Education at a Glance 2011 Highlights

Education at a Glance 2011

HIGHLIGHTS

OECD

This work is published on the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of the Organisation or of the governments of its member countries.

Please cite this publication as:
OECD (2011), *Education at a Glance 2011: Highlights*, OECD Publishing.
http://dx.doi.org/10.1787/eag_highlights-2011-en

ISBN 978-92-64-11421-0 (print)
ISBN 978-92-64-11743-3 (HTML)

Series/Periodical:
ISSN 2076-2631 (print)
ISSN 2076-264X (online)

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Photo credits:
Cover © Carlos Restrepo/Fotolia.
Images: pp. 10-35 © Jeffrey Coolidge/The Image Bank/Getty Images.
pp. 36-49 © Tom Grill/Photographer's Choice RF/Getty Images.
pp. 50-67 © Julia Smith/Riser/Getty Images.
pp. 68-81 © Image Source/Image Source/Getty Images.
pp. 82-95 © Image Source/Image Source/Getty Images.

Corrigenda to OECD publications may be found on line at: *www.oecd.org/publishing/corrigenda*.

© OECD 2011

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to *rights@oecd.org*. Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at *info@copyright.com* or the Centre français d'exploitation du droit de copie (CFC) at *contact@cfcopies.com*.

Foreword

Education at a Glance 2011: Highlights *offers a reader-friendly introduction to the OECD's collection of internationally comparable data on education.*

As the name suggests, it is derived from Education at a Glance 2011, *the OECD's flagship compendium of education statistics. However, it differs from that publication in a number of ways, most significantly in its structure, which is made up of five sections that explore the following topics:*

- **Education levels and student numbers:** *This section looks at education levels in the general population, how and where young people are studying, when they graduate, and how well they make the transition into the world of work.*
- **The economic and social benefits of education:** *This section looks at the extent to which education brings economic gains to individuals, in the form of higher incomes and lower unemployment rates, and at how these benefits serve as an incentive for people and societies to invest in education. It also examines the societal benefits related to having a highly educated population.*
- **Paying for education:** *This section looks at how much countries spend on education, the role of private spending, what education money is spent on and whether countries are getting value for money.*
- **The school environment:** *This section looks at how much time teachers spend at work, and how much of that time is spent teaching, class size, teachers' salaries and the age and gender distribution of teachers.*
- **PISA:** *This special section introduces findings from the 2009 round of the OECD's Programme for International Student Assessment (PISA), which examines the abilities of 15-year-old students in dozens of countries around the world.*

In general, this publication uses the terminology employed in Education at a Glance 2011. *However, in one or two places terminology has been simplified. Readers who want to find out more should consult the Reader's Guide.*

Tables and charts in this volume are all accompanied by a dynamic hyperlink, or StatLink, that will direct readers to an Internet site where the corresponding data are available in Excel™ format. In addition, reference is sometimes made in text to charts and tables that appear in Education at a Glance 2011. *This material can generally be accessed via the StatLinks accompanying the tables and charts in the relevant indicator, or at* www.oecd.org/edu/eag2011.

Readers wishing to find out more about the OECD's work on education should go to www.oecd.org/edu.

Table of Contents

Reader's Guide 7

1. Education levels and student numbers 11

To what level have adults studied? 12
Who participates in education? 14
How many young people finish secondary education? 16
How many young people enter tertiary education? 18
How many young people graduate from tertiary education? 20
How many students graduate outside the normal age? 22
What do students study? 24
How successful are students in moving from education to work? 26
How many adults take part in education and training? 28
How many students study abroad? 30
Where do students go to study abroad? 32
How many international students stay on in the host country? 34

2. The economic and social benefits of education 37

How much more do tertiary graduates earn? 38
How does education affect employment rates? 40
What are the incentives for people to invest in education? 42
What are the incentives for societies to invest in education? 44
How expensive are graduates to hire? 46
What are the social benefits of education? 48

3. Paying for education 51

How much is spent per student? 52
Has spending per student increased? 54
What share of national wealth is spent on education? 56
What share of public spending goes to education? 58
What is the role of private spending? 60
How much do tertiary students pay? 62
What are education funds spent on? 64
What accounts for variations in spending on salary costs? 66

4. The school environment 69

How long do students spend in the classroom? 70
How many students are in each classroom? 72
How much are teachers paid? 74
How much time do teachers spend teaching? 76
How are schools held accountable? 78
Who are the teachers? 80

Special section: Introducing PISA 83

What is PISA? 84
How well do OECD students perform in reading? 86
How well do OECD students perform in other subjects? 88
How does social background affect performance? 90
How does an immigrant background affect performance? 92
How does the enjoyment of reading affect performance? 94

Statistical Note 97

This book has...

StatLinks

A service that delivers Excel® files from the printed page!

Look for the *StatLinks* at the bottom right-hand corner of the tables or graphs in this book. To download the matching Excel® spreadsheet, just type the link into your Internet browser, starting with the ***http://dx.doi.org*** prefix.
If you're reading the PDF e-book edition, and your PC is connected to the Internet, simply click on the link. You'll find *StatLinks* appearing in more OECD books.

Reader's Guide

This section introduces some of the terminology used in this publication, and explains how readers can use the links provided to get further information.

Levels of education

Education systems vary considerably from country to country, including the ages at which students typically begin and end each phase of schooling, the duration of courses, and what students are taught and expected to learn. These variations greatly complicate the compilation of internationally comparable statistics on education. In response, the United Nations created an International Standard Classification of Education (ISCED), which provides a basis for comparing different education systems and a standard terminology.

The table below introduces this system of classification and explains what is meant by each level of education. Readers should note that this publication uses slightly simplified terminology, which differs from that used in both the ISCED classification and in *Education at a Glance 2011*. The table shows the equivalent terms in the two publications, the ISCED classifications, and definitions of what it all means.

Term used to describe levels of education in *Education at a Glance 2011* *ISCED classification (and subcategories)*	**Term generally used in this publication**
Pre-primary education *ISCED 0*	**Pre-primary education** The first stage of organised instruction designed to introduce very young children to the school atmosphere. Minimum entry age of 3.
Primary education *ISCED 1*	**Primary education** Designed to provide a sound basic education in reading, writing and mathematics and a basic understanding of some other subjects. Entry age: between 5 and 7. Duration: 6 years.
Lower secondary education *ISCED 2 (subcategories: 2A prepares students for continuing academic education, leading to 3A; 2B has stronger vocational focus, leading to 3B; 2C offers preparation for entering workforce)*	**Lower secondary education** Completes provision of basic education, usually in a more subject-oriented way with more specialist teachers. Entry follows 6 years of primary education; duration is 3 years. In some countries, the end of this level marks the end of compulsory education.
Upper secondary education *ISCED 3 (subcategories: 3A prepares students for university-level education at level 5A; 3B for entry to vocationally oriented tertiary education at level 5B; 3C prepares students for workforce or for post-secondary non-tertiary education, ISCED 4)*	**Upper secondary education** Even stronger subject specialisation than at lower-secondary level, with teachers usually more qualified. Students typically expected to have completed 9 years of education or lower secondary schooling before entry and are generally around the age of 15 or 16.
Post-secondary non-tertiary education *ISCED 4 (subcategories: 4A may prepare students for entry to tertiary education, both university level and vocationally oriented education; 4B typically prepares students to enter the workforce)*	**Post-secondary non-tertiary education** Programmes at this level may be regarded nationally as part of upper secondary or post-secondary education, but in terms of international comparison their status is less clear cut. Programme content may not be much more advanced than in upper secondary, and is certainly lower than at tertiary level. Entry typically requires completion of an upper secondary programme. Duration usually equivalent to between 6 months and 2 years of full-time study.

Term used to describe levels of education in *Education at a Glance 2011* *ISCED classification (and subcategories)*	**Term generally used in this publication**
Tertiary education *ISCED 5 (subcategories 5A and 5B, see below)*	**Tertiary education** ISCED 5 is the first stage of tertiary education (the second – ISCED 6 – involves advanced research). At level 5, it is often more useful to distinguish between two subcategories: 5A, which represent longer and more theoretical programmes; and 5B, where programmes are shorter and more practically oriented. Note, though, that as tertiary education differs greatly between countries, the demarcation between these two subcategories is not always clear cut.
Tertiary-type A *ISCED 5A*	**University-level education** "Long-stream" programmes that are theory based and aimed at preparing students for further research or to give access to highly skilled professions, such as medicine or architecture. Entry preceded by 13 years of education, students typically required to have completed upper secondary or post-secondary non-tertiary education. Duration equivalent to at least 3 years of full-time study, but 4 is more usual.
Tertiary-type B *ISCED 5B*	**Vocationally oriented tertiary education** "Short-stream" programmes that are more practically oriented or focus on the skills needed for students to directly enter specific occupations. Entry preceded by 13 years of education; students may require mastery of specific subjects studied at levels 3B or 4A. Duration equivalent to at least 2 years of full-time study, but 3 is more usual.
Advanced research programmes *ISCED 6*	**Advanced research programmes** The second stage of tertiary education. Programmes are devoted to advanced study and original research.

For fuller definitions and explanations of the ISCED standard, please consult *Classifying Education Programmes: Manual for ISCED-97 Implementation in OECD Countries* (1999).

Country coverage

OECD and partner countries: The first four chapters of this publication feature data on education from the 34 OECD member countries, two non-OECD countries that participate in the OECD Indicators of Education Systems programme (INES), namely Brazil and the Russian Federation, and other G20 countries that do not participate in INES (Argentina, China, India, Indonesia, Saudi Arabia and South Africa). The special section on PISA (Chapter 5) features data from the 34 OECD member countries and 42 partner countries and economies (see page 85 for the complete list).

Belgium: Data on Belgium may be applicable only to either the Flemish Community or the French Community. Where this is the case, the text and charts refer to Belgium (Fl) for the Flemish Community and Belgium (Fr) for the French Community.

EU21: These are the 21 OECD countries for which data are available or can be estimated that are members of the European Union: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Poland, Portugal, Slovenia, the Slovak Republic, Spain, Sweden and the United Kingdom.

G20: These are Argentina, Australia, Brazil, Canada, China, France, India, Indonesia, Italy, Japan, Korea, Mexico, the Netherlands, the Russian Federation, Saudi Arabia, South Africa, Spain, Turkey, the United Kingdom and the United States.

Notes to tables and charts

For further details on the data behind any figure, see the relevant indicator in the full publication *Education at a Glance 2011*, or click the hyperlink in the figure's source to download the data and notes.

234

1. EDUCATION LEVELS AND STUDENT NUMBERS

To what level have adults studied?

Who participates in education?

How many young people finish secondary education?

How many young people enter tertiary education?

How many young people graduate from tertiary education?

How many students graduate outside the normal age?

What do students study?

How successful are students in moving from education to work?

How many adults take part in education and training?

How many students study abroad?

Where do students go to study abroad?

How many international students stay on in the host country?

To what level have adults studied?

- *On average across OECD countries, 27% of all adults have attained only primary or lower secondary levels of education, 44% upper secondary education and 30% tertiary level education.*
- *Upper secondary education is now the norm among younger adults in OECD countries, with substantially higher rates of attainment than among older adults.*
- *Among younger adults, the rate of tertiary attainment is also higher, reaching 37% of 25-34 year-olds.*

Significance

Education is important for both the present, giving individuals the knowledge and skills to participate fully and effectively in society, and for the future, as it helps expand scientific and cultural knowledge. This spread shows the level to which adults have studied, a measure that is often used as a proxy to illustrate human capital, or the skills available in a population and labour force.

Findings

In 28 out of 33 OECD countries, 60% or more of all adults (25-64 year-olds) have completed at least upper secondary education, however levels vary between countries. For instance, in Brazil, Mexico, Portugal and Turkey, less than half of all adults have achieved this level of education.

Comparing younger adults (25-34 year-olds) with older adults (55-64 year-olds) shows marked progress with regard to attainment of upper secondary education. Across OECD countries, the proportion of younger adults who have attained at least upper secondary education is on average 20 percentage points higher than among older adults (81% *versus* 61%). This increase has been particularly dramatic in Chile, Greece, Ireland, Italy, Korea, Portugal and Spain, all of which have seen an increase in upper secondary attainment of at least 30 percentage points.

Differences between age groups are less pronounced in countries with generally high levels of educational attainment. In the 15 OECD countries where more than 80% of all adults have at least upper secondary attainment, the difference in the proportions of younger adults and older adults is, on average, 11 percentage points. In Germany and the United States, there is no significant difference between the two age groups. For countries with more room for growth, the average gain in attainment between the age groups is typically large, but situations differ widely. In Norway, the difference is 5 percentage points; in Korea it is 55 percentage points.

In almost all countries, younger adults have higher rates of tertiary attainment than the generation about to leave the labour market. On average across OECD countries, 30% of all adults have completed tertiary education, but among younger adults this level rises to 37% while among the older age group it falls to 22%. The expansion of tertiary education differs greatly among countries. In France, Ireland, Japan and Korea there is a difference of 25 percentage points or more in the tertiary attainment of the oldest and youngest age groups.

Trends

Over the past decade, the major changes in educational attainment have been at either end of the skills distribution, with a fall in the number of people failing to complete upper secondary education and a rise in the number completing tertiary education (see Table A1.4 in *Education at a Glance 2011*). Between 1998 and 2009, the proportion of adults who had not completed upper secondary education fell from 37% to 27%, while the proportion completing tertiary education rose from 21% to 30%. The proportion completing upper secondary and post-secondary non-tertiary education was almost unchanged, rising from 42% to 44%.

Definitions

Data on population and education attainment are taken from OECD and Eurostat databases, which are compiled from National Labour Force Surveys.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator A1).

Areas covered include:

- Educational attainment of adults, and by gender.
- Potential growth in population with tertiary attainment.

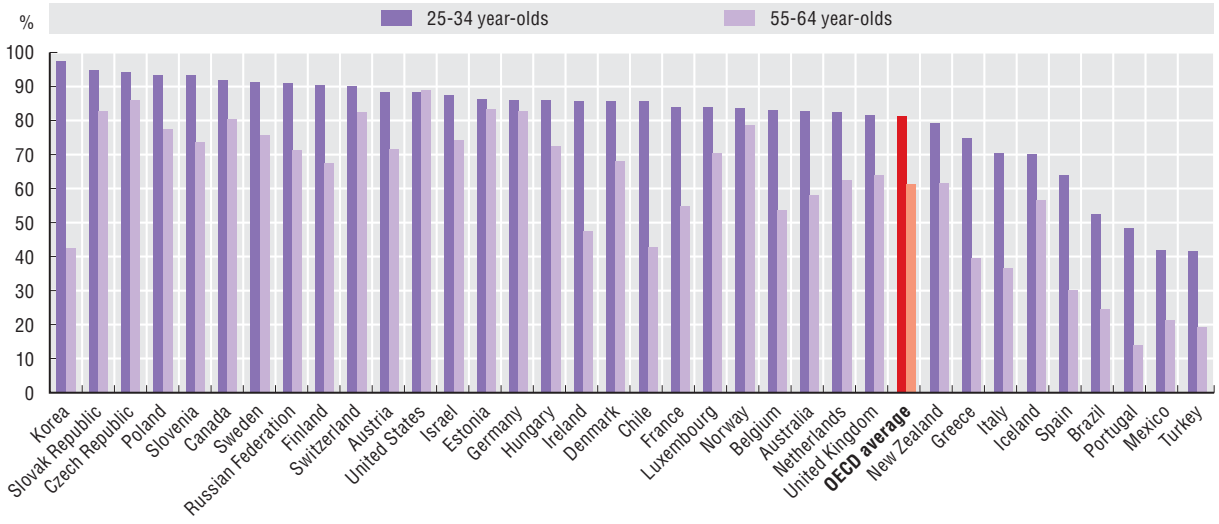
Additional data on gender gaps in secondary and tertiary education is available online in Indicator A1 at *www.oecd.org/edu/eag2011*.

Further reading from the OECD

Reviews of National Policies for Education (series).

Figure 1.1. **Population that has attained at least upper secondary education, 2009**

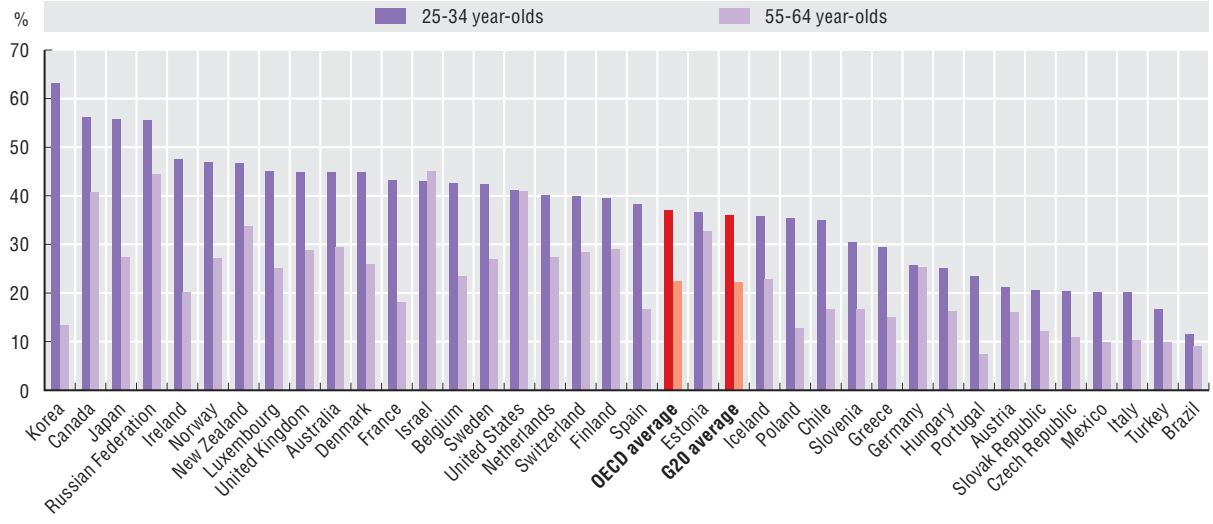
This figure shows the percentage of 25-34 year-olds and 55-64 year-olds who have been through at least upper secondary education. The rapid expansion of education in recent decades means younger people tend to have higher levels of education.



Source: OECD (2011), *Education at a Glance 2011*, Table A1.2a, available at *http://dx.doi.org/10.1787/888932462225*.

Figure 1.2. **Population that has attained tertiary education, 2009**

This figure shows the percentage of 25-34 year-olds and 55-64 year-olds who have been through tertiary education.



Source: OECD (2011), *Education at a Glance 2011*, Table A1.3a, available at *http://dx.doi.org/10.1787/888932462282*.

Who participates in education?

- *In most OECD countries, virtually everyone has access to at least 13 years of formal education.*
- *In more than half of OECD countries, over 70% of 3-4 year-olds are enrolled in either pre-primary or primary programmes.*
- *From 1995 to 2009, enrolment rates for 20-29 year-olds increased by 8.2 percentage points.*

Significance

A well-educated population is essential for economic and social development; societies therefore have a real interest in ensuring that children and adults have access to a wide range of educational opportunities. This spread examines the evolution in access to education from 1995 to 2009, focusing on the number of young people who continue studying once compulsory education has ended.

Findings

At least 90% of students are enrolled for a period of 14 or more years in Belgium, Estonia, France, Germany, Hungary, Iceland, Ireland, Italy, Japan, the Netherlands, Norway, Spain and Sweden. Enrolment rates exceed 90% during 11 years or less of education in Argentina, Chile, Korea, Mexico and the United States; in Brazil, Indonesia and Turkey, 90% of children have access to education during only 9 years or less. On average, a child is more likely to be enrolled in formal education at age 3 to 4 in the EU21 countries than in other OECD countries. In almost half of OECD countries, full enrolment (meaning more than 90% enrolment) begins between the ages of 5 and 7. However, in nearly two thirds of OECD countries, at least 70% of 3-4 year-olds are enrolled in either pre-primary or primary programmes (see Table C1.1 in *Education at a Glance 2011*).

The age at which compulsory education ends ranges from 14 years in Korea, Portugal, Slovenia and Turkey, to 18 years in Belgium, some provinces of Canada, Chile, Germany, Hungary and the Netherlands. In most OECD and other G20 countries, enrolment rates decline gradually during the last years of upper secondary education. More than 20% of 15-19 year-olds are not enrolled in education in Argentina, Australia, Austria, Brazil, Chile, Indonesia, Israel, Mexico, Turkey and the United Kingdom.

Enrolment rates for 20-29 year-olds indicate mostly the number of people attending tertiary education. (Note, tertiary enrolment rates can also be influenced by the presence of high numbers of international students.) On average in OECD countries, 26% of this age group was enrolled in education in 2009. Enrolment rates were 30% or more in Australia, Denmark, Finland, Germany, Iceland, New Zealand, Poland, Slovenia and Sweden.

Trends

Enrolment rates for 15-19 year-olds increased on average from 74% to 83% from 1995 to 2009. There has been growth, too, in enrolment for 20-29 year-olds, the age span during which most students are enrolled in tertiary education; between 1995 and 2009, their enrolment rates increased in nearly all OECD countries. Growth was at or above 10 percentage points in the Czech Republic, Finland, Hungary, Iceland, Korea, New Zealand, Poland and Sweden, and was particularly significant in the Czech Republic and Hungary, which were previously at the bottom of the scale of OECD countries but have since moved up to the middle. In around one-third of countries with available data, the enrolment rate for the two age groups has levelled off in the past five years. In upper secondary education, this may reflect the attainment of near-universal enrolment.

Definitions

Data for the 2008-09 school year are based on the UOE data collection on education statistics, administered annually by the OECD. Except where otherwise noted, figures are based on head counts and do not distinguish between full-time and part-time study.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

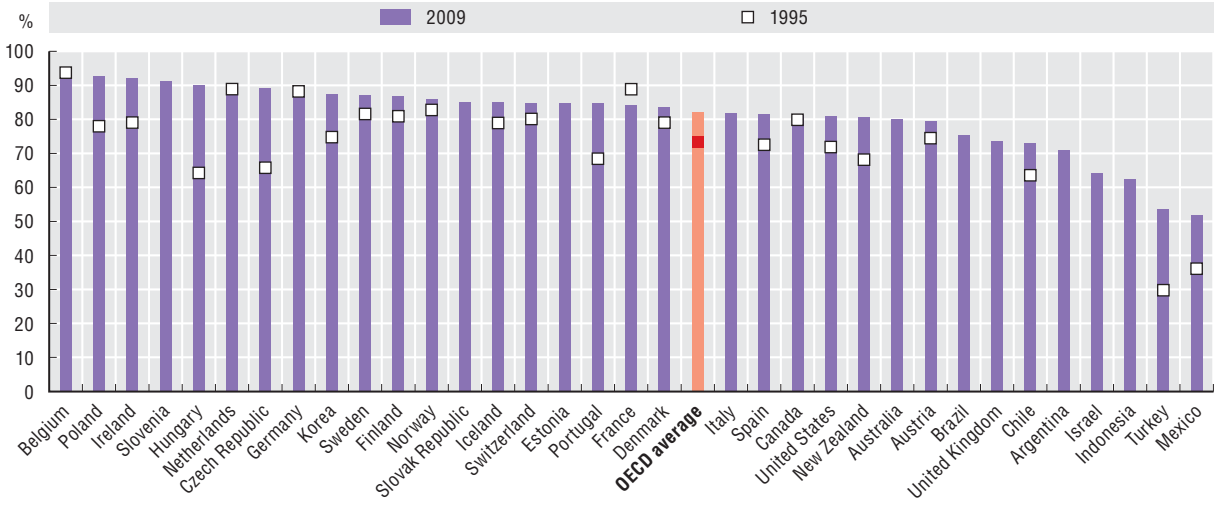
For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator C1).

Areas covered include:

- Students in primary, secondary and tertiary education, by type of institution or mode of enrolment.
- Transition characteristics from age 15 to 20, by level of education.
- Education expectancy.

Figure 1.3. **Enrolment rates of 15-19 year-olds (1995, 2009)**

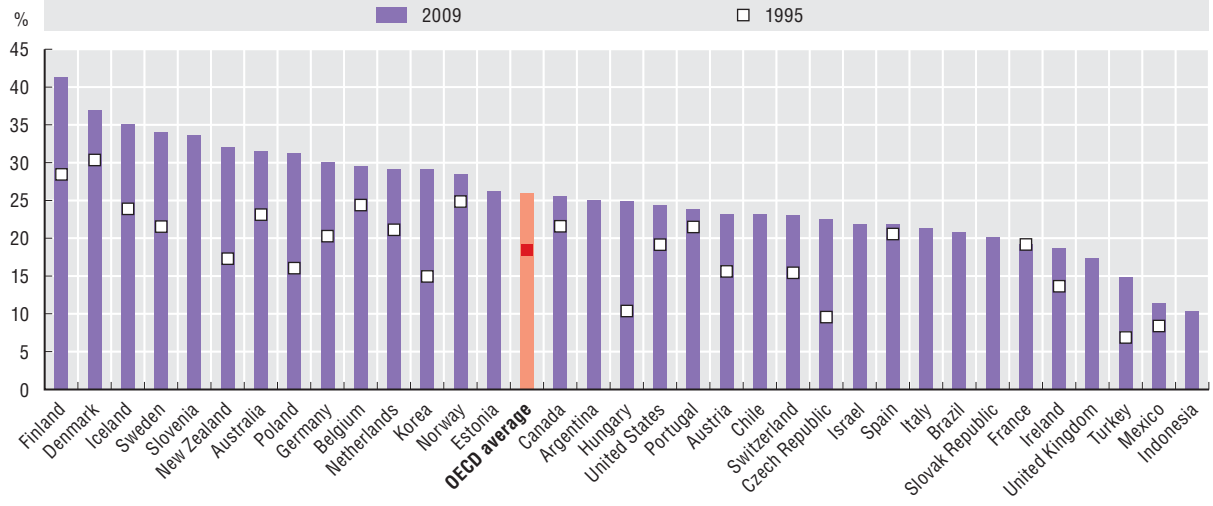
This figure shows the increase or decrease in the percentage of 15-19 year-olds enrolled in full-time and part-time education.



Source: OECD (2011), *Education at a Glance 2011*, Table C1.2, available at *http://dx.doi.org/10.1787/888932464296*.

Figure 1.4. **Enrolment rates of 20-29 year-olds (1995, 2009)**

This figure shows the increase or decrease in the percentage of 20-29 year-olds enrolled in full-time and part-time education.



Source: OECD (2011), *Education at a Glance 2011*, Table C1.2, available at *http://dx.doi.org/10.1787/888932464296*; Argentina and Indonesia: UNESCO Institute for Statistics.

How many young people finish secondary education?

- *Based on current patterns of graduation, it is estimated that an average of 82% of today's young people in OECD countries will complete upper secondary education over their lifetimes.*
- *Girls are now more likely than boys to complete upper secondary education in OECD countries, a reversal of historical trends.*
- *68% of students who begin upper secondary education complete the programmes they entered within the theoretical duration of the programme.*

Significance

This indicator shows how many students finish secondary education. Completing upper secondary education does not in itself guarantee that students are adequately equipped with the basic skills and knowledge necessary to enter the labour market or tertiary studies. However, research has shown that young people in OECD countries who do not finish this level of education face severe difficulties when it comes to finding work. Policy makers are examining ways to reduce the number of early school-leavers, defined as those students who do not complete their upper secondary education. Internationally comparable measures of how many students successfully complete upper secondary programmes – which also imply how many students don't complete those programmes – can assist efforts to that end.

Findings

In 21 of the 28 countries with available data, the percentage of young people graduating from upper secondary education exceeds 75%. In Finland, Ireland, Japan, New Zealand, Norway, Portugal, Slovenia, Switzerland and the United Kingdom it is at least 90%. Graduation rates for girls exceed those for boys in almost all OECD countries, except Germany and Switzerland (see Table A2.1 in *Education at a Glance 2011*).

In most countries, upper secondary education is designed to prepare students to enter university-level education (tertiary-type A). Nonetheless, there is significant variation between countries in the numbers of students who graduate from upper secondary education and those who actually enter tertiary education. For instance, in Belgium, Chile, China, the Czech Republic, Finland, Ireland, Israel, Italy and Japan, the gap is more than 20 percentage points, suggesting that many young people who could enter university (tertiary-type A) do not do so. It should be noted that the structure of national education systems, such as the prevalence of vocationally oriented tertiary education, and the requirement to perform military service account for some of these variations.

It is estimated that 68% of boys and girls who begin an upper secondary programme graduate within the planned duration of the programme. However, in some countries, it is relatively common for students and apprentices to take a break from their studies and leave the educational system temporarily. The proportion of students who complete their education in the stipulated time varies considerably among countries, with Ireland having the highest share, at 87%, and Luxembourg the lowest share, at 41%. Giving two extra years to students to complete the programmes slightly changes the ranking of the countries, with Estonia and the United States both around 87%, and Iceland in last place, at 58% (see Table A2.4 in *Education at a Glance 2011*).

