
	Countries of origin	Poland[2,3]	Portugal	Slovak Republic	Spain	Sweden	Switzerland	Turkey[1,2]	United Kingdom	United States	Total, OECD	Argentina[2,4,5]	Brazil[1,5,6]	Chile	India	Indonesia	Jordan[3]	Malaysia[5]	Philippines	Thailand[3,6]	Total, partner countries	*Total, all reporting countries*
OECD COUNTRIES	Australia	0.1	0.5	n	0.5	4.3	1.1	0.4	23.2	46.9	97.4	m	n	0.9	0.2	0.4	0.1	0.5	0.4	0.1	2.6	*100*
	Austria	0.2	0.1	n	5.7	3.1	6.7	0.1	10.6	8.4	99.9	m	n	n	n	n	n	n	n	n	0.1	*100*
	Belgium	n	0.6	n	12.8	1.8	2.6	n	20.1	7.4	99.7	m	n	0.1	n	n	n	n	0.1	n	0.3	*100*
	Canada	0.3	0.5	n	0.1	0.9	0.6	n	8.9	70.3	99.3	m	n	0.2	0.2	n	0.1	n	0.2	n	0.7	*100*
	Czech Republic	3.6	0.1	4.6	4.2	2.8	2.4	n	6.4	17.3	99.8	m	m	0.1	n	n	n	n	n	n	0.2	*100*
	Denmark	0.2	0.1	n	4.8	15.0	1.3	n	26.2	13.6	99.1	m	m	0.2	n	n	n	0.5	n	0.2	0.9	*100*
	Finland	0.1	0.2	n	4.6	40.1	1.0	n	21.7	7.3	99.4	m	m	0.1	n	n	n	0.4	n	n	0.6	*100*
	France	0.1	2.2	n	11.1	2.4	6.7	n	23.5	13.6	99.5	m	n	0.3	n	n	n	n	n	n	0.5	*100*
	Germany	0.2	0.5	n	8.3	3.9	11.0	0.2	21.0	14.9	99.6	m	n	0.3	n	n	n	n	n	n	0.4	*100*
	Greece	0.1	n	0.3	0.9	0.6	0.6	2.6	47.9	5.0	100.0	m	m	n	n	n	n	n	n	n	n	*100*
	Hungary	0.8	0.1	0.2	1.9	2.2	2.6	n	5.6	14.9	99.9	m	m	n	n	n	n	n	n	n	0.1	*100*
	Iceland	n	0.1	n	1.4	14.6	0.4	n	8.8	18.0	100.0	m	m	n	n	n	n	n	n	n	n	*100*
	Ireland	n	0.1	n	2.0	0.8	0.2	n	77.8	6.7	100.0	m	m	n	n	n	n	n	n	n	n	*100*
	Italy	n	0.4	n	14.7	1.6	10.4	n	13.1	7.7	99.8	m	n	0.1	n	n	n	n	n	n	0.2	*100*
	Japan	n	n	n	0.2	0.3	0.4	n	9.0	72.2	99.2	m	n	n	0.1	0.2	n	0.2	0.2	0.1	0.8	*100*
	Korea	n	n	n	0.1	0.1	0.2	n	2.9	57.7	98.1	m	n	n	0.1	0.1	n	0.4	1.2	0.1	1.9	*100*
	Luxembourg	n	0.8	n	0.3	0.1	3.9	n	11.9	1.1	100.0	m	m	n	n	n	n	n	n	n	n	*100*
	Mexico	n	0.1	n	10.9	0.8	0.5	n	7.9	63.1	99.2	m	0.1	0.7	n	n	n	n	n	n	0.8	*100*
	Netherlands	n	0.4	n	7.8	5.1	2.4	n	18.9	13.4	99.5	m	n	0.1	n	0.1	n	n	n	0.1	0.5	*100*
	New Zealand	n	n	n	n	0.5	0.1	n	6.5	15.3	99.4	m	m	0.2	0.1	0.1	n	0.1	0.1	0.1	0.6	*100*
	Norway	2.7	0.1	0.1	1.7	9.3	0.9	n	23.4	10.3	99.7	m	m	0.1	n	n	n	n	n	0.1	0.3	*100*
	Poland	a	0.3	0.1	2.9	3.2	1.7	n	3.2	10.5	99.9	m	m	n	n	n	n	n	n	n	0.1	*100*
	Portugal	0.1	a	n	18.2	1.2	4.7	n	19.3	7.3	99.7	m	0.2	n	n	n	n	n	n	n	0.3	*100*
	Slovak Republic	1.2	n	a	0.7	0.4	1.1	n	1.2	4.2	100.0	m	m	n	n	n	n	n	n	n	n	*100*
	Spain	0.1	1.8	n	a	3.2	5.7	n	26.7	13.1	99.4	m	n	0.5	n	n	0.1	n	n	n	0.6	*100*
	Sweden	0.7	0.1	n	3.7	a	1.6	n	24.9	25.1	99.3	m	m	0.5	n	n	n	n	n	0.1	0.7	*100*
	Switzerland	n	0.7	n	2.8	2.9	a	0.1	15.1	17.8	99.7	m	m	0.2	n	n	n	n	n	n	0.3	*100*
	Turkey	n	n	n	n	0.3	1.4	a	3.0	24.4	99.7	m	m	n	n	n	0.1	0.1	n	0.1	0.3	*100*
	United Kingdom	0.1	0.3	n	7.9	2.9	1.1	0.4	a	29.2	99.1	m	n	0.2	0.2	n	n	0.2	0.2	0.1	0.9	*100*
	United States	1.0	1.4	n	1.6	2.6	1.0	n	37.6	a	93.3	m	n	3.1	0.7	0.1	0.4	0.1	2.0	0.4	6.7	*100*
PARTNER COUNTRIES	Argentina	n	0.3	n	23.9	0.7	1.5	n	4.2	41.0	94.3	a	1.0	4.7	n	n	n	n	n	n	5.7	*100*
	Brazil	0.2	9.6	n	7.5	0.6	1.3	n	5.2	45.7	98.0	1.0	a	0.9	n	n	0.1	n	n	n	2.0	*100*
	Chile	n	0.1	n	20.8	4.4	1.4	n	4.0	27.7	88.2	11.4	0.4	a	n	n	n	n	n	n	11.8	*100*
	China	n	n	n	0.1	0.3	0.2	n	11.3	34.2	95.2	m	n	n	n	n	n	4.0	0.4	0.3	4.8	*100*
	Egypt	n	n	0.3	0.9	0.7	1.2	0.5	10.7	35.3	97.2	m	m	n	n	n	2.4	0.3	n	n	2.8	*100*
	India	n	n	n	0.1	0.3	0.2	n	9.8	70.2	98.8	m	n	n	a	n	n	0.9	0.2	0.1	1.2	*100*
	Indonesia	n	n	n	n	0.1	0.1	n	2.6	29.7	85.4	m	n	n	0.2	a	0.1	13.5	0.7	0.1	14.6	*100*
	Israel	0.5	n	1.1	0.8	0.4	0.6	0.3	13.0	35.5	89.1	m	m	0.1	0.1	n	10.7	n	n	n	10.9	*100*
	Jamaica	n	n	n	n	n	n	n	13.9	84.4	99.7	m	m	0.1	0.2	n	n	n	n	n	0.3	*100*
	Jordan	0.7	n	0.2	1.0	0.5	0.3	3.1	15.5	39.5	96.7	m	m	n	0.7	n	a	2.4	0.1	n	3.3	*100*
	Malaysia	n	n	n	n	0.1	n	n	23.8	16.2	96.9	m	m	n	1.9	n	1.0	a	0.1	0.1	3.1	*100*
	Paraguay	0.1	0.1	0.1	5.1	0.2	0.2	0.1	1.4	35.8	61.2	33.1	1.4	4.2	n	n	n	n	0.2	n	38.8	*100*
	Peru	n	0.1	n	16.2	0.8	2.1	n	2.0	38.7	86.9	3.9	0.9	8.3	n	n	n	n	n	n	13.1	*100*
	Philippines	0.1	n	n	1.0	0.5	0.3	n	8.1	54.7	96.8	m	m	n	n	n	0.4	2.2	a	0.6	3.2	*100*
	Russian Federation	1.2	0.1	0.1	0.8	2.3	1.8	2.5	5.7	22.1	99.6	m	n	n	n	n	0.1	0.1	n	0.1	0.4	*100*
	Sri Lanka	n	n	n	n	0.5	0.4	n	20.4	23.8	92.6	m	m	n	4.4	n	n	2.7	0.1	0.2	7.4	*100*
	Thailand	n	0.1	n	0.1	0.4	0.1	n	11.5	43.3	94.5	m	m	n	1.3	n	0.3	3.3	0.6	a	5.5	*100*
	Tunisia	0.1	n	n	0.3	0.1	2.1	0.1	0.4	3.1	99.8	m	m	n	n	n	0.2	0.1	n	n	0.2	*100*
	Uruguay	n	0.3	n	13.7	1.0	1.4	n	2.7	30.5	63.7	30.8	1.6	3.9	n	n	n	n	n	n	36.3	*100*
	Zimbabwe	n	0.2	n	0.1	0.2	0.1	0.1	45.5	34.9	99.5	m	m	n	0.2	n	n	0.3	n	n	0.5	*100*

Note: The proportion of students abroad is based only on the total of students enrolled in countries reporting data to the OECD. The resulting proportions are therefore overestimated, especially so for countries sending large number of students to countries that do not report to the OECD.
1. The distribution by country of citizenship is based on partial coverage of foreign students. See Annex 3 for details *(www.oecd.org/edu/eag2005)*.
2. Excluding advanced research programmes.
3. Excluding tertiary-type B programmes.
4. Excluding tertiary-type A programmes.
5. Year of reference 2002.
6. The number of foreign students is significantly underestimated. See Annex 3 for details *(www.oecd.org/edu/eag2005)*.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table C3.4. Distribution of foreign students, by level and type of tertiary education (2003)

		Tertiary-type B programmes	Tertiary-type A programmes	Advanced research programmes	Tertiary-type A and advanced research programmes	Total tertiary programmes
		(1)	(2)	(3)	(4)	(5)
OECD COUNTRIES	Australia	6.0	89.3	4.7	94.0	100
	Austria[1]	2.4	88.9	8.7	97.6	100
	Belgium	43.8	x(4)	x(4)	56.2	100
	Czech Republic	3.2	84.5	12.3	96.8	100
	Denmark	14.2	80.5	5.2	85.8	100
	Finland	0.1	82.1	17.8	99.9	100
	France	6.9	x(4)	x(4)	93.1	100
	Germany[2]	5.7	94.3	m	m	100
	Greece	23.4	x(4)	x(4)	76.6	100
	Hungary	0.2	95.7	4.0	99.8	100
	Iceland	2.1	97.2	0.7	97.9	100
	Italy	3.6	93.8	2.6	96.4	100
	Japan	6.7	x(4)	x(4)	93.3	100
	Korea	25.1	63.9	11.1	74.9	100
	Netherlands[2]	0.5	99.5	m	m	100
	New Zealand	32.6	65.9	1.5	67.4	100
	Norway[3]	2.6	88.4	8.9	97.4	100
	Poland[2]	0.1	99.9	m	m	100
	Portugal	1.2	91.1	7.7	98.8	100
	Slovak Republic	0.7	92.9	6.4	99.3	100
	Spain	8.2	69.8	21.9	91.8	100
	Sweden[3]	2.2	85.1	12.7	97.8	100
	Switzerland	14.4	67.2	18.4	85.6	100
	Turkey[2]	9.1	90.9	m	m	100
	United Kingdom	14.8	75.8	9.4	85.2	100
PARTNER COUNTRIES	Chile	8.0	x(4)	x(4)	92.0	100
	India	n	x(4)	x(4)	100.0	100
	Indonesia	a	x(4)	x(4)	100.0	100
	Malaysia[4]	52.4	x(4)	x(4)	47.6	100
	Russian Federation[2]	10.4	91.2	m	m	100

Note: x indicates that data are included in another column. The column reference is shown in brackets after «x». *e.g.*, x(4) means that data are included in column 4.
1. Based on the number of registrations, not head-counts.
2. Excluding advanced research programmes.
3. Excluding foreign students whose citizenship is unknown.
4. Year of reference 2002.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table C3.5. Distribution of foreign tertiary students, by field of education (2003)

OECD countries	Agriculture	Education	Engineering, manufacturing and construction	Health and welfare	Humanities and arts	Sciences	Services	Social sciences, business and law	Not known or unspecified	Total all fields of study
Australia	0.7	3.8	12.0	7.4	8.4	21.2	1.5	45.0	n	100
Austria[1]	1.5	5.3	12.7	9.0	23.3	11.2	1.3	35.6	0.2	100
Belgium	5.7	4.1	7.0	25.2	10.9	8.2	2.2	19.9	16.9	100
Czech Republic	2.7	1.3	14.1	26.1	10.4	12.5	1.4	31.6	a	100
Denmark	2.1	3.9	16.2	17.5	16.6	12.7	0.7	30.2	n	100
Finland	1.9	2.5	29.2	9.9	18.3	10.1	2.9	25.2	n	100
Germany[2]	1.1	4.4	17.2	6.0	21.9	15.7	1.1	26.7	5.9	100
Hungary	10.7	9.6	14.3	21.5	14.2	5.8	2.0	21.9	a	100
Iceland	1.0	8.1	5.2	4.3	45.3	11.9	1.2	22.9	a	100
Italy	2.0	1.8	13.7	27.1	17.8	6.1	1.3	29.9	0.3	100
Japan	2.9	3.2	13.7	4.2	23.1	1.7	1.6	40.1	9.5	100
Netherlands[2]	0.9	5.7	10.3	14.3	12.7	7.8	2.6	45.7	n	100
New Zealand	0.5	1.3	4.6	2.6	8.5	16.1	3.6	55.8	7.1	100
Norway	2.1	7.8	6.7	14.7	15.8	19.1	3.1	27.4	3.4	100
Poland[2]	0.8	9.0	6.1	18.4	25.2	1.8	2.1	36.6	n	100
Slovak Republic	10.1	5.8	15.6	28.3	12.7	4.9	4.4	18.3	a	100
Sweden	0.9	7.3	19.0	14.3	16.3	12.9	1.5	27.6	0.3	100
Switzerland	0.8	4.5	15.3	6.5	16.8	14.3	6.2	34.3	1.2	100
Turkey[2]	2.7	7.3	14.2	13.4	6.6	8.1	4.9	42.8	a	100
United Kingdom[3]	0.9	3.5	15.1	8.1	15.8	14.3	m	39.3	3.0	100
United States	0.8	2.7	17.5	5.4	7.4	19.5	0.8	29.5	16.3	100

1. Based on the number of registrations, not head-counts.
2. Excluding advanced research programmes.
3. Excluding foreign students enrolled in the fields of personal services and environmental protection.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table C3.6. Trends in the number of foreign tertiary students enrolled outside their country of origin (1998, 2000, 2001, 2002 and 2003)

Number of foreign students enrolled in tertiary education outside their country of origin, head counts.

	Number of foreign students in tertiary education					Index of change (2003)		
	2003	2002	2001	2000	1998	2002=100	2000=100	1998=100
Foreign students from throughout the world enrolled in reporting OECD and partner countries	2 117 468	1 898 250	1 645 425	1 620 810	m	111.5	130.6	m
Foreign students from throughout the world enrolled in reporting OECD countries	1 976 371	1 781 090	1 538 867	1 522 719	1 327 154	111.0	129.8	148.9

Note: Figures are based on the number of foreign tertiary students enrolled in OECD and partner countries reporting data. The coverage of these reporting countries has evolved over time, therefore the figures are not strictly comparable and caution should be taken in interpreting trends.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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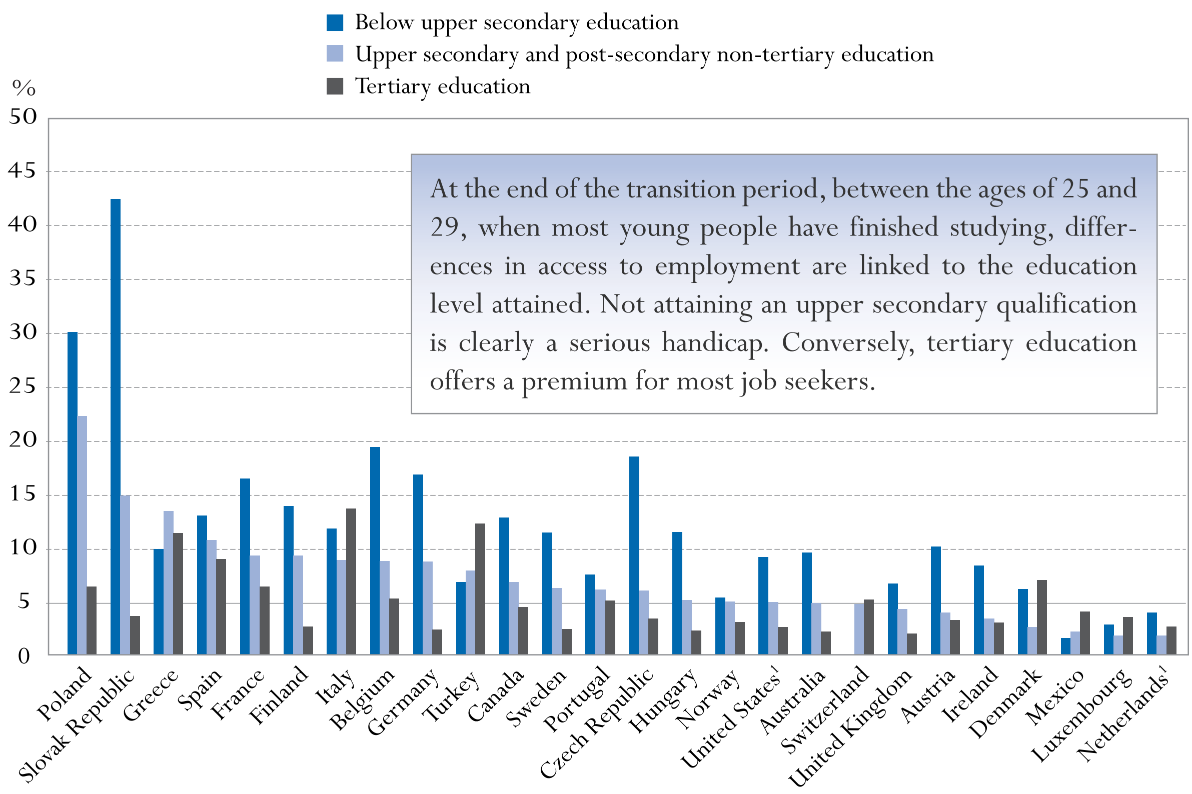
Education and work status of the youth population

This indicator shows the expected years that young people spend in education, employment and non-employment, and examines the education and employment status of young people by gender. During the past decade, young people have spent longer in initial education, with the result that they delay their entry into the world of work. Part of this additional time is spent combining work and education, a practice that is widespread in some countries. Once young people have completed their initial education, access to the labour market is often impeded by spells of unemployment or non-employment. On the basis of the current situation of persons between the ages of 15 and 29, this indicator gives a picture of the major trends affecting the transition from education to work.

Key results

Chart C4.1. Share of the 25-to-29-year-olds who are unemployed and not in education, by level of educational attainment (2003)

This chart shows the share of the 25-to-29-year-olds who are unemployed and not in education, by level of educational attainment. The height of the bars indicates the percentage of the age group not in education and unemployed for each level of attainment.



At the end of the transition period, between the ages of 25 and 29, when most young people have finished studying, differences in access to employment are linked to the education level attained. Not attaining an upper secondary qualification is clearly a serious handicap. Conversely, tertiary education offers a premium for most job seekers.

1. Year of reference 2002.
Countries are ranked in descending order of the ratio of the population not in education and unemployed to the 25-to-29-year-old population having attained upper secondary and post-secondary non-tertiary education.
Source: OECD. Table C4.3. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/361172740884

Other highlights of this indicator

- On average among countries, a young person aged 15 in 2003 can expect to continue in formal education for a little more than six and a half years. In 19 of the 28 countries for which data are available, this period ranges from near five and a half years to seven and a half years.
- In addition to the expected number of years spent in education, a young person aged 15 can expect to hold a job for 6.2 of the 14 years to come, to be unemployed for a total of 0.9 years and to be out of the labour market for 1.3 years. Countries vary the most in the cumulated duration spent in unemployment.
- The percentage of 20-to-24-year-olds not in education ranges from 50 to 70% in most OECD countries. In 23 out of 27 OECD countries, more female than male 20-to-24-year-olds are in education. Males in the 20-to-24-year-old age group are more likely to be employed.
- In some countries, education and work largely occur consecutively, while in other countries they are concurrent. Work-study programmes, relatively common in European countries, offer coherent vocational education routes to recognised occupational qualifications. In other countries, initial education and work are rarely associated.

Policy context

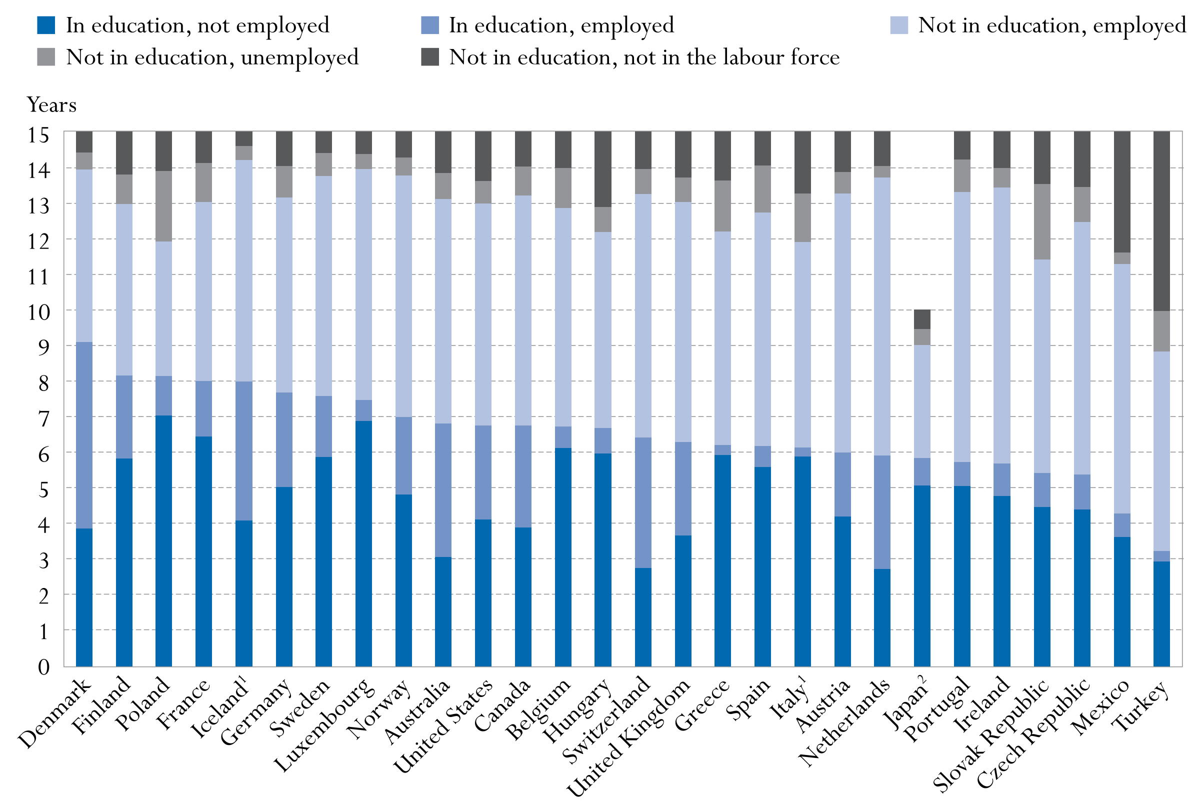
All OECD countries are experiencing rapid social and economic changes that are making the transition to working life more uncertain. In some OECD countries, education and work largely occur consecutively, while in other OECD countries they may be concurrent. The ways in which education and work are combined can significantly affect the transition process. Of particular interest, for example, is the extent to which working (beyond the usual summer jobs for students) while studying may facilitate entry into the labour force. It is also important to consider whether students who work many hours while studying may be more likely to drop out of education, and to examine if working and studying simultaneously contributes to a successful transition to the labour market.

Evidence and explanations

On average, a young person aged 15 in 2003 can expect to continue in education for around six and a half years (Table C4.1a). In 19 of the 28 countries studied, a 15-year-old can expect to spend from 5.7 to 7.7 additional years in education. There is, however, a gap of almost four years separating the groups at each extreme: Denmark, Finland, France, Iceland and Poland (more than eight years in education on average) on the one hand and the Czech Republic, Mexico, the Slovak Republic and Turkey (around four and half years on average) on the other.

Chart C4.2. Expected years in education and not in education for 15-to-29-year-olds (2003)

Number of years, by work status



1. Year of reference 2002.
2. Data refer to 15-to-24-year-olds.
Countries are ranked in descending order of the expected years in education of the youth population.
Source: OECD. Table C4.1a. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/361172740884

The figure for expected years of education covers some very different combinations of education and work. Employment combined with education includes both work-study programmes and part-time jobs. While such combinations are rare in half of the countries studied, in the other half they account for between one and four of the additional years that young people expect to spend in education.

In addition to the average 6.6 years spent in education, a young person aged 15 can expect to hold a job for 6.2 of the 14 years to come, to be unemployed for a total of 0.9 years and to be out of the labour market for 1.3 years, neither in education nor seeking work (Table C4.1a).

The average duration of unemployment varies significantly among countries; this reflects differences in youth employment rates. The cumulative average duration of unemployment is less than five months in Iceland, Luxembourg, Mexico and the Netherlands, but more than two years in Poland and the Slovak Republic.

The average overall number of expected years in education is higher for females (6.7 years compared with 6.4 for males). In all countries except Japan, Luxembourg, Mexico, the Netherlands, Switzerland and Turkey, females spend more years in education than males. In Turkey, female students can expect to receive one year less of education than their male counterparts (Chart C4.3).

By and large, males and females differ very little in terms of the expected number of years in unemployment, even though expected unemployment periods tend to be longer for males. While the situation is similar for both genders in many countries, or with a slight disadvantage for males, females appear to be at a disadvantage in Greece and Spain, and at an advantage in Canada, Germany, Poland, the Slovak Republic and Turkey (Table C4.1a).

Whereas young males can expect to spend little more than one year and eight months neither in education nor in employment between the ages of 15 and 29, the average figure for females is more than two years and eight months. In the Czech Republic, Greece, Hungary, Mexico and Turkey, there is a much stronger tendency for young females to leave the labour market and to spend time out of the educational system and not working. In very few countries – Austria, Finland and Sweden – young males and young females do not differ much in this measure. In all other countries, females between the ages of 15 and 29 spend an average of about nine months more than males not in education and not in employment.

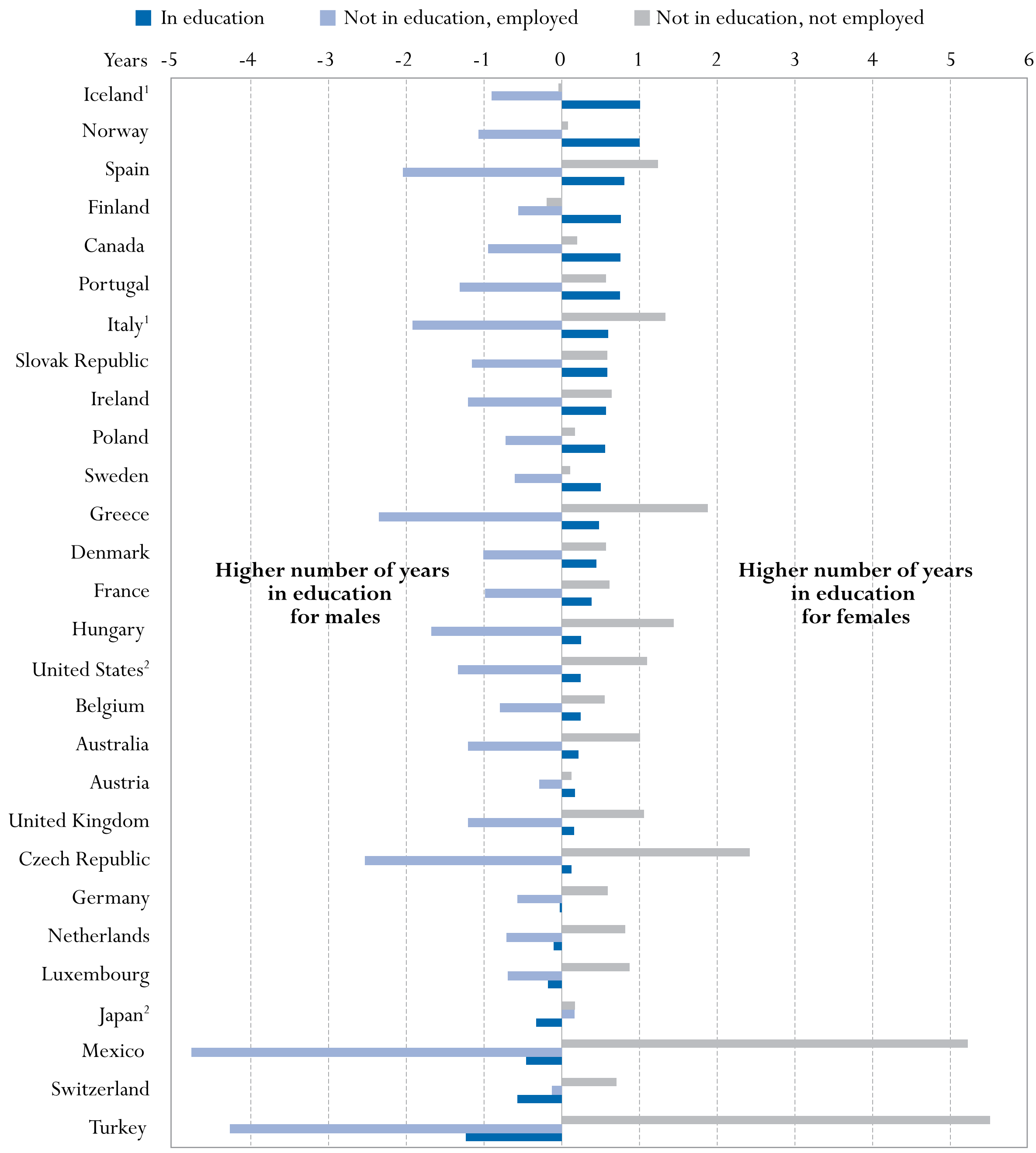
Conversely, females between the ages of 15 and 29 in all OECD countries can expect a reduced duration of employment after education; this is partially a consequence of the time spent in education, but is also attributable to other factors such as time spent in childrearing. In the Czech Republic, Greece, Mexico and Turkey, expected years not in education and not in employment are much higher for females than for males, whereas the expected years in education are similar (with the exception of Turkey) (Chart C4.3).

Combining work and education

Countries differ not only in the duration of education, but also in how it is combined with work experiences. The 27 OECD countries which provide data on youth transitions show differences in both the duration of education and how education is combined with work experiences in enterprises or in work study programmes (Chart C4.4). The countries can be divided into five groups (A-E) based on how these two aspects of transition interact.

Group A is the smallest: only three countries. They present a long duration in education not frequently combined with work. The expected number of years in education between the ages of 15 and 29 is around eight years in Finland, France and Poland, with the oldest students most frequently enrolled in

Chart C4.3. Gender difference in expected years in education and not in education for 15-to-29-year-olds (2003)

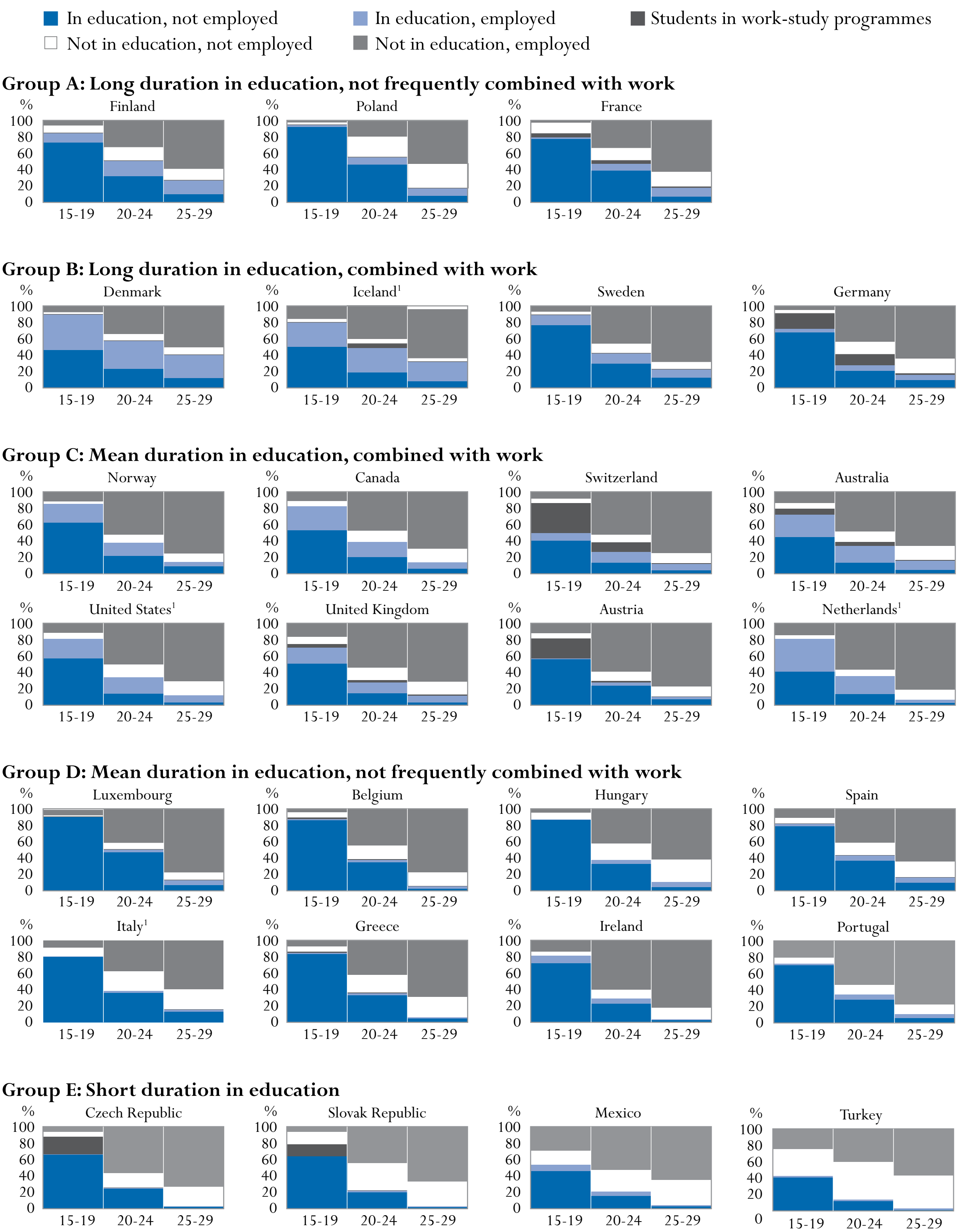


1. Year of reference 2002.
2. Data refer to 15-to-24-year-olds.
Countries are ranked in descending order of the difference between females and males in expected years in education of the 15-to-29-year-olds.
Source: OECD. Table C4.1a. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/361172740884

Chart C4.4. Country profiles on transition from education to work (2003)

Percentage of the 15-to-29-year-old population in education and not in education, by age group and work status



1. Year of reference 2001.

In each group, countries are ranked in descending order of the percentage of the 15-to-29-year-old population in education.

Source: OECD. Table C4.2a. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/361172740884

Finland. Work-study programmes and other forms of work experience during schooling exist but remain uncommon.

Group B is slightly bigger: four countries. They combine a long duration of education with a significant participation in work during study. The Nordic countries – Denmark, Iceland and Sweden – are part of this group, with high participation in employment in combination with education for the three age groups. Germany shows a similar pattern thanks to its dual system organising the combination of work and school.

Groups C and D include the majority of countries with an average duration of education. They differ on how education is combined with work experience.

In Group C, working while studying can occur as part of work-study programmes or in the form of part-time jobs out of school hours. Work-study programmes are relatively common in European countries such as Austria and Switzerland, and offer coherent vocational education routes to recognised occupational qualifications. Many young people also combine paid work out of school hours with education. This form of initial contact with the labour market for students between the ages of 15 and 24 is a major feature of the transition from education to work in Australia, Canada, the Netherlands, the United Kingdom and the United States, and, to a lesser extent, Norway.

In Group D – Belgium, Hungary, Ireland, Luxembourg, Portugal and the Mediterranean countries (Greece, Italy and Spain) – initial education and work are rarely associated, neither through paid work outside of schools hours nor through participation in work-study programmes.

In Group E, a short duration in education is characteristic. In the Czech and Slovak Republics, work-study programmes ensure a relatively high participation in education between the ages of 15 and 19 years. That is not the case in Mexico and Turkey. From the age of 20, participation in education becomes very low for all the countries of this group.

The employment status of males and females during the years spent in education is broadly similar, except in Australia, Austria, France, Germany, Switzerland and United Kingdom, where noticeably more men participate in work-study programmes. In Australia, Canada, Finland, Iceland, Norway, Sweden and the United Kingdom, noticeably more females than males in the 15-to-24-year-old age group combine work outside school hours with education (Tables C4.2b and C4.2c).

Entry into the labour market after initial education

The transition from education to work occurs at different points of time in different OECD countries, depending on various educational and labour market factors. As they grow older, young people participate decreasingly in education and increasingly in the labour force. The percentage of young people not in education in most OECD countries is between 10 and 25% for 15-to-19-year-olds, rising to between 50 and 70% for 20-to-24-year-olds and reaching 80 to 95% for 25-to-29-year-olds (Table C4.2a). However, in many OECD countries young people begin their transition to work later, and in some cases over a longer period. This trend reflects not only the demand for education, but also the general state of the labour market, the length and orientation of educational programmes in relation to the labour market and the prevalence of part-time education.

The age at which people enter the labour market after completing initial education has consequences for employment. Overall, older non-students are more likely to be employed than non-students aged 15 to 19, while a higher percentage of male than female non-students are working. In relative terms, more females than males are out of the labour force, particularly during the years associated with child-bearing and child-rearing, captured by 25-to-29-year-old age group in this indicator (Tables C4.2b and C4.2c).

Employment-to-population ratios among young adults who are not in education provide information on the effectiveness of transition frameworks and thus help policy makers to evaluate transition policies. In 21 out of 27 OECD countries, fewer than 67% (and in many even fewer than 50%) of 15-to-19-year-olds not in education are working, which may suggest that because these young people have left school early, they are not viewed by employers as having the skills necessary for productive employment. Employment-to population ratios for 20-to-24-year-olds generally exceed 65%, but ratios in some OECD countries such as Italy, Poland, the Slovak Republic and Turkey are considerably lower. Employment ratios for young males tend to be higher than for young females after leaving education, probably because of family-related reasons and perhaps also because the social acceptability of being unemployed is still higher for females than for males in many OECD countries (Tables C4.2b and C4.2c).

Unemployment rate and ratio of unemployed non-students to the total youth population

Young people represent the principal source of new skills in OECD countries. In most OECD countries, education policy seeks to encourage young people to complete at least upper secondary education. Since many jobs in the current labour market require ever higher general skill levels and more flexible learning skills, persons with low attainment are often penalised. Differences in the ratio of unemployed non-students to the total youth population by level of educational attainment are an indicator of the degree to which further education improves the economic opportunities of any young person.

The youth unemployment rate by age group is the most common measure available for describing the labour market status of young people. However, unemployment rates do not take educational circumstances into account. Consequently, an unemployed young person counted in the numerator may, in some OECD countries, be enrolled in education. The denominator may include young people in vocational training, provided they are apprenticed, but not those in school-based vocational courses. Hence, if almost all young people in a particular age group are still in education, the unemployment rate will reflect only the few in the labour market and may therefore appear very high, particularly among the youngest cohort, who have usually left the education system with very low qualifications.

The ratio of unemployed non-students to the total age cohort is therefore a more appropriate way to reflect the likelihood of youth unemployment. This is because young people who are looking for a job while still in education are usually seeking part-time or temporary work while studying, unlike those entering the labour market after leaving school.

On average, completing upper secondary education reduces the unemployment-to-population ratio (*e.g.* unemployment among non-students as a percentage of the age cohort) of 20-to-24-year-olds by about 7 percentage points and that of 25-to-29-year-olds by about 4 percentage points (Table C4.3). In other words, the ratio of unemployed people who have not completed upper secondary education to the total youth population is 1.5 times higher on average than for upper secondary graduates. In 17 out of 26 OECD countries, the unemployment ratio among 20-to-24-year-olds not in education is less than 8% for those with upper secondary or post-secondary non-tertiary education. This proportion remains below 8% for people without upper secondary education in only three OECD countries. Since it has become the norm in most OECD countries to complete upper secondary education, many young persons who do not complete this level of education are much more likely to have employment difficulties during their entry into the labour market.

At the end of the transition period, between the ages of 25 and 29, when most young people have finished studying, differences in access to employment are linked to the education level attained. Not attaining an upper secondary qualification is clearly a serious handicap. Conversely, tertiary education offers a premium for most job seekers.

In 16 OECD countries, for upper secondary graduates aged 25 to 29, the ratio of persons not in education and unemployed to the total youth population is above 5%. In a few OECD countries, even young people who have completed tertiary-level education are subject to considerable unemployment risk when they enter the labour market. The ratio of unemployed non-students to the total youth population of 15-to-29-year-olds is 8% or more in Greece, Italy, Poland, the Slovak Republic and Spain (Table C4.3).

Focusing on the key transition period (*i.e.* ages 20 to 24) illustrates the changes both in the prevalence of unemployment and in withdrawal from the labour force – both representing non-employment – among individuals who have left education. Over a period of five years, important changes are evident in several countries (Table C4.4a). In the Mediterranean countries, where the proportion of non-employment is rather high, the improvement is remarkable, even if the trend shows an inflexion for the most recent year. Turkey presents an exception, with a negative evolution for non-employment ratio the highest of the OECD countries. Central and Eastern European countries have very opposite profiles: there is a regular decrease of non-employment in Hungary, while the Czech Republic, Poland and the Slovak Republic show an increase followed by a decrease after a peak in 1999, 2000 and 2001, respectively.

However, the situation has been remarkably stable over the five last years for several countries: at a high level of the non-employment ratio in Mexico, at a low level in Luxembourg and at an intermediate level in the United Kingdom. Other profiles are less pronounced, but a general picture appears. With the exception of Norway and Austria, which show a growing trend in growth of the non-employment ratio, and Switzerland, with a pronounced 'V' curve with a lower point in 2000, most countries show only slight variations and a regular fall of unemployment and withdrawal from the labour force from 1998 to 2001, followed by a stabilisation or even an increase of unemployment and withdrawal from the labour force in 2003, except for Australia and Canada where the decrease continues into 2003.

Definition and methodologies

The statistics presented here are calculated from labour force survey data on age-specific proportions of young people in each of the specified categories. These proportions are then totalled over the 15-to-29-year-old age group to yield the expected number of years spent in various situations. For countries providing data from the age of 16 only, it is assumed that all 15-year-olds are in education and out of the labour force. This improvement in the calculation tends to increase the average number of expected years in education compared to *Education at a Glance 2004* (OECD, 2004c). The calculation thus assumes that young persons currently aged 15 will show the same pattern of education and work between the ages of 15 and 29 as the population between those ages in the given reference year.

Persons in education include those attending part-time as well as full-time, where the coverage of education should be as close as possible to that of formal education in administrative sources on enrolment. Therefore, non-formal education or educational activities of very short duration (for example, at the work place) should be excluded.

Data for this indicator, which were obtained from a special OECD data collection, usually refer to the first quarter or the average of the first three months of the calendar year, and therefore exclude summer employment. The labour force status categories shown in this section are defined according to International Labour Organisation (ILO) guidelines, with one exception. For the purposes of these indicators, persons in work-study programmes (see below) have been classified separately as in education and employed, without reference to their ILO labour force status during the survey reference week, since they may not necessarily be in the work component of their programmes during the reference week, and may therefore not be employed then. Other employed includes individuals employed according to the ILO definition, but excludes those attending work-study programmes who are already counted as employed. Finally, not in the labour force includes individuals who are not working and who are not unemployed, *i.e.* individuals who are not looking for a job.

Work-study programmes combine work and education as parts of an integrated, formal education or training activity, such as the dual system in Germany; *apprentissage* or *formation en alternance* in France and Belgium; internship or co-operative education in Canada; and apprenticeship in Ireland. Vocational education and training take place in school settings and working environments. Students or trainees can be paid or not, usually depending on the type of job and the course or training.

The enrolment counts are here estimated on the basis of self-reports collected during labour force surveys that often correspond only imprecisely with enrolments obtained from administrative sources shown elsewhere in this publication, for several reasons. First, age may not be measured in the same way. For example, in administrative data, both enrolment and age are measured on 1 January in OECD countries in the northern hemisphere, whereas in some labour force surveys, enrolment is measured in the reference week, while the age recorded is the age that will be attained at the end of the calendar year, even if the survey is conducted in the early part of the year. This means that recorded enrolment rates may occasionally reflect a population that is almost one year younger than the specified age range. At ages when movements out of education may be significant, this affects enrolment rates. Second, young people may be enrolled in several programmes and can sometimes be counted twice in administrative statistics but only once in a labour force survey. Moreover, not all enrolments may be captured in administrative statistics, particularly in profit-making institutions. Third, the programme classification used in the self-reports in labour force surveys does not always correspond to the qualification standards used for administrative data collections.

The unemployment-to population ratio is the number of unemployed persons divided by the total number of persons in the population.

The employment-to population ratio is the number of employed persons divided by the total number of persons in the population.

Further references

The following additional material relevant to this indicator is available on the Web at *http://dx.doi.org/10.1787/361172740884*:

Expected years in education and not in education for 15-to 29-year-olds (1998-2003)
Table C4.1b: Trends by gender

Trends in the percentage of young population in education and not in education (1995-2003)
Table C4.4b: Trends for young males
Table C4.4c: Trends for young females

Table C4.1a. Expected years in education and not in education for 15-to-29-year-olds (2003)
By gender and work status

OECD COUNTRIES		Expected years in education			Expected years not in education			
		Not employed	Employed (including work study programmes)	Sub-total	Employed	Unemployed	Not in the labour force	Sub-total
Australia	Males	3.1	3.6	6.7	6.9	0.9	0.5	8.3
	Females	3.1	3.8	6.9	5.7	0.6	1.8	8.1
	M+F	3.1	3.7	6.8	6.3	0.7	1.2	8.2
Austria	Males	3.8	2.1	5.9	7.4	0.7	1.0	9.1
	Females	4.6	1.4	6.1	7.1	0.5	1.3	8.9
	M+F	4.2	1.8	6.0	7.3	0.6	1.1	9.0
Belgium	Males	6.1	0.5	6.6	6.5	1.2	0.7	8.4
	Females	6.2	0.7	6.8	5.7	1.0	1.4	8.2
	M+F	6.1	0.6	6.7	6.1	1.1	1.0	8.3
Canada	Males	3.9	2.5	6.4	6.9	1.0	0.7	8.6
	Females	3.9	3.3	7.2	5.9	0.6	1.3	7.8
	M+F	3.9	2.9	6.8	6.4	0.8	1.0	8.2
Czech Republic	Males	4.1	1.2	5.3	8.3	1.0	0.4	9.7
	Females	4.7	0.7	5.5	5.8	1.0	2.8	9.5
	M+F	4.4	1.0	5.4	7.1	1.0	1.5	9.6
Denmark	Males	3.6	5.3	8.9	5.3	0.5	0.3	6.1
	Females	4.2	5.1	9.3	4.3	0.5	0.8	5.7
	M+F	3.9	5.2	9.1	4.8	0.5	0.6	5.9
Finland	Males	5.7	2.1	7.8	5.1	0.9	1.2	7.2
	Females	5.9	2.6	8.5	4.5	0.7	1.2	6.5
	M+F	5.8	2.3	8.2	4.8	0.8	1.2	6.8
France	Males	6.1	1.7	7.8	5.5	1.1	0.5	7.2
	Females	6.8	1.4	8.2	4.5	1.0	1.2	6.8
	M+F	6.5	1.6	8.0	5.0	1.1	0.9	7.0
Germany	Males	5.0	2.7	7.7	5.7	1.1	0.4	7.3
	Females	5.1	2.6	7.7	5.2	0.6	1.5	7.3
	M+F	5.1	2.6	7.7	5.5	0.9	1.0	7.3
Greece	Males	5.7	0.3	6.0	7.1	1.2	0.7	9.0
	Females	6.2	0.3	6.5	4.8	1.7	2.0	8.5
	M+F	5.9	0.3	6.2	6.0	1.4	1.4	8.8
Hungary	Males	6.0	0.6	6.6	6.3	0.9	1.2	8.4
	Females	6.0	0.8	6.8	4.6	0.5	3.0	8.2
	M+F	6.0	0.7	6.7	5.5	0.7	2.1	8.3
Iceland [1]	Males	3.9	3.6	7.5	6.6	0.7	c	7.5
	Females	4.3	4.2	8.5	5.7	c	0.7	6.5
	M+F	4.1	3.9	8.0	6.2	0.4	0.4	7.0
Ireland	Males	4.6	0.8	5.4	8.3	0.7	0.6	9.6
	Females	5.0	1.0	6.0	7.1	0.4	1.5	9.0
	M+F	4.8	0.9	5.7	7.7	0.5	1.0	9.3
Italy [1]	Males	5.6	0.2	5.9	6.7	1.3	1.1	9.1
	Females	6.2	0.3	6.5	4.8	1.4	2.4	8.5
	M+F	5.9	0.2	6.2	5.7	1.4	1.7	8.8
Japan [2]	Males	5.2	0.8	6.0	3.1	0.5	0.4	4.0
	Females	4.9	0.8	5.7	3.3	0.4	0.7	4.3
	M+F	5.1	0.8	5.8	3.2	0.4	0.5	4.2

1. Year of reference 2002.
2. Data refer to 15-to-24-year-olds.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data

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Table C4.1a. *(continued)* **Expected years in education and not in education for 15-to-29-year-olds (2003)**

By gender and work status

			Expected years in education			Expected years not in education			
			Not employed	Employed (including work study programmes)	Sub-total	Employed	Unemployed	Not in the labour force	Sub-total
OECD COUNTRIES	Luxembourg	Males	7.0	0.5	7.6	6.8	0.3	0.3	7.4
		Females	6.8	0.6	7.4	6.1	0.5	1.0	7.6
		M+F	6.9	0.6	7.5	6.5	0.4	0.6	7.5
	Mexico	Males	3.7	0.9	4.5	9.4	0.4	0.6	10.5
		Females	3.6	0.5	4.1	4.7	0.3	6.0	10.9
		M+F	3.6	0.7	4.3	7.0	0.3	3.4	10.7
	Netherlands	Males	2.8	3.2	6.0	8.1	0.3	0.5	9.0
		Females	2.7	3.1	5.9	7.4	0.3	1.4	9.1
		M+F	2.8	3.2	5.9	7.8	0.3	1.0	9.1
	Norway	Males	4.8	1.8	6.5	7.3	0.6	0.6	8.5
		Females	4.9	2.6	7.5	6.2	0.4	0.9	7.5
		M+F	4.8	2.2	7.0	6.8	0.5	0.7	8.0
	Poland	Males	6.8	1.1	7.9	4.3	2.2	0.6	7.1
		Females	7.3	1.1	8.4	3.2	1.7	1.7	6.6
		M+F	7.0	1.1	8.1	3.8	2.0	1.1	6.9
	Portugal	Males	4.8	0.6	5.4	8.2	0.9	0.5	9.6
		Females	5.4	0.7	6.1	6.9	0.9	1.1	8.9
		M+F	5.1	0.7	5.8	7.6	0.9	0.8	9.2
	Slovak Republic	Males	4.0	1.2	5.1	6.6	2.5	0.8	9.9
		Females	5.0	0.7	5.7	5.4	1.7	2.2	9.3
		M+F	4.5	0.9	5.4	6.0	2.1	1.5	9.6
	Spain	Males	5.2	0.6	5.8	7.5	1.2	0.5	9.2
		Females	6.0	0.6	6.6	5.5	1.5	1.4	8.4
		M+F	5.6	0.6	6.2	6.5	1.3	0.9	8.8
	Sweden	Males	6.0	1.4	7.4	6.4	0.7	0.5	7.6
		Females	5.8	2.1	7.9	5.8	0.6	0.7	7.1
		M+F	5.9	1.7	7.6	6.1	0.6	0.6	7.4
	Switzerland	Males	2.8	3.9	6.7	6.9	0.7	0.7	8.3
		Females	2.7	3.4	6.1	6.7	0.7	1.4	8.9
		M+F	2.8	3.7	6.4	6.8	0.7	1.0	8.6
	Turkey	Males	3.5	0.4	3.9	7.7	1.6	1.9	11.1
		Females	2.4	0.2	2.6	3.4	0.7	8.3	12.4
		M+F	3.0	0.3	3.3	5.6	1.1	5.0	11.7
	United Kingdom	Males	3.7	2.5	6.2	7.3	0.9	0.6	8.8
		Females	3.6	2.8	6.4	6.1	0.5	2.0	8.6
		M+F	3.7	2.6	6.3	6.7	0.7	1.3	8.7
	United States[2]	Males	4.3	2.4	6.6	6.9	0.7	0.8	8.4
		Females	4.0	2.9	6.9	5.6	0.6	2.0	8.1
		M+F	4.1	2.6	6.8	6.2	0.6	1.4	8.2
	Country mean	***Males***	***4.7***	***1.8***	***6.4***	***6.9***	***1.0***	***0.7***	***8.6***
		Females	***4.9***	***1.8***	***6.7***	***5.5***	***0.7***	***2.0***	***8.3***
		M+F	***4.8***	***1.8***	***6.6***	***6.2***	***0.9***	***1.3***	***8.4***
PARTNER COUNTRY	Israel	Males	4.7	1.3	5.9	4.1	1.0	4.0	9.1
		Females	4.6	1.4	6.0	4.2	0.8	3.9	9.0
		M+F	4.7	1.3	6.0	4.2	0.9	3.9	9.0

1. Year of reference 2002.
2. Data refer to 15-to-24-year-olds.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data

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Table C4.2a. Percentage of the youth population in education and not in education (2003)

By age group and work status

	Age group	In education					Not in education				Total in education and not in education
		Students in work-study programmes[1]	Other employed	Unem-ployed	Not in the labour force	Sub-total	Employed	Unem-ployed	Not in the labour force	Sub-total	
OECD COUNTRIES											
Australia	15-19	7.6	28.3	5.5	38.2	79.6	13.6	3.7	3.1	20.4	100
	20-24	5.5	20.9	1.9	11.3	39.7	47.0	6.2	7.1	60.3	100
	25-29	1.1	11.3	0.8	4.4	17.7	64.7	4.7	12.9	82.3	100
Austria	15-19	23.4	1.1	0.4	58.8	83.6	10.7	2.6	3.0	16.4	100
	20-24	2.7	3.5	0.4	23.7	30.3	59.3	4.7	5.6	69.7	100
	25-29	0.1	4.6	0.2	7.6	12.5	75.2	4.8	7.5	87.5	100
Belgium	15-19	1.0	1.6	c	86.3	89.1	3.8	2.7	4.4	10.9	100
	20-24	1.1	3.0	0.9	35.0	39.9	43.0	10.0	7.1	60.1	100
	25-29	[0.4]	4.8	c	3.3	8.9	72.8	9.6	8.8	91.1	100
Canada	15-19	a	30.0	5.8	46.6	82.5	10.9	3.0	3.7	17.5	100
	20-24	a	19.9	1.7	18.2	39.8	47.0	6.8	6.4	60.2	100
	25-29	a	7.7	0.7	5.6	14.0	70.4	6.2	9.4	86.0	100
Czech Republic	15-19	20.7	0.4	c	67.9	89.0	5.2	3.5	2.2	11.0	100
	20-24	0.4	0.7	c	27.5	28.7	53.3	9.3	8.7	71.3	100
	25-29	c	0.3	c	2.7	3.0	73.0	6.4	17.6	97.0	100
Denmark	15-19	a	43.3	4.2	42.3	89.8	7.3	1.4	1.5	10.2	100
	20-24	a	34.6	2.7	20.4	57.7	34.1	3.6	4.6	42.3	100
	25-29	a	28.3	1.5	10.5	40.2	50.3	4.4	5.2	59.8	100
Finland	15-19	a	11.0	5.6	68.2	84.8	5.5	2.4	7.3	15.2	100
	20-24	a	19.0	4.8	27.5	51.3	32.2	8.1	8.3	48.7	100
	25-29	a	16.7	1.6	8.7	27.1	58.5	6.2	8.3	72.9	100
France	15-19	4.5	1.8	0.8	76.7	83.8	2.2	2.1	11.9	16.2	100
	20-24	3.8	8.4	1.7	37.1	51.1	33.4	9.6	5.9	48.9	100
	25-29	1.0	10.7	1.2	5.6	18.6	62.6	9.3	9.5	81.4	100
Germany	15-19	18.7	4.5	0.8	67.3	91.2	4.1	1.9	2.8	8.8	100
	20-24	13.2	6.8	0.5	20.7	41.2	43.1	8.1	7.5	58.8	100
	25-29	1.8	6.3	0.5	9.3	17.9	63.7	8.0	10.4	82.1	100
Greece	15-19	a	1.3	[0.4]	82.6	84.3	6.3	2.8	6.5	15.7	100
	20-24	a	2.7	0.8	35.2	38.6	39.9	13.0	8.5	61.4	100
	25-29	a	1.8	[0.4]	4.7	6.9	69.1	12.0	11.9	93.1	100
Hungary	15-19	a	[0.6]	0.2	88.9	89.7	3.5	1.8	5.0	10.3	100
	20-24	a	6.1	0.8	33.6	40.5	39.6	6.4	13.5	59.5	100
	25-29	a	7.1	[0.4]	5.1	12.6	59.9	5.7	21.8	87.4	100
Iceland[2]	15-19	c	29.5	c	49.1	80.9	14.8	c	c	19.1	100
	20-24	5.4	29.4	c	18.2	53.8	40.1	c	c	46.2	100
	25-29	c	23.8	c	7.4	36.5	58.8	c	c	63.5	100
Ireland	15-19	a	9.5	c	71.4	81.4	13.4	2.6	2.6	18.6	100
	20-24	a	7.6	c	22.4	30.3	58.3	4.1	7.3	69.7	100
	25-29	a	[1.1]	c	3.6	4.8	80.2	4.1	10.9	95.2	100
Italy[2]	15-19	n	0.5	0.7	79.6	80.8	8.7	4.3	6.2	19.2	100
	20-24	0.1	1.8	1.6	34.7	38.2	37.5	11.8	12.5	61.8	100
	25-29	0.1	2.2	1.1	12.3	15.6	59.5	10.4	14.5	84.4	100

Note: Figures in brackets, such as [76], are not statistically significant due to small sample size.
1. Students in work-study programmes are considered to be both in education and employed, irrespective of their labour market status according to the ILO definition.
2. Year of reference 2002.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table C4.2a. *(continued)* Percentage of the youth population in education and not in education (2003)

By age group and work status

		Age group	In education: Students in work-study programmes[1]	In education: Other employed	In education: Unem-ployed	In education: Not in the labour force	In education: Sub-total	Not in education: Employed	Not in education: Unem-ployed	Not in education: Not in the labour force	Not in education: Sub-total	Total in education and not in education
OECD COUNTRIES	Luxembourg	15-19	a	c	c	90.2	92.2	[5.6]	c	c	7.8	100
		20-24	a	[3.6]	c	45.9	50.5	41.3	[4.4]	[3.9]	49.5	100
		25-29	a	5.9	c	6.9	13.0	77.1	[2.3]	7.6	87.0	100
	Mexico	15-19	a	6.5	0.3	47.1	54.0	28.2	1.8	16.0	46.0	100
		20-24	a	4.3	0.3	15.2	19.8	52.6	2.8	24.8	80.2	100
		25-29	a	1.7	0.1	2.5	4.2	64.8	2.1	28.9	95.8	100
	Netherlands[2]	15-19	a	39.8	3.8	37.2	80.7	14.7	1.7	2.9	19.3	100
		20-24	a	21.9	0.9	12.5	35.3	56.8	2.1	5.8	64.7	100
		25-29	a	3.5	0.2	2.4	6.2	80.9	2.5	10.4	93.8	100
	Norway	15-19	a	21.6	5.1	60.2	86.9	10.4	c	c	13.1	100
		20-24	a	16.3	2.2	20.2	38.7	50.8	4.5	6.0	61.3	100
		25-29	a	5.6	c	8.9	15.4	71.9	4.4	8.3	84.6	100
	Poland	15-19	a	2.9	0.7	92.0	95.6	1.1	1.9	1.4	4.4	100
		20-24	a	9.2	7.2	39.4	55.7	18.8	17.8	7.7	44.3	100
		25-29	a	9.3	2.8	5.3	17.3	52.4	18.0	12.2	82.7	100
	Portugal	15-19	a	2.5	c	71.8	74.8	16.4	4.0	4.8	25.2	100
		20-24	a	5.9	[1.1]	28.2	35.2	52.5	7.2	5.1	64.8	100
		25-29	a	5.9	[1.0]	4.8	11.7	73.7	6.5	8.1	88.3	100
	Slovak Republic	15-19	16.7	c	c	65.3	82.2	5.2	7.4	5.3	17.8	100
		20-24	c	1.3	c	22.1	24.0	46.4	20.0	9.6	76.0	100
		25-29	c	[0.9]	c	1.6	2.6	68.3	14.4	14.7	97.4	100
	Spain	15-19	0.5	1.8	1.3	79.0	82.6	10.1	4.6	2.7	17.4	100
		20-24	0.6	6.2	3.3	33.4	43.5	41.8	9.6	5.2	56.5	100
		25-29	0.3	5.7	2.2	7.2	15.4	65.0	10.3	9.2	84.6	100
	Sweden	15-19	a	12.2	3.3	73.2	88.7	7.0	1.9	2.4	11.3	100
		20-24	a	12.7	2.2	27.3	42.3	46.0	5.9	5.9	57.7	100
		25-29	a	10.1	1.4	11.3	22.8	67.9	5.2	4.2	77.2	100
	Switzerland	15-19	35.0	9.5	2.0	37.1	83.6	8.4	2.3	5.7	16.4	100
		20-24	10.4	11.4	[1.0]	12.9	35.8	51.5	6.5	6.2	64.2	100
		25-29	[0.8]	7.6	[0.5]	3.3	12.2	73.6	5.3	8.9	87.8	100
	Turkey	15-19	a	2.0	0.3	43.6	45.9	21.3	4.8	28.1	54.1	100
		20-24	a	2.2	0.8	12.8	15.8	36.5	10.4	37.4	84.2	100
		25-29	a	1.8	0.3	1.6	3.7	53.2	7.7	35.4	96.3	100
	United Kingdom	15-19	4.3	20.5	2.7	48.8	76.3	14.3	4.9	4.6	23.7	100
		20-24	3.0	13.4	1.1	15.1	32.6	52.1	5.4	9.9	67.4	100
		25-29	0.9	9.8	0.7	3.6	15.0	68.7	3.7	12.6	85.0	100
	United States[2]	15-19	a	23.1	3.5	56.2	82.9	10.2	2.4	4.6	17.1	100
		20-24	a	19.6	1.4	13.9	35.0	48.5	5.9	10.7	65.0	100
		25-29	a	8.6	0.4	3.3	12.3	70.3	4.4	13.0	87.7	100
	Country mean	***15-19***	***4.9***	***11.3***	***1.8***	***63.9***	***82.1***	***9.7***	***2.7***	***5.1***	***17.9***	***100***
		20-24	***1.7***	***10.8***	***1.5***	***24.6***	***38.7***	***44.6***	***7.6***	***8.9***	***61.3***	***100***
		25-29	***0.2***	***7.5***	***0.7***	***5.7***	***14.4***	***66.9***	***6.6***	***11.9***	***85.6***	***100***
PARTNER COUNTRY	Israel	15-19	a	3.4	1.0	64.7	69.0	5.7	1.6	23.7	31.0	100
		20-24	a	11.0	1.2	15.9	28.1	27.7	8.9	35.3	71.9	100
		25-29	a	12.9	1.1	5.7	19.6	52.7	8.0	19.7	80.4	100

Note: Figures in brackets, such as [76], are not statistically significant due to small sample size.