Trends

Since 1995, the upper secondary graduation rate has increased by an average of eight percentage points among OECD countries with comparable data, with an annual growth rate of 0.7%. The greatest growth occurred in Chile and Portugal; both showed an annual growth rate of more than twice the OECD average between 1995 and 2009 (see Table A2.2 in *Education at a Glance 2011*).

Definitions

Data for the 2008-09 school year are based on the UOE data collection on education statistics, administered by the OECD in 2010. Upper secondary or post-secondary non-tertiary graduation rates are calculated for the years 2005-09 as net graduation rates, which represent the estimated percentage of an age cohort that will complete education at those levels. Gross graduation rates are presented for the years 1995, 2000-04, or for 2005-09 for countries that are unable to provide such detailed data.

Data on successful completion of upper secondary programmes come from a special survey in which 20 countries participated, administered by the OECD in December 2010.

Going further

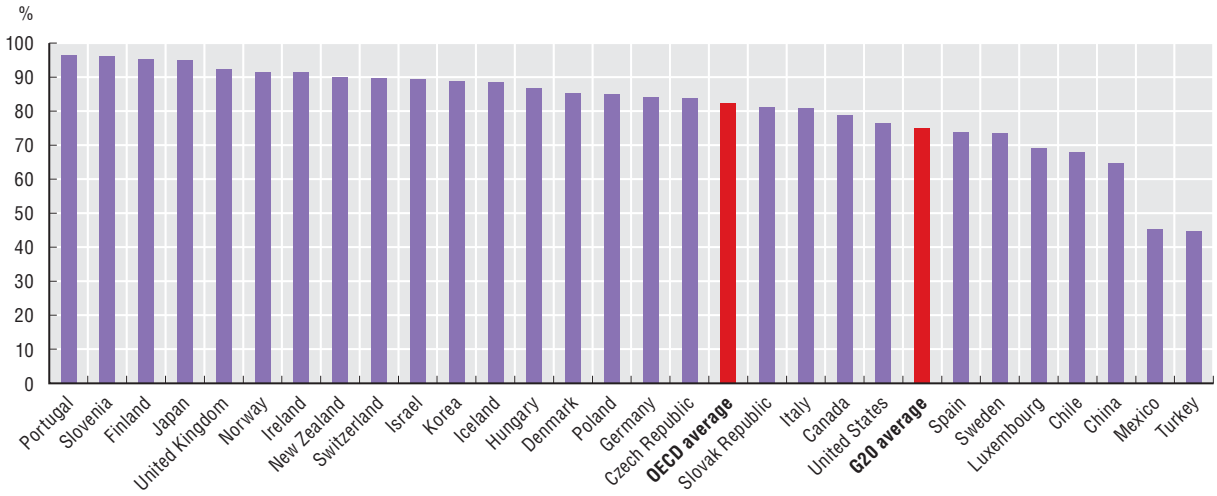
For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator A2).

Areas covered include:

- Current upper secondary graduation rates and trends.
- Successful completion of upper secondary programmes, by programme orientation and gender.

Figure 1.5. **Upper secondary graduation rates, 2009**

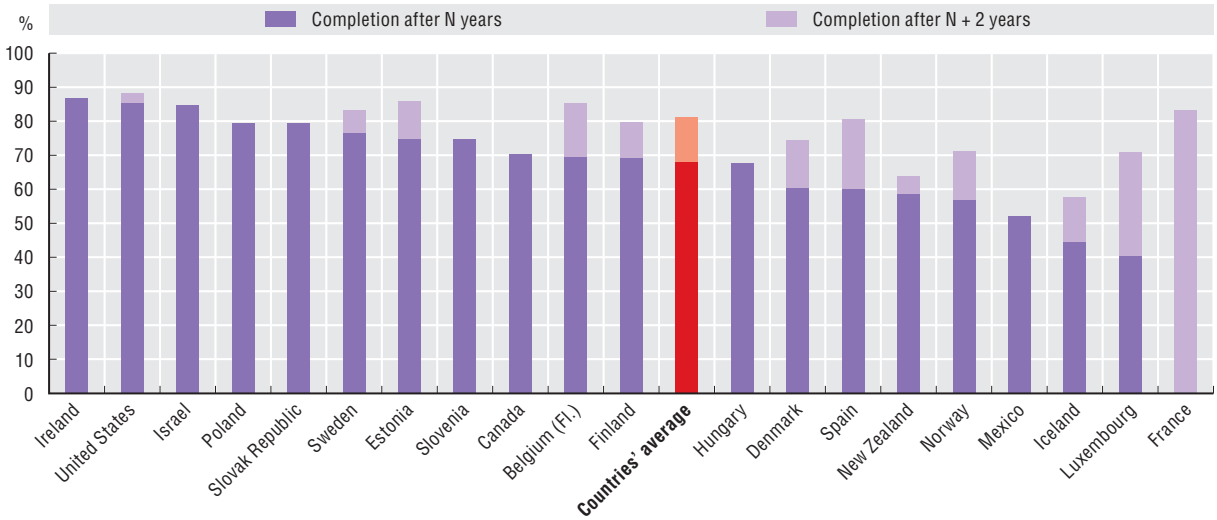
This figure shows the percentage of young people graduating from upper-secondary programmes. It represents the relationship between all the graduates in a given year and a particular population.



Source: OECD (2011), *Education at a Glance 2011*, Table A2.1, available at *http://dx.doi.org/10.1787/888932462358*.

Figure 1.6. **Successful completion of upper secondary programmes**

This figure shows the percentage of students who enter an upper secondary programme for the first time and who graduate from it. It represents the relationship between the graduates and the new entrants in the same level of education. The calculation is made in the amount of time normally allocated for completing the programme and also after an additional two years (for students who had to repeat a grade or who studied part-time, etc.).



Source: OECD (2011), *Education at a Glance 2011*, Table A2.4, available at *http://dx.doi.org/10.1787/888932466690*.

How many young people enter tertiary education?

- *Based on current patterns of entry, it is estimated that an average of 59% of today's young adults in OECD countries will enter university-level programmes and 19% will enter vocationally oriented programmes over their lifetimes.*
- *Between 1995 and 2009, entry rates for university-level programmes increased by an average of nearly 25 percentage points across OECD countries, while entry rates for vocationally oriented programmes remained stable.*
- *The age at which young people enter tertiary education varies widely among countries, from a median age of 18.6 in Japan to 23.7 in Israel.*

Significance

This indicator shows how many students will enter a specific type of tertiary education programme during their lifetimes. It also sheds light on the accessibility and perceived value of attending tertiary programmes, and provides some indication of the degree to which a population is acquiring the high-level skills and knowledge valued by today's labour market. High entry and participation rates in tertiary education imply that a highly educated labour force is being developed and maintained.

Findings

It is estimated that 59% of young adults in OECD countries will enter university-level programmes (largely theory-based) during their lifetimes if current patterns of entry continue. In several countries, at least 70% of young adults enter these kinds of programmes, while in Belgium, China, Indonesia and Mexico, at most 35% enter (see Figure 1.7).

The proportion of students entering vocationally oriented programmes is generally smaller, mainly because these programmes are less developed in most OECD countries. Proportions range from 3% or fewer in Italy, Mexico, the Netherlands, Norway, Poland, Portugal and the Slovak Republic; to 30% or more in Argentina, Belgium, Estonia, Korea, the Russian Federation, Slovenia, Turkey and the United Kingdom; and to at least 50% in Chile and New Zealand. Belgium, Chile and China are the three countries where more students entered vocationally oriented programmes than university-level programmes in 2009.

On average, in all OECD countries with comparable data, the proportion of young adults entering university-level programmes in 2009 increased by 12 percentage points since 2000 and by nearly 25 percentage points since 1995. In Australia, Austria, the Czech Republic, Korea, Poland and the Slovak Republic, entry rates into these programmes increased by more than 20 percentage points between 2000 and 2009.

Only Finland, Hungary, New Zealand and Spain have experienced a decline in entry rates into these programmes. In Hungary and Spain, the decrease is counterbalanced by a significant increase in entry rates into vocationally oriented programmes during the same period. In New Zealand, the rise and fall of entry rates between 2000 and 2009 closely mirrors the rise and fall of the number of international students over the same period.

Among OECD countries, 19% of young adults in OECD countries will enter vocationally oriented programmes during their lifetimes. Between 1995 and 2009, overall net entry rates into these programmes have remained relatively stable except in Spain and Turkey, where they have increased by 20 percentage points.

Traditionally, students enter academic programmes immediately after having completed upper secondary education, and this remains true in many countries. For example, in Belgium, Indonesia, Ireland, Italy, Japan, Mexico, the Netherlands, and Slovenia, 80% of all new entrants into university-level programmes are under 23 years of age (see Figure 1.8). In other countries, the transition from upper secondary to tertiary education may occur at a later age because of time spent in the labour force or the military.

Definitions

Data on trends in entry rates for the years 1995, 2000, 2001, 2002, 2003 and 2004 are based on a special survey carried out in OECD countries in January 2007. The net entry rate for a specific age is obtained by dividing the number of new entrants of that age to each type of tertiary education by the total population in the corresponding age group.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

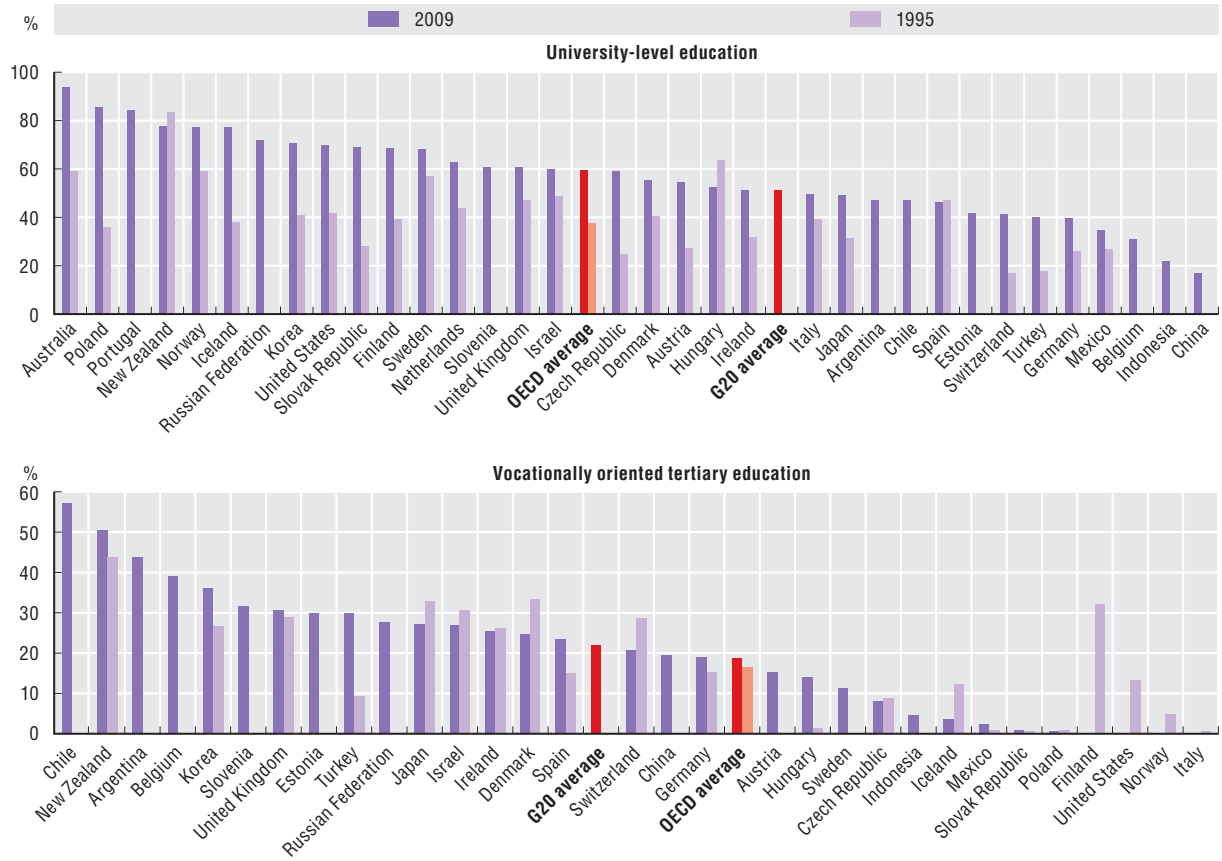
For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator C2).

Areas covered include:

- Entry rates by level of education.
- Age of new entrants in tertiary education.
- Age distribution of new entrants.

Figure 1.7. **Entry rates into tertiary education (1995, 2009)**

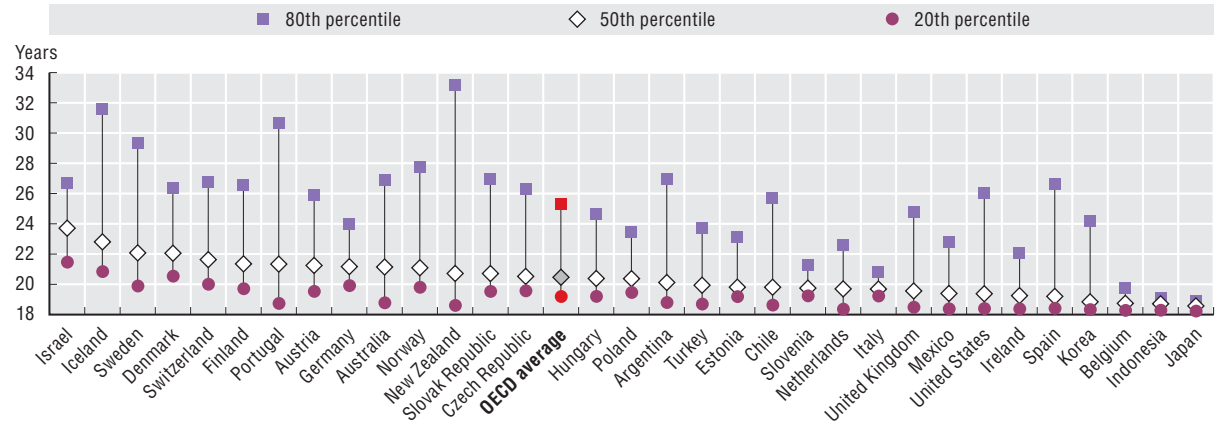
These figures show the growth – or otherwise – in the percentage of young people entering university-level education and vocationally oriented tertiary education. Entry rates have risen in most OECD countries.



Source: OECD (2011), *Education at a Glance 2011*, Table C2.2, available at *http://dx.doi.org/10.1787/888932464448.*

Figure 1.8. **Age distribution of new entrants in university-level education, 2009**

This figure shows the age distribution of new entrants in university-level programmes, by percentage. For example, in Belgium, Ireland, Italy, Japan, Mexico, the Netherlands, and Slovenia, 80% of all first-time entrants into university-level programmes are under 23 years of age.



Source: OECD (2011), *Education at a Glance 2011*, Table C2.1, available at *http://dx.doi.org/10.1787/888932464429.*

How many young people graduate from tertiary education?

- *Across 27 OECD countries with comparable data, an average of 39% of young people complete university-level education.*
- *Graduation rates range from 20% and below in Mexico and Turkey to 50% and above in Iceland, New Zealand, Poland and the Slovak Republic.*
- *Graduation rates for young women are notably higher than those for young men – 46%* versus *31%.*

Significance

Tertiary education serves as an indicator of the capacity at which countries produce advanced knowledge. Countries with high graduation rates at tertiary level are also those most likely to be developing or maintaining a highly skilled labour force. Graduation rates from tertiary education (the structure and scope of which varies widely between countries) are influenced both by the degree of access to tertiary programmes and by the demand for higher skills in the labour market.

Findings

Graduation rates vary significantly between countries: In Mexico and Turkey, around 20% or less of young people graduate from university-level education (tertiary-type A); by contrast, the proportion is 50% or more in Iceland, New Zealand, Poland, the Slovak Republic. (Note that graduation rates for some countries, in particular Australia and New Zealand, are artificially inflated by the presence of international students. For more, see Table A3.3 in *Education at a Glance 2011*.)

Disparities in graduation rates are even greater between men and women. On average in OECD countries, significantly more women obtain university-level qualifications than men, 46% *versus* 31%. The gender gap in favour of women is at least 25 percentage points in Iceland, Poland and the Slovak Republic. In Germany, Mexico and Switzerland, graduation rates between sexes are quite balanced. In Japan and Turkey, by contrast, more men graduate from university-level education.

In 26 OECD countries with comparable data, about 10% of young people graduate from vocationally oriented tertiary education (tertiary-type B). Graduation rates are significant – in excess of 20% of young people – in only a few OECD countries, most notably Canada, Ireland, Japan, New Zealand and Slovenia. At the highest levels of tertiary education, about 1.5% of young people graduate from advanced research programmes in the OECD area. The proportion exceeds 2.5% in Finland, Germany, Portugal, Sweden and Switzerland (see Table A3.3 in *Education at a Glance 2011*).

Trends

On average across OECD countries with comparable data, graduation rates from university-level education have increased by 19 percentage points over the past 14 years, and there were increases – often quite substantial – in virtually every country for which data are available. The increase was particularly steep between 1995 and 2000, and then levelled off. During the past three years, graduation rates have remained relatively stable at around 38%. The most significant increases since 1995 were reported in Austria, the Czech Republic, the Slovak Republic, Switzerland and Turkey, where the annual growth rate is over 8%.

Definitions

Data for the 2008-09 academic year are based on the UOE data collection on education statistics that is administered annually by the OECD. Tertiary graduates are those who obtain a university degree, vocational qualifications, or advanced research degrees of doctorate standard. Net graduation rates represent the estimated percentage of an age group that will complete tertiary education. Data presented here refer only to first-time graduates.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator A3).

Areas covered include:

- Graduation rates by gender.

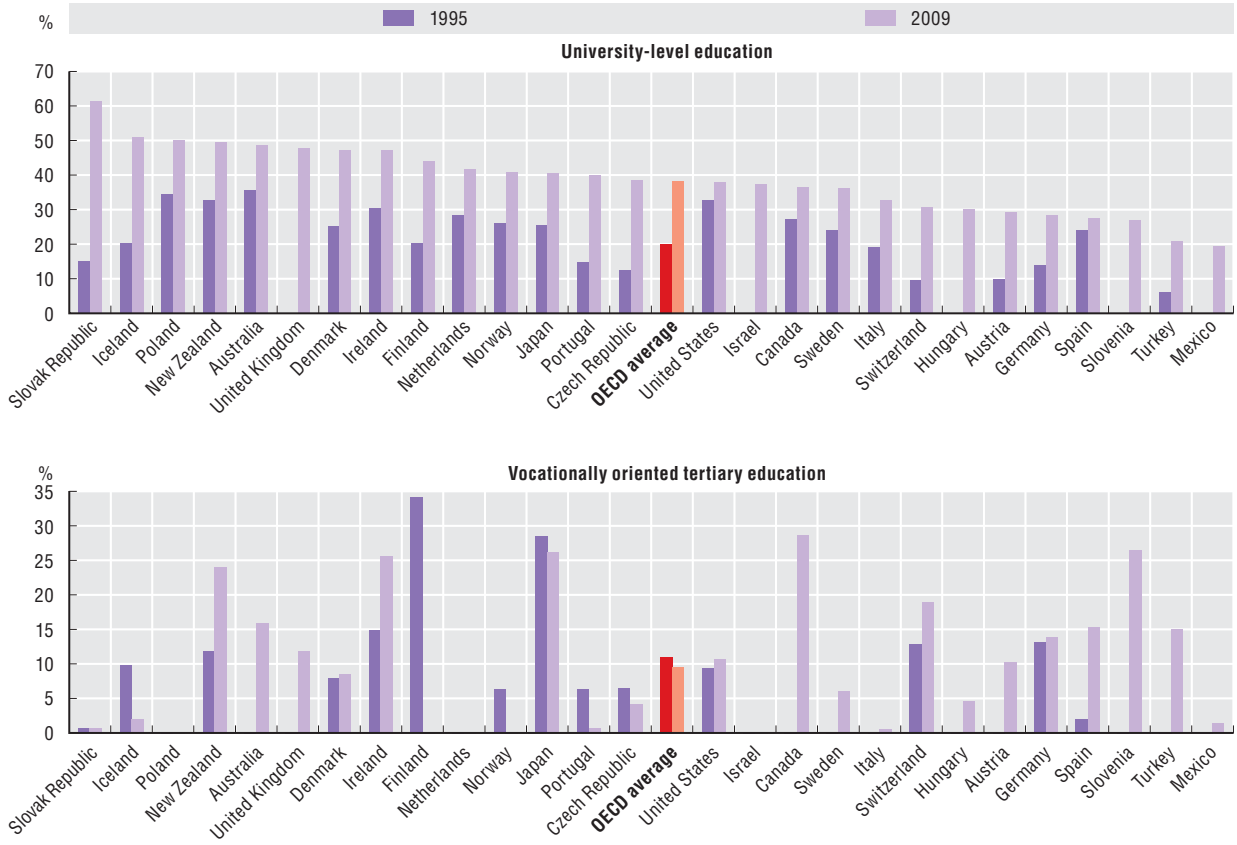
Further reading from the OECD

Higher Education Management and Policy (journal).

OECD Reviews of Tertiary Education (series of national reviews).

Figure 1.9. **First-time graduation rates from tertiary education (1995, 2009)**

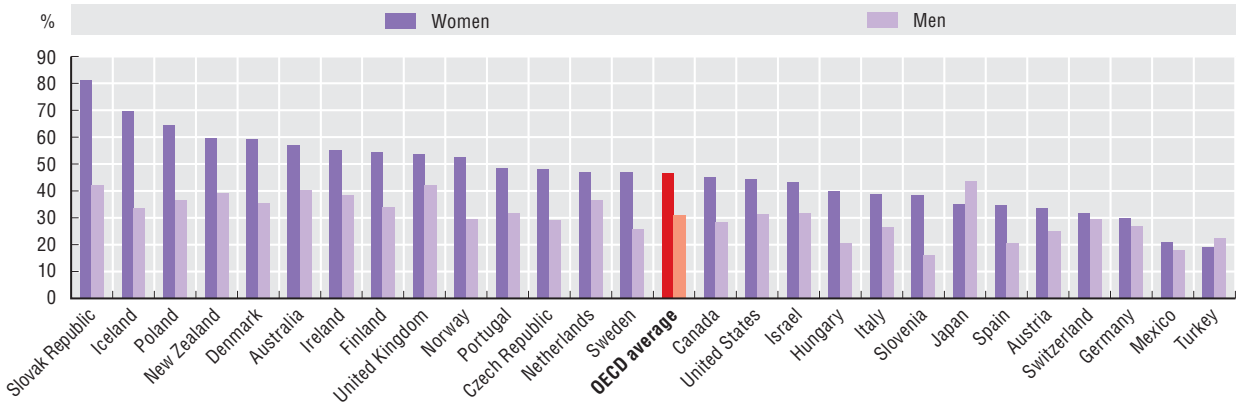
These figures show the growth or decline in the percentage of first-time graduates from university-level and vocationally oriented tertiary education.



Source: OECD (2011), *Education at a Glance 2011*, Table A3.2, available at *http://dx.doi.org/10.1787/888932462453*.

Figure 1.10. **Graduation rates from university-level education, by gender, 2009**

This figure shows the percentage of young men and young women who are first-time graduates from university-level education.



Source: OECD (2011), *Education at a Glance 2011*, Table A3.1, available at *http://dx.doi.org/10.1787/888932462434*.

How many students graduate outside the normal age?

- *In Denmark, Finland, Iceland, New Zealand, Norway and Portugal, students over 25 years account for at least 10% of first-time graduation rates from upper secondary education.*
- *Graduation rates for mature students account for a quarter of the university graduation rate in Iceland, Israel, New Zealand, Sweden and Switzerland.*
- *Iceland and New Zealand offer the greatest range of possibilities for later graduation at both the upper secondary and tertiary levels.*

Significance

Students typically graduate from upper secondary education in their late teens and from tertiary education by their mid-20s. However, in a number of countries some students study well beyond these age ranges. While some governments are taking measures to encourage students to make the most of their capacities by moving more rapidly into and through tertiary education, there is also value in ensuring that opportunities exist for people to complete their studies later in life so that they can equip themselves to compete in the labour market.

Findings

Completing upper secondary education is now considered the norm in most developed countries. In 21 of 28 countries with comparable data, first-time upper secondary graduation rates exceed 75%. However, not all students do so at the typical age of graduation, *i.e.* between the ages of 17 and 20. The reasons vary: Some countries, for example, offer a range of second chance or adult education programmes. In the Nordic countries, students can leave the education system relatively easily and re-enter at a later date: in Denmark, Finland, Iceland and Norway, first-time graduation rates for students older than 25 account for 10 percentage points or more. In Portugal, graduation rates in 2009 averaged 96% (34 percentage points higher than in 2008). More than one-third of these students were older than 25 thanks to *New Opportunities*, a programme introduced in 2005 to provide a second opportunity to individuals who left school early or are at risk of doing so, and to assist those who want to acquire further qualifications.

Adults who enter tertiary education after a period of work can raise their own human capital, improve the adaptability of the workforce to ongoing changes and help meet the demand for higher skills in the labour market. At tertiary level, where data are available for 23 countries, mature students have a high impact in Iceland, Israel, New Zealand, Sweden and Switzerland, where graduation rates for students aged over 30 account for a quarter or more of the total graduation rate.

Finland and Iceland are two countries with the most extensive possibilities for later graduation for adults at both the upper secondary and tertiary levels. However, staying longer in the school system also implies some additional costs, for example higher expenditure per student, foregone tax revenue and the delayed launch of one's career trajectory. Government authorities in some countries take this situation seriously.

For Israel, the high proportion of later graduations corresponds to the time spent in mandatory military service before embarking on tertiary studies.

Definitions

Data refer to the academic year 2008/09 and are based on the UOE data collection on education statistics administered by the OECD in 2010. Where data is available, upper secondary and tertiary graduation rates are calculated as net graduation rates, which represent the estimated percentage of the age cohort that will complete education at those levels. Tertiary graduates in this section refer only to those who obtain university degrees.

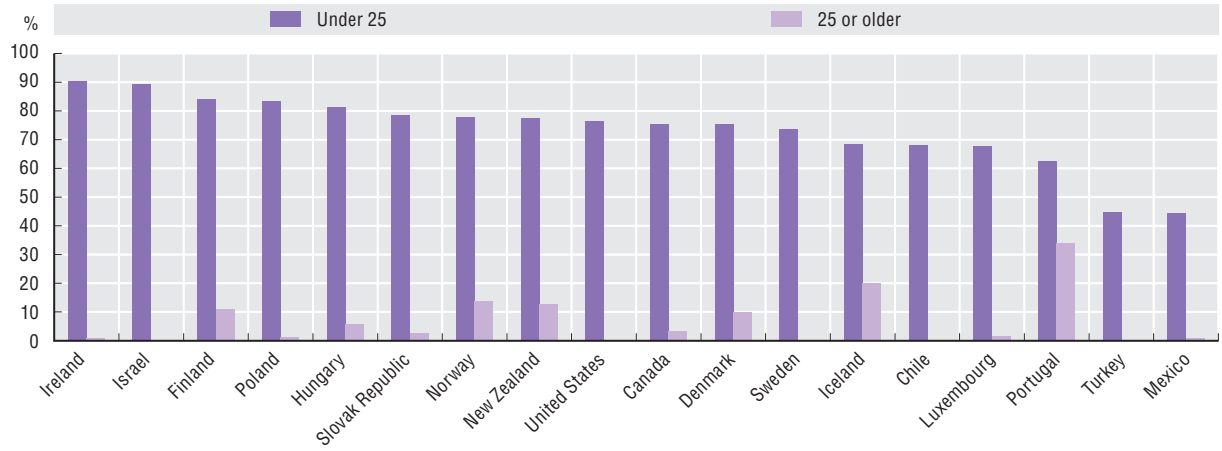
Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicators A2 and A3).