1. Students in work-study programmes are considered to be both in education and employed, irrespective of their labour market status according to the ILO definition.
2. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/361172740884

Table C4.2b. Percentage of young males in education and not in education (2003)

By age group and work status

	Age group	In education: Students in work-study programmes[1]	In education: Other employed	In education: Unem-ployed	In education: Not in the labour force	In education: Sub-total	Not in education: Employed	Not in education: Unem-ployed	Not in education: Not in the labour force	Not in education: Sub-total	Total in education and not in education
OECD COUNTRIES											
Australia	15-19	10.7	22.8	5.7	40.2	79.4	14.2	3.9	2.5	20.6	100
	20-24	7.8	18.4	1.6	10.7	38.6	50.6	7.3	3.4	61.4	100
	25-29	1.6	10.9	c	3.1	16.2	73.1	5.8	4.9	83.8	100
Austria	15-19	29.4	1.3	0.2	52.6	83.6	10.6	3.1	2.7	16.4	100
	20-24	3.0	3.3	0.5	22.3	29.2	61.7	5.7	3.3	70.8	100
	25-29	0.2	4.9	0.3	7.7	13.1	79.4	5.6	2.0	86.9	100
Belgium	15-19	1.5	1.7	c	84.9	88.2	4.8	3.1	3.8	11.8	100
	20-24	[0.9]	1.7	c	34.5	37.8	46.1	11.4	4.7	62.2	100
	25-29	c	4.2	c	4.0	9.0	76.7	9.6	4.8	91.0	100
Canada	15-19	a	26.2	6.1	47.8	80.1	12.6	4.0	3.3	19.9	100
	20-24	a	16.3	1.9	17.2	35.5	51.0	8.9	4.7	64.5	100
	25-29	a	6.8	0.7	5.3	12.7	74.5	7.6	5.1	87.3	100
Czech Republic	15-19	26.3	0.4	c	61.7	88.5	6.1	3.4	2.0	11.5	100
	20-24	0.6	0.5	c	26.1	27.2	59.5	10.0	3.3	72.8	100
	25-29	n	0.2	c	3.0	3.3	88.5	6.0	2.2	96.7	100
Denmark	15-19	a	45.1	3.9	41.7	90.6	6.5	1.7	1.1	9.4	100
	20-24	a	34.2	2.8	17.9	54.9	37.7	4.1	3.3	45.1	100
	25-29	a	28.5	1.4	8.0	37.8	56.7	3.5	2.0	62.2	100
Finland	15-19	a	8.2	4.9	70.1	83.3	3.7	2.5	10.5	16.7	100
	20-24	a	16.2	4.5	25.0	45.7	35.4	10.4	8.5	54.3	100
	25-29	a	16.8	1.7	8.3	26.8	62.7	5.6	4.9	73.2	100
France	15-19	6.4	1.8	0.7	73.3	82.3	2.9	2.4	12.4	17.7	100
	20-24	4.4	7.6	1.5	34.9	48.4	37.6	10.4	3.6	51.6	100
	25-29	1.2	11.2	1.1	5.0	18.5	67.6	9.5	4.4	81.5	100
Germany	15-19	20.7	4.5	0.9	64.9	90.9	4.4	2.3	2.3	9.1	100
	20-24	12.8	5.7	0.6	20.1	39.1	46.2	10.6	4.1	60.9	100
	25-29	2.1	6.8	0.5	11.2	20.6	66.3	9.8	3.4	79.4	100
Greece	15-19	a	1.9	c	80.7	83.1	8.3	2.5	6.1	16.9	100
	20-24	a	2.0	c	33.5	36.0	49.1	10.0	4.9	64.0	100
	25-29	a	1.9	c	5.0	7.2	79.4	9.9	3.5	92.8	100
Hungary	15-19	a	c	c	88.3	89.0	4.3	2.2	4.4	11.0	100
	20-24	a	5.4	c	32.9	39.1	43.3	8.0	9.7	60.9	100
	25-29	a	6.0	c	4.9	11.3	71.8	6.9	10.0	88.7	100
Iceland[2]	15-19	c	23.2	c	51.6	77.3	16.5	c	c	22.7	100
	20-24	c	27.2	c	16.4	51.8	42.1	c	c	48.2	100
	25-29	c	25.0	c	c	33.5	63.3	c	c	66.5	100
Ireland	15-19	a	8.5	c	68.4	77.4	17.3	3.1	2.2	22.6	100
	20-24	a	7.2	c	20.9	28.4	62.4	5.1	4.0	71.6	100
	25-29	a	c	c	3.4	4.4	85.0	4.9	5.7	95.6	100
Italy[2]	15-19	n	0.7	0.5	77.3	78.5	10.7	4.5	6.2	21.5	100
	20-24	0.1	1.5	1.1	31.7	34.4	43.8	11.6	10.2	65.6	100
	25-29	n	2.0	0.8	12.1	15.0	69.2	9.7	6.1	85.0	100

Note: Figures in brackets, such as [76], are not statistically significant due to small sample size.

1. Students in work-study programmes are considered to be both in education and employed, irrespective of their labour market status according to the ILO definition.

2. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table C4.2b. (*continued*) **Percentage of young males in education and not in education (2003)**

By age group and work status

		Age group	In education					Not in education				Total in education and not in education
			Students in work-study programmes[1]	Other employed	Unem-ployed	Not in the labour force	Sub-total	Employed	Unem-ployed	Not in the labour force	Sub-total	
OECD COUNTRIES	Luxembourg	15-19	a	c	n	88.8	90.2	[7.4]	c	c	9.8	100
		20-24	a	c	c	46.5	51.8	41.3	c	c	48.2	100
		25-29	a	c	n	[8.5]	[13.7]	83.3	[1.9]	c	86.3	100
	Mexico	15-19	a	8.7	0.4	45.1	54.1	37.8	2.3	5.8	45.9	100
		20-24	a	5.1	0.3	15.8	21.2	72.0	3.3	3.5	78.8	100
		25-29	a	2.3	0.1	2.9	5.3	89.5	2.8	2.4	94.7	100
	Netherlands[2]	15-19	a	39.6	3.8	36.5	79.9	15.4	1.9	2.8	20.1	100
		20-24	a	21.3	1.1	12.8	35.3	58.3	2.4	4.0	64.7	100
		25-29	a	4.4	0.2	2.7	7.2	86.2	2.6	4.0	92.8	100
	Norway	15-19	a	17.9	5.2	61.5	84.6	12.3	c	c	15.4	100
		20-24	a	12.2	c	18.3	32.3	57.0	5.7	5.1	67.7	100
		25-29	a	5.2	c	8.0	14.4	74.8	5.3	5.5	85.6	100
	Poland	15-19	a	3.7	0.9	90.0	94.7	[1.5]	2.4	1.4	5.3	100
		20-24	a	8.9	6.7	36.8	52.4	21.8	20.8	5.0	47.6	100
		25-29	a	8.2	3.2	4.9	16.3	59.3	19.8	4.6	83.7	100
	Portugal	15-19	a	c	c	68.6	71.7	20.1	[4.0]	[4.2]	28.3	100
		20-24	a	5.0	c	25.3	30.6	59.5	6.6	3.4	69.4	100
		25-29	a	5.4	c	5.0	11.1	76.7	7.1	5.1	88.9	100
	Slovak Republic	15-19	21.3	n	c	58.7	80.1	4.7	8.5	6.8	19.9	100
		20-24	c	c	c	18.9	20.3	50.4	23.5	5.8	79.7	100
		25-29	c	[1.2]	c	[1.4]	2.7	76.5	17.2	3.7	97.3	100
	Spain	15-19	0.6	2.0	1.2	75.0	78.8	13.8	4.9	2.4	21.2	100
		20-24	0.6	5.3	2.7	30.0	38.6	49.1	9.0	3.2	61.4	100
		25-29	0.3	5.4	1.8	7.4	14.8	73.2	8.2	3.7	85.2	100
	Sweden	15-19	a	9.1	2.7	76.9	88.8	6.2	1.7	3.3	11.2	100
		20-24	a	9.5	2.6	26.0	38.1	49.9	6.9	5.2	61.9	100
		25-29	a	9.5	1.1	10.8	21.4	71.4	5.1	2.2	78.6	100
	Switzerland	15-19	40.3	7.9	2.6	36.2	87.1	5.8	2.5	4.6	12.9	100
		20-24	9.6	11.6	[1.1]	13.6	35.9	52.8	5.6	5.7	64.1	100
		25-29	[1.2]	8.8	c	3.6	14.2	76.2	5.9	3.7	85.8	100
	Turkey	15-19	a	2.8	0.3	48.5	51.6	25.8	6.2	16.3	48.4	100
		20-24	a	2.7	0.8	16.7	20.2	50.3	15.3	14.3	79.8	100
		25-29	a	2.6	0.3	1.9	4.9	76.9	11.0	7.2	95.1	100
	United Kingdom	15-19	6.5	17.2	2.9	48.9	75.5	14.8	5.8	3.9	24.5	100
		20-24	3.5	12.0	1.3	15.8	32.7	56.6	7.1	3.7	67.3	100
		25-29	0.7	9.2	0.7	3.4	14.0	76.1	4.4	5.6	86.0	100
	United States[2]	15-19	a	21.1	3.3	57.7	82.1	11.5	2.5	3.9	17.9	100
		20-24	a	17.2	1.3	14.4	33.0	54.4	6.5	6.1	67.0	100
		25-29	a	7.7	c	2.7	10.9	78.5	4.8	5.8	89.1	100
	Country mean	***15-19***	***6.1***	***10.2***	***1.7***	***62.8***	***81.2***	***11.1***	***3.0***	***4.3***	***18.8***	***100***
		20-24	***1.6***	***9.6***	***1.2***	***23.5***	***36.6***	***49.6***	***8.4***	***4.9***	***63.4***	***100***
		25-29	***0.3***	***7.2***	***0.5***	***5.3***	***14.1***	***74.5***	***7.1***	***4.2***	***85.9***	***100***
PARTNER COUNTRY	Israel	15-19	a	4.2	1.0	65.1	70.3	5.7	1.5	22.5	29.7	100
		20-24	a	7.5	1.1	14.1	22.8	25.7	8.9	42.6	77.2	100
		25-29	a	14.4	1.3	6.5	22.1	54.6	9.7	13.6	77.9	100

Note: Figures in brackets, such as [76], are not statistically significant due to small sample size.
1. Students in work-study programmes are considered to be both in education and employed, irrespective of their labour market status according to the ILO definition.
2. Year of reference 2002.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table C4.2c. Percentage of young females in education and not in education (2003)

By age group and work status

	Age group	In education: Students in work-study programmes[1]	In education: Other employed	In education: Unem-ployed	In education: Not in the labour force	In education: Sub-total	Not in education: Employed	Not in education: Unem-ployed	Not in education: Not in the labour force	Not in education: Sub-total	Total in education and not in education
Australia	15-19	4.4	34.0	5.2	36.2	79.8	13.1	3.4	3.7	20.2	100
	20-24	3.2	23.5	2.3	11.8	40.8	43.3	5.0	10.9	59.2	100
	25-29	c	11.8	1.1	5.7	19.2	56.4	3.5	20.9	80.8	100
Austria	15-19	17.4	0.8	0.6	65.0	83.7	10.9	2.1	3.3	16.3	100
	20-24	2.4	3.7	0.3	25.1	31.4	56.9	3.7	7.9	68.6	100
	25-29	0.0	4.3	0.2	7.4	11.9	71.2	4.1	12.9	88.1	100
Belgium	15-19	c	[1.5]	c	87.8	89.9	2.7	2.3	5.1	10.1	100
	20-24	[1.3]	4.3	1.0	35.4	42.0	39.8	8.7	9.5	58.0	100
	25-29	c	5.5	c	2.6	8.8	68.8	9.5	12.9	91.2	100
Canada	15-19	a	34.0	5.5	45.4	84.9	9.1	2.0	4.0	15.1	100
	20-24	a	23.6	1.5	19.1	44.2	42.9	4.6	8.3	55.8	100
	25-29	a	8.7	0.6	6.0	15.2	66.3	4.6	13.8	84.8	100
Czech Republic	15-19	14.8	0.3	c	74.4	89.5	4.2	3.7	2.5	10.5	100
	20-24	c	0.9	c	29.0	30.2	46.8	8.6	14.3	69.8	100
	25-29	n	0.3	n	2.3	2.6	56.9	6.9	33.6	97.4	100
Denmark	15-19	a	41.4	4.5	42.9	88.8	8.1	1.1	2.0	11.2	100
	20-24	a	35.0	2.5	22.9	60.4	30.6	3.2	5.8	39.6	100
	25-29	a	28.0	1.6	13.0	42.6	43.6	5.4	8.4	57.4	100
Finland	15-19	a	13.9	6.2	66.2	86.3	7.3	[2.4]	4.0	13.7	100
	20-24	a	22.0	5.2	30.1	57.2	28.9	5.8	8.1	42.8	100
	25-29	a	16.7	c	9.1	27.3	54.2	6.8	11.7	72.7	100
France	15-19	2.4	1.8	[0.8]	80.3	85.3	1.6	1.8	11.4	14.7	100
	20-24	3.2	9.2	1.9	39.4	53.8	29.1	8.9	8.2	46.2	100
	25-29	[0.9]	10.3	1.3	6.2	18.7	57.6	9.2	14.6	81.3	100
Germany	15-19	16.6	4.5	0.6	69.9	91.6	3.7	1.4	3.4	8.4	100
	20-24	13.6	8.0	0.5	21.3	43.4	40.0	5.6	11.0	56.6	100
	25-29	1.5	5.8	0.4	7.4	15.1	61.0	6.2	17.7	84.9	100
Greece	15-19	a	c	c	84.5	85.5	4.4	3.2	6.9	14.5	100
	20-24	a	3.3	[1.1]	36.8	41.2	30.9	15.9	12.0	58.8	100
	25-29	a	1.8	c	4.3	6.7	58.1	14.2	21.0	93.3	100
Hungary	15-19	a	c	c	89.4	90.4	2.7	[1.3]	5.7	9.6	100
	20-24	a	6.8	[0.8]	34.3	41.9	36.0	4.8	17.3	58.1	100
	25-29	a	8.1	c	5.2	13.8	48.4	4.5	33.3	86.2	100
Iceland[2]	15-19	c	35.9	c	46.5	84.6	13.0	c	c	15.4	100
	20-24	c	31.8	c	20.0	55.9	37.9	c	c	44.1	100
	25-29	c	22.6	c	11.3	39.6	54.1	c	c	60.4	100
Ireland	15-19	a	10.6	c	74.6	85.6	9.4	[2.0]	[3.0]	14.4	100
	20-24	a	8.0	c	23.8	32.3	54.3	3.0	10.5	67.7	100
	25-29	a	c	c	3.8	5.3	75.4	3.2	16.1	94.7	100
Italy[2]	15-19	n	0.2	0.8	82.1	83.1	6.6	4.0	6.3	16.9	100
	20-24	0.1	2.2	2.1	37.8	42.2	31.1	11.9	14.9	57.8	100
	25-29	0.1	2.4	1.4	12.4	16.3	49.7	11.0	23.0	83.7	100

Note: Figures in brackets, such as [76], are not statistically significant due to small sample size.

1. Students in work-study programmes are considered to be both in education and employed, irrespective of their labour market status according to the ILO definition.
2. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

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Table C4.2c. *(continued)* **Percentage of young females in education and not in education (2003)**
By age group and work status

	Age group	In education: Students in work-study programmes[1]	In education: Other employed	In education: Unem-ployed	In education: Not in the labour force	In education: Sub-total	Not in education: Employed	Not in education: Unem-ployed	Not in education: Not in the labour force	Not in education: Sub-total	Total in education and not in education
Luxembourg	15-19	a	2.3	0.2	91.8	94.2	3.8	1.4	0.6	5.8	100
	20-24	a	3.4	0.5	45.3	49.2	41.2	5.2	4.4	50.8	100
	25-29	a	6.4	0.4	5.5	12.3	71.2	2.7	13.8	87.7	100
Mexico	15-19	a	4.4	0.2	49.3	53.8	18.3	1.3	26.5	46.2	100
	20-24	a	3.6	0.2	14.7	18.5	34.6	2.3	44.5	81.5	100
	25-29	a	1.2	0.0	2.1	3.3	43.6	1.5	51.6	96.7	100
Netherlands[2]	15-19	a	40.0	3.7	37.8	81.6	14.0	1.6	2.9	18.4	100
	20-24	a	22.4	0.8	12.1	35.2	55.3	1.8	7.7	64.8	100
	25-29	a	2.7	0.3	2.2	5.2	75.6	2.4	16.7	94.8	100
Norway	15-19	a	25.5	5.0	58.8	89.3	8.5	c	1.2	10.7	100
	20-24	a	20.5	c	22.1	45.2	44.4	c	7.0	54.8	100
	25-29	a	6.1	c	9.8	16.4	68.9	c	11.3	83.6	100
Poland	15-19	a	2.0	0.4	94.1	96.6	0.7	1.4	1.3	3.4	100
	20-24	a	9.4	7.7	41.9	59.1	15.8	14.8	10.4	40.9	100
	25-29	a	10.4	2.4	5.7	18.4	45.4	16.2	20.0	81.6	100
Portugal	15-19	a	[2.6]	c	75.1	78.0	12.6	[3.9]	5.5	22.0	100
	20-24	a	6.8	c	31.2	39.9	45.5	7.8	6.7	60.1	100
	25-29	a	6.4	c	4.6	12.3	70.6	6.0	11.1	87.7	100
Slovak Republic	15-19	11.8	c	c	72.1	84.4	5.7	6.2	3.7	15.6	100
	20-24	c	[1.7]	c	25.4	27.8	42.4	16.3	13.5	72.2	100
	25-29	c	c	c	1.8	2.6	59.8	11.6	26.0	97.4	100
Spain	15-19	0.4	1.6	1.3	83.2	86.5	6.1	4.2	3.1	13.5	100
	20-24	0.6	7.1	3.9	36.9	48.5	34.1	10.1	7.2	51.5	100
	25-29	0.4	5.9	2.7	7.0	16.0	56.5	12.5	15.0	84.0	100
Sweden	15-19	a	15.5	3.8	69.3	88.7	8.0	2.0	1.4	11.3	100
	20-24	a	16.1	1.9	28.7	46.7	41.8	4.8	6.6	53.3	100
	25-29	a	10.7	1.8	11.7	24.2	64.3	5.2	6.3	75.8	100
Switzerland	15-19	29.9	11.1	[1.4]	37.9	80.2	10.9	[2.2]	6.7	19.8	100
	20-24	11.3	11.2	c	12.2	35.7	50.1	7.5	6.7	64.3	100
	25-29	c	6.4	c	3.0	10.2	71.2	4.7	13.9	89.8	100
Turkey	15-19	a	1.1	0.2	38.1	39.5	16.2	3.1	41.2	60.5	100
	20-24	a	1.8	0.7	9.3	11.9	24.4	6.1	57.7	88.1	100
	25-29	a	1.0	0.3	1.2	2.4	27.5	4.1	66.0	97.6	100
United Kingdom	15-19	2.0	23.9	2.5	48.7	77.2	13.7	3.8	5.3	22.8	100
	20-24	2.4	14.8	0.9	14.4	32.5	47.5	3.7	16.3	67.5	100
	25-29	1.1	10.4	0.6	3.9	16.0	61.2	2.9	19.9	84.0	100
United States[2]	15-19	a	25.2	3.8	54.7	83.7	8.8	2.2	5.4	16.3	100
	20-24	a	22.0	1.6	13.3	36.9	42.7	5.2	15.2	63.1	100
	25-29	a	9.4	0.4	3.8	13.6	62.5	4.0	19.9	86.4	100
Country mean	***15-19***	***3.7***	***12.4***	***1.7***	***65.0***	***83.1***	***8.3***	***2.4***	***6.1***	***16.9***	***100***
	20-24	***1.4***	***12.0***	***1.4***	***25.7***	***40.9***	***39.6***	***6.5***	***12.7***	***59.1***	***100***
	25-29	***0.1***	***7.5***	***0.6***	***5.9***	***14.7***	***59.2***	***6.0***	***19.7***	***85.3***	***100***
PARTNER COUNTRY: Israel	15-19	a	2.5	1.0	64.2	67.7	5.7	1.7	24.9	32.3	100
	20-24	a	14.5	1.2	17.7	33.5	29.7	8.9	27.9	66.5	100
	25-29	a	11.3	0.9	4.9	17.1	50.9	6.4	25.7	82.9	100

Note: Figures in brackets, such as [76], are not statistically significant due to small sample size.
1. Students in work-study programmes are considered to be both in education and employed, irrespective of their labour market status according to the ILO definition.
2. Year of reference 2002.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table C4.3. Percentage of the population not in education and unemployed in the total population (2003)

By level of educational attainment, age group and gender

		Below upper secondary education			Upper secondary and post-secondary non-tertiary education			Tertiary education		All levels of education			
		15-19	20-24	25-29	15-19	20-24	25-29	20-24	25-29	15-19	20-24	25-29	15-29
OECD COUNTRIES													
Australia	Males	7.1	17.0	12.3	2.8	5.8	5.2	3.5	2.8	4.5	7.3	5.8	6.0
	Females	7.1	10.3	6.6	2.4	6.7	4.3	2.0	1.6	4.2	5.0	3.5	4.2
	M+F	7.1	13.9	9.5	2.6	6.2	4.8	2.7	2.1	4.3	6.2	4.7	5.1
Austria	Males	16.5	15.7	14.4	0.6	6.1	4.6	0.0	3.2	3.2	5.5	5.3	4.7
	Females	10.9	11.0	7.2	0.6	4.1	3.3	0.4	3.2	2.3	3.8	3.9	3.4
	M+F	13.9	13.0	10.1	0.6	5.2	4.0	0.2	3.2	2.8	4.7	4.6	4.1
Belgium	Males	2.7	22.6	18.6	5.3	8.0	6.8	9.8	6.9	3.2	11.3	9.6	8.1
	Females	0.4	19.5	20.4	8.4	6.3	10.9	8.0	3.8	2.3	8.7	9.5	6.9
	M+F	1.6	21.4	19.3	7.0	7.2	8.7	8.7	5.2	2.7	10.0	9.6	7.5
Canada	Males	3.0	17.8	16.0	6.7	8.0	7.7	5.4	5.4	4.0	8.9	7.6	6.9
	Females	1.7	10.1	8.0	2.8	4.4	5.5	3.5	3.7	2.0	4.6	4.6	3.8
	M+F	2.4	14.9	12.7	4.6	6.3	6.8	4.2	4.5	3.0	6.8	6.2	5.3
Czech Republic	Males	7.4	30.6	23.5	2.6	11.7	5.1	0.7	3.4	3.5	10.0	6.0	6.6
	Females	9.1	19.8	13.6	2.7	10.8	6.9	1.3	3.3	3.8	8.6	6.9	6.6
	M+F	8.2	24.8	18.5	2.7	11.3	6.0	1.0	3.3	3.7	9.4	6.4	6.6
Denmark	Males	1.4	4.8	4.8	6.4	3.6	1.6	5.6	6.8	1.7	4.0	3.5	3.1
	Females	0.5	5.4	7.6	7.7	2.4	3.7	6.5	7.0	1.1	3.2	5.4	3.4
	M+F	1.0	5.1	6.1	7.1	2.9	2.6	6.1	6.9	1.4	3.6	4.4	3.2
Finland	Males	4.8	23.2	11.5	1.4	14.5	8.5	0.6	1.4	2.6	10.4	5.6	6.2
	Females	4.8	22.0	18.0	1.5	8.7	10.1	0.8	3.6	2.5	5.8	6.8	5.0
	M+F	4.8	22.8	13.8	1.5	12.0	9.2	0.7	2.6	2.5	8.1	6.2	5.6
France	Males	2.6	19.7	17.6	3.3	7.7	8.2	7.2	7.0	2.7	10.4	9.5	7.7
	Females	1.6	15.7	15.2	3.9	7.9	10.4	5.9	5.9	2.0	8.9	9.2	6.8
	M+F	2.1	17.9	16.4	3.6	7.8	9.2	6.5	6.4	2.4	9.6	9.3	7.3
Germany	Males	3.8	26.1	24.3	0.8	10.2	10.4	0.3	2.4	2.3	10.4	9.8	7.5
	Females	2.4	15.6	10.2	0.3	5.3	7.0	0.7	2.2	1.3	5.5	6.2	4.3
	M+F	3.1	21.0	16.7	0.6	7.9	8.7	0.6	2.3	1.8	8.0	8.0	5.9
Greece	Males	7.5	11.9	7.7	1.5	15.7	11.4	1.3	9.1	2.8	10.0	9.9	8.0
	Females	8.2	21.3	13.1	2.7	24.1	15.4	5.0	13.0	3.7	15.9	14.2	11.9
	M+F	7.8	15.3	9.8	2.1	20.0	13.4	3.3	11.3	3.3	13.0	12.0	10.0
Hungary	Males	1.5	15.3	13.8	6.3	6.5	6.0	8.6	2.5	2.3	8.0	6.9	5.8
	Females	0.8	6.4	9.0	3.1	4.3	4.1	6.6	2.1	1.3	4.8	4.5	3.7
	M+F	1.2	11.1	11.5	4.6	5.4	5.1	7.3	2.3	1.8	6.4	5.7	4.7
Iceland[1]	Males	c	c	c	a	a	a	a	c	c	c	c	4.6
	Females	c	c	a	a	c	a	a	a	c	c	a	c
	M+F	c	c	c	a	c	a	a	c	c	c	c	c
Ireland	Males	2.8	11.9	10.3	3.9	3.7	3.8	3.9	3.4	3.1	5.2	5.0	4.5
	Females	1.4	5.2	5.5	3.3	2.7	2.9	2.9	2.6	1.9	3.0	3.1	2.7
	M+F	2.2	9.4	8.3	3.6	3.2	3.4	3.3	3.0	2.5	4.1	4.1	3.6
Italy[1]	Males	3.9	16.9	11.8	9.3	9.0	7.7	9.7	13.0	4.5	11.6	9.7	8.9
	Females	3.4	15.5	11.7	8.5	10.4	9.9	23.4	14.1	4.0	11.9	11.0	9.4
	M+F	3.7	16.3	11.8	8.9	9.7	8.8	17.7	13.6	4.3	11.8	10.4	9.1

Note: Figures in brackets, such as [76], are not statistically significant due to small sample size.
1. Year of reference 2002.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table C4.3. (*continued*) **Percentage of the population not in education and unemployed in the total population (2003)**

By level of educational attainment, age group and gender

			Below upper secondary education			Upper secondary and post-secondary non-tertiary education			Tertiary education		All levels of education			
			15-19	20-24	25-29	15-19	20-24	25-29	20-24	25-29	15-19	20-24	25-29	15-29
OECD COUNTRIES	Luxembourg	Males	0.9	9.0	3.0	2.7	2.3	1.5	3.7	2.4	1.5	3.6	1.9	2.3
		Females	0.6	7.9	2.6	2.7	4.7	2.1	5.4	4.4	1.4	5.3	2.7	3.1
		M+F	0.7	8.5	2.8	2.7	3.5	1.8	4.8	3.5	1.4	4.4	2.3	2.7
	Mexico	Males	2.3	3.4	2.3	2.8	5.5	3.2	2.8	4.4	2.3	3.3	2.8	2.8
		Females	1.2	1.7	0.9	2.8	6.2	1.8	3.3	3.7	1.2	2.3	1.5	1.7
		M+F	1.8	2.5	1.6	2.8	6.0	2.2	3.0	4.0	1.8	2.8	2.1	2.2
	Netherlands[1]	Males	1.8	3.2	4.4	2.3	1.7	1.6	5.8	3.0	1.9	2.4	2.6	2.3
		Females	1.4	3.0	3.5	2.3	1.4	2.0	1.3	2.4	1.6	1.8	2.4	2.0
		M+F	1.6	3.1	4.0	2.3	1.6	1.8	2.9	2.6	1.7	2.1	2.5	2.1
	Norway	Males	0.8	18.2	6.5	1.7	5.4	5.7	0.0	3.5	1.3	5.7	5.1	4.0
		Females	0.6	8.7	4.0	1.5	3.7	4.0	0.8	2.8	1.0	3.4	3.4	2.6
		M+F	0.7	14.9	5.4	1.6	4.6	5.0	0.5	3.1	1.2	4.6	4.3	3.3
	Poland	Males	2.4	45.6	32.9	2.4	27.7	23.1	0.7	7.1	2.4	20.8	19.8	14.9
		Females	1.3	43.3	26.3	1.4	23.7	21.3	0.8	5.8	1.4	14.8	16.2	11.3
		M+F	1.9	44.7	30.0	1.9	25.9	22.2	0.8	6.4	1.9	17.8	18.0	13.2
	Portugal	Males	7.9	8.7	7.4	0.6	7.8	7.0	1.3	6.0	4.4	6.6	7.1	6.1
		Females	9.6	11.5	7.6	0.8	10.5	5.2	3.2	4.4	4.4	8.0	6.2	6.3
		M+F	8.6	9.8	7.5	0.7	9.3	6.1	2.4	5.1	4.4	7.3	6.6	6.2
	Slovak Republic	Males	9.6	58.2	49.6	9.0	28.2	17.2	1.1	3.9	9.1	23.5	17.2	16.9
		Females	6.9	28.3	34.0	6.8	22.4	12.1	2.4	3.4	6.8	16.3	11.6	11.8
		M+F	8.4	46.7	42.4	7.9	25.5	14.8	1.8	3.6	8.0	20.0	14.4	14.4
	Spain	Males	7.9	14.8	10.1	1.4	10.4	8.0	3.7	7.0	5.5	9.4	8.5	8.0
		Females	6.9	19.2	16.9	2.3	14.5	13.2	5.0	10.6	4.9	10.6	13.1	10.2
		M+F	7.4	16.5	12.9	1.9	12.4	10.6	4.5	8.9	5.2	10.0	10.8	9.1
	Sweden	Males	2.9	17.7	11.4	1.3	8.1	5.6	0.4	3.1	1.7	7.0	5.2	4.6
		Females	4.5	15.4	11.4	1.2	6.1	7.0	0.7	1.8	2.0	4.9	5.3	4.1
		M+F	3.7	16.7	11.4	1.2	7.1	6.2	0.6	2.4	1.8	5.9	5.2	4.3
	Switzerland	Males	[6.9]	[12.9]	[7.1]	[0.5]	6.0	5.5	[1.3]	6.1	2.5	5.6	5.9	4.7
		Females	[4.0]	[15.9]	[9.5]	[1.3]	7.9	4.1	[2.6]	[3.7]	2.2	7.5	4.7	4.8
		M+F	5.4	14.2	[8.4]	[0.9]	6.9	4.7	[1.9]	5.2	2.4	6.5	5.3	4.8
	Turkey	Males	5.9	17.7	11.8	7.1	10.7	8.8	27.0	12.7	6.2	15.3	11.0	10.6
		Females	2.2	3.0	2.3	6.7	7.1	6.2	24.8	11.6	3.1	6.1	4.1	4.4
		M+F	4.1	8.9	6.7	6.9	9.2	7.9	25.8	12.2	4.7	10.4	7.7	7.5
	United Kingdom	Males	5.3	20.5	9.9	6.1	6.0	4.9	5.2	2.1	5.8	6.9	4.2	5.7
		Females	2.6	7.6	3.6	4.4	3.8	3.6	2.6	1.8	3.8	3.8	2.9	3.5
		M+F	4.0	14.1	6.6	5.3	4.9	4.2	3.8	2.0	4.8	5.4	3.5	4.6
	United States[1]	Males	7.7	11.2	10.5	1.7	8.6	4.9	2.3	2.8	2.7	6.5	4.8	4.6
		Females	7.8	12.6	7.7	1.6	7.4	4.9	1.0	2.4	2.3	5.2	4.0	3.9
		M+F	7.7	11.8	9.1	1.7	8.0	4.9	1.6	2.6	2.5	5.9	4.4	4.3
	Country mean	***Males***	***5.0***	***17.3***	***13.0***	***3.3***	***8.3***	***6.0***	***3.8***	***4.6***	***3.3***	***8.3***	***6.7***	***6.2***
		Females	***3.9***	***11.2***	***9.5***	***3.1***	***7.5***	***6.4***	***4.0***	***4.9***	***2.5***	***6.2***	***6.1***	***5.1***
		M+F	***4.5***	***14.5***	***11.2***	***3.2***	***7.9***	***6.2***	***3.9***	***4.7***	***2.9***	***7.3***	***6.4***	***5.6***
PARTNER COUNTRY	Israel	Males	3.9	15.0	14.0	1.2	10.3	11.4	1.5	6.5	1.5	8.9	9.7	6.6
		Females	5.0	10.1	6.4	1.4	12.5	9.1	4.6	4.6	1.8	8.9	6.4	5.7
		M+F	4.4	13.4	11.0	1.3	11.3	10.3	3.5	5.5	1.6	8.9	8.0	6.1

Note: Figures in brackets, such as [76], are not statistically significant due to small sample size.

1. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table C4.4a. Trends in the percentage of the youth population in education and not in education (1995-2003)

By age group and work status

		1995			1998			1999			2000			2001			2002			2003		
		In education	Not in education		In education	Not in education		In education	Not in education		In education	Not in education		In education	Not in education		In education	Not in education		In education	Not in education	
	Age group	Total	Employed	Not employed	Total	Employed	Not employed	Total	Employed	Not employed	Total	Employed	Not employed	Total	Employed	Not employed	Total	Employed	Not employed	Total	Employed	Not employed
OECD COUNTRIES																						
Australia	15-19	73.4	16.7	9.9	77.3	13.8	8.8	78.2	14.4	7.4	79.5	13.7	6.8	79.5	13.0	7.6	79.7	13.3	7.0	79.6	13.6	6.8
	20-24	27.0	56.1	16.9	32.7	51.3	16.0	34.9	50.6	14.5	35.9	50.9	13.3	36.5	49.6	13.9	38.7	48.1	13.2	39.7	47.0	13.3
	25-29	11.4	67.1	21.5	13.7	67.1	19.2	15.0	66.5	18.5	15.5	65.5	19.0	15.8	67.0	17.2	16.5	65.7	17.8	17.7	64.7	17.6
Austria	15-19	m	m	m	78.9	14.5	6.6	76.3	13.6	10.1	74.8	13.5	11.7	75.8	12.9	11.3	81.5	12.1	6.3	79.3	10.5	10.2
	20-24	m	m	m	27.4	64.8	7.8	24.1	64.5	11.4	25.8	62.2	12.1	27.4	59.8	12.8	29.4	58.9	11.7	29.6	58.2	12.2
	25-29	m	m	m	13.0	75.9	11.1	9.8	78.6	11.6	9.1	77.5	13.4	8.7	78.5	12.8	10.3	77.3	12.4	12.5	75.3	12.3
Belgium	15-19	86.1	3.3	10.5	85.3	3.9	10.8	89.4	3.7	6.8	89.9	3.6	6.5	89.7	4.1	6.2	89.6	3.6	6.8	89.1	3.8	7.1
	20-24	37.5	43.6	19.0	40.6	42.5	16.9	43.7	38.6	17.7	43.8	40.2	16.0	44.2	42.8	13.0	38.2	44.4	17.4	39.9	43.0	17.1
	25-29	6.8	74.2	19.0	9.3	72.4	18.2	14.4	67.7	17.9	11.8	72.5	15.7	15.0	69.5	15.5	5.8	77.0	17.2	8.9	72.8	18.3
Canada	15-19	83.6	9.1	7.3	83.2	9.4	7.4	82.7	10.3	7.1	82.6	10.4	7.0	83.4	10.5	6.1	82.7	10.8	6.5	82.5	10.9	6.7
	20-24	36.8	46.0	17.2	39.5	44.1	16.5	39.6	45.8	14.6	38.7	47.1	14.2	39.2	46.4	14.4	39.3	46.8	14.0	39.8	47.0	13.2
	25-29	11.7	67.2	21.1	12.5	69.2	18.3	12.3	70.4	17.3	12.4	71.3	16.3	13.1	71.1	15.7	14.2	69.0	16.7	14.0	70.4	15.6
Czech Republic	15-19	69.8	23.7	6.5	77.1	15.8	7.2	75.6	14.8	9.7	82.1	10.0	7.9	87.0	6.2	6.8	88.3	5.7	6.0	89.0	5.2	5.8
	20-24	13.1	67.1	19.8	17.1	64.3	18.5	19.6	59.8	20.6	19.7	60.0	20.3	23.1	58.9	18.1	25.7	56.2	18.1	28.7	53.3	18.0
	25-29	1.1	76.1	22.9	1.8	75.1	23.1	2.4	71.7	25.9	2.4	72.1	25.6	3.0	72.1	25.0	2.9	73.3	23.8	3.0	73.0	24.1
Denmark	15-19	88.4	8.7	3.0	90.3	7.9	1.8	85.8	10.8	3.4	89.9	7.4	2.7	86.8	9.4	3.8	88.7	8.9	2.4	89.8	7.3	3.0
	20-24	50.0	39.3	10.7	55.0	38.0	7.0	55.8	36.6	7.6	54.8	38.6	6.6	55.3	38.1	6.6	55.3	37.4	7.3	57.7	34.1	8.2
	25-29	29.6	59.0	11.4	34.5	57.8	7.7	35.5	56.7	7.8	36.1	56.4	7.5	32.4	60.0	7.6	35.0	58.3	6.7	40.2	50.3	9.6
Finland	15-19	m	m	m	86.1	4.3	9.6	86.6	4.7	8.7	86.0	4.7	9.3	83.9	6.2	9.9	85.3	5.0	9.6	84.8	5.5	9.8
	20-24	m	m	m	47.8	32.7	19.5	50.2	32.9	16.9	52.7	30.8	16.5	46.7	35.8	17.5	47.8	34.7	17.6	51.3	32.2	16.5
	25-29	m	m	m	24.0	57.0	19.0	23.4	57.0	19.6	32.5	50.7	16.8	19.9	62.4	17.7	21.8	62.6	15.5	27.1	58.5	14.5
France	15-19	96.2	1.3	2.5	95.6	1.3	3.1	95.7	1.0	3.3	95.3	1.5	3.3	94.9	1.7	3.4	94.6	1.9	3.4	83.8	2.2	14.0
	20-24	51.2	31.3	17.5	53.5	30.0	16.5	53.1	29.4	17.5	54.2	31.7	14.1	53.6	33.1	13.4	53.2	32.5	14.4	51.1	33.4	15.5
	25-29	11.4	67.5	21.0	11.4	66.5	22.1	11.9	66.6	21.4	12.2	69.2	18.6	11.4	70.3	18.3	11.7	70.1	18.2	18.6	62.6	18.8
Germany	15-19	m	m	m	91.6	5.0	3.4	89.4	6.1	4.5	87.4	6.8	5.7	88.5	6.4	5.1	90.1	5.2	4.7	91.2	4.1	4.7
	20-24	m	m	m	36.3	48.8	15.0	34.2	49.1	16.7	34.1	49.0	16.9	35.0	48.7	16.4	38.1	46.0	15.9	41.2	43.1	15.6
	25-29	m	m	m	13.9	68.4	17.7	13.6	68.2	18.2	12.7	69.8	17.5	13.5	68.5	18.0	16.3	66.3	17.4	17.9	63.7	18.4
Greece	15-19	80.0	9.6	10.5	80.1	10.1	9.8	81.8	7.9	10.3	82.7	8.3	9.0	85.3	7.0	7.7	86.6	7.1	6.3	84.3	6.3	9.3
	20-24	29.2	43.0	27.8	27.9	44.5	27.6	30.1	43.6	26.3	31.6	43.4	25.0	35.3	40.8	24.0	35.6	41.9	22.5	38.6	39.9	21.4
	25-29	4.7	65.2	30.2	4.2	66.4	29.4	5.5	66.7	27.8	5.2	66.6	28.1	6.4	67.3	26.3	5.7	68.7	25.6	6.9	69.1	24.0
Hungary	15-19	82.5	6.7	10.8	78.2	10.0	11.8	79.3	9.2	11.6	83.7	7.7	8.6	85.0	6.7	8.3	87.5	4.5	8.0	89.7	3.5	6.8
	20-24	22.5	44.4	33.1	26.5	45.9	27.6	28.6	47.7	23.6	32.3	45.7	22.0	35.0	45.1	20.0	36.9	42.6	20.5	40.5	39.6	19.9
	25-29	7.3	56.8	35.9	7.4	58.9	33.7	8.7	60.1	31.3	9.4	61.4	29.2	9.4	63.4	27.1	8.6	63.1	28.3	12.6	59.9	27.5
Iceland	15-19	59.5	25.7	14.8	82.2	15.1	2.7	81.6	17.0	1.4	83.1	14.8	2.1	79.5	19.0	1.5	80.9	14.8	4.3	m	m	m
	20-24	33.3	52.6	14.0	47.8	45.9	6.3	44.8	48.4	6.8	48.0	47.7	4.3	50.3	45.6	4.1	53.8	40.1	6.2	m	m	m
	25-29	24.1	64.7	11.1	32.8	57.4	9.8	34.7	58.8	6.5	34.9	59.2	5.9	33.8	61.5	4.8	36.5	58.8	4.7	m	m	m
Ireland	15-19	m	m	m	m	m	m	79.4	15.4	5.2	80.0	15.6	4.4	80.3	15.5	4.1	81.6	13.6	4.8	81.4	13.4	5.2
	20-24	m	m	m	m	m	m	24.6	64.6	10.8	26.7	63.6	9.7	28.3	62.4	9.3	29.0	60.2	10.8	30.3	58.3	11.3
	25-29	m	m	m	m	m	m	3.1	82.4	14.5	3.3	83.4	13.3	3.3	83.1	13.5	3.5	81.8	14.7	4.8	80.2	14.9
Italy	15-19	m	m	m	75.4	9.5	15.2	76.9	8.3	14.8	77.1	9.8	13.1	77.6	9.8	12.6	80.8	8.7	10.5	m	m	m
	20-24	m	m	m	35.8	34.1	30.1	35.6	34.5	29.9	36.0	36.5	27.5	37.0	36.9	26.1	38.2	37.5	24.3	m	m	m
	25-29	m	m	m	16.5	54.1	29.4	17.7	53.4	28.9	17.0	56.1	26.9	16.4	58.0	25.6	15.6	59.5	24.8	m	m	m

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/361172740884

C4

Table C4.4a. *(continued)* **Trends in the percentage of the youth population in education and not in education (1995-2003)**

By age group and work status

			1995			1998			1999			2000			2001			2002			2003		
			In education	Not in education		In education	Not in education		In education	Not in education		In education	Not in education		In education	Not in education		In education	Not in education		In education	Not in education	
		Age group	Total	Employed	Not employed	Total	Employed	Not employed	Total	Employed	Not employed	Total	Employed	Not employed	Total	Employed	Not employed	Total	Employed	Not employed	Total	Employed	Not employed
OECD COUNTRIES	Luxembourg	15-19	82.7	9.3	8.0	88.6	5.3	6.1	89.2	5.8	5.0	92.2	6.1	1.7	91.2	7.0	1.8	91.3	5.7	3.0	92.2	5.6	2.2
		20-24	36.5	52.7	10.8	40.4	50.1	9.5	47.2	43.2	9.6	42.8	48.9	8.2	46.7	44.2	9.0	47.8	45.2	7.0	50.5	41.3	8.2
		25-29	8.3	71.6	20.1	11.9	74.0	14.1	11.3	74.1	14.6	11.6	75.5	12.9	11.6	75.9	12.5	13.9	74.5	11.6	13.0	77.1	9.9
	Mexico	15-19	45.0	31.8	23.2	46.9	33.8	19.3	49.6	32.7	17.7	47.9	33.8	18.3	50.3	31.9	17.8	53.4	29.0	17.5	54.0	28.2	17.8
		20-24	15.9	53.4	30.7	17.1	55.4	27.4	19.1	54.8	26.1	17.7	55.2	27.1	19.1	53.8	27.1	20.8	52.6	26.6	19.8	52.6	27.6
		25-29	4.6	62.0	33.4	4.2	65.2	30.6	4.9	65.0	30.1	4.0	65.8	30.2	4.1	64.9	31.0	4.6	64.8	30.6	4.2	64.8	31.0
	Netherlands	15-19	m	m	m	89.7	7.6	2.7	88.2	8.9	3.0	80.6	15.7	3.7	79.6	16.3	4.2	80.7	14.7	4.6	m	m	m
		20-24	m	m	m	50.5	42.0	7.5	50.7	42.5	6.7	36.5	55.2	8.2	34.4	56.9	8.7	35.3	56.8	7.9	m	m	m
		25-29	m	m	m	24.4	64.9	10.7	25.0	65.2	9.8	5.0	83.0	12.1	6.4	82.3	11.3	6.2	80.9	12.9	m	m	m
	Norway	15-19	m	m	m	92.1	6.0	1.9	91.9	6.4	1.7	92.4	5.9	1.7	85.8	11.1	3.0	85.3	11.5	3.2	86.9	10.4	2.7
		20-24	m	m	m	40.2	51.4	8.4	38.4	53.8	7.8	41.7	50.3	8.0	39.6	51.7	8.7	38.5	51.8	9.7	38.7	50.8	10.6
		25-29	m	m	m	14.4	76.1	9.6	17.2	74.4	8.3	17.5	72.1	10.4	13.9	75.9	10.2	14.2	75.0	10.7	15.4	71.9	12.7
	Poland	15-19	89.6	4.2	6.2	91.0	4.2	4.8	93.2	2.3	4.6	92.8	2.6	4.5	91.8	2.4	5.8	95.9	1.0	3.1	95.6	1.1	3.3
		20-24	23.7	42.5	33.8	30.8	45.3	23.9	33.1	39.7	27.2	34.9	34.3	30.8	45.2	27.7	27.1	53.8	20.8	25.4	55.7	18.8	25.5
		25-29	3.1	67.5	29.4	5.7	70.5	23.8	5.4	68.0	26.6	8.0	62.9	29.1	11.4	59.9	28.7	14.9	53.3	31.8	17.3	52.4	30.2
	Portugal	15-19	72.4	18.5	9.1	71.6	20.1	8.3	72.3	19.6	8.1	72.6	19.7	7.7	72.8	19.8	7.4	72.4	20.3	7.3	74.8	16.4	8.8
		20-24	37.8	46.6	15.6	32.4	55.7	12.0	34.9	53.2	11.9	36.5	52.6	11.0	36.3	53.3	10.4	34.7	53.3	12.0	35.2	52.5	12.3
		25-29	11.6	70.9	17.4	9.5	74.8	15.8	11.5	75.1	13.4	11.0	76.6	12.5	11.2	77.3	11.6	10.7	77.1	12.2	11.7	73.7	14.6
	Slovak Republic	15-19	70.1	14.0	15.9	69.4	12.3	18.3	69.6	10.1	20.4	67.3	6.4	26.3	67.3	6.3	26.4	78.6	5.8	15.6	82.2	5.2	12.6
		20-24	14.8	54.9	30.3	17.4	56.3	26.3	17.4	51.2	31.4	18.1	48.8	33.1	19.4	45.7	34.9	22.1	44.0	33.9	24.0	46.4	29.6
		25-29	1.6	65.5	32.9	1.1	71.6	27.2	1.6	70.2	28.2	1.3	66.9	31.8	2.3	65.0	32.7	2.9	66.6	30.5	2.6	68.3	29.1
	Spain	15-19	77.3	11.2	11.5	80.2	9.9	9.8	79.3	11.3	9.4	80.6	11.4	8.0	81.4	11.6	6.9	81.9	11.0	7.2	82.6	10.1	7.3
		20-24	40.0	34.2	25.8	44.3	35.7	20.1	43.6	38.8	17.6	44.6	40.3	15.0	45.0	40.7	14.2	43.4	41.5	15.1	43.5	41.8	14.8
		25-29	14.6	51.5	33.9	15.3	57.3	27.5	15.2	59.6	25.1	16.2	62.4	21.4	17.0	63.1	19.8	16.1	64.2	19.8	15.4	65.0	19.5
	Sweden	15-19	87.4	6.9	5.6	90.9	4.3	4.7	91.5	4.9	3.7	90.6	5.8	3.6	88.4	7.3	4.3	88.4	7.0	4.6	88.7	7.0	4.2
		20-24	38.8	43.7	17.5	42.6	44.3	13.1	43.8	45.2	11.0	42.1	47.2	10.7	41.2	48.2	10.6	41.7	47.0	11.2	42.3	46.0	11.8
		25-29	19.9	67.0	13.2	24.9	65.0	10.0	22.5	68.1	9.5	21.9	68.9	9.2	22.7	70.0	7.2	22.4	69.5	8.1	22.8	67.9	9.4
	Switzerland	15-19	65.6	10.2	24.2	85.5	9.6	4.8	84.4	8.0	7.6	84.6	7.5	7.9	85.7	7.5	6.8	86.2	8.0	5.8	83.6	8.4	8.0
		20-24	29.5	59.2	11.3	34.8	54.2	11.0	35.8	55.8	8.4	37.4	56.7	5.9	39.3	52.3	8.4	38.0	52.3	9.7	35.8	51.5	12.7
		25-29	10.6	76.2	13.2	10.1	77.9	12.1	10.4	79.3	10.3	15.0	73.9	11.1	13.5	75.1	11.4	12.7	74.7	12.6	12.2	73.6	14.2
	Turkey	15-19	38.7	34.2	27.2	40.2	32.1	27.7	42.9	30.2	26.9	39.2	29.6	31.2	41.0	26.7	32.3	42.2	24.8	32.9	45.9	21.3	32.8
		20-24	10.3	46.5	43.2	13.4	44.7	42.0	13.1	45.6	41.4	12.7	43.1	44.2	12.7	43.1	44.2	14.1	40.6	45.3	15.8	36.5	47.8
		25-29	2.7	59.6	37.8	2.9	60.4	36.7	3.4	57.7	38.8	2.9	58.8	38.3	2.6	57.1	40.2	3.0	56.2	40.7	3.7	53.2	43.1
	United Kingdom	15-19	m	m	m	m	m	m	m	m	m	77.0	15.0	8.0	76.1	15.7	8.2	75.3	16.2	8.6	76.3	14.3	9.4
		20-24	m	m	m	m	m	m	m	m	m	32.4	52.2	15.4	33.5	51.7	14.8	31.0	53.7	15.3	32.6	52.1	15.3
		25-29	m	m	m	m	m	m	m	m	m	13.3	70.3	16.3	13.3	70.6	16.0	13.3	70.7	16.0	15.0	68.7	16.3
	United States	15-19	81.5	10.7	7.8	82.2	10.5	7.3	81.3	11.3	7.4	81.3	11.7	7.0	81.2	11.4	7.5	82.9	10.2	7.0	m	m	m
		20-24	31.5	50.7	17.8	33.0	52.6	14.4	32.8	52.1	15.1	32.5	53.1	14.4	33.9	50.5	15.6	35.0	48.5	16.5	m	m	m
		25-29	11.6	71.4	17.0	11.9	72.7	15.4	11.1	73.2	15.7	11.4	72.8	15.8	11.8	70.5	17.7	12.3	70.3	17.4	m	m	m
	Country mean	*15-19*	*75.3*	*13.4*	*11.3*	*80.0*	*11.1*	*8.8*	*80.6*	*11.0*	*8.4*	*80.9*	*10.9*	*8.3*	*80.7*	*11.1*	*8.2*	*81.8*	*10.4*	*7.9*	*81.8*	*10.4*	*7.9*
		20-24	*30.5*	*47.8*	*21.7*	*35.8*	*46.1*	*18.2*	*36.3*	*46.2*	*17.5*	*36.3*	*46.9*	*16.8*	*37.5*	*46.1*	*16.4*	*38.1*	*45.2*	*16.7*	*38.1*	*45.2*	*16.7*
		25-29	*10.4*	*66.4*	*23.3*	*13.3*	*66.6*	*20.1*	*13.5*	*67.1*	*19.4*	*13.3*	*67.8*	*18.9*	*13.3*	*68.2*	*18.5*	*13.3*	*68.0*	*18.6*	*13.3*	*68.0*	*18.6*
PARTNER COUNTRY	Israel	15-19	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	69.4	6.0	24.6	69.0	5.7	25.2
		20-24	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	26.8	31.7	41.6	28.1	27.7	44.2
		25-29	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	19.1	52.2	28.7	19.6	52.7	27.7

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/361172740884

C4

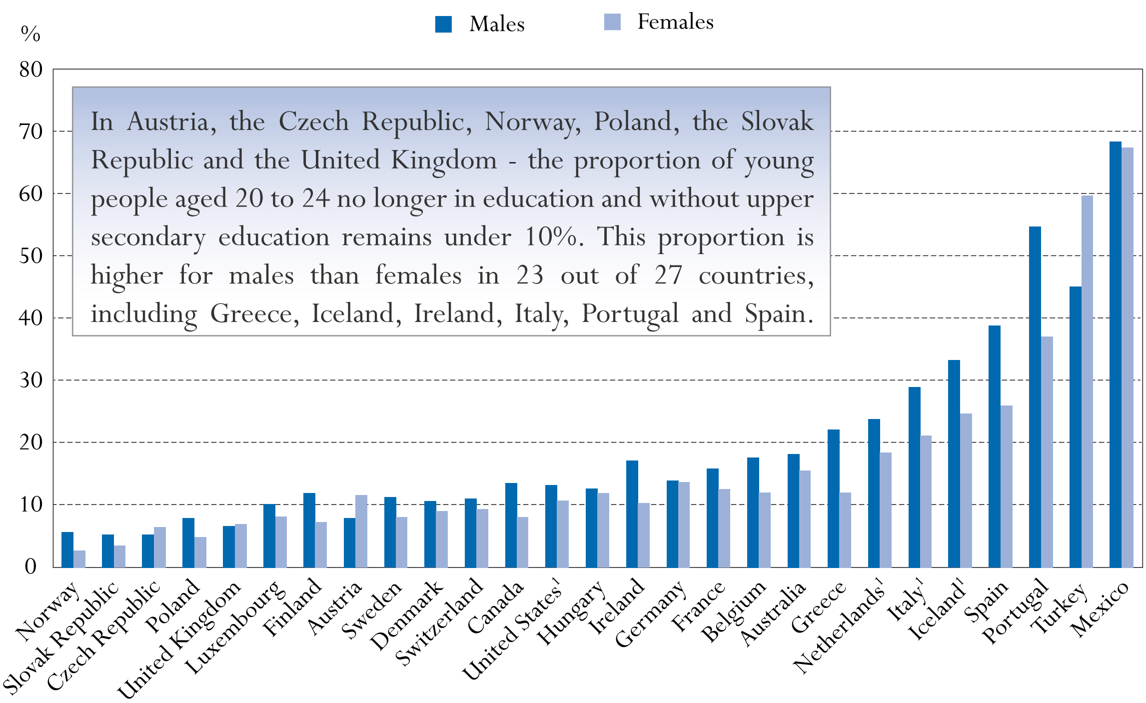
The situation of the youth population with low levels of education

This indicator reflects the labour market situation of young people with low levels of education. Entering the labour market is often a difficult period of transition. While the length of time that young people spend in education has increased, a significant proportion of young people remain neither in education nor working (*i.e.* they are either unemployed or not in the labour force). This situation gives particular cause for concern for younger age groups, many of whom have no unemployment status or welfare coverage.

Key results

Chart C5.1. The situation of the youth population with low levels of education (2003)

This chart shows the share of 20-to-24-year olds – employed, unemployed or not in the labour force – who have not attained upper secondary education and who are no longer in education. Young people with lower qualifications run a higher risk of long-term unemployment, or unstable or unfulfilling employment.



1. Year of reference 2002.
Countries are ranked in ascending order of the percentage of 20-to-24-year-olds who are not in education and who have not attained upper secondary education.
Source: OECD. Table C5.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/541721846387

Other highlights of this indicator

- Across 27 OECD countries, an average of 18% of 20-to-24-year-olds are without upper secondary education and not in education.
- In 10 out of 27 OECD countries, this potentially at-risk group represents between 10 and 18% of the age group. For seven out of the remaining OECD countries, more than 20% of the age group falls into this category.
- The problem affects significantly more young males than females in 22 out of 27 countries, including Greece, Iceland, Ireland, Italy, Portugal and Spain. The reverse is true in Austria, Czech Republic and Turkey.

C5

Policy context

As the importance of education for economic success and general well-being grows, providing effective educational careers for young people and ensuring successful transitions from initial education to working life become major policy concerns. Rising skill demands in OECD countries have made upper secondary diplomas a minimum requirement for successful entry into the labour market and a basis for further participation in lifelong learning. Young people with lower qualifications run a higher risk of long-term unemployment or unstable or unfulfilling employment, which can have additional consequences, such as social exclusion.

Evidence and explanations

Young adults often experience a period of unemployment and adjustment before finding a job. For students aged 20 to 24 years, compared with those aged 15 to 19, the scale of the problem grows and changes, since most 20-to-24-year-olds are entering the labour market for the first time after having completed initial education.

In ten OECD countries – Austria, the Czech Republic, Denmark, Finland, Luxembourg, Norway, Poland, the Slovak Republic, Sweden and the United Kingdom - the proportion of young people aged 20 to 24 no longer in education and without upper secondary education remains under 10% (Table C5.1). In 14 out of 27 OECD countries, this potentially at-risk group represents between 10 and 33% of the age group. The challenge in terms of increasing upper secondary graduation rates is significant here. For the remaining three OECD countries, more than 45% of the age group falls into this category. The problem affects more males than females in 22 out of 27 countries including Greece, Iceland, Ireland, Italy, Portugal and Spain. The reverse is true in Austria, Czech Republic and Turkey (Chart C5.1). Differences according to gender remain small in the other countries.

Box C5.1. The YALLE project

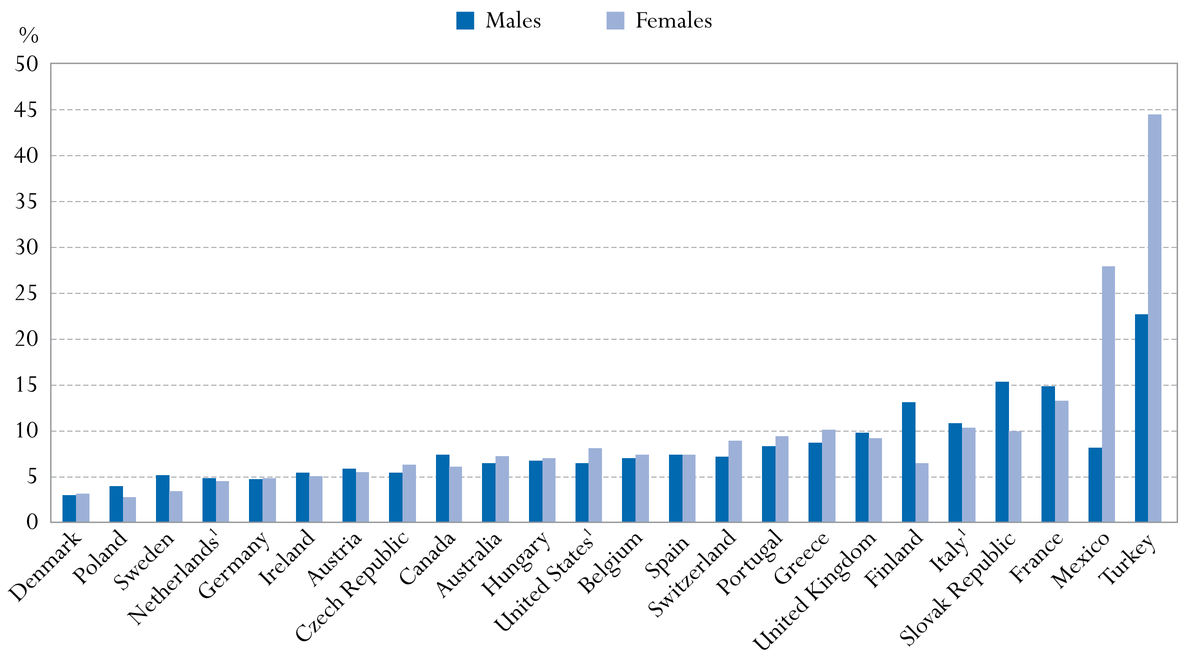
As an outgrowth of the OECD's Thematic Review of the Transition from Initial Education to Working Life, the Young Adults with Low Levels of Education (YALLE) project conducted an in-depth study of the transition from education to work for this disadvantaged group of young people aged 20 to 24 years who have not attained upper secondary education. The project looked at a number of equity dimensions, particularly issues of gender, family and immigration. The results are presented in *From Education to Work: A Difficult Transition for Young Adults with Low Levels of Education* (OECD and CPRN, 2005). Some of the data from that study are used in the present indicator.