Figure 1.11. **Upper secondary graduation rates beyond the usual age, 2009**

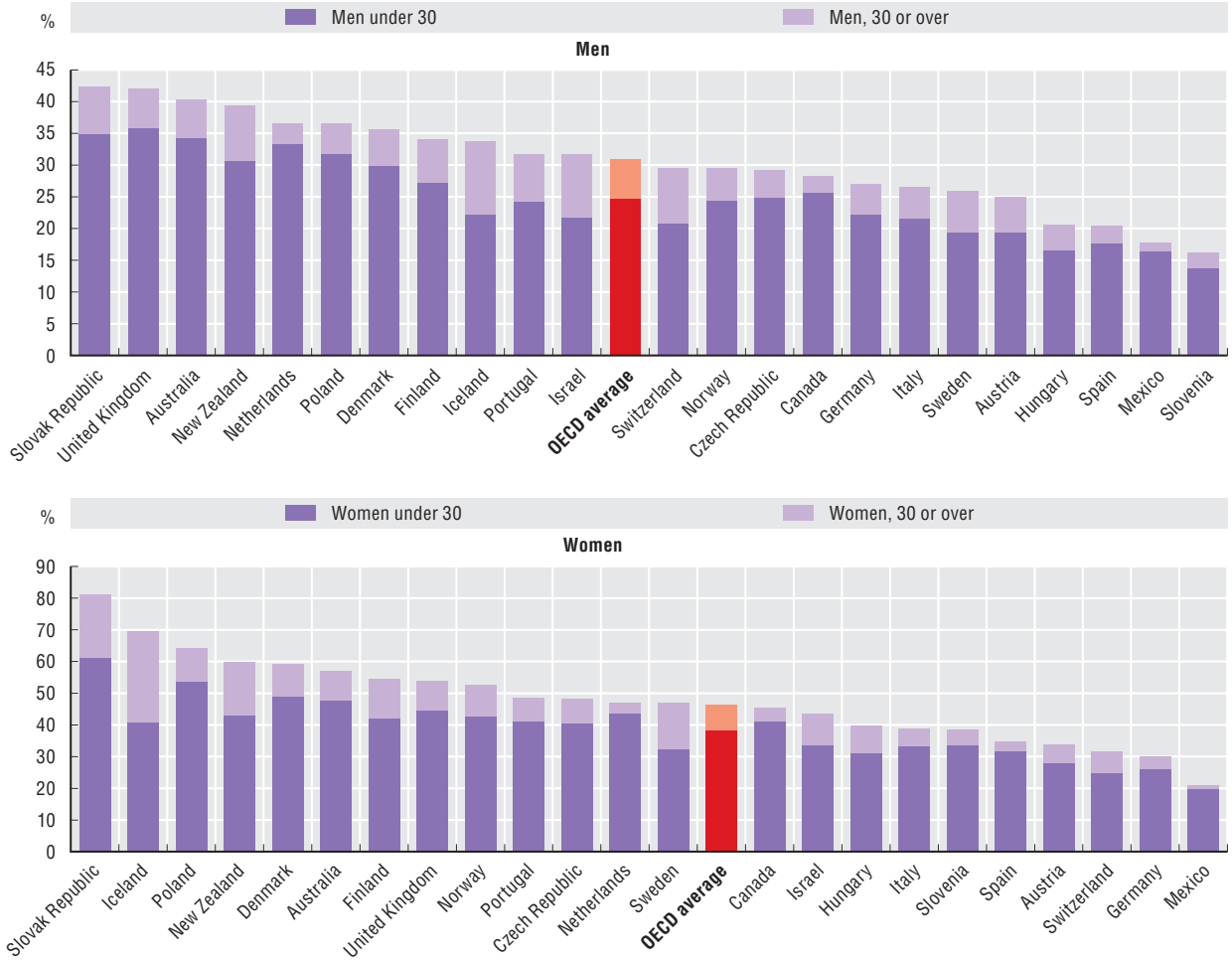
This figure shows the proportion of students graduating at age 25 or older from upper secondary education.



Source: OECD (2011), *Education at a Glance 2011*, Table A2.1, available at *http://dx.doi.org/10.1787/888932462358*.

Figure 1.12. **University-level graduation rates beyond the usual age, 2009**

This figure shows the proportion of students, by gender, graduating at age 30 or older from university-level education.



Source: OECD (2011), *Education at a Glance 2011*, Table A3.1, available at *http://dx.doi.org/10.1787/888932462434*.

What do students study?

- *Women represent the majority of students and graduates in almost all OECD countries and largely dominate in the fields of education, health and welfare, and humanities and arts. Men dominate in engineering, manufacturing and construction.*
- *In almost all countries, the largest proportion of tertiary students graduated in the fields of social sciences, business and law.*
- *In the vast majority of countries, more than two-thirds of graduates in the field of education and the field of health and welfare in 2009 were women. However, in 26 of the 33 countries, women represented fewer than 30% of graduates in the fields of engineering, manufacturing and construction.*

Significance

This spread examines the different fields of study pursued by students. Faced with an economic downturn and shrinking budgets, governments need to invest in the fields of study that develop the competencies needed to respond to labour-market demands. Students' preferences and abilities, and the cost, duration and location of higher education can all influence the choice of a field of study, as can changes in the labour market. In turn, the relative popularity of various fields of education affects the demand for programmes and teaching staff, as well as the supply of new graduates.

Findings

At the level of upper secondary vocational education, there are clear differences in what girls and boys are studying. Boys and girls might choose different fields of study because of differences in their personal preferences, different academic abilities, the influence of traditional perceptions of gender roles and/or any early education policies that may lead to gender sorting.

On average, more than one boy in two graduated from an upper secondary vocational education in the fields of engineering, manufacturing and construction. For girls, the main field of study varied among countries. In Austria, the Czech Republic, France, Germany, Indonesia, Japan, Luxembourg, New Zealand, the Slovak Republic, Slovenia and Switzerland, girls tended to prefer social sciences, business and law. In Australia, Denmark, Finland, the Netherlands and Norway, health and welfare programmes were more popular. Girls in Estonia, Hungary and Poland were more attracted to the service professions, while girls in Iceland, Korea, Spain and Sweden tended to pursue studies in education, humanities and arts.

At the tertiary level, the distribution of new entrants and graduates by field of study is driven by the relative popularity of these fields among students, the relative number of students admitted to these fields by educational institutions as well as the degree structure of the various disciplines in a particular country.

In almost all countries, social sciences, business and law programmes together receive the largest proportion of students at the tertiary level. In 2009, these fields attracted the highest share of new entrants in all countries except Finland and Korea.

Science-related fields, which include science and engineering, are less popular and represent less than a quarter of all entering tertiary students. This low level of participation is mainly due to the under-representation of women in science-related fields, which range from 5% in Japan and the Netherlands to 20% in Israel, while the proportion of men in these fields ranges from 26% in the Netherlands to 57% in Finland.

Women were predominant among university graduates in the field of education, representing more than 70% of tertiary students in this field across all countries, apart from Japan (59%) and Turkey (55%). They also formed the majority in health-related studies, averaging 75% of all degrees awarded in this field. In contrast, in all countries except Denmark, Estonia, Iceland, Poland, the Slovak Republic, Slovenia and Spain, fewer than 30% of university graduates in the fields of engineering, manufacturing and construction were women (see Table A4.3a in *Education at a Glance 2011*).

Definitions

Data refer to the academic year 2008/09 and are based on the UOE data collection on education statistics administered by the OECD in 2010. The fields of education used in the UOE data collection instruments follow the revised ISCED classification by field of education. The same classification is used for all levels of education. University students also include those in advanced research.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

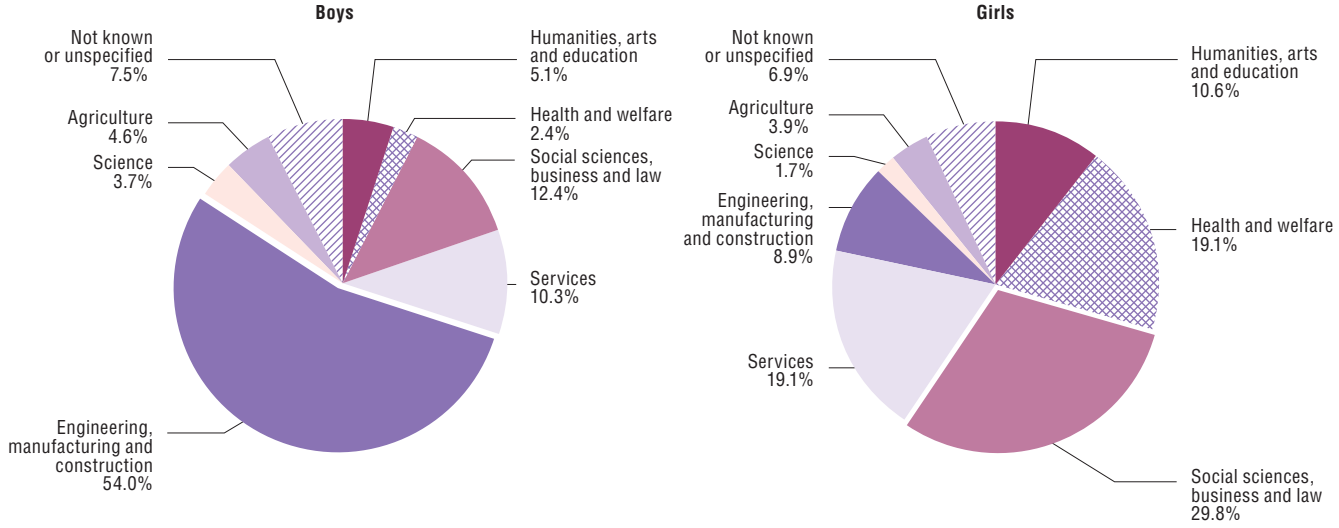
For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator A4).

Areas covered include:

- Upper secondary vocational education by field of study. Tertiary-level entry rates by field of study.
- Tertiary-level graduation rates by field of study.

Figure 1.13. **Distribution of graduates in upper secondary vocational programmes, by field of education, 2009**

This figure shows the distribution of graduates in upper secondary vocational programmes, by field of education and gender. There are clear differences in what girls and boys are studying. On average, more than one boy in two graduated in the fields of engineering, manufacturing and construction.



Source: OECD (2011), *Education at a Glance 2011*, Table A4.1a, available at *http://dx.doi.org/10.1787/888932462548*.

Figure 1.14. **Distribution of new entrants into tertiary programmes, by field of education, 2009**

This figure illustrates the choice that new students make when deciding on a programme of tertiary studies. At this level of education, most students choose to pursue studies in the fields of social sciences, business and law.

Source: OECD (2011), *Education at a Glance 2011*, Table A4.2a, available at *http://dx.doi.org/10.1787/888932462567*.

How successful are students in moving from education to work?

- *Across OECD countries, a 15-year-old in 2009 could expect to spend about 6.9 additional years in formal education.*
- *As labour market conditions worsened during the recent economic crisis, the expected number of years in education slightly increased, as did the time spent in unemployment and out of the labour force.*
- *On average, completing upper secondary education reduces unemployment among 20-24 year-olds by 7.4 percentage points and among 25-29 year-olds by 6 percentage points.*
- *As educational attainment increases, the incidence of long-term unemployment decreases.*

Significance

The recession that followed the financial crisis of 2008 has led to a big increase in unemployment in OECD countries. When the labour market deteriorates, those making the transition from school to work are often the first to encounter difficulties. This spread looks at the number of years young people can be expected to spend in education, employment and non-employment. In the wake of the economic crisis, long-term unemployment among young adults is likely to rise in most countries, especially for those who have not completed upper secondary education.

Findings

On average, a 15-year-old can expect to spend 6.9 years in formal education, but this rises to a high of at least 8 years in Denmark, Finland, Iceland, Luxembourg, the Netherlands and Slovenia, and less than 6 years in Brazil, Ireland, Japan, Mexico, Spain, and Turkey. In addition, an average 15-year-old can expect over the next 15 years to hold a job for about 5 years and 10 months, to be unemployed for 11 months and to be out of the labour market – neither in education nor seeking work – for 1 year and 4 months.

Unemployment rates among youth not in school vary according to their level of educational attainment, an indication of how further education can improve their economic opportunities. Young people (15-19 years old) who are not in employment, education or training, or "NEETs", have attracted considerable attention in some countries, in part because they often receive little or no support from the welfare system. On average across OECD countries, the proportion of NEETs among 15-19 year-olds is 8.4%, ranging from less than 3% in Denmark, Luxembourg and Slovenia to 29% in Turkey (see Table C4.4a in *Education at a Glance 2011*).

With jobs hard to find, returning to or remaining in education serves as an alternative for many youth. Between 2008 and 2009, the proportion of 15-29 year-olds in education in OECD countries rose by 0.5 percentage points. Overall, data suggest that these increases in participation largely reflect people remaining in – rather than returning to – education.

Since it has become the norm in most OECD countries to complete upper secondary education, those who fail to do so are much more likely to have difficulty finding a job when they enter the labour market. In Belgium, Canada, the Czech Republic, Estonia, France, Hungary, Ireland, the Slovak Republic, Spain, Sweden, the United Kingdom and the United States, the unemployment rate for 20-24 year-old non-students with less than upper secondary education attainment is 15% or more. Completing upper secondary education reduces the unemployment rate among this age group by an average of 7.4 percentage points (see Table C4.3 in *Education at a Glance 2011*).

Completing tertiary education reduces the unemployment rate among 25-29 year-olds who are not in school by an average of 2.1 percentage points, but actual figures vary considerably across countries. For example, in Australia, Denmark, Germany, the Netherlands and Sweden, the proportion of unemployed 25-29 year-olds who have completed tertiary education does not exceed 3%. In France, Greece, Ireland, Italy, Luxembourg, Mexico, Portugal, Slovenia, Spain and Turkey, this figure is at least 6%. Conversely, some countries are more able than others to provide employment for young adults with relatively low levels of educational attainment. For example, in Greece, Italy, Mexico, New Zealand, Slovenia, Switzerland and Turkey, 25-29 year-old tertiary graduates actually have higher unemployment rates than those with lower levels of educational attainment.

Definitions

Data are collected as part of the annual OECD Labour Force Survey, and usually refer to the first quarter, or the average of the first three months of the calendar year, thereby excluding summer employment. For certain European countries, the data come from the annual European Labour Force Survey. Persons in education include those attending school part-time and full-time. Non-formal education or educational activities of very short duration are excluded.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator C4).

Areas covered include:

- Expected years in education and not in education for 15-29 year-olds, as well as trends and gender differences.
- Transition from school to work for different age cohorts.

Further reading from the OECD

Closing the Gap for Immigrant Students (2010).

From Education to Work (2005).

Figure 1.15. **Distribution of work status among young adults, 2009**

These figures show the distribution of work status among young adults, by age group. Young adults leaving school and entering a difficult labour market are more likely to become unemployed or fall outside the labour force entirely.

Source: OECD (2011), *Education at a Glance 2011*, Table C4.2a, available at *http://dx.doi.org/10.1787/888932464619*.

How many adults take part in education and training?

- *Across the OECD, over 40% of the adult population participates in formal or non-formal education in a given year.*
- *The extent of participation varies considerably between countries, from less than 15% of adults in Greece and Hungary to over 60% in New Zealand and Sweden.*
- *Adults with higher levels of pre-existing education and younger adults are more likely to take part in education and training.*

Significance

Continuing education and training for adults is essential to upgrade workers' skills and enhance an economy's overall skill level. This is especially important as economies grapple with trends such as globalisation, changing technologies, the shift from manufacturing to services and more flexible management practices that increase the responsibility of lower-level workers. Changing demographics are also a major challenge: as societies age, people will need to work till later in life, hence developing the skills of older workers will be essential. With this background, this spread examines the extent to which the working age population is participating and investing in education and training.

Findings

Across the OECD, more than 40% of the adult population (25-64 years) takes part in at least one formal or non-formal education activity each year. Participation rates vary considerably: they stand at less than 15% of adults in Greece and Hungary; less than 25% in Italy and Poland; 50% or more in Finland, Norway and Switzerland; and over 60% in New Zealand and Sweden.

The degree of participation also varies between different groups of workers, notably between younger and older adults and between adults with higher and lower levels of educational attainment.

In most countries, younger adults (25-34 years) are the most likely to take part in education and training and older workers (55-64 years) least likely (49% against 27%) (see Table C5.3c available online only in *Education at a Glance 2011*). A number of factors may be at play: Older workers may place less value on acquiring new skills and employers may offer them fewer training opportunities.

In addition, education and training is more prevalent among the highly educated. In the OECD countries surveyed, participation in formal or non-formal education is more than 20 percentage points higher among people who have attained tertiary education compared to those with only upper secondary or post-secondary non-tertiary education. In turn, the latter has a participation rate 18 percentage points higher than those who have not attained upper secondary education (see Table C5.3a in *Education at a Glance 2011*).

Gender differences in participation are generally small and are equal to or greater than five percentage points in only eight countries. In Estonia, Finland, Slovenia, Sweden and the United States, participation rates are higher for women; in the Czech Republic, Germany and the Netherlands they are higher for men (see Table C5.3b, available online only in *Education at a Glance 2011*).

Definitions

Data presented here is based on a special OECD data collection. Data for non-European countries were calculated from country-specific household surveys. Data for countries in the European statistical system come from the pilot EU Adult Education Survey, covering 29 countries. Formal education is defined as education provided in the system of schools, colleges, universities and other formal educational institutions and which normally constitutes a continuous "ladder" of full-time education for children and young people. Non-formal education is defined as an organised and sustained educational activity that may take place both within and outside educational institutions and caters to persons of all ages.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator C5).

Areas covered include:

- Participation in job-related non-formal education, by gender and labour force status.
- Mean hours in non-formal education, by gender, educational attainment and labour force status.

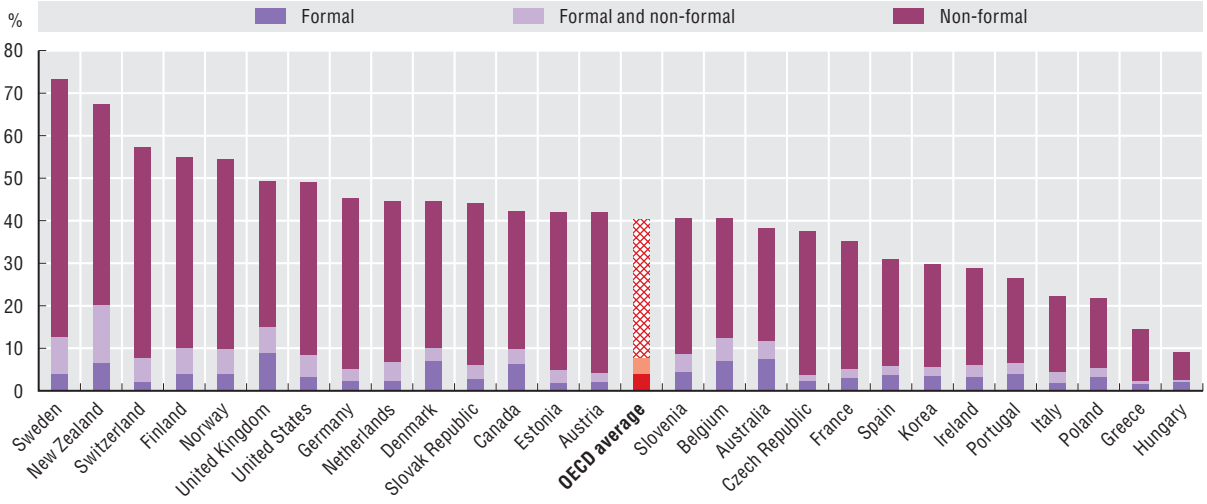
Further reading from the OECD

Recognising Non-Formal and Informal Learning (2010).

Education and Training Policy – Qualifications Systems: Bridges to Lifelong Learning (2009).

Figure 1.16. **Participation in formal and/or non-formal education, 2007**

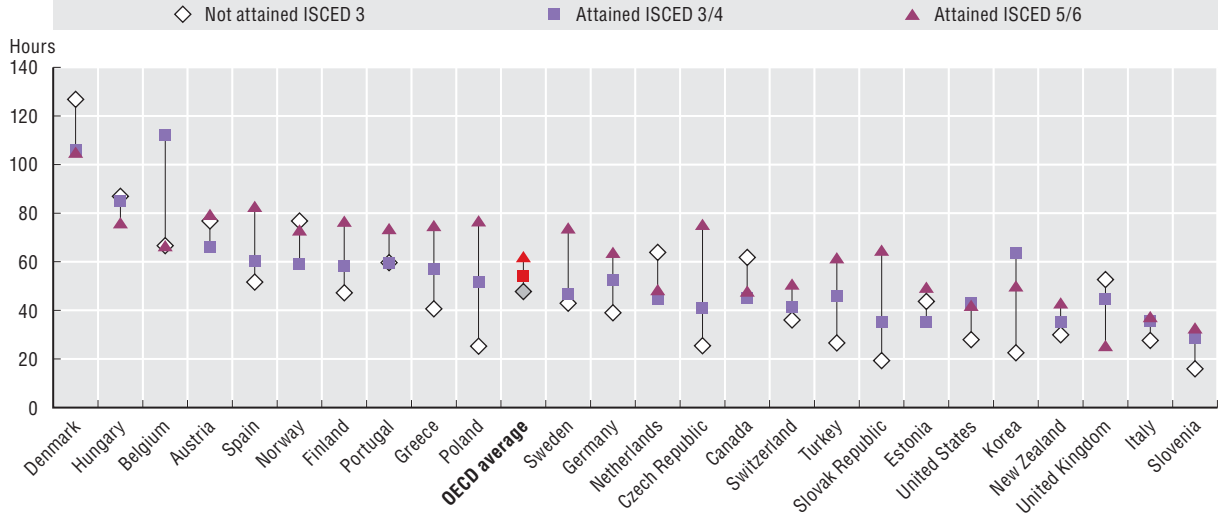
This figure shows the percentage of 25-64 year-olds who take part in formal or non-formal education. Across the OECD, the average participation rate is 41%.



Source: OECD (2011), *Education at a Glance 2011*, Table C5.3a, available at *http://dx.doi.org/10.1787/888932464942*.

Figure 1.17. **Average hours per employee in job-related non-formal education, by educational attainment, 2007**

This figure shows the average hours spent per employee who takes part in non-formal education, by level of educational attainment. People with higher levels of educational attainment tend to participate more in furthering their education. Countries are ranked in descending order for the hours of instruction for all levels of education combined.



Source: OECD (2011), *Education at a Glance 2011*, Table C5.2a, available at *http://dx.doi.org/10.1787/888932464847*.

How many students study abroad?

- *In 2009, almost 3.7 million tertiary students were enrolled outside their country of citizenship, representing an increase of more than 6% on the previous year.*
- *Just over 77% of students worldwide who study abroad do so in OECD countries.*
- *In absolute terms, the largest numbers of international students are from China, India and Korea. Asians account for 52% of all students studying abroad worldwide.*

Significance

This spread looks at the extent to which students are studying abroad. Pursuing higher-level education in a foreign country allows students to expand their knowledge of other cultures and languages, and to better equip themselves in an increasingly globalised labour market. Some countries, particularly in the European Union, have even established policies and schemes that promote such mobility to foster intercultural contacts and help build social networks.

Findings

OECD countries attract the bulk of students who study abroad worldwide – just slightly under four out of five. A number of those students (32%) are themselves from other OECD countries. Students from Korea (4.8%), Germany (3.6%) and France (2.1%) represent the largest groups of foreign OECD students enrolled in other OECD countries, followed by students from Canada (1.8%), Japan (1.8%) and the United States (1.8%). But China is the biggest single source country, accounting for 18.2% of all students studying abroad in the OECD area (or 19.5% if Hong Kong-China is included). Indeed, Asia is generally the biggest source area of foreign students, making up 51% of the total in OECD countries. Their presence is particularly strong in Australia, Japan and Korea, where they account for more than 75% of international and foreign students. In the OECD area, Europeans form the second largest group, constituting 24.4% of international and foreign students, followed by Africa with 10%, Latin America and the Caribbean with 6% and North America with 3.7% (see Table C3.2 in *Education at a Glance 2011*).

There are big variations between countries in the percentage of international students enrolled in their tertiary student body, as the second chart on the opposite page shows. In Australia, international students represent 21.6% of tertiary students; 15.3% in the United Kingdom; 15.1% in Austria; 14.9% in Switzerland; and 14.6% in New Zealand. By contrast, the proportion in Chile, Estonia, Poland and Slovenia is less than 2%.

In a number of countries, especially in Australia and New Zealand, this large presence of international students has a significant impact on tertiary graduation rates (see Chart A3.4 in *Education at a Glance 2011*). If data for international students is excluded, Australia's graduation rate from university-level first degree programmes drops by 15 percentage points and New Zealand's by 9 percentage points.

Trends

Over the past three decades, the number of international students has grown substantially, from 0.8 million worldwide in 1975 to almost 3.7 million in 2009, a more than fourfold increase. This growth has accelerated since the late 1990s, mirroring the processes of economic and social globalisation. The global increase in the number of international students also reflects the overall increase in tertiary enrolment.

Definitions

Data on international and foreign students are based on the UOE data collection on education statistics, administered annually by the OECD. Data from the UNESCO Institute for Statistics are also included. Students are classified as "international" if they left their country of origin and moved to another country to study. Students are classified as "foreign" if they are not citizens of the country in which they are studying. This latter category includes some students who are permanent residents, albeit not citizens, of the countries in which they are studying (for example, young people from immigrant families).

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

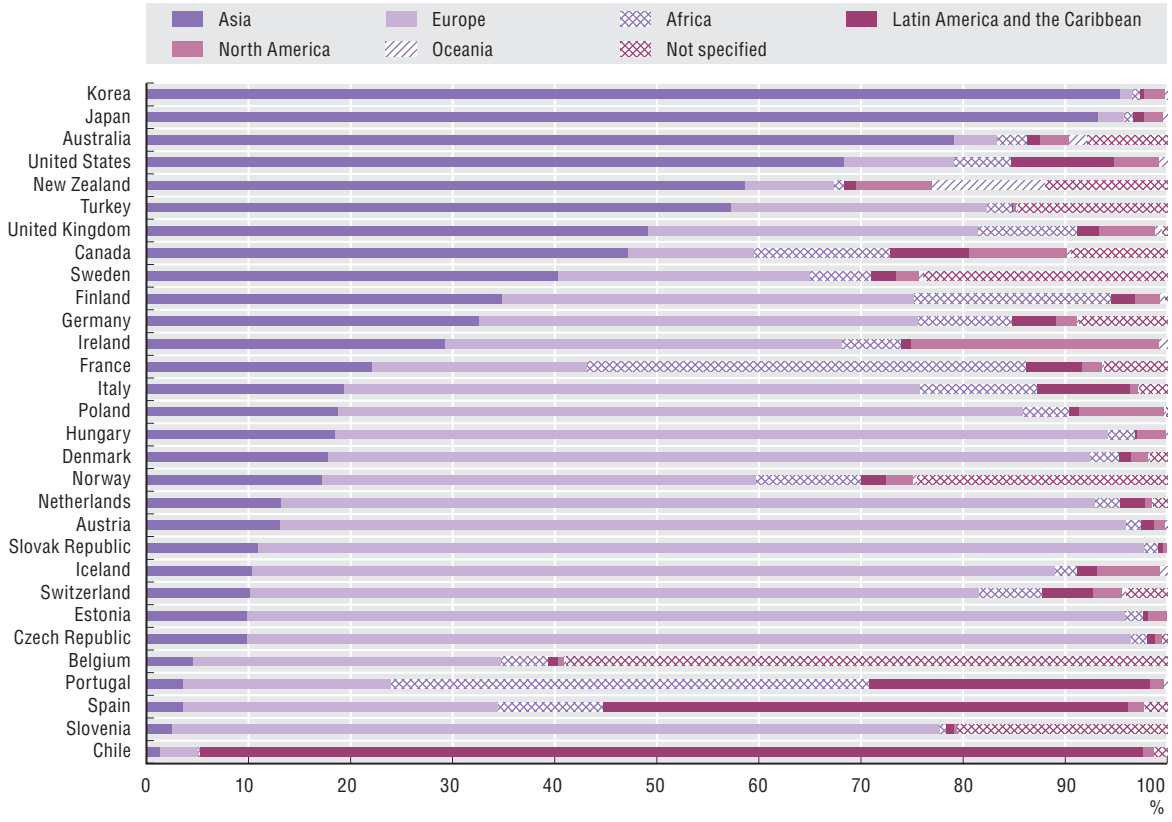
For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicators C3, A3 and C2).

Areas covered include:

- Distribution of students by country of origin and destination.
- Trends in the numbers of students studying abroad.

Figure 1.18. **Distribution of foreign and international students in tertiary education, by region of origin, 2009**

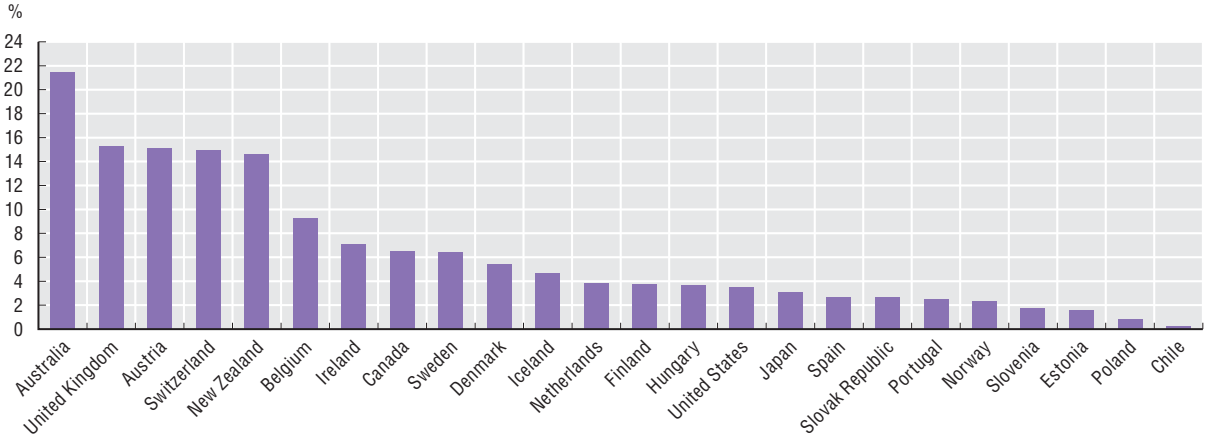
This figure shows the regional origins of international and foreign students studying in OECD countries. The majority of students studying abroad come from Asia (52%), followed by Europe (23%) and Africa (11.5%).