Young people not in education or work

Most 15-to-19-year-olds are still in school. In many OECD countries, a high percentage of those who are not still in school are either unemployed or not in the labour force. Over 80% of persons between the ages of 15 and 19 are in education in most OECD countries. A small proportion of this age group is employed after having left school, although this figure is as high as 10% for 11 OECD countries and even more than 20% in two others (Table C4.2a).

There is, however, a group of young people who are neither in education nor at work. Some are formally unemployed, if they are actively seeking work, while those who are not doing so are considered to be in non-employment. Their reasons may be varied, such as discouragement due to the difficulty of finding

Chart C5.2. Percentage of 15-to-19-year-olds who are neither in education nor at work, by gender (2003)



1. Year of reference 2002.
Countries are ranked in ascending order of 15-to-19-year-olds who are neither in education nor at work.
Source: OECD. Table C4.2b and C4.2c. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

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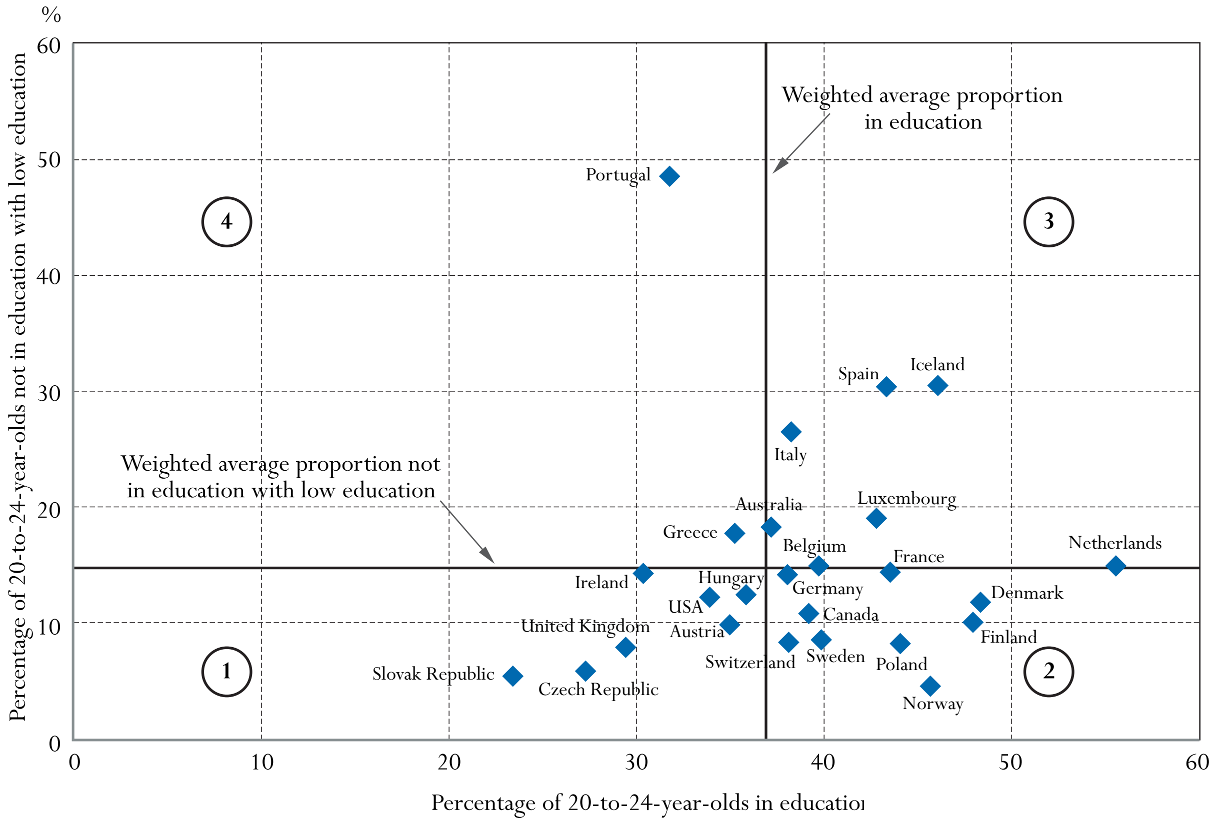
work or voluntary withdrawal because of family circumstances. In 15 out of 24 OECD countries, the proportion of these young people is higher than the proportion of those with unemployment status.

To not be in education and not be employed is very uncommon in Denmark, Germany, Netherlands, Norway and Poland; it is common in France, Italy, Mexico, the Slovak Republic and Turkey. In these countries, more than 10% of young people aged 15 to 19 are neither at school nor in work (Table C4.2) (it should be noted, however, that in some countries, a sizeable share of 19-year-old males are in miltary service. Statistically, this may be taken to mean that these young men are classified as being neither in education nor in employment, a fact which could artificially raise the share of males in this category by comparison with other countries). In other OECD countries, the proportion is lower but not insignificant, ranging from 3 to 9%. The problem affects more males than females in Austria, Canada, Finland, France, Iceland, Ireland, Italy, the Netherlands, Poland, the Slovak Republic, Sweden and the United Kingdom. The reverse is true, significantly, in Mexico and Turkey (Chart C5.2). Differences according to gender are small in the other countries, although males are generally more affected.

The position of countries with respect to the broader educational situation of the 20-to-24-year-olds can be mapped out (Chart 5.3) along four quadrants. Quadrant 1 shows that in some countries, the status of young adults is mixed, with relatively few young adults in education and of those not in education, relatively few have low levels of education. This situation characterises countries such as the Czech Republic, the Slovak Republic and the United Kingdom, and, to a lesser extent, Austria, Hungary, Ireland and the United States. Quadrant 3 also shows a mixed picture, but one polarised in the opposite manner, with a relatively high level of participation in education among young adults, but among those not participating, a relatively

Chart C5.3. Proportion of the 20-to-24-year-olds in education and not in education with low levels of education, by country (2002)



Source: OECD Table C5.2. INES-Network B, special YALLE data collection.

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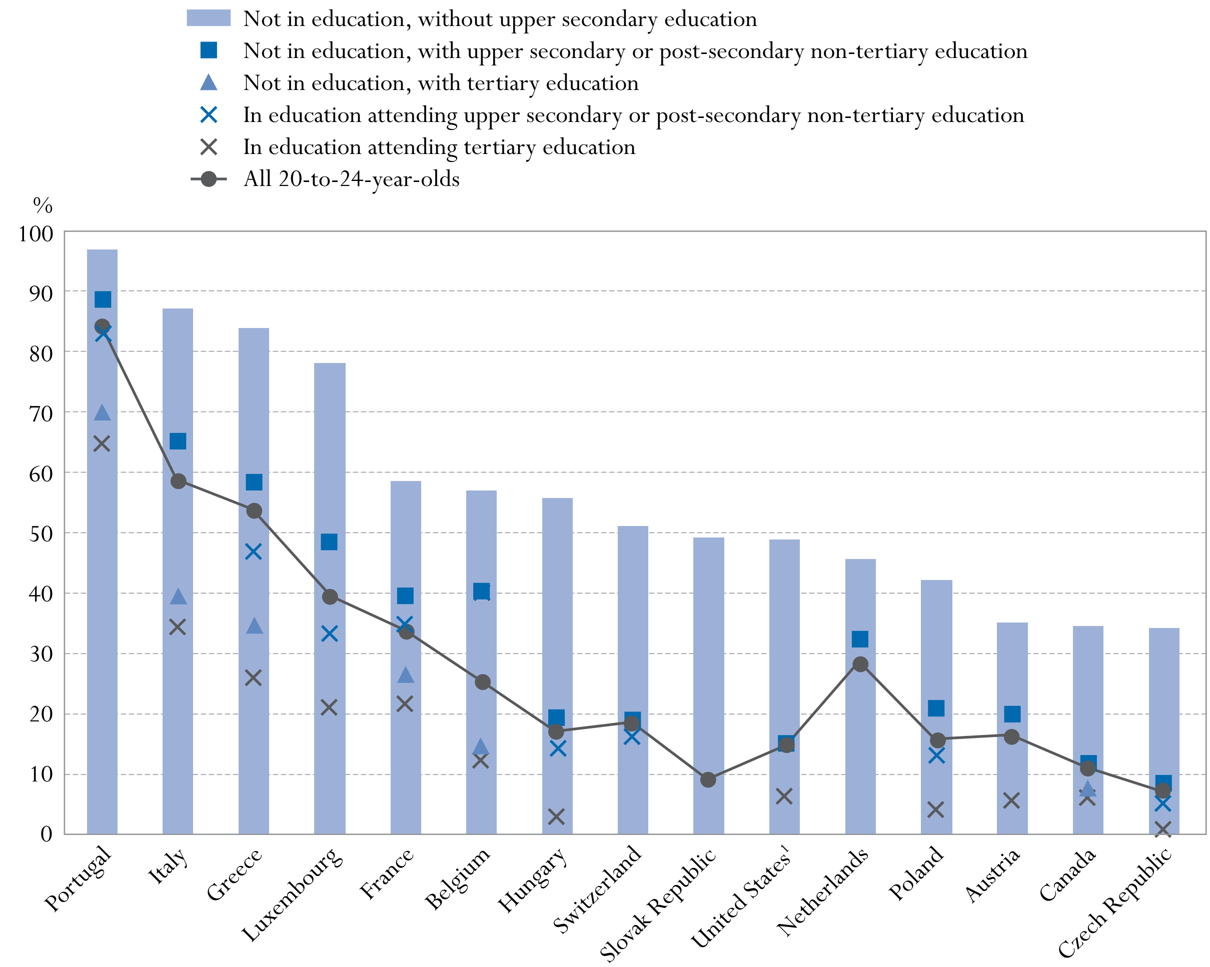
high proportion have low levels of education. This characterises Iceland, Italy, Luxembourg and Spain , and to a lesser extent Australia, Belgium and the Netherlands. Quadrant 2 shows a third group of countries with more positive outcomes, with relatively high rates of participation in education and relatively low rates of non-students with low education levels. This characterises Canada, Denmark, Finland, Norway, Poland, Sweden and Switzerland, with France and Germany being more borderline. Quadrant 4 shows a situation where the proportion of non-students with low levels of education is fairly high, with a low percentage of young adults still studying towards educational credentials. This characterises Portugal and to a lesser extent Greece.

The impact of family background

One important question in relation to equity is whether or not young adults who have not successfully completed upper secondary school are more likely than other young adults – both students and non-students with higher educational attainments – to come from families where neither of the parents completed upper secondary education (proxy information for low socio-economic status). Chart 5.4 provides information on the likelihood of 20-to-24-year-olds in various situations with respect to education attendance or attainment coming from families with less educated parents. Because the level of education of parents is only known when young people and their parents live in the same location, this comparison is limited to young adults who live with their parents.

Chart C5.4. Percentage of 20-to-24-year-olds living with parents and whose parents have not attained upper secondary education, by educational situation (2002)



1. Year of reference 2001.

Countries are ranked in descending order of the percentage of 20-to-24-year-olds not in education without upper secondary education and living with parents, where none of the parents has attained upper secondary education.

Source: OECD. Table C5.3. INES-Network B, special YALLE data collection. *Education at a Glance: 2004 Edition*, Table A2.2.

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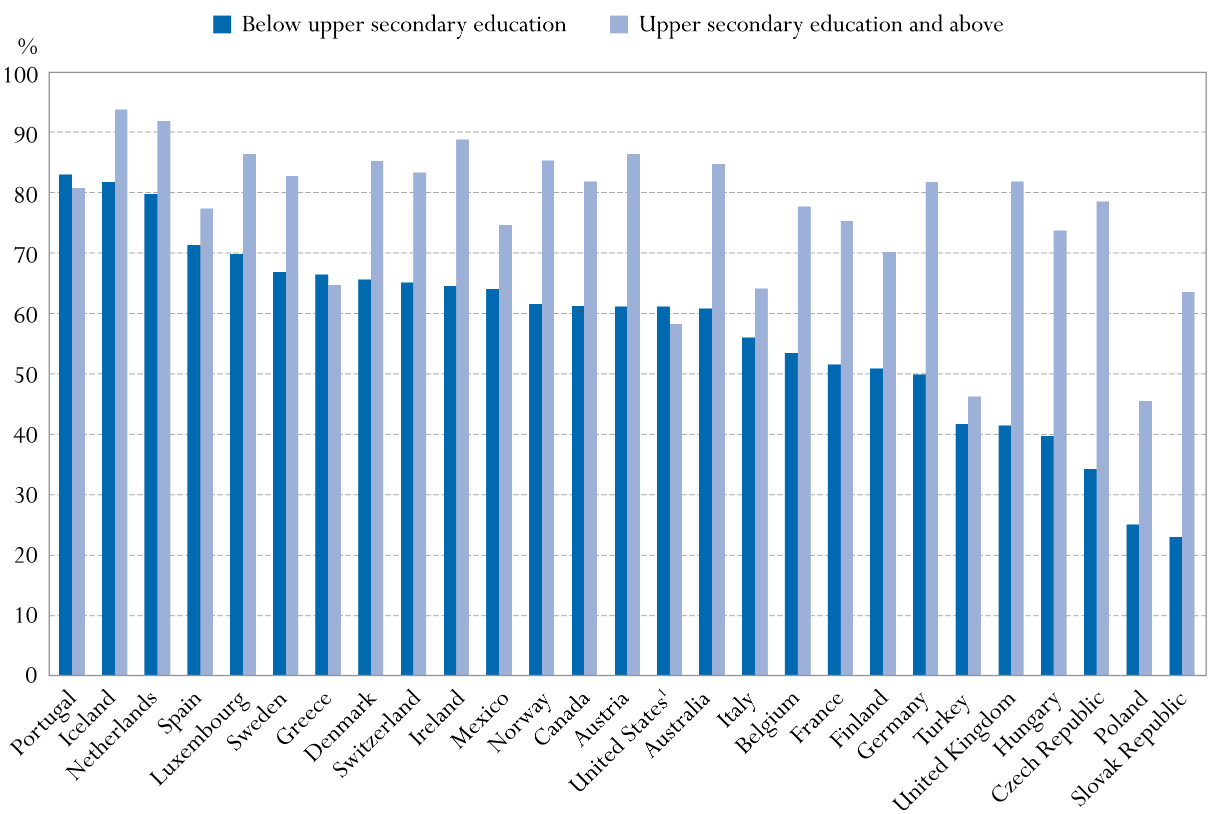
In all countries, 20-to-24-year-olds with low levels of education form the group most likely to be living with less educated parents, among the five sub-groups of 20-to-24-year-olds (by educational attainment for non-students and by level attended for students). In most countries, their relative disadvantage is fairly large: measured by the percentage point difference between the percentage for 20-to-24-year-olds with low levels of education and that for the 20-to-24-year-old population as a whole (on Chart 5.4, the difference between the top of the bars and the line with black circles), the disadvantage surpasses 30 percentage points in 7 countries, *i.e.* (from greatest to least) in the Slovak Republic, Hungary, Luxembourg, the United States, Switzerland, Belgium and Greece. It is lower than 20 percentage points in only three countries, Austria, the Netherlands and Portugal. Considering the general magnitude of the disadvantage faced by 20-to-24-year-olds with low levels of education, concerns about equity issues seem justified.

The impact of educational attainment

The consequences for young adults of leaving school without an upper secondary qualification can be observed by comparing the work status of 20-to-24-year-olds with and without an upper secondary qualification. In all OECD countries, higher educational attainment is associated with an increase in the employment rate, on average by 19 percentage points (Chart C5.5). The comparison also reveals patterns related to the specific organisation of the labour market. Among young adults, the gap in employment rates between those with upper secondary qualifications and those without is remarkably small in Greece, Portugal, Spain, Turkey and the United States, which suggests a good match between qualifications – even if these are low – and employment. In the Czech Republic, Germany, Hungary, Poland, the Slovak Republic and the United Kingdom, the gap in employment rates is notably large.

In fact, in most countries, a well-documented general pattern holds true for young adults: the higher the educational attainment, the higher the likelihood of being employed. In countries other than Greece, Italy, Portugal and Spain, the difference in the employment rate between young adults with a low level of education (the YALLE group) and 20-to-24-year-olds with an upper secondary/non-tertiary education is at least 11 percentage points (Luxembourg) and up to 44 percentage points (the Slovak Republic). On

Chart C5.5. Employment rates for 20-to-24-year-olds who are not in education, by level of educational attainment (2003)



1. Year of reference 2002

Countries are ranked in descending order of the employment rate of 20-to-24-year-olds who are not in education and who have not attained upper secondary education.

Source: OECD. Table C.5.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005)*.

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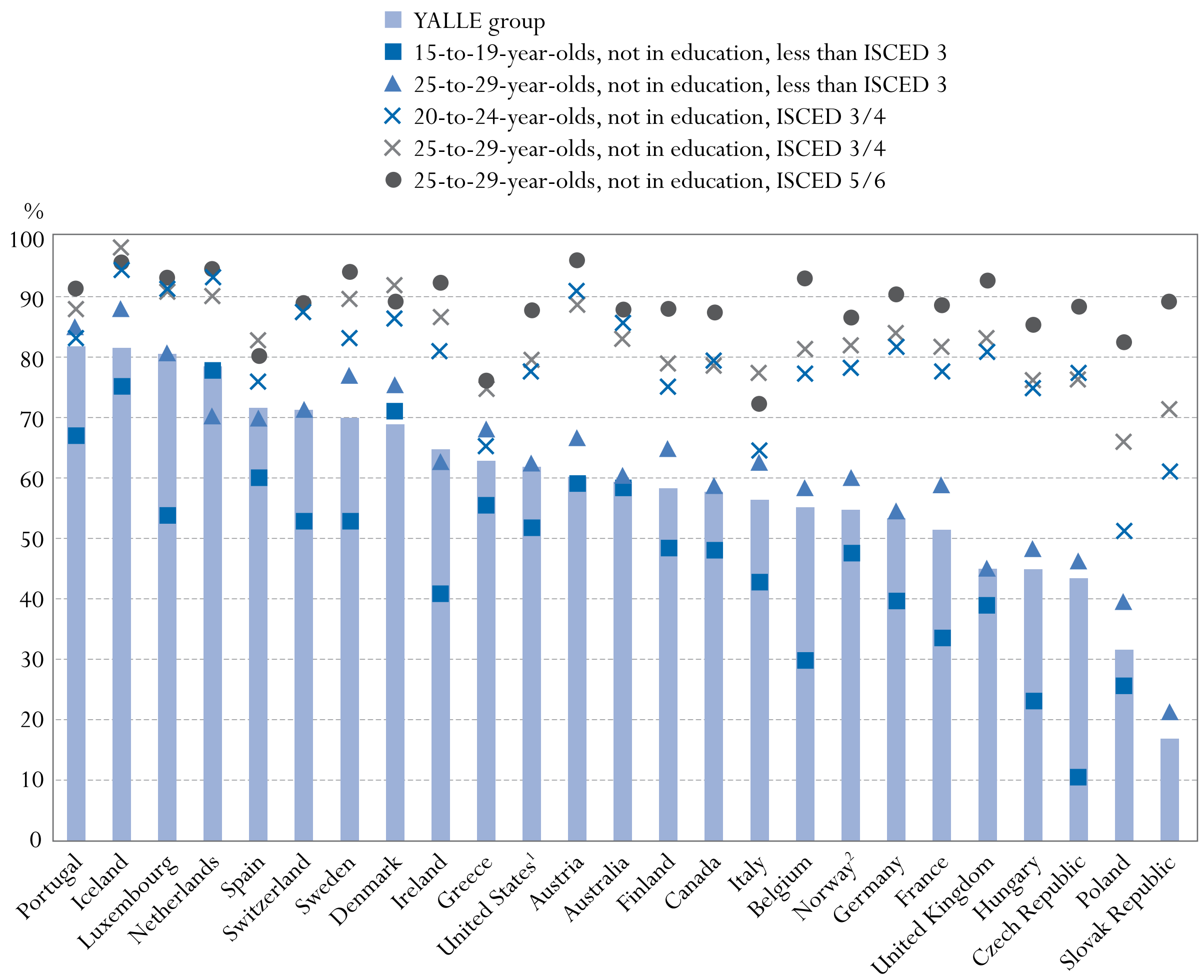
Chart C5.6. Employment rates for the YALLE group and comparison groups (2002)



1. Year of reference 2001.
2. Year of reference 2003.
Countries are ranked in descending order of the employment rate of 20-to-24-year-olds not in education and without upper secondary education.
Source: OECD. Table C5.4. INES-Network B, special YALLE data collection.

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the low end are countries like Denmark, Finland, Iceland, Ireland, the Netherlands, Poland, Sweden, Switzerland and the United States, all with a difference smaller than 20 percentage points. In this group, the employment rate of young adults with low levels education is above 60%, except for Finland and Poland. On the high end, starting from just above a difference of 20 percentage points, are all other countries, *i.e.* Australia, Austria, Belgium, Canada, the Czech Republic, France, Germany, Hungary, Norway and the United Kingdom. In this group of countries, only Austria passes the 60% mark for the employment rate of its low educated young adults. The magnitude of the employment disadvantage varies greatly among OECD countries.

In Greece, Italy, Portugal and Spain, a different pattern is found: employment rates never differ by more than eight percentage points among the three educational groups. The structures of the countries' labour

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markets and, specifically of the entry into first jobs, as well as the greater availability of less skilled jobs, explain this different pattern.

Definition and methodologies

Data for this indicator were calculated from the special OECD data collection on the transition from education to work (see Indicator C4). In 2003, the OECD Network B carried out a specific and enriched data collection for year 2002 for which requirements coincide with the requirements for the transition data collection. In the absence of data submission from the country itself Network B obtained data from the Eurostat Labour Force Survey.

The definitions of the labour force status of those not in education (and not enrolled in work-study programmes) are based on International Labour Organisation (ILO) guidelines. As different definitions are used for people in education, inconsistencies might occur between the regular OECD transition data collection and the specific data collection used for this indicator; this is partly addressed by Eurostat data regarding the indicator "percentage of 20 to 24-year-olds who are not in education and who have not attained upper secondary education". As a result, percentages for young adults with low levels of education published in *Education at a Glance 2004* (OECD, 2004c) and this volume are not necessarily fully consistent with the detailed results on young adults with low levels of education published separately in *From Education to Work: A Difficult Transition for Young Adults with Low Levels of Education* (OECD and CPRN, 2005), to which some tables in this indicator also refer.

An early school leaver could broadly be defined as a young person who has not attained upper secondary education and is not in education, or in a work-study programme leading to an upper secondary qualification or higher. However, such a definition must include the specification of an age group within which very few people can still be attending school at the primary or secondary level. In a significant number of OECD countries, young people aged 18 and 19 are still enrolled in upper secondary education, while conversely very early leavers may eventually return to school. Moreover, labour market outcomes at early ages may not be representative of outcomes at later ages. The OECD therefore defines a young adult with low level of education as "a person aged 20 to 24 years who has not attained upper secondary education and who is not enrolled in education or in a work-study programme".

Table C5.1. Percentage of 20-to-24-year-olds not in education, by level of educational attainment, work status and gender (2003)

		Not in education									
		Below upper secondary attainment				At least upper secondary attainment					
		Employed	Unem-ployed	Not in the labour force	Sub-total	Employed	Unem-ployed	Not in the labour force	Sub-total	In education	Total 20-to-24-year-olds
OECD COUNTRIES											
Australia	Males	13.1	3.7	1.5	18.3	37.6	3.6	1.9	43.1	38.6	100
	Females	7.4	2.0	6.1	15.6	35.8	3.1	4.7	43.6	40.8	100
	M+F	10.3	2.9	3.8	16.9	36.7	3.3	3.3	43.4	39.7	100
Austria	Males	5.2	1.3	1.4	8.0	53.8	4.3	5.9	64.0	28.1	100
	Females	6.7	1.3	3.6	11.6	50.6	2.5	3.9	57.1	31.3	100
	M+F	6.0	1.3	2.5	9.8	52.2	3.4	4.9	60.6	29.6	100
Belgium	Males	10.4	4.8	2.6	17.7	35.7	6.6	2.2	44.5	37.8	100
	Females	5.5	2.9	3.7	12.1	34.3	5.8	5.8	45.9	42.0	100
	M+F	8.0	3.8	3.1	14.9	35.0	6.2	4.0	45.2	39.9	100
Canada	Males	9.1	2.7	1.8	13.6	41.9	6.1	2.9	50.9	35.5	100
	Females	4.1	1.0	3.0	8.1	38.8	3.6	5.3	47.7	44.2	100
	M+F	6.7	1.9	2.4	10.9	40.4	4.9	4.1	49.4	39.8	100
Czech Republic	Males	2.7	1.6	1.0	5.4	56.8	8.4	2.2	67.4	27.2	100
	Females	1.3	1.3	3.9	6.5	45.5	7.4	10.4	63.2	30.3	100
	M+F	2.0	1.5	2.4	5.9	51.3	7.9	6.2	65.4	28.7	100
Denmark	Males	8.1	1.3	1.3	10.6	29.7	2.8	2.0	34.6	54.8	100
	Females	4.8	1.0	3.1	9.0	25.8	2.2	2.7	30.7	60.3	100
	M+F	6.4	1.2	2.2	9.8	27.7	2.5	2.4	32.6	57.6	100
Finland	Males	6.8	2.8	2.4	11.9	28.6	7.6	6.1	42.3	45.7	100
	Females	2.9	1.6	2.8	7.3	25.9	4.2	5.4	35.4	57.2	100
	M+F	4.9	2.2	2.6	9.7	27.3	5.9	5.8	39.0	51.3	100
France	Males	9.4	4.6	1.9	15.9	28.2	5.8	1.7	35.7	48.4	100
	Females	5.3	3.0	4.4	12.6	23.8	5.9	3.9	33.6	53.8	100
	M+F	7.4	3.8	3.1	14.3	26.1	5.8	2.8	34.7	51.1	100
Germany	Males	8.2	4.0	1.8	14.0	37.7	6.5	2.0	46.2	39.9	100
	Females	5.6	2.3	5.9	13.7	34.3	3.2	4.4	42.0	44.3	100
	M+F	6.9	3.2	3.8	13.9	36.0	4.9	3.2	44.1	42.0	100
Greece	Males	18.1	2.7	1.4	22.2	30.9	7.4	3.5	41.8	36.0	100
	Females	4.6	2.6	4.8	12.1	26.2	13.3	7.2	46.7	41.2	100
	M+F	11.4	2.6	3.1	17.1	28.6	10.3	5.3	44.2	38.6	100
Hungary	Males	6.6	2.4	3.8	12.7	36.7	5.6	5.9	48.2	39.1	100
	Females	3.2	0.9	7.8	11.9	32.8	3.9	9.5	46.2	41.9	100
	M+F	4.9	1.6	5.8	12.3	34.7	4.8	7.7	47.2	40.5	100
Iceland [1]	Males	26.7	c	c	33.3	18.9	c	c	18.9	47.8	100
	Females	20.8	c	c	24.7	20.8	c	c	23.6	51.7	100
	M+F	23.8	c	c	29.2	19.8	c	c	21.2	49.7	100
Ireland	Males	13.0	2.1	2.0	17.1	49.5	3.1	1.9	54.4	28.4	100
	Females	4.7	0.6	5.1	10.3	49.7	2.5	5.2	57.4	32.2	100
	M+F	8.9	1.4	3.5	13.7	49.6	2.8	3.6	55.9	30.3	100
Italy	Males	18.3	5.5	4.0	27.8	22.1	5.5	4.6	32.2	40.1	100
	Females	9.1	3.9	8.3	21.3	18.9	6.4	5.2	30.5	48.2	100
	M+F	13.7	4.7	6.1	24.6	20.5	5.9	4.9	31.4	44.1	100

Note: Figures in brackets, such as [76], are not statistically significant due to small sample size.
1. Year of reference 2002.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table C5.1. *(continued)* **Percentage of 20-to-24-year-olds not in education, by level of educational attainment, work status and gender (2003)**

			Not in education									
			Below upper secondary attainment				At least upper secondary attainment					
			Employed	Unem-ployed	Not in the labour force	Sub-total	Employed	Unem-ployed	Not in the labour force	Sub-total	In education	Total 20-to-24-year-olds
OECD COUNTRIES	Luxembourg	Males	7.6	1.6	1.0	10.3	33.2	2.0	2.3	37.6	52.2	100
		Females	5.2	1.1	1.9	8.2	35.8	4.2	2.5	42.5	49.3	100
		M+F	6.4	1.3	1.5	9.2	34.5	3.1	2.4	40.0	50.7	100
	Mexico	Males	62.7	2.6	3.1	68.4	9.3	0.7	0.4	10.5	21.2	100
		Females	25.6	1.2	40.6	67.4	9.1	1.0	4.0	14.1	18.5	100
		M+F	43.4	1.9	22.6	67.9	9.2	0.9	2.2	12.3	19.8	100
	Netherlands[1]	Males	20.9	1.0	2.1	23.9	37.5	1.4	2.0	40.8	35.3	100
		Females	12.9	0.7	4.9	18.5	42.4	1.1	2.8	46.3	35.2	100
		M+F	16.9	0.9	3.4	21.2	39.9	1.2	2.4	43.5	35.3	100
	Norway	Males	3.5	1.2	1.0	5.7	53.5	4.6	3.8	61.8	32.5	100
		Females	1.7	0.3	0.8	2.8	43.2	3.1	5.4	51.6	45.6	100
		M+F	2.6	0.7	0.9	4.3	48.4	3.8	4.6	56.8	38.9	100
	Poland	Males	2.6	3.7	1.8	8.0	19.2	17.1	3.3	39.6	52.4	100
		Females	0.7	2.1	2.1	4.9	15.1	12.6	8.3	36.0	59.1	100
		M+F	1.6	2.9	1.9	6.4	17.2	14.9	5.8	37.8	55.7	100
	Portugal	Males	47.6	4.8	2.3	54.7	12.9	1.8	0.6	15.3	30.0	100
		Females	28.5	4.4	4.2	37.1	18.5	3.6	1.5	23.7	39.2	100
		M+F	38.1	4.6	3.2	45.9	15.7	2.7	1.1	19.5	34.6	100
	Slovak Republic	Males	1.3	3.1	0.9	5.3	49.0	20.4	4.9	74.4	20.3	100
		Females	0.7	1.0	1.8	3.5	41.7	15.3	11.6	68.7	27.8	100
		M+F	1.0	2.1	1.3	4.4	45.4	17.9	8.2	71.6	24.0	100
	Spain	Males	30.6	5.8	2.4	38.8	20.4	3.6	1.0	25.0	36.3	100
		Females	15.4	5.1	5.5	26.0	20.6	5.5	2.1	28.3	45.7	100
		M+F	23.2	5.5	3.9	32.6	20.5	4.5	1.5	26.6	40.9	100
	Sweden	Males	8.1	2.1	1.1	11.3	42.5	4.9	4.0	51.4	37.2	100
		Females	4.8	1.3	2.0	8.2	37.5	3.5	4.5	45.6	46.3	100
		M+F	6.5	1.7	1.5	9.8	40.1	4.2	4.2	48.6	41.7	100
	Switzerland	Males	8.3	[1.4]	[1.5]	11.1	44.6	4.2	4.2	53.0	35.9	100
		Females	5.0	[1.5]	2.9	9.4	45.3	6.0	3.8	55.1	35.5	100
		M+F	6.7	1.5	2.1	10.3	44.9	5.0	4.0	54.0	35.7	100
	Turkey	Males	30.3	8.2	6.7	45.2	20.0	7.0	7.6	34.6	20.2	100
		Females	14.8	1.8	43.1	59.7	9.6	4.3	14.6	28.4	11.9	100
		M+F	22.1	4.8	26.1	52.9	14.4	5.5	11.3	31.3	15.8	100
	United Kingdom	Males	4.2	1.5	1.0	6.7	53.1	5.4	2.7	61.2	32.1	100
		Females	1.4	0.6	5.1	7.0	46.7	3.2	10.9	60.9	32.1	100
		M+F	2.8	1.1	3.0	6.9	49.9	4.3	6.8	61.1	32.1	100
	United States[1]	Males	10.0	1.5	1.7	13.2	44.4	5.0	4.3	53.8	33.0	100
		Females	4.7	1.4	4.7	10.8	38.1	3.8	10.5	52.4	36.9	100
		M+F	7.3	1.4	3.3	12.0	41.2	4.4	7.4	53.1	35.0	100
	Country mean	***Males***	***14.6***	***2.9***	***2.0***	***19.7***	***35.1***	***5.6***	***3.1***	***43.8***	***36.5***	***100***
		Females	***7.7***	***1.7***	***6.7***	***16.3***	***32.1***	***4.9***	***5.8***	***42.9***	***40.8***	***100***
		M+F	***11.1***	***2.3***	***4.4***	***18.0***	***33.6***	***5.2***	***4.4***	***43.3***	***38.6***	***100***
PARTNER COUNTRY	Israel	Males	6.5	2.0	5.1	13.7	19.2	6.9	37.5	63.6	22.8	100
		Females	1.3	0.7	4.6	6.5	28.4	8.2	23.3	60.0	33.5	100
		M+F	3.9	1.4	4.8	10.1	23.7	7.6	30.5	61.8	28.1	100

Note: Figures in brackets, such as [76], are not statistically significant due to small sample size.
1. Year of reference 2002.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table C5.2. Distribution of 20-to-24-year-olds, by educational situation (2002)

OECD COUNTRIES	Not in education, without upper secondary education	Not in education, with upper secondary or post-secondary non-tertiary education	Not in education, with tertiary education	Not in education, unknown level of educational attainment	In education	Total
Australia	18.3	29.2	15.3	0.0	37.2	100.0
Austria	9.9	50.7	4.4	0.0	35.0	100.0
Belgium	15.0	29.7	15.5	0.0	39.8	100.0
Canada	10.9	33.3	16.5	0.0	39.3	100.0
Czech Republic	5.9	64.3	2.4	0.1	27.3	100.0
Denmark	11.9	36.5	2.9	0.2	48.4	100.0
Finland	10.1	37.6	4.3	0.0	48.0	100.0
France	14.5	30.5	11.4	0.0	43.5	100.0
Germany	14.2	42.9	2.9	1.9	38.1	100.0
Greece	17.9	41.5	5.4	0.0	35.3	100.0
Hungary	12.5	47.3	4.3	0.0	35.9	100.0
Iceland	30.6	21.5	1.8	0.0	46.1	100.0
Ireland	14.4	38.0	15.4	1.9	30.4	100.0
Italy	26.6	34.2	1.0	0.0	38.2	100.0
Luxembourg	19.2	33.3	3.7	1.1	42.8	100.0
Netherlands	15.1	24.1	4.1	1.1	55.6	100.0
Norway[1]	4.6	43.1	6.5	0.1	45.7	100.0
Poland	8.4	45.4	2.1	0.0	44.1	100.0
Portugal	48.8	14.9	4.6	0.0	31.7	100.0
Slovak Republic	5.5	68.3	2.7	0.0	23.5	100.0
Spain	30.5	12.4	13.7	0.0	43.4	100.0
Sweden	8.6	42.9	3.5	5.1	39.9	100.0
Switzerland	8.4	48.8	4.6	0.0	38.2	100.0
United Kingdom	8.0	47.2	14.8	0.5	29.5	100.0
United States[2]	12.3	41.3	12.4	0.0	33.9	100.0
OECD total	*14.7*	*38.3*	*9.6*	*0.3*	*37.1*	*100.0*

1. Year of reference 2003.
2. Year of reference 2001.
Source: OECD INES-Network B, special YALLE data collection.

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Table C5.3. Percentage of 20-to-24-year-olds living with parents and whose parents have not attained upper secondary education, by educational situation (2002)

OECD COUNTRIES	Not in education, without upper secondary education	Not in education, with upper secondary or post-secondary non-tertiary education	Not in education, with tertiary education	In education attending upper secondary or post-secondary non-tertiary education	In education attending tertiary education	All 20-to-24-year-olds
Austria	35.1	20.0	c	c	5.7	16.4
Belgium	56.9	40.4	14.6	39.8	12.4	25.4
Canada	34.5	11.8	7.7	m	6.2	11.0
Czech Republic	34.1	8.2	c	5.4	0.9	7.3
France	58.4	39.6	26.6	34.7	21.6	34.0
Greece	83.8	58.4	34.6	46.3	25.9	53.6
Hungary	55.7	19.5	c	14.0	3.1	16.9
Italy	87.1	65.1	39.6	m	34.3	58.5
Luxembourg	78.0	48.5	c	33.1	21.1	39.3
Netherlands	45.5	32.7	c	m	m	28.4
Poland	42.0	21.1	c	13.2	4.2	15.6
Portugal	96.8	88.5	69.6	82.7	64.6	84.0
Slovak Republic	49.1	9.0	c	c	c	8.9
Switzerland	50.9	18.8	c	16.5	c	18.4
United States[1]	48.8	15.1	c	c	6.4	14.9
Country mean	***62.1***	***25.2***	***11.8***	***26.1***	***12.3***	***24.7***

1. Year of reference 2001.

Source: OECD INES-Network B, special YALLE data collection and *Education at a Glance: 2004 Edition,* Table A2.2.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/541721846387

Table C5.4. Employment rates for 20-to-24-year-olds with low levels of education and comparison groups (2002)

OECD COUNTRIES	YALLE group (20-to-24-year-olds)	15-to-19-year-olds, not in education, without upper secondary education	25-to-29-year-olds, not in education, without upper secondary education	20-to-24-year-olds, not in education, with an upper secondary or post-secondary non-tertiary education	25-to-29-year-olds, not in education, with an upper secondary or post-secondary non-tertiary education	25-to-29-year-olds, not in education, with tertiary education
Australia	59.3	58.4	59.8	85.4	82.7	87.9
Austria	60.1	59.0	66.3	90.7	88.5	95.8
Belgium	55.1	29.7	58.2	77.0	81.1	93.0
Canada	57.6	47.9	58.6	79.1	78.3	87.4
Czech Republic	43.3	10.4	46.0	77.1	75.9	88.3
Denmark	68.8	70.8	74.9	86.1	91.6	89.0
Finland	58.3	48.3	64.6	74.7	78.7	87.9
France	51.4	33.4	58.5	77.3	81.4	88.5
Germany	53.2	39.6	54.4	81.5	83.7	90.3
Greece	62.9	55.4	67.7	64.9	74.5	75.9
Hungary	44.8	23.0	47.9	74.5	75.9	85.2
Iceland	81.5	75.1	87.7	94.2	97.9	95.5
Ireland	64.7	40.7	62.3	80.7	86.5	92.3
Italy	56.4	42.5	62.3	64.3	77.1	72.3
Luxembourg	80.5	53.6	80.2	91.2	90.4	93.0
Netherlands	78.4	77.6	69.9	92.9	89.8	94.5
Norway[1]	54.7	47.5	59.7	78.0	81.6	86.4
Poland	31.6	25.5	39.1	51.0	65.7	82.5
Portugal	81.7	67.0	84.7	82.9	87.6	91.2
Slovak Republic	16.9	c	21.1	60.9	71.2	89.2
Spain	71.5	59.9	69.6	75.7	82.4	80.1
Sweden	69.9	52.9	76.8	82.7	89.4	94.1
Switzerland	71.2	52.8	71.1	86.9	87.4	88.9
United Kingdom	44.9	38.8	44.9	80.6	82.8	92.7
United States[2]	61.8	51.6	62.1	77.3	79.1	87.8
OECD total	***60.0***	***48.5***	***62.1***	***75.7***	***79.3***	***87.5***

1. Year of reference 2003.
2. Year of reference 2001.
Source: OECD INES-Network B, special YALLE data collection.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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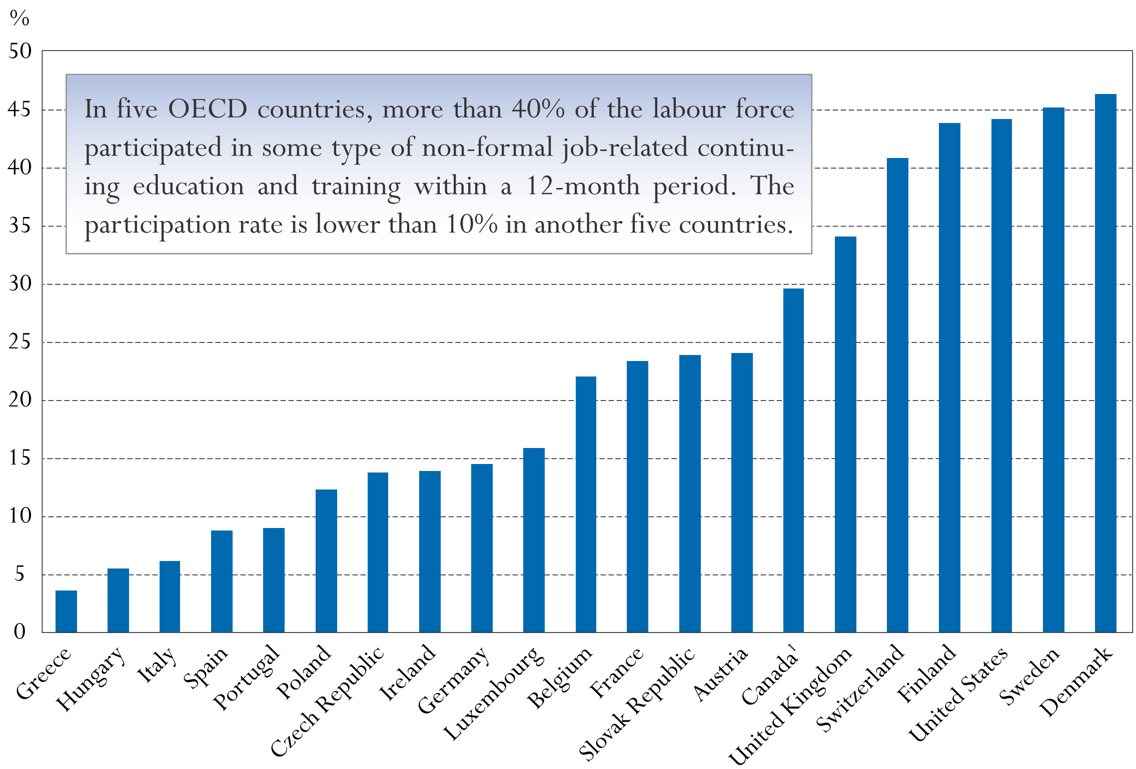
Participation in continuing education and training

This indicator examines the participation of labour force members in continuing education and training, as well as their investment according to the form and the purpose of the learning undertaken. Determinants investigated include previous educational attainment as well as characteristics of their workplace. To focus on the main determinants and also to better ensure international comparability, this indicator concentrates on the non-formal job-related learning activities of the labour force.

Key results

Chart C6 1. Rate of participation of the labour force in continuing education for all levels of education (2003)

This chart shows the percentage of 25-to-64-year-olds in the labour force who participate in continuing non-formal job-related education and training. The height of the bars indicates significant variation across countries in the extent to which workers undertake continuing education and training.



1. Year of reference 2002.
Countries are ranked in ascending order of the participation rate in non-formal CET.
Source: OECD. Table C6.2. See Annex 3 for notes *(www.oecd.org/edu/eag2005)*.

StatLink: http://dx.doi.org/10.1787/317204241155

Other highlights of this indicator

- Adults with tertiary qualifications are, in all countries, significantly more likely to participate in non-formal job-related continuing education and training than adults with lower educational attainment.
- In all countries, workers in upper-tier service industries are more likely to participate in non-formal job-related continuing education and training than workers in other industries.

Policy context

It has generally been shown that adult education and training is:

- Increasing due to new and increasingly complex work tasks and because of job mobility;
- More common in large firms, the public sector and in sectors such as business services, banking or finance;
- Usually for full-time or more established workers in a firm;
- More prevalent for management and senior posts than for non-executive or unskilled jobs;
- More often occuring for young and mid-aged workers rather than older workers;
- Generally as accessible to women as to men; and
- Likely to increase in line with the level of initial qualifications: training leads to training.

Some of these characteristics refer directly to features of employment, while others relate more specifically to those of individuals. The two are related: qualification levels and job levels usually match. However, the two approaches need to be reconciled and the significance of each assessed. If there tends to be more training for those in more important posts, does that indicate higher maintenance costs for more complicated jobs, or a specific aptitude on the part of those who have progressed further in the education system and an inclination to enrol for further training?

Evidence and explanations

Variation across countries in participation rates

There is substantial cross-country variation in participation rates in non-formal job-related continuing education and training. In the OECD, five countries – Denmark, Finland, Sweden, Switzerland and the United States – take the lead with more than 40% of the labour force having participated in some type of non-formal job-related continuing education and training within a 12-month period. The participation rate is lower than 10% in Greece, Hungary, Italy, Portugal and Spain. Between these two extremes, the incidence of training participation vary greatly; for example, the figure is about 12% in the Netherlands and Poland, but up to twice this rate and more in Austria, Canada and the Slovak Republic (Chart C6.1).

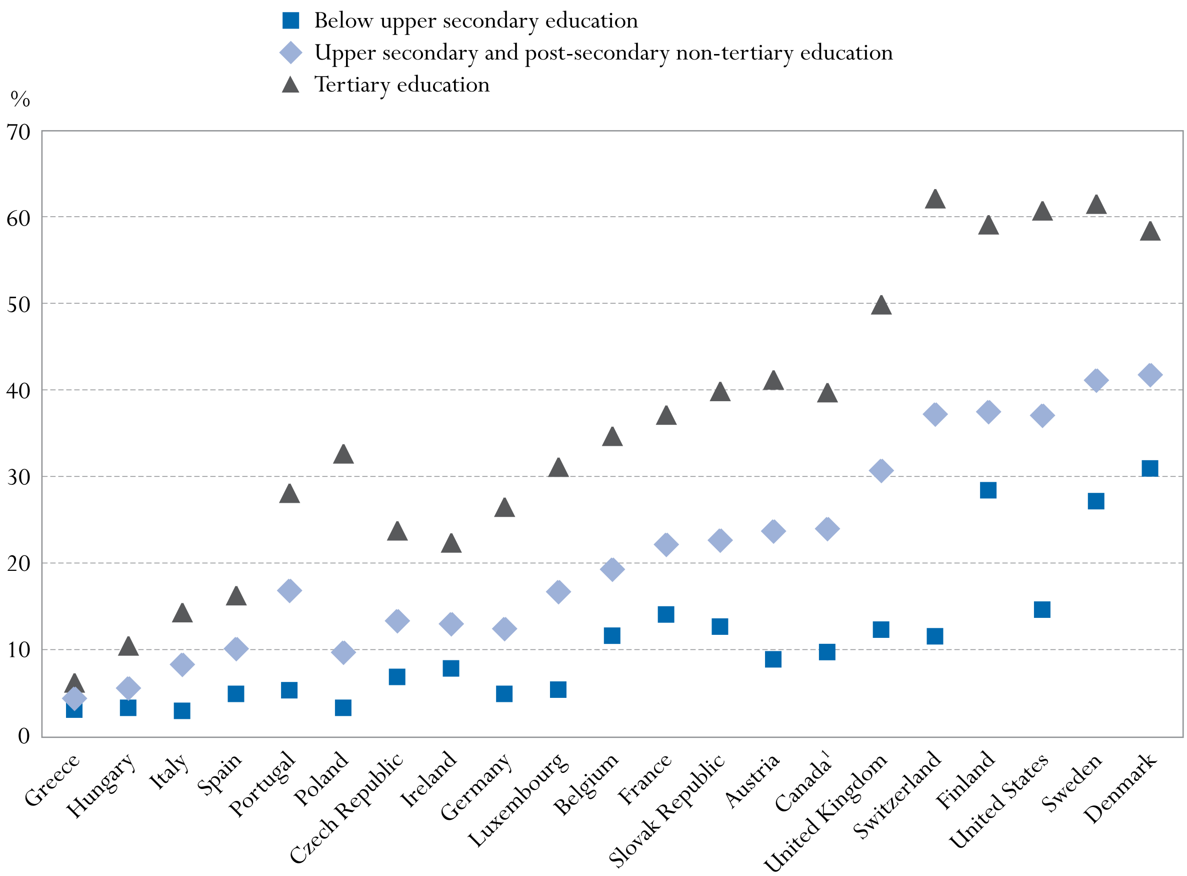
Training leads to training

Despite these large variations in participation rates, the most striking and common feature is that adult education and training increases in line with the level of initial qualifications (Chart C6.2a). Across the board, the participation rate varies considerably according to prior levels of educational attainement. In other words, all countries share inequalities in access to adult learning. On average for the OECD countries surveyed, participation in adult non-formal continuing education and training is almost 26 percentage points higher for individuals who have attained a tertiary level of education than for those who have only attained a lower or upper secondary education (Table C6.2). A greater understanding of the underlying causes of this participation differential by initial education could assist with strategies for promoting lifelong learning among the less qualified.

Participation in training by age and gender

The variation of participation in training according to the age of the participants is also well established: in most countries, non-formal learning in the labour force declines with age, although the extent of the decline varies across countries (Chart 6.2b). Except in the Czech Republic, Finland, Greece, Hungary, Italy, the Slovak Republic and Sweden, the oldest age group (55-to-64-year-olds) have substantially lower

Chart C6.2a. Participation rate in non-formal job-related continuing education and training for the labour force 25-to-64 years of age by level of educational attainment (2003)



1. Year of reference 2002.
Countries are ranked in ascending order of the participation rates in non-formal CET for all levels of education.
Source: OECD. Table C6.2. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*
StatLink: http://dx.doi.org/10.1787/317204241155

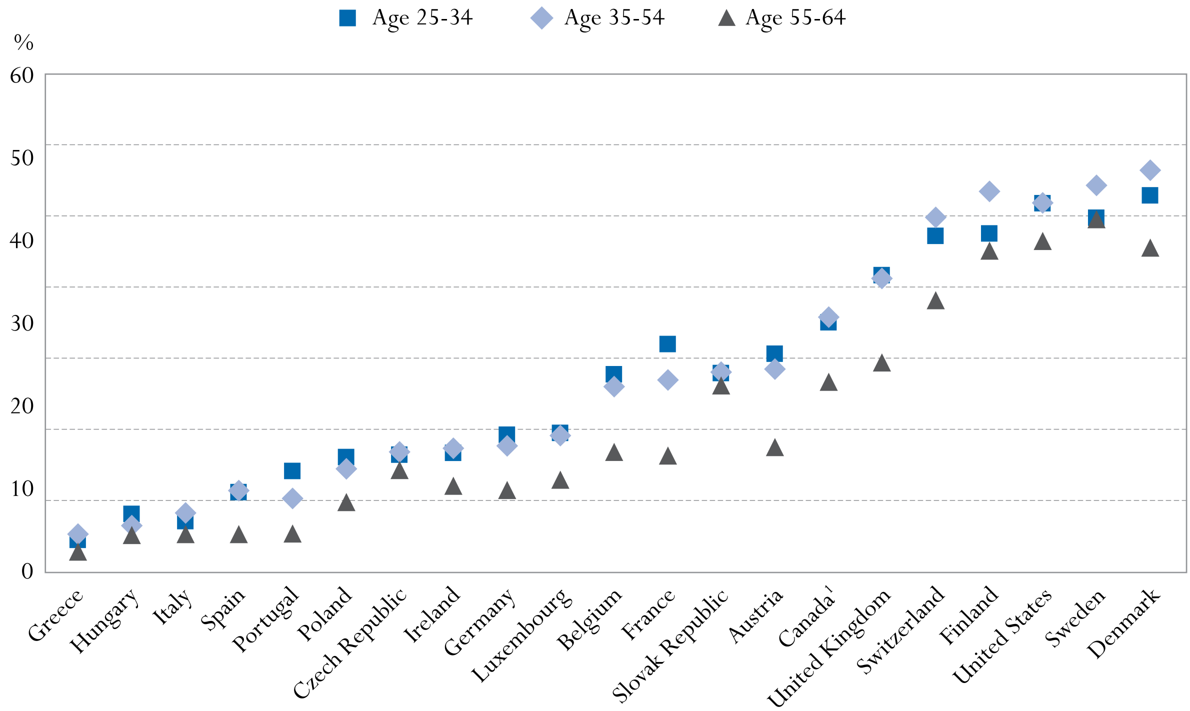
participation rates than their younger peers. This may be due to older individuals placing less value on investment in training and also to employers proposing training less frequently to older workers.

In Denmark, Finland, Sweden and Switzerland, people tend to participate in regular tertiary education well into their thirties (Chart C6.2b). In these four countries, one part of what might elsewhere be considered as continuing education and training is probably undertaken through formal learning activities (by enrolment in tertiary education for example) and this could also be the case in other countries. It is important to note that workers in mid-career participate in continuing education and training at approximately the same level as the younger members of the labour force.

There are in general small gender differences favouring women in the participation rate in non-formal job-related continuing education and training for the labour force (Table 6.4). This is a confirmation of a very robust result from the research literature, which is stable even when taking into account other characteristics of the job. The differences in favour of men are highest in the countries that have the highest overall participation rates. The differences favour women in all countries except the Czech Republic, the Slovak Republic, and Switzerland (Chart C6.2c).

Today's knowledge society demands a more continuous development of skills and competencies during the working years. This is confirmed by the significantly higher participation rates of workers in upper

Chart C6.2b. Participation rate in non-formal job-related continuing education and training for the labour force 25-to-64 years of age by age (2003)



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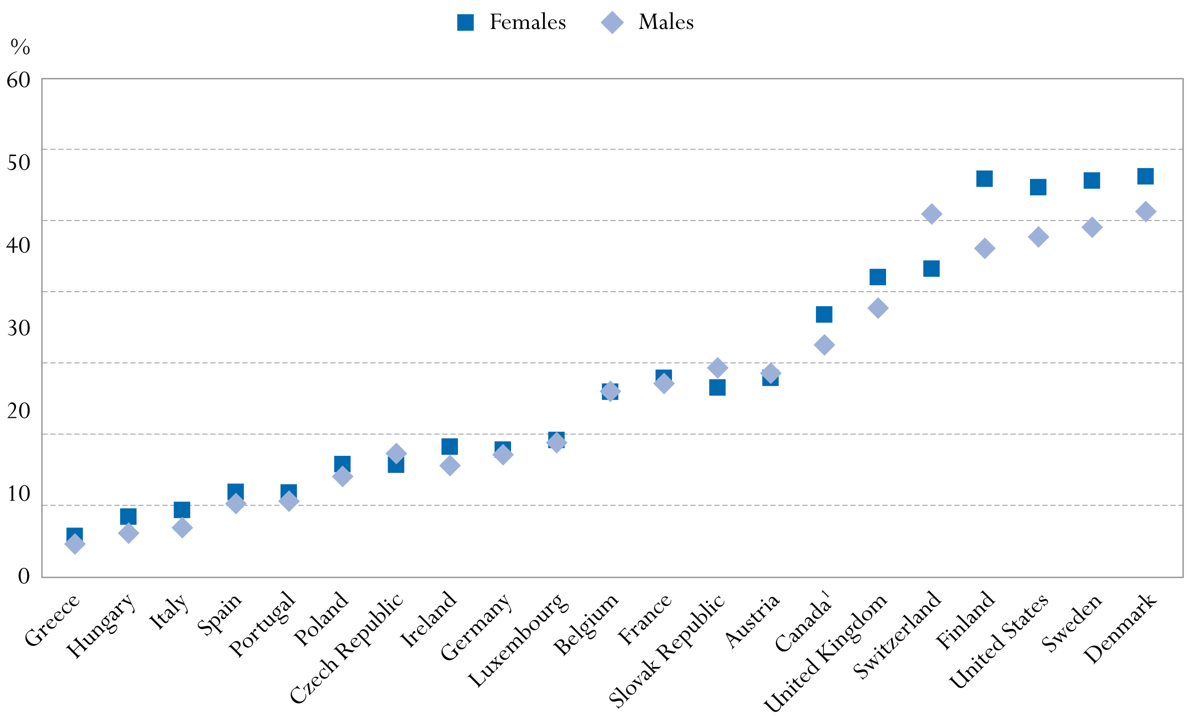
1. Year of reference 2002.
Countries are ranked in ascending order of the participation rates in non-formal job-related CET for all levels of education.
Source: OECD. Table C6.4. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/317204241155

tier service industries in all countries. Other industries have lower participation rates for their workers, although the pattern is not uniform across countries (Table C6.5); in Finland and Sweden, for example, resource industries have relatively high participation rates (Chart C6.3). It might be that high overall participation rates simply reflect the share of the workforce employed in industries that typically have high levels of continuing education and training. However, Chart C6.3 can be used to support the argument that the differences by country are not just due to the composition of the labour market. The chart shows large differences in participation across countries within each industry group, and the differences seem to tell a consistent story: countries that have higher participation rates for one type of industry also have higher participation rates for other industries.

A regression analysis on the participation rate of the employed using industry, educational attainment, gender and age (for European countries) as explanatory variables for each country produces a fairly stable result: in most countries, the only significant variables are education and the upper tier service industry. In some countries the age group (55-to-64-year-olds) is also significant, but gender is never significant. This suggests that education is relevant regardless of industry, and that industry is relevant regardless of educational level.

Chart C6.2c. Participation rate in non-formal job-related continuing education and training for the labour force 25-to-64 years of age, by gender (2003)



1. Year of reference 2002.
Countries are ranked in ascending order of the participation rates in non-formal job-related CET for all levels of education.
Source: OECD. Table C6.4. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/317204241155

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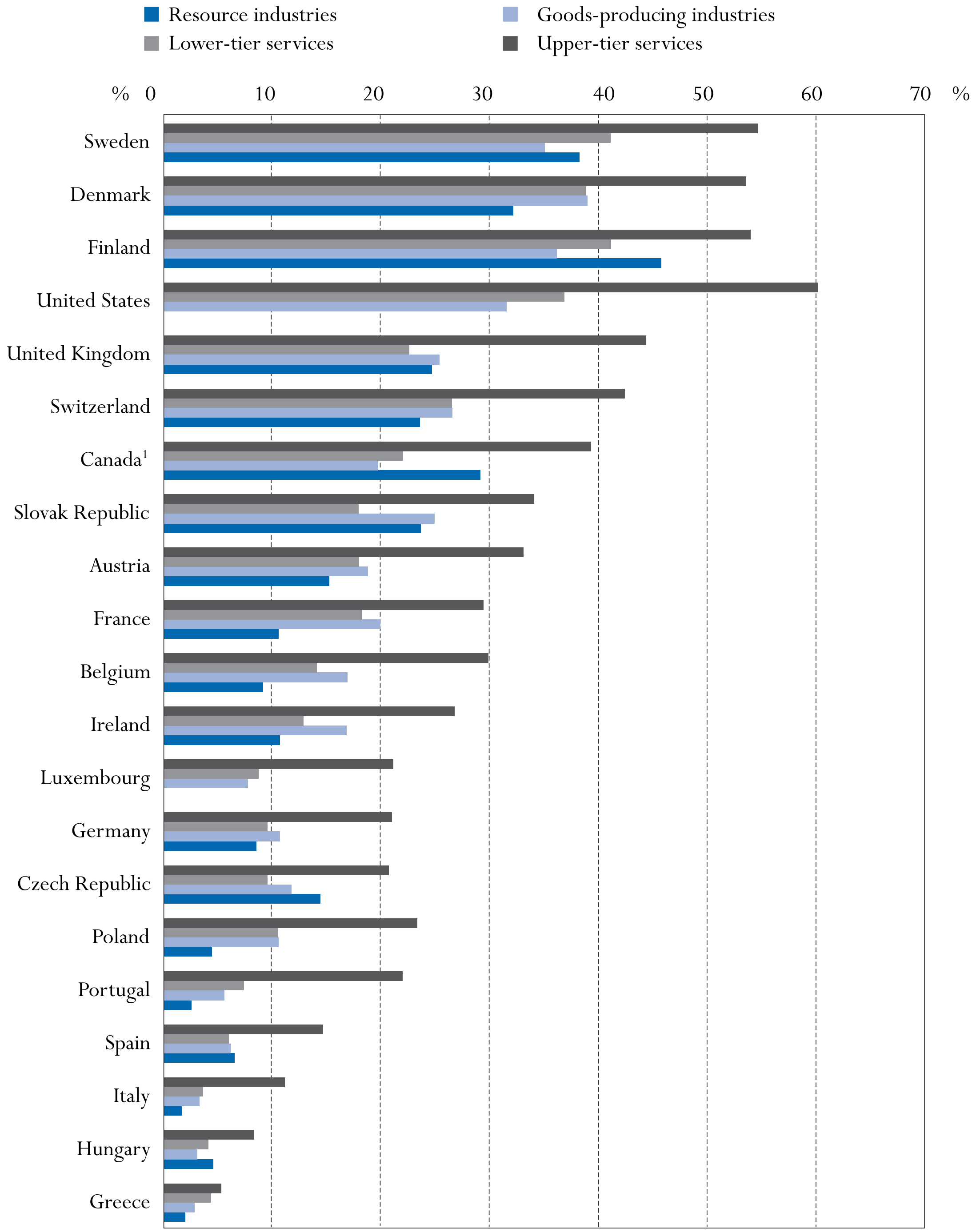
Mean hours spent in learning

The mean hours spent in learning per participant partly reflects a balance between extensive and intensive participation (Chart C6.4). Mean hours per participant vary from more than 100 hours in Greece and Hungary (associated with a low participation rate) to an average of 42 hours for the six countries with the highest participation rate (Denmark, Finland, Sweden, Switzerland, United Kingdom and the United States). Canada appears as an exception with 100 hours per participant associated with a high participation rate (Chart C6.4) (*i.e.* both intensive and extensive participation).

The correlation between participation rate and mean hours per participant is slightly negative, but this does not suffice to offset the effect of higher participation rates. As is shown from the number of hours spent in training per adult, countries with higher participation rates tend to have a higher overall investment in job-related training of the labour force.