Source: OECD (2011), *Education at a Glance 2011*, Table C3.2, available at *http://dx.doi.org/10.1787/888932464486.*

Figure 1.19. **Percentage of international students enrolled in tertiary education, 2009**

This figure shows the percentage of international students at the tertiary level in each country.



Source: OECD (2011), *Education at a Glance 2011*, Table C3.1, available at *http://dx.doi.org/10.1787/888932464467.*

Where do students go to study abroad?

- *Six countries – Australia, Canada, France, Germany, the United Kingdom and the United States – hosted more than half of the world's students who studied abroad in 2009.*
- *The United States saw a significant drop as a preferred destination of foreign students between 2000 and 2009, falling from about 23% of the global market share to 18%.*
- *The shares of foreign students who chose Australia and New Zealand as their destination grew by almost 2%, as did that in the Russian Federation, which has become an important new player on the international education market.*

Significance

This indicator describes students' preferred destinations and subjects they study. Beyond its social and educational effects, the phenomenon of studying abroad has a considerable economic impact. Some OECD countries already show signs of specialisation in the sort of education programmes they offer, and the internationalisation of education is likely to have a growing impact on some countries' balance of payments of services as a result of revenue from tuition fees and domestic consumption by international students.

Findings

Even if their share of foreign students has slightly decreased by 2% in the past five years, European countries still lead the preferences in absolute numbers, with a share of 38%, followed by North America (23%). Nevertheless, the fastest growing regions of destination are Asia, Oceania, Latin America and the Caribbean, mirroring the internationalisation of universities in an increasing set of countries.

The five most popular destination countries in 2009 were: the United States, which took in 18% of all foreign students; the United Kingdom, 10%; and Australia, France and Germany, which each took in 7%. Other major destinations include Canada, 5%; Japan and the Russian Federation, 4%; and Spain, 2%. (Figures for Australia, the United Kingdom and United States refer to international students; see Definitions on page 30.)

Language is an essential factor in students' choice of destination country. Countries whose language of instruction is widely spoken and read (*e.g.* English, French, German, Russian and Spanish) are therefore leading destinations, although Japan is a notable exception. The dominance of English-speaking destinations, such as Australia, Canada, the United Kingdom and the United States, reflects the progressive adoption of English as a global language. An increasing number of institutions in non-English-speaking countries now offer courses in English as a way of attracting more foreign students.

International students are less represented in the humanities and were strongly represented in social sciences, business and law. Business programmes attract the largest numbers of international students. This is true in 14 of 22 countries reporting international students and in 2 of 6 countries reporting foreign students. Around half of all international students are enrolled in social sciences, business or law in Australia, Estonia, the Netherlands and Portugal. France has the largest proportion of foreign students enrolled in these subjects (40%). Sciences attract at least 15% of international students in Germany, Iceland, New Zealand, Norway, Sweden, Switzerland and the United States, and a similar proportion of foreign students in France, but only 1.5% in Japan. The large proportion of foreign students in scientific disciplines in Germany may reflect the country's strong tradition in these fields. Non-English-speaking countries tend to enrol a higher proportion of international students in education, humanities and arts; these areas of study are preferred by 45% of international students in Iceland and by over 20% in Austria, Germany, Japan, Norway and Switzerland, as well as by foreign students in the Slovak Republic and Turkey.

Trends

A number of countries saw a fall in their market shares in the first half of this decade. The most notable decline was in the United States, which was the destination for almost one in four international students in 2000, but fewer than one in five in 2009. Germany's market share fell by about two percentage points, the United Kingdom's by one percentage point, and Belgium's by about one percentage point. By contrast, the impressive growth in the Russian Federation's share by almost two percentage points makes it an important new player in the international education market. The shares of Australia and New Zealand also increased by about two percentage points each, and in Korea and Spain shares grew by more than one percentage point. The slump in the United States' share may be due in part to the to the increasing diversification of destinations, especially among fast-growing economies, as well as to competition from universities in the Asia-Pacific region, which are becoming increasingly active in their marketing efforts.

Definitions

See previous spread.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicators C3 and A4).

Areas covered include:

- Trends in international education market shares.

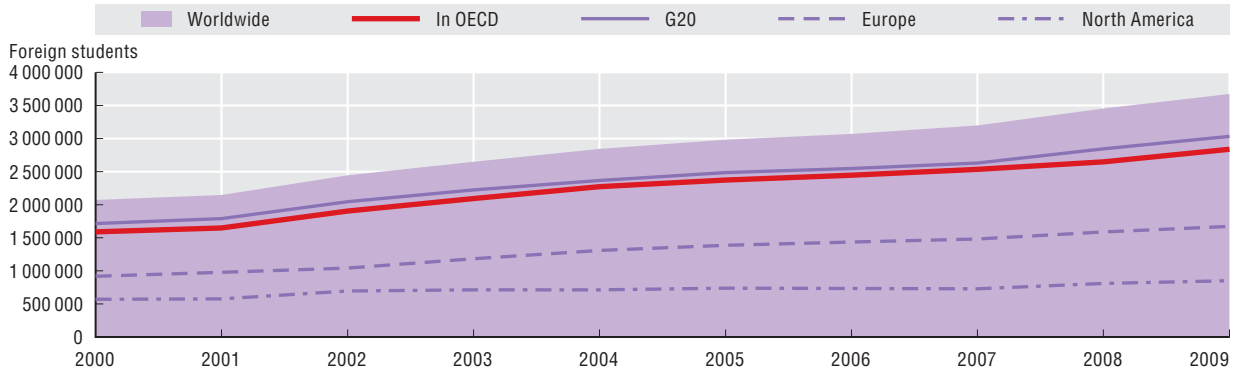
Further reading from the OECD

Cross-border Tertiary Education: A Way towards Capacity Development (2007).

Internationalisation and Trade in Higher Education: Opportunities and Challenges (2004).

Figure 1.20. **Evolution in the number of students enrolled outside their country of citizenship (2000, 2009)**

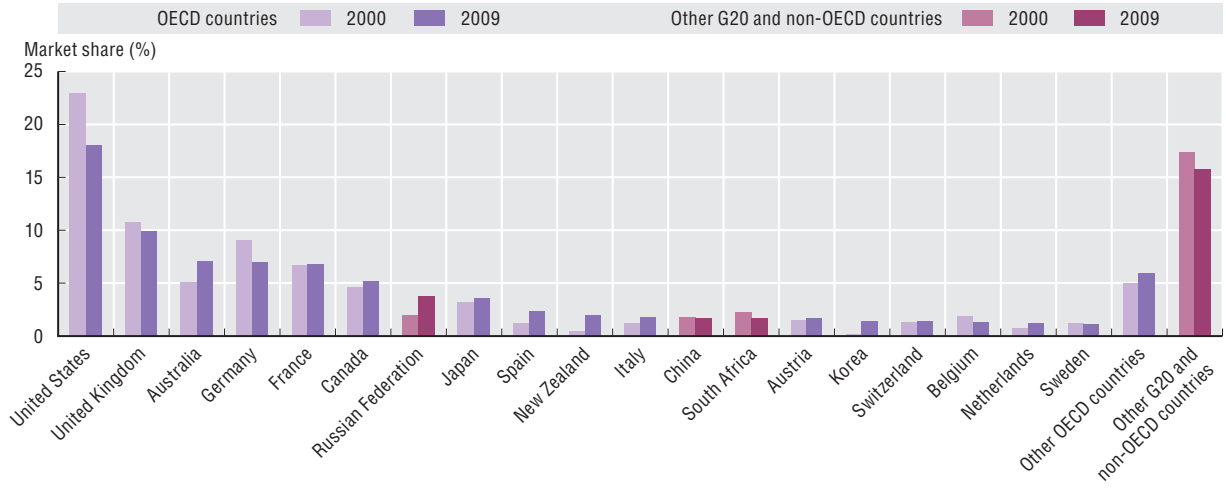
This figure shows the growth of foreign tertiary student enrolment, by regional grouping, over the past nine years.



Source: OECD (2011), *Education at a Glance 2011*, Table C3.5, available at *http://dx.doi.org/10.1787/888932464543*.

Figure 1.21. **Trends in market share for international education (2000, 2009)**

This figure shows the share of all foreign tertiary students taken by each of the major study destinations, and how that share has changed. Most notably, almost a quarter of all foreign students went to the United States in 2000, but this has since fallen to less than a fifth.



Source: OECD (2011), *Education at a Glance 2011*, Table C3.6, available at *http://dx.doi.org/10.1787/888932464562*.

How many international students stay on in the host country?

- *Several OECD countries have eased their immigration policies to encourage the temporary or permanent immigration of international students, including Australia, Canada, Finland, France, New Zealand and Norway.*
- *Many students move under a free-movement regime, such as the European Union, and do not need a residence permit to remain in their country of study.*
- *On average, 25% of international students who did not renew their student permits changed their student status in the host country mainly for work-related reasons.*

Significance

This spread examines students who decide to remain in the host country after completion of their studies. International students decide to stay in their country of study for various reasons, including: increased work opportunities compared to their country of origin, ease of integration into their host country, and future career advantages when returning to their country of origin or when moving to a third country.

Findings

Several OECD countries have eased their immigration policies to encourage the temporary or permanent immigration of international students. Australia, Canada and New Zealand, for example, make it easy for foreign students who have studied in their universities to settle by granting them additional points in those countries' immigration point system. Finland and Norway amended their naturalisation acts and now take the years of residence spent as students into account when they assess eligibility. In France, enrolment of international students in advanced research programmes reduces the period of residence needed to be eligible for naturalisation. In many other OECD countries, working visa and temporary residence procedures have been simplified for international students and graduates.

Countries apply other measures to integrate international students. These includes local language courses, as offered in Finland and Norway, and internship programmes or work permits for part-time participation in the labour market, as offered in Australia, the Czech Republic, Japan, Norway and Sweden. In addition, the freedom of movement of workers within Europe and standardised national policies with respect to tuition fees partly explain the high level of student mobility in Europe compared to that among the countries of North America.

The number of students who remain in the country in which they have studied and the success of policies designed to retain migrants with high skills can be measured by stay rates. The stay rate is defined as the proportion of international students changing to a status other than student to the amount of students not renewing their student permits in the same year.

The stay rate averaged 25% among international students who did not renew their student permit in 2008 or 2009, and is above 25% in Australia, Canada, the Czech Republic, France, Germany and the Netherlands. In all countries with available data, the stay rate is higher than 17% and reaches 33% in Canada. On average, 74% of students who change their status do so for work-related reasons. This is true for 80% or more of status changes in Canada, Germany, Ireland and the Netherlands (see Chart C3.5 in *Education at a Glance 2011*).

Stay rates need to be treated with some caution because of data limitations and because some students may have not completed their education at the time when they changed status. In addition, not all of these students may be staying for work reasons; some will remain because of humanitarian or family reasons. Finally, the rates presented below exclude all students moving under a free-movement regime, such as that in the European Union. Such individuals do not need a residence permit and thus do not show up in the permit statistics.

Definitions

Data on international and foreign students refer to the academic year 2008/09 and are based on the UOE data collection on education statistics administered by the OECD in 2010. The stay rate is estimated as the ratio of the number of persons who have changed status (whether for work, family or other reasons) to the number of students who have not renewed their permits. Because the change-of-status statistics are based on permit data, they do not include citizens of the European Economic Area (EEA) for European countries, who do not need a student permit to study in another country of the EEA. For the Czech Republic, Finland, Ireland and Spain, all permit statistics were obtained from the online migration database of Eurostat. This was also the source for student status changes for the United Kingdom. Data for the Czech Republic, Finland, Ireland, Spain and the United Kingdom are for 2009; for all other countries, 2008.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator C3).

Areas covered include:

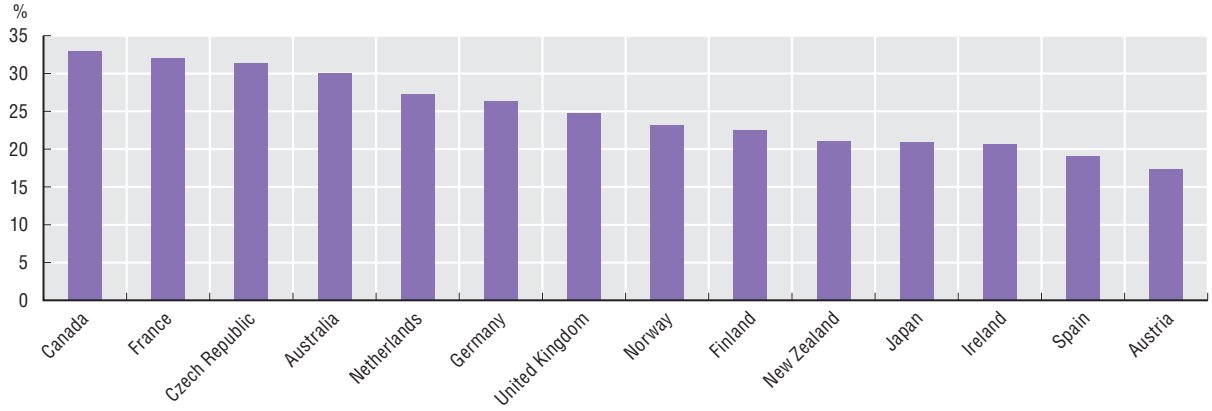
- Stay rates of international enrolled and graduated students.

Further reading from the OECD

International Migration Outlook 2011 (2011).

Figure 1.22. **Stay rates of international students in selected OECD countries (2008 or 2009)**

This figure shows the percentage of international students who decide to change their student status and legally remain in their country of study. In many cases, countries with higher rates have immigration policies that encourage the temporary or permanent immigration of international students.



Source: OECD (2011), *Education at a Glance 2011*, Table C3.5, available at *http://dx.doi.org/10.1787/888932464543*.

2. THE ECONOMIC AND SOCIAL BENEFITS OF EDUCATION

How much more do tertiary graduates earn?

How does education affect employment rates?

What are the incentives for people to invest in education?

What are the incentives for societies to invest in education?

How expensive are graduates to hire?

What are the social benefits of education?

How much more do tertiary graduates earn?

- *Earnings tend to rise in line with people's level of education.*
- *The earnings premium for tertiary education is substantial and exceeds 50% in more than half the countries studied.*
- *Across all countries and all levels of education, women earn less than men, and that gap is not reduced with more education.*

Significance

This spread examines the relative earnings of workers with different levels of education. Differences in pre-tax earnings between educational groups offer a good indication of supply and demand for education. Combined with data on earnings over time, these differences provide a strong signal of whether education systems are meeting the demands of the labour market.

Findings

Variations among countries in relative earnings 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 various levels of educational attainment, and levels of part-time and seasonal work. Still, earnings differentials are among the more straightforward indications as to whether the supply of educated individuals meets demand, particularly in the light of changes over time.

As the data show, educational attainment is strongly linked to average earnings. On average across OECD countries, graduates of tertiary education earn over 50% more than upper secondary and post-secondary non-tertiary graduates. At the other end of the education scale, people who have not completed upper secondary education earn 23% less than those with an upper secondary or post-secondary non-tertiary education.

More education does little to narrow the gender gap in earnings. Women earn substantially less than men, on average, and this gap is not reduced with more education. The gap is smallest among those with upper secondary and post-secondary non-tertiary education, where women's earnings are 76% of men's, and largest among those with tertiary education, at 72%. Despite the earnings advantages of higher education, earnings differentials between men and women with the same educational attainment remain substantial.

The earnings advantage from education increases with age. Tertiary earnings are relatively higher at an older age in all countries except Germany, Greece, Ireland and Turkey. In most countries, then, tertiary education not only improves the prospect of being employed at an older age, but is also associated with greater earnings and productivity differentials throughout the working life. For those with below upper secondary education the earnings advantage generally decreases with age (see Chart A8.3 in *Education at a Glance 2011*).

Trends

The relative earnings premium for those with a tertiary education has been rising in most countries over the past ten years, indicating that demand for more educated individuals still exceeds supply in most countries (see Table A8.2a in *Education at a Glance 2011*). The increase was most notable in Germany and Hungary although these countries have low tertiary attainment levels compared to the OECD average. But in a few countries, most notably Finland, France, New Zealand, Norway, Sweden and the United Kingdom, the premium decreased slightly. Whether this reflects an overall weakening demand for tertiary graduates or simply lower starting salaries for younger recent graduates is unclear.

Definitions

Earnings data differ across countries in a number of ways, including whether they are reported annually, monthly or weekly. Thus results shown here should be interpreted with caution. Similarly, the prevalence of part-time and part-year earnings in most countries suggests that caution is needed in interpreting earnings differentials in countries, particularly between men and women.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator A8).

Areas covered include:

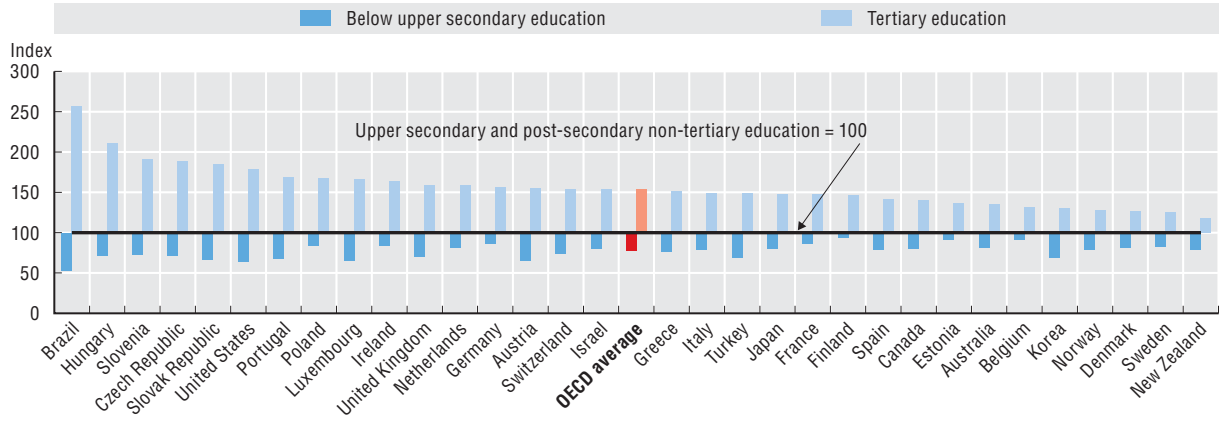
- Trends in relative earnings of the population.
- Differences in earnings by gender and by age.
- Differences in earnings distribution according to educational attainment.

Further reading from the OECD

Understanding the Social Outcomes of Learning (2007).

Figure 2.1. **Relative earnings by level of education, 2009 or latest available year**

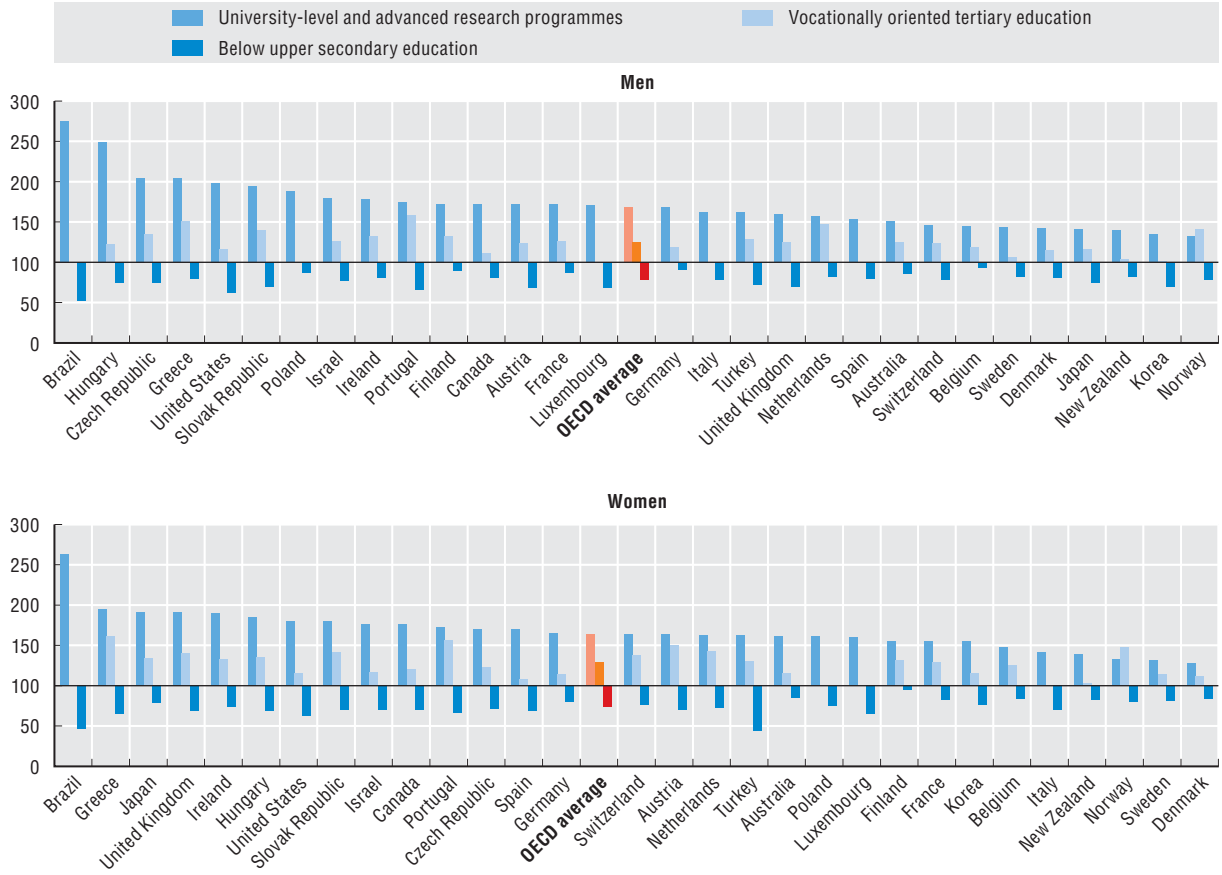
This figure compares earnings between the different levels of educational attainment among 25-64 year-olds, using upper secondary and post-secondary non-tertiary education as a baseline.



Source: OECD (2011), *Education at a Glance 2011*, Table A8.1, available at *http://dx.doi.org/10.1787/888932463118*.

Figure 2.2. **Relative earnings by level of education and gender, 2009, or latest available year**

These figures compare earnings between the different levels of educational attainment by gender among 25-64 year-olds, using upper secondary and post-secondary non-tertiary education as a baseline.



Source: OECD (2011), *Education at a Glance 2011*, Tables A8.2b and A8.2c, available at *http://dx.doi.org/10.1787/888932463156* and *http://dx.doi.org/10.1787/888932463175*.

How does education affect employment rates?

- *In general, people with higher levels of education have better job prospects; the difference is particularly marked between those who have attained upper secondary education and those who have not.*
- *In all OECD countries, tertiary graduates are more likely to be in work than non-graduates.*
- *Men generally have higher employment rates than women; the gap is especially large among people with low levels of education.*

Significance

This spread examines the relationship between education and the labour force. OECD countries depend upon a stable supply of well-educated workers to promote economic development. Data on employment and unemployment rates – and how they evolve over time – thus carry important information for policy makers about the supply, and potential supply, of skills available to the labour market and about employers' demand for these skills.

Findings

Education has a substantial impact on employment prospects. On average across OECD countries, 84% of the population with tertiary education is employed. This falls to just over 74% for people with upper secondary and post-secondary non-tertiary education and to just above 56% for those without an upper secondary education.

In OECD countries, an upper secondary education is typically considered the minimum needed to be competitive in the labour market. The average unemployment rate among those who have completed this level of education is close to 5 percentage points lower than among those who have not (see Table A7.4a in *Education at a Glance 2011*).

Employment rates for men are always higher than those for women, but the gap narrows significantly among people with higher levels of education. Among those with only a lower secondary education, the employment rate for men is 70% and 49% for women; among those with university-level education, this rises to just under 89% for men and 80% for women. Employment rates for women with lower secondary education are particularly low (below 40%) in Chile, the Czech Republic, Hungary, Poland, the Slovak Republic, Turkey and the United Kingdom. For women with university-level education, employment rates equal or exceed 75% everywhere except in Chile, Japan, Korea, Mexico and Turkey, but remain below those of men in all countries.

When it comes to unemployment, the relationships are less clear cut. Differences in unemployment rates for men and women are smallest among those with tertiary education. Among women, the unemployment rate is 2 percentage points higher than for men only in Greece, Italy and Turkey. Among those with upper secondary education, women have generally somewhat higher unemployment rates than men. But among those who have not attained upper secondary education, the unemployment rate for men is higher than that for women in 15 OECD countries (see Table A7.2a in *Education at a Glance 2011*).

Trends

Although differences in unemployment rates among educational groups have narrowed somewhat over the past decade, higher education generally still improves job prospects. Across OECD countries, the average unemployment rate among those with tertiary-level attainment has stayed near 4%; for those with upper secondary education it has stayed below 7%. But for those with less than upper secondary education, it has breached 10% several times since 1997 (see Table A7.4a in *Education at a Glance 2011*).

Definitions

The employment rate refers to the number of persons in employment as a percentage of the population of working age. The unemployment rate refers to unemployed persons as a percentage of the civil labour force. The unemployed are defined as people actively seeking employment and currently available to start work. The employed are defined as those who work for pay or profit for at least one hour a week, or who have a job but are temporarily not at work due to illness, leave or industrial action.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

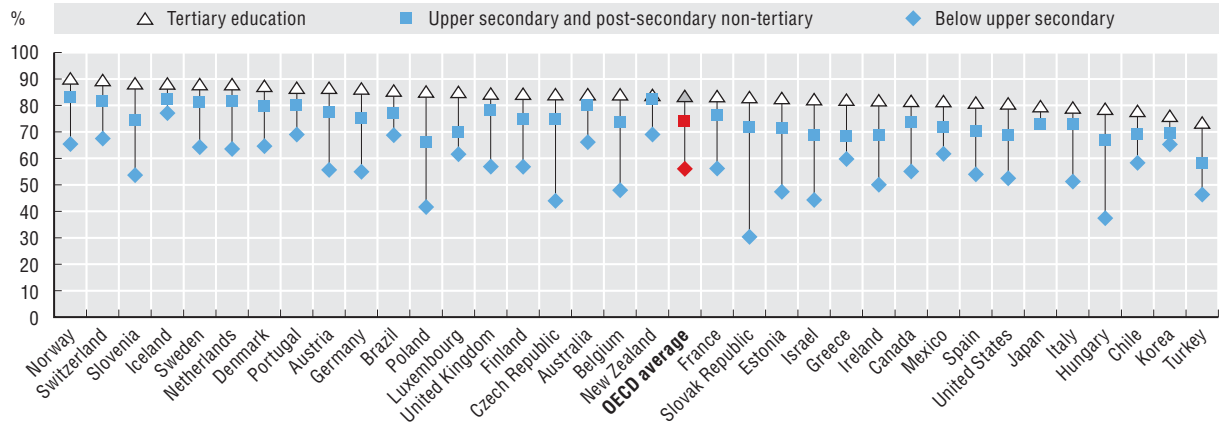
For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator A7).

Areas covered include:

- Trends in employment and unemployment rates, by gender and educational attainment.

Figure 2.3. **Positive relation between education and employment, 2009**

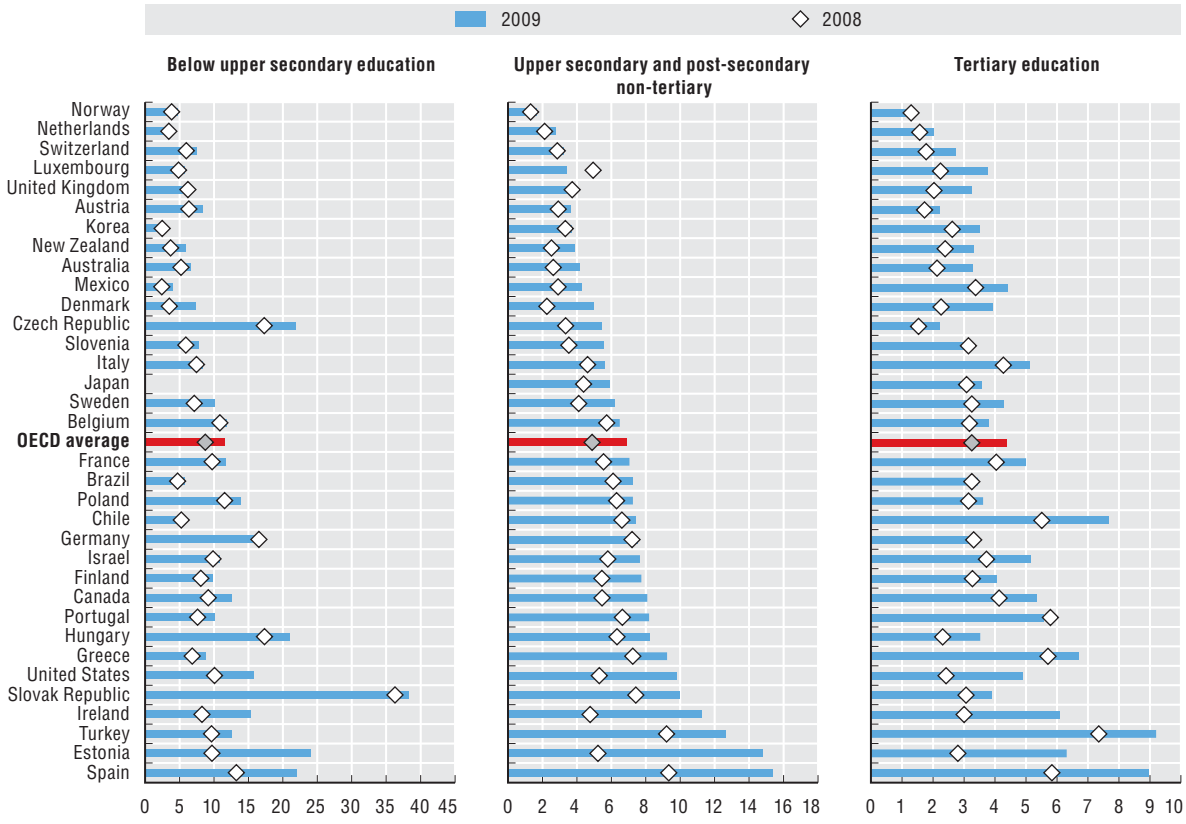
This figure shows how higher levels of educational attainment typically lead to greater labour participation and higher employment rates.



Source: OECD (2011), *Education at a Glance 2011*, Table A7.3a, available at *http://dx.doi.org/10.1787/888932462966*.

Figure 2.4. **Change in unemployment rates, by level of education (2008, 2009)**

These figures show the change in unemployment rates between 2008-09 at three levels of educational attainment.



Source: OECD (2011), *Education at a Glance 2011*, Table A7.4a, available at *http://dx.doi.org/10.1787/888932463023*.

What are the incentives for people to invest in education?

- *Rewards are typically higher for individuals who attain tertiary education than those with upper secondary education or post-secondary non-tertiary education.*
- *Tertiary education brings substantial rewards in most countries, generating a net financial return over a man's working life of close to USD 175 000 on average in OECD countries.*
- *Rewards for investing in tertiary education are typically lower for women by close to USD 65 000 less, on average.*

Significance

The efforts people make to continue education after compulsory schooling can be thought of as an investment with the potential to bring rewards in the form of future financial returns. People invest in education in two ways (these are the "costs"): directly, for example through the payment of tuition fees, and indirectly, by sacrificing potential income when not in work and studying. As with any investment, a rate of return can be calculated. In this case, the rate is primarily driven by the reality that people with higher levels of education earn more and are more likely to be in work ("benefits"). Where the rate of return is high, it implies a real financial incentive for people to continue their education.

Findings

On average across OECD countries, the private net present value of investing in tertiary education is close to USD 175 000 for men and USD 110 000 for women. For upper secondary or post-secondary non-tertiary education, this falls to USD 78 000 for men and USD 63 000 for women.

But behind these averages lie big variations between countries. For men, the rewards from tertiary education (in terms of net present value) vary from just under USD 56 000 in Denmark to just under USD 374 000 in Portugal (for women, the figures are, respectively, just under USD 52 000 to almost USD 211 000). However, in Denmark as in New Zealand and Sweden, student loans and grants may lower investment costs and make tertiary education a more attractive proposition, especially for students from less affluent backgrounds. In Denmark alone, over 55% of the total private investment is covered by government grants. Overall, however, the returns on tertiary education – as with upper secondary and post-secondary non-tertiary education – tend to be driven by the earnings premium; other components are less important in explaining differences among OECD countries.

With the exceptions of Australia, Spain and Turkey, the private net present value of investing in tertiary education tends to be higher for men than for women (see Table A9.3 in *Education at a Glance 2011*). Nonetheless in Ireland, Korea, Portugal, Slovenia, the United Kingdom and the United States, an investment in tertiary education generates over USD 150 000 for both men and women; this gives a strong incentive to complete this level of education. In some countries, relatively weak returns from upper secondary education mean that women need to continue their education to tertiary level to fully reap the benefits of going beyond compulsory schooling.

Definitions

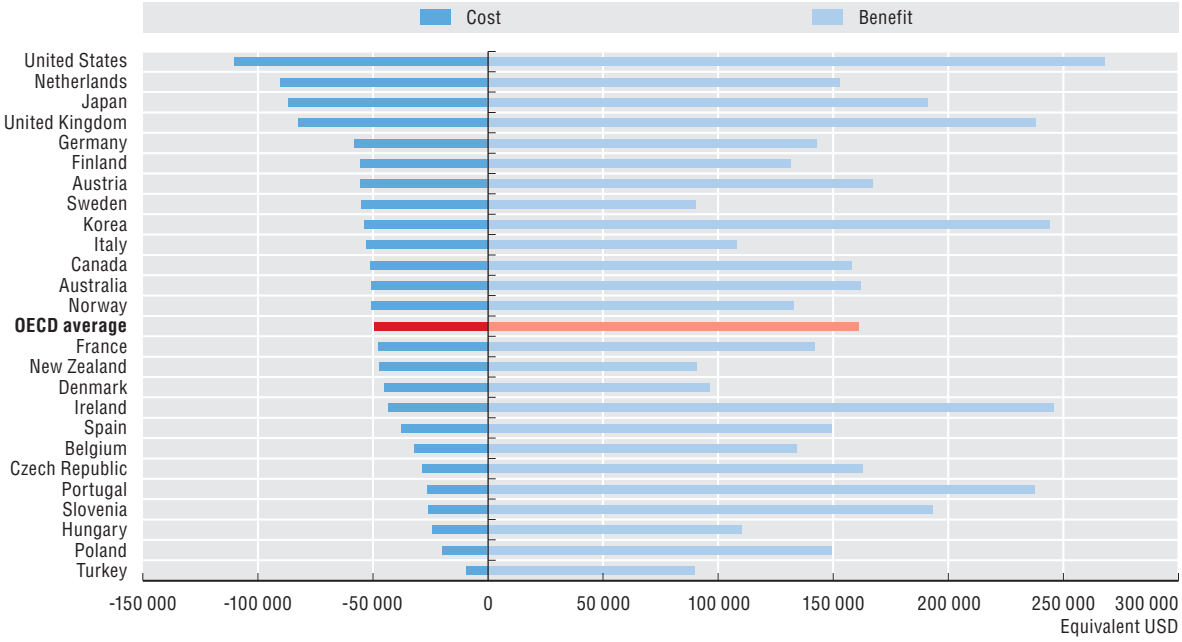
The economic returns to education are measured in terms of net present value, or NPV. In the calculations, private investment costs include after-tax foregone earnings adjusted for the probability of finding a job (unemployment rate) and direct private expenditures on education. The discount rate is set at 3%, which largely reflects the typical interest on an investment in long-term government bonds in an OECD country. The rate used in this edition is below the rate of 5% used in *Education at a Glance 2009*. This change has a substantial impact on the net present value of education and needs to be taken into account if the results for these two years are compared.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, as well as a technical explanation of how the NPV is derived, see *Education at a Glance 2011* (Indicator A9).

Figure 2.5. **Distribution of private costs and benefits for women obtaining tertiary education as part of initial education, 2007**

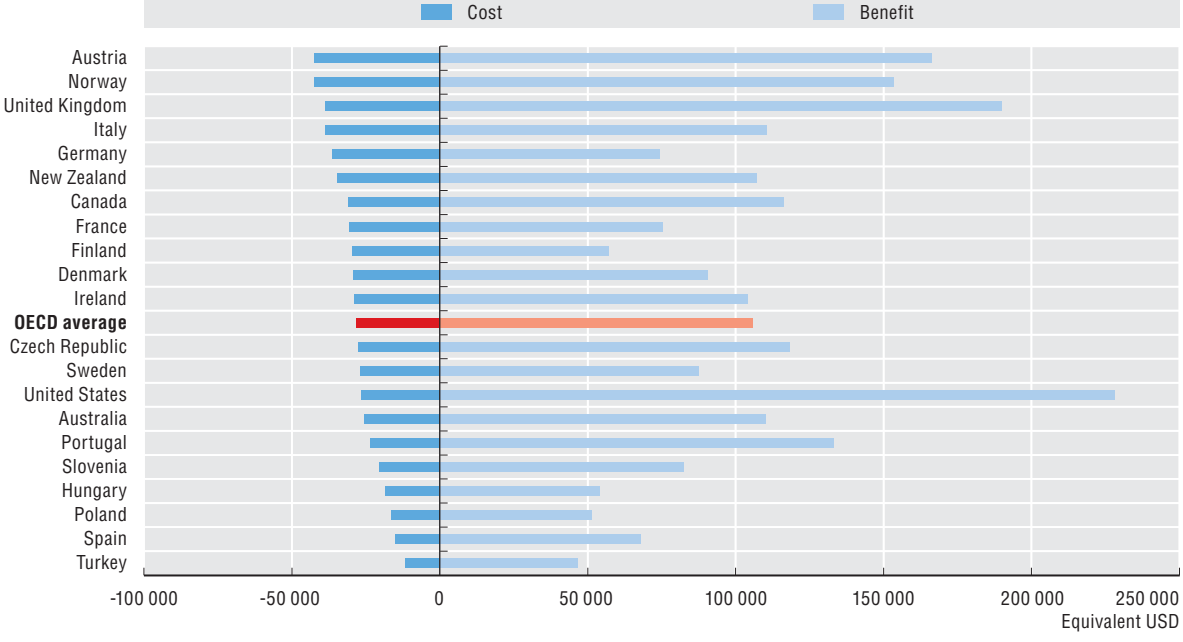
This figure shows the distribution of private costs (tuition fees and foregone earnings) and private benefits (increased lifetime earnings) for women obtaining tertiary education as part of initial education. On average across OECD countries, a woman investing in tertiary education can expect a net gain of USD 110 000.



Source: OECD (2011), *Education at a Glance 2011*, Table A9.3, available at *http://dx.doi.org/10.1787/888932463327*.

Figure 2.6. **Distribution of private costs and benefits for men obtaining tertiary education as part of initial education, 2007**

This figure shows the distribution of private costs (tuition fees and foregone earnings) and private benefits (increased lifetime earnings) for men obtaining tertiary education as part of initial education. On average across OECD countries, a man investing in tertiary education can expect a net gain of close to USD 175 000.



Source: OECD (2011), *Education at a Glance 2011*, Table A9.3, available at *http://dx.doi.org/10.1787/888932463327*.

What are the incentives for societies to invest in education?

- *On average among OECD countries, the net public return for a man obtaining a tertiary qualification is USD 91 000 and USD 55 000 for a woman.*
- *Across OECD countries, the average total benefits for a man investing in tertiary education (USD 129 000) is almost four times the total costs (USD 34 000), meaning there is a strong incentive for governments to encourage higher education.*
- *As with returns to individuals, the benefits to the public purse are higher when people complete tertiary rather than upper secondary education.*

Significance

The economic benefits of education flow not just to individuals but also to governments through additional tax receipts when people enter the labour market. These public returns, which take into account the fact that providing education is also a cost to governments, offer an additional perspective on the overall returns to education. At the same time, they must be understood in the much wider context of the benefits that economies and societies gain from increasing levels of education.

Findings

On average across countries, the net public return from an investment in tertiary education exceeds USD 91 000 for a man, accounting for the main cost and benefits at this level of education. This is almost triple the amount of public investments made in tertiary education across OECD countries, and thus provides a strong incentive for governments to expand higher education.

For the public sector, the costs of education include direct expenditures on education (such as paying teachers' salaries), public-private transfers, and lost tax revenues on students' foregone earnings. The benefits include increased revenue from income taxes and social insurance payments on higher wages as well as a lower need for social transfers. But in practice, rising levels of education produce a much wider – and more complex – set of fiscal effects on the benefit side. For instance, better educated individuals generally have better health, which lowers public expenditure on provision of health care. Also, their earnings premium means they spend more on goods and services, leading to wider economic benefits.

Together with foregone public earnings in the form of taxes and social contributions, direct and indirect public investment costs for a man with a tertiary education is on average USD 34 000 among OECD countries and USD 33 000 for a woman. For both, the total public investment costs exceed USD 50 000 in Austria, Denmark, the Netherlands and Sweden, whereas in Korea and Turkey it does not exceed USD 15 000. Such public investments are large, but they are surpassed by private investment costs in most countries.

Definitions

The economic returns to education are measured by the net present value (see previous spread). Public costs include lost income tax receipts during the schooling years, and public expenditures. The benefits for the public sector are additional tax and social contribution receipts associated with higher earnings and savings from transfers (housing benefits and social assistance) that the public sector does not have to pay above a certain level of earnings.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator A9).

Areas covered include:

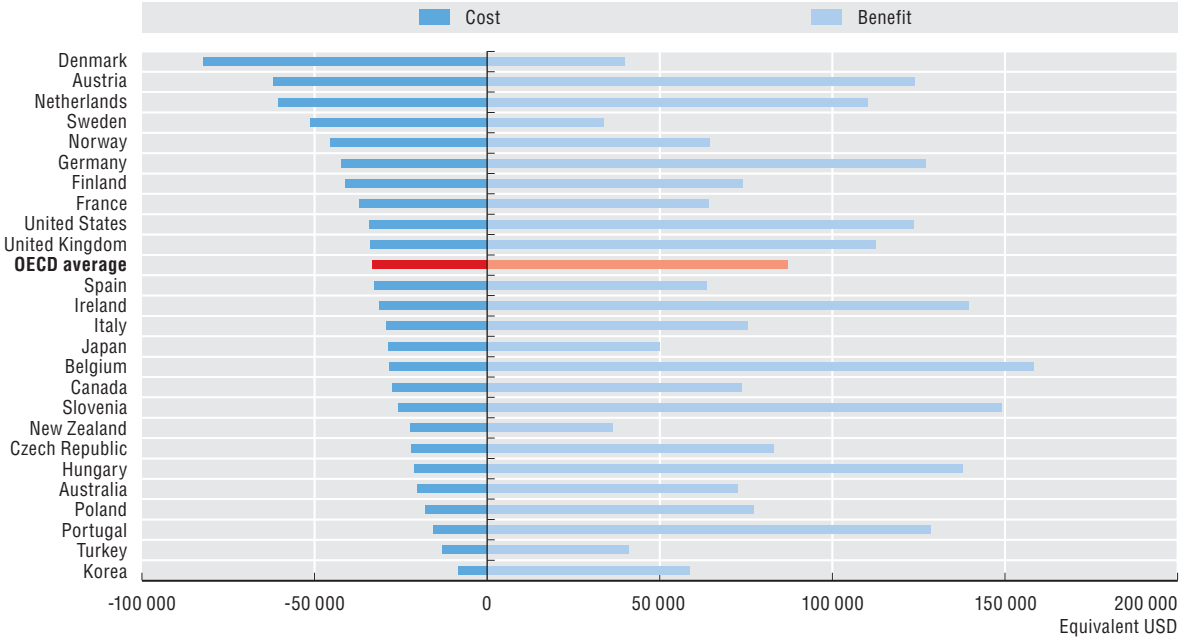
- Public rates of return for an individual obtaining tertiary education, as part of initial education.
- Public rates of return for an individual obtaining an upper secondary education or post-secondary non-tertiary education, as part of initial education.

Further reading from the OECD

Understanding the Social Outcomes of Learning (2007).

Figure 2.7. **Distribution of public costs and benefits for women obtaining tertiary education as part of initial education, 2007**

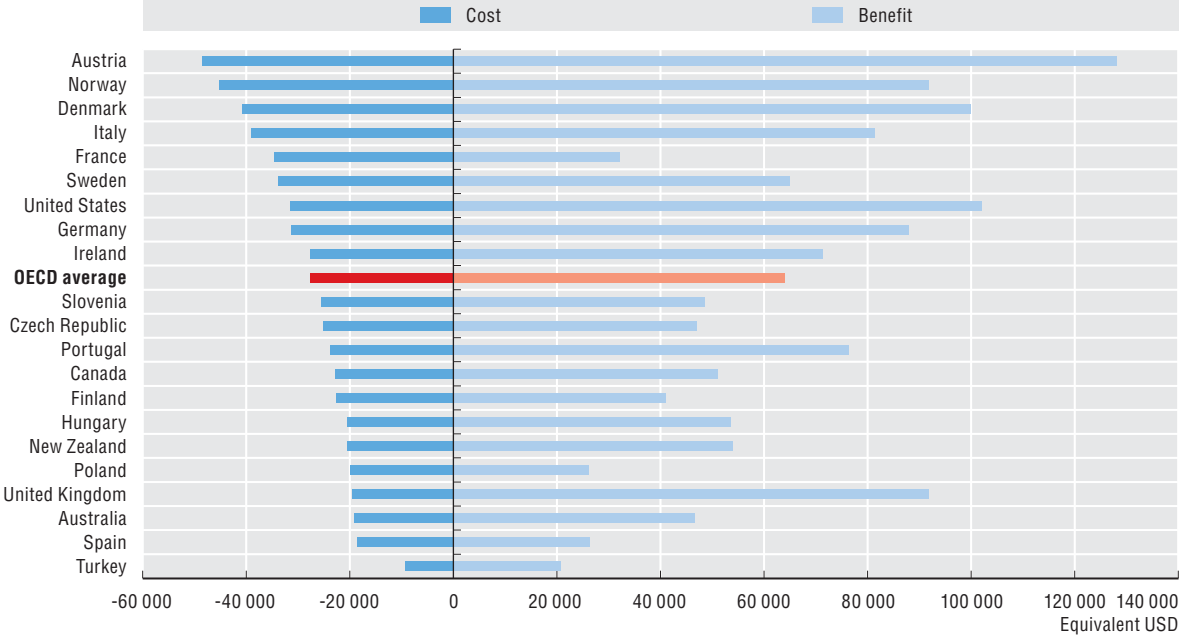
This figure shows the distribution of public costs (direct and indirect expenditure and forgone tax revenues) and public benefits (increased tax revenues and lower need for social transfers) for women obtaining tertiary education as part of initial education. On average across OECD countries, the net public return from an investment in tertiary education exceeds USD 55 000 for a woman student.



Source: OECD (2011), *Education at a Glance 2011*, Table A9.4, available at *http://dx.doi.org/10.1787/888932463346*.

Figure 2.8. **Distribution of public costs and benefits for men obtaining tertiary education as part of initial education, 2007**

This figure shows the distribution of public costs (direct and indirect expenditure and forgone tax revenues) and public benefits (increased tax revenues and lower need for social transfers) for men obtaining tertiary education as part of initial education. On average across OECD countries, the net public return from an investment in tertiary education exceeds USD 91 000 for a man.



Source: OECD (2011), *Education at a Glance 2011*, Table A9.4, available at *http://dx.doi.org/10.1787/888932463346*.

How expensive are graduates to hire?

- *On average, employers pay USD 77 000 for a man with tertiary education and USD 55 000 for a woman.*
- *At the other end of the education scale, the cost of hiring a male worker without upper secondary education is USD 41 000,* versus *USD 31 000 for a female worker.*
- *Annual labour costs are at least USD 20 000 below the OECD average for all education levels in Estonia, Hungary, Poland, Portugal and the Slovak Republic.*

Significance

The skills of a country's workforce provide a substantial advantage that can bring economic benefits over the long term. But the extent of such an advantage will be determined by the cost – in other words, how expensive is it to hire skilled workers? To answer that question, this spread looks at the relative cost of hiring workers with different levels of education.

Findings

The cost of hiring tertiary graduates varies substantially among countries. In Austria, Denmark, Ireland, Italy, Luxembourg, the Netherlands, Norway and the United States, over the course of a year, employers pay USD 20 000 or more than the OECD average to employ higher-educated individuals. By contrast, they pay at least USD 20 000 less than the average in the Czech Republic, Estonia, Greece, Hungary, Israel, Korea, New Zealand, Poland, Portugal, the Slovak Republic and Slovenia. Among other factors, these differences reflect productivity differentials and prevailing wage rates among countries.

Annual labour costs increase sharply for workers with higher levels of educational attainment. On average across OECD countries, labour costs for those with below upper secondary education are USD 41 000 for men and USD 31 000 for women. For those with upper secondary education, the cost rises to USD 51 000 for men and USD 38 000 for women. But the big rise is for highly skilled workers: Employers pay on average USD 77 000 for a man with tertiary education and USD 55 000 for a woman.

There are substantial differences between countries in hiring costs for workers with different levels of educational attainment. In Estonia, Hungary, Poland, Portugal and the Slovak Republic, annual labour costs are at least USD 20 000 below the OECD average across all educational levels. Even though tertiary graduates in these countries enjoy high relative earnings compared with non-graduates, overall these countries typically still maintain a relative cost advantage in the high-end skills segment. New Zealand and Spain also enjoy a significant cost advantage in the market for highly skilled workers; however, educated workers are relatively inexpensive compared with their less-educated peers. In a few countries with higher cost levels overall, labour costs decrease with higher educational levels. Compared to other OECD countries, individuals with higher education are less expensive to employ than those with lower levels of education in Belgium, Denmark, Finland and Sweden.

Generally, differences between countries in the cost of hiring younger graduates (25-34 year-olds) are less pronounced than those for the total workforce (25-64 year-olds). Annual labour costs also vary substantially between countries when it comes to hiring inexperienced and experienced tertiary workers. They range from less than USD 14 000 for a recent graduate (25-34 year-olds) in Poland to over USD 119 000 for an experienced graduate (45-54 year-olds) in Italy. On average across the OECD area, an employer can expect to pay an additional USD 25 000 per year for an experienced tertiary graduate (see Tables A10.2 and A10.4 in *Education at a Glance 2011*).

Definitions

Calculations are based on a new data collection on the earnings of individuals who work full-time and full year. This data collection is supplemented with information on employers' social contributions and non-tax compulsory payments from the *OECD's Taxing Wages Database*.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator A10).

Areas covered include:

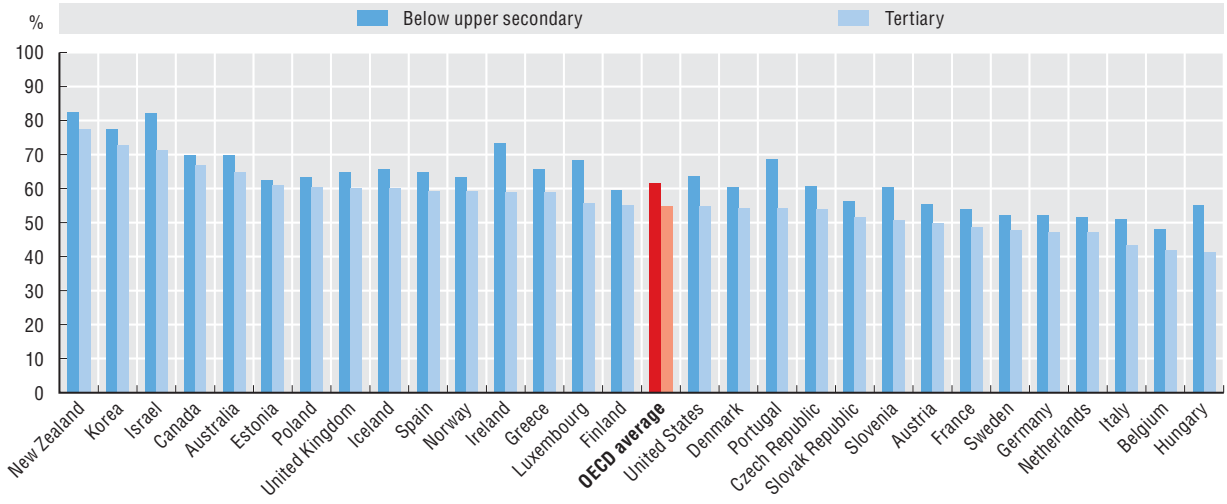
- Annual full-time earnings and annual labour costs by age group.
- Foreign direct investment and annual labour costs for the tertiary-educated population.

Further reading from the OECD

Taxing Wages (annual).

Figure 2.9. **Net income as a percentage of labour costs**

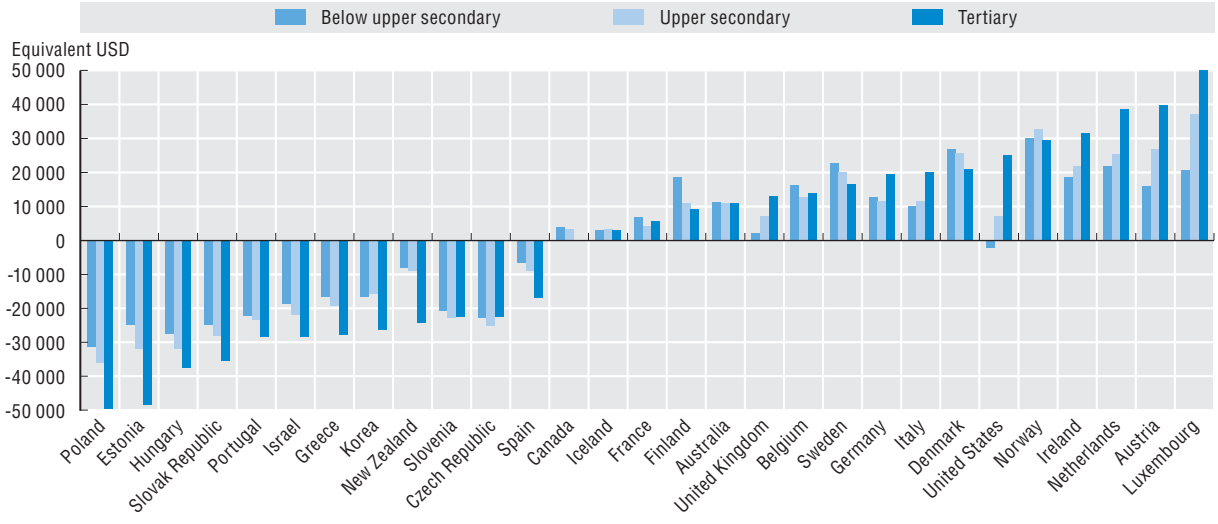
This figure shows the net income earned by 45-54 year-olds with below upper secondary education and tertiary education, expressed as a percentage of total labour costs. Overall tax rates in a country have an impact on individuals' net income, and are a useful proxy to gauge the attractiveness of labour markets from the individual's perspective.



Source: OECD (2011), *Education at a Glance 2011*, Tables A10.1, available at *http://dx.doi.org/10.1787/888932463365*.

Figure 2.10. **Annual labour costs for workers by educational attainment**

This figure shows the extent to which countries deviate from the average (specifically, the OECD mean) in annual labour costs for workers by various levels of educational attainment.



Source: OECD (2011), *Education at a Glance 2011*, Table A10.2, available at *http://dx.doi.org/10.1787/888932463384*.

What are the social benefits of education?

– *Adults with higher levels of educational attainment are more likely to exhibit greater satisfaction with life and show higher levels of civic and social engagement.*

– *Grade 8 students who have higher levels of civic knowledge are generally more likely to vote and be supportive of gender equality.*

Significance

Raising people's well-being and improving social cohesion are major concerns for OECD governments. There is general agreement on the important role that education and skills can play in attaining these outcomes, but far less certainty over how exactly this can be achieved. Against this background, this spread looks at the relationship between educational attainment and social measures of well-being in OECD countries. It focuses on three outcomes: life satisfaction, voting and attitudes towards gender inequality.

Findings

Life satisfaction: Adults with higher levels of educational attainment are generally more likely than those with lower levels of attainment to exhibit greater satisfaction with life. On average across OECD countries with available data, 76% of adults who have completed tertiary education and 58% of adults who are below upper secondary report satisfaction in life. Differences in life satisfaction across educational attainment are small in countries with an above average level of life satisfaction, while the differences tend to be large in countries with a below average level of life satisfaction.

Voting: Educational attainment is positively associated with various measures of civic and social engagement, including electoral participation, political interest and volunteering. Most surveyed countries with statistically significant associations between education and electoral participation show the relationship to be positive. On average across OECD countries with available data, only 74% of adults who have not attained an upper secondary education vote in national elections; but this proportion rises to 87% among adults with a tertiary education. These associations generally hold even after accounting for age, gender and income. This indicates that higher levels of education may help promote electoral participation by improving people's knowledge, skills and social status that could raise the incentives to vote.