Continuing education and training may also be an effective mechanism for combating unemployment, as individuals can develop skills that make them more attractive to employers. In the face of changing technologies, work methodologies and markets, policy-makers in many countries are promoting more general work-related training and informal learning by adults. However, employed workers are far more likely to participate in continuing education and training than unemployed workers (Chart C6.5). All countries have higher participation rates for the employed but longer mean hours per participant

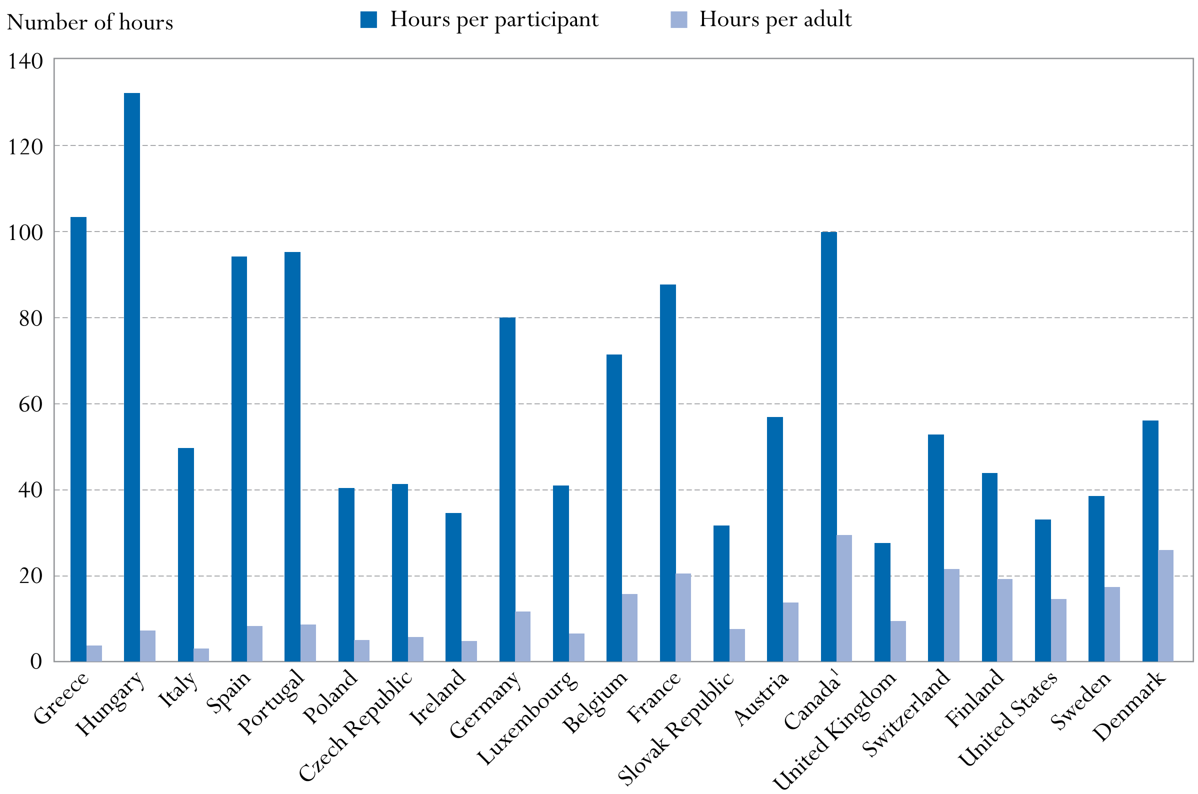
Chart C6.3. Participation rate in non-formal job-related continuing education and training for the employed 25-to-64 years of age, by industry, all levels of education (2003)



1. Year of reference 2002.
Countries are ranked in descending order of the participation rates in non-formal CET for the employed.
Source: OECD. Table C6.5. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

StatLink: http://dx.doi.org/10.1787/317204241155

Chart C6.4. Mean hours per participant and mean hours per adult in non-formal job-related continuing education and training for the labour force 25-to-64 years of age (2003)

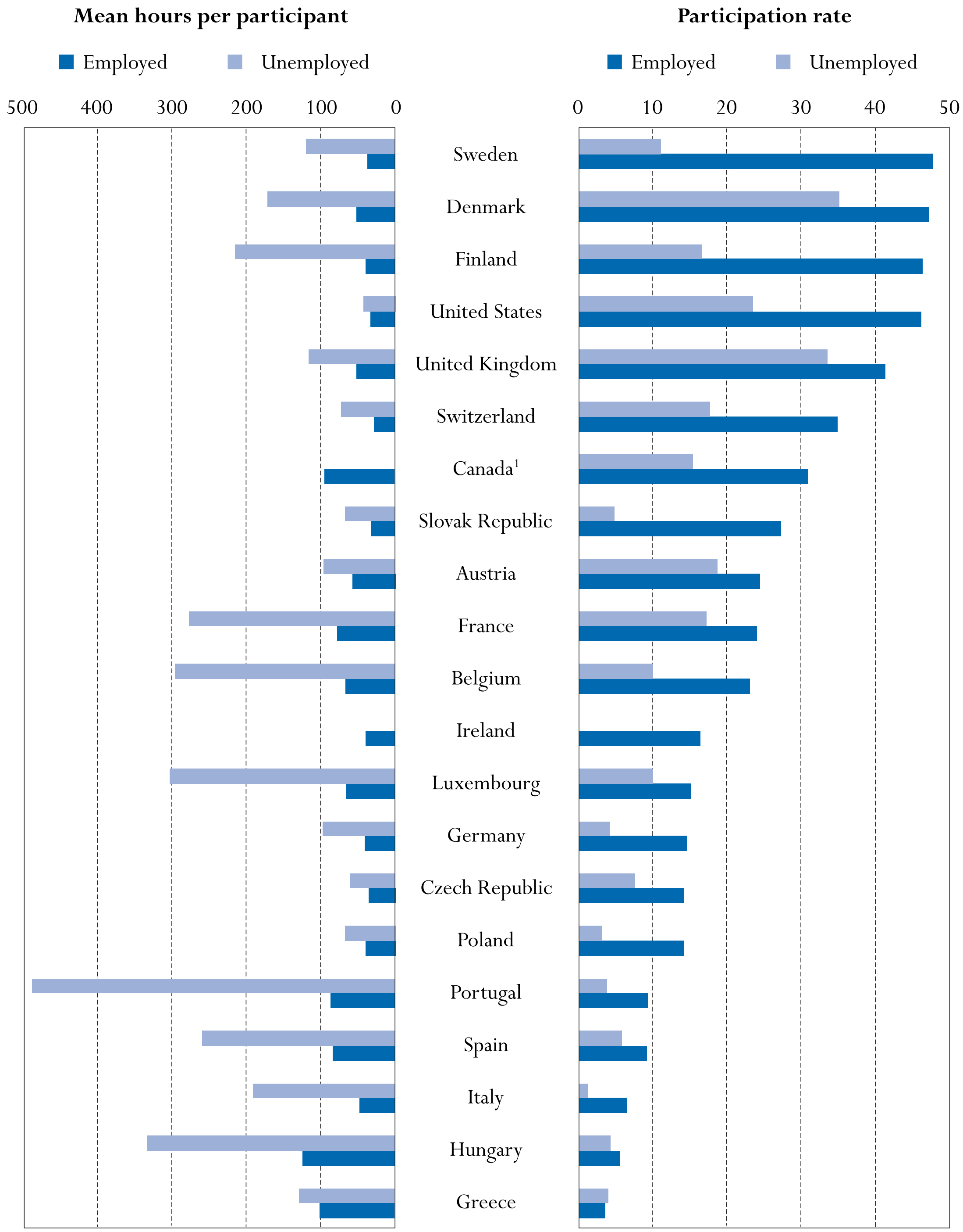


1. Year of reference 2002.
Countries are ranked in ascending order of their participation rates in non-formal CET.
Source: OECD. Table C6.2. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/317204241155

for the unemployed. With few exceptions (Czech Republic, Ireland, Italy, Slovak Republic, Sweden and United States) this translates into a higher investment in training per person unemployed than per person employed. This higher investment might reflect both a need for more extensive skill development among the unemployed, as well as the fact that training for the employed competes with work time, while training for the unemployed is typically full-time training, offered through targeted programmes which can be of long duration.

Chart C6.5. Participation rate and mean hours per participant in non formal job-related continuing education and training by employment status, all levels of education (2003)



1. Year of reference 2002.

Countries are ranked in descending order of the participation rates in non-formal CET for the employed.

StatLink: http://dx.doi.org/10.1787/317204241155

Box C6.1. Could informal learning be a substitute for participation in formal and non-formal activities?

Informal learning activities are based on the initiative of the learner. They are usually self-organised, typically involve the use of a wide range of instruments (books, computer, broadcasting, etc.) and can be characterised by the absence of a professional teacher. Informal learning can be interpreted as comprising less formalised studies that nonetheless seek to achieve learning goals pre-determined by the learners themselves. Informal learning captures all activities explicitly aimed at improving knowledge, skills and competences that are not within the scope of, or directly related to, formal or non-formal education (according to the definitions of ISCED97 used for this indicator).

Evidence gathered from European countries and Canada is not totally conclusive as to whether informal learning functions as a substitute for formal and non-formal learning. In general, the lower the participation rate in formal and non-formal activities is, the lower the participation in informal activities is. However, significant counter-examples also exist: in Austria, Italy, Luxembourg and Portugal, the overall participation rate increases significantly when informal activities are included. The magnitude of participation in informal learning differs across countries.

Informal learning, considered separately, is difficult to capture and covers very different situations within and across countries. For example, participation in informal learning is not as clearly related to initial education as is non-formal training. Generally, the usual pattern of a positive relationship is confirmed, but the relationship is less marked in several countries and is even reversed in some countries. In Austria, Finland and Luxembourg, the lower educated report more informal learning than do the higher educated. Gender does not seem to introduce significant differences.

Definition and methodologies

Data for this indicator were calculated from the ad hoc module of the European Labour Force Survey conducted by Eurostat in spring 2003. Data from comparable sources are included for Canada (2002) and the United States.

For this indicator, education activities are classified into three types:

1. Formal education is defined as education provided in the system of schools, colleges, universities and other formal educational institutions and that normally constitutes a continuous ladder of full-time education for children and young people, generally beginning at age 5 to 7 and continuing up to 20 or 25 years old or above. In some countries, the upper parts of this ladder consist of organised programmes of joint part-time employment and part-time participation in the regular school and university system: such programmes have come to be known as the "dual system", or other equivalent terms, in these countries.

2. Non-formal education is defined as any organised and sustained educational activities that do not correspond exactly to the above definition of formal education. Non-formal education may therefore take place both within and outside educational institutions, and cater to persons of all ages. Depending on country contexts, it may cover educational programmes to impart adult literacy, basic education for

out-of-school children, life skills, work skills and general culture. Non-formal education programmes do not necessarily follow the ladder system, and may have a differing duration.

3. Informal education is education that is neither organised nor sustained. Informal learning can be either intentional (*e.g.* participation in short lectures or reading books or journals) or unintentional (occurring by chance or as a by-product of everyday activities).

To ensure comparability, the analysis in this indicator is focused on non-formal job-related continuing education and training. The term "job-related" refers to training activities intended mainly for professional reasons as opposed to mainly personal or social reasons. That is, the respondent takes part in the activity in order to obtain knowledge and/or learn new skills for a current or a future job, increase earnings, improve job and/or career opportunities and generally improve his or her opportunities for advancement and promotion.

The reference period for the participation is one year (during the last 12 months).

The labour force covers employed and unemployed persons according to the definitions and guidelines of the International Labour Organisation (see Indicator A8).

Table C6.1a. Participation in formal and/or non-formal education and training, by level of educational attainment and gender (2003)

OECD COUNTRIES		Participation rate: Lower secondary education	Upper secondary and post-secondary non-tertiary education	Tertiary education	All levels of education
Austria	M+F	10	28	47	27
	Males	10	28	43	28
	Females	9	28	53	26
Belgium	M+F	10	22	40	22
	Males	11	21	42	23
	Females	8	22	39	22
Canada[1]	M+F	12	31	50	37
	Males	14	31	48	35
	Females	11	32	52	38
Czech Republic	M+F	4	13	31	14
	Males	6	14	29	16
	Females	3	12	35	13
Denmark	M+F	35	49	66	52
	Males	37	46	63	49
	Females	34	53	68	54
Finland	M+F	27	45	66	48
	Males	23	42	62	43
	Females	30	49	70	52
France	M+F	11	20	38	21
	Males	12	21	37	22
	Females	9	20	38	20
Germany	M+F	5	14	27	15
	Males	5	14	26	16
	Females	4	13	30	14
Greece	M+F	11	19	19	15
	Males	3	8	12	6
	Females	19	34	30	26
Hungary	M+F	2	8	16	8
	Males	2	6	14	7
	Females	2	9	18	8
Ireland	M+F	11	24	42	24
	Males	11	23	39	23
	Females	11	24	44	26
Italy	M+F	3	15	22	9
	Males	3	14	21	9
	Females	3	15	23	9
Luxembourg	M+F	5	18	37	17
	Males	6	17	36	17
	Females	4	18	39	16
Poland	M+F	2	10	41	13
	Males	2	10	39	13
	Females	1	10	43	13
Portugal	M+F	7	33	50	14
	Males	7	36	52	14
	Females	7	31	48	14
Slovak Republic	M+F	7	20	43	21
	Males	10	23	41	23
	Females	5	18	45	19
Spain	M+F	7	19	29	15
	Males	7	20	27	14
	Females	7	19	31	15
Sweden	M+F	35	53	74	56
	Males	33	48	71	51
	Females	38	58	76	61
Switzerland	M+F	18	53	80	56
	Males	19	54	81	60
	Females	17	52	78	51
United Kingdom	M+F	12	37	61	38
	Males	12	34	57	37
	Females	13	40	65	39
United States	M+F	m	m	m	m
	Males	m	m	m	m
	Females	m	m	m	m

1. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/317204241155

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Table C6.1b. Participation in formal and/or non-formal and/or informal education and training, by level of educational attainment and gender (2003)

OECD COUNTRIES		Participation rate			
		Lower secondary education	Upper secondary and post-secondary non-tertiary education	Tertiary education	All levels of education
Austria	M+F	87	89	95	89
	Males	84	87	95	88
	Females	88	90	96	90
Belgium	M+F	24	43	68	43
	Males	27	44	71	45
	Females	21	42	64	40
Canada[1]	M+F	24	51	71	56
	Males	26	54	73	57
	Females	21	48	70	54
Czech Republic	M+F	11	27	65	29
	Males	12	27	64	31
	Females	10	26	66	28
Denmark	M+F	62	77	93	80
	Males	62	76	95	79
	Females	61	79	92	80
Finland	M+F	62	77	91	78
	Males	59	74	89	75
	Females	66	81	92	82
France	M+F	29	52	83	51
	Males	34	55	87	55
	Females	25	49	80	47
Germany	M+F	19	41	66	42
	Males	19	41	65	43
	Females	19	41	68	41
Greece	M+F	18	28	34	25
	Males	8	18	30	16
	Females	29	42	40	35
Hungary	M+F	4	11	27	12
	Males	4	10	26	11
	Females	3	13	28	12
Ireland	M+F	50	68	84	66
	Males	45	63	84	62
	Females	55	73	85	70
Italy	M+F	34	61	78	49
	Males	37	62	79	51
	Females	32	59	77	46
Luxembourg	M+F	67	86	95	82
	Males	m	m	m	82
	Females	m	m	m	81
Poland	M+F	9	27	74	30
	Males	10	26	74	29
	Females	8	27	74	31
Portugal	M+F	40	82	95	50
	Males	44	87	97	54
	Females	36	77	94	47
Slovak Republic	M+F	40	59	83	60
	Males	43	59	83	61
	Females	39	59	82	59
Spain	M+F	13	31	48	25
	Males	13	32	46	24
	Females	13	31	50	25
Sweden	M+F	49	69	88	71
	Males	49	68	88	69
	Females	48	70	88	73
Switzerland	M+F	29	67	90	68
	Males	30	69	92	73
	Females	28	65	88	63
United Kingdom	M+F	12	37	61	38
	Males	m	m	m	m
	Females	m	m	m	m
United States	M+F	m	m	m	m
	Males	m	m	m	m
	Females	m	m	m	m

1. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/317204241155

C6

Table C6.2. Participation of the labour force in non-formal job-related continuing education and training, by level of educational attainment (2003)

Participation rate and mean number of hours per participant during one year for 25-to-64-year-olds in the labour force by level of education and gender

			Participation rate for the labour force				Mean number of hours per participant in the labour force			
			Lower upper secondary education	Upper secondary and post-secondary non-tertiary education	Tertiary education	All levels of education	Lower upper secondary education	Upper secondary and post-secondary non-tertiary education	Tertiary education	All levels of education
OECD COUNTRIES	Austria	M+F	8	23	41	24	54	58	55	57
		Males	9	23	38	24	50	61	54	58
		Females	8	23	45	24	57	54	57	55
	Belgium	M+F	11	19	35	22	87	76	65	71
		Males	12	19	36	22	89	85	61	74
		Females	10	19	33	22	83	63	69	68
	Canada[1]	M+F	9	24	40	29	51	97	104	100
		Males	10	24	37	28	36	94	112	102
		Females	8	23	43	31	c	102	97	98
	Czech Republic	M+F	6	13	24	14	21	34	68	41
		Males	8	14	21	14	11	29	71	37
		Females	5	12	27	13	31	42	64	47
	Denmark	M+F	31	42	59	46	62	56	55	56
		Males	31	40	57	44	67	59	52	57
		Females	31	44	60	49	55	52	57	55
	Finland	M+F	28	38	60	44	41	42	46	44
		Males	25	35	56	40	47	43	47	45
		Females	32	41	63	48	34	40	46	43
	France	M+F	14	22	37	23	84	90	87	88
		Males	14	22	36	23	68	74	90	79
		Females	13	22	38	24	105	113	84	98
	Germany	M+F	4	12	26	14	94	94	67	80
		Males	4	11	25	14	102	100	69	83
		Females	4	12	29	15	87	88	64	76
	Greece	M+F	2	4	6	4	119	105	91	103
		Males	1	3	7	3	95	89	82	87
		Females	4	4	4	4	131	124	109	123
	Hungary	M+F	2	5	10	5	128	144	113	132
		Males	3	4	8	5	114	120	115	118
		Females	2	6	11	7	151	164	111	144
	Ireland	M+F	7	12	22	14	27	34	38	35
		Males	7	12	21	13	26	29	38	33
		Females	7	12	23	15	27	40	37	37
	Italy	M+F	2	8	14	6	50	48	53	50
		Males	2	7	14	5	49	51	51	51
		Females	2	9	14	7	51	45	54	48
	Luxembourg	M+F	5	16	31	16	27	43	41	41
		Males	6	15	31	16	27	44	41	41
		Females	3	18	32	16	27	41	42	41
	Poland	M+F	3	9	33	12	23	36	47	40
		Males	3	9	29	12	27	38	51	42
		Females	2	9	35	13	13	33	44	39
	Portugal	M+F	5	16	28	9	114	93	78	95
		Males	5	18	28	8	75	108	90	88
		Females	4	15	28	10	171	74	69	103
	Slovak Republic	M+F	12	22	40	24	12	26	52	32
		Males	15	24	38	25	12	24	54	30
		Females	10	21	42	22	13	29	51	34
	Spain	M+F	4	10	16	9	86	92	99	94
		Males	4	10	15	8	77	85	98	89
		Females	4	9	17	10	106	101	100	101
	Sweden	M+F	27	41	62	45	34	38	40	38
		Males	27	39	60	42	36	42	41	41
		Females	27	43	63	48	31	34	39	36
	Switzerland	M+F	11	37	63	41	51	50	57	53
		Males	11	38	65	44	50	55	59	57
		Females	11	37	59	37	52	45	52	47
	United Kingdom	M+F	12	31	50	34	24	28	27	28
		Males	11	29	48	32	26	31	28	29
		Females	12	32	54	36	22	26	25	26
	United States	M+F	14	37	61	44	22	31	35	33
		Males	m	34	59	41	m	34	37	35
		Females	m	41	64	47	m	28	33	31

1. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table C6.3. Participation in non-formal job-related continuing education and training, by employment status (2003)

Participation rate and mean number of hours per participant during one year for 25-to-64-year-olds, by employment status and gender

OECD COUNTRIES

		Participation rate					Hours per participant				
		Employed	Unem-ployed	Labour force	Inactive	Total	Employed	Unem-ployed	Labour force	Inactive	Total
Austria	M+W	24	18	24	2	19	56	96	57	177	60
	Males	25	15	24	2	21	58	81	58	208	60
	Females	24	22	24	2	17	53	108	55	163	59
Belgium	M+W	23	10	22	2	16	65	296	71	223	76
	Males	23	9	22	2	18	67	314	74	345	78
	Females	23	11	22	2	14	61	278	68	160	72
Canada[1]	M+W	31	15	29	5	25	95	c	100	358	109
	Males	29	17	28	5	25	99	c	102	c	107
	Females	33	13	31	5	25	91	c	98	389	112
Czech Republic	M+W	14	4	14	1	11	40	97	41	76	42
	Males	15	4	14	1	13	37	47	37	34	37
	Females	14	4	13	1	9	45	132	47	93	48
Denmark	M+W	47	35	46	8	39	52	171	56	184	60
	Males	45	33	44	6	39	54	167	57	243	61
	Females	49	37	49	8	39	50	176	55	157	60
Finland	M+W	46	16	44	5	36	39	215	44	137	46
	Males	42	14	40	3	33	39	256	45	190	48
	Females	50	20	48	6	39	39	176	43	117	45
France	M+W	24	17	23	3	19	77	277	88	409	101
	Males	24	15	23	3	20	70	258	79	429	89
	Females	24	19	24	3	18	84	292	98	397	114
Germany	M+W	15	10	14	2	12	64	303	80	252	87
	Males	15	9	14	3	12	68	317	83	314	91
	Females	15	11	15	2	11	60	289	76	203	82
Greece	M+W	4	4	4	4	4	101	130	103	108	105
	Males	3	4	3	2	3	84	128	87	97	88
	Females	4	4	4	4	4	122	131	123	109	117
Hungary	M+W	6	4	5	1	4	124	333	132	370	158
	Males	5	m	5	1	4	116	m	118	434	140
	Females	7	7	7	2	5	130	389	144	346	172
Ireland	M+W	14	8	14	2	11	34	59	35	69	36
	Males	13	m	13	m	11	32	m	33	m	33
	Females	15	m	15	2	10	36	m	37	64	39
Italy	M+W	6	1	6	0	4	48	191	50	146	52
	Males	5	1	5	0	4	48	289	51	149	52
	Females	8	1	7	0	4	47	130	48	144	51
Luxembourg	M+W	16	m	16	m	12	38	m	41	m	41
	Males	16	m	16	m	13	41	m	41	m	41
	Females	16	m	16	m	10	34	m	41	m	41
Poland	M+W	14	3	12	0	9	39	67	40	56	41
	Males	13	3	12	0	9	40	79	42	61	42
	Females	15	3	13	0	9	38	57	39	53	39
Portugal	M+W	9	4	9	1	7	86	487	95	458	107
	Males	9	m	8	m	8	87	m	88	m	93
	Females	10	m	10	1	7	85	m	103	558	122
Slovak Republic	M+W	27	5	24	1	19	30	68	32	61	32
	Males	28	4	25	m	22	29	43	30	m	30
	Females	25	6	22	1	16	32	84	34	69	35
Spain	M+W	9	6	9	1	7	83	259	94	334	101
	Males	8	5	8	1	7	82	255	89	449	95
	Females	10	6	10	1	6	85	261	101	270	108
Sweden	M+W	47	11	45	6	40	37	120	38	47	39
	Males	44	13	42	5	39	39	140	41	73	42
	Females	51	9	48	6	42	35	88	36	34	36
Switzerland	M+W	41	33	41	5	34	51	115	53	117	55
	Males	44	35	44	6	41	55	120	57	181	59
	Females	37	31	37	5	29	45	110	47	93	49
United Kingdom	M+W	35	18	34	4	27	27	72	28	107	30
	Males	33	18	32	4	29	28	82	29	137	31
	Females	37	17	36	3	26	25	54	26	90	28
United States	M+W	46	23	44	10	37	33	42	33	25	32
	Males	43	m	41	m	36	35	m	35	m	35
	Females	49	m	47	10	38	30	m	31	25	30

1. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

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Table C6.4. Participation in non-formal job-related continuing education and training for the labour force, by age and gender (2003)

OECD COUNTRIES

		Participation rate				
		25-34	35-44	45-54	55-64	25-64
Austria	M+F	26	26	22	15	24
	Males	27	26	22	15	24
	Females	25	26	21	15	24
Belgium	M+F	24	22	22	14	22
	Males	24	23	22	14	22
	Females	23	22	22	15	22
Canada[1]	M+F	30	30	31	23	29
	Males	28	29	29	21	28
	Females	32	32	34	25	31
Czech Republic	M+F	14	15	13	12	14
	Males	15	15	13	13	14
	Females	12	15	13	10	13
Denmark	M+F	46	49	49	39	46
	Males	46	47	45	37	44
	Females	46	51	52	43	49
Finland	M+F	41	47	45	39	44
	Males	39	43	40	34	40
	Females	44	52	50	44	48
France	M+F	27	25	21	14	23
	Males	27	24	21	14	23
	Females	28	25	21	14	24
Germany	M+F	16	16	14	9	14
	Males	16	15	14	10	14
	Females	17	16	14	9	15
Greece	M+F	3	4	4	2	4
	Males	4	4	2	2	3
	Females	2	5	6	3	4
Hungary	M+F	6	6	4	4	5
	Males	5	5	4	3	5
	Females	8	8	5	5	7
Ireland	M+F	14	15	14	10	14
	Males	14	14	12	9	13
	Females	15	17	16	12	15
Italy	M+F	6	7	7	4	6
	Males	5	6	6	4	5
	Females	7	8	8	5	7
Luxembourg	M+F	16	17	15	11	16
	Males	15	17	15	13	16
	Females	18	16	15	m	16
Poland	M+F	13	13	11	8	12
	Males	13	12	10	8	12
	Females	14	14	12	8	13
Portugal	M+F	12	10	7	4	9
	Males	12	9	6	4	8
	Females	12	11	8	4	10
Slovak Republic	M+F	24	24	24	22	24
	Males	25	25	25	23	25
	Females	23	22	23	20	22
Spain	M+F	9	11	8	4	9
	Males	9	10	8	4	8
	Females	10	11	8	5	10
Sweden	M+F	43	46	48	43	45
	Males	44	43	43	38	42
	Females	41	49	52	48	48
Switzerland	M+F	41	43	43	33	41
	Males	44	47	46	36	44
	Females	37	39	40	29	37
United Kingdom	M+F	36	36	35	25	34
	Males	35	35	32	24	32
	Females	37	37	38	27	36
United States	M+F	45	43	46	40	44
	Males	42	41	42	38	41
	Females	47	46	51	42	47

1. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

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Table C6.5. Participation in non-formal job-related continuing education and training for the employed, by level of educational attainment and industry (2003)

Participation rate for employed during one year for 25-to-64-year-olds, by industry and level of education

			Participation rate				
		Resource industries	Goods-producing industries	Lower-tier services	Upper-tier services	Unknown	Total
OECD COUNTRIES							
Austria	All level of education	15	19	18	33	m	24
	Below upper secondary	4	8	7	10	m	8
	Upper secondary and post-secondary non-tertiary	20	18	19	31	m	24
	Tertiary education	28	35	26	48	m	42
Belgium	All level of education	9	17	14	30	37	23
	Below upper secondary	m	10	9	16	m	12
	Upper secondary and post-secondary non-tertiary	15	16	13	25	m	20
	Tertiary education	m	31	25	39	37	36
Canada[1]	All level of education	29	20	22	39	m	31
	Below upper secondary	c	8	8	14	m	10
	Upper secondary and post-secondary non-tertiary	29	20	20	31	m	25
	Tertiary education	45	26	31	47	m	41
Czech Republic	All level of education	14	12	10	21	m	15
	Below upper secondary	8	8	5	8	m	7
	Upper secondary and post-secondary non-tertiary	15	11	9	19	m	14
	Tertiary education	14	20	19	28	m	25
Denmark	All level of education	32	39	39	54	45	47
	Below upper secondary	25	29	31	33	m	31
	Upper secondary and post-secondary non-tertiary	32	38	38	48	m	42
	Tertiary education	45	52	47	64	m	60
Finland	All level of education	46	36	41	54	m	46
	Below upper secondary	36	24	32	33	m	30
	Upper secondary and post-secondary non-tertiary	47	31	38	46	m	40
	Tertiary education	61	57	52	66	m	62
France	All level of education	11	20	18	29	19	24
	Below upper secondary	5	14	10	17	9	14
	Upper secondary and post-secondary non-tertiary	13	19	19	27	17	22
	Tertiary education	22	35	32	40	29	38
Germany	All level of education	8	11	10	21	m	15
	Below upper secondary	m	3	3	6	m	4
	Upper secondary and post-secondary non-tertiary	7	9	9	17	m	12
	Tertiary education	18	21	19	32	m	27
Greece	All level of education	2	3	4	5	m	4
	Below upper secondary	2	2	3	3	m	2
	Upper secondary and post-secondary non-tertiary	m	3	5	4	m	4
	Tertiary education	m	7	5	7	m	7
Hungary	All level of education	5	3	4	8	m	6
	Below upper secondary	m	2	m	3	m	3
	Upper secondary and post-secondary non-tertiary	5	3	4	7	m	5
	Tertiary education	m	7	4	12	m	10
Ireland	All level of education	11	17	13	27	m	20
	Below upper secondary	8	12	8	13	m	11
	Upper secondary and post-secondary non-tertiary	13	16	13	23	m	18
	Tertiary education	m	27	21	34	m	31
Italy	All level of education	2	3	4	11	m	6
	Below upper secondary	m	2	2	5	m	2
	Upper secondary and post-secondary non-tertiary	5	5	4	12	m	8
	Tertiary education	m	10	10	16	m	14

1. Year of reference 2002.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
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Table C6.5. (*continued*) **Participation in non-formal job-related continuing education and training for the employed, by level of educational attainment and industry (2003)**

Participation rate for employed during one year for 25-to-64-year-olds, by industry and level of education

OECD COUNTRIES		Participation rate: Resource industries	Goods-producing industries	Lower-tier services	Upper-tier services	Unknown	Total
Luxembourg	All level of education	m	8	9	21	35	16
	Below upper secondary	m	m	m	9	m	5
	Upper secondary and post-secondary non-tertiary	m	8	12	21	26	17
	Tertiary education	m	35	m	31	50	32
Poland	All level of education	4	11	10	23	m	14
	Below upper secondary	2	4	5	5	m	3
	Upper secondary and post-secondary non-tertiary	5	9	9	16	m	10
	Tertiary education	20	31	23	38	m	34
Portugal	All level of education	3	6	7	22	m	11
	Below upper secondary	m	3	5	12	m	5
	Upper secondary and post-secondary non-tertiary	m	15	16	26	m	21
	Tertiary education	m	37	28	36	m	35
Slovak Republic	All level of education	24	25	18	34	m	27
	Below upper secondary	15	26	m	22	m	21
	Upper secondary and post-secondary non-tertiary	26	24	17	30	m	25
	Tertiary education	m	30	33	46	m	41
Spain	All level of education	6	6	6	15	m	9
	Below upper secondary	5	3	4	6	m	4
	Upper secondary and post-secondary non-tertiary	8	8	7	13	m	10
	Tertiary education	15	12	11	19	m	16
Sweden	All level of education	38	35	41	55	41	47
	Below upper secondary	31	23	31	33	m	29
	Upper secondary and post-secondary non-tertiary	40	35	40	49	m	43
	Tertiary education	49	59	53	67	m	65
Switzerland	All level of education	23	27	26	42	24	34
	Below upper secondary	m	7	8	15	m	10
	Upper secondary and post-secondary non-tertiary	24	26	26	40	23	32
	Tertiary education	43	42	40	51	33	47
United Kingdom	All level of education	25	25	23	44	m	35
	Below upper secondary	m	10	9	17	m	12
	Upper secondary and post-secondary non-tertiary	25	23	23	40	m	31
	Tertiary education	38	44	36	56	m	51
United States	All level of education	m	31	37	60	m	46
	Below upper secondary	m	m	m	m	m	13
	Upper secondary and post-secondary non-tertiary	m	26	33	51	m	39
	Tertiary education	m	55	51	71	m	63

1. Year of reference 2002.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
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Table C6.6. Participation in non-formal job-related continuing education and training for the employed, by occupation group (2003)

Participation rate for employed during one year for 25-to-64-year-olds, by occupation group and educational attainment

			Participation rate				
		High-skilled white collar	Low-skilled white collar	High-skilled blue collar	Low-skilled blue collar	Unknown	Total
OECD COUNTRIES							
Austria	All level of education	37	23	16	10	m	24
	Below upper secondary	21	10	6	6	m	8
	Upper secondary and post-secondary non-tertiary	32	25	18	12	m	23
	Tertiary education	45	33	24	21	m	42
Belgium	All level of education	34	22	11	9	m	23
	Below upper secondary	19	16	8	9	m	12
	Upper secondary and post-secondary non-tertiary	26	22	15	9	m	19
	Tertiary education	39	28	14	17	m	36
Canada [1]	All level of education	41	25	26	17	m	31
	Below upper secondary	14	12	9	8	m	10
	Upper secondary and post-secondary non-tertiary	29	24	25	19	m	25
	Tertiary education	46	31	37	23	m	41
Czech Republic	All level of education	21	11	10	13	m	15
	Below upper secondary	13	5	7	8	m	7
	Upper secondary and post-secondary non-tertiary	18	11	10	14	m	14
	Tertiary education	26	13	m	m	m	25
Denmark	All level of education	57	43	37	28	m	46
	Below upper secondary	35	35	28	28	m	31
	Upper secondary and post-secondary non-tertiary	50	44	38	28	m	42
	Tertiary education	63	47	39	28	m	60
Finland	All level of education	59	46	32	27	m	46
	Below upper secondary	41	39	25	22	m	30
	Upper secondary and post-secondary non-tertiary	48	46	34	31	m	40
	Tertiary education	65	52	40	32	m	62
France	All level of education	34	21	14	14	18	24
	Below upper secondary	21	16	9	11	12	14
	Upper secondary and post-secondary non-tertiary	29	22	16	17	26	22
	Tertiary education	39	33	20	31	m	37
Germany	All level of education	23	12	8	4	9	15
	Below upper secondary	10	5	3	1	m	4
	Upper secondary and post-secondary non-tertiary	18	12	8	6	9	12
	Tertiary education	29	21	16	10	22	27
Greece	All level of education	6	5	2	3	m	4
	Below upper secondary	2	5	2	2	m	2
	Upper secondary and post-secondary non-tertiary	4	5	3	4	m	4
	Tertiary education	7	5	m	m	m	7
Hungary	All level of education	9	6	2	3	12	5
	Below upper secondary	m	4	m	2	m	3
	Upper secondary and post-secondary non-tertiary	7	6	2	4	12	5
	Tertiary education	10	8	m	m	m	10
Ireland	All level of education	27	16	16	12	m	20
	Below upper secondary	12	10	11	10	m	11
	Upper secondary and post-secondary non-tertiary	21	17	18	12	m	17
	Tertiary education	33	22	24	23	m	31
Italy	All level of education	12	5	2	2	m	6
	Below upper secondary	6	3	2	1	m	2
	Upper secondary and post-secondary non-tertiary	12	7	4	3	m	8
	Tertiary education	15	10	m	m	m	14

1. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

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Table C6.6. (*continued*) **Participation in non-formal job-related continuing education and training for the employed, by occupation group (2003)**

Participation rate for employed during one year for 25-to-64-year-olds, by occupation group and educational attainment

OECD COUNTRIES

		Participation rate					
		High-skilled white collar	Low-skilled white collar	High-skilled blue collar	Low-skilled blue collar	Unknown	Total
Luxembourg	All level of education	26	15	7	3	m	16
	Below upper secondary	m	12	m	2	m	5
	Upper secondary and post-secondary non-tertiary	22	16	8	7	m	17
	Tertiary education	33	m	m		m	32
Poland	All level of education	28	11	5	8	m	14
	Below upper secondary	m	8	2	4	m	3
	Upper secondary and post-secondary non-tertiary	19	10	6	9	m	10
	Tertiary education	36	21	m	m	m	34
Portugal	All level of education	24	12	4	5	m	11
	Below upper secondary	8	9	3	5	m	5
	Upper secondary and post-secondary non-tertiary	24	21	m	m	m	21
	Tertiary education	37	20	m	m	m	35
Slovak Republic	All level of education	37	17	23	23	m	27
	Below upper secondary	m	m	16	25	m	20
	Upper secondary and post-secondary non-tertiary	33	18	24	23	m	25
	Tertiary education	43	18	m	m	m	41
Spain	All level of education	15	9	6	4	m	9
	Below upper secondary	4	6	4	3	m	4
	Upper secondary and post-secondary non-tertiary	11	12	9	6	m	10
	Tertiary education	19	12	10	8	m	16
Sweden	All level of education	63	40	31	26	67	47
	Below upper secondary	41	32	23	24	m	29
	Upper secondary and post-secondary non-tertiary	57	42	33	27	57	43
	Tertiary education	69	38	39	22	m	64
Switzerland	All level of education	46	29	22	13	22	34
	Below upper secondary	28	12	6	5	m	10
	Upper secondary and post-secondary non-tertiary	44	30	22	16	m	32
	Tertiary education	49	37	42	30	m	47
United Kingdom	All level of education	47	33	21	16	m	35
	Below upper secondary	17	16	9	8	m	12
	Upper secondary and post-secondary non-tertiary	39	34	21	20	m	31
	Tertiary education	54	43	36	21	m	51
United States	All level of education	62	40	28	27	m	46
	Below upper secondary	m	m	m	m	m	13
	Upper secondary and post-secondary non-tertiary	53	39	29	30	m	39
	Tertiary education	67	56	m	m	m	63

1. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/317204241155

C6

Chapter

D

THE LEARNING ENVIRONMENT AND ORGANISATION OF SCHOOLS

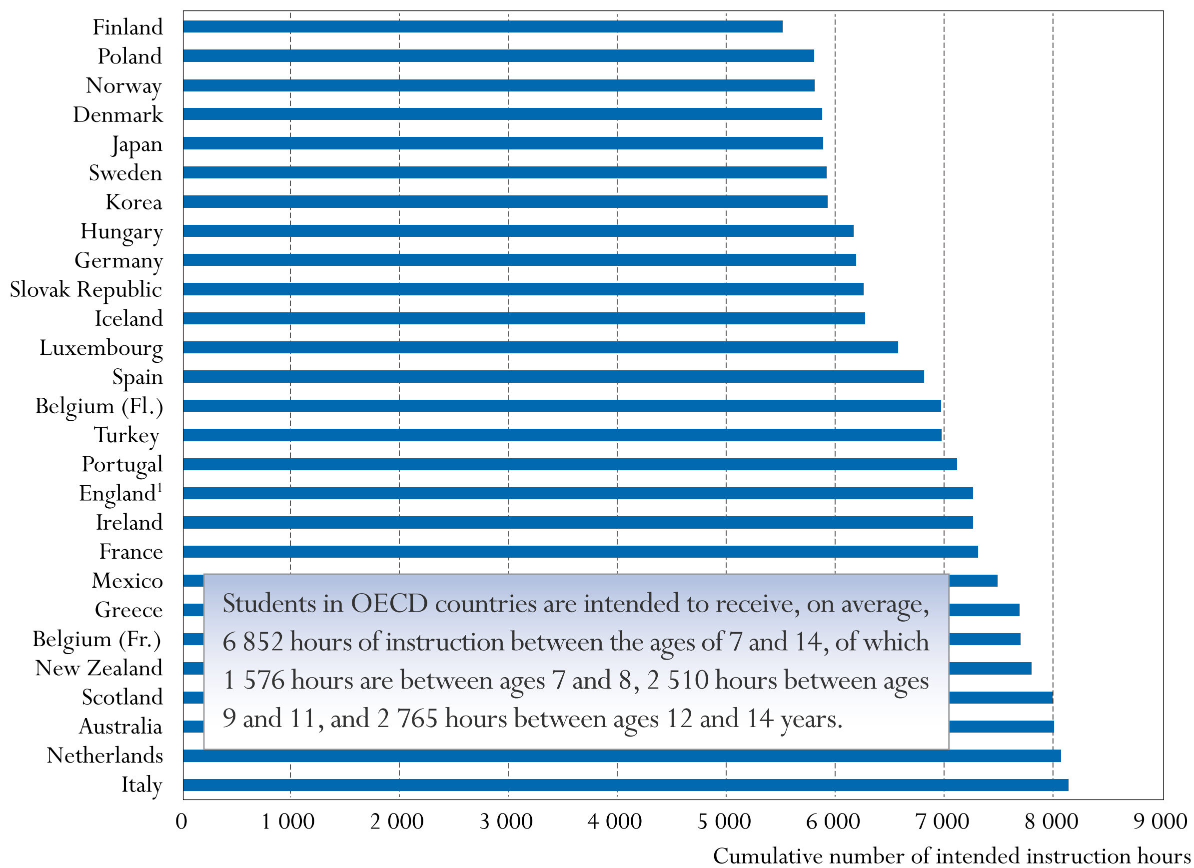
Total intended instruction time for students in primary and secondary education

This indicator examines the amount of instruction time that students are supposed to receive between the ages of 7 and 15. For the first time, it illustrates the extent of out-of-school instruction received by students aged 15 years. It also discusses the relationship between instruction time and student learning outcomes.

Key results

Chart D1.1. Cumulative number of intended instruction hours in public institutions between ages 7 and 14 (2003)

This chart shows the total number of hours of instruction a student in a public sector educational institution can expect to receive from the age of 7 years up to and including 14 years.



1. Year of reference 2002.

Countries are ranked in ascending order of total number of intended instruction hours.

Source: OECD. Table D1.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

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Other highlights of this indicator

- Students between the ages of 7 and 8 in OECD countries receive an average of 748 hours per year of compulsory instruction time and 788 hours per year of intended instruction time in the classroom. Students between the ages of 9 and 11 receive nearly 50 hours more per year and those aged between 12 and 14 receive nearly 100 hours more per year than those aged between 9 and 11.
- Analysis of the learning time of 15-year-old students shows that the amount of school-related learning time that takes place outside of schools can be significant in some countries.

Policy context

The amount and quality of time that people spend learning between early childhood and the start of their working lives shape their lives both socially and economically. Instruction time in formal classroom settings comprises a large part of the public investment in student learning. Matching resources with students' needs and using time in an optimal manner, from the perspective of both the learner and of public investment, are major challenges for education policy. The costs of education primarily include teacher labour, institutional maintenance and other educational resources. The length of time during which resources are made available to students, as shown in this indicator, is therefore important.

Evidence and explanations

What this indicator shows

Intended instruction time is an important indicator of the public resources invested in education. This indicator captures intended instruction time as a measure of exposure to learning in formal classroom settings as per public regulations. It also shows how instruction time is allocated to different curricular areas. The indicator is calculated as the intended net hours of instruction for the grades in which the majority of students are 7 to 15 years of age. Although such data are difficult to compare among countries because of different curriculum policies, they nevertheless provide an indication of how much formal instruction time countries consider students need in order to achieve the educational goals that have been set for them.

Caveats to note

In some countries, intended instruction time varies considerably among regions or different types of school. In many countries, local education authorities or schools can determine the number and allocation of hours of instruction. Additional teacher time is often planned for individual remedial teaching or enhancement of the curriculum. On the other hand, time may be lost due to a lack of qualified substitutes to replace absent teachers, or due to student absences.

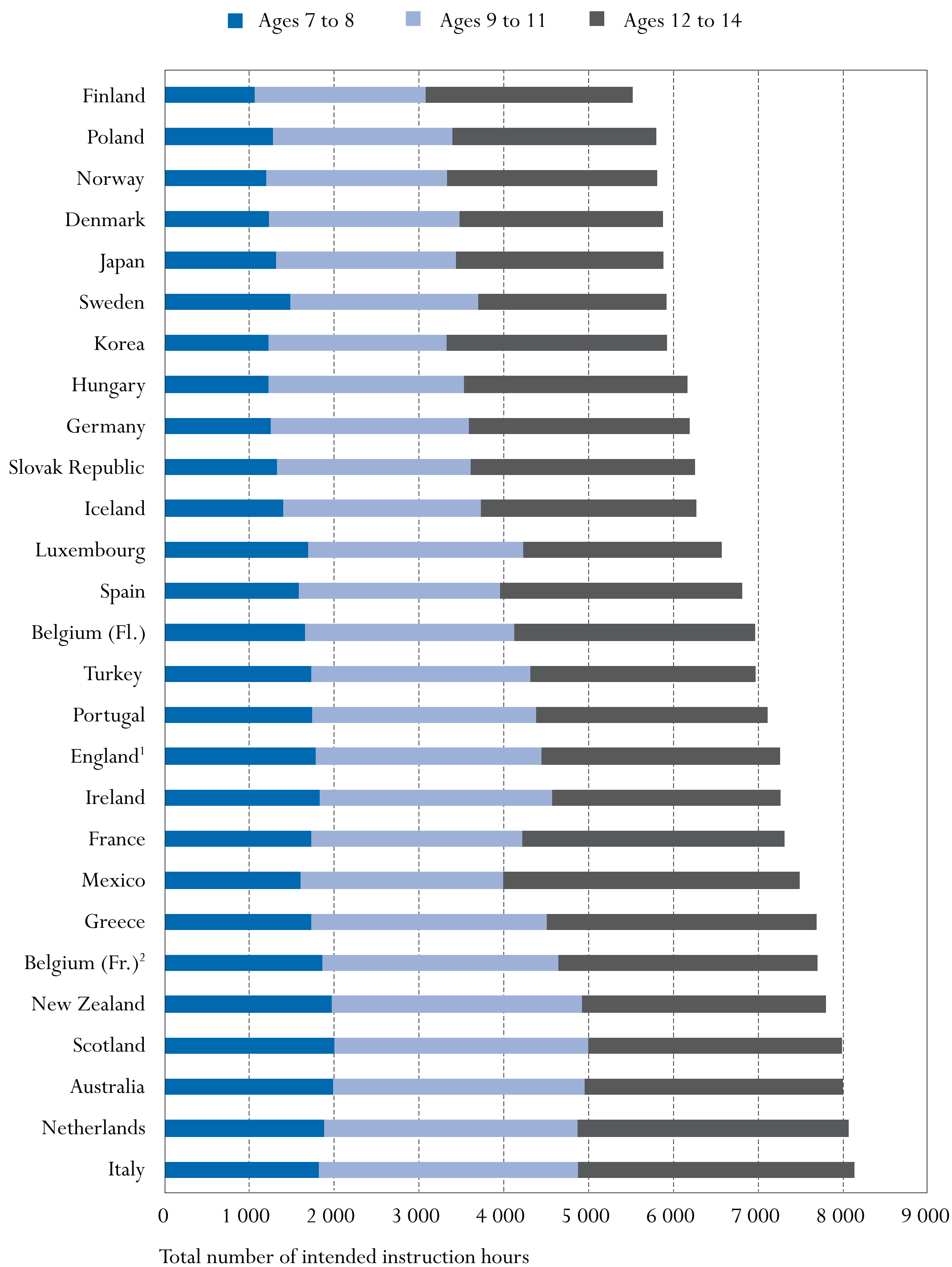
Annual instruction time should also be examined together with the length of compulsory education, which measures the time during which young people receive full-time educational support from public resources, and during which more than 90% of the population participates in education (see Indicator C1). In addition, intended instruction time also does not capture the quality of learning opportunities being provided or the level or quality of human and material resources involved. Indicator D2, measuring the numbers of teachers relative to the student population, provides one indicator of this.

Total intended instruction time: an average of 6 852 hours between the ages of 7 and 14

Total intended instruction time is an estimate of the number of hours during which students are taught both the compulsory and non-compulsory parts of the curriculum.

The total number of instruction hours that students are intended to receive between ages 7 and 14 averages 6 852 hours among OECD countries. However, formal requirements range from 5 523 hours in Finland to around 8 000 hours in Australia, Italy, the Netherlands and Scotland. These hours comprise compulsory and non-compulsory hours during which the school is obliged to offer instruction to students. Whereas the total intended instruction time within this age range is a good indicator of students' theoretical workload, it cannot be interpreted as actual instruction students receive over the years they spend in initial education. In some countries with greater student workload, the age band of compulsory education is less and students drop out of the school system earlier, whereas in other countries a more even distribution of study time over more years amounts in the end to a larger number of total instruction hours for all. Table D1.1 shows

Chart D1.2. Total number of intended instruction hours in public institutions between the ages of 7 and 14 (2003)



1. Year of reference 2002.
2. Intended instruction hours for 12-to-14-year-olds based on average computed for 12-to-13-year-olds.
Countries are ranked in ascending order of total number of intended instruction hours.
Source: OECD. Table D1.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/087080420144

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the age range at which over 90% of the population is in education and Chart D1.2 shows the total amount of intended instruction time students receive between ages 7 and 14.

Compulsory instruction time: an average of 6 561 hours between the ages of 7 and 14

Total compulsory instruction time is an estimate of the number of hours during which students are taught both the compulsory core and compulsory flexible parts of the curriculum.

Box D1.1. Decision making on number of periods of instruction – lower secondary education (2003)

An important context when examining differences in student instruction time between countries is where the decision-making authority lies and in particular how much influence schools have on this. The table below shows who in each country has responsibility for deciding on the number of periods of instruction that are provided in public lower secondary education.

	Degree of autonomy in decision making			
Decision maker	Full autonomy	After consultation	Within framework	Other
Central Government	Czech Republic France Greece Iceland Korea Mexico Norway Portugal Slovak Republic Turkey	Austria		
State/Province/Regional Government	Australia Germany		Belgium (Fr) Spain	
Local authorities			Denmark Finland Sweden	
School			England Hungary Italy Luxembourg Netherlands New Zealand	Japan[1]

1. Although central government determines fundamental standards in principle, schools decide the number of periods of instruction, taking into consideration the needs of the local community, the school and the students.
Source: 2003 OECD-INES survey on decision making.

The table shows that countries broadly fall into two groups. The most common situation is where instruction time is wholly set at the central or state government level and the other, smaller group, is where schools decide on the amount of instruction time but within a framework set at a higher level in the education system.

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For 7-to-8-year-olds and 9-to-11-year-olds, total intended instruction time equals total compulsory instruction time in most countries, while for older age groups this is less frequently the case. Intended instruction time is fully compulsory for all age groups between 7 and 14 years in Denmark, Germany, Greece, Iceland, Japan, Korea, Luxembourg, Mexico, the Netherlands, Norway, Scotland and Sweden and, except in the case of Greece, Japan and Mexico, is also fully compulsory at age 15.

Within the formal education system, in OECD countries the annual amount of total compulsory instruction time in classroom settings averages 748 hours for 7 to 8-year-olds, 804 hours for 9-to-11-year-olds and 884 hours for 12-to-14-year-olds. The average number of compulsory instruction hours per year is 908 for the typical programme in which most 15-year-olds are enrolled (Table D1.1).

Curriculum policies: two basic models with balance between national standards and local autonomy

Decision-making responsibilities for planning students' programmes of learning vary greatly from country to country. Box D1.1 illustrates who makes decisions in each country on the number of hours of instruction students in lower secondary education should receive. On curricula issues more generally, two basic models exist in OECD countries, with several variants.

In one model of curriculum regulation, national or regional authorities specify subject areas, the time allocated to them and their content. Schools must respect these national or sub-national curricular specifications with varying degrees of flexibility. In Austria, England, France, Germany, Greece, Norway, Portugal and Spain, the national authorities (or regional jurisdictions in the case of the German *Länder* and the Spanish Autonomous Communities) establish curricula for all types of schools, grades and subjects. Typically, the documents define subjects, the time allocated to them and the content in more or less detail by grade level and type of programme; the school is responsible for managing and delivering the curriculum.

In the second model of curriculum regulation, national authorities establish attainment targets or standards, while local authorities or schools are responsible for planning and implementing curricula. For example, in both the Flemish and French Communities of Belgium, the Czech Republic, Denmark, the Netherlands, New Zealand and Scotland, national policy documents describe the targets, and local authorities or schools specify the subjects, content and time allocated to them. National policy documents in these countries often provide a frame for planning by specifying minimum requirements for subjects to be taught, time to be devoted to study areas and/or desirable content for studies, thereby giving guidance to schools for curriculum planning.

National curriculum documents play an important role in shaping school curricula irrespective of the legal status of the curriculum documents. Combined with graduation requirements and examinations they serve the purpose of harmonising the content of education within countries. Recent developments in curriculum policies show a tendency towards decentralised curriculum decisions in countries where centralised prescriptive syllabi were used for many decades (*e.g.* in the German-speaking European countries and Eastern Europe). At the same time, in countries with traditionally decentralised curriculum policies (like Australia, New Zealand and the United Kingdom), national standards of competence levels have been negotiated in the past 20 years.

Student learning time in and out of school for 15-year-olds

The instruction time in classroom settings covered by Table D1.1 is, however, only one aspect of student learning time. Chart D1.3 shows data from PISA and gives reports from 15-year-old students of the average number of hours spent on out-of-school as well as in-school learning activities during each school week. While in Austria, Belgium, the Czech Republic, Iceland, Japan, Norway, Portugal, Sweden and Switzerland, learning in classroom settings makes up 80% of total school-related learning, students in Greece report spending more than 40% of their learning time for school-related learning in other ways, including: homework or other studies set by their teachers; attending out of school classes, remedial classes or enrichment classes at school; working with a tutor; or other forms of study. Note that these figures refer to school weeks only and that countries differ in the number of weeks per year in which schools are open. To aid the interpretation of the figures, the number of instructional weeks per year has been added to Chart D1.3.

Adding up the various time allocations, 15-year-old students in Korea spend well over 40 hours per school week on all types of school-related learning both in and out of school (Chart D1.3).

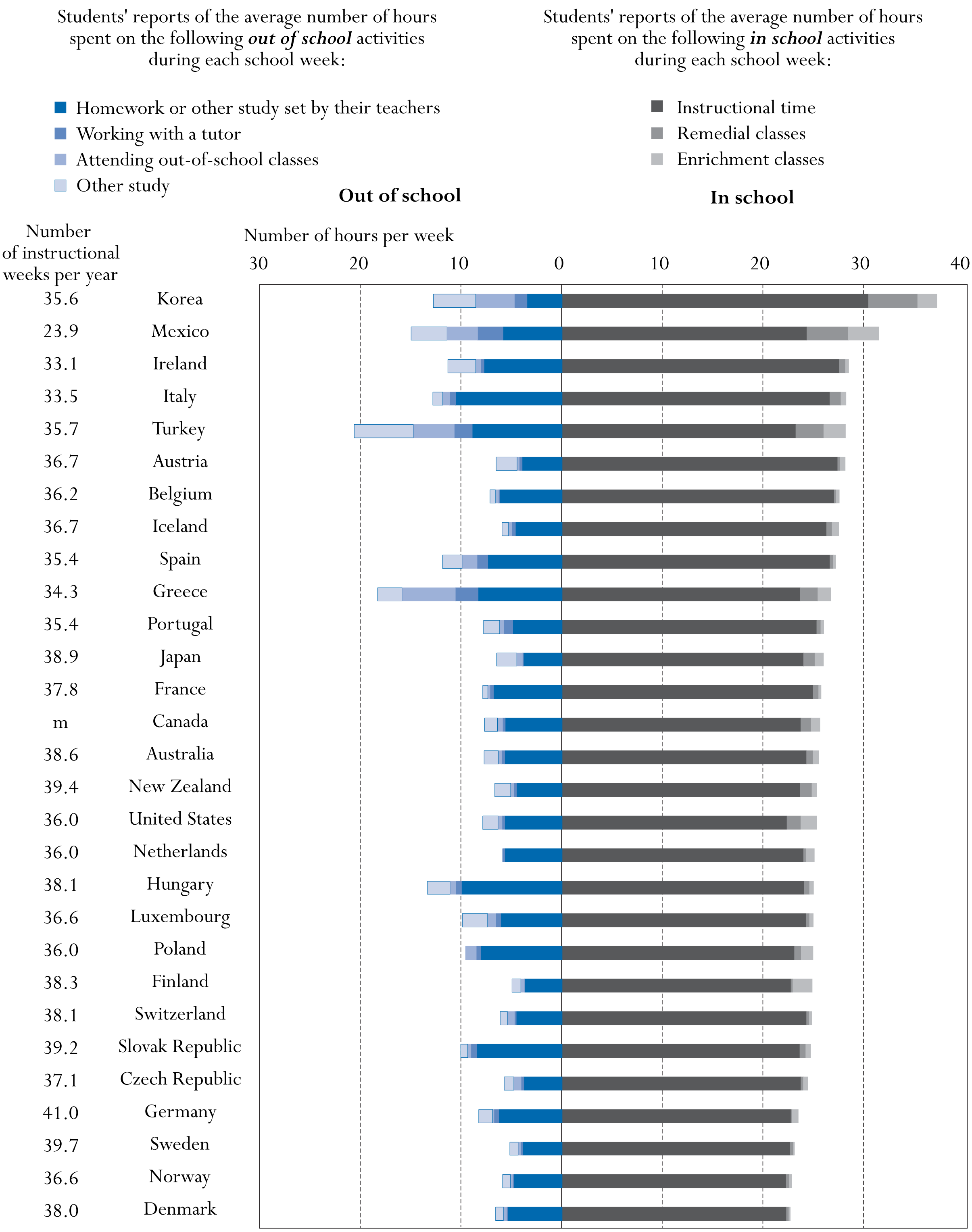
Relationship between learning time and outcomes

Students' opportunity to spend time learning is recognised as a key driver of student performance. However, the relationship between the instruction and learning time figures shown here and student outcomes is not a straightforward one and a simplistic examination of the association between the two is not advisable; a number of additional factors need to be considered. Among these are the effectiveness with which the learning time is invested or instruction is delivered, how the instruction is organised (*e.g.* the frequency

Box D1.2. Experimenting with no set instruction timetable in Sweden

The government exercises control of the Swedish compulsory school via the Schools Act, the national curriculum and syllabi. There is also a national timetable stipulating the subjects that should be studied and the minimum number of teaching hours each pupil is guaranteed during the nine years of compulsory school education, both in total and for each subject/group of related subjects respectively. In Sweden, the role of the timetable has long been the subject of debate. A five-year pilot scheme began at the start of the 2000-2001 academic year, in which 900 schools in compulsory education in 79 different municipalities were given total exemption from the instruction time requirements per subject or group of related subjects stipulated in the national timetable. They were, however, still governed by all other provisions applicable to compulsory schools. These include following the national curriculum and working to existing syllabi for compulsory school subjects/groups of related subjects, providing the stipulated total number of guaranteed hours for nine years of compulsory school (6 665 hours); and ensuring pupils receive both a well-balanced education as well as well-proportioned academic years and school days. A first evaluation of the pilot scheme has been completed. It indicates some small gains in student attainment, as measured by the grade statistics of students in the pilot schools. The proportion of pupils eligible for upper-secondary school increased to some extent in the pilot schools, while it remained unchanged in other schools. These benefits in pilot schools seem to be particularly favourable for pupils with foreign backgrounds. During 2005, Sweden's school timetable delegation will submit its recommendation to the government as to whether (and if so in what way) the compulsory school timetable should be abolished.

Chart D1.3. Student learning time in and out of school (2003)



Countries are ranked in descending order of the total learning time in school.
Source: OECD, PISA 2003 database. Table 5.14. See Annex 3 for notes *(www.oecd.org/edu/eag2005)*.

StatLink: http://dx.doi.org/10.1787/087080420144

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rather than the length of lessons, class size) and the extent and type of learning opportunities prior to schooling, for example through pre-school programmes.

Moreover, the amount of out of school learning, such as homework, has other factors complicating the relationship with student performance. For example, teachers may tend to assign more (or more regular) homework to those students who need it most to improve their performance. Alternatively, slower learners may need more time to complete the same amount of homework. Conversely, students who report spending relatively little time on homework may either be able students who can complete their homework quickly or disengaged students who do not care to spend much time on school activities at home. Finally, students' socio-economic background may influence homework practices, with students from wealthier or better-educated families potentially benefiting more from better home learning conditions and assistance with their homework. Similar issues apply for other forms of out-of-school learning, such as remedial or enrichment classes.

Definitions and methodologies

Data on instruction time are from the 2004 OECD-INES Survey on Teachers and the Curriculum and refer to the school year 2002-2003.

Instruction time for 7-to-15-year-olds refers to the formal number of 60-minute hours per school year organised by the school for class instructional activities for students in the reference school year 2002-2003. For countries with no formal policy on instruction time, the number of hours was estimated from survey data. Hours lost when schools are closed for festivities and celebrations, such as national holidays, are excluded. Intended instruction time does not include non-compulsory time outside the school day, homework, individual tutoring, or private study done before or after school.

- Compulsory curriculum refers to the amount and allocation of instruction time that almost every public school must provide and almost all public sector students must attend. The measurement of the time devoted to specific study areas (subjects) focuses on the minimum common core rather than on the average time spent on study areas, since the data sources (policy documents) do not allow more precise measurement. Total compulsory curriculum comprises the compulsory core curriculum as well as the compulsory flexible curriculum.

- The non-compulsory part of the curriculum refers to the average time of instruction to which students are entitled above the compulsory hours of instruction. These subjects often vary from school to school or from region to region, and may take the form of "non-compulsory elective" subjects.

- Intended instruction time refers to the number of hours per year during which students receive instruction in the compulsory and non-compulsory parts of the curriculum.

For 15-year-olds in Table D1.1, typical instruction time refers to the programme in which most 15-year-olds are enrolled. This can be a programme in lower or upper secondary education, and in most countries it refers to a general programme. If the system channels students into different programme types at this age, an estimation of the average instruction time may have been necessary for the most important mainstream programmes weighted by the proportion of students in the grade level where most 15-year-olds are enrolled. Where vocational programmes are also calculated, in typical instruction time, only the school-based part of the programme should be included in the calculations.

The instruction time for the least demanding programme refers to programmes stipulated for students who are least likely to continue studying beyond mandatory school age or beyond lower secondary education. Such programmes may or may not exist in a country depending on streaming and selection policies. In many countries students are offered the same amount of instruction time in all or most programmes, but there is flexibility in the choice of study areas or subjects. Often such choices have to be made quite early if programmes are long and differ substantially.

The figures on student learning time in and out of school (Chart D1.3) are taken from data collected in the background questionnaires administered as part of the Programme for International Student Assessment (PISA) in 2003. 15-year-old students were asked how much time they spend each week on the activities listed in Chart D1.3. Time spent at weekends was included.

The data on decision making are taken from the 2003 OECD-INES survey on decision making in public, lower secondary education and refer to the school year 2003-2004. On instruction time, the survey asked which level in the education system decides on the number of periods of instruction to be provided per year and how autonomously these decisions are taken.

Further references

Specific notes on definitions and methodologies regarding this indicator for each country are given in Annex 3 at *www.oecd.org/edu/eag2005*. The following additional material relevant to this indicator is available on the Web at *http://dx.doi.org/10.1787/087080420144*:

Table D1.2a. Instruction time per subject as a percentage of total compulsory instruction time for 9-to 11-year-olds (2003)

Table D1.2b. Instruction time per subject as a percentage of total compulsory instruction time for 12-to 14-year-olds (2003)

In addition, a more comprehensive analysis of decision making was published in Indicator D6 of *Education at a Glance 2004* (OECD, 2004c). Information on the underlying decision-making survey is available in *Education at a Glance 2004*, Annex 3 (*www.oecd.org/edu/eag2004*) under the heading Indicator D6 "Locus of decision making at lower secondary levels". The complete decision-making data are available under the heading "Underlying data on decision making" for Indicator D6.

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Table D1.1. Instruction time in public institutions (2003)

Average number of hours per year of total compulsory and total intended instruction time in the curriculum for 7-to-8, 9-to-11, 12-to-14 and 15-year-olds

		Age range at which over 90% of the population are enrolled	Average number of hours per year of *total compulsory* instruction time					Average number of hours per year of *total intended* instruction time				
			Ages 7-8	Ages 9-11	Ages 12-14	Age 15 (typical programme)	Age 15 (minimum required programme)	Ages 7-8	Ages 9-11	Ages 12-14	Age 15 (typical programme)	Age 15 (minimum required programme)
OECD COUNTRIES	Australia	5 - 16	992	992	974	964	964	992	992	1018	1 021	1 021
	Austria	5 - 16	678	833	997	1 095	1 048	m	m	m	m	m
	Belgium (Fl.)	3 - 17	a	a	a	a	a	826	826	949	949	445
	Belgium (Fr.)[1]	3 - 17	840	840	960	1 020	m	930	930	1 020	m	m
	Czech Republic	5 - 17	628	707	818	877	338	m	m	m	m	m
	Denmark	4 - 16	615	750	800	720	720	615	750	800	720	720
	England[2]	4 - 15	861	889	870	893	a	890	890	940	940	a
	Finland	6 - 18	530	654	796	858	a	530	673	815	858	a
	France	3 - 17	865	830	940	1 021	a	865	830	1 032	1 125	a
	Germany	6 - 17	625	780	870	888	m	625	780	870	888	m
	Greece	6 - 16	864	928	1 064	1 216	1 034	864	928	1 064	1459	1277
	Hungary	4 - 16	555	671	694	832	833	611	772	879	1206	1 207
	Iceland	3 - 16	700	778	848	863	a	700	778	848	863	a
	Ireland	5 - 16	915	915	839	802	713	915	915	899	891	891
	Italy	3 - 15	809	924	915	765	a	908	1 023	1 089	765	a
	Japan	4 - 17	656	709	817	m	a	656	709	817	m	a
	Korea	6 - 17	612	703	867	1 020	a	612	703	867	1 020	a
	Luxembourg	5 - 15	847	847	782	750	a	847	847	782	750	a
	Mexico	6 - 12	800	800	1 167	1 058	a	800	800	1 167	1 124	a
	Netherlands	5 - 16	940	1 000	1 067	m	a	940	1 000	1 067	m	a
	New Zealand	4 - 15	m	m	m	m	m	985	985	962	950	950
	Norway	6 - 17	599	713	827	855	a	599	713	827	855	a
	Poland	6 - 17	531	620	740	779	a	637	708	802	832	a
	Portugal	5 - 14	870	864	904	899	1 233	870	882	913	899	1 233
	Scotland	4 - 15	1 000	1 000	1 000	1 000	a	1 000	1 000	1 000	1 000	a
	Slovak Republic	6 - 17	619	720	826	835	a	662	763	883	893	a
	Spain	3 - 16	792	792	949	981	981	792	792	953	982	981
	Sweden	6 - 18	741	741	741	741	a	741	741	741	741	a
	Switzerland	6 - 16	m	m	m	m	m	m	m	m	m	m
	Turkey	8 - 13	720	720	791	959	a	864	864	887	959	a
	United States	6 - 16	m	m	m	m	m	m	m	m	m	m
	Country mean		***748***	***804***	***884***	***908***	***874***	***788***	***837***	***922***	***945***	***969***
PARTNER COUNTRY	Israel	5 - 17	888	999	1 295	1 225	a	1 258	1 320	1 295	1 225	a

1. "Ages 12-14" covers ages 12-13 only.
2. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/087080420144

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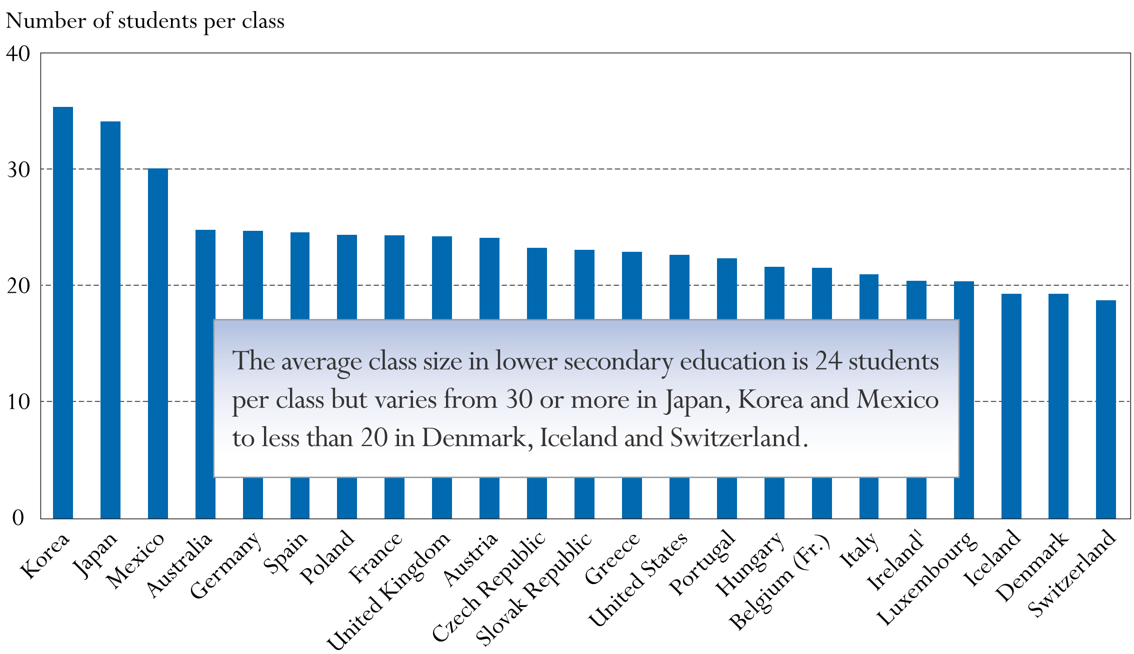
Class size and ratio of students to teaching staff

This indicator examines the number of students per class at the primary and lower secondary levels of education, the ratio of students to teaching staff at all levels of education and the breakdown of educational personnel between teaching and non-teaching staff in primary and secondary schools. The size of the teaching force may vary according to the size of the school-age population, but is also related to the average class size or the ratio of students to teaching staff, the total instruction time of students (see Indicator D1), teachers' average working time (see Indicator D4) and the division of teachers' time between teaching and other duties.

Key results

Chart D2.1. Average class size in lower secondary education (2003)

This chart shows the average number of students per class in public and private lower secondary education. It is derived from the total number of students and total number of classes in each country.



1. Public institutions only.
Countries are ranked in descending order of average number of students per class in lower secondary education.
Source: OECD. Table D2.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005)*.

StatLink: http://dx.doi.org/10.1787/110401658821

Other highlights of this indicator

- The average class size in primary education is 22, but varies between countries from 35 students per class in Korea to half of that number or less in Greece and Luxembourg.
- The number of students per class increases by an average of two 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.
- Among the ten countries for which data are available, teaching and non-teaching staff employed in primary and secondary schools ranges from less than 83 persons per 1 000 students enrolled in Japan, Korea and New Zealand to 120 persons or more per 1 000 students in France, Hungary, Iceland, Italy and the United States.
- Non-teaching staff represent on average 30% of the total teaching and non-teaching staff in primary and secondary schools and ranges from less than 20% in Korea and New Zealand to over 40% in the Czech Republic and France.

Policy context

Class sizes are widely debated in many OECD countries. Smaller classes are valued because they may allow students to receive more individual attention from their teachers and reduce the disadvantage of managing large numbers of students and their work. However, the predominance of teacher costs in educational expenditure means that reducing class sizes leads to sharp increases in the costs of education. Smaller class sizes may also influence parents when they choose schools for their children. In this respect, class size is considered as a way to assess the quality of the school system. Even so, the research evidence as to the effects of class size on attainment is inconclusive.

School quality is also influenced by other factors, including the number of classes or students for which a teacher is responsible, the subject taught, the division of the teacher's time between teaching and other duties, the grouping of students within classes and the practice of team-teaching. The number of students per class summarises different quality factors, but distinguishing between them would allow an understanding of the differences between countries in terms of the quality of the educational system (Box D2.1).

Ratios of students to teaching staff and the proportion of teaching and non-teaching staff indicate resources devoted to education

Determining the ratio of students to teaching staff aims to assess the quality of educational systems, on the assumption that a smaller ratio of students to teaching staff means better student access to teaching resources. This ratio is obtained by dividing the number of full-time equivalent students at a given level of education by the number of full-time equivalent teachers at that level and in similar types of institutions. However, this ratio does not take into account instruction time compared to the length of a teacher's working day, nor how much time teachers spend teaching, and therefore it cannot be interpreted in terms of class size.

The ratio of students to teaching staff is also an important indicator of the resources devoted to education. A smaller ratio of students to teaching staff may have to be weighted against higher salaries for teachers, greater investment in teaching technology, or more widespread use of assistant teachers and other paraprofessionals whose salaries are often considerably lower than those of qualified teachers. Moreover, as larger numbers of children with special educational needs are integrated into normal classes, more use of specialised personnel and support services may limit the resources available for reducing the ratio of students to teaching staff.

The number of teaching and non-teaching staff employed in education per 1 000 students is an indicator of the proportion of a country's human resources devoted to educating the population. The number of persons employed as either teachers or educational support personnel, and the level of compensation of educational staff (see Indicator D3), are both important factors affecting the financial resources that countries commit to education.

Evidence and explanations

Average class size in primary and lower secondary education

At the primary level, the average class size across OECD countries is 22 students per class, but varies widely among countries. It ranges from 35 students per primary class in Korea to fewer than 20 in Denmark, Greece, Iceland, Italy, Luxembourg, Portugal and Switzerland. At the lower secondary level, the average class size across OECD countries is 24 students per class and varies from 35 students per class in Korea to fewer than 20 in Denmark, Iceland and Switzerland (Table D2.1).

Box D2.1. Relationship between class size and ratio of students to teaching staff

The number of students per class results from different elements: the number of students compared to the number of teachers, the number of classes or students for which a teacher is responsible, the instruction time of students compared to the length of teachers' working days, the proportion of time teachers spend teaching, the grouping of students within classes and team teaching. The first element can be summarised by the number of full-time equivalent students compared to the number of full-time equivalent teachers, that is to say the ratio of students to teaching staff.

For example, in a school of 48 full-time students and 8 full-time teachers, the ratio of students to teaching staff equals 6. If teachers' working week is estimated to be 35 hours including 10 hours teaching, and if instruction time for each student is 40 hours per week, then whatever the grouping of students in this school, average class size can be estimated as follows:

Estimated class size = 6 students per teacher * (40 hours of instruction time per student / 10 hours of teaching per teacher) = 24 students.

Compared to this estimated figure, class size presented in Table D2.1 is defined as the division of students who are following a common course of study, based on the highest number of common courses (usually compulsory studies), and excludes teaching in sub-groups. Thus the estimated class size will be close to the average class size of Table D2.1 where teaching in sub-groups is less frequent (as is the case in primary and lower secondary education).

Because of these definitions, similar student-to-teacher ratios between countries can lead to different class sizes. For example, in primary education, Japan and the Slovak Republic have similar ratios of students to teaching staff (19.9 and 19.4) and yet the class size is notably larger in Japan than in the Slovak Republic (28.6 compared with 20.2 – see Table D2.1). Even allowing for some differences in coverage between the indicators, the explanation for this lies in the smaller proportion of time teachers spend teaching in Japan compared with the Slovak Republic: teachers spend 33% of their working time teaching in Japan compared with 41% in the Slovak Republic (see Indicator D4).

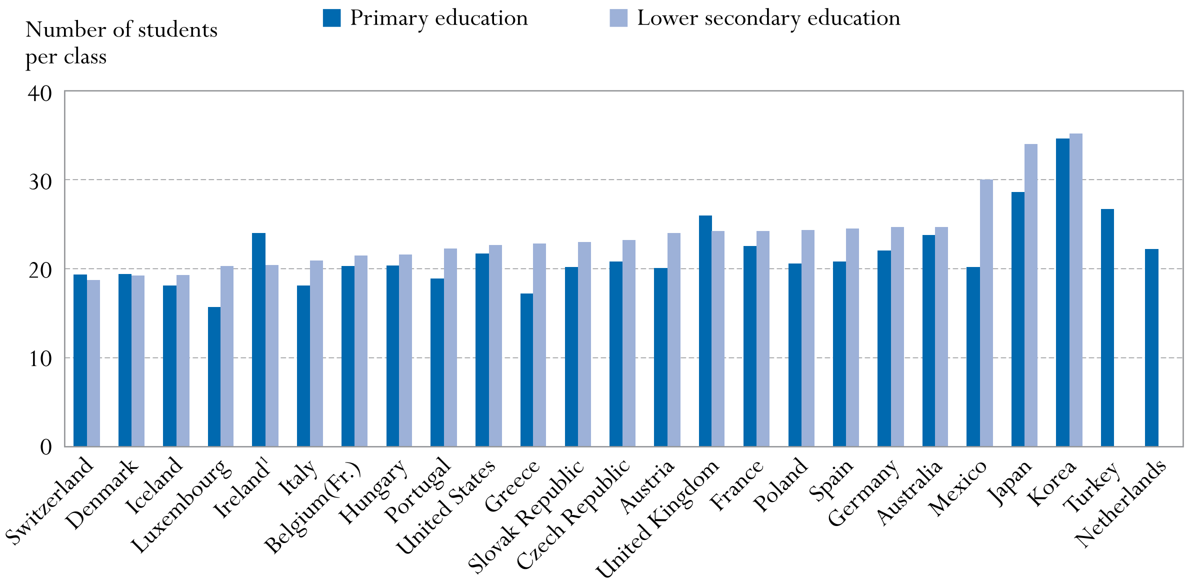
The number of students per class tends to increase, on average, by two students between primary and lower secondary education. In Greece, Japan, Luxembourg and Mexico, the increase in average class size exceeds four students, while Denmark, Switzerland and the United Kingdom show a small drop in the number of students per class between these two levels (Chart D2.2). The indicator on class size is limited to primary and lower secondary education because class sizes are difficult to define and compare at higher levels of education, where students often attend several different classes, depending on the subject area.

Ratio of students to teaching staff

In primary education, the ratio of students to teaching staff, expressed in full-time equivalents, ranges from more than 25 students per teacher in Korea, Mexico and Turkey to less than 11 in Denmark, Hungary, Italy and Luxembourg. The country mean in primary education is 17 students per teacher (Chart D2.3).

There is similar variation among countries in the ratio of students to teaching staff at the secondary level, ranging from about 29 students per full-time equivalent teacher in Mexico to less than 10 in Belgium, Greece, Luxembourg and Norway. On average among countries, the ratio of students to

Chart D2.2. Average class size in educational institutions, by level of education (2003)



1. Public institutions only.
Countries are ranked in ascending order of average number of students per class in lower secondary education.
Source: OECD. Table D2.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/110401658821

teaching staff at the secondary level of education is around 14, which is close to the ratios in the Czech Republic (13), Finland (13), Germany (15), Ireland (14), Japan (15), New Zealand (14), Poland (13), the Slovak Republic (14), Sweden (13) and the United Kingdom (15) (Table D2.2).

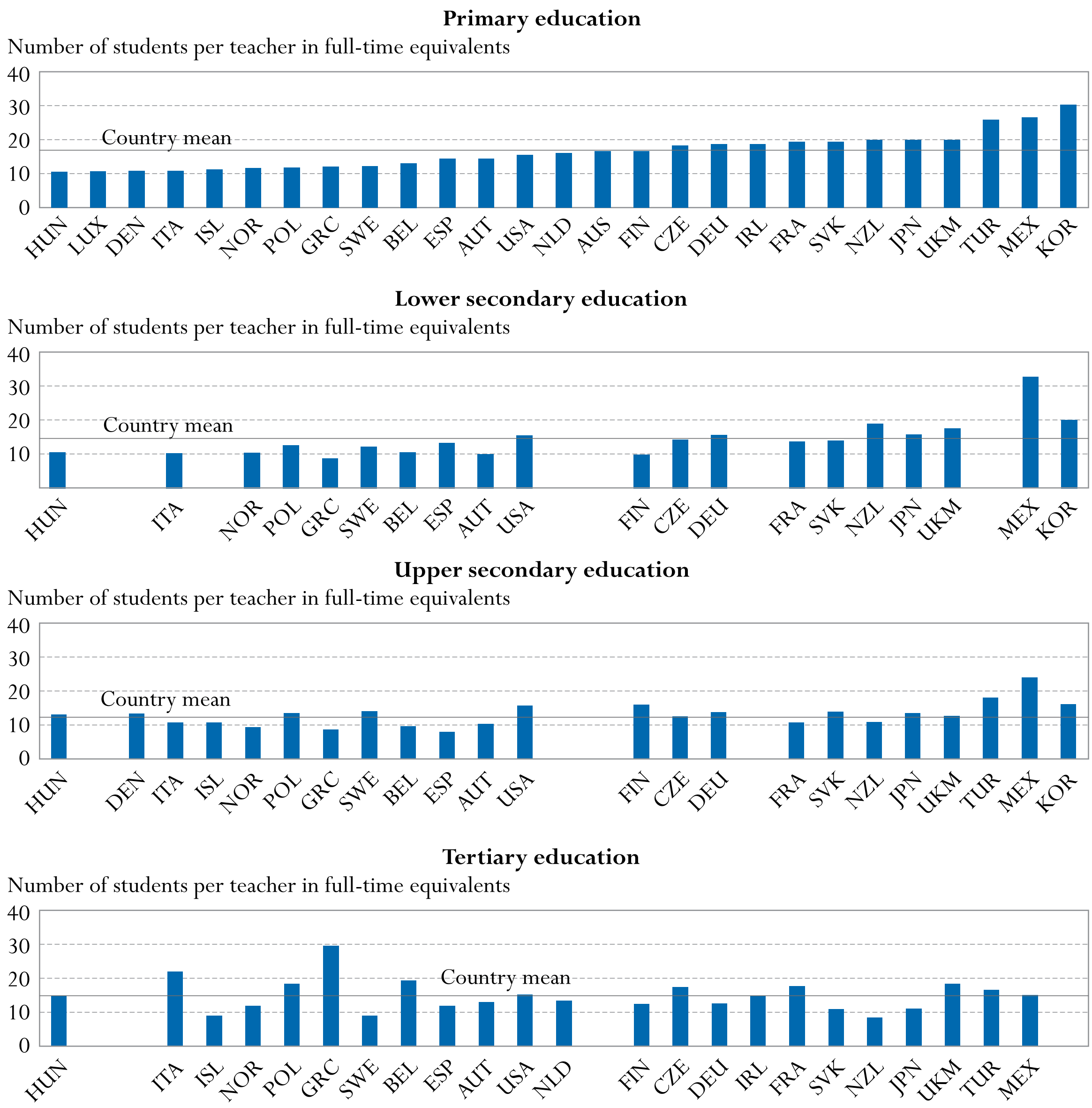
As the difference in the mean ratios of students to teaching staff between primary and secondary education indicates, there are fewer full-time equivalent students per full-time equivalent teacher as the level of education rises. With the exception of Hungary, Mexico, Poland, Sweden and the United States, the ratio of students to teaching staff in every OECD country decreases between primary and secondary levels of education, despite a tendency for class sizes to increase.

The decrease in the ratio of students to teaching staff from the primary to the secondary level reflects differences in the annual instruction time, which tends to increase with the level of education. It may also result from delays in matching the teaching force to demographic changes, or from differences in teaching hours for teachers at different levels of education. The general trend is consistent among countries, but it is not obvious from an educational perspective why a smaller ratio of students to teaching staff should be more desirable at higher levels of education (Table D2.2).

At the tertiary level of education, the ratio of students to teaching staff ranges from about 30 students per teacher in Greece to 11 or below in Iceland, Japan, New Zealand, the Slovak Republic and Sweden (Table D2.2). Such comparisons in tertiary education, however, should be made with caution since it is still difficult to calculate full-time equivalent students and teachers on a comparable basis at this level.

In 13 out of the 15 countries for which data are available for both tertiary-type A and advanced research programmes and tertiary-type B education, the ratio of students to teaching staff is lower in the generally

Chart D2.3. Ratio of students to teaching staff in educational institutions, by level of education (2003)



Note: Please refer to the Reader's Guide for list of country codes and country names used in this chart.
Countries are ranked in ascending order of number of students per teacher in primary education.
Source: OECD. Table D2.2. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/110401658821

more occupationally specific tertiary-type B programmes than in tertiary-type A and advanced research programmes (Table D2.2). Germany and Turkey are the only countries with a higher ratio in tertiary-type B programmes, and in the case of Turkey, this is particularly marked.

The ratios of students to teaching staff in pre-primary education are shown in Table D2.2. It is important to note that the teaching staff included in the calculation of the ratios are classroom teachers only and do not include teaching assistants or other teaching support staff. Particularly at the pre-primary level, there may be a case for including other teaching support staff, as may be the practice in calculating these ratios nationally.

Teaching staff and non-teaching staff employed in education

Among the ten OECD countries reporting data, there are significant differences in the distribution of educational staff between teaching and other categories, reflecting differences among countries in the organisation and management of schooling. Teaching and non-teaching staff employed in primary and secondary schools ranges from 82 persons or less per 1 000 students enrolled in Japan, Korea and New Zealand to 120 persons or more per 1 000 students in France, Hungary, Iceland, Italy and the United States.

Among the ten OECD countries for which data are available for each category of personnel employed in education, the staff not classified as instructional personnel represent on average one-third of the total teaching and non-teaching staff in primary and secondary schools. In three of these countries, these staff represent between 30 and 40% of total teaching and non-teaching staff. This proportion exceeds 40% in the Czech Republic and France and is lowest in New Zealand at 13%. Compared to the number of students enrolled in primary and secondary schools, non-teaching staff employed in education represents more than 40 persons per 1 000 students in the Czech Republic, France, Iceland, Italy and the United States (Table D2.3).

These differences reflect the numbers of staff that countries employ in non-teaching capacities, *e.g.* principals without teaching responsibilities, guidance counsellors, school nurses, librarians, researchers without teaching responsibilities, bus drivers, janitors and maintenance workers, and also administrative and management personnel both inside and outside the school. In Hungary, Iceland, Italy and the United States, maintenance and operations personnel working in primary and secondary schools represent more than 20 persons per 1 000 students enrolled in these schools. Administrative personnel represent between 8 and 11 persons per 1 000 students enrolled in primary and secondary schools in Finland, Italy and the United States and more than 18 persons per 1 000 students in the Czech Republic, whereas the staff employed in school and higher level management exceed six persons per 1 000 students in the Czech Republic, France, Iceland and the Slovak Republic, and ten persons in Norway (Table D2.3). Finally, the staff employed to provide professional support for students are relatively numerous in France (more than 24 persons per 1 000 students enrolled in primary and secondary schools) and to a lesser extent in the United States (about 9 persons per 1 000 students enrolled in both primary and secondary schools).

Definitions and methodologies

Data refer to the school year 2002-2003, and are based on the UOE data collection on education statistics that is administered annually by the OECD.

Class sizes have been calculated by dividing the number of students enrolled by the number of classes. In order to ensure comparability among countries, special needs programmes have been excluded. Data include only regular programmes at primary and lower secondary levels of education and exclude teaching in sub-groups outside the regular classroom setting.

The ratio of students to teaching staff has been calculated by dividing the number of full-time equivalent students at a given level of education by the number of full-time equivalent teachers at that level and in the specified type of institution.

The breakdown of the ratio of students to teaching staff by type of institution distinguishes between students and teachers in public institutions and in private institutions (government-dependent private institutions and independent private institutions). In some countries the proportion of students in private institutions is small (see Table D5.1).

Instructional personnel comprises:

- Teaching staff refers to professional personnel directly involved in teaching students. The classification includes classroom teachers; special education teachers; and other teachers who work with a whole class of students in a classroom, in small groups in a resource room, or in one-to-one teaching situations inside or outside a regular classroom. Teaching staff also includes department chairpersons whose duties include some teaching, but excludes non-professional personnel who support teachers in providing instruction to students, such as teachers' aides and other paraprofessional personnel.
- Teachers' aides and teaching/research assistants include non-professional personnel or students who support teachers in providing instruction to students. This type of personnel is not included in Tables D2.1 and D2.2.

Non-instructional personnel comprises four categories:

- Professional support for students includes professional staff who provide services to students that support their learning. In many cases, these staff originally qualified as teachers but then moved into other professional positions within the education system. This category also includes all personnel employed in education systems who provide health and social support services to students, such as guidance counsellors, librarians, doctors, dentists, nurses, psychiatrists and psychologists, and other staff with similar responsibilities.
- School and higher level management includes professional personnel who are responsible for school management and administration and personnel whose primary responsibility is the quality control and management of higher levels of the education system. This category covers principals, assistant principals, headmasters, assistant headmasters, superintendents of schools, associate and assistant superintendents, commissioners of education and other management staff with similar responsibilities.
- School and higher level administrative personnel includes all personnel who support the administration and management of schools and of higher levels of the education system. The category includes: receptionists, secretaries, typists and word processing staff, book-keepers and clerks, analysts, computer programmers, network administrators, and others with similar functions and responsibilities.
- Maintenance and operations personnel includes personnel who support the maintenance and operation of schools, the transportation of students to and from school, school security and catering. This category includes the following types of personnel: masons, carpenters, electricians, maintenance repairers, painters and paperhangers, plasterers, plumbers and vehicle mechanics. It also includes bus drivers and other vehicle operators, construction workers, gardeners and grounds staff, bus monitors and crossing guards, cooks, custodians, food servers and others with similar functions.

Further references

Analysis of the variation of class size and ratio of students to teaching staff according to the type of institution may be found in Indicator D5.

Table D2.1. Average class size, by type of institution and level of education (2003)

Number of students per class, calculations based on number of students and number of classes

	Primary education: Public institution	Primary education: Private institutions: Total private institutions	Primary education: Private institutions: Government-dependent private institutions	Primary education: Private institutions: Independent private institutions	Primary education: TOTAL: Public and private institutions	Lower secondary education (general programmes): Public institutions	Lower secondary education (general programmes): Private institutions: Total private institutions	Lower secondary education (general programmes): Private institutions: Government-dependent private institutions	Lower secondary education (general programmes): Private institutions: Independent private institutions	Lower secondary education (general programmes): TOTAL: Public and private institutions
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD COUNTRIES										
Australia	22.7	26.0	26.0	a	23.8	22.2	26.2	26.2	a	24.7
Austria	20.0	20.5	x(2)	x(2)	20.1	24.0	24.5	x(7)	x(7)	24.0
Belgium	m	m	m	m	m	m	m	m	m	m
Belgium (Fr.)	19.9	20.8	20.8	a	20.3	21.1	21.8	21.8	a	21.5
Canada	m	m	m	m	m	m	m	m	m	m
Czech Republic	20.8	16.8	16.8	a	20.8	23.3	21.2	21.2	a	23.2
Denmark	19.7	17.4	17.4	a	19.4	19.4	18.1	18.1	a	19.2
Finland	m	m	m	a	m	m	m	m	a	m
France	22.3	23.9	23.9	n	22.6	24.1	24.8	25.0	13.4	24.2
Germany	22.0	23.4	x(2)	x(2)	22.0	24.6	25.9	x(7)	x(7)	24.7
Greece	17.1	18.8	a	18.8	17.2	22.7	24.9	a	24.9	22.8
Hungary	20.5	19.1	19.1	a	20.4	21.5	22.1	22.1	a	21.6
Iceland	18.2	15.2	15.2	n	18.1	19.4	13.1	13.1	n	19.3
Ireland	24.0	m	a	m	m	20.4	m	a	m	m
Italy	18.0	20.0	a	20.0	18.1	20.9	21.3	a	21.3	20.9
Japan	28.6	33.9	a	33.9	28.6	33.9	36.0	a	36.0	34.0
Korea	34.7	34.1	a	34.1	34.7	35.4	34.6	34.6	a	35.2
Luxembourg	15.5	20.4	21.2	20.4	15.7	20.2	20.8	20.8	20.7	20.3
Mexico	20.0	23.3	a	23.3	20.2	30.1	28.1	a	28.1	30.0
Netherlands	x(5)	x(5)	x(5)	a	22.2	m	m	m	a	m
New Zealand	m	m	m	m	m	m	m	m	m	m
Norway	a	a	a	a	a	a	a	a	a	a
Poland	20.8	11.8	11.9	11.8	20.6	24.6	16.0	25.7	14.3	24.3
Portugal	18.6	22.4	a	22.4	18.9	22.1	23.9	a	23.9	22.3
Slovak Republic	20.2	19.9	19.9	n	20.2	23.0	23.3	23.3	n	23.0
Spain	19.4	24.3	24.7	20.9	20.8	23.4	27.0	27.8	21.7	24.5
Sweden	m	m	m	m	m	m	m	m	m	m
Switzerland	19.5	16.4	14.4	16.7	19.3	18.8	16.3	18.1	15.9	18.7
Turkey	26.9	17.8	a	17.8	26.7	a	a	a	a	a
United Kingdom	x(5)	x(5)	x(5)	x(5)	26.0	x(10)	x(10)	x(10)	x(10)	24.2
United States	22.0	19.6	a	19.6	21.7	23.2	18.8	a	18.8	22.6
Country mean	***21.4***	***21.2***	***19.7***	***21.6***	***21.6***	***23.6***	***23.3***	***23.2***	***21.7***	***23.9***
PARTNER COUNTRIES										
Argentina[1]	28.0	26.7	26.7	26.7	27.8	28.8	27.9	27.9	27.9	28.6
Brazil[1]	32.6	18.8	a	18.8	30.6	34.3	25.9	a	25.9	33.2
Chile	31.4	32.1	34.5	23.4	31.7	32.0	32.5	34.7	24.8	32.2
China	34.4	36.2	a	36.2	34.5	57.1	47.1	a	47.1	56.7
Egypt	41.5	35.2	36.9	35.0	40.8	43.2	32.2	39.6	30.9	42.4
India	x(5)	x(5)	x(5)	x(5)	39.9	x(10)	x(10)	x(10)	x(10)	39.0
Israel	25.6	a	a	a	25.6	31.0	a	a	a	31.0
Jamaica	42.0	m	m	m	m	32.0	m	m	m	m
Jordan	m	m	m	m	m	m	m	m	m	m
Malaysia[1]	31.7	m	a	m	m	34.0	m	a	m	m
Paraguay[1]	17.9	19.4	21.7	16.2	18.1	26.2	23.1	26.4	19.6	25.5
Peru[1]	18.0	17	29.0	15.0	17.9	32.0	22.5	33.0	20.0	29.9
Philippines	43.9	32.5	a	32.5	42.9	56.1	55.7	a	55.7	56.0
Russian Federation	15.8	9.8	a	9.8	15.8	20.2	10.2	a	10.2	20.1
Sri Lanka	x(5)	x(5)	x(5)	x(5)	25.8	x(10)	x(10)	x(10)	x(10)	29.8
Thailand	22.9	36.9	36.9	a	24.3	41.5	39	39.0	a	41.3
Tunisia	27.1	24.4	a	24.4	27.1	33.1	19	a	19.0	32.7
Uruguay[1]	19.3	m	a	m	m	29.7	25.9	a	25.9	29.2
Zimbabwe	m	m	m	m	m	m	m	m	m	m

1. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table D2.2. Ratio of students to teaching staff in educational institutions (2003)

Ratio by level of education, calculations based on full-time equivalents

		Pre-primary education	Primary education	Secondary education: Lower secondary	Secondary education: Upper secondary	Secondary education: All secondary	Post-secondary non-tertiary education	Tertiary education: Tertiary-type B	Tertiary education: Tertiary-type A and advanced research programmes	Tertiary education: All tertiary education
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD COUNTRIES	Australia[1]	m	16.6	x(5)	x(5)	12.4	m	m	16.1	m
	Austria	17.6	14.4	10.0	10.2	10.1	9.5	7.3	13.7	12.9
	Belgium	16.1	13.1	10.6	9.6	9.9	x(4)	x(9)	x(9)	19.2
	Canada	m	m	m	m	m	m	m	m	m
	Czech Republic	13.1	18.3	14.3	12.6	13.4	19.1	16.9	17.3	17.3
	Denmark	6.8	10.8	x(2)	13.4	m	m	m	m	m
	Finland	12.5	16.6	9.8	15.9	12.9	x(4)	x(4)	12.3	12.3
	France	18.8	19.4	13.7	10.6	12.2	m	13.2	18.6	17.6
	Germany	m	18.7	15.6	13.7	15.1	15.0	14.9	12.2	12.5
	Greece	13.2	12.1	8.7	8.6	8.6	7.5	23.2	34.1	29.6
	Hungary	10.6	10.6	10.6	13.2	11.8	11.2	x(9)	x(9)	14.8
	Iceland	5.1	11.3	x(2)	10.7	m	x(4. 9)	2.0	9.3	9.0
	Ireland	15.0	18.7	x(5)	x(5)	13.7	x(5)	14.5	15.2	15.0
	Italy	12.1	10.9	10.3	10.8	10.6	m	8.9	22.3	21.9
	Japan	18.0	19.9	15.7	13.5	14.5	x(4. 9)	8.4	12.4	11.0
	Korea	21.0	30.2	19.9	16.0	17.8	a	m	m	m
	Luxembourg[2]	13.1	10.8	x(5)	x(5)	9.0	m	m	m	m
	Mexico	22.3	26.7	32.4	24.0	29.1	a	13.7	15.2	15.1
	Netherlands	x(2)	16.0	x(5)	x(5)	15.7	x(5)	x(9)	x(9)	13.4
	New Zealand	10.3	19.9	18.8	10.9	14.4	9.0	7.4	9.0	8.5
	Norway[2]	m	11.7	10.4	9.2	9.8	x(4)	x(9)	x(9)	11.9
	Poland	15.1	11.9	12.6	13.5	13.0	15.9	14.0	18.4	18.3
	Portugal	m	m	m	m	m	m	m	m	m
	Slovak Republic	9.9	19.4	13.9	14.0	14.0	8.4	7.6	11.0	10.8
	Spain	14.8	14.3	13.3	7.9	10.9	a	7.6	13.3	11.8
	Sweden	10.8	12.3	12.1	14.1	13.1	m	x(9)	x(9)	9.0
	Switzerland[2]	m	m	m	m	m	m	m	18.7	m
	Turkey	16.4	25.9	a	18.0	18.0	a	51.7	13.3	16.6
	United Kingdom[1]	23.5	20.0	17.4	12.6	14.8	m	x(9)	x(9)	18.2
	United States	15.5	15.5	15.5	15.6	15.5	a	x(9)	x(9)	15.2
	Country mean	***14.4***	***16.5***	***14.3***	***13.0***	***13.6***	***11.9***	***14.1***	***15.7***	***14.9***
PARTNER COUNTRIES	Argentina[3]	22.6	19.1	21.3	17.9	19.8	a	33.7	11.8	16.0
	Brazil[2,3]	18.8	22.4	17.9	16.7	17.5	a	x(9)	x(9)	14.8
	Chile	22.9	33.9	33.5	32.3	32.7	a	m	m	m
	China	m	21.9	20.0	16.3	18.8	m	m	m	m
	Egypt	23.6	22.2	20.2	14.5	17.2	m	m	m	m
	India[3]	40.5	40.2	37.2	27.5	32.5	34.8	22.0	22.2	22.2
	Indonesia	16.3	23.4	18.8	16.8	18.0	a	x(9)	x(9)	18.7
	Israel	m	20.9	13.4	12.9	13.1	m	m	m	m
	Jamaica	m	29.7	x(5)	x(5)	20.3	m	m	m	m
	Jordan[2]	20.3	19.9	x(2)	15.5	m	a	m	m	m
	Malaysia[2,3]	20.6	18.8	x(5)	x(5)	16.9	24.1	30.4	26.2	18.8
	Paraguay[3]	18.4	17.3	14.2	14.8	14.5	m	15.4	m	m
	Peru[2,3]	26.8	25.1	x(5)	x(5)	18.9	m	17.6	13.0	14.8
	Philippines	31.9	34.9	37.2	36.7	37.1	20.6	x(9)	x(9)	22.1
	Russian Federation	7.0	17.0	x(5)	x(5)	8.5	m	11.8	m	m
	Sri Lanka	m	23.4	22.0	17.1	19.7	a	m	m	m
	Thailand	28.5	18.5	19.5	19.9	19.7	a	25.4	38.0	35.0
	Tunisia[2]	20.4	21.5	17.9	18.0	18.0	m	x(9)	x(9)	20.4
	Uruguay[2,3]	29.0	21.2	14.3	30.2	19.4	a	x(9)	x(9)	8.2
	Zimbabwe	m	38.6	x(5)	x(5)	22.1	m	m	m	m

1. Includes only general programmes in lower and upper secondary education.
2. Public institutions only.
3. Year of reference 2002.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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D2

Table D2.3. Teaching staff and non-teaching staff employed in educational institutions (2003)

Teaching staff and non-teaching staff in primary and secondary schools per 1000 students, calculation based on full-time equivalents

		Instructional personnel			Management/Quality control/ Administration			
		Classroom teachers, academic staff and other teachers	Teacher aides and Teaching/research assistants	Professional support for students	School and higher-level management	School and higher-level administrative personnel	Maintenance and operations personnel	TOTAL teaching and non-teaching staff
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
OECD COUNTRIES	Australia	m	m	m	m	m	m	m
	Austria	88.5	m	m	5.4	m	m	m
	Belgium	90.5	m	m	m	m	m	m
	Belgium (Fl.)[1]	87.2	a	7.5	m	m	m	m
	Canada	m	m	m	m	m	m	m
	Czech Republic	67.4	0.2	5.8	7.6	18.9	16.7	116.6
	Denmark	m	m	m	m	m	m	m
	Finland	70.1	5.5	2.0	2.4	8.2	14.1	102.4
	France	70.2	m	24.6	7.2	4.1	14.0	120.1
	Germany	62.4	m	m	m	m	m	m
	Greece	100.0	m	m	m	m	m	m
	Hungary	88.1	m	x(1 or 5)	x(1 or 5)	3.3	33.2	124.7
	Iceland[2]	89.9	6.1	5.0	9.5	4.7	25.9	141.2
	Ireland[1]	64.9	m	m	2.2	m	m	m
	Italy	93.6	3.3	6.2	1.7	11.1	23.4	139.2
	Japan	60.2	m	5.3	5.4	4.9	6.3	82.0
	Korea	43.8	a	0.9	2.6	2.4	4.3	54.0
	Luxembourg	101.6	m	m	m	m	m	m
	Mexico	36.2	m	m	m	m	m	m
	Netherlands	63.1	m	m	5.4	m	m	m
	New Zealand	60.9	0.2	n	4.7	4.8	m	70.5
	Norway	90.4	m	m	10.3	m	m	m
	Poland	80.0	m	3.9	m	m	m	m
	Portugal	m	m	m	m	m	m	m
	Slovak Republic	65.8	m	m	6.5	m	m	m
	Spain[1]	81.7	m	m	m	m	m	m
	Sweden	78.7	2.1	m	4.8	m	m	m
	Switzerland	m	m	m	m	m	m	m
	Turkey	42.2	m	m	m	m	m	m
	United Kingdom	51.2	m	m	m	m	m	m
	United States	64.5	13.0	8.9	3.8	10.4	22.8	123.5
	Country mean	***72.8***	***4.3***	***6.4***	***5.3***	***7.3***	***17.9***	***107.4***
PARTNER COUNTRY	Israel	60.2	m	m	3.7	m	m	m

1. Includes post-secondary non-tertiary staff.
2. Data on higher-level management and administrative personnel are missing.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/110401658821

D2

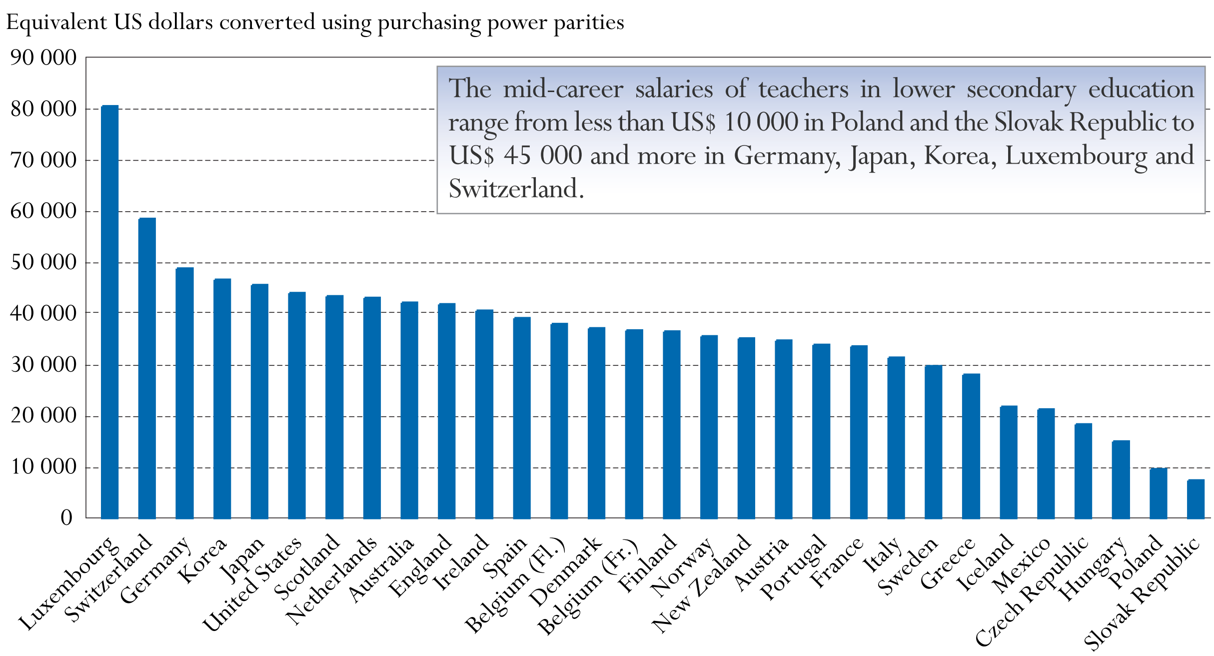
Teachers' salaries

This indicator shows the starting, mid-career and maximum statutory salaries of teachers in public primary and secondary education, as well as various incentive schemes used in teacher rewards systems. Together with average class size (see Indicator D2) and teachers' working time (see Indicator D4), this indicator presents some key measures of the working conditions of teachers. Furthermore, differences in teachers' salaries, along with other factors such as student to staff ratios (see Indicator D2), will provide some of the explanation for differences in expenditure per student (see Indicator B1).

Key results

Chart D3.1a. Teachers' salaries in lower secondary education after 15 years of experience (2003)

This chart shows the annual statutory teachers' salaries after 15 years of experience and minimum required training, for teachers of lower secondary education in public institutions. Salaries are shown in equivalent US dollars converted using purchasing power parities.



Note: Countries are ranked in descending order of the annual statutory salary after 15 years of experience.

StatLink: http://dx.doi.org/10.1787/622245711285

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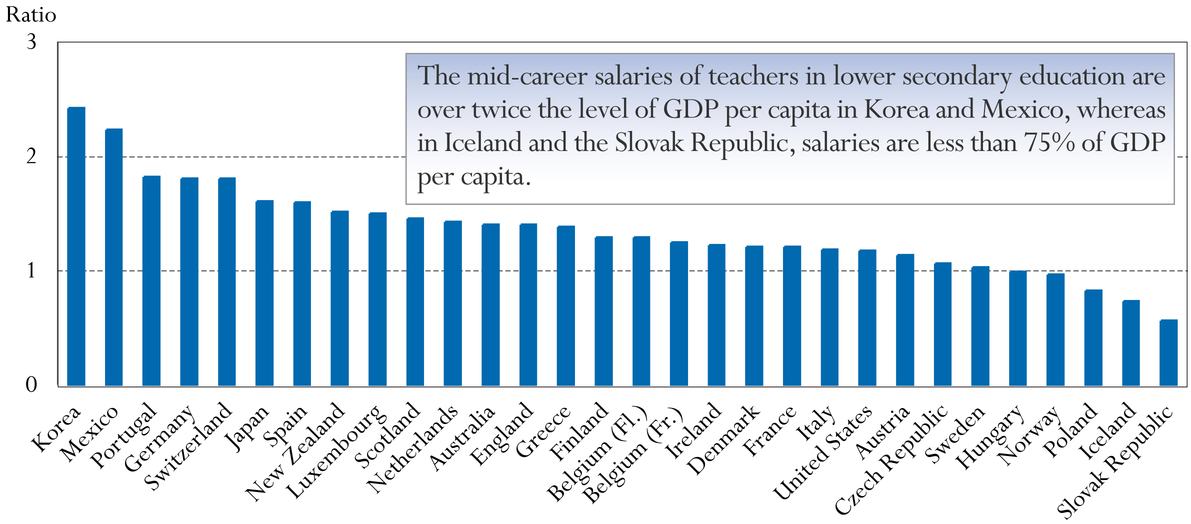
Chart D3.1b. Ratio of statutory salaries after 15 years of experience to GDP per capita for teachers in lower secondary education (2003)



Note: Countries are ranked in descending order of the ratio of annual statutory salary after 15 years of experience to GDP per capita.
Source: OECD. Table D3.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/622245711285

Other highlights of this indicator

- On average, upper secondary teachers' salary per teaching hour exceeds that of primary teachers by around 40%, though the difference is lower than 5% in New Zealand, Poland, the Slovak Republic and the United States and is more than 80% in the Netherlands and Spain, where the difference between teaching time at primary and upper secondary level is greatest.
- Salaries at the top of the scale are on average around 70% higher than starting salaries for both primary and secondary education, though this usually varies between countries largely in line with the number of years it takes for a teacher to progress through the scale. For instance, top-of-the-scale salaries in Korea are almost three times that of starting salaries, but it takes 37 years to reach the top of the scale. In Portugal, however, the ratio of salaries at the top of the scale to starting salaries is similar to that in Korea, but teachers reach the top of salary after 26 years of service.
- Teachers' salaries have risen in real terms between 1996 and 2003 in virtually all countries, with the largest increases evident in Hungary and Mexico. Salaries at the primary and upper secondary levels in Spain fell in real terms over the same period.

D3

Policy context

Education systems employ a large number of professionals in an increasingly competitive labour market. Ensuring that there is a sufficient number of skilled teachers is a key concern in all OECD countries. Salaries and working conditions of teachers, including starting salaries and pay scales, and the costs incurred by individuals in becoming teachers, compared to salaries and costs in other high-skill occupations are key factors in determining the supply of qualified teachers. Both affect the career decisions of potential teachers and the types of people who are attracted to the teaching profession.

Teachers' salaries are the largest single cost in providing education, making this compensation a critical consideration for policy makers seeking to maintain the quality of teaching and a balanced education budget. The size of education budgets naturally reflects trade-offs among many interrelated factors, including teachers' salaries, the ratio of students to teaching staff, the instruction time planned for students, and the designated number of teaching hours.

Evidence and explanations

Comparing teachers' salaries

The first part of this indicator compares the starting, mid-career and maximum statutory salaries of teachers with the minimum level of qualifications required for certification in public primary and secondary education. First, teachers' salaries are examined in absolute terms at starting, mid-career and top-of-the-scale salary points, expressed in equivalent US dollars converted using purchasing power parities (PPPs). This provides information on the influence of teaching experience on national salary scales and on the cost of teaching time in different countries. Second, bonus schemes are examined. Third, teachers' salary changes between 1996 and 2003 are compared.

Pay scales are typically based on the simple principles of qualification levels and years of service but in reality, the structure of the teacher compensation system is far more complex. Many countries include regional allowances for teaching in remote regions, or a family allowance as part of the annual gross salary. Entitlements may include reduced rates on public transportation, tax allowances on purchasing cultural goods, and other quasi-pecuniary entitlements that contribute to a teacher's basic income. There are large differences between the taxing and social benefit systems in OECD countries. This makes it important to exercise caution when comparing teachers' salaries.

Statutory salaries, as reported in this indicator, must be distinguished from the actual wage expenditures incurred by governments and teachers' average salaries, which are also influenced by other factors such as the age structure of the teaching force or the prevalence of part-time work. Indicator B6 shows the total amounts paid in compensation to teachers. Furthermore, since teaching time and teachers' workload can vary considerably among countries, these factors should be considered when comparing statutory salaries for teachers in countries (see Indicator D4 and Box D3.1).

The annual statutory salaries of lower secondary teachers with 15 years of experience, range from below US$ 10 000 in Poland and the Slovak Republic to over US$ 50 000 in Switzerland and reaches US$ 80 000 in Luxembourg (Table D3.1).

Statutory salaries relative to GDP per capita

Among other considerations, countries invest in teaching resources relative to their ability to fund educational expenditure. Comparing statutory salaries to GDP per capita is, therefore, another way of assessing the relative value of teachers' salaries among countries. A better benchmark for teacher salaries would be provided by

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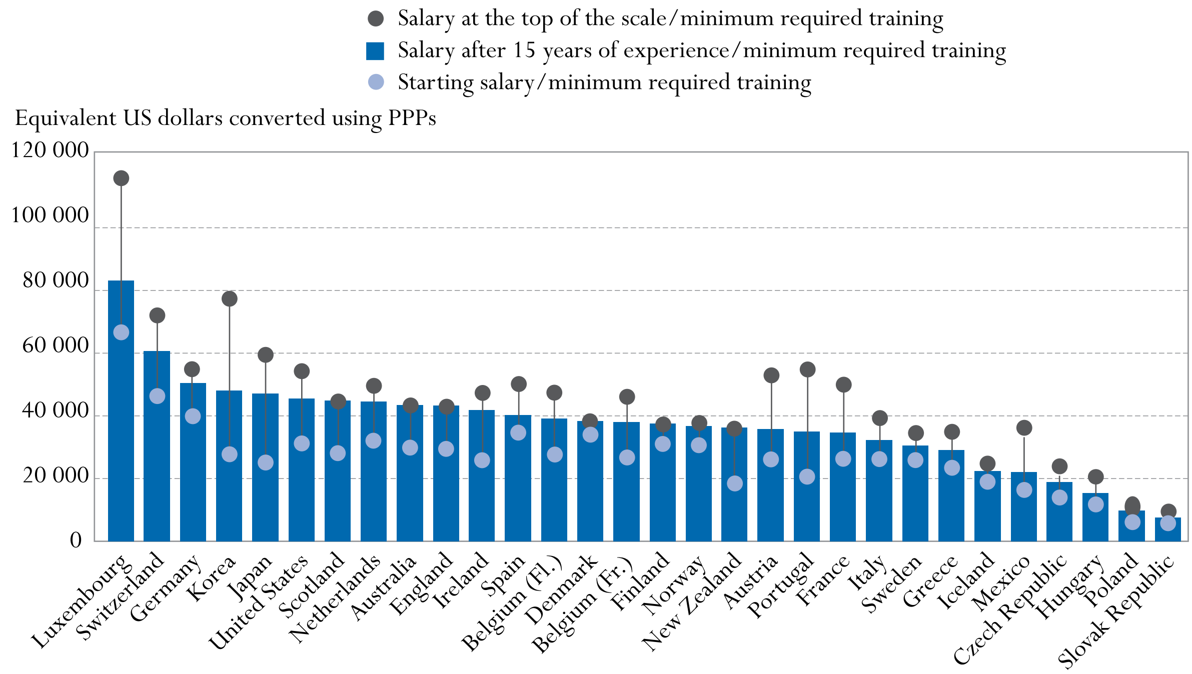
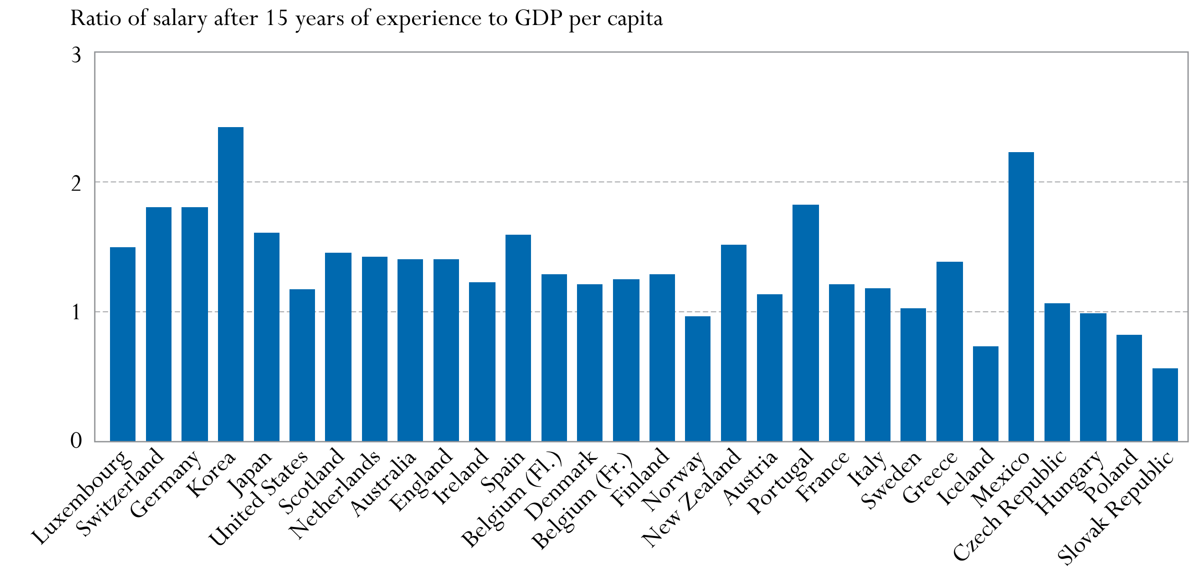
Chart D3.2. Teachers' salaries in lower secondary education (2003)

Annual statutory teachers' salaries in public institutions in lower secondary education, in equivalent US dollars converted using PPPs, and the ratio of salary after 15 years of experience to GDP per capita





Countries are ranked in descending order of teachers' salaries in lower secondary education after 15 years of experience and minimum training.
Source: OECD. Table D3.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005)*.

StatLink: http://dx.doi.org/10.1787/622245711285

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comparative data on salaries for comparable professions in each country but as such data are not yet available, comparisons with GDP per capita provide some basis for standardised comparison.

Mid-career salaries for teachers in basic (primary and lower secondary) education relative to GDP per capita are lowest in Hungary (0.98), Iceland (0.73), Norway (0.96), Poland (0.82) and the Slovak Republic (0.56) and highest in Korea (2.42), Mexico (2.23, lower secondary education) and Turkey (2.10, primary education). In upper secondary general education, the lowest ratios are found in Norway (0.96), Poland (0.82) and the Slovak Republic (0.56), and mid-career salaries relative to the GDP are highest in Korea (2.42) and Switzerland (2.07) (Table D3.1).

Some countries, such as the Czech Republic, Hungary, Poland, the Slovak Republic and Turkey have both relatively low GDP per capita and low teachers' salaries. Others (*e.g.* Korea, Mexico, New Zealand, Portugal and Spain) have a relatively low GDP per capita but teachers' salaries that are comparable to those in countries with much higher GDP. Germany, Luxembourg and Switzerland have a high GDP per capita and high teachers' salaries (Chart D3.2 and Table D3.1), whereas Norway has a high GDP per capita, but average mid-career salaries.

Comparisons over time show that, other than in Germany, Greece and New Zealand, teacher salary increases have failed to keep pace with increases in GDP per capita between 1994 and 2003 (Chart D3.5).

In most OECD countries, the level of teachers' salaries increases with the level of education being taught. For example, in Belgium, Finland, Iceland, Luxembourg, the Netherlands and Switzerland, the mid-career salary of an upper secondary teacher is at least 30% higher than that of a primary school teacher. In contrast, in Australia, England, Greece, Ireland, Japan, Korea, New Zealand, Norway, Poland, Portugal, Scotland, the Slovak Republic, and the United States, upper secondary and primary teachers' salaries are comparable (Table D3.1).

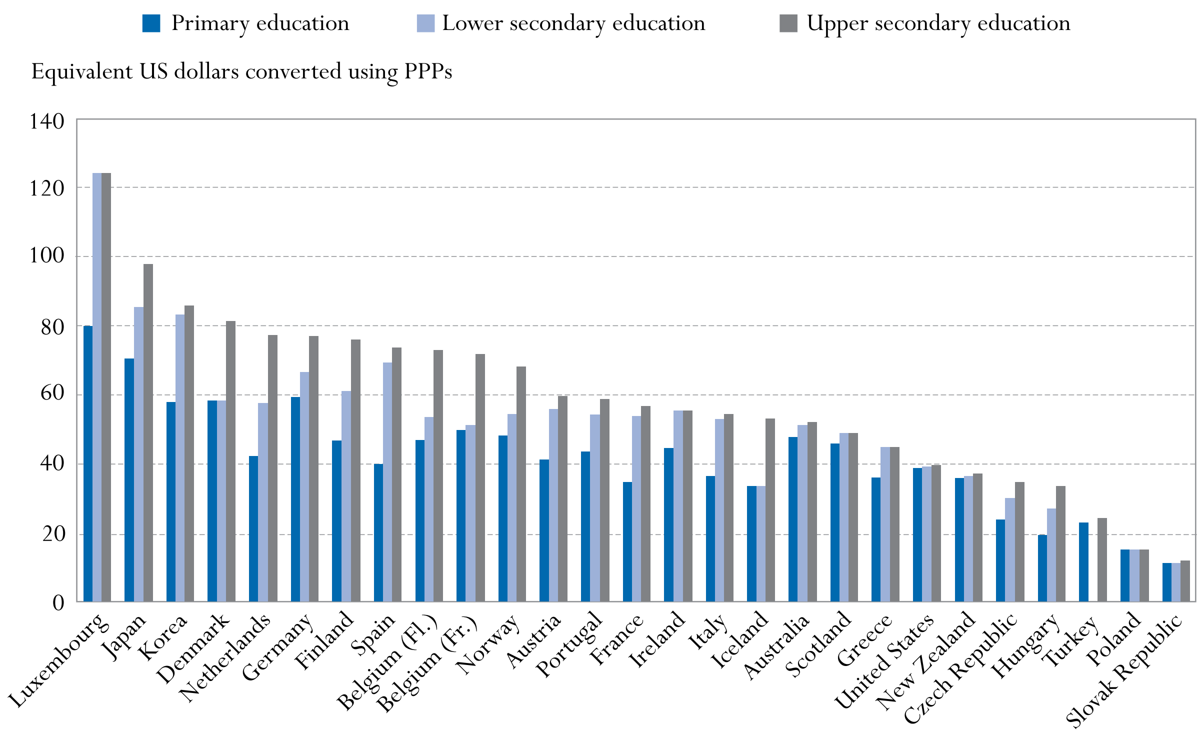
Statutory salaries per hour of net teaching time

An alternative measure of salaries and the cost of teaching time is the statutory salary for a full-time classroom teacher relative to the number of hours per year that teacher is required to spend teaching students (Indicator D4). Although this measure does not adjust salaries for the amount of time that teachers spend in various teaching-related activities, it can nonetheless provide a rough estimate of the cost of the actual time teachers spend in the classroom. The average statutory salary per teaching hour after 15 years of experience is US$ 41 in primary, US$ 51 in lower secondary, and US$ 59 in upper secondary general education. In primary education, the Czech Republic, Hungary, Mexico, Poland, the Slovak Republic and Turkey have relatively low salary costs per teaching hour (around US$ 20 or less). By contrast, costs are relatively high in Denmark, Germany, Japan and Korea and Luxembourg (approaching US$ 60 or more). There is even more variation in salary cost per teaching hour in general upper secondary schools, ranging from US$ 24 or less in Poland, the Slovak Republic and Turkey to more than US$ 80 in Denmark, Japan, Korea and Luxembourg (Table D3.1 and Chart D3.3).

Even in countries where statutory salaries are the same in primary and secondary education, salaries per teaching hour are usually higher in upper secondary education than in primary education, since in most countries, secondary teachers are required to teach fewer hours than primary teachers (see Indicator D4). On average among countries, upper secondary teachers' salary per teaching hour exceeds that of primary teachers by around 40%. In Australia, New Zealand, Poland, Scotland, the Slovak Republic, Turkey and the United States, this difference is only 10% or less, whereas it is around 60% or more in the Flemish Community of Belgium, Finland, France, Hungary, Iceland and Luxembourg and more than 80% in the Netherlands and Spain. In Spain, the difference between teaching time at primary and upper secondary level is greater than in any other country (Table D3.1).

Chart D3.3. Salary per hour of net teaching time, by level of education (2003)

Annual statutory teachers' salaries after 15 years of experience in public institutions, in equivalent US dollars converted using PPPs divided by net teaching time in hours per year



Countries are ranked in descending order of salary per hour of net teaching time in upper secondary education.
Source: OECD. Table D3.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/622245711285

Teaching experience and qualifications influence teachers' salary scales

Comparing gross teachers' salaries across countries at the point of entry into the teaching profession, after 15 years of experience, and at the top of the salary scale, provides information on the extent to which teaching experience influences salary scales within countries. The difference between statutory starting salaries and subsequent increases is an indication of the financial return to experience. On average, among OECD countries, statutory salaries for primary, lower and upper secondary general teachers with 15 years of experience are 37, 37 and 40% higher, respectively, than starting salaries.