Perception towards gender inequality: Students in grade 8 (approximately 14 years of age) with higher levels of civic competencies show higher levels of expected adult electoral participation and supportive attitudes towards gender equality. On average across OECD countries, those who are at the lowest level on a civic competency scale score only an average of 43 points on the ICCS scale of supportive attitudes towards gender inequality, whereas those who are at the highest level on the scale score 55 points.

Definitions

Developmental work for this indicator was carried out by INES Network on Labour Market, Economic and Social Outcomes of Learning in collaboration with the OECD's Centre for Educational Research and Innovation (CERI). Methodologies are based on work conducted by CERI's Social Outcomes of Learning project. Calculations are based on micro-data from the European Social Survey (ESS) 2008, International Social Survey Programme 2006, General Social Survey 2008 (Canada and New Zealand), KEDI Social Capital Survey 2008 and Lifelong Education Survey 2009 (Korea) and the International Civic and Citizenship Education Study (ICCS) 2009.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

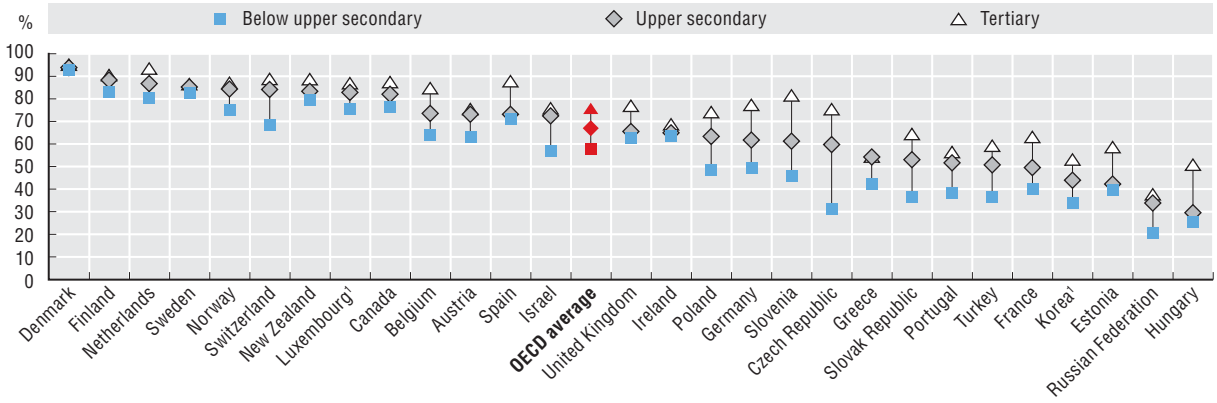
For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator A11).

Further reading from the OECD

Improving Health and Social Cohesion through Education (2010).

Figure 2.11. **Proportion of adults satisfied with life, by level of education, 2008**

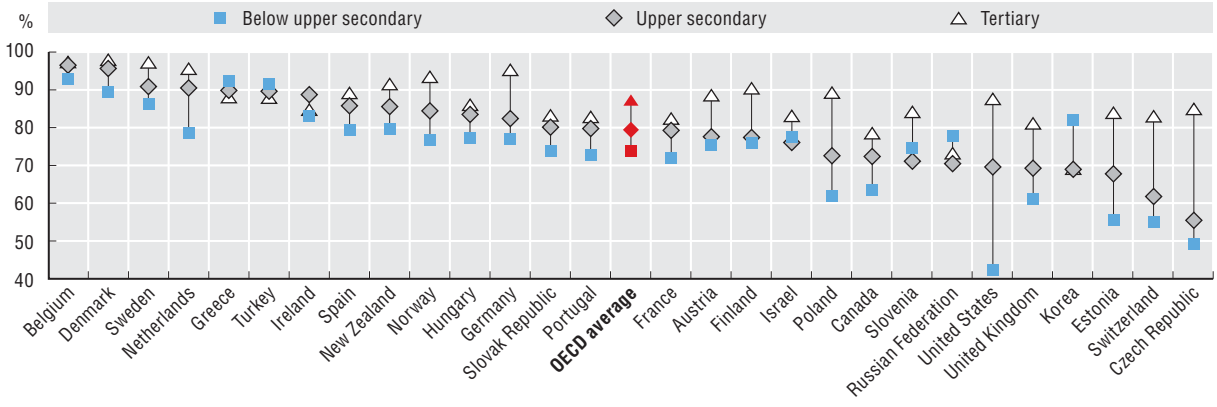
This figure shows the percentage of adults who reported being satisfied with life, by level of educational attainment. Adults with higher levels of educational attainment are generally more likely than those with lower levels of attainment to exhibit greater satisfaction with life.



Source: OECD (2011), *Education at a Glance 2011*, Table A11.1, available at *http://dx.doi.org/10.1787/888932463479*.

Figure 2.12. **Proportion of adults voting, by level of education, 2008**

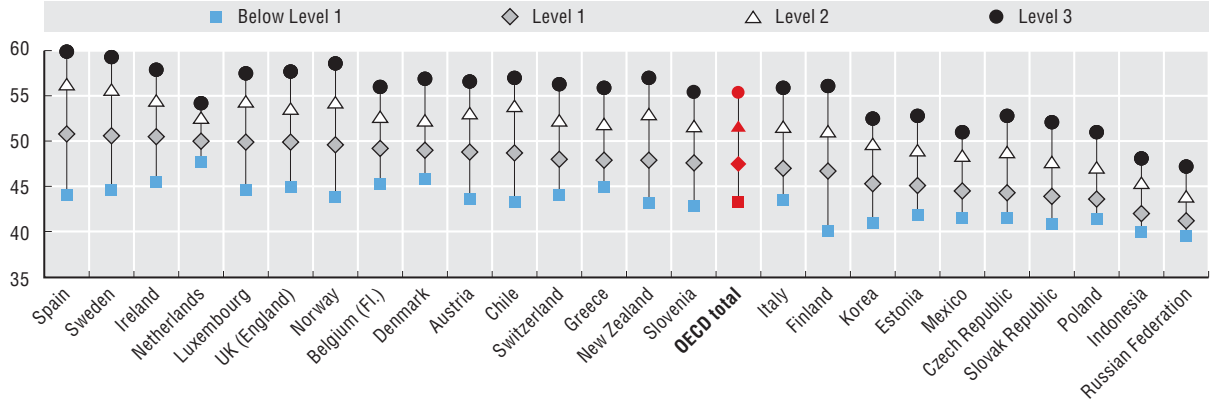
This figure shows the percentage of adults, by level of educational attainment, who reported voting during the previous national election. Adults with higher levels of educational attainment are generally more likely than those with lower levels of attainment to vote. Countries with compulsory voting are included in the data, i.e. Belgium, Greece, Luxembourg and Turkey.



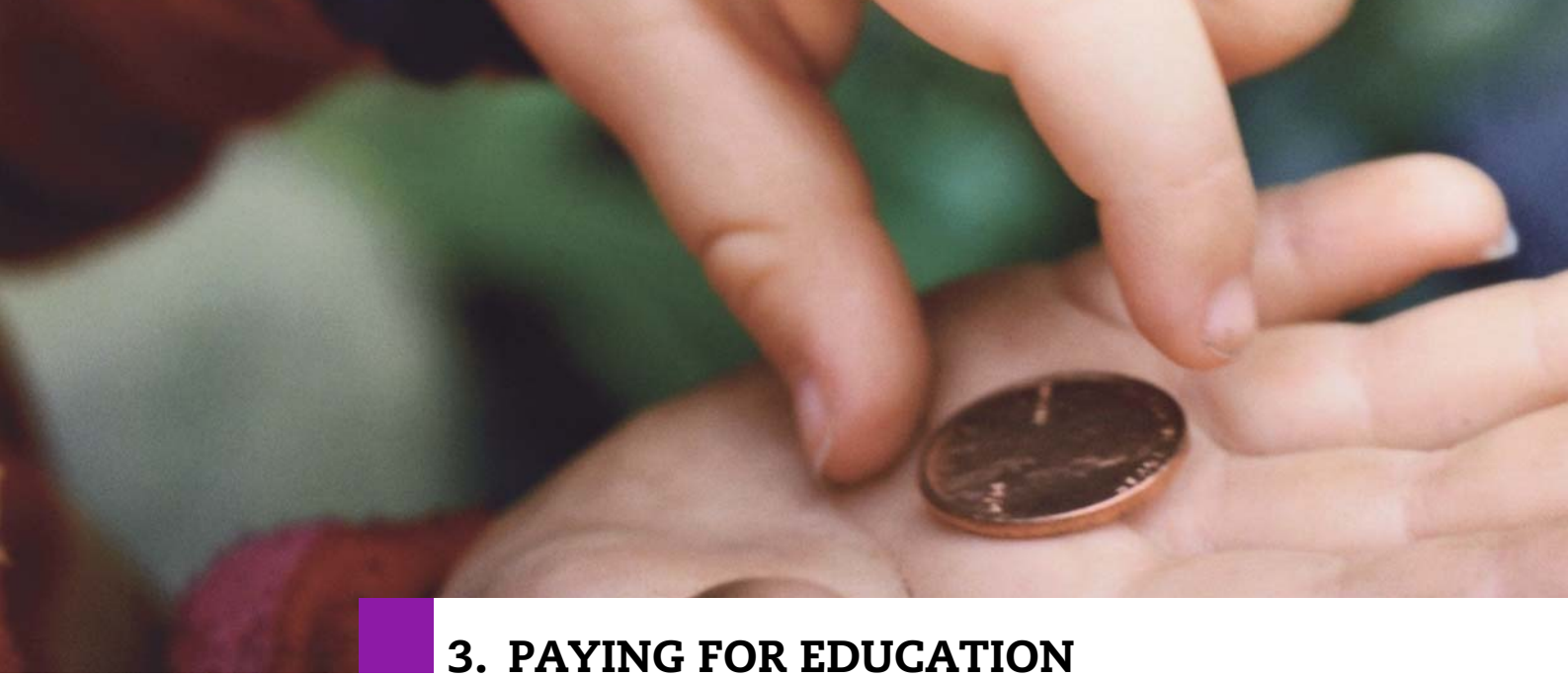
Source: OECD (2011), *Education at a Glance 2011*, Table A11.1, available at *http://dx.doi.org/10.1787/888932463479*.

Figure 2.13. **Proportion of students who show supportive attitudes toward gender equality, by level of civic knowledge, 2009**

This figure shows the percentage of students who show supportive attitudes towards gender equality, by level of civic knowledge. The results are based on a test administered to lower-secondary students (8th grade) which ask students, among other things, if they support equal opportunities to take part in government.



Source: OECD (2011), *Education at a Glance 2011*, Table A11.1, available at *http://dx.doi.org/10.1787/888932463479*.



3. PAYING FOR EDUCATION

How much is spent per student?

Has spending per student increased?

What share of national wealth is spent on education?

What share of public spending goes to education?

What is the role of private spending?

How much do tertiary students pay?

What are education funds spent on?

What accounts for variations in spending on salary costs?

How much is spent per student?

- *OECD countries as a whole spend USD 9 860 per student each year between primary and tertiary education, although spending levels vary widely among countries.*
- *On average, OECD countries spend nearly twice as much per student at the tertiary level as at the primary level.*
- *Most spending in education is devoted to salaries for teachers and other staff.*

Significance

This spread shows the levels of combined public and private spending on education. In debates about learning, demand for high-quality education, which may mean spending more per student, is often tempered by the desire to keep taxes low. While it is difficult to determine the level of spending needed to prepare a student for work and life, international comparisons can provide reference points for comparisons of education resources.

Findings

OECD countries as a whole spend USD 9 860 per student each year across primary, secondary and tertiary education. But spending varies widely between individual countries, from USD 4 000 per student or less in Argentina, Brazil, Chile, China and Mexico, to over USD 11 000 in Austria, Denmark, Norway, Sweden, Switzerland and the United States.

The factors that drive spending vary among countries. Among the six countries with the highest expenditure by educational institutions per student enrolled in primary to tertiary education, Switzerland has the highest teachers' salaries at secondary level after Luxembourg; the United States has one of the highest levels of private expenditure at tertiary level; and Austria, Denmark, Norway and Sweden are among the countries with the lowest ratios for students to teaching staff (see page 72).

In every OECD country, spending rises sharply from primary to tertiary education. OECD countries as a whole spend USD 7 065 per student at the primary level, USD 8 852 at the secondary level and USD 18 258 at the tertiary level (see Table B1.1a in *Education at a Glance 2011*).

Most spending in education is devoted to salaries for teachers and other staff. At the tertiary level, however, other services, particularly research and development activities, also constitute a large slice of expenditure. Once R&D activities and ancillary services are excluded, expenditure by educational core services in tertiary institutions falls to an average USD 9 148 per student. By contrast, spending on ancillary services at primary, secondary and post-secondary non-tertiary levels exceeds 10% of the total expenditure per student only in Finland, France, Hungary, Korea, the Slovak Republic, Sweden and the United Kingdom (see Table B1.2 in *Education at a Glance 2011*).

Finally, it should be noted that examining only the annual spending per student may not fully reflect the total spent on a student at each level of education. For example, annual spending per tertiary student in Austria is about the same as in Belgium, at USD 15 043 and USD 15 020, respectively. But because of differences in how courses are structured, it takes more than one year longer to complete a degree in Austria than in Belgium. As a result, the cumulative expenditure for each tertiary student is more than USD 20 000 less in Belgium than in Austria – USD 44 911 *versus* USD 65 334 (see Chart B1.4 in *Education at a Glance 2011*).

Definitions

Data refer to the financial year 2008 and are based on the UOE data collection on education statistics administered by the OECD in 2010. Spending per student at a particular level of education is calculated by dividing the total expenditure by educational institutions at that level by the corresponding full-time equivalent enrolment.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

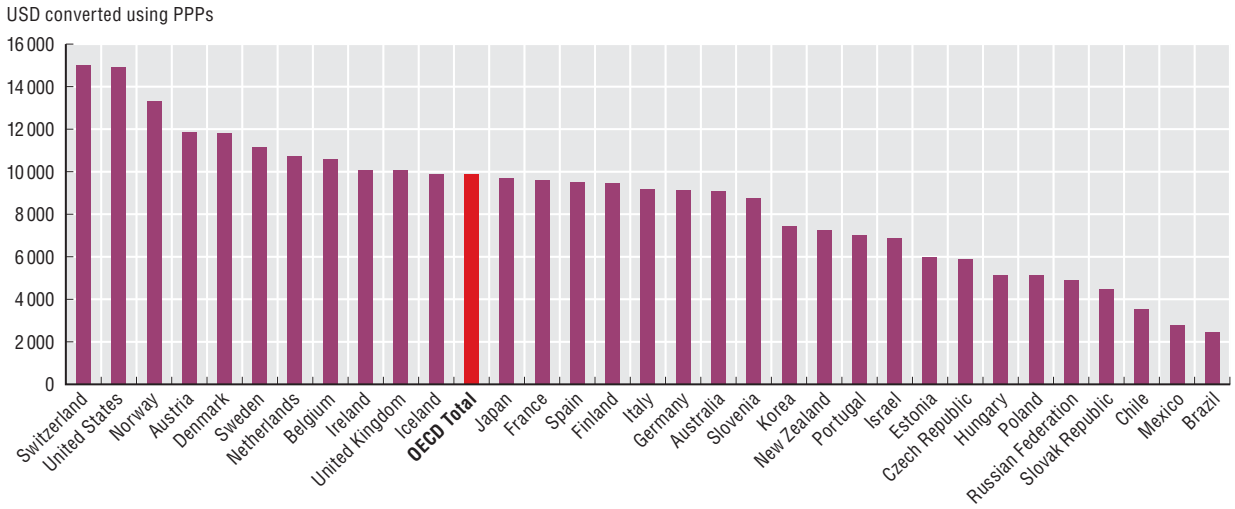
For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator B1).

Areas covered include:

- Annual expenditure by educational institutions per student for all services, and compared to GDP per capita.
- Cumulative expenditure by educational institutions per student.

Figure 3.1. **Annual expenditure per student, 2008**

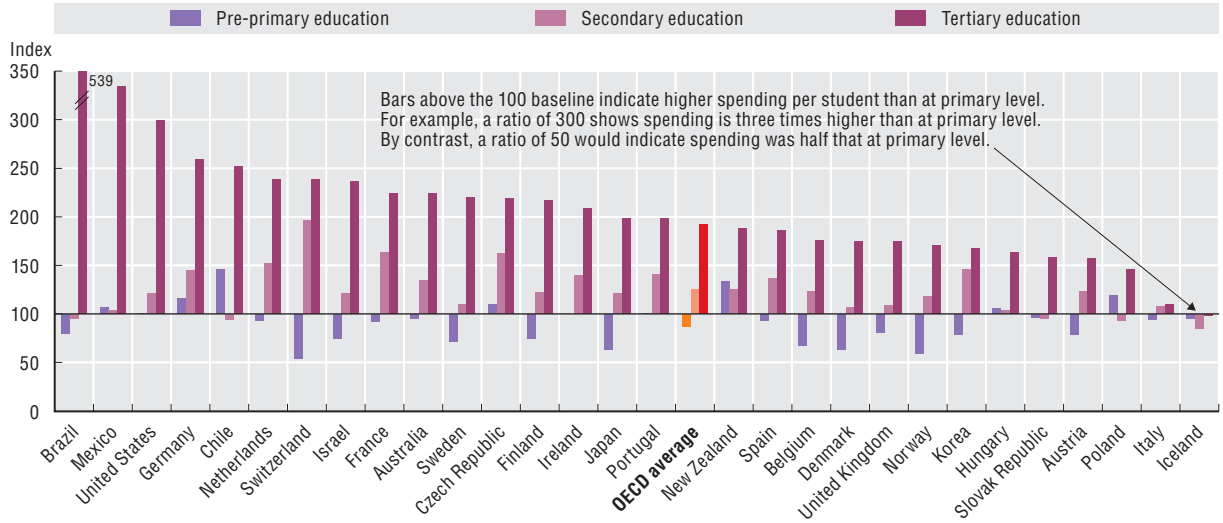
This figure shows how much is spent annually (by educational institutions) per student between primary and tertiary education; these data give a sense of the cost per student of formal education.



Source: OECD (2011), *Education at a Glance 2011*, Table B1.1a, available at *http://dx.doi.org/10.1787/888932463593*.

Figure 3.2. **Expenditure on education relative to spending on primary education, 2008**

This figure shows annual spending (by educational institutions) per student for different levels of education compared with spending at primary level.



Source: OECD (2011), *Education at a Glance 2011*, Table B1.3a, available at *http://dx.doi.org/10.1787/888932463650*.

Has spending per student increased?

- *Expenditure by educational institutions per student at primary, secondary and post-secondary non-tertiary levels increased by an average of 34% between 2000 and 2008, a period when enrolment levels remained generally static.*
- *At the tertiary level, however, student numbers generally rose; in some cases this was not matched by an equivalent increase in spending, resulting in a fall in expenditure per student.*
- *However, from 2000 to 2008, expenditure by educational institutions per student at the tertiary level increased by an average of 14% in OECD countries after remaining stable between 1995 and 2000.*

Significance

This spread looks at whether spending on education has risen or fallen in recent years. Policy makers are under constant pressure to improve the quality of educational services while expanding access to educational opportunities, in particular at the tertiary level. Over time, spending on educational institutions tends to rise, in large part because teachers' salaries rise in line with general earnings. However, if the cost of schooling each student is not accompanied by improvements in educational outcomes, it raises the spectre of falling productivity levels.

Findings

Expenditure by educational institutions per student at the primary, secondary and post-secondary non-tertiary levels increased in every OECD country by an average of 54% between 1995 and 2008 during a period of relatively stable student numbers. The increase is quite similar over the first and second halves of this time period; only the Czech Republic and Switzerland showed a decrease between 1995 and 2000, followed by an increase between 2000 and 2008. Changes in enrolments do not seem to have been the main factor behind changes in expenditure at these levels of education.

The pattern is different at the tertiary level where spending per student between 1995 and 2008 fell in some cases, as expenditure failed to keep up with expanding student numbers. On average in OECD countries, such spending remained stable between 1995 and 2000 but then increased by 14% from 2000 to 2008, as governments invested massively in response to the expansion of tertiary education. The Czech Republic, Estonia, Iceland, Korea, Mexico, New Zealand, Poland, Portugal, the Russian Federation and the Slovak Republic increased expenditure by educational institutions by more than 50% between 2000 and 2008. However, in the Czech Republic and the Slovak Republic, the increase in expenditure per student between 2000 and 2008 did not totally counterbalance the decrease between 1995 and 2000.

Between 2000 and 2008, Brazil, Chile, Hungary, Israel, the Netherlands, Switzerland and the United States saw declines in per-student expenditure in tertiary education. In all the above countries, this was mainly the result of rapid increases – at least 20% – in tertiary student numbers. Among the countries that saw a rise of over 20% in enrolments in tertiary education, five (Australia, the Czech Republic, Iceland, Mexico and the Slovak Republic) matched this with an at least equivalent increase in expenditure on tertiary education; the others (Brazil, Chile, Hungary, Israel, the Netherlands, Switzerland, the United States) did not. Japan and Spain were the only countries that experienced a drop in tertiary enrolment during this period.

Definitions

Data for the 2008 financial year are based on the UOE data collection on education statistics administered by the OECD in 2010. OECD countries were asked to collect the 1995 and 2000 data according to the definitions and the coverage of UOE 2010 data collection. All expenditure data, as well as the GDP for 1995 and 2000, are adjusted to 2008 prices using the GDP price deflator. Spending per student at a particular level of education is calculated by dividing the total expenditure by educational institutions at that level by the corresponding fulltime equivalent enrolment.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator B1).

Areas covered include:

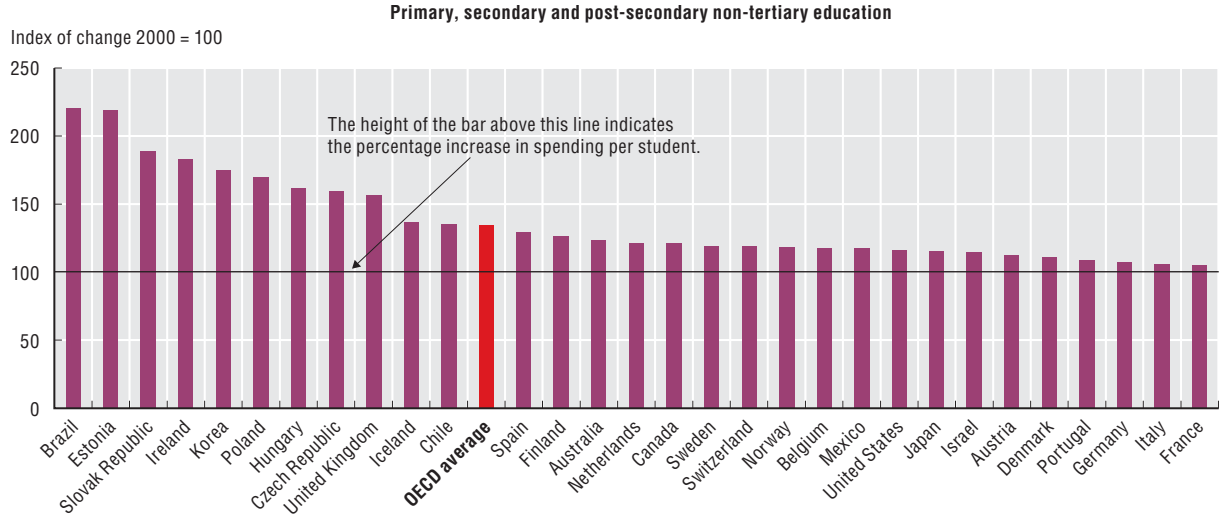
- Changes in expenditure by educational institutions by level of education.
- Changes in expenditure and in GDP per capita.

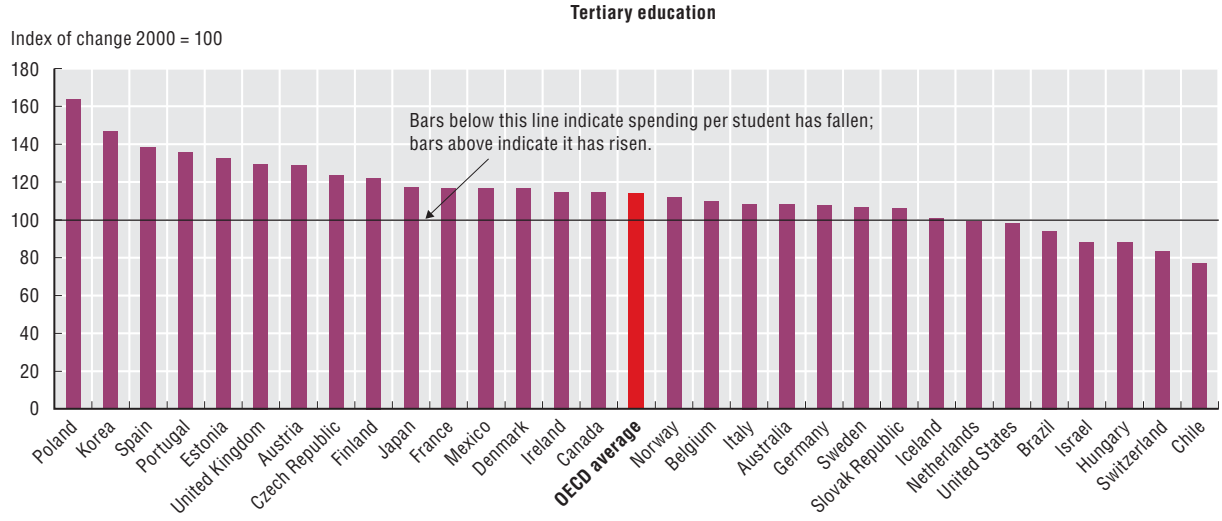
Further reading from the OECD

Trends Shaping Education (2008).

Figure 3.3. **Trends in expenditure per student (2000, 2008)**

These figures show the increase or decline in spending in real terms (by educational institutions) per student.





Source: OECD (2011), *Education at a Glance 2011*, Table B1.5, available at *http://dx.doi.org/10.1787/888932463707*.

What share of national wealth is spent on education?

- *OECD countries spend 6.1% of their collective GDP on educational institutions.*
- *Between 2000 and 2008, expenditure on educational institutions across all levels of education increased by an average of 32% in OECD countries, reflecting the fact that more people are completing upper secondary and tertiary education than ever before.*
- *Over the same period, expenditure on educational institutions across all levels of education combined fell behind GDP growth in 6 of the 32 countries for which data are available.*

Significance

This spread examines the proportion of a nation's wealth that is invested in education. In other words, it shows to what extent a country – including its government, private enterprise, individual students and their families – prioritises education in relation to overall spending.

Findings

OECD countries spend 6.1% of their collective GDP on education, although the proportions vary greatly by country: above 7% in Chile, Denmark, Iceland, Israel, Korea, Norway and the United States, but at or below 4.5% in China, the Czech Republic, Indonesia and the Slovak Republic.

About 61% of combined OECD expenditure on educational institutions, or 3.7% of combined GDP, is devoted to primary, secondary and post-secondary non-tertiary education. Tertiary education accounts for nearly one-third of the combined OECD spending on education, or 1.9% of combined GDP. Canada, Chile, Korea and the United States spend between 2.0% and 2.7% of their GDP on tertiary institutions. In Belgium, Brazil, Estonia, France, Iceland, Ireland, Switzerland and the United Kingdom the share of GDP spent on tertiary institutions is below the OECD average while their share of GDP spent on primary, secondary and post-secondary non-tertiary education is above the OECD average.

Differences in spending on educational institutions are most striking at the pre-primary level, where they range from less than 0.1% of GDP in Australia and Indonesia to at least 0.8% in Iceland, Israel and Spain (see Table B2.2 in *Education at a Glance 2011*). However, as countries often structure and fund pre-primary education in very different ways, it is unsafe to draw inferences from these data on access to and quality of early childhood education.

Trends

With an unprecedented number of people completing secondary and tertiary education between 2000 and 2008, many countries made massive financial investments in education during that period. For all levels of education combined, public and private investment in education increased on average by 32% in OECD countries over this period. In two-thirds of these countries, the increase is larger for tertiary education than for primary to post-secondary non-tertiary levels combined (see Table B2.4, available only online in *Education at a Glance 2011*).

Between 2000 and 2008, expenditure for all levels of education combined rose more quickly than GDP in three-quarters of the countries for which data are available. However, the increase was not uniform across all levels of education. Across primary to post-secondary non-tertiary education, spending increased at least as much as GDP in 17 out of 29 countries; at the tertiary level, spending increased as much as GDP in all countries except three (Ireland, Israel and Sweden). It should also be noted that changes in national income can have a big impact on these trends. For example, spending in Israel on all levels of education increased by more than 21% between 2000 and 2008, but GDP rose even faster. As a result, expenditure as a proportion of GDP fell.