Salaries at the top of the scale are on average around 70% higher than starting salaries for both primary and secondary education. However, this percentage varies significantly among countries. Top of the scale salaries in lower secondary education are more than double the starting salaries in Austria, Japan, Korea, Mexico and Portugal, whereas in Denmark, Finland, Germany, Iceland and Norway, they are no more than 30% higher (Table D3.1).

These ratios need to be seen in the context of the number of years that it takes for a teacher to proceed through the salary scale, and this varies enormously. In lower secondary education, teachers in Australia,

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Box D3.1. Contrasting teachers' working conditions

Teacher compensation can take a variety of forms in different countries. Generally the focus of policy discussions is salaries and fringe benefits such as retirement and different types of social insurance. However, teachers' working conditions – including teaching time and average class size – could enhance or diminish the attractiveness of teaching as a career so it is valuable to look at these in combination, rather than in isolation.

The table below does this for primary teachers, summarising for each country their teachers' salaries, teaching time and average class size and categorising the national figures in relation to the cross-country averages for these indicators. Where a country's value is notably higher (*i.e.* more than one standard deviation) than the cross-country average it is categorised as "High", if it is notably lower (*i.e.* more than one standard deviation) below the cross-country average it is categorised as "Low", otherwise it is categorised as "Average".

The summary illustrates some interesting contrasts and demonstrates that, for primary teachers, low salaries do not always go hand in hand with lower teaching time or smaller classes. Similarly, high salaries are not necessarily combined with a heavier teaching time workload or larger classes. For example, among the countries with low teacher salaries Poland, Slovak Republic and Turkey also have low numbers of teaching hours per year, whereas teaching time in the Czech Republic, Hungary and Mexico is around the average. Teachers in Turkey, however, also have to contend with high average class sizes.

Similarly, countries at the other end of the salary scale provide an interesting contrast. Germany, Korea and Luxembourg are all countries with high teacher salaries and while primary teachers in each of these countries have teaching time around the country average, the average class sizes that the teachers have to manage are quite different.

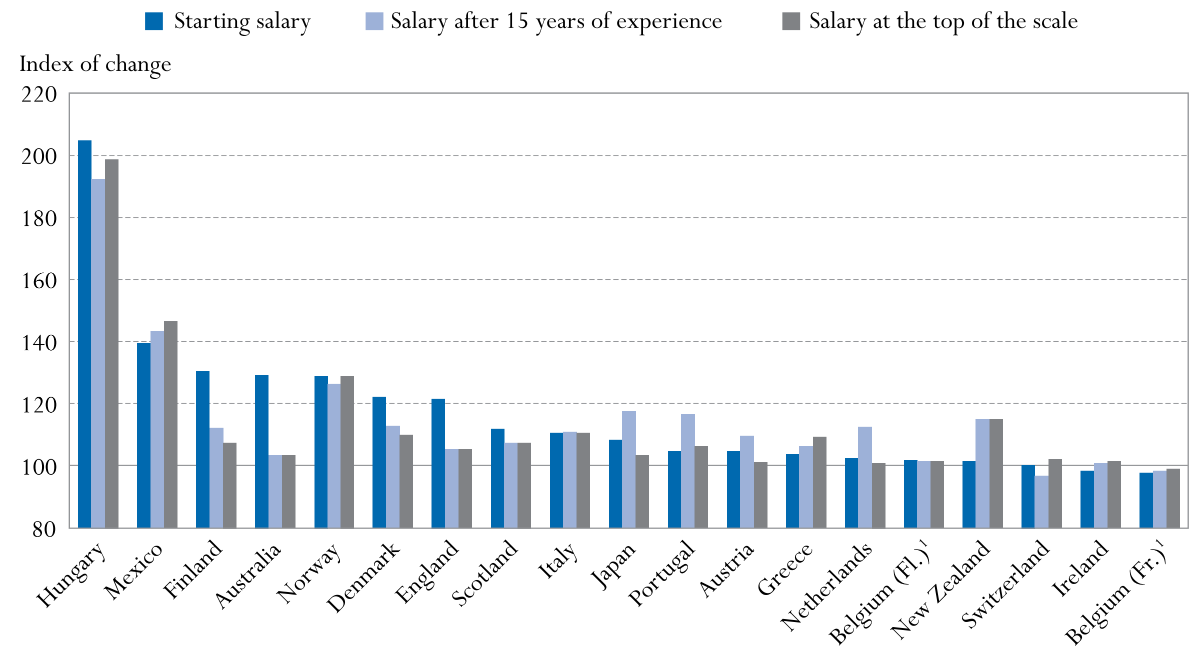
Teachers' salaries and teaching time in primary education

Salary after 15 years of experience/minimum training	**Net teaching time in hours**		
	Low	**Average**	**High**
Low	Poland (A) Slovak Republic (A) Turkey (H)	Czech Republic (A) Hungary (A) Mexico (A)	
Average	Denmark (A) Iceland (A) Japan (H)	Australia (A) Austria (A) Belgium (Fl.) Belgium (Fr.) (A) Finland France (A) Greece (L) Ireland (A) Italy (A) Norway Portugal (A) Spain (A)	Netherlands New Zealand Scotland United States (A)
High		Germany (A) Korea (H) Luxembourg (L)	

Letters in parenthesis indicate countries' standing on average class size in primary education, with L=Low, A=Average and H=High.

Chart D3.4. Changes in teachers' salaries in lower secondary education, by point in the salary scale (1996, 2003)

Index of change between 1996 and 2003 (1996=100, 2003 price levels using GDP deflators)



1. The data for Belgium in 1996 are based on Belgium as a whole.
Countries are ranked in descending order of index of change between 1996 and 2003 in teachers' starting salaries.
Source: OECD. Table D3.3. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/622245711285

Denmark, England, New Zealand and Scotland reach the highest step on the salary scale relatively quickly, within 7 to 9 years while in Austria, the Czech Republic, France, Greece, Hungary, Italy, Japan, Korea, the Slovak Republic and Spain, teachers reach the top of the salary scale after more than 30 years of service (Table D3.1).

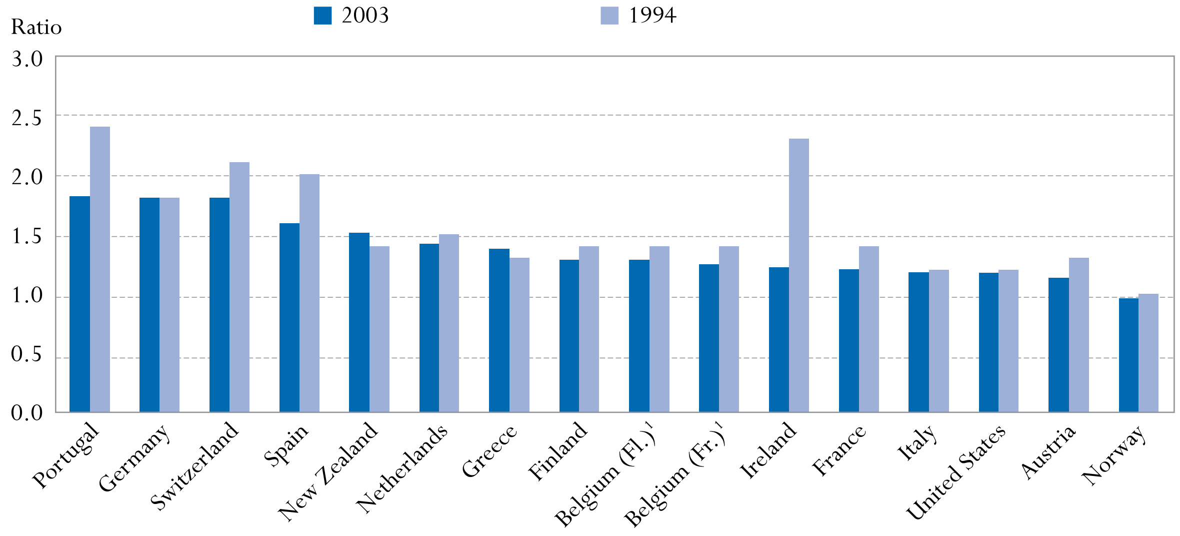
Teachers' salaries between 1996 and 2003

Comparing the index of change between 1996 and 2003 in teachers' salaries, it is evident that they have grown in real terms in virtually all countries and at both primary and secondary levels. The strongest increases across all levels have taken place in Hungary and Mexico where increases have been more than 40%, though salaries in both countries remain below the OECD average and in the case of Hungary, low when benchmarked against GDP per capita. In some countries, however, salaries have fallen in real terms between 1996 and 2003, most notably at the primary and upper secondary levels in Spain (Table D3.3 and Chart D3.4).

The trend in salaries has also varied between salaries at different points in the salary scale, which can be indicative of the different teacher demand and supply challenges facing countries. For instance, starting salaries have risen faster than mid-career or top-of-the-scale salaries for all education levels in Australia, Denmark, England, Finland and Scotland, indicating a desire to attract new teachers into the profession in these countries. By contrast, mid-career salaries have risen relatively quickly in Austria, Japan, Netherlands, New Zealand and Portugal, and in the case of New Zealand, top of the scale salaries have also risen faster

Chart D3.5. Changes in teachers' relative salaries in lower secondary education (1994, 2003)

Ratio of salary after 15 years of experience at lower secondary education (in public institutions) to GDP per capita



1. The data for Belgium in 1994 are based on Belgium as a whole.
Countries are ranked in descending order of ratio of salary after 15 years of experience at lower secondary education to GDP per capita in 2003.
Source: OECD. Table P35 from Education at a Glance 1996 and Table D3.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/622245711285

than starting salaries. However, with a relatively short salary scale (eight years to reach the top of the scale), teacher recruitment is in fact a key focus in New Zealand.

Incentives and allowances

In addition to basic pay scales, many school systems have developed incentive schemes for teachers, which may take the form of financial remuneration and/or a reduction in the number of teaching hours. Together with the starting salary, such incentive schemes affect a person's decision to enter into and stay in the teaching profession. Initial incentives for graduate teachers may include family allowances and bonuses for working in certain locations, higher initial salaries for higher-than-minimum teaching certification or qualifications and additional compensation for those holding educational qualifications in multiple subjects or with certification to teach students with special educational needs.

Adjustments to base salary may be awarded to teachers in public schools either by the head teacher or school principal, or by government at the local, regional or national level. These adjustments are grouped into three principal categories: criteria based on teaching conditions/responsibilities, criteria related to teachers' qualifications, training and performance and criteria based on demography and other measures.

A specific type of bonus is the reduction of required teaching hours. In some countries, this bonus is used to reward experience or long service (*e.g.* in Greece and Iceland), in others, rather than being paid for special duties, teachers are compensated by a reduction of teaching hours for carrying out special tasks or activities (leading a drama club, or acting as teacher supervisor of student teachers, etc.).

Decision making on special bonuses

In most countries, allowances are paid to all or most teachers for taking on management responsibilities: teaching more classes or hours than are required under a full-time contract (*e.g.* acting duties) and

Box D3.2. Decision making on salary scales of teaching staff – lower secondary education (2003)

As with teachers' working conditions more generally, there is an argument that delegating decisions on teachers' pay to local levels may help schools overcome teacher shortages and improve the match between teacher and school needs. The following table contrasts the level of government that has responsibility for setting the salary scales for teaching staff in public schools at the lower secondary level in each country.

Decision maker	Degree of autonomy in decision making			
	Full autonomy	After consultation	Within framework	Other
Central Government	Austria Denmark England Finland France Greece Italy Korea Luxembourg New Zealand Norway Portugal Turkey	Germany Mexico		
State/Regional/Provincial Government	Australia Belgium (Fr) Japan		Spain	
Local authorities			Hungary	Iceland[1]
School	Sweden		Czech Republic Netherlands Slovak Republic	

1. Wage contract between local authorities and teachers' organisation.
Source: 2003 OECD-INES survey on decision making.

The table illustrates that across the countries compared, it is most common for central government to make these decisions in full autonomy. Only in Sweden, Netherlands, Czech Republic and Slovak Republic are salary-scale decisions taken at the school level. In Sweden, decisions are taken within a framework provided by collective agreements on salary level rises, municipalities' budgetary resources and autonomous school decisions. Sweden's individual teacher pay system allows individual salaries to be negotiated when a teacher is hired, taking account of teachers' qualifications, the local labour market situation, teacher performance and the range of responsibilities the teacher has taken on. The result is a greater variety in teachers' pay, with those areas of teacher shortage and with higher demonstrable performance able to negotiate more.

involvement in special tasks such as guidance counselling or training student teachers. Although in many countries, there are country-level regulations for payment of allowances for overtime work, management responsibilities, and special tasks and activities, in about half of the OECD countries with comparable data (Australia, Austria, the Czech Republic, Denmark, England, Finland, Greece, Hungary, Iceland, Italy, New Zealand, Portugal, Scotland, the Slovak Republic and Sweden), schools have at least some responsibility in deciding on the levels and extent of compensation for such activities.

Bonuses for management and administrative tasks

In most countries management positions are filled by local, regional or national authorities depending on the type of school involved. In Austria, for example, the appointee has a statutory right to a reduction of the teaching load (or exemption from teaching obligation) and to an allowance depending on the salary scale, seniority and the size of the school (with a supplement for long-term exercise of the function). Teachers entrusted with more limited administrative or co-ordinating functions are remunerated by a flat-rate compensation or a reduction of teaching load, which are fixed centrally and apply whenever such a function is assigned (normally by the principal). There is a certain pool of extra pay (flat-rate remuneration) for extra duties available for assignment by the principal. For specific projects, Austria's ministry for education, science and culture may grant a reduction of the teaching load.

In England, from 1 September 2000 additional points on the salary scale for taking on additional responsibility were replaced by flat-rate allowances for taking on significant specified management responsibilities beyond those common to the majority of classroom teachers. There were separate pay scales for head teachers and deputy heads.

In Portugal, principals receive an increase in salary for the duration of their assignment, while heads of curricular departments, class tutors' co-ordinators and class tutors have their teaching time reduced during the time they hold the position. The school board makes the decision regarding the reduction of teaching time for middle managers.

In Spain, in lower and upper secondary education there should be a head in each didactical department. When there is a teacher with a recognised senior teaching position (*catedrático condition*), he or she is the head of the department. If there are more than one *catedrático*, the department may suggest to the school principal that one of these teachers be the head, but the school principal always makes the definitive nomination and the high local education authority makes the final decision. If there is not a teacher with the catedrático condition in a certain department, any of the other teachers can become head (usually teachers rotate in this position). All department heads receive a fixed salary supplement during the time they hold that responsibility. The standard duration of each mandate as department head is four years. In primary education, any teacher can be the co-ordinator of the teachers in the cycle, but no salary supplement is awarded for this position. See Tables D3.2a, D3.2b, D3.2c and D3.2d on the Web at *http://dx.doi.org/10.1787/622245711285*, and Annex 3 at *www.oecd.org/edu/eag2005*.

Bonuses for outstanding performance

Countries have various ways of identifying and rewarding good teaching. Sometimes this is by giving extra pay for successfully completing professional development or for taking on extra duties and sometimes this can be explicitly for outstanding performance as classroom teachers raising pupil attainment (see Tables D3.2a, D3.2b, D3.2c and D3.2d).

In England, extra points on the main scale can be awarded for excellent performance. Experienced teachers are also able to apply for the performance threshold, in which they are assessed against national standards. If successful, they are moved to the upper pay scale, with the prospect of further pay increases based on performance. In the Czech Republic, Denmark, Hungary, Mexico, New Zealand, Norway, Portugal, the Slovak Republic, and Turkey, allowances may also be paid for outstanding performance. In Mexico bonuses awarded to teachers for outstanding performance are based on evaluations of learning achievement of students in the class or subject. In Portugal, after 15 years of teaching, and after receiving a good appraisal from the head teacher, teachers may apply for a special appraisal of their curriculum vitae and receive an increase of two years in seniority, although this rarely occurs. In Turkey, extra salary for teachers with excellent performance is based on evaluations by the provincial directorate of education and the ministry of education; see Tables D3.2a, D3.2b, D3.2c and D3.2d at *http://dx.doi.org/10.1787/622245711285*, and Annex 3 at *www.oecd.org/edu/eag2005*. Differences in tax schemes, social benefit systems, allowances and entitlements may enhance basic salaries of all teachers differently in OECD countries.

The use of extra incentives to compensate teachers for working under particularly difficult conditions has generally increased. Monetary incentives such as salary allowances for teaching in difficult areas, transportation assistance for teachers in remote areas or bonuses for working in challenging schools are more in evidence. The criterion of teaching in a disadvantaged, remote or high-cost area is applied in 19 out of 30 countries. This adjustment is more often made by the national, local or regional government than by the head teacher or school principal.

Definitions and methodologies

Data are from the 2004 OECD-INES Survey on Teachers and the Curriculum and refer to the school year 2002-2003.

Data on statutory teachers' salaries and bonuses (Table D3.1) are derived from the 2004 OECD-INES Survey on Teachers and the Curriculum. Data refer to the school year 2002-2003, and are reported in accordance with formal policies for public institutions.

Statutory salaries (Table D3.1) refer to scheduled salaries according to official pay scales. The salaries reported are gross (total sum of money paid by the employer) less the employer's contribution to social security and pension (according to existing salary scales). Salaries are "before tax" (*i.e.* before deductions for income taxes).

Gross teachers' salaries were converted using GDP and purchasing power parities (PPPs) exchange rate data from the OECD National Accounts database. The reference date for GDP per capita is the calendar year 2002, while the period of reference for teachers' salaries is 30 June 2002 to 30 June 2003. The reference date for PPPs is 2002-2003. Data are adjusted for inflation with reference to January 2003. For countries with different financial years (*i.e.* Australia and New Zealand) and countries with slightly different salary periods (*e.g.* Hungary, Iceland, Norway and Spain) from the general OECD norm, a correction to the deflator is made only if this results in an adjustment of over 1%. Small adjustments have been discounted because even for salaries referring to 2002-2003, the exact period for which they apply will only be slightly different. Reference statistics and reference years for teachers' salaries are provided in Annex 2.

For the calculation of changes in teacher salaries (Table D3.3), the GDP deflator is used to convert 1996 salaries to 2003 prices.

Starting salaries refer to the average scheduled gross salary per year for a full-time teacher with the minimum training necessary to be fully qualified at the beginning of the teaching career.

Salaries after 15 years of experience refer to the scheduled annual salary of a full-time classroom teacher with the minimum training necessary to be fully qualified and with 15 years of experience. The maximum salaries reported refer to the scheduled maximum annual salary (top of the salary scale) of a full-time classroom teacher with the minimum training to be fully qualified for the job.

An adjustment to base salary is defined as any difference in salary between what a particular teacher actually receives for work performed at a school and the amount that he or she would be expected to receive on the basis of level of experience (*i.e.* number of years in the teaching profession). Adjustments may be temporary or permanent, and they can effectively move a teacher off the scale and onto a different salary scale or onto a higher step on the same salary scale.

The data on decision making are taken from the 2003 OECD-INES survey on decision making in public, lower secondary education and refer to the school year 2003-2004. On teacher salary scales, the survey asked which level in the education system decides on the salary scales (excluding bonuses) of teaching staff and how autonomously these decisions are taken.

Further references

The following additional material relevant to this indicator is available on the Web at *http://dx.doi.org/10.1787/622245711285*:

Table D3.2b Adjustments to base salary for teachers in public schools made by head teacher/school principal (2003)

Table D3.2c Adjustments to base salary for teachers in public schools made by the local or regional authority (2003)

Table D3.2d Adjustments to base salary for teachers in public schools made by the national authority (2003)

Specific notes on definitions and methodologies regarding this indicator for each country are given in Annex 3 at *www.oecd.org/edu/eag2005*.

In addition, a more comprehensive analysis of decision making was published in *Education at a Glance 2004* (OECD, 2004c), Indicator D6. Information on the underlying decision-making survey is available in *Education at a Glance 2004*, Annex 3 (*www.oecd.org/edu/eag2004*) under the heading Indicator D6 Locus of decision making at lower secondary levels. The complete decision-making data are available under the heading Underlying data on decision making for Indicator D6 (*www.oecd.org/edu/eag2004*).

Table D3.1. Teachers' salaries (2003)

Annual statutory teachers' salaries in public institutions at starting salary, after 15 years of experience and at the top of the scale, by level of education, in equivalent US dollars converted using PPPs

	Primary education				Lower secondary education				Upper secondary general education			
	Starting salary/ minimum training	Salary after 15 years of experience /minimum training	Salary at top of scale /minimum training	Ratio of salary after 15 years of experience to GDP per capita	Starting salary/ minimum training	Salary after 15 years of experience /minimum training	Salary at top of scale /minimum training	Ratio of salary after 15 years of experience to GDP per capita	Starting salary/ minimum training	Salary after 15 years of experience /minimum training	Salary at top of scale /minimum training	Ratio of salary after 15 years of experience to GDP per capita
OECD COUNTRIES												
Australia	28 642	42 057	42 057	1.40	28 865	42 078	42 078	1.40	28 865	42 078	42 078	1.40
Austria	24 475	32 384	48 977	1.06	25 439	34 666	51 269	1.13	25 776	35 670	54 139	1.16
Belgium (Fl.)	27 070	37 128	44 626	1.26	27 070	37 913	46 223	1.28	33 588	48 485	58 279	1.64
Belgium (Fr.)	25 684	35 474	42 884	1.20	25 995	36 690	44 945	1.24	32 395	47 193	56 925	1.60
Czech Republic	13 808	18 265	23 435	1.06	13 808	18 265	23 435	1.06	16 817	20 259	25 988	1.18
Denmark	32 939	37 076	37 076	1.21	32 939	37 076	37 076	1.21	32 331	45 425	45 425	1.48
England	28 608	41 807	41 807	1.40	28 608	41 807	41 807	1.40	28 608	41 807	41 807	1.40
Finland	27 023	31 785	31 785	1.12	30 336	36 444	36 444	1.29	34 374	42 139	42 139	1.49
France	23 106	31 082	45 861	1.12	25 564	33 540	48 440	1.21	26 035	34 010	48 957	1.22
Germany	38 216	46 223	49 586	1.71	39 650	48 804	50 949	1.80	42 881	52 570	54 928	1.94
Greece	22 990	28 006	33 859	1.38	22 990	28 006	33 859	1.38	22 990	28 006	33 859	1.38
Hungary	11 701	14 923	19 886	0.98	11 701	14 923	19 886	0.98	13 286	18 463	24 185	1.22
Iceland	18 742	21 692	24 164	0.73	18 742	21 692	24 164	0.73	24 159	29 641	31 433	1.00
Ireland	24 458	40 514	45 910	1.22	25 295	40 514	45 910	1.22	25 295	40 514	45 910	1.22
Italy	23 751	28 731	34 869	1.08	25 602	31 304	38 306	1.18	25 602	32 186	40 058	1.21
Japan	24 514	45 515	57 327	1.60	24 514	45 515	57 327	1.60	24 514	45 543	59 055	1.60
Korea	27 214	46 640	74 965	2.42	27 092	46 518	74 843	2.42	27 092	46 518	74 843	2.42
Luxembourg	44 712	61 574	91 131	1.14	64 416	80 520	111 910	1.50	64 416	80 520	111 910	1.50
Mexico	12 688	16 720	27 696	1.75	16 268	21 242	35 056	2.23	m	m	m	m
Netherlands	30 071	39 108	43 713	1.29	31 188	43 054	47 977	1.42	31 492	57 647	63 586	1.90
New Zealand	18 132	35 078	35 078	1.51	18 132	35 078	35 078	1.51	18 132	35 078	35 078	1.51
Norway	29 719	35 541	36 806	0.96	29 719	35 541	36 806	0.96	29 719	35 541	36 806	0.96
Poland	6 257	9 462	10 354	0.82	6 257	9 462	10 354	0.82	6 257	9 462	10 354	0.82
Portugal	20 150	33 815	53 085	1.81	20 150	33 815	53 085	1.81	20 150	33 815	53 085	1.81
Scotland	27 223	43 363	43 363	1.45	27 223	43 363	43 363	1.45	27 223	43 363	43 363	1.45
Slovak Republic	5 771	7 309	9 570	0.56	5 771	7 309	9 570	0.56	5 771	7 309	9 570	0.56
Spain	29 973	34 890	43 816	1.42	33 702	39 019	48 352	1.59	34 614	40 231	49 712	1.64
Sweden	24 488	28 743	32 956	1.00	25 278	29 617	33 567	1.03	26 278	30 934	35 610	1.07
Switzerland	37 544	49 932	59 667	1.54	44 563	58 520	69 645	1.80	52 572	67 355	80 706	2.07
Turkey	12 903	14 580	16 851	2.10	a	a	a	a	11 952	13 630	15 900	1.96
United States	30 339	43 999	53 563	1.17	30 352	43 999	52 603	1.17	30 471	44 120	52 745	1.17
Country mean	***24 287***	***33 336***	***40 539***	***1.31***	***26 241***	***35 876***	***43 477***	***1.35***	***27 455***	***38 317***	***45 948***	***1.43***
PARTNER COUNTRIES												
Argentina[1]	6 901	9 670	11 612	0.85	9 459	13 264	15 929	1.17	9 459	13 264	15 929	1.17
Brazil[1]	8 888	12 005	13 292	1.56	12 138	14 380	17 444	1.87	15 494	17 669	17 908	2.30
Chile	11 709	13 671	18 437	1.25	11 709	13 671	18 437	1.25	11 709	14 306	19 302	1.31
Egypt	1 046	2 184	m	0.57	1 046	2 184	m	0.57	m	m	m	m
India	11 735	19 234	18 163	7.09	14 252	21 340	23 197	7.87	17 313	22 977	27 381	8.47
Indonesia	1 002	1 586	3 022	0.50	1 002	1 586	3 022	0.50	1 042	1 910	3 022	0.60
Israel	12 331	15 128	21 054	0.75	12 331	15 128	21 054	0.75	12 331	15 128	21 054	0.75
Jamaica	13 354	16 520	16 520	4.19	13 354	16 520	16 520	4.19	13 354	16 520	16 520	4.19
Malaysia[1]	9 230	14 490	17 470	1.61	13 480	23 029	29 151	2.55	13 480	23 029	29 151	2.55
Paraguay[1]	7 950	7 950	7 950	1.62	12 400	12 400	12 400	2.52	12 400	12 400	12 400	2.52
Peru[1]	5 669	5 669	5 669	1.13	5 606	5 606	5 606	1.12	5 606	5 606	5 606	1.12
Philippines[1]	9 890	10 916	11 756	2.63	9 890	10 916	11 756	2.63	9 890	10 916	11 756	2.63
Sri Lanka	3 100	3 945	3 945	1.09	3 100	8 009	4 509	2.22	3 945	5 073	5 073	1.40
Thailand	6 048	14 862	28 345	2.21	6 048	14 862	28 345	2.21	6 048	14 862	28 345	2.21
Tunisia	13 120	13 262	15 067	1.93	16 693	16 853	19 067	2.46	20 320	20 511	22 960	2.99
Uruguay[1]	4 850	5 812	7 017	0.75	4 850	5 812	7 017	0.75	5 278	6 241	7 444	0.80

1. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/622245711285

D3

Table D3.1. (*continued*) **Teachers' salaries (2003)**

Annual statutory teachers' salaries in public institutions at starting salary, after 15 years of experience and at the top of the scale, by level of education, in equivalent US dollars converted using PPPs

		Ratio of salary at the top of the scale to starting salary			Years from starting to top salary (lower secondary education)	Salary per hour of net teaching time after 15 years of experience			Ratio of salary per teaching hour of upper secondary to primary teachers (after 15 years of experience)
		Primary education	Lower secondary education	Upper secondary general education		Primary education	Lower secondary education	Upper secondary general education	
OECD COUNTRIES	Australia	1.47	1.46	1.46	9	48	51	52	1.09
	Austria	2.00	2.02	2.10	34	41	56	59	1.45
	Belgium (Fl.)	1.65	1.71	1.74	27	47	53	73	1.56
	Belgium (Fr.)	1.67	1.73	1.76	27	49	51	71	1.44
	Czech Republic	1.70	1.70	1.55	32	24	30	35	1.46
	Denmark	1.13	1.13	1.41	8	58	58	81	1.40
	England	1.46	1.46	1.46	6	m	m	m	m
	Finland	1.18	1.20	1.23	20	46	61	76	1.63
	France	1.98	1.89	1.88	34	35	54	56	1.64
	Germany	1.30	1.28	1.28	28	59	66	77	1.30
	Greece	1.47	1.47	1.47	33	36	45	45	1.24
	Hungary	1.70	1.70	1.82	40	19	27	33	1.73
	Iceland	1.29	1.29	1.30	18	33	33	53	1.59
	Ireland	1.88	1.82	1.82	22	44	55	55	1.25
	Italy	1.47	1.50	1.56	35	36	53	54	1.49
	Japan	2.34	2.34	2.41	31	70	85	98	1.39
	Korea	2.75	2.76	2.76	37	58	83	86	1.48
	Luxembourg	2.04	1.74	1.74	a	80	125	125	1.58
	Mexico	2.18	2.15	m	14	21	20	m	m
	Netherlands	1.45	1.54	2.02	18	42	57	77	1.83
	New Zealand	1.93	1.93	1.93	8	36	36	37	1.04
	Norway	1.24	1.24	1.24	20	48	54	68	1.42
	Poland	1.65	1.65	1.65	10	15	15	15	1.00
	Portugal	2.63	2.63	2.63	26	43	54	58	1.35
	Scotland	1.59	1.59	1.59	6	46	49	49	1.06
	Slovak Republic	1.66	1.66	1.66	32	11	11	12	1.05
	Spain	1.46	1.43	1.44	39	40	69	73	1.85
	Sweden[1]	m	m	m	a	m	m	m	m
	Switzerland	1.59	1.56	1.54	26	m	m	m	m
	Turkey	1.31	a	1.33	a	23	a	24	1.05
	United States	1.77	1.73	1.73	m	39	39	39	1.02
	Country mean	***1.70***	***1.70***	***1.71***	***24***	***41***	***51***	***59***	***1.38***
PARTNER COUNTRY	Israel	1.71	1.71	1.71	36	14	18	18	1.31

1. Ratio of salary at the top of the scale to starting salary has not been calculated for Sweden because the underlying salaries are estimates derived from actual rather than statutory salaries.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/622245711285

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Table D3.2a. Adjustments to base salary for teachers in public institutions (2003)

Types of criteria to adjust base salary awarded to teachers in public institutions

		Criteria based on teaching conditions/ responsibilities						
		Management responsibilities in addition to teaching duties	Teaching more classes or hours than required by full-time contract	Special tasks (career guidance or counselling)	Teaching in a disadvantaged, remote or high-cost area (location allowance)	Special activities (sports and drama clubs, homework clubs, summer school)	Teaching students with special educational needs (in regular schools)	Teaching courses in a particular field
OECD COUNTRIES	Australia	■	■	■	■		■	
	Austria	■	■	■		■		
	Belgium (Fl.)		■					
	Belgium (Fr.)							
	Czech Republic	■	■	■			■	
	Denmark	■	■	■		■		■
	England	■	■	■	■	■	■	■
	Finland	■	■	■	■	■		
	France	■	■	■	■	■	■	
	Germany	■	■					
	Greece		■	■	■			
	Hungary	■	■	■	■	■	■	■
	Iceland	■	■	■	■	■	■	
	Ireland	■			■			
	Italy	■	■	■	■	■		
	Japan	■	■		■	■	■	
	Korea	■	■		■		■	
	Luxembourg		■	■		■	■	
	Mexico	■	■	■	■			■
	Netherlands						■	
	New Zealand	■		■	■	■	■	■
	Norway	■	■	■	■			■
	Poland	■	■			■	■	
	Portugal	■	■	■		■	■	
	Scotland	■			■			
	Slovak Republic		■					
	Spain	■		■	■			
	Sweden	■	■	■	■	■	■	■
	Switzerland	■	■	■		■	■	
	Turkey		■	■	■	■		
	United States	■	■	■	■	■	■	■
PARTNER COUNTRY	Israel	■	■	■	■		■	

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

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StatLink: http://dx.doi.org/10.1787/622245711285

Table D3.2a. *(continued)* **Adjustments to base salary for teachers in public institutions (2003)**

Types of criteria to adjust base salary awarded to teachers in public institutions

		Criteria related to teachers' qualifications, training and performance						Criteria based on demography		
		Holding an initial educational qualification higher than the minimum qualification required to enter the teaching profession	Holding a higher than minimum level of teacher certification or training obtained during professional life	Outstanding performance in teaching	Successful completion of professional development activities	Reaching high scores in the qualification examination	Holding an educational qualification in multiple subjects	Family status (married, number of children)	Age (independent of years of teaching experience)	Other
OECD COUNTRIES	Australia	■	■	■				■		■
	Austria							■	■	■
	Belgium (Fl.)									■
	Belgium (Fr.)									■
	Czech Republic			■					■	
	Denmark	■	■	■	■		■			
	England	■	■	■						
	Finland	■		■						■
	France							■		
	Germany							■	■	
	Greece	■	■					■		
	Hungary	■	■	■	■		■		■	■
	Iceland	■	■		■				■	■
	Ireland	■	■			■				
	Italy							■	■	
	Japan							■		■
	Korea							■		
	Luxembourg		■		■			■	■	
	Mexico	■	■	■	■	■				■
	Netherlands									
	New Zealand		■	■	■		■			■
	Norway	■	■	■						
	Poland				■				■	■
	Portugal	■	■	■	■			■		
	Scotland									
	Slovak Republic			■						■
	Spain				■			■		
	Sweden	■	■	■	■	■	■			
	Switzerland							■		■
	Turkey	■		■	■			■		■
	United States	■	■	■	■					
PARTNER COUNTRY	Israel	■	■		■			■	■	

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

StatLink: http://dx.doi.org/10.1787/622245711285

D3

Table D3.3. Change in teachers' salaries (1996 and 2003)

Index of change[1] between 1996 and 2003 in teachers' salaries at starting salary, after 15 years of experience and at the top of the salary scale, by level of education, converted to 2003 price levels using GDP deflators (1996=100)

		Primary education			Lower secondary education			Upper secondary education, general programmes		
		Starting salary/ minimum training	Salary after 15 years of experience/ minimum training	Salary at top of scale/ minimum training	Starting salary/ minimum training	Salary after 15 years of experience/ minimum training	Salary at top of scale/ minimum training	Starting salary/ minimum training	Salary after 15 years of experience/ minimum training	Salary at top of scale/ minimum training
OECD COUNTRIES	Australia	128	103	103	129	103	103	129	103	103
	Austria	104	108	103	105	110	101	100	103	95
	Belgium (Fl.)[2]	104	106	107	102	102	102	102	102	102
	Belgium (Fr.)[2]	99	102	103	98	99	99	98	99	99
	Czech Republic	m	m	m	m	m	m	m	m	m
	Denmark	122	113	110	122	113	110	110	109	104
	England	122	106	106	122	106	106	122	106	106
	Finland	131	116	113	131	112	108	143	124	118
	France	m	m	m	m	m	m	m	m	m
	Germany	m	m	m	m	m	m	m	m	m
	Greece	107	109	112	104	106	110	104	106	110
	Hungary	204	192	199	204	192	199	182	192	201
	Iceland	m	m	m	m	m	m	m	m	m
	Ireland	100	107	103	98	101	102	98	101	102
	Italy	112	112	112	111	111	111	111	111	110
	Japan	108	118	104	108	118	104	108	118	104
	Korea	m	m	m	m	m	m	m	m	m
	Luxembourg	m	m	m	m	m	m	m	m	m
	Mexico	139	138	139	140	143	146	m	m	m
	Netherlands	104	111	101	103	113	101	103	108	100
	New Zealand	102	115	115	102	115	115	102	115	115
	Norway	129	126	129	129	126	129	119	123	119
	Poland	m	m	m	m	m	m	m	m	m
	Portugal	105	117	106	105	117	106	105	117	106
	Scotland	112	107	107	112	107	107	112	107	107
	Slovak Republic	m	m	m	m	m	m	m	m	m
	Spain	97	96	94	m	m	m	96	96	94
	Sweden	m	m	m	m	m	m	m	m	m
	Switzerland	99	98	102	100	97	102	99	95	103
	Turkey	m	m	m	a	a	a	m	m	m
	United States	m	m	m	m	m	m	m	m	m
PARTNER COUNTRY	Israel	m	m	m	m	m	m	m	m	m

1. The index is calculated as teacher salary 2003 in national currency * 100 / Teacher salary 1996 in national currency * GDP deflator 2003 (1996=100). See Annex 2 for statistics on GDP deflators and salaries in national currencies in 1996 and 2003.
2. The data for Belgium in 1996 are based on Belgium as a whole.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/622245711285

D3

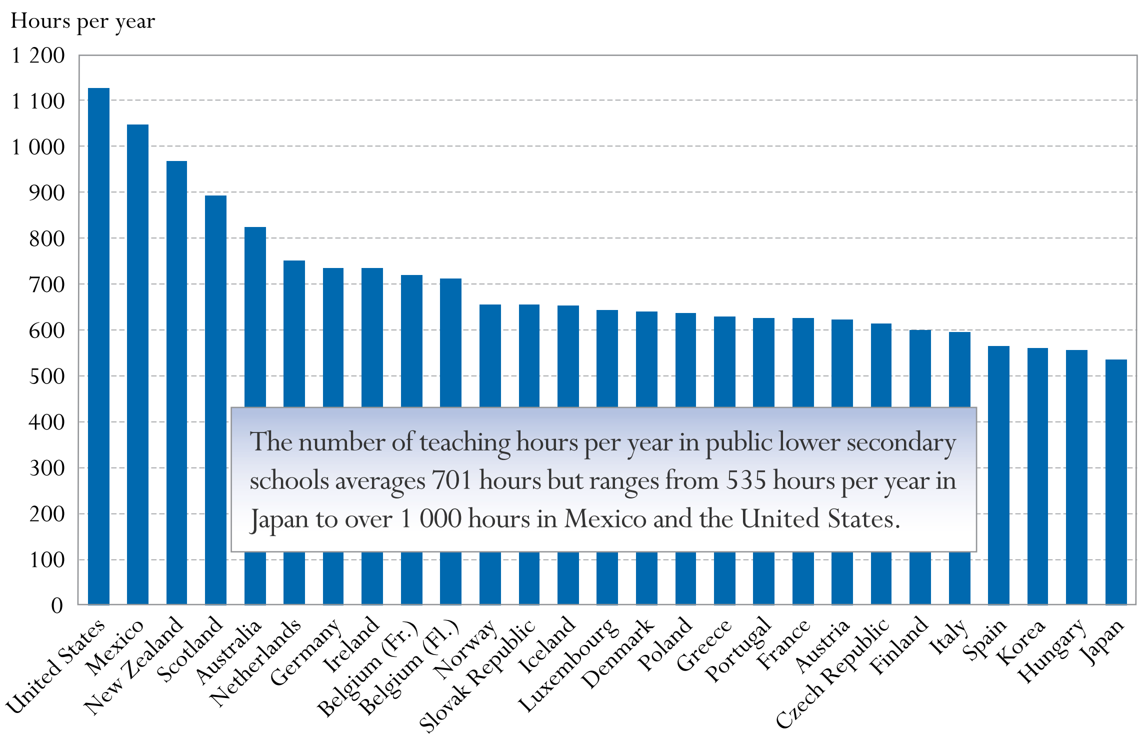
Teaching time and teachers' working time

This indicator focuses on the statutory working time of teachers at different levels of education as well as their statutory teaching time. Although working time and teaching time only partly determine the actual workload of teachers, they do give some valuable insights into differences between countries in what is demanded of teachers. Together with teachers' salaries (see Indicator D3) and average class size (see Indicator D2), this indicator presents some key measures of the working conditions of teachers.

Key results

Chart D4.1. Number of teaching hours per year in lower secondary education (2003)

This chart shows the net teaching time in hours per year according to the formal policies in each country for a teacher of lower secondary education in public institutions. Teaching time is net of breaks between classes.



Countries are ranked in descending order of the number of teaching hours per year in lower secondary education.
Source: OECD. Table D4.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/757486288340

D4

Other highlights of this indicator

- The number of teaching hours per year in public primary schools averages 795 hours, but ranges from around 650 hours or less in Denmark, Japan, Poland and Turkey to 1 139 hours in the United States.
- The average number of teaching hours in upper secondary general education is 661 hours, but ranges from 467 in Japan to 1 121 hours in the United States.
- The composition, in terms of days, weeks and hours per day, of teachers' annual teaching time varies considerably. For instance, while teachers in Denmark teach for 42 weeks in the year compared with 36 weeks per year in the United States, Danish teachers teach for around 3 hours per day compared with around 6 hours per day in the United States.
- Regulations of teachers' working time vary among countries. In most countries, teachers are formally required to work a specific number of hours; in others, teaching time is only specified as the number of lessons per week.

Policy context

In addition to class size and the ratio of students to teaching staff (see Indicator D2), students' hours of instruction (see Indicator D1) and teachers' salaries (see Indicator D3), the amount of time teachers spend teaching influences the financial resources which countries need to invest in education. Teaching hours and the extent of non-teaching duties are also important elements of teachers' working conditions and are related to the attractiveness of the teaching profession.

The proportion of working time spent teaching can be interpreted as a measure of teachers' workload. It provides information on the amount of time available for other activities, such as lesson preparation, correction, in-service training and staff meetings.

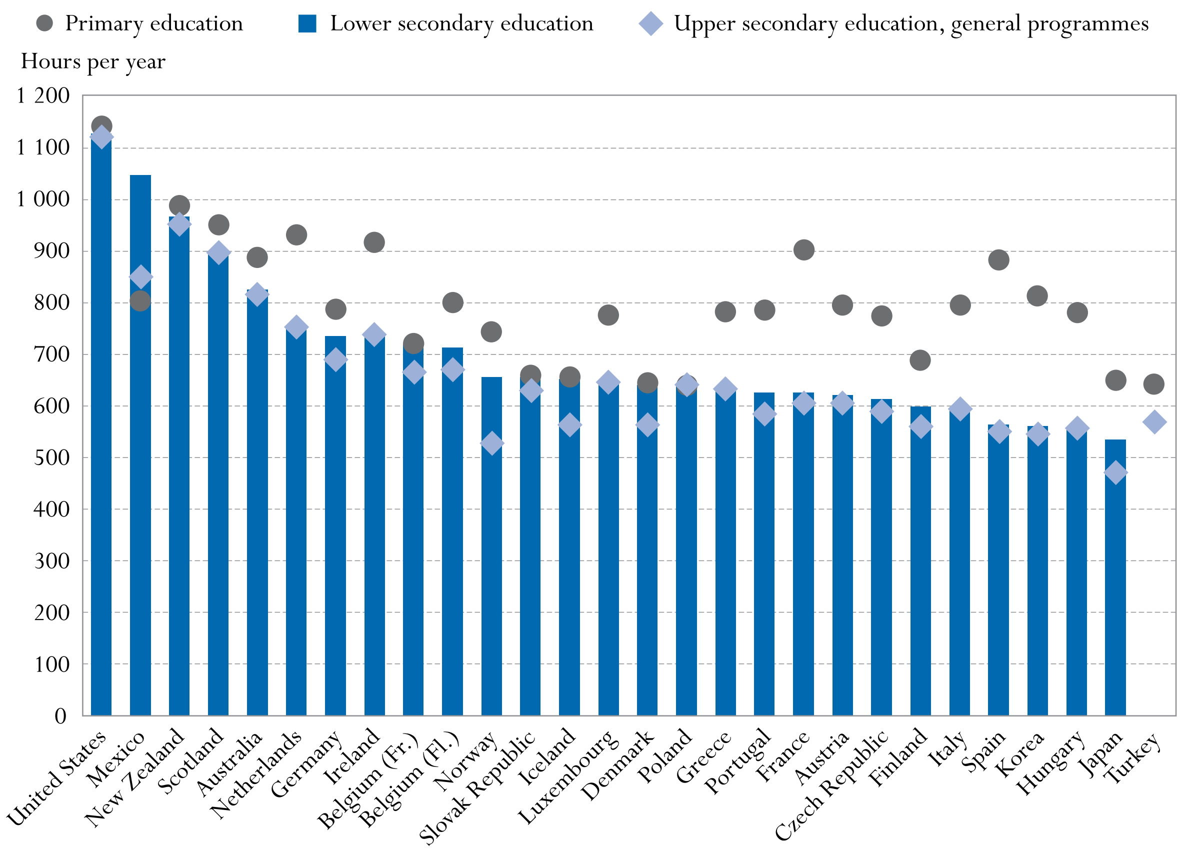
Evidence and explanations

Teaching time in primary education

In both primary and secondary education, countries vary in the number of teaching hours per year required of the average public school teacher. Primary education teaching hours are usually higher than secondary education.

Chart D4.2. Number of teaching hours per year, by level of education (2003)

Net contact time in hours per year in public educational institutions



Countries are ranked in descending order of the number of teaching hours per year in lower secondary education.
Source: OECD. Table D4.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/757486288340

D4

In OECD countries, a primary school teacher teaches an average of 795 hours per year, but this varies from 650 hours or less in Denmark, Japan, Poland and Turkey to 900 hours or more in France, Ireland, the Netherlands, New Zealand, Scotland and the United States (Chart D4.2 and Table D4.1).

Teaching time can be distributed quite differently throughout the year. For instance, Korea is the only country in which primary teachers teach for 6 days per week and yet total annual teaching time is around the average because the hours per day that these teachers teach, is less than average. Denmark and the United States provide an interesting contrast in this respect. While primary teachers teach for six weeks less per year in the United States than in Denmark, total teaching hours for primary teachers in the United States is over 75% higher than in Denmark because of differences in the hours per day that teachers teach: primary teachers in Denmark teach for around three hours per day, while their counterparts in the United States teach for around six hours per day. There may be some over estimation of teaching hours in the data for the United States, though this is not believed to significantly affect the comparisons shown (see Annex 3 for details at *www.oecd.org/edu/eag2005*).

Teaching time in secondary education

In lower secondary education in OECD countries, a teacher teaches an average of 701 hours per year. The teaching load ranges from less than 600 hours in Finland, Hungary, Italy, Japan, Korea and Spain to more than 900 hours in Mexico, New Zealand and the United States (Chart D4.2 and Table D4.1).

An upper secondary, general education teaching load is usually less than that in lower secondary education. A teacher of general subjects has an average statutory load of 661 hours per year among OECD countries. Teaching loads range from less than 500 hours in Japan to more than 900 hours in New Zealand and the United States (Chart D4.2 and Table D4.1).

As is the case for primary teachers, the hours per day that teachers teach vary widely, ranging at the lower secondary level from around three hours per day in Hungary and Korea to over six hours per day in the United States. Similarly at upper secondary general level, teachers in Denmark, Finland, Korea and Norway teach for less than three hours per day, while similar teachers in the United States teach for over six hours per day. The inclusion of breaks between classes as teaching time, by some countries but not others may explain some of these differences.

Teaching time contrasts between levels

In France and Spain, a primary teacher is required to teach around 300 hours more than an upper secondary teacher (general programmes). By contrast, in New Zealand, the Slovak Republic and the United States the difference is less than 50 hours and in Poland the number of teaching hours is equal at all three education levels. Conversely, in Mexico, a lower secondary teacher teaches almost 200 hours more than a primary or upper secondary teacher (Chart D4.2), largely because of a heavier daily teaching load.

In interpreting the differences in teaching hours between countries, it should be noted that net contact time, as used for the purpose of this indicator, does not necessarily correspond to teaching load. Whereas contact time in itself is a substantial component of this, the preparation for classes and necessary follow-up (including correcting students' work) also need to be included in comparisons of teaching loads. Other elements of teaching load (such as the number of subjects taught, the number of students taught, and the number of years a teacher teaches the same students) should also be taken into account when establishing the average teaching load of teachers within a country. These factors, however, can often only be assessed at the school level.

Teachers' working time

The regulations of teachers' working time vary widely among countries. While some countries formally regulate contact time only, others establish working hours as well. In some countries, time is allocated for teaching and non-teaching activities within the formally established working time. Within the framework of statutory working time and teaching time, teachers' actual workload may vary widely.

Box D4.1. Decision making on the conditions of service of teaching staff - lower secondary education (2003)

Teachers' working conditions are, of course, a key factor in recruiting and retaining teachers and there is an active debate as to whether these should be set nationally or locally. The table below shows who takes decisions on setting the conditions of service (such as time schedule, grouping of students and importance of particular subjects in the class programme, but not salary levels) for public institutions at the lower secondary level in different countries.

	Degree of autonomy in decision making		
Decision maker	**Full autonomy**	**After consultation**	**Within framework**
Central Government	Turkey	Greece	
State/Province/Regional Government	Australia Mexico Japan		Spain
Local authorities			Denmark Korea
School	Finland France Iceland Netherlands Portugal	Luxembourg	Austria Belgium (Fr) Czech Republic England Germany Hungary Italy New Zealand Norway Slovak Republic Sweden

Source: 2003 OECD-INES survey on decision making.

In the majority of countries shown, schools in fact make decisions on teachers' conditions of service but only in Finland, France, Iceland, Netherlands and Portugal are such decisions taken in full autonomy, though in Portugal, for instance, some aspects are subject to a framework. The most common situation is that schools take these decisions within a framework set by the state or central government, often as part of collective agreements.

Only in Turkey are these decisions taken solely by central government, though in Australia, Mexico and Japan, state or regional authorities have the same freedom.

In most countries, teachers are formally required to work a specified number of hours per week to earn their full-time salary; this includes teaching and non-teaching time. Within this framework, however, countries vary regarding what they specify in terms of allocating time to teaching and non-teaching activities. Typically, the number of hours for teaching is specified, but some countries also regulate at the national level the time that a teacher has to be present in the school.

In Australia, Belgium (French Community) (primary education), England, Greece, Iceland, Luxembourg, Mexico, Norway, Portugal, Spain, Sweden, Turkey and the United States, the working time during which teachers are required to be available at school, for both teaching time and non-teaching time, is specified.

In Austria (primary and lower secondary education), the Czech Republic, Denmark, Germany, Hungary, Japan, Korea, the Netherlands, Poland, Scotland and the Slovak Republic, the total working time that teachers have to work per year at school or elsewhere is specified. In addition, in some countries the number of hours to be spent on non-teaching activities is also (partly) specified. However, it is not specified whether the teachers have to spend the non-teaching hours at school or outside school.

Non-teaching time

In Belgium (Flemish Community), Finland, France, Ireland, Italy and New Zealand there are no formal requirements for how much time should be spent on non-teaching duties. However, this does not mean that teachers are totally free in carrying out other tasks. In Austria, provisions concerning teaching time are based on the assumption that the duties of the teacher (including preparing lessons and tests, marking and correcting papers, examinations, and administrative tasks) amount to a total working time of 40 hours per week. In Belgium (Flemish Community), the additional non-teaching hours within the school are set at the school level. There are no regulations regarding lesson preparation, correction of tests and marking students' papers, etc. The government only defines the minimum and maximum number of teaching periods (of 50 minutes each) per week at each level of education (Table D4.1).

Definitions and methodologies

Data are from the 2004 OECD-INES Survey on Teachers and the Curriculum and refer to the school year 2002-2003.

Teaching time

Teaching time is defined as the number of hours per year that a full-time teacher teaches a group or class of students according to the formal policy in the country. It is normally calculated as the number of teaching days per annum multiplied by the number of hours a teacher teaches per day (excluding periods of time formally allowed for breaks between lessons or groups of lessons). Some countries, however, provide estimates of teaching time based on survey data.

At the primary level, short breaks between lessons are included if the classroom teacher is responsible for the class during these breaks.

Working time

Working time refers to the normal working hours of a full-time teacher. According to the formal policy in a given country, working time can refer to:

- Only the time directly associated with teaching (and other curricular activities for students such as assignments and tests, but excluding annual examinations); or

- The time directly associated with teaching and hours devoted to other activities related to teaching, such as lesson preparation, counselling students, correcting assignments and tests, professional development, meetings with parents, staff meetings and general school tasks.

Working time does not include paid overtime.

Working time in school

Working time in school refers to the working time teachers are supposed to spend at school, including teaching time and non-teaching time.

Number of teaching weeks and days

The number of teaching weeks refers to the number of weeks of instruction excluding holiday weeks. The number of teaching days is the number of teaching weeks multiplied by the number of days a teacher teaches per week less the number of days that the school is closed for festivities.

The data on decision making are taken from the 2003 OECD-INES survey on decision making in public, lower secondary education and refer to the school year 2003-2004. On teacher working conditions, the survey asked which level in the education system decides on the conditions of service (excluding salaries and bonuses) of the teaching staff and how autonomously these decisions are taken. The conditions of service include the time schedule, size and levels of the groups to teach, the importance of a given subject in the programme of the class, the grouping of students.

Further references

The following additional material relevant to this indicator is available on the Web at *http://dx.doi.org/10.1787/757486288340*:

Table D4.2. Number of teaching hours per year (1996, 2003)

Specific notes on definitions and methodologies regarding this indicator for each country are given in Annex 3 (*www.oecd.org/edu/eag2005*).

In addition, a more comprehensive analysis of decision making was published in Indicator D6 of *Education at a Glance 2004* (OECD, 2004c). Information on the underlying decision-making survey is available in Education at a Glance 2004, Annex 3 (*www.oecd.org/edu/eag2004*) under the heading Indicator D6 "Locus of decision making at lower secondary levels". The complete decision making data is available under the heading "Underlying data on decision making for Indicator D6" (*www.oecd.org/edu/eag2004*).

Table D4.1. Organisation of teachers' working time (2003)

Number of teaching weeks, teaching days, net teaching hours and teacher working time over the school year

	Number of weeks of instruction			Number of days of instruction			Net teaching time in hours			Working time required at school in hours			Total statutory working time in hours		
	Primary education	Lower secondary education	Upper secondary education, general programmes	Primary education	Lower secondary education	Upper secondary education, general programmes	Primary education	Lower secondary education	Upper secondary education, general programmes	Primary education	Lower secondary education	Upper secondary education, general programmes	Primary education	Lower secondary education	Upper secondary education, general programmes
OECD COUNTRIES															
Australia	40	40	40	197	197	197	885	825	813	1 212	1 235	1 235	a	a	a
Austria	38	38	38	184	184	184	792	622	602	a	a	a	1 776	1 776	a
Belgium (Fl.)	37	37	37	177	178	178	797	712	668	a	a	a	a	a	a
Belgium (Fr.)	37	37	37	162	180	180	717	720	661	962	m	m	a	a	a
Czech Republic	38	38	38	186	186	186	772	614	586	a	a	a	1 696	1 696	1 696
Denmark	42	42	42	200	200	200	640	640	560	m	m	m	1 680	1 680	1 680
England	38	38	38	190	190	190	m	m	m	1 265	1 265	1 265	a	a	a
Finland	38	38	38	190	190	190	684	599	556	a	a	a	a	a	a
France	35	35	35	m	m	m	900	626	602	a	a	a	a	a	a
Germany	40	40	40	189	189	189	782	735	684	a	a	a	1 708	1 708	1 708
Greece	40	38	38	195	185	185	780	629	629	1 500	1 425	1 425	1 762	1 762	1 762
Hungary	37	37	37	185	185	185	777	555	555	a	a	a	1 864	1 864	1 864
Iceland	36	36	36	175	175	175	653	653	560	1 650	1 650	1 720	1 800	1 800	1 800
Ireland	37	33	33	183	167	167	915	735	735	a	a	a	a	a	a
Italy	33	33	33	m	m	m	792	594	594	a	a	a	a	a	a
Japan[1]	35	35	35	m	m	m	648	535	467	a	a	a	1 960	1 960	1 960
Korea	37	37	37	220	220	220	809	560	544	a	a	a	1 613	1 613	1 613
Luxembourg	36	36	36	176	176	176	774	642	642	1 022	890	890	a	a	a
Mexico	42	42	36	200	200	173	800	1047	848	800	1 167	971	a	a	a
Netherlands	40	37	37	195	180	180	930	750	750	a	a	a	1 659	1 659	1 659
New Zealand	39	39	38	197	194	190	985	968	950	a	a	a	a	a	a
Norway	38	38	37	190	190	187	741	656	524	929	843	711	1 680	1 680	1 680
Poland	37	37	37	177	177	177	637	637	637	a	a	a	1 416	1 416	1 416
Portugal	36	36	36	174	174	174	783	626	580	870	766	696	1 526	1 526	1 526
Scotland	38	38	38	190	190	190	950	893	893	a	a	a	1 365	1 365	1 365
Slovak Republic	38	38	38	190	190	190	656	656	627	a	a	a	1 613	1 613	1 613
Spain	37	36	35	176	171	166	880	564	548	1 140	1 140	1 140	1 425	1 425	1 425
Sweden	a	a	a	a	a	a	a	a	a	1 360	1 360	1 360	1 767	1 767	1 767
Switzerland	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Turkey	38	a	38	180	a	180	639	a	567	870	a	756	1 840	a	1 840
United States	36	36	36	180	180	180	1 139	1 127	1 121	1 353	1 371	1 371	a	a	a
Country mean	***38***	***37***	***37***	***187***	***186***	***184***	***795***	***701***	***661***	***1 149***	***1 192***	***1 128***	***1 675***	***1 665***	***1 669***
PARTNER COUNTRIES															
Argentina[2]	38	38	38	180	180	180	810	900	900	m	m	m	m	m	m
Brazil[2]	40	40	40	200	200	200	800	800	800	m	m	m	m	m	m
Chile	40	40	40	194	194	194	873	873	873	m	m	m	m	m	m
China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Egypt	36	36	36	187	187	187	748	748	748	m	m	m	m	m	m
India	52	52	52	225	225	225	1 013	1 125	1 125	m	m	m	m	m	m
Indonesia	44	44	44	252	164	164	1 260	738	738	m	m	m	m	m	m
Israel	44	42	42	183	175	175	1 098	840	840	m	m	m	m	m	m
Jamaica	38	38	38	190	190	190	950	950	950	m	m	m	m	m	m
Jordan	36	36	36	162	162	162	810	810	810	m	m	m	m	m	m
Malaysia[2]	41	41	41	198	198	198	782	798	798	m	m	m	m	m	m
Paraguay[2]	38	38	38	183	183	183	732	814	915	m	m	m	m	m	m
Peru[2]	36	36	36	173	173	173	1 000	1 170	1 170	m	m	m	m	m	m
Philippines	40	40	40	196	196	196	1 176	1 176	1 176	m	m	m	m	m	m
Russian Federation	45	45	45	215	215	215	860	774	774	m	m	m	m	m	m
Sri Lanka	42	42	42	210	210	210	987	1 260	1 260	m	m	m	m	m	m
Thailand	40	40	40	187	187	187	900	1 100	1 200	m	m	m	m	m	m
Tunisia	32	30	30	147	137	137	735	548	548	m	m	m	m	m	m
Uruguay[2]	37	36	36	165	160	160	660	427	427	m	m	m	m	m	m
Zimbabwe	37	37	37	180	180	180	954	954	954	m	m	m	m	m	m

1. Total statutory working time for Japan includes periods of school holidays/vacations.
2. Year of reference 2002.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/757486288340

D4

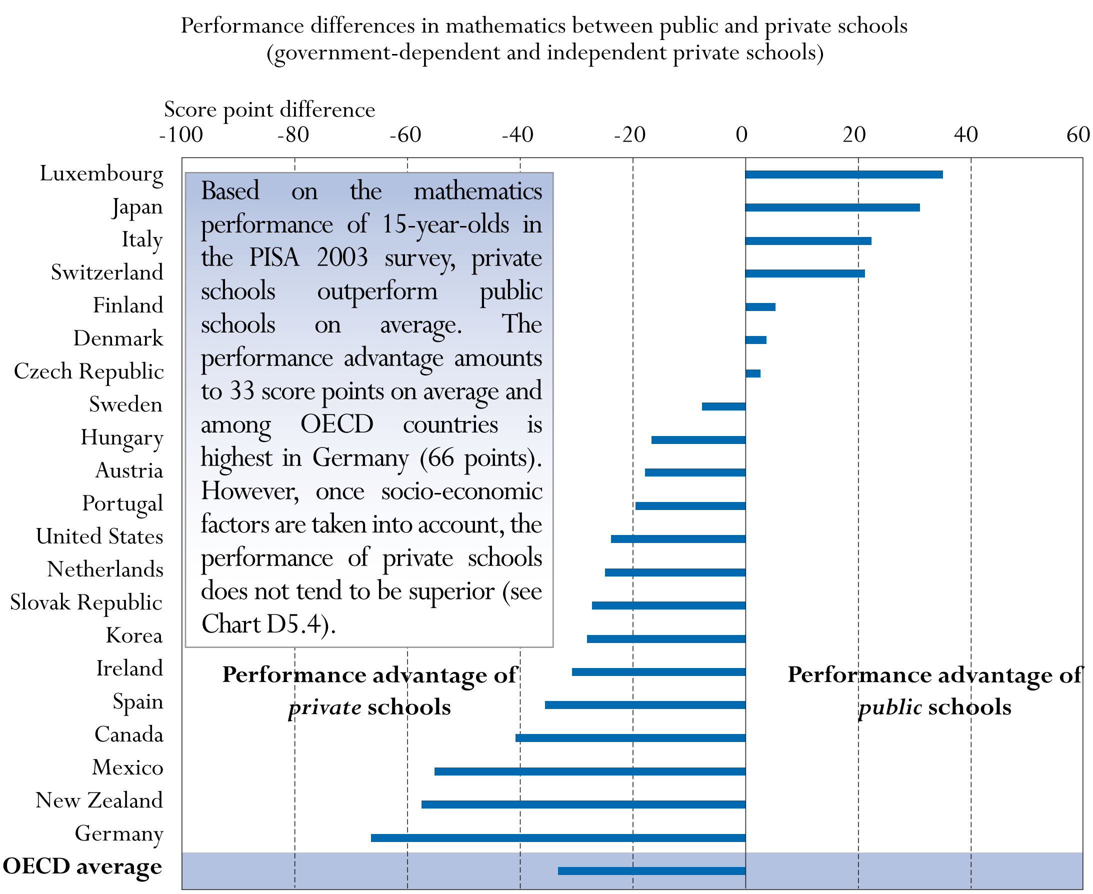
Public and private providers

This indicator focuses on the comparative role played by public and private providers of education across OECD countries. It provides information on the comparative size of the private sector and the distribution of teaching resources, and it examines the comparative performance of public and private providers, both before and after the social composition of the student population has been taken into account. This indicator is not concerned with public and private sources of funds for educational institutions, which is analysed in Chapter B (see Indicator B3).

Key results

Chart D5.1. Student performance on the mathematics scale by type of school (2003)

Performance differences in mathematics between public and private schools (government-dependent and independent private schools)



Source: OECD, PISA 2003 database.

StatLink: http://dx.doi.org/10.1787/788502657223

Other highlights of this indicator

- Across OECD countries, education at all levels is still predominantly a publicly provided service, though the presence of the private sector becomes more prominent beyond compulsory education: 90% of primary education students are in public institutions but only 68% of tertiary-type B students are in public institutions.
- Private provision is most commonly made through government-dependent private institutions rather than independent private institutions, though the latter play a significant role in some countries at the tertiary level, particularly in Japan and Korea, where independent private institutions dominate.
- On average across OECD countries, the availability of teaching resources relative to student numbers in secondary education is more favourable in private institutions than in public institutions. This is most striking in Mexico where, at the secondary level, there are around 13 more students per teacher in public institutions than there are in private institutions.

Policy context

The benefits of private schools over public schools have been the subject of debate in many industrialised and developing countries over the past two decades. In a number of industrialised countries, there is an expectation or perception that private schools provide better quality education than do public schools. However, as private schools are often funded to a large extent by fees from parents and students, students in these schools generally come from more advantaged families.

It is also important to recognise that the nature of private institutions varies among and within countries. On the one hand, there are fully private institutions that are privately managed and predominantly privately funded (independent private institutions); on the other hand, there are private institutions that, though privately managed, are predominantly financed by government funds (government-dependent private institutions).

Some critics argue that increasing privatisation leads to increased levels of segregation between students. These issues have clear relevance to the debate about equity within education systems. This indicator therefore examines some of the characteristics of public and private schools, how the teaching resources compare between the two and whether private school perform better than public schools once allowance is made for the differing composition of their student populations.

Evidence and explanations

The relative size of the public and private sectors

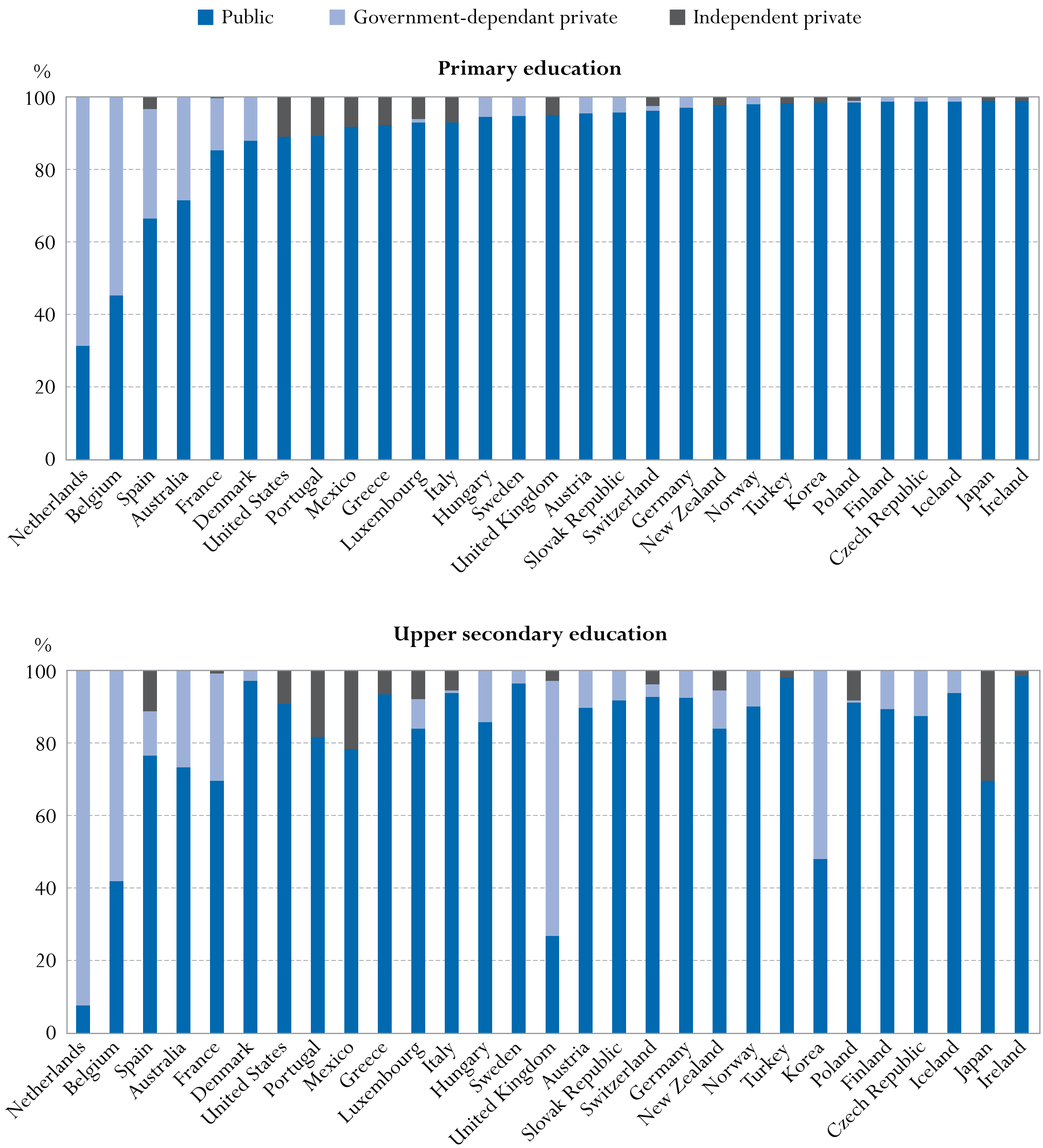
Across OECD countries, education at all levels is still predominantly publicly provided. On average, 90% of primary education students are enrolled in public institutions in OECD countries, while the figures decline a little in secondary education with 86% of lower secondary students and 80% of upper secondary students being taught in public institutions. Private providers generally play a more significant role in tertiary education with 32% of students of tertiary-type B programmes and 22% of students in tertiary-type A and advanced research programmes studying in private institutions. Moreover, only in tertiary education do independent private providers cater for a significant share of the student population. The trend over the last five years has been a small shift towards private sector provision for each level of education (Table D5.1 and Chart D5.2).

The pattern of course varies for individual countries. Belgium and the Netherlands stand out as the only countries where private providers are the dominant providers throughout primary and secondary education, with over 50% of students enrolled in the private sector. In both cases, as is generally the case at primary and secondary level, the private providers are institutions that receive more than 50% of their funding from public sources but which have autonomy in their governance. Australia, France and Spain comprise a group where similar institutions enrol around 20% or more of primary and secondary students. Such government-dependent providers also become dominant at the upper secondary level in Korea (52% of students) and the United Kingdom (70% of students).

At primary and secondary levels, independent private providers (those who receive less than 50% of their funds from government sources) take on a sizeable role only in Japan (30% of upper secondary students), Mexico (22% of upper secondary students) and Portugal (18% of upper secondary students).

At the tertiary level, the pattern is quite different. The extent of private provision at the tertiary level is greater than it is at the primary and secondary levels, especially so for tertiary-type B provision, where private sector enrolments account for around one-third of the total. In both the Netherlands and the United Kingdom, all tertiary education is provided through government-dependent private institutions and as is the case for education below tertiary level, such providers also cater for more than half of tertiary

Chart D5.2 Distribution of enrolled students, by type of institution (2003)



Countries are ranked in descending order of the percentage of students enrolled in the private institutions in primary education.
Source: OECD. Table D5.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

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D5

students in Belgium. Independent private providers are more prominent at the tertiary level than at the pre-tertiary levels. This is particularly the case in Japan and Korea where around three-quarters or more of students are enrolled in such institutions. Independent private providers also have a significant share of the provision amongst tertiary-type B programmes in Switzerland. Although the share is also high in Mexico, Poland, Portugal and Sweden, the numbers enrolled in these programmes in total are relatively small.

Teaching resources and average class size

Table D5.3 focuses on the secondary level and illustrates the comparative provision of teaching resources between public and private institutions by examining the ratio of students to teaching staff between the two types of providers. On average across the countries for which there are data, there are more favourable ratios of students to teaching staff in private institutions at both lower secondary and upper secondary levels: there are around 1.5 more students per teacher in public institutions than there are in private institutions. The most striking example of this is in Mexico where, at the lower secondary level, there are 13 more students per teacher in public institutions than in private institutions. To a lesser extent, in the United Kingdom there are ten more students per teacher in public compared with private institutions at the lower secondary level. The difference in Mexico at the upper secondary level is similarly large.

But the reverse pattern in favour of students in public institutions is also evident in some countries. This is most pronounced in Spain at the lower secondary level where there are some 17 students per teacher in private institutions compared with only 12 students per teacher in public institutions.

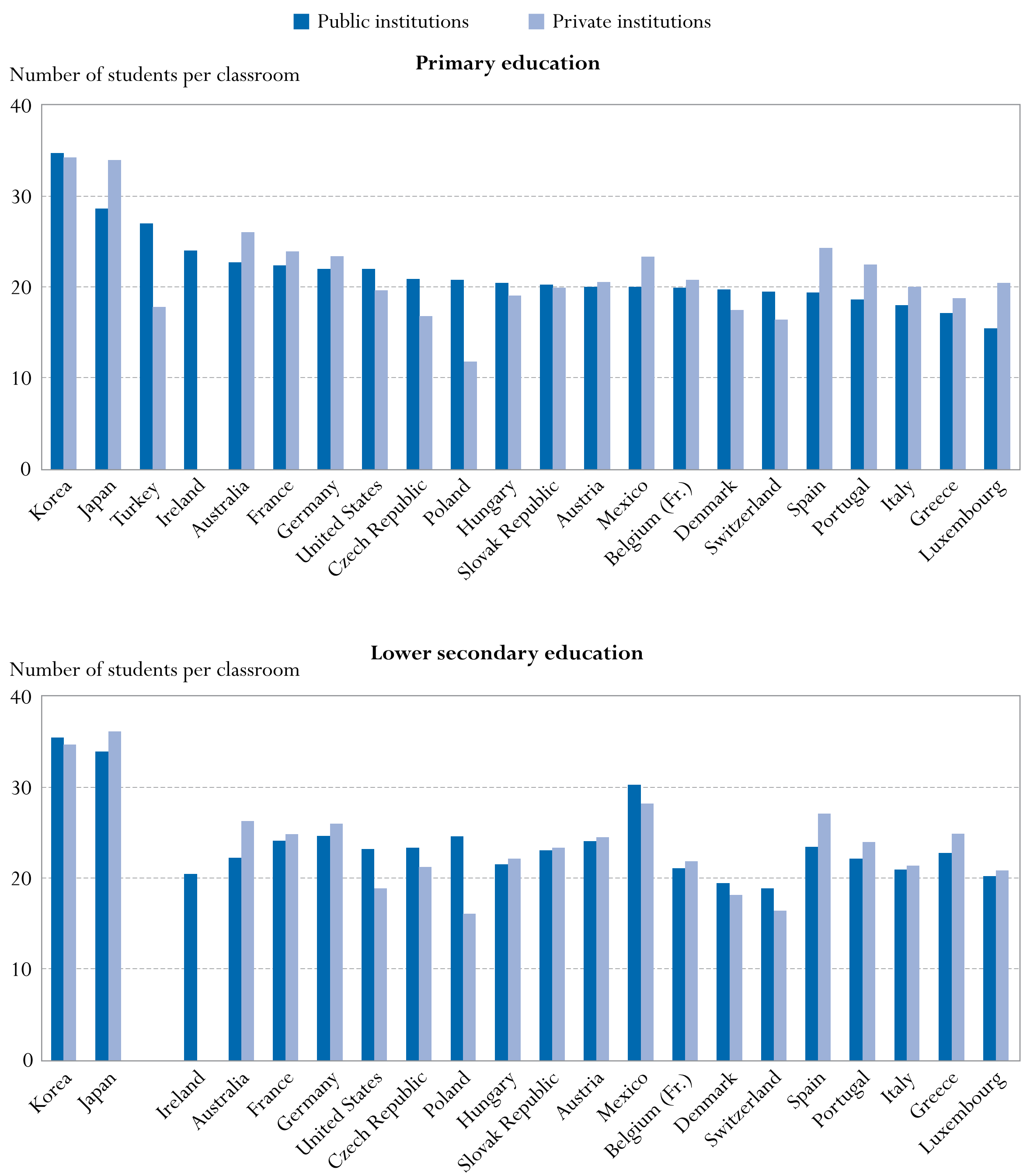
Whilst ratios of students to teaching staff provide a measure of teaching resources available, average class size is more a quality-related measure (see indicator D2 for a discussion of the differences between the two measures). In terms of average class size (Chart D5.3 and Table D2.1), on average across the countries for which there are data, average class sizes do not differ between public and private institutions for primary and lower secondary education. This average trend, however, disguises marked variation between countries. At the primary level, for example, average class sizes are notably higher – four students or more per class – in public institutions in Czech Republic, Poland and Turkey, though in all three cases, the private sector is small (less than 5% of students at the primary level). In contrast, class sizes in private institutions exceed those in public institutions to a similar degree in Japan, Luxembourg, Portugal and Spain, though the proportion of students who are in the private sector at this level is small in Japan.

The class size comparison between public and private institutions also shows a mixed picture at the lower secondary level, where private education is more prevalent, though differences tend to be smaller than is the case in primary. Lower secondary average class sizes are around four students per class higher in private institutions than in public institutions in Australia and Spain, whereas the reverse is true in Iceland, Poland and the United States (Chart D5.3).

The performance of public and private institutions

How does the performance of public and private institutions compare? This question is difficult to answer, not only because student characteristics sometimes differ between public and private schools, but also because in some countries private schools are unevenly spread across different school types, such as general and vocational programmes, which may, in turn, be related to performance. Data from PISA 2003 can neverthless shed light on this, looking here at the performance of 15-year-old students in mathematics. For the comparisons below, government-dependent and independent private schools were combined, as otherwise the cell sizes in the models would have been too small. Only countries with at least 3% of students enrolled in private schools have been included. It is important to note that within the private sector as defined, government-dependent institutions dominate private provision in most countries. Only in Japan and Mexico are independent private institutions a significant provider for 15-year-old students.

Chart D5.3. Average class size in public and private institutions, by level of education (2003)



Countries are ranked in descending order of the class size in public institutions in primary education.
Source: OECD. Table D2.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/788502657223

D5

On average across the participating countries, private schools significantly outperform public schools in mathematics in nine OECD member countries and three of the partner countries, while public schools outperform private ones only in Japan and Luxembourg and in the partner country Indonesia. The performance advantage of private schools amounts to 33 score points, on average across OECD countries, to between 24 and 46 score points in Canada, Ireland, Korea, the Slovak Republic, Spain, the United States and the partner country Macao-China, to between 55 and 66 score points in Germany, Mexico and New Zealand and to more than 90 score points in the partner countries Brazil and Uruguay (Chart D5.4 and Table D5.4).

In the interpretation of these figures, it is important to recognise that there are many factors that affect school choice. Insufficient family wealth could, for example, be an important impediment to students wanting to attend independent private schools with a high level of tuition fees. Even government-dependent

Box D5.1. Findings on the public and private schools attended by 15-year-olds in PISA 2000

This indicator includes a comparison of student performance between public and private institutions from PISA 2003. A thematic report from PISA 2000 entitled *School Factors Related to Quality and Equity* (OECD 2005b) carried out similar comparison and also examined in greater detail the features of private and public institutions. The report's main findings concerning the public and private schools attended by 15-year-olds students were that:

- Levels of autonomy differ according to school type. Independent private schools enjoy more autonomy than public schools in all areas of decision making. According to the types of decisions, government-dependent private schools fall between public schools and independent private schools. For instance, on decisions concerning student admittance, government-dependent private schools have similar autonomy to independent private schools, but on decisions such as determining teachers' salaries, government-dependent schools have autonomy similar to public schools.

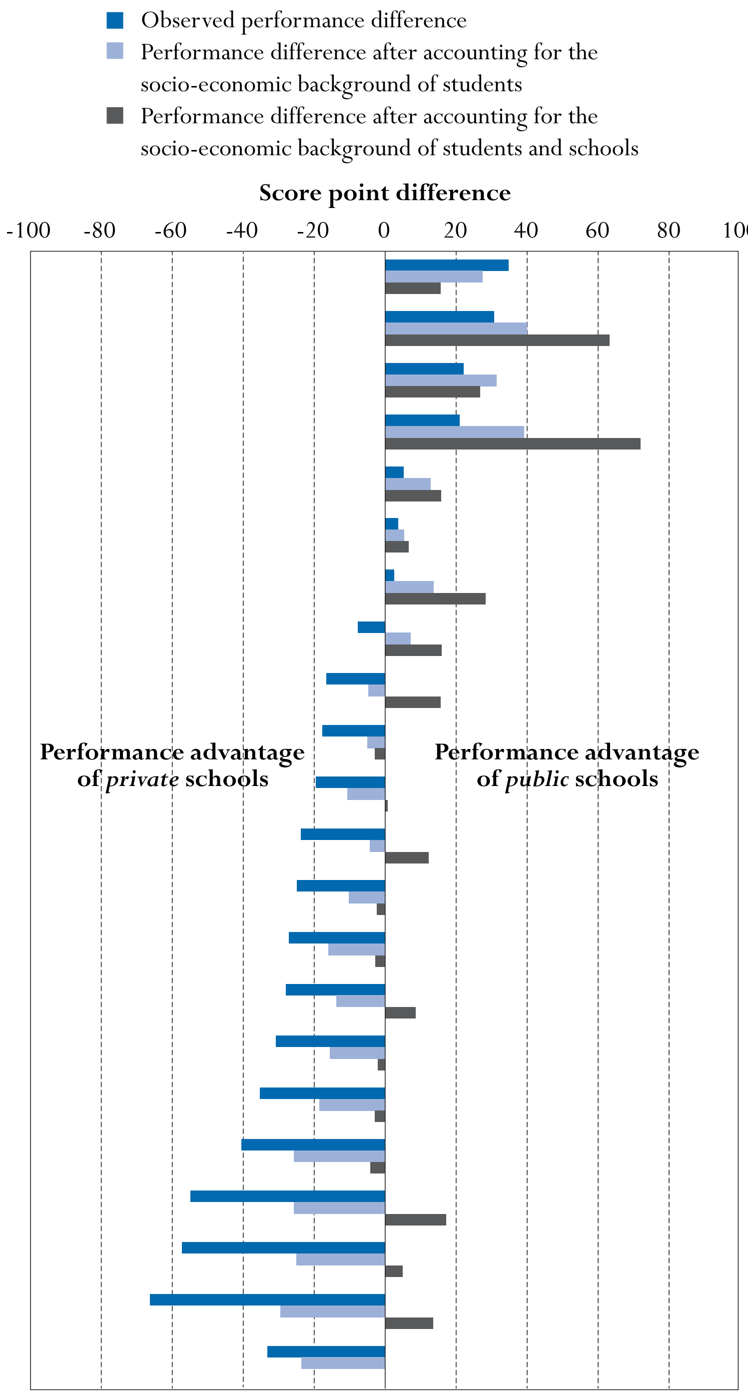
- Teaching and learning in public schools takes place under less advantageous conditions than in private schools in most countries. These differences in school conditions imply differential educational opportunities for students attending different school types. Compared to other school types, principals in public schools report that their schools have lower quality educational resources and physical infrastructure, less favourable school climate and that the teachers have slightly lower levels of morale and commitment than their counterparts in private schools.

- In half of the participating countries there are nevertheless no statistically significant performance differences between students in public and those in independent private schools. In the remaining countries, students in independent private schools outperform students from public schools. School composition again plays the most significant role in these performance advantages: independent private schools lose their performance advantage in all countries once student and school characteristics are taken into account. This is confirmed by the few countries in which public schools significantly outperform independent private schools – controlling for student and school characteristics shows that this is largely attributable to a more favourable intake.

Chart D5.4. Percentage of students and student performance on the mathematics scale, by type of school (2003)

Performance differences in mathematics between public and private schools (government-dependent and independent private schools)

	Percentage of students enrolled in **public** schools	Percentage of students enrolled in **private** schools
Luxembourg	86	14
Japan	73	1
Italy	96	4
Switzerland	95	5
Finland	93	7
Denmark	78	22
Czech Republic	93	7
Sweden	96	4
Hungary	89	11
Austria	92	8
Portugal	94	6
United States	94	6
Netherlands	23	77
Slovak Republic	87	13
Korea	42	58
Ireland	42	58
Spain	64	36
Canada	94	6
Mexico	87	13
New Zealand	95	5
Germany	92	7
OECD average	80	16



Countries are ranked in descending order of the observed performance difference between public and private schools.
Source: OECD. Table D5.4. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

StatLink: http://dx.doi.org/10.1787/788502657223

D5

private schools that charge no tuition fees may cater for a different clientele or apply more restrictive transfer or selection practices.

One way to examine this is to adjust for differences in the socio-economic background of students and schools. The results for this are shown in Chart D5.4. Even if the family background of students is accounted for, an average advantage of 24 score points remains for private schools. In fact, the advantage of private schools net of students' family background is between 16 and 19 score points in Ireland, the Slovak Republic and Spain, between 25 and 40 score points in Canada, Germany, Mexico, New Zealand and the partner country Macao-China, and more than 50 score points in Brazil and Uruguay.

The picture changes, however, when in addition to students' family background also the socio-economic background of schools' intake is taken into account. The impact of this contextual effect on school performance has been shown to be strong and, once it is accounted for, an advantage of private schools is no longer visible. This suggests that private schools may realise a significant part of their advantage not only from the socio-economic advantage that students bring with them, but even more so because their combined socio-economic intake allows them to create a learning environment that is more conducive to learning.

That said, while the performance of private schools does not tend to be superior once socio-economic factors have been taken into account, in many countries they still pose an attractive alternative for parents looking to maximise the benefits for their children, including those benefits that are conferred to students through the socio-economic level of schools' intake.

Definitions and methodologies

A public institution is one that is controlled and managed directly by a public education authority or agency or is controlled and managed either by a government agency directly or by a governing body (Council, Committee etc.), most of whose members are appointed by a public authority or elected by public franchise.

A private institution is one that is controlled and managed by a non-governmental organisation (*e.g.* a church, trade union or business enterprise), or if its governing board consists mostly of members not selected by a public agency. Private institutions can be either government dependent private or independent private.

A government-dependent private institution is an institution that receives more than 50% of its core funding from government agencies or one whose teaching personnel are paid by a government agency. The term "government dependent" refers only to the degree of a private institution's dependence on funding from government sources; it does not refer to the degree of government direction or regulation.

An independent private institution is an institution that receives less than 50% of its core funding from government agencies and whose teaching personnel are not paid by a government agency. The term "independent" refers only to the degree of a private institution's dependence on funding from government sources; it does not refer to the degree of government direction or regulation.

Data in Tables D5.1, D5.2 and D5.3 refer to the 2002-2003 school year and are based on the UOE data collection on education statistics that is administered annually by the OECD.

Class sizes have been calculated by dividing the number of students enrolled by the number of classes. In order to ensure comparability among countries, special needs programmes have been excluded. Data include only regular programmes at primary and lower secondary levels of education and exclude teaching in sub-groups outside the regular classroom setting.

The ratio of students to teaching staff has been calculated by dividing the number of full-time equivalent "students" at a given level of education by the number of full-time equivalent "teachers" at that level and in the specified type of institution.

Teaching staff refer to professional personnel directly involved in instruction. See indicator D2 for full details of coverage.

The student performance data in Table D5.4 are taken from Table 5.19 of the PISA 2003 report *Learning for Tomorrow's World – First Results from PISA 2003* (OECD 2004a).

Table D5.1. Distribution of students in primary and secondary education, by type of institution (2003)

Percentage of students in public, government-dependent private and independent private institutions, by level of education

		Primary education			Lower secondary education			Upper secondary education		
			Private institutions			Private institutions			Private institutions	
		Public institutions	Government-dependent private	Independent private	Public institutions	Government-dependent private	Independent private	Public institutions	Government-dependent private	Independent private
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD COUNTRIES	Australia	71.7	28.3	a	65.7	34.3	a	73.3	26.7	a
	Austria	95.6	4.4	x(2)	92.3	7.7	x(5)	90.0	10.0	x(8)
	Belgium	45.4	54.6	m	43.2	56.8	m	42.1	57.9	m
	Canada	m	m	m	m	m	m	m	m	m
	Czech Republic	98.9	1.1	a	98.2	1.8	a	87.4	12.6	a
	Denmark	88.0	12.0	a	76.9	23.1	a	97.5	2.5	a
	Finland	98.8	1.2	a	95.8	4.2	a	89.6	10.4	a
	France	85.4	14.3	0.2	78.8	21.0	0.2	69.5	29.7	0.8
	Germany	97.3	2.7	x(2)	92.9	7.1	x(5)	92.5	7.5	x(8)
	Greece	92.4	a	7.6	94.5	a	5.5	93.7	a	6.3
	Hungary	94.7	5.3	a	93.7	6.3	a	85.9	14.1	a
	Iceland	98.9	1.1	n	99.1	0.9	n	93.9	6.0	0.1
	Ireland	99.1	a	0.9	100.0	a	n	98.5	a	1.5
	Italy	93.2	a	6.8	96.6	a	3.4	93.9	0.7	5.4
	Japan	99.1	a	0.9	94.0	a	6.0	69.8	a	30.2
	Korea	98.7	a	1.3	79.4	20.6	a	48.2	51.8	a
	Luxembourg	93.2	0.7	6.1	79.3	13.1	7.6	84.1	8.2	7.7
	Mexico	92.0	a	8.0	87.4	a	12.6	78.4	a	21.6
	Netherlands	31.3	68.7	a	23.8	76.2	a	7.8	92.2	a
	New Zealand	97.9	a	2.1	95.5	a	4.5	84.1	10.4	5.5
	Norway	98.2	1.8	x(2)	97.8	2.2	x(5)	90.1	9.9	x(8)
	Poland	98.7	0.3	1.0	98.1	0.4	1.4	91.4	0.5	8.1
	Portugal	89.5	a	10.5	88.7	a	11.3	81.8	a	18.2
	Slovak Republic	95.8	4.2	n	94.9	5.1	n	92.0	8.0	n
	Spain	66.6	30.1	3.3	67.2	29.7	3.1	76.9	12.0	11.1
	Sweden	94.9	5.1	a	94.6	5.4	a	96.6	3.4	a
	Switzerland	96.3	1.3	2.4	93.0	2.5	4.5	93.1	3.2	3.7
	Turkey	98.5	a	1.5	a	a	a	98.3	a	1.7
	United Kingdom	95.1	a	4.9	93.2	0.4	6.4	26.9	70.4	2.7
	United States	89.2	a	10.8	90.8	a	9.2	90.9	a	9.1
	Country mean	***89.5***	***8.2***	***2.4***	***85.9***	***11.4***	***2.7***	***79.9***	***15.5***	***4.6***
PARTNER COUNTRY	Israel	100.0	a	a	100.0	a	a	100.0	a	a

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/788502657223

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Table D5.2. Distribution of students in tertiary education, by type of institution (2003)

Percentage of students in public, government-dependent and independent private institutions

		Tertiary-type B			Tertiary-type A and advanced research programmes		
			Private institutions			Private institutions	
		Public institutions	Government-dependent private	Independent private	Public institutions	Government-dependent private	Independent private
		(1)	(2)	(3)	(4)	(5)	(6)
OECD COUNTRIES	Australia	98.5	1.5	n	99.8	n	0.2
	Austria	64.9	35.1	n	91.5	8.5	n
	Belgium	46.6	53.4	a	41.9	58.1	a
	Canada	m	m	m	m	m	m
	Czech Republic	67.8	31.2	1.0	95.8	n	4.2
	Denmark	99.8	0.2	a	99.3	0.7	a
	Finland	83.4	16.6	a	89.4	10.6	a
	France	72.4	8.5	19.1	87.6	0.8	11.7
	Germany	64.8	35.2	x(2)	100.0	a	a
	Greece	100.0	a	a	100.0	a	a
	Hungary	65.4	34.6	a	85.8	14.2	a
	Iceland	58.6	41.4	n	87.8	11.9	0.4
	Ireland	94.1	a	5.9	93.6	a	6.4
	Italy	84.4	a	15.6	93.6	a	6.4
	Japan	9.3	a	90.7	27.4	a	72.6
	Korea	14.7	a	85.3	22.6	a	77.4
	Luxembourg	100.0	a	a	100.0	a	a
	Mexico	95.7	a	4.3	65.9	a	34.1
	Netherlands	n	100.0	a	n	100.0	a
	New Zealand	77.8	22.1	n	98.4	1.5	0.1
	Norway	78.3	21.7	x(2)	85.0	15.0	x(5)
	Poland	82.4	0.4	17.2	71.6	a	28.4
	Portugal	43.5	a	56.5	72.9	a	27.1
	Slovak Republic	89.9	10.1	n	99.6	n	0.4
	Spain	76.4	16.3	7.3	88.0	n	12.0
	Sweden	66.3	0.9	32.8	93.6	6.4	a
	Switzerland	32.6	38.1	29.3	90.2	6.9	2.9
	Turkey	98.6	a	1.4	95.8	a	4.2
	United Kingdom	a	100.0	n	a	100.0	n
	United States	88.9	a	11.1	73.1	a	26.9
	Country mean	***67.5***	***19.5***	***13.1***	***77.6***	***11.5***	***10.9***
PARTNER COUNTRY	Israel	33.3	66.7	x(2)	11.4	77.9	10.7

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2005)*.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/788502657223

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Table D5.3. Ratio of students to teaching staff, by type of institution (2003)

Ratio by level of education, calculations based on full-time equivalents

		Lower secondary education				Upper secondary education				All secondary education			
		Public institution	Total private institutions	Government-dependent private institutions	Independent private institutions	Public institution	Total private institutions	Government-dependent private institutions	Independent private institutions	Public institution	Total private institutions	Government-dependent private institutions	Independent private institutions
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD COUNTRIES	Australia[1]	x(9)	x(10)	x(11)	a	x(9)	x(10)	x(11)	a	12.5	12.1	12.1	a
	Austria	9.9	11.1	11.1	n	10.2	9.9	9.9	n	10.0	10.5	10.5	n
	Belgium (Fl.)[2]	14.6	m	14.1	m	9.2	m	8.9	m	10.5	m	10.2	m
	Canada	m	m	m	m	m	m	m	m	m	m	m	m
	Czech Republic	14.3	12.1	12.1	a	12.4	14.5	14.5	a	13.4	14.1	14.1	a
	Denmark	m	m	m	a	m	m	m	a	m	m	m	a
	Finland[3]	9.7	12.3	12.3	a	16.4	12.6	12.6	a	12.9	12.5	12.5	a
	France	13.4	15.4	15.4	16.6	9.9	12.8	11.3	16.7	11.7	13.9	13.4	16.7
	Germany	15.7	14.5	x(2)	x(2)	13.8	12.9	x(6)	x(6)	15.2	13.9	x(10)	x(10)
	Greece	8.7	8.1	a	8.1	8.8	6.5	a	6.5	8.7	7.1	a	7.1
	Hungary	10.7	9.5	9.5	a	13.0	14.1	14.1	a	11.7	12.1	12.1	a
	Iceland[3]	m	m	m	m	10.5	15.5	15.5	n	m	m	m	m
	Ireland[2]	x(9)	x(10)	a	x(12)	x(9)	x(10)	a	x(12)	13.7	19.0	a	19.0
	Italy	10.3	8.3	a	8.3	11.4	5.8	a	5.8	10.9	6.4	a	6.4
	Japan[3]	15.9	13.5	a	13.5	12.8	15.4	a	15.4	14.3	15.1	a	15.1
	Korea	19.8	20.4	20.4	a	15.0	17.1	17.1	a	17.8	18.0	18.0	a
	Luxembourg	x(9)	m	m	m	x(9)	m	m	m	9.0	m	m	m
	Mexico	34.9	21.6	a	21.6	27.6	16.3	a	16.3	32.3	18.9	a	18.9
	Netherlands	m	m	m	m	m	m	m	m	m	m	m	m
	New Zealand	19.1	15.3	a	15.3	14.0	4.5	6.7	3.0	16.7	5.8	6.7	5.3
	Norway[2]	10.4	m	m	m	9.2	m	m	m	9.8	m	m	m
	Poland	12.7	8.8	5.9	10.4	13.5	13.0	4.6	16.1	13.1	11.7	5.1	14.5
	Portugal	m	m	a	m	m	m	a	m	m	m	a	m
	Slovak Republic	14.0	13.1	13.1	n	14.0	13.5	13.5	n	14.0	13.3	13.3	n
	Spain	11.9	17.1	x(2)	x(2)	7.4	10.4	x(6)	x(6)	9.7	14.6	x(10)	x(10)
	Sweden	12.2	11.8	11.8	a	14.2	13.1	13.1	a	13.2	12.5	12.5	a
	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m
	Turkey	a	a	a	a	18.4	9.0	a	9.0	18.4	9.0	a	9.0
	United Kingdom[1]	18.8	8.7	22.5	8.4	13.5	8.0	14.2	7.8	15.9	8.3	17.2	8.1
	United States	15.5	15.1	a	15.1	15.9	13.5	a	13.5	15.7	14.3	a	14.3
	Country mean	***14.6***	***13.1***	***13.5***	***13.0***	***13.2***	***11.9***	***12.0***	***11.0***	***13.8***	***12.5***	***12.1***	***12.2***
PARTNER COUNTRY	Israel	13.4	a	a	a	12.9	a	a	a	13.1	a	a	a

1. Includes only general programmes in lower and upper secondary education.
2. Upper secondary education includes post-secondary non-tertiary education
3. Upper secondary education includes programmes from post-secondary non tertiary education.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table D5.4. Percentage of students and student performance on the mathematics scale, by type of school (2003)

Results based on reports from school principals and reported proportionate to the number of 15-year-olds enrolled in the school

	Public schools				Private schools (government-dependent and independent private schools combined)				Difference in performance on the mathematics scale between public and private schools (government-dependent and independent private schools combined)	
			Performance on the mathematics scale				Performance on the mathematics scale			
	Percentage of students	S.E.	Mean score	S.E.	Percentage of students	S.E.	Mean score	S.E.	Difference	S.E.
OECD COUNTRIES										
Australia	w	w	w	w	w	w	w	w	w	w
Austria	92.0	(1.9)	504	(3.4)	8.0	(1.9)	522	(11.4)	-18	(12.0)
Belgium	w	w	w	w	w	w	w	w	w	w
Canada	94.2	(0.7)	529	(1.8)	5.8	(0.7)	570	(8.1)	**-41**	(8.3)
Czech Republic	93.3	(1.7)	517	(3.8)	6.7	(1.7)	514	(12.7)	3	(13.5)
Denmark	77.8	(2.5)	515	(3.1)	22.2	(2.5)	512	(6.2)	4	(7.1)
Finland	93.3	(1.6)	545	(1.8)	6.7	(1.6)	539	(12.2)	5	(12.3)
France	w	w	w	w	w	w	w	w	w	w
Germany	92.2	(1.7)	497	(3.7)	7.8	(1.7)	564	(12.2)	**-66**	(13.7)
Greece	97.4	(1.9)	442	(3.6)	2.6	(1.9)	c	c	c	c
Hungary	88.9	(2.5)	489	(3.6)	11.1	(2.5)	506	(16.4)	-17	(18.1)
Iceland	99.5	(0.1)	515	(1.6)	0.5	c	c	c	c	c
Ireland	41.6	(1.6)	486	(3.8)	58.4	(1.6)	517	(3.2)	**-31**	(5.0)
Italy	96.1	(1.2)	468	(3.1)	3.9	(1.2)	446	(22.6)	22	(22.4)
Japan	73.0	(1.7)	544	(4.7)	27.0	(1.7)	513	(7.4)	**31**	(8.6)
Korea	42.3	(3.7)	527	(6.1)	57.7	(3.7)	555	(6.2)	**-28**	(10.1)
Luxembourg	85.9	(0.1)	498	(1.1)	14.1	(0.1)	463	(2.9)	**35**	(3.3)
Mexico	86.7	(1.9)	375	(3.5)	13.3	(1.9)	431	(8.7)	**-55**	(9.8)
Netherlands	23.3	(4.2)	516	(14.0)	76.7	(4.2)	541	(4.5)	-25	(16.4)
New Zealand	95.4	(0.6)	522	(2.3)	4.6	(0.6)	579	(17.1)	**-57**	(17.3)
Norway	99.1	(0.7)	494	(2.4)	0.9	(0.7)	c	c	c	c
Poland	99.2	(0.4)	489	(2.5)	0.8	(0.4)	c	c	c	c
Portugal	93.7	(1.3)	465	(3.6)	6.3	(1.3)	484	(16.1)	-19	(16.9)
Slovak Republic	87.4	(2.7)	495	(3.7)	12.6	(2.7)	523	(9.3)	**-27**	(10.3)
Spain	64.2	(1.5)	472	(3.4)	35.8	(1.5)	508	(4.2)	**-36**	(5.4)
Sweden	95.7	(0.5)	509	(2.6)	4.3	(0.5)	516	(11.0)	-8	(11.3)
Switzerland	95.3	(1.0)	528	(3.8)	4.7	(1.0)	507	(21.8)	21	(22.3)
Turkey	99.0	(1.0)	420	(6.6)	1.0	(1.0)	c	c	c	c
United States	94.3	(1.0)	483	(3.6)	5.7	(1.0)	507	(9.1)	**-24**	(9.9)
OECD total	***85.5***	***(0.5)***	***483***	***(1.5)***	***14.5***		***523***		***-40***	***(3.4)***
OECD average	***83.5***	***(0.4)***	***494***	***(0.8)***	***16.6***		***527***		***-33***	***(1.7)***
PARTNER COUNTRIES										
Brazil	87.4	(2.3)	342	(6.2)	12.6	(2.3)	454	(11.3)	**-112**	(13.5)
Hong Kong-China	93.1	(0.9)	552	(4.5)	6.9	(0.9)	518	(29.2)	32	(28.0)
Indonesia	51.4	(2.3)	373	(4.9)	48.6	(2.3)	344	(6.6)	**29**	(8.1)
Latvia	99.0	(0.7)	485	(3.7)	1.0	(0.7)	c	c	c	c
Liechtenstein	c	c	c	c	c	c	c	c	c	c
Macao-China	5.0	(0.1)	483	(9.3)	95.0	(0.1)	529	(3.2)	**-46**	(10.2)
Russian Federation	99.7	(0.2)	468	(4.3)	0.3	(0.2)	c	c	c	c
Serbia[1]	100.0	(0.0)	436	(3.9)	0.0	(0.0)	a	a	a	a
Thailand	88.0	(1.2)	416	(3.0)	12.0	(1.2)	423	(12.3)	-7	(12.7)
Tunisia	m	m	m	m	m	m	m	m	m	m
Uruguay	85.9	(0.8)	409	(3.7)	14.1	(0.8)	501	(6.1)	**-92**	(6.8)

Note: Values that are statistically significant are indicated in bold. The scale was inverted so that positive and high values indicate that the schools' educational resources are perceived less of a problem than on OECD average.

1. For the country Serbia and Montenegro, data for Montenegro are not available. The latter accounts for 7.9 % of the national population. The name "Serbia" is used as a shorthand for the Serbian part of Serbia and Montenegro.

Source: OECD PISA 2003 database. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table D5.4. *(continued)* **Percentage of students and student performance on the mathematics scale, by type of school (2003)**

Results based on reports from school principals and reported proportionate to the number of 15-year-olds enrolled in the school

	The index of economic, social and cultural status						Difference in performance on the mathematics scales between public and private schools after accounting for the index of economic, social and cultural status of:			
	Public schools		Private schools (government-dependent and independent private)		Difference		Students		Students and schools	
	Mean index	S.E	Mean index	S.E.	Difference	S.E	Difference	S.E	Difference	S.E
OECD COUNTRIES										
Australia	w	w	w	w	w	w	w	w	w	w
Austria	0.04	(0.03)	0.29	(0.11)	**-0.25**	(0.12)	-5	(10.4)	-3	(2.7)
Belgium	w	w	w	w	w	w	w	w	w	w
Canada	0.42	(0.02)	0.88	(0.07)	**-0.46**	(0.07)	**-26**	(6.1)	-4	(3.2)
Czech Republic	0.16	(0.02)	0.25	(0.12)	-0.09	(0.13)	14	(9.8)	**29**	(4.4)
Denmark	0.20	(0.03)	0.22	(0.06)	-0.03	(0.07)	5	(5.2)	**7**	(3.1)
Finland	0.23	(0.02)	0.47	(0.13)	-0.24	(0.13)	13	(10.7)	**16**	(6.8)
France	w	w	w	w	w	w	w	w	w	w
Germany	0.10	(0.03)	0.82	(0.07)	**-0.71**	(0.08)	**-30**	(10.5)	**14**	(2.5)
Greece	-0.20	(0.04)	c	c	c	c	c	c	c	c
Hungary	-0.09	(0.03)	0.13	(0.11)	-0.21	(0.13)	-5	(12.7)	**16**	(4.7)
Iceland	0.68	(0.01)	c	c	c	c	c	c	c	c
Ireland	-0.30	(0.03)	0.10	(0.04)	**-0.40**	(0.06)	**-16**	(3.9)	-2	(2.5)
Italy	-0.12	(0.03)	0.14	(0.07)	**-0.26**	(0.07)	32	(22.3)	**27**	(4.1)
Japan	-0.12	(0.02)	0.08	(0.05)	**-0.20**	(0.05)	**40**	(6.8)	**64**	(1.3)
Korea	-0.31	(0.05)	0.05	(0.04)	**-0.36**	(0.07)	-14	(8.2)	**9**	(1.9)
Luxembourg	0.22	(0.02)	-0.02	(0.04)	**0.24**	(0.04)	**28**	(3.6)	**16**	(3.9)
Mexico	-1.32	(0.05)	-0.16	(0.13)	**-1.16**	(0.14)	**-26**	(8.0)	**17**	(2.1)
Netherlands	0.02	(0.07)	0.09	(0.03)	-0.07	(0.09)	-10	(10.5)	-2	(2.0)
New Zealand	0.19	(0.02)	0.89	(0.13)	**-0.69**	(0.13)	**-25**	(12.2)	5	(4.7)
Norway	0.60	(0.02)	c	c	c	c	c	c	c	c
Poland	-0.21	(0.02)	c	c	c	c	c	c	c	c
Portugal	-0.65	(0.04)	-0.34	(0.32)	-0.31	(0.32)	-11	(10.3)	1	(5.2)
Slovak Republic	-0.11	(0.03)	0.10	(0.07)	**-0.21**	(0.08)	**-16**	(8.1)	-3	(1.8)
Spain	-0.52	(0.05)	0.06	(0.06)	**-0.58**	(0.08)	**-19**	(4.3)	-3	(1.6)
Sweden	0.24	(0.03)	0.59	(0.10)	**-0.35**	(0.10)	7	(7.9)	**16**	(5.1)
Switzerland	-0.09	(0.03)	0.27	(0.08)	**-0.35**	(0.09)	39	(21.3)	**72**	(7.0)
Turkey	-1.03	(0.06)	c	c	c	c	c	c	c	c
United States	0.29	(0.03)	0.70	(0.09)	**-0.41**	(0.09)	-4	(8.4)	**12**	(5.2)
OECD total	*-0.12*	*(0.01)*	*0.20*	*(0.02)*	*-0.33*	*(0.03)*	*-24*	*(2.9)*	*-8*	*(0.5)*
OECD average	*-0.04*	*(0.01)*	*0.17*	*(0.02)*	*-0.22*	*(0.02)*	*-24*	*(1.4)*	*-9*	*(0.7)*
PARTNER COUNTRIES										
Brazil	-1.14	(0.05)	0.35	(0.08)	**-1.49**	(0.10)	**-74**	(13.8)	**-9**	(4.0)
Hong Kong-China	-0.78	(0.03)	-0.49	(0.25)	-0.29	(0.25)	41	(21.2)	**82**	(3.3)
Indonesia	-1.21	(0.06)	-1.31	(0.06)	0.10	(0.08)	**27**	(7.2)	**13**	(1.2)
Latvia	0.11	(0.03)	c	c	c	c	c	c	c	c
Liechtenstein	c	c	c	c	c	c	c	c	c	c
Macao-China	-1.41	(0.12)	-0.87	(0.02)	**-0.53**	(0.12)	**-40**	(11.0)	-21	(11.4)
Russian Federation	-0.10	(0.02)	c	c	c	c	c	c	c	c
Serbia[1]	-0.23	(0.03)	a	a	a	a	a	a	a	a
Thailand	-1.23	(0.03)	-0.84	(0.08)	**-0.39**	(0.09)	3	(12.1)	**18**	(2.2)
Tunisia	m	m	m	m	m	m	m	m	m	m
Uruguay	-0.52	(0.03)	0.72	(0.06)	**-1.24**	(0.07)	**-54**	(6.8)	7	(4.6)

Note: Values that are statistically significant are indicated in bold. The scale was inverted so that positive and high values indicate that the schools' educational resources are perceived less of a problem than on OECD average.

1. For the country Serbia and Montenegro, data for Montenegro are not available. The latter accounts for 7.9 % of the national population. The name "Serbia" is used as a shorthand for the Serbian part of Serbia and Montenegro.

Source: OECD PISA 2003 database. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink: http://dx.doi.org/10.1787/788502657223

D5

Institutional differentiation

This indicator examines aspects of the structure of education systems, in particular the nature and degree of stratification and institutional differentiation in the countries participating in PISA 2003. The analysis investigates whether the data provide any evidence that particular structures of education systems promote higher levels of quality and/or equity in student outcomes.

Key results

- While there is a tendency for more stratified education systems to perform less well on average, this tendency is small and not statistically significant.
- The degree of differentiation in education systems is notably variable. For instance, in around one-third of OECD countries, 15-year-old students follow the same educational track whereas there are four or more school types or distinct programmes available in Austria, Belgium, the Czech Republic, Germany, Ireland, Luxembourg, the Netherlands, the Slovak Republic and Switzerland.
- The selection of different educational tracks occurs at as young as 10 years old in countries such as Austria and Germany, but does not occur until the completion of secondary education in countries such as New Zealand, Spain and the United States.
- The results from PISA show that, in countries that separate students at an early age into schools of different types, students' social background tends to be relatively strongly related to their performance. Disadvantaged students are more likely to be placed in low status schools with less demanding curricula and so lower expectations of their learning, and then to end up with relatively poor performance. Socially advantaged students are more likely to be placed in high status schools with demanding curricula and then to end up with relatively high quality performance. In that sense, schools tend to reproduce the existing social arrangements. In countries that keep students together in comprehensive schools, the relationship between social background and educational performance is weaker, though not absent. The weaker relationship suggests that schools are making some difference for the next generation to existing social arrangements, rather than reproducing them.

Policy context

Catering for an increasingly diverse student body and narrowing the gaps in student performance represent formidable challenges for all countries and the approaches that countries have chosen to address these demands vary. Some countries have non-selective school systems that seek to provide all students with similar opportunities for learning by requiring that each school caters for the full range of student performance. Other countries respond to diversity explicitly by forming groups of students through selection either between schools or between classes within schools, with the aim of serving students according to their academic potential and/or interests in specific programmes. Education systems can be located on a continuum ranging from systems with low stratification at system, school and classroom levels to systems that are highly differentiated. Table D6.1 displays some features of school systems that are relevant in this context and examines how they are related to quality and equity in student performance.

Evidence and explanations

The indicator considers four measures of stratification within education systems:

- The number of educational tracks into which students can be sorted
- The existence of separate provision of academic and vocational programmes
- The age at which selection between tracks is made
- The extent of grade repetition

Each of these measures are considered separately and then combined in a composite measure of stratification. To examine how these characteristics are associated with quality and equity in student outcomes Table D6.2 shows the degree of correlations between these measures and measures of student performance. Correlations with average country performance in mathematics are shown, as are the correlations with the variance in student performance that exists between schools. Finally, correlations with a variable that measures the strength of relationship between student social background and student performance are given. Correlations that are statistically significant are shown in bold type.

Students may follow varied tracks

Different institutions or programmes may be used to group students according to ability or other characteristics. Where students are sorted based on their performance, this is often done on the assumption that their talents will develop best in a learning environment in which they can stimulate each other equally well, and that an intellectually homogeneous student body will be conducive to efficient teaching.

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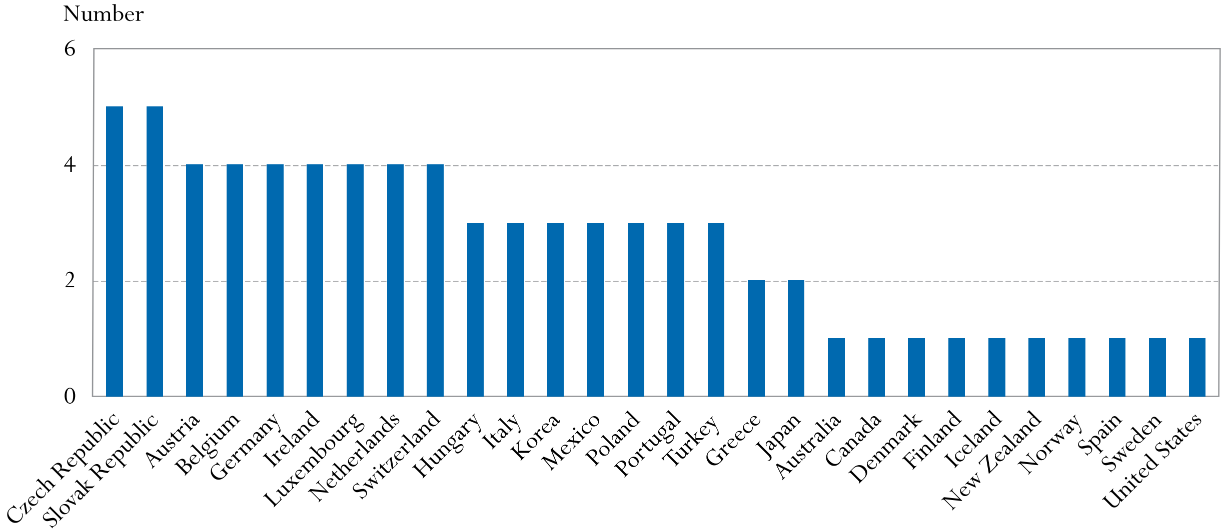
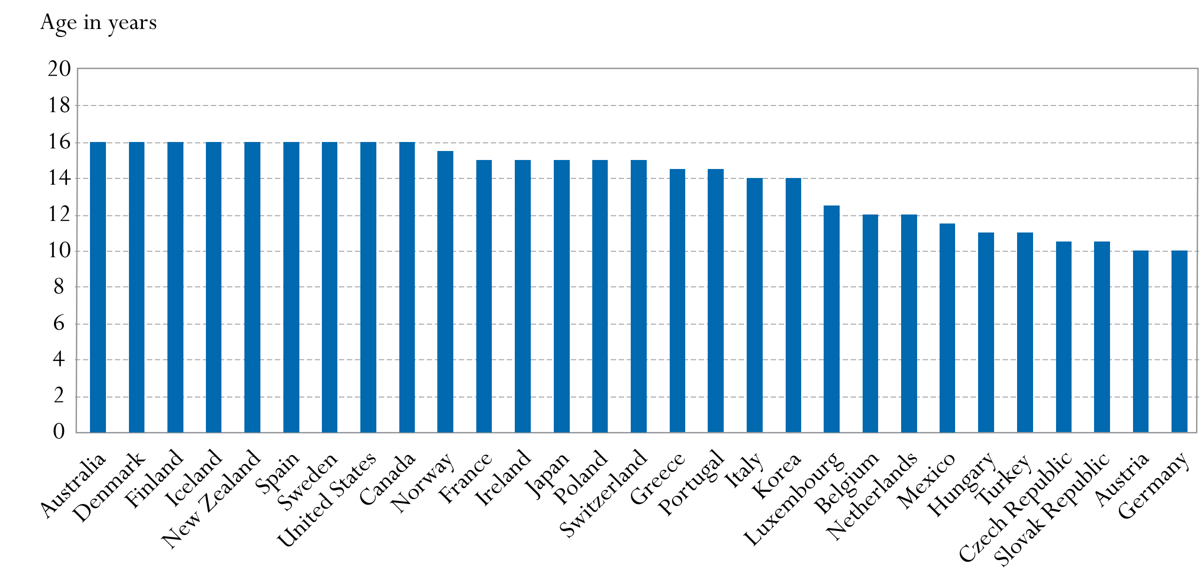
The figures in Table D6.1 illustrate that national education systems range from essentially undivided secondary education until the age of 15 years (in around one-third of OECD countries) to systems with four or more school types or distinct educational programmes (Austria, Belgium, the Czech Republic, Germany, Ireland, Luxembourg, the Netherlands, the Slovak Republic and Switzerland)(see Chart D6.1). Examining the correlations between these figures and the measures of student performance in Table D6.1 first shows that, in terms of average mathematics performance, the number of school types or distinct educational programmes is not statistically significantly related to average country performance (see column 1 and row 7 in Table D6.2). However, the number of school types and distinct programmes is related to the variance of student performance between schools, where there is a statistically significant correlation coefficient of 0.62 (see column 1 and row 9 in

Chart D6.1. Institutional differentiation for 15-year-olds (2003)

Number of school types or educational programmes available to 15-year-olds



First age at which selection takes place in the education system



Countries are ranked in descending order of the first age at which selection takes place in educational systems.
Source: OECD. Table D6.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/408748104453

Table D6.2). This indicates that 39% of the OECD average variation in student performance that lies between schools is accounted for by the number of school types and distinct programmes (the proportion of explained variance is obtained by squaring the correlation coefficient).

No less important, the number of school types and distinct programmes accounts for 26% of the cross-country variation in the strength of the relationship between socio-economic background and student performance (0.51^2, from column 1 and row 10 in Table D6.2). In other words, in countries with a larger number of distinct programme types, socio-economic background tends to have a significantly larger impact on student performance such that equity could be harder to realise.

Separate provision of academic and vocational programmes

A specific aspect of differentiation between institutions and programmes is the separate provision of academic and vocational programmes. Vocational programmes differ from academic ones not only with regard to their curriculum, but also in that they generally prepare students for specific types of occupations and, in some cases, for direct entry into the labour market.

The proportion of 15-year-old students who are enrolled in programmes that are designed to give access to vocational studies at the next level or direct access to the labour market (noting that students may in practice reach these destinations via other routes) ranges from zero in Denmark, Finland, Iceland, New Zealand, Norway, Spain, Sweden and the United States to 61% in the Netherlands.

Relating these figures to between-school differences presents a picture very similar to the one revealed by the relationship with the number of school types or programmes, with 39% of between school variation being explained (0.63^2, from column 2 and row 9 in Table D6.2).

First age of selection in the education system

An important dimension of tracking and streaming is the age at which decisions between different school types are generally made, and therefore at which students and their parents are faced with choices. Such decisions occur very early in Austria and Germany, at around age 10. By contrast, in countries such as New Zealand, Spain and the United States no formal differentiation takes place, at least between schools, until the completion of secondary education (see Chart D6.1).

There is no statistically significant correlation between the age of selection and country mean performance in mathematics (column 3 and row 7 in Table D6.2). However, the share of the OECD average variation in student performance that lies between students and schools tends to be much higher in countries with early selection policies. In fact, the age of selection accounts for half of the between-school differences (0.70^2, from column 3 and row 9 in Table D6.2). While this, in itself, is not surprising because variation in school performance is an intended outcome of stratification, the findings also show that education systems with lower ages of selection tend to show much larger social disparities, with the age of selection explaining 28% of the country average of the strength of the relationship between the PISA index of economic, social and cultural status and student performance in mathematics (-0.53^2, from column 3 and row 10 in Table D6.2).

Extent of grade repetition

Grade repetition can also be considered as a form of differentiation in that it seeks to adapt curriculum content to student performance. In summary, the results suggest that there is no association between the extent of grade repetition and average student performance. However, greater levels of grade repetition at the upper secondary level, is associated with greater disparities in student performance. In detail, the results suggest that while countries with high proportions of students who have repeated a grade at the upper secondary level at least once tend to perform worse, with the relationship accounting for around 16% of the variance, this is not a statistically significant result (-0.4^2, from column 6 and row 7 in Table D6.2). However, the frequency of grade repetition at the upper secondary level also accounts for 34% of the OECD average variation that lies between students and 43% of the OECD average variation that lies between schools (0.58^2 and 0.65^2, from column 6 and rows 8 and 9 in Table D6.2), both of which are statistically significant results. Moreover, countries with higher rates of grade repetition at the upper secondary level also show much larger social disparities, with 19% of the strength in the relationship between socio-economic background and student performance accounted for by this variable (0.43^2, from column 6 and row 10 in Table D6.2). There is no statistically significant relationship between grade repetition at primary and lower secondary levels and either average student performance in mathematics or the variation in such performance.

Average of the standardised indices

Overall, these results show that differentiation of students is associated with performance differences across schools and across social groups. It is difficult to define these measures of differentiation in ways that are cross-nationally comparable and interpretable. However, as shown in Table D6.2, the various indicators of stratification that have been employed in these comparisons are clearly interrelated (as shown by the statistically significant correlations between the indicators), so that the results do not depend a great deal on how stratification is measured.

The results can be summarised by constructing an index across the various measures of stratification (see the final column of Table D6.1). For the purpose of this analysis, the normalised components were averaged with equal weight (though alternative weightings are clearly possible), with the measure of the age of selection inverted. Relating this index to the PISA performance measures reveals that the more differentiated and selective education systems tend to show not only much larger variation in school performance, but also larger performance differences between students from more and less advantaged family backgrounds. This is true for the various aspects of family background that were measured by PISA, and it remains true even when control variables such as national income are taken into account.

As a result, both overall variation in student performance and performance differences between schools tend to be greater in those countries with explicit differentiation between types of programme and schools at an early age. Chart D6.2 demonstrates the relationship between overall index of stratification and between school variance in student performance in mathematics.

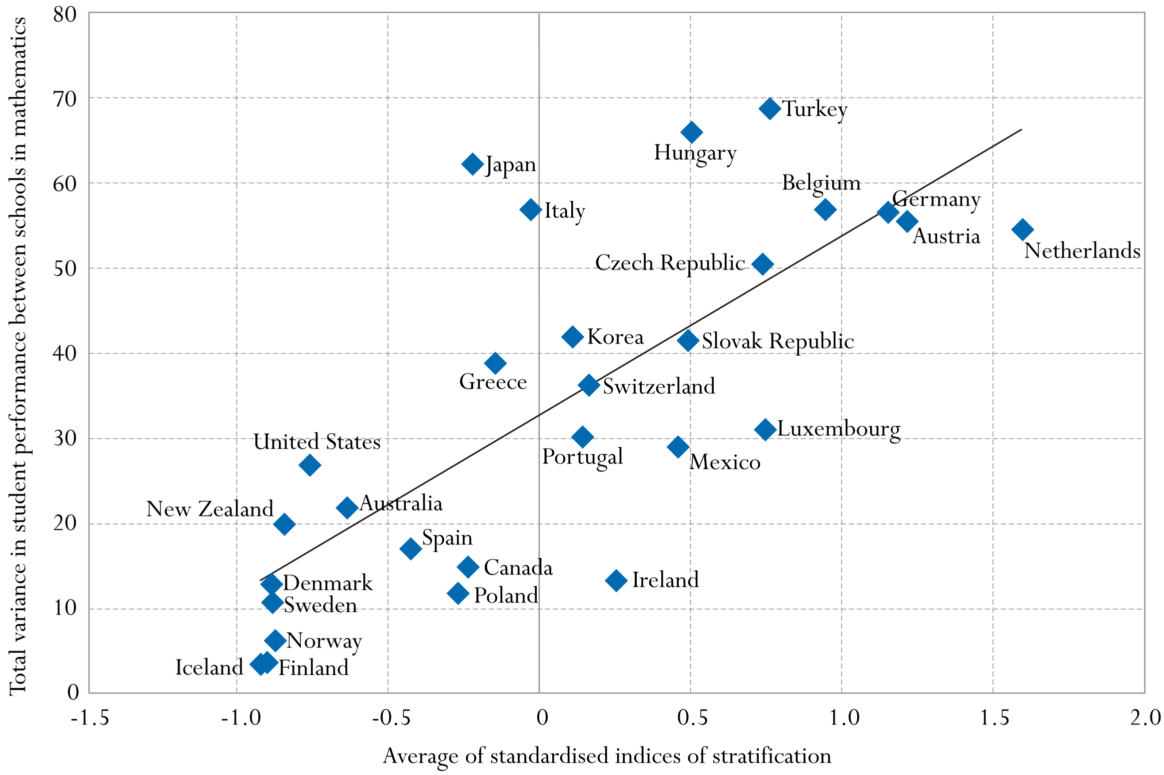
Explaining the results

An explanation for these results is not straightforward. There is no intrinsic reason why institutional differentiation should necessarily lead to greater variation in student performance, or even to greater social selectivity. If teaching homogeneous groups of students is more efficient than teaching heterogeneous groups, this should increase the overall level of student performance rather than the dispersion of scores.

Box D6.1 Strength of relationship between student performance and socio-economic background

The strength of relationship between student performance and socio-economic background (Table D6.1) measures the percentage of variance in student performance that is explained by the economic, social and cultural status of students (ECSC). ECSC is measured by the PISA index of economic, social and cultural status. If there is a low value for this relationship, it indicates that relatively little of the variance in student performance can be attributed to ECSC; if the value for the relationship is high, the reverse is true. A strong relationship is a sign of inequity in the system. Looking at the strength of this relationship alongside the measures of stratification shown in this indicator therefore allows an examination of the extent to which inequities may be associated with structural features of the education system.

Chart D6.2. Stratification and student performance in mathematics (2003)



Source: OECD PISA 2003 database. Table D6.1. See Annex 3 for notes *(www.oecd.org/edu/eag2005).*

StatLink: http://dx.doi.org/10.1787/408748104453

Box D6.2. Structure of education systems and quality and equity in student performance: PISA 2000 analysis

Drawing on data from the PISA 2000 survey, an analysis of the structure of education systems and quality and equity in student performance was examined in a thematic report entitled *School Factors Related to Quality and Equity* (OECD, 2005b). The report found that the relationship between quality and the degree of institutional differentiation was in fact negative, contrary to the belief that institutional differentiation promotes quality at the expense of equity. Countries with selective education systems, on average, performed less well than countries with more comprehensive education systems. The more schools are differentiated in terms of their socio-economic composition, the lower the mean student performance in reading literacy. Education systems with more differentiation in terms of grade levels also tend to perform less well – although this relationship is not as strong. Finally, in many countries students enrolled in vocational programmes perform significantly less well in reading literacy than students enrolled in general programmes.