Definitions

Data refer to the 2008 financial year and are based on the UOE data collection on education statistics administered by the OECD in 2010. Expenditure on educational institutions includes expenditure on both instructional institutions (those that provide teaching to individuals in an organised group setting or through distance education) and non-instructional institutions (those that provide administrative, advisory or professional services to other educational institutions, but do not enrol students themselves).

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

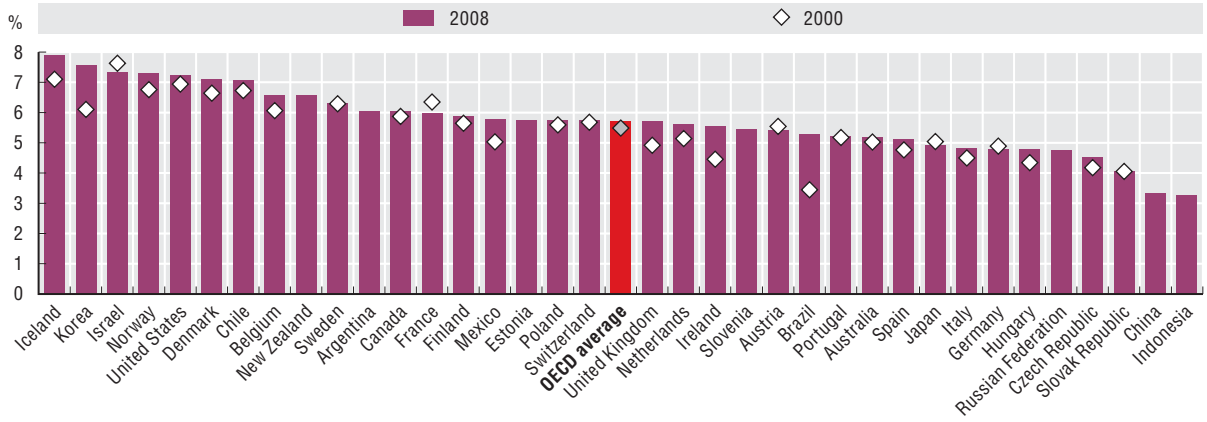
For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator B2).

Areas covered include:

- Expenditure on educational institutions as a percentage of GDP.
- Change in expenditure, 1995, 2000, and 2008.

Figure 3.4a. **Trends in education expenditure as a percentage of GDP (2000, 2008)**

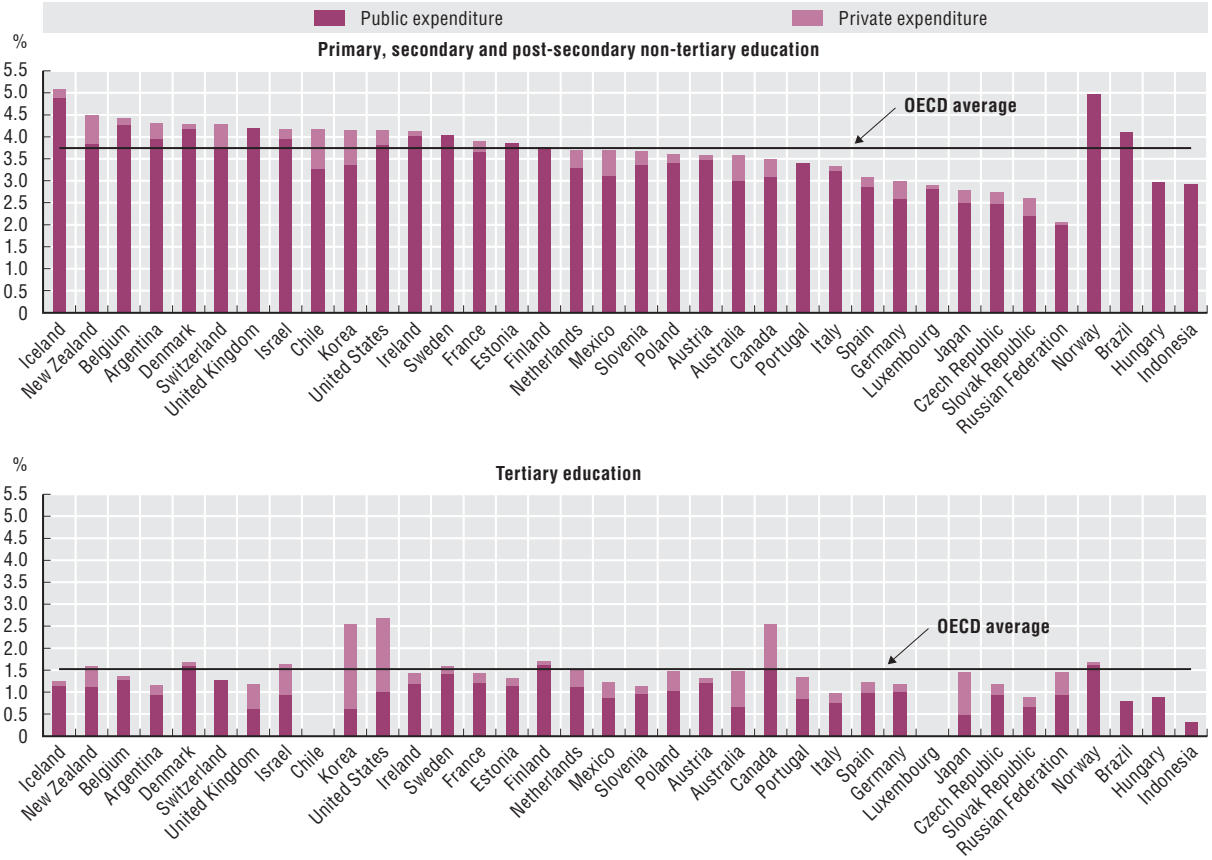
This figure shows the share of national income that countries devote to expenditure on educational institutions, and how that share has changed over time.



Source: OECD (2011), *Education at a Glance 2011*, Table B2.1, available at *http://dx.doi.org/10.1787/888932463764*.

Figure 3.4b. **Expenditure as a percentage of GDP, 2008**

These figures show the share of national income – both public and private – devoted to each level of education.



Source: OECD (2011), *Education at a Glance 2011*, Table B2.3, available at *http://dx.doi.org/10.1787/888932463802*.

What share of public spending goes to education?

- *Even in countries with little public involvement in other areas, public funding of education is a social priority, accounting for an average of 12.9% of total public expenditure in OECD countries.*
- *Public expenditure on primary, secondary and post-secondary non-tertiary education is on average about three times that on tertiary education in OECD countries.*
- *Between 1995 and 2008, education accounted for a growing share of total public expenditure in most countries.*

Significance

Public spending on education, as a percentage of total public spending, indicates the importance placed on education relative to that of other areas of public spending, such as health care, social security and national security. Since the second half of the 1990s, most OECD countries have sought to consolidate public budgets, and education has had to compete with several other sectors for public financial support. This spread evaluates the change in spending on education both in absolute terms and relative to changes in the size of public budgets.

Findings

On average, OECD countries devoted 12.9% of total public expenditures to education in 2008, with levels ranging from less than 10% in the Czech Republic, Italy and Japan to more than 20% in Mexico.

Even in countries with relatively low rates of public spending, education is considered a priority. For example, the share of public spending devoted to education in Brazil, Chile, Mexico, New Zealand and Switzerland is among the highest, yet total public spending accounts for a relatively low proportion of GDP in these countries.

In OECD countries, public funding of primary, secondary and post-secondary non-tertiary education is on average nearly three times that of tertiary education, mainly due to near universal enrolment rates below tertiary education, but also because the private share tends to be greater at the tertiary level. This ratio varies from double or less in Canada, Finland and Norway to five times in Chile, Korea and the United Kingdom. The latter figure is indicative of the relatively high proportion of private funds going to tertiary education in these countries.

Trends

Although budget consolidation has placed pressure on all areas of public expenditure, from 1995 to 2008 public expenditure on education typically grew faster than total public spending. The main increase in public expenditure on education relative to total public spending took place from 1995 to 2000; between 2000 and 2008, public expenditure on education and on other public sectors increased in the same proportions.

Over the 14 years, the proportion of public budgets spent on education in OECD countries rose from 11.8% to 12.9%. The greatest relative increases were in Brazil (11.2% to 17.4%), Denmark (12.3% to 14.9%), Germany (8.6% to 10.4%), the Netherlands (9.1% to 11.9%), Sweden (10.9% to 13.1%) and Switzerland (13.5% to 16.7%).

Definitions

Data refer to the financial year 2008 and are based on the UOE data collection on education statistics administered by the OECD in 2010. 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.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator B4).

Areas covered include:

- Distribution of total public expenditure on education.
- Initial sources of public education funds and final purchasers of educational resources by level of government (online).

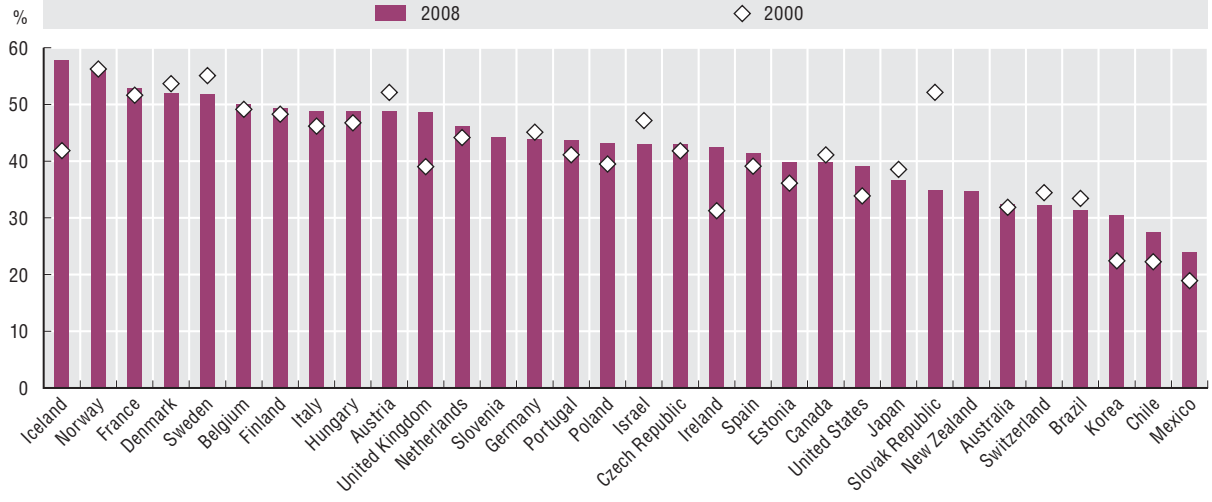
Figure 3.5. **Trends in public spending on education as a percentage of total public expenditure (2000, 2008)**

This figure shows the total public spending on education (which includes spending on educational institutions and spending such as public subsidies to households), and how it has evolved.

Source: OECD (2011), *Education at a Glance 2011*, Table B4.1, available at *http://dx.doi.org/10.1787/888932463935*.

Figure 3.6. **Total public expenditure as a percentage of GDP (2000, 2008)**

This figure shows the size of public spending as a percentage of the overall economy. These data provide context for examining the proportion of public spending that is devoted to education.



Source: OECD (2011), *Education at a Glance 2011*, Chart B4.2, available at *http://dx.doi.org/10.1787/888932463954*.

What is the role of private spending?

- *On average in OECD countries, 83% of expenditure for all levels of education combined is from public sources.*
- *For all levels of education, public expenditure per student on public institutions is on average about twice what it is on private institutions – USD 8 027* versus *USD 4 071.*
- *For the 19 OECD countries for which trend data are available, the share of public funding in tertiary institutions fell from 74% in 1995 to 67% in 2008.*

Significance

This spread shows how the financing of educational institutions is shared between public and private entities, particularly at the tertiary level. Public funding provides a very large part of investment in education, but the role of private sources has become increasingly important. Some stakeholders are concerned that this balance should not become so tilted that it discourages potential students from attending tertiary education. Thus, it is important to examine changes in public/private funding shares to determine if they are influencing patterns and levels of student participation.

Findings

In all OECD countries for which comparable data are available, public funding for all levels of education represents on average 83% of all funds. Private funding tends to be more frequent at two levels of education – pre-primary and tertiary. At the pre-primary level, it represents an average of 19% of total funding in OECD countries, which is higher than the percentage for all levels of education combined. This figure varies widely, ranging from 5% or less in Belgium, Estonia, Luxembourg, the Netherlands and Sweden, to over 50% in Australia, Japan and Korea.

At the tertiary level, private funding represents on average 31% of total expenditure on educational institutions. The proportion of expenditure on tertiary institutions covered by individuals, businesses and other private sources, including subsidised private payments, ranges from less than 5% in Denmark, Finland and Norway, to more than 40% in Australia, Canada, Israel, Japan, the United Kingdom and the United States, and to over 75% in Chile and Korea.

Private entities other than households contribute more, on average, to tertiary education than to other levels of education. In Australia, Canada, the Czech Republic, Israel, Japan, Korea, the Netherlands, the Russian Federation, the Slovak Republic, Sweden, the United Kingdom and the United States, 10% or more of spending on tertiary education comes from private entities other than individual households.

While public expenditure mainly funds public institutions, it can also play a role in funding private institutions, although this varies according to the level of education. On average among OECD countries, and across all levels of education, governments spend twice as much per student on public institutions than private ones (USD 8 027 and USD 4 071, respectively). However, more than twice as much is spent on public rather than private institutions at the pre-primary level (USD 6 281 and USD 2 474, respectively), under twice as much at the primary, secondary and post-secondary non-tertiary education level (USD 8 111 and USD 4 572, respectively), and more than three times as much at the tertiary level (USD 10 543 and USD 3 614, respectively).

Trends

While public funding for all levels of education increased across OECD countries for which comparable data are available between 2000 and 2008, private spending on education increased even more in over three-quarters of these countries. As a result, the decrease in the share of public funding on educational institutions was greater than eight percentage points in Portugal, the Slovak Republic and the United Kingdom.

Decreases in the share of public expenditure in total expenditure on educational institutions and, consequently increases in the share of private expenditure, have not generally gone hand in hand with cuts (in real terms) in public expenditure on educational institutions. In fact, many OECD countries with the highest growth in private spending have also shown the greatest increase in public funding of education. This indicates that an increase in private spending is less likely to replace public investment than to complement it.

Between 2000 and 2008, 20 out of the 26 countries for which comparable data are available showed an increase in the share of private funding for tertiary education. The share increased by six percentage points, on average, and by more than ten percentage points in Austria, Portugal, the Slovak Republic and the United Kingdom. While the share of private funding for tertiary education rose substantially in some countries during the period, this was not the case for other levels of education.

Definitions

Data refer to the 2008 financial year and are based on the UOE data collection on education statistics, administered by the OECD in 2010. Private spending includes all direct expenditure on educational institutions, whether partially covered by public subsidies or not.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator B3).

Areas covered include:

- Relative proportions and trends of public and private expenditure on educational institutions for all levels of education.
- Annual public expenditure on educational institutions per student by type of institution.

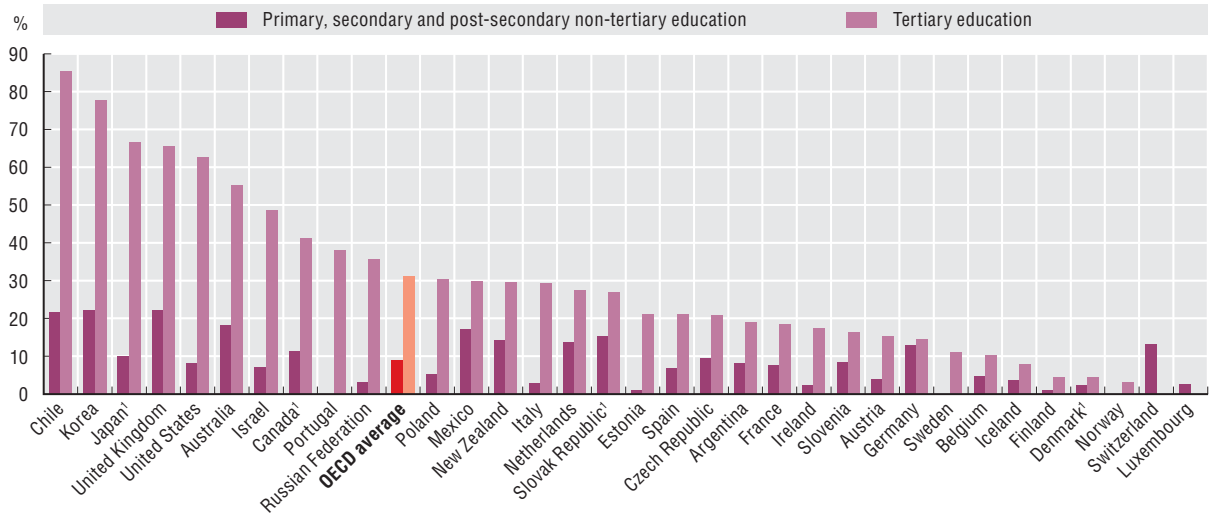
Further reading from the OECD

OECD Reviews of Tertiary Education (ongoing).

Higher Education Management and Policy (journal).

Figure 3.7. **Share of private expenditure on educational institutions, 2008**

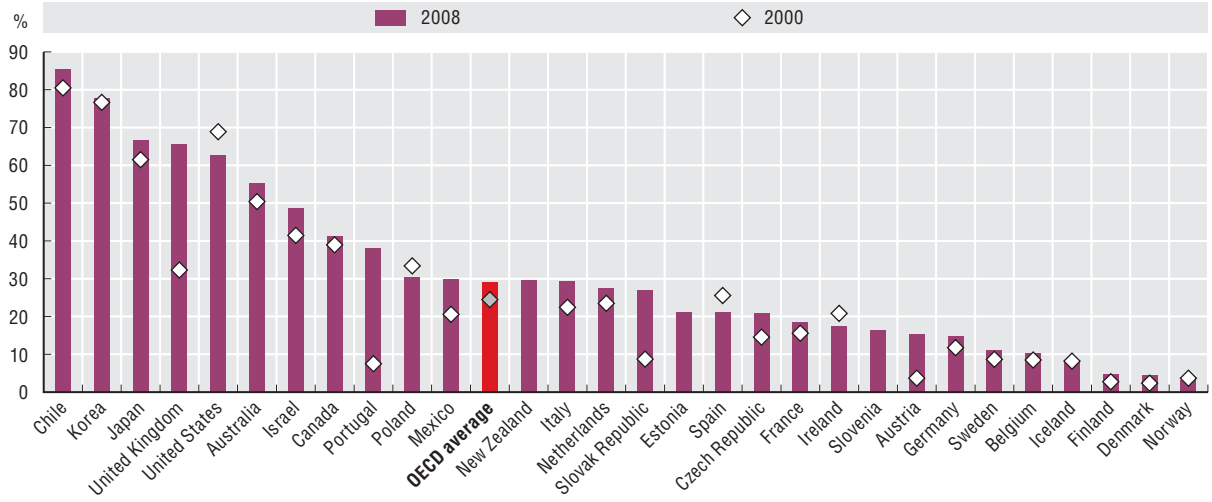
This figure shows the percentage of spending on educational institutions that comes from private funding.



Source: OECD (2011), *Education at a Glance 2011*, Table B3.1, available at *http://dx.doi.org/10.1787/888932463840*.

Figure 3.8. **Trends in the share of private expenditure (2000, 2008)**

This figure shows the increase – or otherwise – in private spending as a percentage of total expenditure on all levels of education from 2000 to 2008.



Source: OECD (2011), *Education at a Glance 2011*, Table B3.3, available at *http://dx.doi.org/10.1787/888932463897*.

How much do tertiary students pay?

- *Public institutions charge no tuition fees in eight OECD countries; but in a third of countries with available data, they charge over USD 1 500 in annual fees for national students.*
- *Since 1995, 14 of 25 countries with available information have implemented reforms on tuition fees. All of these reforms, except in Iceland and the Slovak Republic, were combined with a change in the level of public subsidies available to students.*
- *An average of 21% of public spending on tertiary education in OECD countries is devoted to supporting students, households and other private entities.*

Significance

This spread examines the relationships between annual tuition fees, direct and indirect public spending on education, and public subsidies for student living costs. Governments can address issues of access to and equality of education opportunities by subsidising tuition fees and financially aiding students and their families, particularly students from low-income families. But how this aid is given – whether through grants, scholarships or loans – is a subject of debate in many countries.

Findings

Tuition fees continue to spark lively debate, and over the past decades there have been substantial reforms in OECD countries. Since 1995, some German federal states have introduced fees, while other countries, like Australia, Austria, Japan, the Netherlands, New Zealand, Portugal, the United Kingdom and the United States, have increased fees. Similarly, Denmark, Ireland and the Slovak Republic increased tuition fees charged for international students (only international students are charged tuition fees in these countries). The question of loans *versus* grants in supporting tertiary students is also under debate in a number of countries. Student support systems have developed extensively in Australia, Chile, the Netherlands, New Zealand, Norway and the United Kingdom, where public subsidies account for at least 29% of public spending on tertiary education.

Overall, there are significant differences among OECD countries in the average tuition fees charged for tertiary education. While negligible or low in the Nordic countries, the Czech Republic, Ireland and Mexico, fees exceed USD 5 000 in the United States and Korea. However, tuition fees are only one part of the picture. It is also important to look at broader support that may be available to students. In this context, countries can be grouped into four main categories:

1. No or low tuition fees, and generous student support systems; this includes the Nordic countries.
2. High tuition fees and well-developed student support systems; this includes Australia, Canada, the Netherlands, New Zealand, the United Kingdom and the United States.
3. High tuition fees but less-developed student support systems; this includes Japan and Korea.
4. Low tuition fees and less developed student support systems; this includes Austria, Belgium, the Czech Republic, France, Ireland, Italy, Portugal, Switzerland, Spain and Mexico.

Although tuition fees for tertiary education are generally high (more than USD 1 500) in category 2, large public subsidies are available to students. At 69%, the average entry rate into universities among these countries is significantly above the OECD average, and higher than most countries with low tuition fees, except the Nordic countries. In countries with low tuition fees and limited subsidies for students, such as those in category 4, the average entry rate into tertiary education is a relatively low 50%.

Definitions

Data refer to the financial year 2008 and are based on the UOE data collection on education statistics administered by the OECD in 2010. Data on tuition fees charged by educational institutions and financial aid to students were collected through a special survey undertaken in 2010 and refer to the academic year 2008-09. Public subsidies to households include grants/scholarships, public student loans, family or child allowances contingent on student status, public subsidies in cash or in kind for housing, transport, medical expenses, books and supplies, social, recreational and other purposes, and interest-related subsidies for private loans.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator B5).

Areas covered include:

- Average tuition fees charged by tertiary-type A educational institutions.
- Distribution of financial aid to students.
- Governance of tertiary institutions.

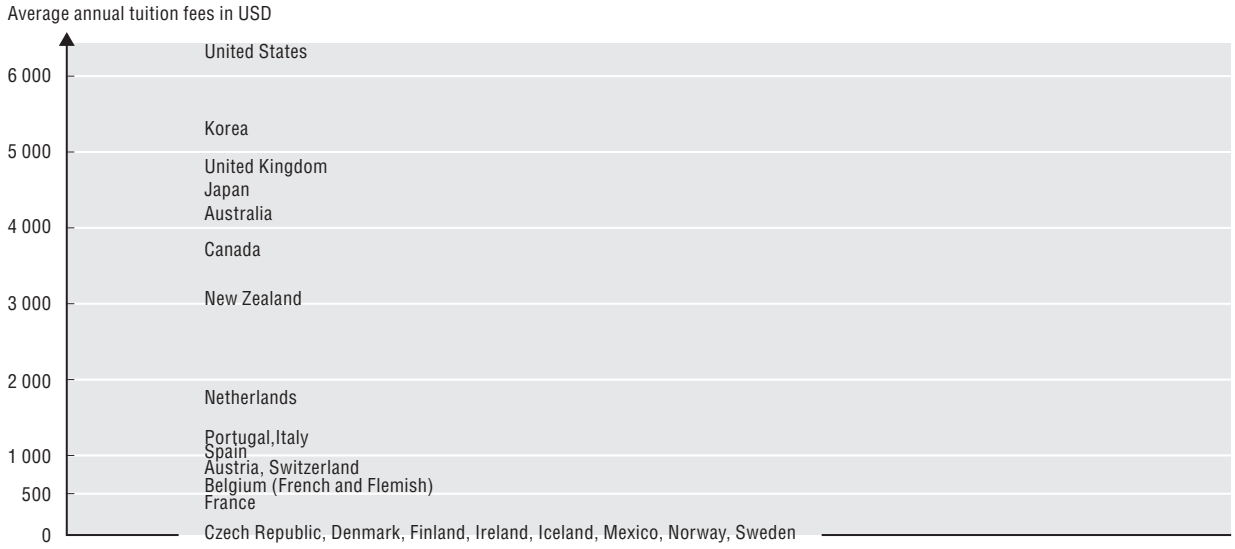
Further reading from the OECD

OECD Reviews of Tertiary Education (ongoing).

Higher Education Management and Policy (journal).

Figure 3.9. **Tuition fees in tertiary education, 2008-09**

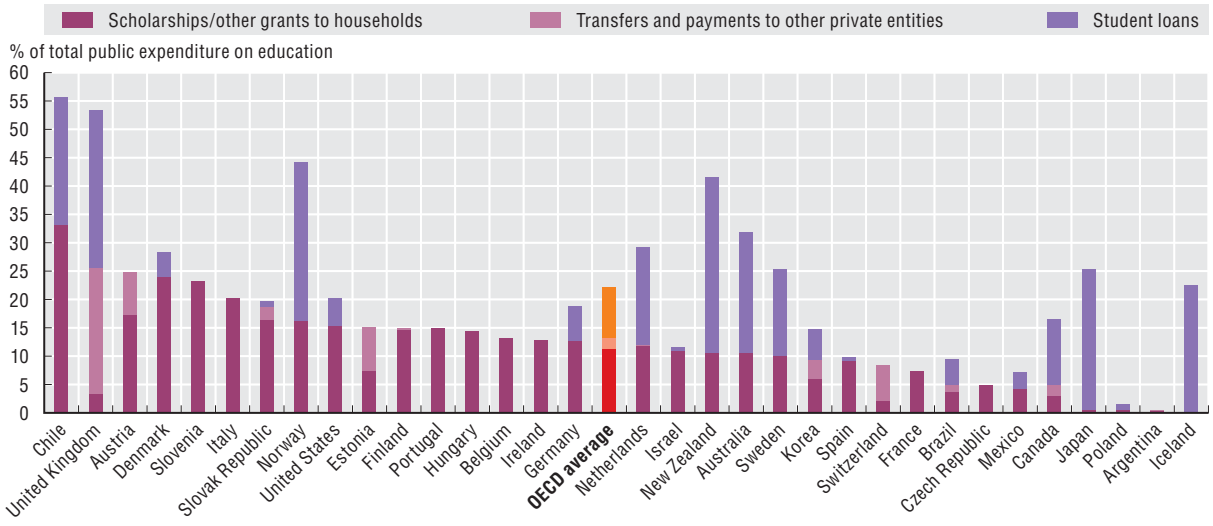
This figure shows the average annual tuition fees charged to full-time national students in public institutions for university-level education.



Source: OECD (2011), *Education at a Glance 2011*, Table B5.2, available at *http://dx.doi.org/10.1787/888932464030*.

Figure 3.10. **Public subsidies for tertiary education, 2008**

This figure shows the public subsidies for education given to households and other private entities as a percentage of total public expenditure on education, broken down by the type of subsidy.



Source: OECD (2011), *Education at a Glance 2011*, Table B5.3, available at *http://dx.doi.org/10.1787/888932464049*.

What are education funds spent on?

- *In primary, secondary and post-secondary non-tertiary education combined, current expenditure accounts for an average of 92% of total spending in OECD countries.*
- *Staff costs constitute 79% of current expenditure at the primary, secondary and post-secondary non-tertiary levels.*
- *High spending on R&D is a distinctive feature of tertiary institutions and averages one-quarter of expenditure.*

Significance

This spread details how OECD countries spend their funds for education, including the split between capital expenditure, which is one-off spending on items such as school buildings, and current expenditure, which is recurring spending on items such as teachers' salaries. How spending is apportioned, both between current and capital outlays and within these categories, can affect the quality of services, the condition of facilities, and the ability of education systems to adjust to changing demographic and enrolment trends.

Findings

At primary, secondary, and post-secondary non-tertiary levels of education, current expenditure makes up 92% of total spending on education, on average, across all OECD countries. This is largely due to the labour intensiveness of education, with teachers' salaries accounting for a very large slice of current – and total – education spending (see below). The split between current and capital spending varies significantly between countries, with the former ranging from 82% in Luxembourg to at least 97% in Austria, Chile, Mexico and Portugal.

At the tertiary level, the proportion of total expenditure for capital outlays is larger than at the primary, secondary and post-secondary non-tertiary levels (9.1% *versus* 7.9%), generally because of greater differentiation and sophistication of teaching facilities.