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However, in homogeneous environments, while high-performing students may profit from the wider opportunities to learn from one another, and stimulate each other's performances, low performers may not be able to access effective models and support.

It may also be that in highly differentiated systems it is easier to move students not meeting certain performance standards to other schools, tracks or streams with lower performance expectations, rather than investing the effort to raise their performance. Finally, it could be that a learning environment that has a greater variety of student abilities and backgrounds may stimulate teachers to use approaches that involve a higher degree of individual attention for students.

The reason why the age at which differentiation begins is closely associated with social selectivity may be explained by the fact that students are more dependent upon their parents and their parental resources when they are younger. In systems with a high degree of educational differentiation, parents from higher socio-economic backgrounds are in a better position to promote their children's chances than in a system in which such decisions are taken at a later age, and students themselves play a bigger role.

The question, of course, remains whether differentiation might still contribute to raising overall performance levels. This question cannot be answered conclusively with a cross-sectional survey such as PISA. Although there is a tendency for the more stratified education systems to perform less well, this tendency is small and not statistically significant.

Definitions and methodologies

The student performance data are based on assessments administered as part of the Programme for International Student Assessment (PISA) undertaken by the OECD in 2003. The measures of the structural features of the education systems were compiled from information available from the OECD's education database.

Table D6.1. Structural features of school systems across the OECD countries

OECD COUNTRIES

	Number of school types or distinct educational programmes available to 15-year-olds	Proportion of 15-year-olds enrolled in programmes that give access to vocational studies at the next programme level or direct access to the labour market[1]	First age of selection in the education system	Proportion of repeaters among 15-year-olds in: Primary education	Lower secondary education	Upper secondary education	Performance on the mathematics scale: Mean score	S.E.	Standard deviation	S.E.	Variance expressed as a percentage of the average variance in student performance across OECD countries: Total variance in student performance	Total variance in student performance between schools	Strength of relationship between student performance and the ESCS[2]: Percentage of variance in student performance explained by ESCS	S.E.	Average of the standardised indices[3]
Australia	1	8.9	16	8.1	1.3	m	524	(2.1)	95	(1.5)	105	22	13.7	(1.19)	-0.64
Austria	4	42.9	10	5.0	4.7	3.9	506	(3.3)	93	(1.7)	98	55	16.0	(1.57)	1.21
Belgium	4	22.8	12	16.6	7.7	8.2	529	(2.3)	110	(1.8)	122	57	24.1	(1.32)	0.94
Canada	1	a	16	5.8	5.6	0.8	532	(1.8)	87	(1.0)	89	15	10.5	(0.82)	-0.24
Czech Republic	5	16.9	11	1.9	1.7	n	516	(3.5)	96	(1.9)	100	51	19.5	(1.44)	0.73
Denmark	1	n	16	2.8	0.7	n	514	(2.7)	91	(1.4)	96	13	17.6	(1.41)	-0.89
Finland	1	n	16	2.4	n	n	544	(1.9)	84	(1.1)	81	4	10.8	(1.05)	-0.90
France	m	9.5	15	15.6	26.7	m	511	(2.5)	92	(1.8)	w	w	19.6	(1.78)	0.41
Germany	4	a	10	9.0	14.1	m	503	(3.3)	103	(1.8)	108	56	22.8	(1.47)	1.15
Greece	2	19.9	15	0.9	6.3	1.1	445	(3.9)	94	(1.8)	102	39	15.9	(1.91)	-0.15
Hungary	3	19.6	11	4.3	3.8	3.3	490	(2.8)	94	(2.0)	102	66	27.0	(1.81)	0.50
Iceland	1	n	16	0.6	0.4	n	515	(1.4)	90	(1.2)	95	4	6.5	(0.83)	-0.92
Ireland	4	17.8	15	13.4	1.2	0.3	503	(2.4)	85	(1.3)	84	13	16.2	(1.55)	0.25
Italy	3	m	14	1.6	5.7	8.8	466	(3.1)	96	(1.9)	107	57	13.6	(1.34)	-0.03
Japan	2	25.4	15	n	n	n	534	(4.0)	101	(2.8)	116	62	11.6	(1.69)	-0.22
Korea	3	26.7	14	0.3	0.5	0.2	542	(3.2)	92	(2.1)	99	42	14.2	(1.95)	0.11
Luxembourg	4	4.6	13	15.1	25.3	m	493	(1.0)	92	(1.0)	98	31	17.1	(1.01)	0.74
Mexico	3	5.8	12	22.6	6.3	2.7	385	(3.6)	85	(1.9)	85	29	17.1	(2.06)	0.46
Netherlands	4	61.3	12	21.4	9.5	m	538	(3.1)	93	(2.3)	92	55	18.6	(1.71)	1.60
New Zealand	1	n	16	3.9	1.6	0.8	523	(2.3)	98	(1.2)	110	20	16.8	(1.20)	-0.85
Norway	1	n	16	n	n	n	495	(2.4)	92	(1.2)	98	6	14.1	(1.09)	-0.88
Poland	3	m	15	2.7	1.9	m	490	(2.5)	90	(1.3)	95	12	16.7	(1.21)	-0.27
Portugal	3	8.8	15	17.1	16.9	0.2	466	(3.4)	88	(1.7)	89	30	17.5	(1.50)	0.14
Slovak Republic	5	2.7	11	1.7	1.3	m	498	(3.3)	93	(2.3)	99	42	22.3	(1.85)	0.49
Spain	1	n	16	6.5	25.2	m	485	(2.4)	88	(1.3)	91	17	14.0	(1.33)	-0.43
Sweden	1	n	16	3.0	1.0	n	509	(2.6)	95	(1.8)	103	11	15.3	(1.32)	-0.89
Switzerland	4	8.8	15	14.1	8.2	1.3	527	(3.4)	98	(2.0)	111	36	16.8	(1.27)	0.16
Turkey	3	m	11	5.1	4.0	9.9	423	(6.7)	105	(5.3)	127	69	22.3	(3.70)	0.76
United States	1	n	16	8.0	4.2	1.0	483	(2.9)	95	(1.3)	105	27	19.0	(1.20)	-0.76
OECD average	***3***	***12.6***	***14***	***7.2***	***6.4***	***2.0***	***500***	***(0.6)***	***100***	***(0.4)***	***100***	***34***	***20.3***	***(0.35)***	***0.00***

1. Based on the designation of the study programme (ISCED categories B and C).
2. The index of Economic, Social and Cultural Status of students.
3. This is derived by averaging the standardised (around a mean of zero and a standard deviation of 1) indices of first age of selection, the number of school types or distinct educational programmes available to 15-year-olds, the proportion of grade repeaters at the different levels, and the proportion of 15-year olds enrolled in programmes that give access to vocational studies at the next programme level or direct access to the labour market.

Source: OECD PISA 2003 database; OECD education database. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table D6.2. Intercorrelation matrix of averages of structural features across the OECD countries

	Number of school types or distinct educational programmes available to 15-year-olds	Proportion of 15-year-olds enrolled in programmes that give access to vocational studies at the next programme level or direct access to the labour market	First age of selection in the education system	Proportion of repeaters in primary education	Proportion of repeaters in lower secondary education	Proportion of repeaters in upper secondary education	Performance on the mathematics scale - Mean score	Performance on the mathematics scale - Standard deviation	Total variance in student performance between schools	Strength of the relationship between the index of economic, social and cultural background, and student performance
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Number of school types or distinct educational programmes available to 15-year-olds	1									
Proportion of 15-year-olds enrolled in programmes that give access to vocational studies at the next programme level or direct access to the labour market	**0.50**	1								
First age of selection in the education system	**-0.76**	**-0.52**	1							
Proportion of repeaters in primary education	**0.39**	0.27	-0.23	1						
Proportion of repeaters in lower secondary education	0.22	-0.02	-0.11	**0.56**	1					
Proportion of repeaters in upper secondary education	**0.45**	0.22	**-0.53**	0.23	0.27	1				
Performance on the mathematics scale - Mean score	-0.09	0.26	0.23	-0.21	-0.17	-0.40	1			
Performance on the mathematics scale - Standard deviation	0.25	0.19	-0.29	-0.05	-0.06	**0.58**	0.08	1		
Total variance in student performance between schools	**0.62**	**0.63**	**-0.70**	0.15	0.16	**0.65**	-0.14	**0.62**	1	
Strength of the relationship between the index of economic, social and cultural background, and student performance	**0.51**	0.24	**-0.53**	0.29	0.17	**0.43**	-0.19	**0.48**	**0.57**	1

Note: Data marked in bold are statistically significant at the 0.05 level (2-tailed). The proportion of explained variance is obtained by squaring the correlations shown in this figure.

Source: OECD PISA 2003 database; OECD education database. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

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Annex

1

CHARACTERISTICS OF EDUCATIONAL SYSTEMS

The typical graduation age is the age at the end of the last school/ academic year of the corresponding level and programme when the degree is obtained. The age is the age that normally corresponds to the age of graduation. (Note that at some levels of education the term "graduation age" may not translate literally and is used here purely as a convention.)

Table X1.1a. Typical graduation ages in upper secondary education

		Programme orientation		Educational/labour market destination			
		General programmes	Pre-vocational or vocational programmes	ISCED 3A programmes	ISCED 3B programmes	ISCED 3C short programmes[1]	ISCED 3C long programmes[1]
OECD COUNTRIES	Australia	m	m	18	m	m	m
	Austria	18	18	18	18	18	a
	Belgium	18	18	18	a	18	18
	Czech Republic	19	19	19	19	a	18
	Denmark	19-20	19-20	19-20	a	a	19-20
	Finland	19	19	19	a	a	a
	France	18-19	17-20	18-19	19-20	17-20	18-21
	Germany	19	19	19	19	a	a
	Greece	17-18	17-18	17-18	a	a	17-18
	Hungary	18-20	16-17	18-20	20-22	16-17	18
	Iceland	19	19	19	18	17	19
	Ireland	17-18	17-18	17-18	a	a	17-18
	Italy	19	19	19	18	18	a
	Japan	18	18	18	18	16	18
	Korea	17-18	17-18	17-18	a	a	17-18
	Luxembourg	19	17-19	17-19	19	n	17-19
	Mexico	18	19	18	a	19	19
	Netherlands	17-18	18-20	17-18	a	18-19	18-20
	New Zealand	m	a	18	17	17	17
	Norway	18-19	18-19	18-19	a	m	16-18
	Poland	19	20	19-20	a	18	a
	Slovak Republic	18	16-18	18	a	17	16
	Spain	17	17	17	a	17	17
	Sweden	19	19	19	19	a	19
	Switzerland	18-20	18-20	18-20	18-20	17-19	17-19
	Turkey	16	16	16	a	a	m
	United States	m	m	m	m	m	m
PARTNER COUNTRIES	Argentina	17	17	17	a	a	a
	Brazil	17	17	17	17	a	17
	Chile	18	18	18	18	a	a
	China	18	18	18	a	17-18	18
	Egypt[2]	17	17	17	17	a	17
	India	18	18	18	a	m	m
	Indonesia	18	18-19	18	18	a	a
	Israel	18	18	18	18	18	18
	Jamaica	17	17	17	17	a	a
	Jordan[2]	18	18	18	a	18	18
	Malaysia[3]	17-19	17	19	a	a	17
	Paraguay[2]	17	17	17	a	a	17
	Peru	17	17	17	17	a	a
	Philippines[2]	16	a	16	a	a	a
	Russian Federation[2]	17	17-18	17	a	m	m
	Thailand	17	17	17	17	a	a
	Tunisia[2]	19	19	19	19	a	19
	Uruguay[2]	17	18	18	18	a	a
	Zimbabwe[2]	19	17	19	a	a	17

1. Duration categories for ISCED 3C-Short: at least one year shorter than ISCED 3A/3B programmes; Long: of similar duration to ISCED 3A or 3B programmes.
2. OECD estimate.
3. OECD estimate for general and pre-vocational/vocational programmes.
Source: OECD.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

Table X1.1b. Typical graduation ages in post-secondary non-tertiary education

		Educational/labour market destination		
		ISCED 4A programmes	ISCED 4B programmes	ISCED 4C programmes
OECD COUNTRIES	Australia	a	a	18-19
	Austria	19	20	20
	Belgium	19	a	19-21
	Czech Republic	20	a	21
	Denmark	21-22	a	21-22
	Finland	a	a	25-29
	France	18-21	a	19-21
	Germany	22	22	a
	Hungary	20-22	a	19-22
	Iceland	a	a	20
	Ireland	a	a	19
	Italy	a	a	21
	Korea	a	a	a
	Luxembourg	a	a	20-25
	Mexico	a	a	a
	Netherlands	a	a	18-20
	New Zealand	18	18	18
	Norway	20-25	a	20-25
	Poland	a	a	21
	Slovak Republic	20-21	a	a
	Spain	18	18	a
	Sweden	m	m	19-20
	Switzerland	19-21	21-23	a
	Turkey	a	a	a
	United States	a	a	20
PARTNER COUNTRIES	Argentina	a	a	a
	Brazil	a	a	a
	China	a	20	20
	Indonesia	a	a	a
	Jordan[1]	a	a	a
	Malaysia[1]	20	18	19
	Paraguay	a	a	a
	Peru	a	a	m
	Philippines[1]	19	19	17
	Russian Federation	a	a	18
	Thailand[1]	a	a	19
	Tunisia	a	21	a

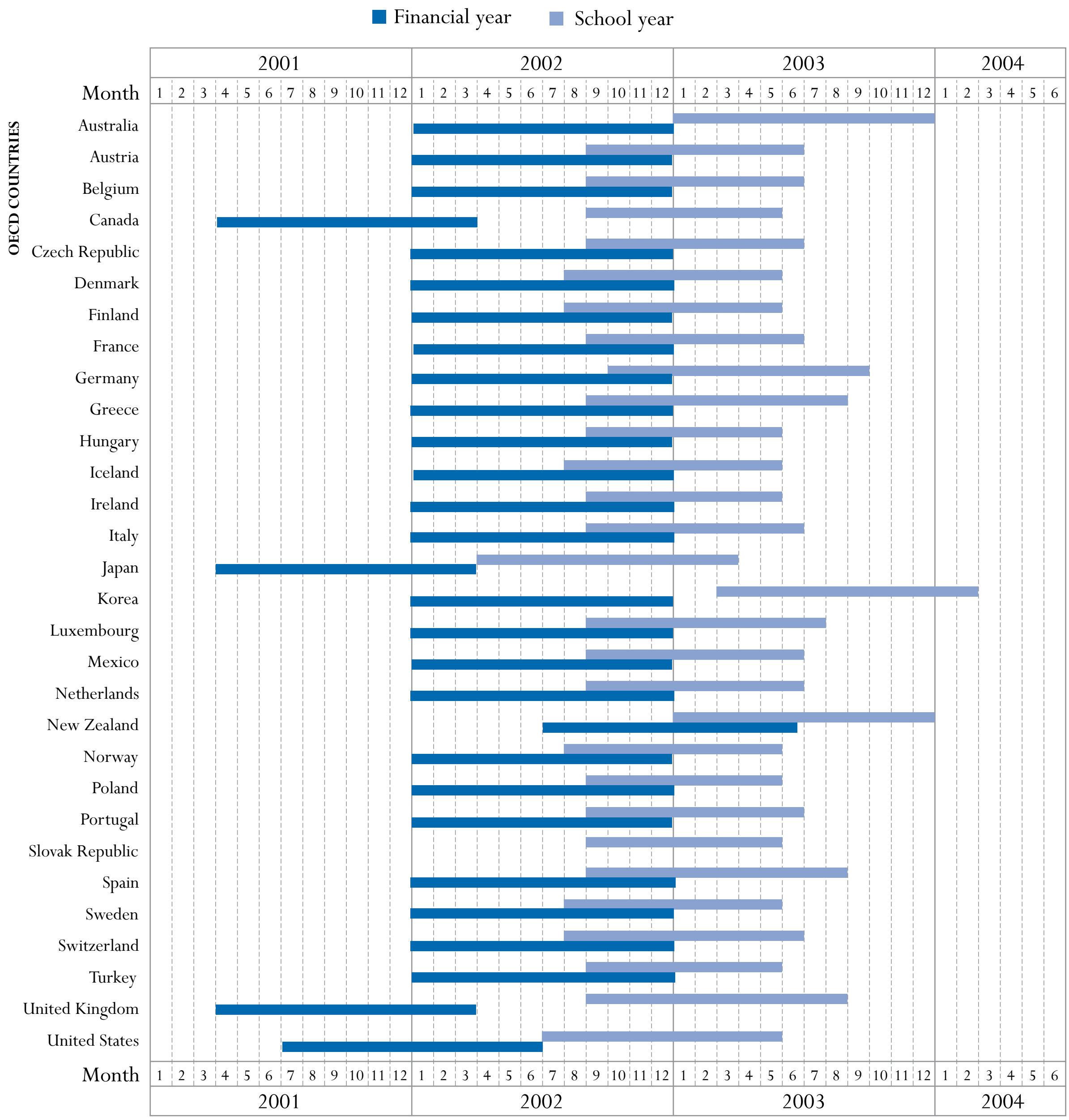
1. OECD estimate.
Source: OECD.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

Table X1.1c. Typical graduation ages in tertiary education

OECD COUNTRIES	Tertiary-type B (ISCED 5B)	Tertiary-type A (ISCED 5A)				Advanced research programmes (ISCED 6)
		All programmes	3 to less than 5 years	5 to 6 years	More than 6 years	
Australia	m	a	20-22	22-24	24-25	24-28
Austria	m	a	22	23	a	25
Belgium	m	m	m	m	m	25-29
Czech Republic	23	a	22	24	a	27
Denmark	21-25	a	22-24	25-26	27-30	30
Finland	21-22	a	25-29	25-29	30-34	29
France	20-21	a	21-22	23-24	25	25-26
Germany	21	a	25	26	a	28
Greece	m	m	m	m	m	24-28
Hungary	m	m	m	m	m	30
Iceland	22-24	a	23	25	27	29
Ireland	20	a	21	23	24	27
Italy	22-23	a	22	23-25	25-27	27-29
Japan	20	a	22	24	a	27
Korea	m	m	m	m	m	26
Mexico	m	m	m	m	m	24-28
Netherlands	m	m	m	m	m	25
New Zealand	20	21	m	m	m	28
Norway	m	m	m	m	m	29
Poland	m	24	m	m	m	m
Slovak Republic	20-21	m	m	m	m	27
Spain	19	20-22	m	m	m	25-27
Sweden	22-23	a	23-25	25-26	a	27-29
Switzerland	23-29	a	23-26	23-26	28	29
Turkey	m	m	m	m	m	28-29
United Kingdom	20	a	21	23	24	24
United States	m	m	m	m	m	28

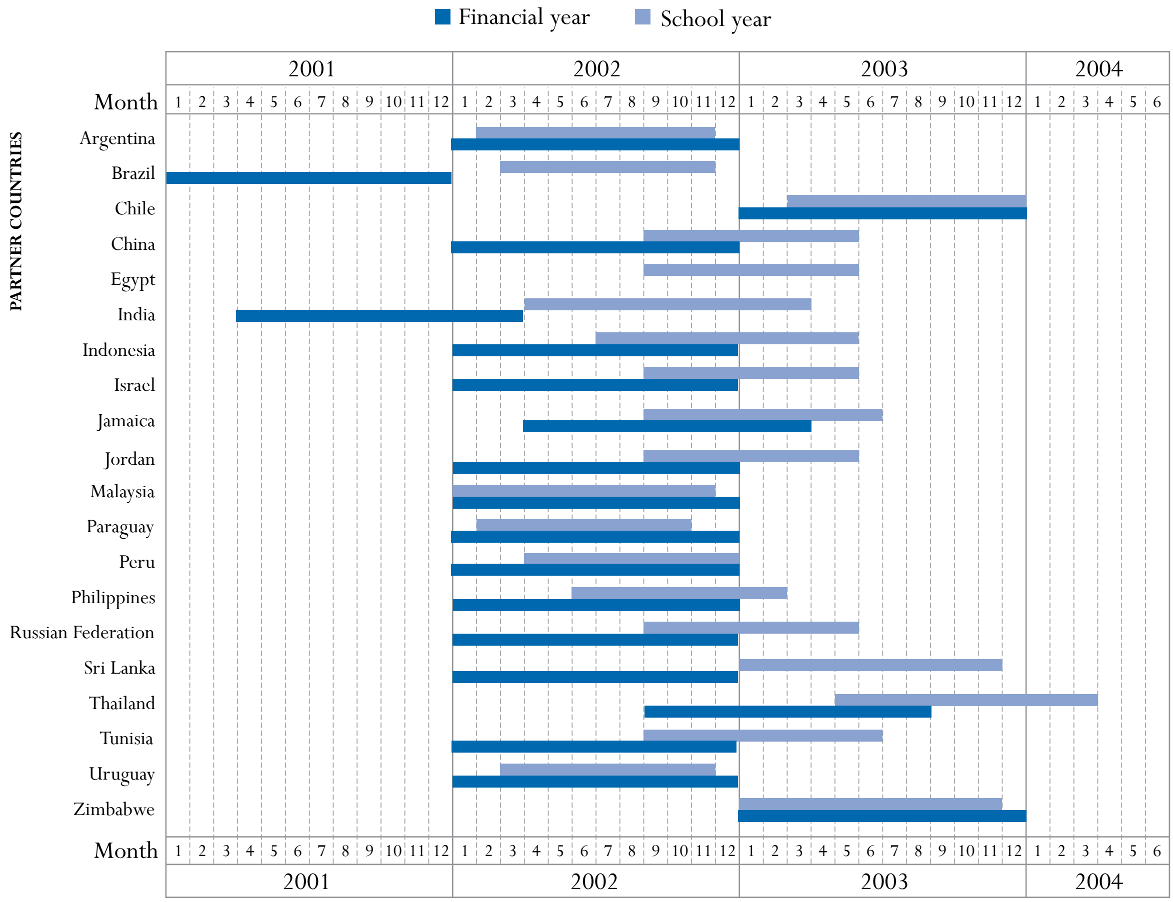
Note: Where tertiary-type A data are available by duration of programme, the graduation rate for all programmes is the sum of the graduation rates by duration of programme.
Source: OECD.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

Table X1.2a. School year and financial year used for the calculation of indicators



Source: OECD.

Table X1.2b. School year and financial year used for the calculation of indicators



Source: OECD.

Table X1.3. Summary of completion requirements for upper secondary (ISCED 3) programmes

	ISCED 3A programmes				ISCED 3B programmes				ISCED 3C programmes			
	Final examination	Series of examinations during programme	Specified number of course hours AND examination	Specified number of course hours only	Final examination	Series of examinations during programme	Specified number of course hours AND examination	Specified number of course hours only	Final examination	Series of examinations during programme	Specified number of course hours AND examination	Specified number of course hours only
OECD COUNTRIES												
Australia[1,2]	N/Y	Y	Y	N	N	Y	N	N	N	Y	N	N
Austria	Y	Y	Y	N	Y	Y	Y	N	N	Y	Y	N
Belgium (Fl.)[3]	Y	Y	N	N	a	a	a	a	Y	Y	N	N
Belgium (Fr.)	Y	Y	N	N	a	a	a	a	Y	Y	N	N
Canada (Québec)[1]	N	Y	Y	N					N	Y	Y	N
Czech Republic[1]	Y	Y	Y	N	N	Y	Y	N	Y	Y	Y	N
Denmark[1]	Y	Y	Y		a	a	a	a	Y	Y	Y	
Finland	Y/N	Y	Y	N								
France	Y	N	Y	N	a	a	a	a	Y/N	Y	N	
Germany	Y	Y	N	N	Y	Y	N	N	a	a	a	a
Greece[1]	N	Y	N	N					N	Y	N	N
Hungary	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Iceland[1]	Y/N	Y	N	N	Y	Y	N	N	Y/N	Y	N	N
Ireland[1]	Y	N	N	N	a	a	a	a	Y	Y	Y	N
Italy	Y	N	Y/N	N	Y	Y/N	Y/N	N	Y	N	Y/N	N
Japan	N	N	Y	N	N	N	Y	N	N	N	Y	N
Korea	N	N	N	Y					N	N	N	Y
Luxembourg	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	N
Mexico	N	Y	Y	N					Y/N	Y	Y	N
Netherlands[1]	Y	Y	Y	N	a	a	a	a	Y	Y	Y	N
New Zealand	Y	N	N	N								
Norway	N	Y	Y	N	a	a	a	a	N	Y	Y	N
Poland	Y/N	N	N	N	a	a	a	a	Y	N	N	N
Portugal	m	m	m	m	m	m	m	m	m	m	m	m
Slovak Republic[1]	Y	N	Y	N					Y	N	Y	N
Spain	N	Y	Y	N					Y/N	Y/N	Y/N	N
Sweden	Y/N	Y/N	N	Y/N								
Switzerland	Y	Y	Y		Y	Y	Y		Y		Y	
Turkey[1]	N	N	Y	N	N	N	Y	N	N	N	Y	N
United Kingdom[1]	N[4]	Y	N	N	a	a	a	a		Y	N	N
United States[1]	20 states Yes; 30 states No	Some states	Some states	Y[5]	a	a	a	a	a	a	a	a
PARTNER COUNTRY												
Israel[1]	Y/N	Y	Y	N	a	a	a	a	Y/N	Y	Y	

Note: Y = Yes; N = No; Y/N = Partially true *e.g.* for part of the programme.
1. See Annex 3 for additional notes on completion requirements *(www.oecd.org/edu/eag2005)*.
2. Completion requirements for ISCED 3A vary by state and territory. The information provided represents a generalisation of diverse requirements.
3. Covers general education only.
4. There is usually no final examination, though some ISCED 3A programmes can be completed this way.
5. Almost all states specify levels of Carnegie credits (i.e. acquired through completion of a two-semester course in specific subjects, which vary by state).
Source: OECD.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

Annex

2

REFERENCE STATISTICS

Table X2.1. Overview of the economic context using basic variables (reference period: calendar year 2002, 2002 current prices)

OECD COUNTRIES	Total public expenditure as a percentage of GDP	GDP per capita (in equivalent US dollars converted using PPPs)	GDP deflator (1995 =100)	Final consumption expenditure of households on the territory deflator (1995 =100)
Australia[1]	34.7	27 713	115.89	117.96
Austria	49.3	30 100	106.93	110.14
Belgium	50.3	28 630	111.03	113.09
Canada	39.9	29 590	110.74	112.42
Czech Republic	45.8	16 585	147.06	141.23
Denmark	55.8	30 042	115.07	115.32
Finland	50.1	27 807	112.73	117.86
France[2]	52.9	27 467	107.26	109.85
Germany	48.7	26 654	106.02	108.83
Greece	46.8	19 067	138.29	135.38
Hungary	53.7	14 365	227.91	m
Iceland	42.7	28 368	135.01	m
Ireland	33.7	32 535	135.72	127.07
Italy	48.0	26 347	121.57	121.36
Japan	34.4	27 207	93.46	95.53
Korea	24.8	18 443	124.68	139.35
Luxembourg	43.5	52 153	117.94	115.53
Mexico	22.2	9 370	259.81	260.47
Netherlands	47.8	29 939	120.20	119.46
New Zealand[1]	32.1	22 287	114.15	112.90
Norway	47.4	36 682	130.63	115.29
Poland	m	11 194	180.29	187.52
Portugal	46.4	18 819	128.80	124.51
Slovak Republic	52.6	12 576	146.51	m
Spain	39.9	23 196	125.50	123.10
Sweden	58.2	28 152	109.93	110.34
Switzerland	44.9	32 532	103.35	103.80
Turkey	m	6 516	2 951.46	m
United Kingdom	39.7	28 906	119.38	116.67
United States	36.3	36 202	113.04	113.18

1. New Zealand : GDP per capita, total public expenditure as a percentage of GDP and GDP deflator calculated for the fiscal year.
2. Excluding Over Sea Departments (DOM).
Source: OECD.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

Table X2.2. Basic reference statistics (reference period: calendar year 2002, 2002 current prices)[1]

OECD COUNTRIES

	Gross Domestic Product (in millions of local currency)[2]	Gross Domestic Product (adjusted to financial year)[3]	Total public expenditure (in millions of local currency)	Total population in thousand (mid-year estimates)	Purchasing Power Parity for GDP (PPP)	Purchasing Power Parity for private consumption (PPP)
Australia	758 147	735 688	255 032	19 641	1.351588541	1.41845
Austria	221 008		109 005	8 053	0.91175	0.93836
Belgium	261 124		131 281	10 330	0.88292	0.91192
Canada	1 140 428	1 128 355	455 278	31 362	1.22893	1.28078
Czech Republic	2 414 669		1 106 363	10 201	14.27266	15.02808
Denmark	1 360 710		759 381	5 376	8.42525	8.98366
Finland	139 803		70 100	5 201	0.96665	1.109
France[4]	1 483 720		784 906	60 015	0.90009	0.94587
Germany	2 107 300		1 027 240	82 482	0.95851	0.95878
Greece	141 502		66 266	10 950	0.67772	0.73298
Hungary	16 740 421		8 995 494	10 159	114.71804	123.20665
Iceland	779 295		355 386	288	95.39	102.88987
Ireland	127 992		43 070	3 926	1.00196	1.0913
Italy	1 260 428		605 436	57 994	0.82489	0.87283
Japan[5]	498 102 000	503 911 050	171 199 900	127 435	143.66544	161.92606
Korea	684 263 469		169 802 051	47 640	778.77395	869.70538
Luxembourg	22 805		9 914	446	0.97999	0.91383
Mexico	6 256 382		1 391 936	101 398	6.58467	7.24603
Netherlands	445 160		212 923	16 147	0.92085	0.93895
New Zealand	129 890		41 749	3 976	1.46587	1.54829
Norway	1 522 176		721 347	4 539	9.14224	9.99916
Poland	781 112		m	38 230	1.8253	2.04459
Portugal	128 458		59 573	10 368	0.65833	0.67955
Slovak Republic	1 098 658		577 972	5 391	16.2054	16.98008
Spain	698 589		279 064	40 546	0.74279	0.75763
Sweden	2 352 938		1 370 488	8 925	9.36476	9.88738
Switzerland	431 064		193 531	7 343	1.80448	1.92848
Turkey	277 574		m	69 666	0.61148	0.66643
United Kingdom	1 044 145	1 006 768	414 744	59 207	0.61009	0.62066
United States	10 434 800	10 345 075	3 785 778	288 240	1	1

1. Data on GDP, PPPs and total public expenditure in countries in the Euro zone are provided in Euros.
2. GDP calculated for the fiscal year in Australia and GDP and total public expenditure calculated for the fiscal year in New Zealand.
3. For countries where GDP is not reported for the same reference period as data on educational finance, GDP is estimated as: wt-1 (GDPt - 1) + wt (GDPt), where wt and wt-1 are the weights for the respective portions of the two reference periods for GDP which fall within the educational financial year. Adjustments were made in Chapter B for Australia, Canada, Japan, the United Kingdom and the United States.
4. Excluding Over Sea Departments (DOM).
5. Total public expenditure adjusted to financial year.

Source: OECD.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

Table X2.3. Basic reference statistics (reference period: calendar year 1995, 1995 current prices)[1]

OECD COUNTRIES

	Gross Domestic Product (in millions of local currency)[2]	Gross Domestic Product (adjusted to financial year)[3]	Gross Domestic Product (2002 constant prices, base year=1995)[2]	Total public expenditure (in millions of local currency)	Total population in thousand (mid-year estimates)	Purchasing Power Parity for GDP (PPP)	Purchasing Power Parity for private consumption (PPP)
Australia	501 257	485 713	644 001	184 270	18 072	1.311562228	1.38406
Austria	175 526		206 689	93 447	7 948	0.94709	0.97844
Belgium	202 129		235 173	106 832	10 137	0.91914	0.94756
Canada	798 300	768 883	1 029 848	381 542	29 302	1.21572	1.27027
Czech Republic	1 466 681		1 641 957	783 678	10 331	11.16793	12.43441
Denmark	1 009 756		1 182 536	608 853	5 230	8.56409	8.87014
Finland	95 262		124 011	56 778	5 108	0.97672	1.1254
France[4]	1 168 124		1 383 316	625 707	58 020	0.95643	1.02422
Germany	1 801 300		1 987 656	1 010 030	81 661	1.02351	0.9946
Greece	79 927		102 326	40 783	10 634	0.57716	0.6438
Hungary	5 614 042		7 345 171	2 327 299	10 329	60.06157	62.72255
Iceland	452 139		577 196	193 116	267	75.17	87.18933
Ireland	52 530		94 307	21 838	3 601	0.81487	0.88926
Italy	923 052		1 036 794	492 878	57 301	0.7735	0.8214
Japan[5]	496 922 200	491 734 525	532 960 438	157 520 900	125 570	175.79419	198.84441
Korea	398 837 661		548 837 663	83 064 162	45 093	690.0375	685.2073
Luxembourg	13 215		19 336	6 016	410	0.99984	0.95836
Mexico	1 837 019		2 408 044	380 924	90 164	2.92555	3.17044
Netherlands	302 233		370 351	170 327	15 460	0.90054	0.91241
New Zealand	92 679		113 787	31 743	3 707	1.46005	1.48055
Norway	937 445		1 165 232	483 072	4 358	8.98639	9.4863
Poland	329 567		433 251	147 561	38 596	1.14746	1.27735
Portugal	80 827		99 731	36 403	10 030	0.6105	0.63524
Slovak Republic	576 502		749 883	324 312	5 363	13.22393	13.4275
Spain	437 787		556 664	192 633	39 223	0.70652	0.74637
Sweden	1 770 248		2 140 330	1 198 513	8 827	9.3933	10.16001
Switzerland	372 250		417 080	157 093	7 081	1.99146	2.09237
Turkey	7 762		9 405	m	61 646	0.0229	0.0262
United Kingdom	718 383	689 927	874 624	317 639	57 928	0.62189	0.63989
United States	7 342 300	7 261 100	9 230 939	2 526 459	266 588	1	1

1. Data on GDP, PPPs and total public expenditure in countries in the Euro zone are provided in Euros.
2. Australia and New Zealand : GDP and total public expenditure calculated for the fiscal year.
3. For countries where GDP is not reported for the same reference period as data on educational finance, GDP is estimated as: wt-1 (GDPt - 1) + wt (GDPt), where wt and wt-1 are the weights for the respective portions of the two reference periods for GDP which fall within the educational financial year. Adjustments were made in Chapter B for Canada, Japan, the United Kingdom and the United States.
4. Excluding Over Sea Departments (DOM).
5. Total public expenditure adjusted to financial year.
Source: OECD.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

Table X2.3a. Annual expenditure on educational institutions per student (2002)

in equivalent US dollars converted using PPPs ***for private consumption****, by level of education, based on full-time equivalents*

OECD COUNTRIES

	Pre-primary education (for children 3 years and older)	Primary education	Secondary education			Post-secondary non-tertiary education	Tertiary education (including R&D activities)			All tertiary education exluding R&D activities	Primary to tertiary education
			Lower secondary education	Upper secondary education	All secondary education		All tertiary education	Tertiary-type B education	Tertiary-type A and advanced research programmes		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Australia	m	4 925	6 730	7 535	7 028	6 786	11 831	7 189	12 778	8 400	6 869
Austria	5 995	6 816	8 437	8 867	8 635	12 118	12 095	9 312	12 341	7 560	8 689
Belgium	4 280	5 485	x(5)	x(5)	8 009	x(5)	11 636	x(7)	x(7)	8 038	7 680
Canada	m	m	m	m	m	m	m	m	m	m	m
Czech Republic	2 587	1 973	3 420	3 473	3 446	1 541	5 922	2 567	6 336	4 713	3 276
Denmark	4 382	7 246	7 455	7 553	7 506	x(4,7)	14 239	x(7)	x(7)	10 883	8 685
Finland	3 424	4 434	7 145	5 627	6 207	x(5)	10 257	2 776	10 314	6 391	6 366
France	4 294	4 790	7 442	8 841	8 062	6 564	8 827	9 327	8 690	6 949	7 106
Germany	4 991	4 536	5 665	9 750	6 996	9 753	10 996	5 737	11 856	6 615	7 107
Greece	x(2)	3 516	x(5)	x(5)	3 752	2 735	4 374	2 626	5 220	4 043	3 824
Hungary[1]	3 235	2 809	2 641	3 327	2 964	5 012	7 639	8 092	7 623	6 051	3 605
Iceland	m	6 648	6 983	5 733	6 269	x(4,7)	7 649	11 931	7 632	m	6 818
Ireland	m	3 837	5 232	5 287	5 257	5 489	9 006	x(7)	x(7)	7 089	5 243
Italy[1]	5 146	6 834	7 630	6 825	7 152	m	8 161	7 021	8 174	m	7 285
Japan	3 275	5 428	5 862	6 454	6 168	x(4,7)	10 395	8 500	10 632	m	6 599
Korea	2 236	3 181	4 509	6 042	5 267	a	5 414	3 378	6 832	m	4 525
Luxembourg	x(2)	11 380	x(5)	x(5)	16 295	x(5)	m	m	m	m	m
Mexico	1 493	1 333	1 343	2 161	1 607	a	5 519	x(7)	x(7)	4 814	1 772
Netherlands	4 828	5 451	7 117	6 135	6 692	5 759	12 849	7 475	12 909	7 823	7 101
New Zealand	4 403	4 295	4 299	6 940	5 395	m	m	m	m	m	m
Norway	m	6 865	7 805	10 524	9 284	x(5)	12 561	x(7)	x(7)	m	8 740
Poland[1]	2 403	m	m	m	m	2 585	4 316	x(7)	x(7)	3 753	2 644
Portugal	4 028	4 786	6 517	6 931	6 705	a	6 743	x(7)	x(7)	4 547	5 890
Slovak Republic	2 028	1 404	1 724	2 571	2 093	x(4)	4 539	x(4)	4 539	4 206	2 195
Spain	3 770	4 502	x(5)	x(5)	5 892	x(5)	7 863	7 567	7 916	5 912	5 798
Sweden	3 890	6 765	6 701	7 265	7 009	3 743	14 884	x(7)	x(7)	7 418	8 070
Switzerland[1]	3 229	7 276	8 609	13 748	11 135	8 039	22 189	6 817	23 883	m	10 606
Turkey[1]	m	m	a	m	m	a	m	x(7)	x(7)	3 915	m
United Kingdom	8 308	5 062	x(5)	x(5)	6 394	x(5)	11 621	x(7)	x(7)	8 813	6 577
United States	7 881	8 049	8 669	9607	9 098	m	20 545	x(7)	x(7)	18 574	11 152

1. Public institutions only.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

Table X2.3b. Change in expenditure on educational institutions per student relative to different factors, by level of education (1995, 2002)

Index of change between 1995 and 2002 (Final consumption deflator (1995=100), 2002 constant prices)

OECD COUNTRIES	Primary, secondary and post-secondary non-tertiary education				Tertiary education		
	Change in expenditure	Change in the number of students	Change in expenditure per student		Change in expenditure	Change in the number of students	Change in expenditure per student
Australia	141	108	130	Australia	120	131	92
Austria	104	m	m	Austria	108	94	114
Belgium	m	m	m	Belgium	m	m	m
Canada	m	m	m	Canada	m	m	m
Czech Republic	97	93	104	Czech Republic	122	170	72
Denmark[1]	124	105	118	Denmark[1]	136	105	129
Finland	120	108	110	Finland	112	113	100
France	111	97	115	France	111	97	114
Germany	105	103	101	Germany	107	100	107
Greece[2,4]	147	92	160	Greece[2]	249	181	137
Hungary[3]	m	93	m	Hungary[3]	m	161	m
Iceland	m	m	m	Iceland	m	m	m
Ireland	152	93	163	Ireland	180	131	138
Italy[2,3]	104	98	106	Italy[2,3]	131	108	121
Japan[1]	104	85	122	Japan[1]	118	102	116
Korea	m	91	m	Korea	m	158	m
Luxembourg	m	m	m	Luxembourg	m	m	m
Mexico	134	111	121	Mexico	172	142	121
Netherlands	138	104	132	Netherlands	110	107	104
New Zealand[2]	150	m	m	New Zealand[2]	107	m	m
Norway[4]	137	116	119	Norway	124	104	119
Poland[2]	139	87	158	Poland[2]	159	197	81
Portugal[2,3]	142	81	176	Portugal[3]	139	132	105
Slovak Republic	m	92	m	Slovak Republic	m	177	m
Spain[2]	111	81	136	Spain	154	115	134
Sweden	112	117	95	Sweden	114	135	85
Switzerland[2,3]	113	107	105	Switzerland[2,3]	148	106	140
Turkey[2,3]	m	115	m	Turkey[2,3]	m	110	m
United Kingdom	139	121	115	United Kingdom	121	118	102
United States[2]	129	106	122	United States	m	117	m

1. Post-secondary non-tertiary included in both upper secondary and tertiary education.
2. Public expenditure only.
3. Public institutions only.
4. Pre-premary included in primary, secondary and post-secondary non-tertiary education

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

Table X2.4a. Reference statistics used in the calculation of teachers' salaries by level of education (1996, 2003)

	Teachers' salaries in national currency (1996)[1]								
	Primary education			Lower secondary education			Upper secondary education, general programmes		
OECD COUNTRIES	Starting salary/ minimum training	Salary after 15 years of experience/ minimum training	Salary at top of scale / minimum training	Starting salary/ minimum training	Salary after 15 years of experience/ minimum training	Salary at top of scale / minimum training	Starting salary/ minimum training	Salary after 15 years of experience/ minimum training	Salary at top of scale / minimum training
Australia	25 693	46 781	46 781	25 693	46 781	46 781	25 693	46 781	46 781
Austria	19 911	25 522	40 136	20 598	26 791	42 910	21 891	29 334	48 204
Belgium (Fl.)[2]	20 479	27 542	32 721	20 950	29 346	35 781	25 998	37 534	45 119
Belgium (Fr.)[2]	20 479	27 542	32 721	20 950	29 346	35 781	25 998	37 534	45 119
Czech Republic	m	m	m	m	m	m	m	m	m
Denmark	200 000	244 000	250 000	200 000	244 000	250 000	218 000	310 000	325 000
England	12 113	20 423	20 423	12 113	20 423	20 423	12 113	20 423	20 423
Finland	17 660	23 378	24 051	19 846	27 751	28 928	20 519	28 928	30 610
France	m	m	m	m	m	m	m	m	m
Germany	m	m	m	m	m	m	m	m	m
Greece	10 772	12 854	15 148	11 141	13 223	15 518	11 141	13 223	15 518
Hungary	341 289	462 618	597 402	341 289	462 618	597 402	435 279	574 067	717 756
Iceland	m	m	m	m	m	m	m	m	m
Ireland	18 235	28 189	33 362	19 141	29 872	33 679	19 141	29 872	33 679
Italy	14 939	18 030	21 864	16 213	19 796	24 233	16 213	20 412	25 442
Japan	3 462 000	5 917 000	8 475 000	3 462 000	5 917 000	8 475 000	3 462 000	5 917 000	8 733 000
Korea	m	m	m	m	m	m	m	m	m
Luxembourg	m	m	m	m	m	m	m	m	m
Mexico	29 105	38 606	63 264	37 092	47 174	76 196	m	m	m
Netherlands	21 772	26 537	32 627	22 925	28 847	35 840	23 120	40 273	47 756
New Zealand	23 000	39 220	39 220	23 000	39 220	39 220	23 000	39 220	39 220
Norway	165 228	201 446	204 211	165 228	201 446	204 211	178 752	207 309	222 078
Poland	m	m	m	m	m	m	m	m	m
Portugal	9 970	15 001	25 902	9 970	15 001	25 902	9 970	15 001	25 902
Scotland	12 510	20 796	20 796	12 510	20 796	20 796	12 510	20 796	20 796
Slovak Republic	m	m	m	m	m	m	m	m	m
Spain	18 609	21 823	27 940	m	m	m	21 582	25 327	31 780
Sweden	m	m	m	m	m	m	m	m	m
Switzerland	65 504	87 585	100 847	76 772	104 350	117 629	92 163	121 937	136 001
Turkey	m	m	m	a	a	a	m	m	m
United States	m	m	m	m	m	m	m	m	m

1. Data on salaries for countries now in the Euro zone are shown in Euros.
2. Data on teachers' salaries for 1996 refer to Belgium.
Source: OECD.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

Table X2.4a. *(continued)* Reference statistics used in the calculation of teachers' salaries by level of education (1996, 2003)[1]

OECD COUNTRIES	Teachers' salaries in national currency (2003)[2] – Primary education: Starting salary/ minimum training	Primary education: Salary after 15 years of experience / minimum training	Primary education: Salary at top of scale /minimum training	Lower secondary education: Starting salary/ minimum training	Lower secondary education: Salary after 15 years of experience / minimum training	Lower secondary education: Salary at top of scale /minimum training	Upper secondary education, general programmes: Starting salary/ minimum training	Upper secondary education, general programmes: Salary after 15 years of experience / minimum training	Upper secondary education, general programmes: Salary at top of scale /minimum training	GDP deflator 2003 (1996 = 100)	Deflator 2003 based on final consumption expenditure of households on the territory (1996 = 100)
Australia	39 127	57 452	57 452	39 431	57 480	57 480	39 431	57 480	57 480	119	116
Austria	22 311	29 522	44 648	23 190	31 602	46 738	23 498	32 517	49 355	108	110
Belgium (Fl.)	23 864	32 730	39 340	23 864	33 422	40 748	29 610	42 742	51 376	112	113
Belgium (Fr.)	22 642	31 273	37 804	22 916	32 344	39 621	28 558	41 604	50 183	112	113
Czech Republic	198 716	262 860	337 257	198 716	262 860	337 257	242 015	291 553	374 005	138	130
Denmark	280 606	315 849	315 849	280 606	315 849	315 849	275 425	386 976	386 976	115	116
England	17 595	25 713	25 713	17 595	25 713	25 713	17 595	25 713	25 713	119	114
Finland	26 100	30 700	30 700	29 300	35 200	35 200	33 200	40 700	40 700	113	117
France	20 907	28 124	41 497	23 131	30 348	43 830	23 557	30 773	44 298	110	107
Germany	36 501	44 148	47 360	37 870	46 613	48 662	40 956	50 210	52 463	106	107
Greece	15 400	18 760	22 680	15 400	18 760	22 680	15 400	18 760	22 680	133	129
Hungary	1 412 520	1 801 452	2 400 576	1 412 520	1 801 452	2 400 576	1 603 860	2 228 832	2 919 468	202	188
Iceland	1 747 008	2 022 000	2 252 400	1 747 008	2 022 000	2 252 400	2 252 000	2 763 000	2 930 000	132	124
Ireland	24 692	40 902	46 350	25 537	40 902	46 350	25 537	40 902	46 350	135	129
Italy	19 806	23 959	29 078	21 350	26 105	31 944	21 350	26 840	33 405	119	119
Japan	3 447 000	6 400 000	8 061 000	3 447 000	6 400 000	8 061 000	3 447 000	6 404 000	8 304 000	92	97
Korea	21 480 800	36 814 000	59 172 000	21 384 800	36 718 000	59 076 000	21 384 800	36 718 000	59 076 000	121	136
Luxembourg	44 022	60 623	89 723	63 421	79 276	110 181	63 421	79 276	110 181	118	114
Mexico	85 459	112 610	186 534	109 564	143 071	236 105	m	m	m	212	213
Netherlands	27 732	36 066	40 312	28 762	39 705	44 245	29 043	53 163	58 640	122	120
New Zealand	26 918	52 076	52 076	26 918	52 076	52 076	26 918	52 076	52 076	115	112
Norway	273 360	326 910	338 538	273 360	326 910	338 538	273 360	326 910	338 538	128	117
Poland	11 501	17 393	19 032	11 501	17 393	19 032	11 501	17 393	19 032	153	158
Portugal	13 358	22 417	35 192	13 358	22 417	35 192	13 358	22 417	35 192	128	124
Scotland	16 743	26 670	26 670	16 743	26 670	26 670	16 743	26 670	26 670	119	114
Slovak Republic	95 880	121 440	159 000	95 880	121 440	159 000	95 880	121 440	159 000	147	158
Spain	22 732	26 461	33 231	25 560	29 593	36 671	26 252	30 512	37 703	126	121
Sweden	232 500	272 900	312 900	240 000	281 200	318 700	249 500	293 700	338 100	111	112
Switzerland	67 667	89 993	107 538	80 317	105 472	125 522	94 751	121 395	145 457	104	104
Turkey	8 670 739 000	9 797 779 000	11 323 639 000	a	a	a	8 031 724 000	9 158 764 000	10 684 624 000	2 032	2 162
United States	30 339	43 999	53 563	30 352	43 999	52 603	30 471	44 120	52 745	113	113

1. For the computation of teachers' salaries in equivalent US dollars shown in Indicator D3, teachers' salaries are converted from national currencies to US dollars using January 2003 PPPs for GDP and adjusted for inflation where necessary. Teachers' salaries in equivalent US dollars based on January 2003 PPPs for final consumption are shown in table X2.5a of Annex 2.
2. Data on salaries for countries now in the Euro zone are shown in Euros.
Source: OECD.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

Table X2.4b. Reference statistics used in the calculation of teachers' salaries (1996, 2003)

OECD COUNTRIES	Purchasing power parity for GDP (PPP) (2002)[1]	Purchasing Power Parity for GDP (PPP) (2003)[1]	Purchasing power parity for GDP (PPP) (January 2003)[1]	Purchasing power parity for private consumption (PPP) (January 2003)[1]	Gross domestic product (in millions of local currency, calendar year 2003)[1]	Total population in thousands (calendar year 2003)	GDP per capita (in equivalent US dollars, calendar year 2003)[2]	Reference year for 2003 salary data	Adjustments for inflation (2002)
Australia	1.34	1.35	1.34	1.41	813 225	19 998	30 107	30 June 2003	0.98
Austria	0.91	0.91	0.91	0.94	226 142	8 098	30 637	2002/2003	1.00
Belgium (Fl.)[3]	0.88	0.88	0.88	0.91	269 546	10 374	29 520	2002/2003	1.00
Belgium (Fr.)[3]	0.88	0.88	0.88	0.91	269 546	10 374	29 520	2001/2002	1.00
Czech Republic	14.27	14.51	14.39	15.19	2 550 754	10 202	17 232	2002/2003	1.00
Denmark	8.43	8.43	8.43	9.01	1 396 608	5 390	30 736	2003	0.99
England[4]	0.61	0.62	0.62	0.62	1 101 241	59 375	29 915	Sep2002/Aug2003	1.00
Finland	0.97	0.97	0.97	1.10	142 518	5 213	28 328	01 October 2003	1.00
France	0.90	0.91	0.90	0.94	1 557 245	61 540	27 820	2002/2003	1.00
Germany	0.96	0.95	0.96	0.95	2 128 200	82 520	27 098	2002/2003	1.00
Greece	0.68	0.69	0.68	0.73	153 045	10 981	20 340	2002	1.02
Hungary	114.72	120.86	117.79	125.77	18 568 272	10 130	15 166	01 May 2003	0.98
Iceland	92.18	94.25	93.21	103.00	810 844	289	29 741	2001/2002	1.00
Ireland	1.00	1.02	1.01	1.10	134 786	3 991	33 201	2002/2003	1.00
Italy	0.82	0.84	0.83	0.88	1 300 926	58 095	26 566	2002/2003	1.00
Japan	143.67	137.56	140.61	159.31	498 613 500	127 619	28 402	2002/2003	1.00
Korea	778.77	782.17	780.47	875.98	721 345 933	47 925	19 243	2003	0.99
Luxembourg	0.98	0.99	0.98	0.92	23 956	450	53 822	2002	1.00
Mexico	6.58	6.89	6.74	7.36	6 749 240	102 708	9 543	2002/2003	1.00
Netherlands	0.92	0.92	0.92	0.93	454 276	16 224	30 317	01 January 2003	1.00
New Zealand	1.47	1.47	1.47	1.54	137 786	4 039	23 218	2003	0.99
Norway	9.14	9.25	9.20	10.05	1 563 689	4 565	37 016	2002/2003	1.00
Poland	1.83	1.85	1.84	2.05	814 922	38 204	11 524	2002/2003	1.00
Portugal	0.66	0.67	0.66	0.69	129 908	10 444	18 634	2002/2003	1.00
Scotland[4]	0.61	0.62	0.62	0.62	1 101 241	59 375	29 915	2002/2003	1.00
Slovak Republic	16.21	17.02	16.61	17.51	1 201 196	5 380	13 117	2002/2003	1.00
Spain	0.74	0.74	0.74	m	744 754	40 809	24 513	2003	0.98
Sweden	9.36	9.42	9.39	9.89	2 438 447	8 959	28 879	2003	0.99
Switzerland	1.80	1.80	1.80	1.92	433 366	7 405	32 510	2003	1.00
Turkey	0.61	0.73	671980	739768	359 763	70 802	6 937	2002/2003	1.00
United States	1.00	1.00	1.00	1.00	10 951 300	291 085	37 622	2002/2003	1.00

1. Data on PPPs and GDP for countries now in the Euro zone are shown in Euros.
2. GDP per capita in national currencies (2003) has been calculated from total population (2003) and total GDP (2003), and has been converted to US dollars using PPPs for GDP (2003). These data are available in this table.
3. Data on gross domestic product and total population refer to Belgium.
4. Data on gross domestic product and total population refer to the United Kingdom.
Source: OECD.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

Table X2.5a. Teachers' salaries (2003)

Annual statutory teachers' salaries in public institutions at starting salary, after 15 years of experience and at the top of the scale by level of education, in equivalent US dollars converted using PPPs ***for private consumption***

		Primary education			Lower secondary education			Upper secondary general education		
		Starting salary/ minimum training	Salary after 15 years of experience /minimum training	Salary at top of scale /minimum training	Starting salary/ minimum training	Salary after 15 years of experience/ minimum training	Salary at top of scale/ minimum training	Starting salary/ minimum training	Salary after 15 years of experience/ minimum training	Salary at top of scale/ minimum training
OECD COUNTRIES	Australia	27 203	39 944	39 944	27 415	39 963	39 963	27 415	39 963	39 963
	Austria	23 814	31 510	47 654	24 752	33 730	49 885	25 080	34 706	52 677
	Belgium (Fl.)	26 248	36 000	43 270	26 248	36 761	44 819	32 568	47 012	56 509
	Belgium (Fr.)	24 904	34 397	41 581	25 206	35 576	43 580	31 411	45 760	55 196
	Czech Republic	13 085	17 308	22 207	13 085	17 308	22 207	15 936	19 198	24 627
	Denmark	30 819	34 689	34 689	30 819	34 689	34 689	30 250	42 501	42 501
	England	28 286	41 337	41 337	28 286	41 337	41 337	28 286	41 337	41 337
	Finland	23 646	27 814	27 814	26 545	31 890	31 890	30 079	36 873	36 873
	France	22 126	29 763	43 916	24 479	32 117	46 385	24 930	32 567	46 880
	Germany	38 229	46 238	49 602	39 663	48 820	50 966	42 895	52 587	54 947
	Greece	21 329	25 983	31 412	21 329	25 983	31 412	21 329	25 983	31 412
	Hungary	10 958	13 976	18 624	10 958	13 976	18 624	12 443	17 291	22 649
	Iceland	16 962	19 632	21 869	16 962	19 632	21 869	21 865	26 826	28 448
	Ireland	22 454	37 194	42 149	23 222	37 194	42 149	23 222	37 194	42 149
	Italy	22 451	27 159	32 962	24 202	29 592	36 211	24 202	30 425	37 867
	Japan	21 637	40 172	50 598	21 637	40 172	50 598	21 637	40 197	52 124
	Korea	24 247	41 554	66 791	24 138	41 446	66 683	24 138	41 446	66 683
	Luxembourg	48 047	66 166	97 927	69 220	86 525	120 256	69 220	86 525	120 256
	Mexico	11 616	15 307	25 355	14 893	19 447	32 093	m	m	m
	Netherlands	29 666	38 582	43 125	30 768	42 475	47 332	31 069	56 871	62 731
	New Zealand	17 279	33 429	33 429	17 279	33 429	33 429	17 279	33 429	33 429
	Norway	27 200	32 529	33 686	27 200	32 529	33 686	27 200	32 529	33 686
	Poland	5 622	8 502	9 303	5 622	8 502	9 303	5 622	8 502	9 303
	Portugal	19 456	32 651	51 258	19 456	32 651	51 258	19 456	32 651	51 258
	Scotland	26 916	42 875	42 875	26 916	42 875	42 875	26 916	42 875	42 875
	Slovak Republic	5 474	6 934	9 078	5 474	6 934	9 078	5 474	6 934	9 078
	Spain	m	m	m	m	m	m	m	m	m
	Sweden	23 256	27 297	31 298	24 006	28 127	31 878	24 956	29 378	33 819
	Switzerland	35 332	46 990	56 151	41 938	55 072	65 541	49 474	63 387	75 951
	Turkey	11 721	13 244	15 307	a	a	a	10 857	12 381	14 443
	United States	30 339	43 999	53 563	30 352	43 999	52 603	30 471	44 120	52 745
	Country mean	*23 011*	*31 773*	*38 626*	*24 899*	*34 233*	*41 469*	*26 058*	*36 602*	*43 876*

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

Table X2.5b. Change in teachers' salaries (1996 and 2003)

*Index of change[1] between 1996 and 2003 in teachers' salaries at starting salary, after 15 years of experience and at the top of the salary scale, by level of education, converted to 2003 price level using **final consumption** deflators (1996=100)*

OECD COUNTRIES	Primary education			Lower secondary education			Upper secondary education, general programmes		
	Starting salary/ minimum training	Salary after 15 years of experience/ minimum training	Salary at top of scale/ minimum training	Starting salary/ minimum training	Salary after 15 years of experience/ minimum training	Salary at top of scale/ minimum training	Starting salary/ minimum training	Salary after 15 years of experience/ minimum training	Salary at top of scale/ minimum training
Australia	131	105	105	132	106	106	132	106	106
Austria	102	105	101	102	107	99	97	101	93
Belgium (Fl.)[2]	103	105	107	101	101	101	101	101	101
Belgium (Fr.)[2]	98	101	102	97	98	98	97	98	99
Czech Republic	m	m	m	m	m	m	m	m	m
Denmark	121	112	109	121	112	109	109	108	103
England	127	110	110	127	110	110	127	110	110
Finland	127	113	110	127	109	104	139	121	114
France	m	m	m	m	m	m	m	m	m
Germany	m	m	m	m	m	m	m	m	m
Greece	111	113	116	107	110	113	107	110	113
Hungary	220	207	213	220	207	213	196	206	216
Iceland	m	m	m	m	m	m	m	m	m
Ireland	105	113	108	104	106	107	104	106	107
Italy	111	111	112	110	111	111	110	110	110
Japan	103	112	98	103	112	98	103	112	98
Korea	m	m	m	m	m	m	m	m	m
Luxembourg	m	m	m	m	m	m	m	m	m
Mexico	138	137	138	139	142	145	m	m	m
Netherlands	106	113	103	105	115	103	105	110	102
New Zealand	105	119	119	105	119	119	105	119	119
Norway	142	139	142	142	139	142	131	135	130
Poland	m	m	m	m	m	m	m	m	m
Portugal	108	121	110	108	121	110	108	121	110
Scotland	117	112	112	117	112	112	117	112	112
Slovak Republic	m	m	m	m	m	m	m	m	m
Spain	101	100	98	m	m	m	100	99	98
Sweden	m	m	m	m	m	m	m	m	m
Switzerland	100	99	103	101	97	103	99	96	103
Turkey	m	m	m	a	a	a	m	m	m
United States	m	m	m	m	m	m	m	m	m

1. The index is calculated as teacher salary 2003 in national currency * 100 / Teacher salary 1996 in national currency * deflator 2003 based on final consumption (1996=100).
2. The data for Belgium in 1996 are based on Belgium as a whole.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2005*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

General notes

Definitions

Gross domestic product (GDP) refers to the producers' value of the gross outputs of resident producers, including distributive trades and transport, less the value of purchasers' intermediate consumption plus import duties. GDP is expressed in local money (in millions). For countries which provide this information for a reference year that is different from the calendar year (such as Australia and New Zealand), adjustments are made by linearly weighting their GDP between two adjacent national reference years to match the calendar year.

The **GDP deflator** is obtained by dividing the GDP expressed at current prices by the GDP expressed at constant prices. This provides an indication of the relative price level in a country. Data are based on the year 1995.

GDP per capita is the gross domestic product (in equivalent US dollars converted using PPPs) divided by the population.

Purchasing power parity exchange rates (PPP) are the currency exchange rates that equalise the purchasing power of different currencies. This means that a given sum of money when converted into different currencies at the PPP rates will buy the same basket of goods and services in all countries. In other words, PPPs are the rates of currency conversion which eliminate the differences in price levels among countries. Thus, when expenditure on GDP for different countries is converted into a common currency by means of PPPs, it is, in effect, expressed at the same set of international prices so that comparisons between countries reflect only differences in the volume of goods and services purchased.

Total public expenditure as used for the calculation of the education indicators, corresponds to the non-repayable current and capital expenditure of all levels of government. Current expenditure includes final consumption expenditure (*e.g.* compensation of employees, consumption intermediate goods and services, consumption of fixed capital, and military expenditure), property income paid, subsidies, and other current transfers paid (*e.g.* social security, social assistance, pensions and other welfare benefits). Capital expenditure is spending to acquire and/or improve fixed capital assets, land, intangible assets, government stocks, and non-military, non-financial assets, and spending to finance net capital transfers.

Sources

The 2005 edition of the *National Accounts of OECD Countries: Main Aggregates, Volume I.*

The theoretical framework underpinning national accounts has been provided for many years by the United Nations' publication *A System of National Accounts*, which was released in 1968. An updated version was released in 1993 (commonly referred to as SNA93).

OECD Analytical Data Base, January 2005.

Annex

3

SOURCES, METHODS AND TECHNICAL NOTES

Annex 3 on sources and methods is available in electronic form only. It can be found at *www.oecd.org/edu/eag2005*.

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