In OECD countries, staff salaries make up on average 79% of current expenditure at the primary, secondary and post-secondary non-tertiary levels, rising to 90% or more in Argentina, Indonesia, Mexico and Portugal. On average, OECD countries spend 0.25% of GDP on ancillary services provided by primary, secondary and post-secondary non-tertiary institutions, representing less than 7% of total spending on these institutions.

At the tertiary level, an average of 32% of current expenditure in OECD countries goes to purposes other than staff salaries. This can be attributed to the higher cost of facilities and equipment at this level of education.

Variations among OECD countries in spending on R&D activities in tertiary education can contribute significantly to the differences in overall spending on students at this level. High levels of R&D spending (between 0.4 and 0.8% of GDP) in tertiary institutions in Australia, Austria, Belgium, Canada, Finland, France, Germany, Ireland, the Netherlands, Norway, Portugal, Sweden, Switzerland and the United Kingdom imply that spending on education per student in these countries would be considerably lower if the R&D component were excluded.

Definitions

Data refer to the financial year 2008 and are based on UOE data collection on education statistics administered by the OECD in 2010. R&D expenditure includes all spending 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.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

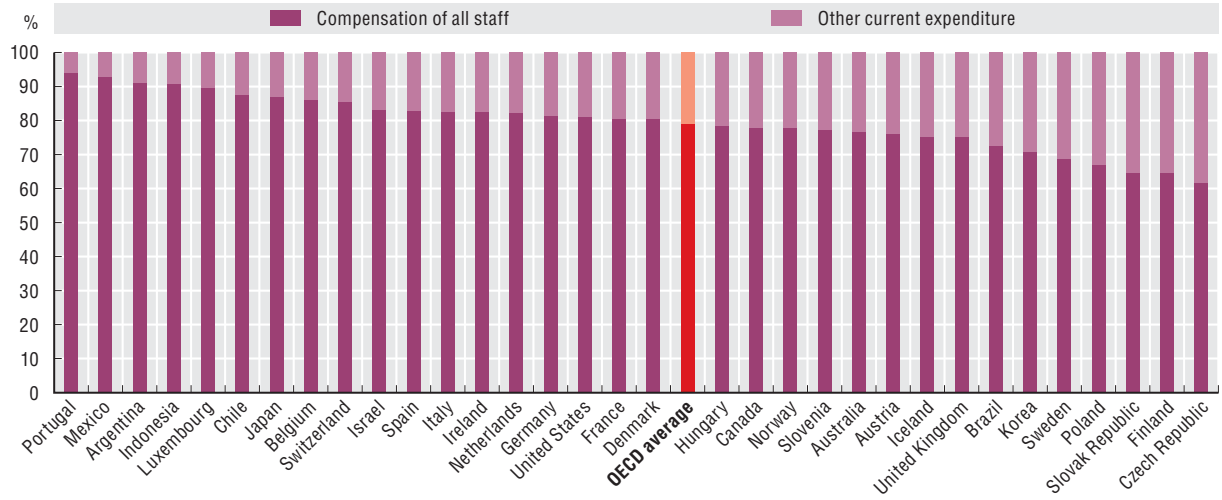
For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator B6).

Areas covered include:

- Expenditure on educational institutions by service category as a percentage of GDP.
- Distribution of current expenditure on educational institutions by level of education.

Figure 3.11. **Staff costs as a proportion of current expenditure in education, 2008**

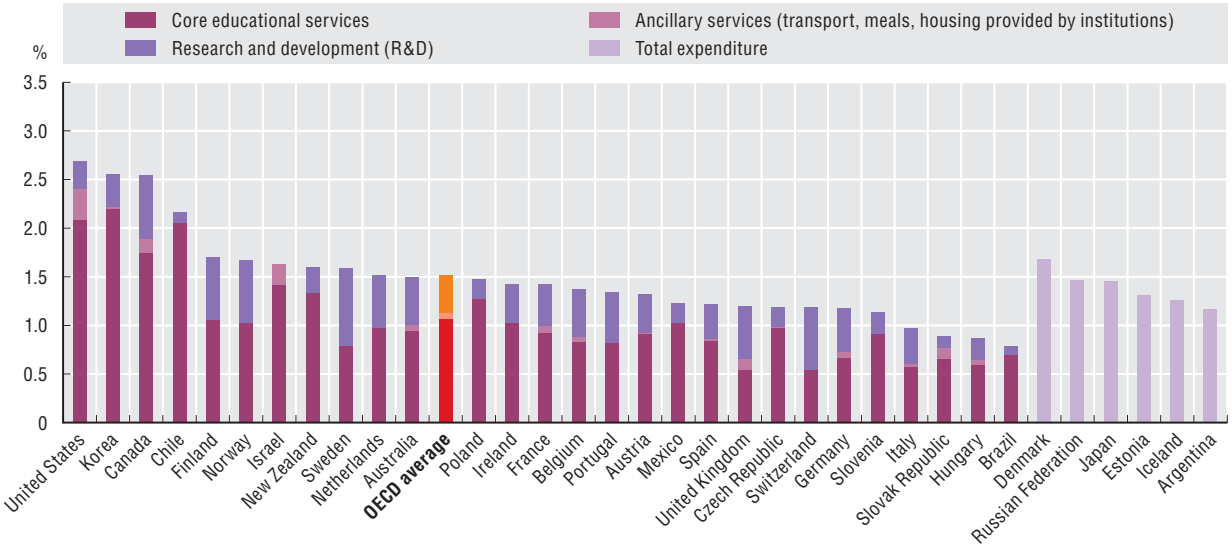
This figure shows the proportion of current expenditure devoted to paying staff in primary, secondary and post-secondary non-tertiary education. Other areas of current spending include transport, student counselling, and recurring spending on school materials and research.



Source: OECD (2011), *Education at a Glance 2011*, Table B6.2b, available at *http://dx.doi.org/10.1787/888932464125*.

Figure 3.12. **Expenditure on services and research in tertiary education, 2008**

This figure shows expenditure on core educational services, R&D and ancillary services in tertiary educational institutions as a percentage of GDP.



Source: OECD (2011), *Education at a Glance 2011*, Table B6.2b, available at *http://dx.doi.org/10.1787/888932464125*.

What accounts for variations in spending on salary costs?

- *Similar levels of expenditure among countries in primary and secondary education can mask a variety of contrasting policy choices. This explains why there is no simple relationship between overall spending on education and the level of student performance.*
- *Salary cost per student at the upper secondary level of education varies significantly between countries, from USD 539 in Chile to nearly 10 times that in Luxembourg, Spain and Switzerland.*
- *The higher the level of education, the greater the impact of teachers' salaries and the lower the impact of class size on salary cost per student.*

Significance

The relationship between resources devoted to education and outcomes achieved has been the focus of much education policy debate in recent years, as governments seek to ensure value for money in public spending while satisfying the educational needs of the society and economy. Indeed, various reforms implemented during the last decade in primary and secondary education have had important impacts in this area (see Box B7.2 in *Education at a Glance 2010*). Consequently, there is considerable interest in international comparisons of how various school systems allocate resources. This spread examines these questions from the perspective of salary cost per student – a calculation based on four factors: hours students spend in the classroom, teachers' teaching hours, estimated class size and teachers' salaries. Salary cost per student is calculated for each country and then compared with the OECD average.

Findings

Salary cost per student is a complex calculation based, as noted above, on four factors. Spain serves as a concrete example of how these factors interact (see the top chart on the opposite page). Its salary cost per student in upper secondary education is USD 2 201 higher than the OECD average. Spain spends more on teachers' salaries than the OECD average (+USD 686) and spends more on instruction time for students (+USD 94), but lowers relative costs thanks to above-average teaching time for teachers (–USD 291). However, these effects are dampened by significantly smaller class sizes (+USD 1 711), resulting in above-average salary cost per student.

Overall, salary cost per student at the upper secondary level varies significantly, ranging from USD 539 in Chile to nearly ten times that in Luxembourg, Spain and Switzerland. But these totals need to be interpreted in terms of the relative importance of each of the four factors. For example, salary cost per student is USD 5 044 in Denmark, close to the same salary cost in Portugal (USD 4 886), both of which are above the OECD average. However, in Denmark the total is driven by the fact that teachers have below-average teaching time while in Portugal the key factor is smaller class size.

Naturally, teachers' salaries vary according to countries' relative level of wealth. For that reason, it can be useful to compare salary cost per student in terms of GDP per capita (see Tables B7.1 to B7.3, available only online, in *Education at a Glance 2011*). On average in OECD countries, the salary cost per student at upper secondary level represents 10.3% of GDP per capita, but reaches as high as 21.6% in Portugal.

High levels of per-student spending cannot be automatically equated with strong performance by education systems. Globally, only 17% of the variation in 2009 PISA performance in reading literacy results from a variation in cumulative spending per student (between the ages of 6 and 15). Whereas the four countries with the lowest average scores in reading literacy (Brazil, Chile, Mexico and the Russian Federation) also have the lowest levels of cumulative spending per student, the four top-performing countries (Canada, Finland, Korea and New Zealand) are not among countries with the highest levels of cumulative expenditure per student. On the contrary, the four countries with the highest levels of cumulative spending per student (Austria, Luxembourg, Norway and Switzerland) have an average score in reading literacy ranging from slightly above the OECD average (Norway and Switzerland) to well below the OECD average reading score (Austria and Luxembourg).

Definitions

Values for variables are derived mainly from *Education at a Glance 2010*, and refer to the school year 2007-08 and the calendar year 2007 for indicators related to finance. To compensate for missing values, some data have been estimated on the basis of data published in previous editions of *Education at a Glance* while others have been replaced by the average for all OECD countries. Salary cost per student is calculated based on teachers' salaries, the number of hours of instruction for students, the number of hours of teaching for teachers and a proxy class size.

Going further

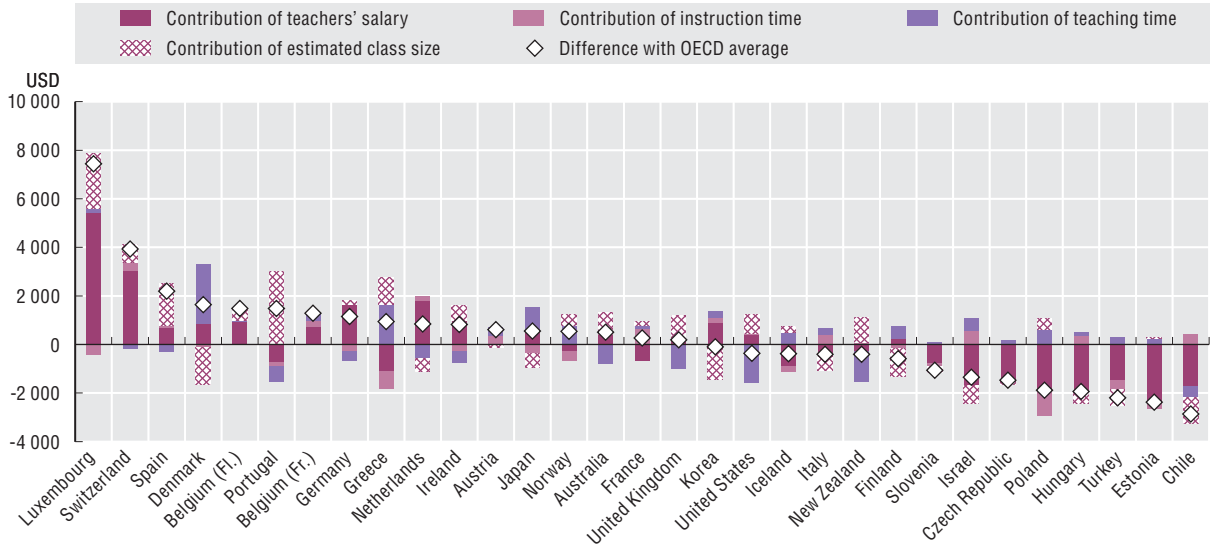
For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator B7).

Areas covered include:

- Salary cost per student by levels of education.
- Salary cost per student as a percentage of GDP per capita.

Figure 3.13. **Contribution of various factors to salary cost per student at upper secondary level, 2008**

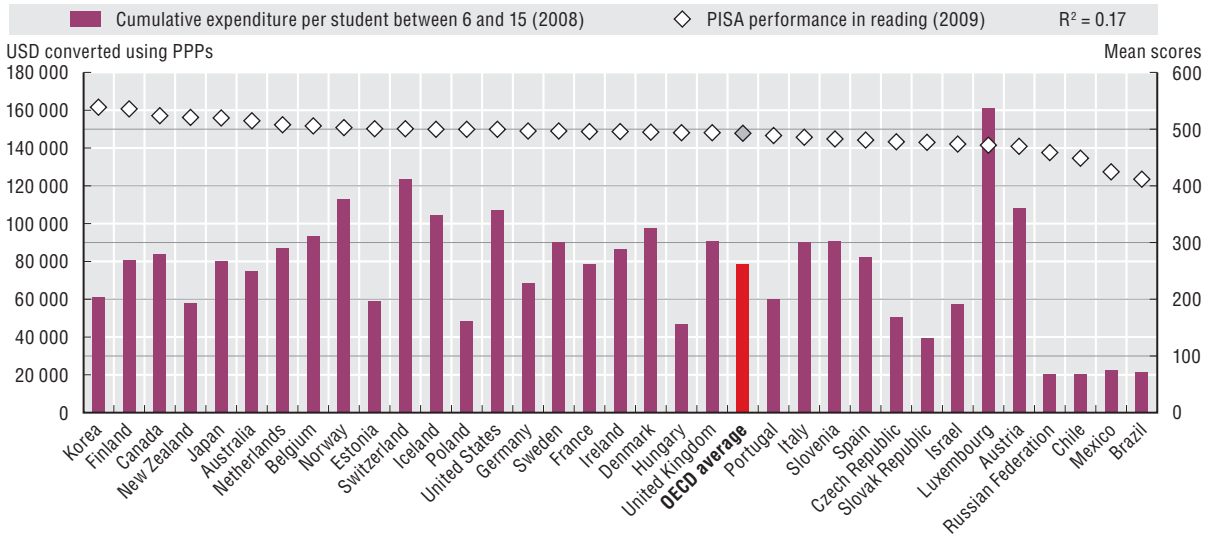
This figure shows the contribution (in US dollars) of the four factors that affect differences between salary cost per student and compares each country's total with the OECD average.



Source: OECD (2011), *Education at a Glance 2011*, Table B7.3, available at *http://dx.doi.org/10.1787/888932464220*.

Figure 3.14. **Relationship between student reading performance (2009) and spending (2008)**

This figure shows the relationship between PISA performance in reading at age 15 and cumulative spending per student between 6 and 15.



Source: OECD (2011), *Education at a Glance 2011*, Chart B7.2, available at *http://dx.doi.org/10.1787/888932461332* and OECD, *PISA 2009 Database*.

4. THE SCHOOL ENVIRONMENT

How long do students spend in the classroom?

How many students are in each classroom?

How much are teachers paid?

How much time do teachers spend teaching?

How are schools held accountable?

Who are the teachers?

How long do students spend in the classroom?

- *In OECD countries, 7-8 year-olds receive 749 hours per year of compulsory instruction; the time devoted to compulsory instruction is 44 hours longer for 9-11 year-olds and 124 hours longer for 12-14 year-olds.*
- *The teaching of reading, writing and literature, mathematics and science accounts for 48% of compulsory instruction time for 9-11 year-olds in OECD countries, and 41% for 12-14 year-olds.*
- *The proportion of compulsory instruction time for 9-11 year-olds devoted to reading, writing and literature ranges from 11% in Indonesia to at least 30% in France, Mexico and the Netherlands.*

Significance

This spread examines the amount of time students spend in formal education between the ages of 7 and 14. The choices that countries make about how much time should be devoted to education and which subjects should be compulsory reflect national education priorities. Since a large part of public investment in education goes to instruction time in formal classroom settings, the length of time students spend in school is an important factor in determining the amount of funding that should be devoted to education.

Findings

In OECD countries, the total number of instruction hours that students are intended to receive (including both compulsory and non-compulsory parts) between the ages of 7 and 14 averages 6 732 hours. However, formal requirements range from fewer than 4 715 hours in Poland to over 8 316 hours in Italy.

For 9-11 year-olds in OECD countries, 48% of the compulsory curriculum is devoted to three basic subject areas: reading, writing and literature (23%), mathematics (16%) and science (9%). But there is great variation among countries in the percentage of class time devoted to these subjects. Reading, writing and literature, for example, accounts for 11% of instruction time in Indonesia, compared with 30% or more in France, Mexico and the Netherlands. There are also great differences in the time spent learning modern foreign languages. In Argentina, Chile, England and the Netherlands, it accounts for 3% or less of instruction time, which rises to 10% or more in Estonia, Germany, Greece, Israel, Italy, the Slovak Republic, Slovenia, Spain and Turkey and to 25% in Luxembourg.

For 12-14 year-olds in OECD countries, an average of 41% of the compulsory curriculum is devoted to three subjects: reading, writing and literature (16%), mathematics (13%) and science (12%). Compared with 9-11 year-olds, a relatively larger part of the curriculum for this older age group is devoted to social studies (12%) and modern foreign languages (13%).

Most OECD countries define a specific number of hours for compulsory instruction. Within that part of the curriculum, students have varying degrees of freedom to choose the subjects they want to learn. The Czech Republic allows complete flexibility (100%) in the compulsory curriculum for 9-14 year-olds. Australia offers the second greatest degree of flexibility in the compulsory curriculum: 59% of that curriculum can be shaped by students themselves among 9-11 year-olds and 42% among 12-14 year-olds.

Definitions

Data on teaching time distinguish between "compulsory" and "intended" teaching time. Compulsory teaching time refers to the minimum amount of teaching that schools are expected to provide. Intended instruction time is an estimate of the number of hours during which students are taught both compulsory and non-compulsory parts of the curriculum. It does not, however, indicate the quality of the education provided nor the level or quality of the human and material resources involved. Data on instruction time are from the 2010 OECD-INES Survey on Teachers and the Curriculum and refer to the 2008-09 school year.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator D1).

Areas covered include:

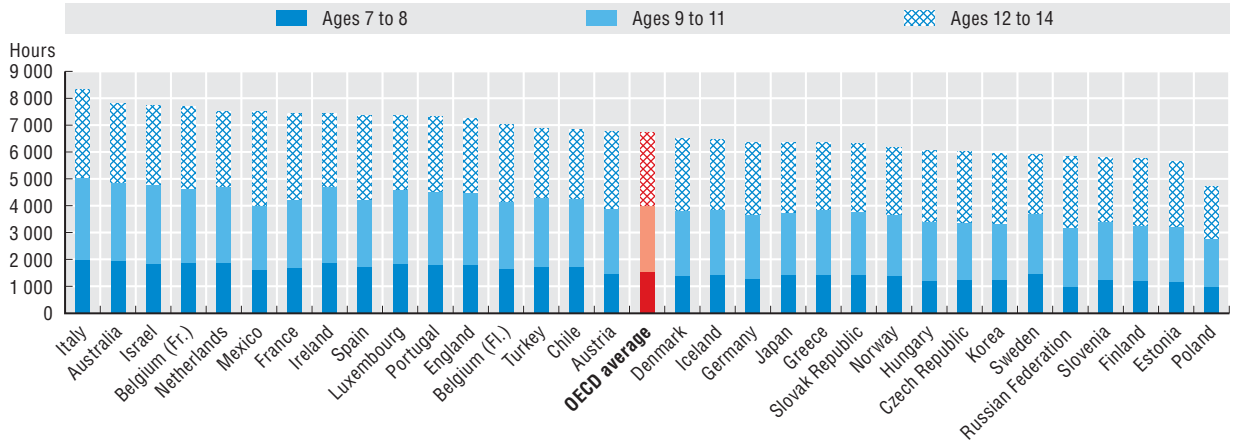
- Compulsory and intended instruction time in public institutions.
- Instruction time per subject.

Further reading from the OECD

21st Century Learning Environments (2006).

Figure 4.1. **Total number of instruction hours in public institutions, 2009**

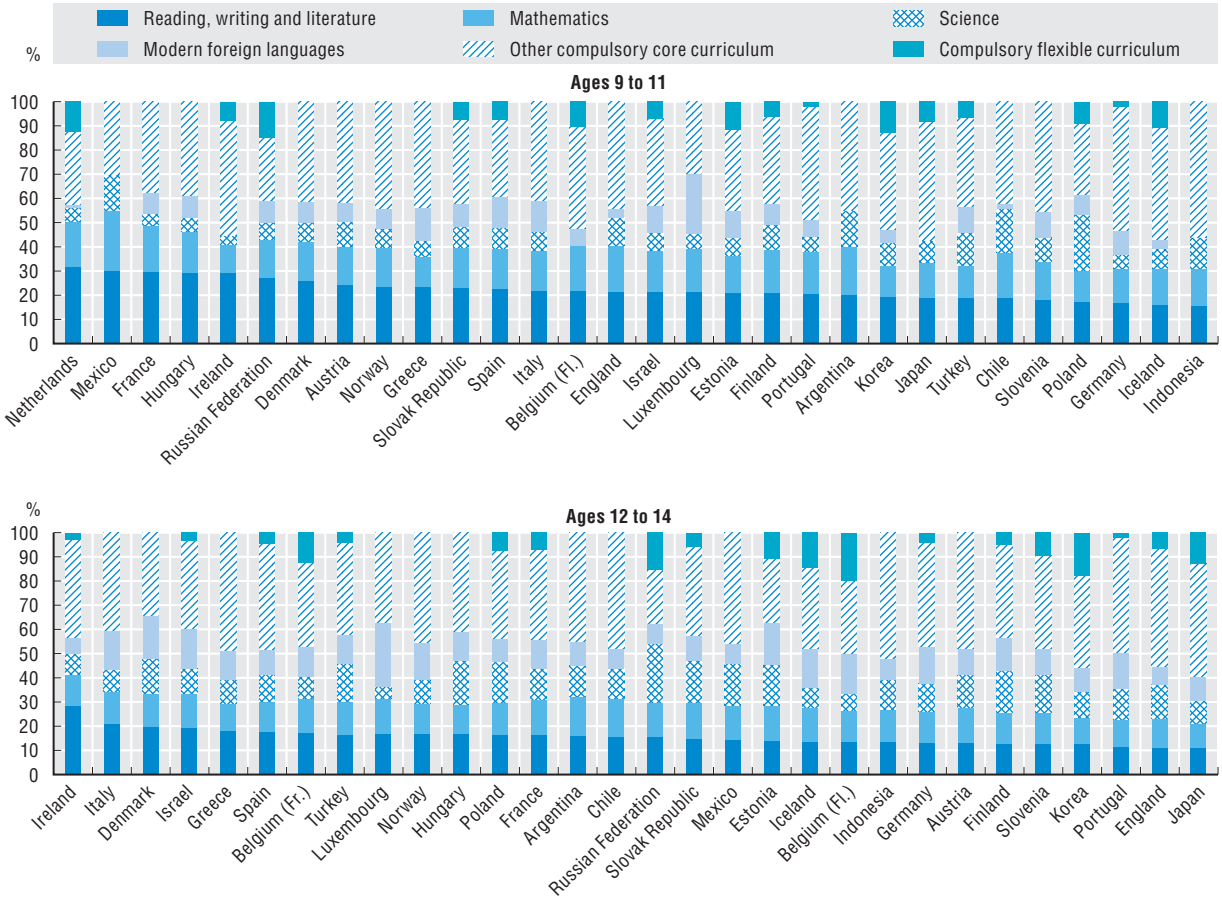
This figure shows the hours of intended instruction that students receive between ages 7 and 14 (this represents the compulsory instruction time public schools are required to deliver as well as the time devoted to non-compulsory instruction).



Source: OECD (2011), *Education at a Glance 2011*, Table D1.1, available at *http://dx.doi.org/10.1787/888932465094*.

Figure 4.2. **Instruction time by subject, 2009**

These figures show the percentage of compulsory instruction time devoted to each subject.



Source: OECD (2011), *Education at a Glance 2011*, Tables D1.2a and D1.2b, available at *http://dx.doi.org/10.1787/888932465113* and *http://dx.doi.org/10.1787/888932465132*.

How many students are in each classroom?

- *On average, there are more than 21 students per class at primary level, but this varies from more than 29 in Chile and China to nearly half that number in Luxembourg and the Russian Federation.*
- *On average, the number of students per class increases by two or more between primary and lower secondary education.*
- *The student-to-teacher ratio in lower and upper secondary education is slightly lower in private than in public institutions.*

Significance

This spread examines the number of students per class at the primary and lower secondary levels, and the ratio of students to teachers at all levels. Class size is a hotly debated topic in many OECD countries. While smaller classes are often perceived as enabling a higher quality of education, evidence on the impact of class size on student performance is mixed.

Findings

At the primary level, the average class size in OECD countries is slightly more than 21 students, ranging from more than 29 in Chile and China to fewer than 20 in Austria, the Czech Republic, Denmark, Estonia, Finland, Greece, Iceland, Italy, Luxembourg, Mexico, Poland, the Russian Federation, the Slovak Republic, Slovenia and Switzerland (in public institutions).

In lower secondary education, the average class size is 24 students, ranging from 20 or fewer in Denmark, Estonia, Finland, Iceland, Luxembourg, the Russian Federation, Slovenia, Switzerland (in public institutions) and the United Kingdom to more than 35 students per class in Indonesia and Korea and to over 50 in China.

At the primary level, the ratio of students to teaching staff (with part-time and full-time teachers combined and expressed in terms of full-time equivalents), ranges from 24 students or more per teacher in Brazil and Mexico to fewer than 11 in Hungary, Italy, Norway and Poland. The OECD average in primary education is 16 students per teacher, and 14 at secondary level (see Chart D2.3 in *Education at a Glance 2011*).

Across the OECD, average class size at the primary and lower secondary levels does not differ by more than one student per class between public and private institutions. However, there are differences between countries. At primary level, the average class in a public institution has at least four more students than a private institution in Brazil, the Czech Republic, Indonesia, Poland, the Russian Federation, Turkey, the United Kingdom and the United States. By contrast, the reverse is true for China, Japan, Luxembourg and Spain. At the lower secondary level, where private education is more prevalent than at the primary level, class size is larger in private institutions in 13 OECD countries.

Trends

Among two-thirds of countries with comparable data, primary class size tended to decrease slightly between 2000 and 2009, most notably in countries that had relatively large classes in 2000, such as Korea and Turkey. By contrast, they tended to increase in countries that had relatively small classes in 2000, such as Iceland.

Definitions

Data refer to the 2008-09 school year, and are based on the UOE data collection on education statistics administered by the OECD in 2010. Class size has been calculated by dividing the number of students enrolled by the number of classes. The ratio of students to teachers has been calculated by dividing the number of full-time students at a given level of education by the number of full-time teachers at that level. Data for Switzerland refer to public institutions.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator D2).

Areas covered include:

- Average class size, by type of institution and level of education.
- Ratio of students to teaching staff.
- Teaching staff and non-teaching staff employed in educational institutions.

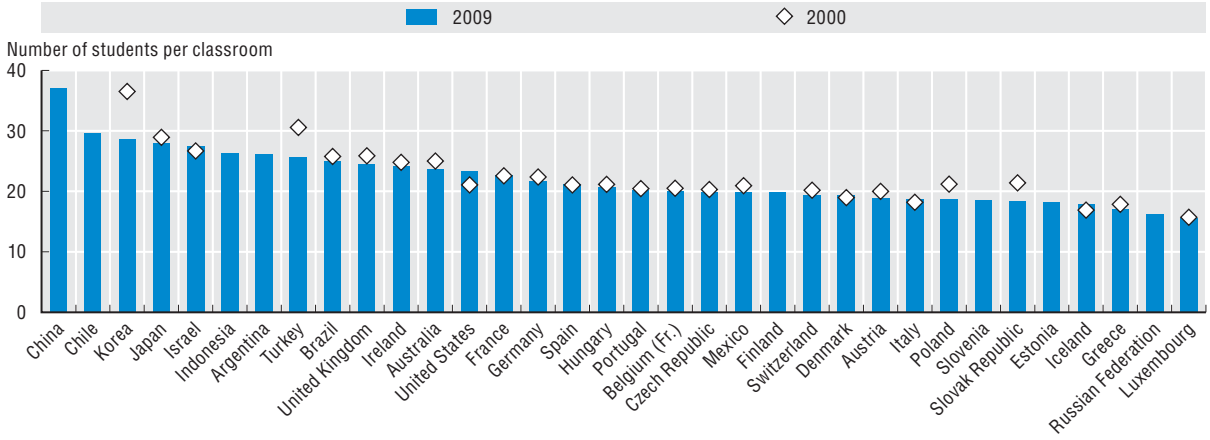
Further reading from the OECD

Improving School Leadership (Vol. 1: Policy and Practice) (2008).

21st Century Learning Environments (2006).

Figure 4.3. **Trends in average class size in primary education (2000, 2009)**

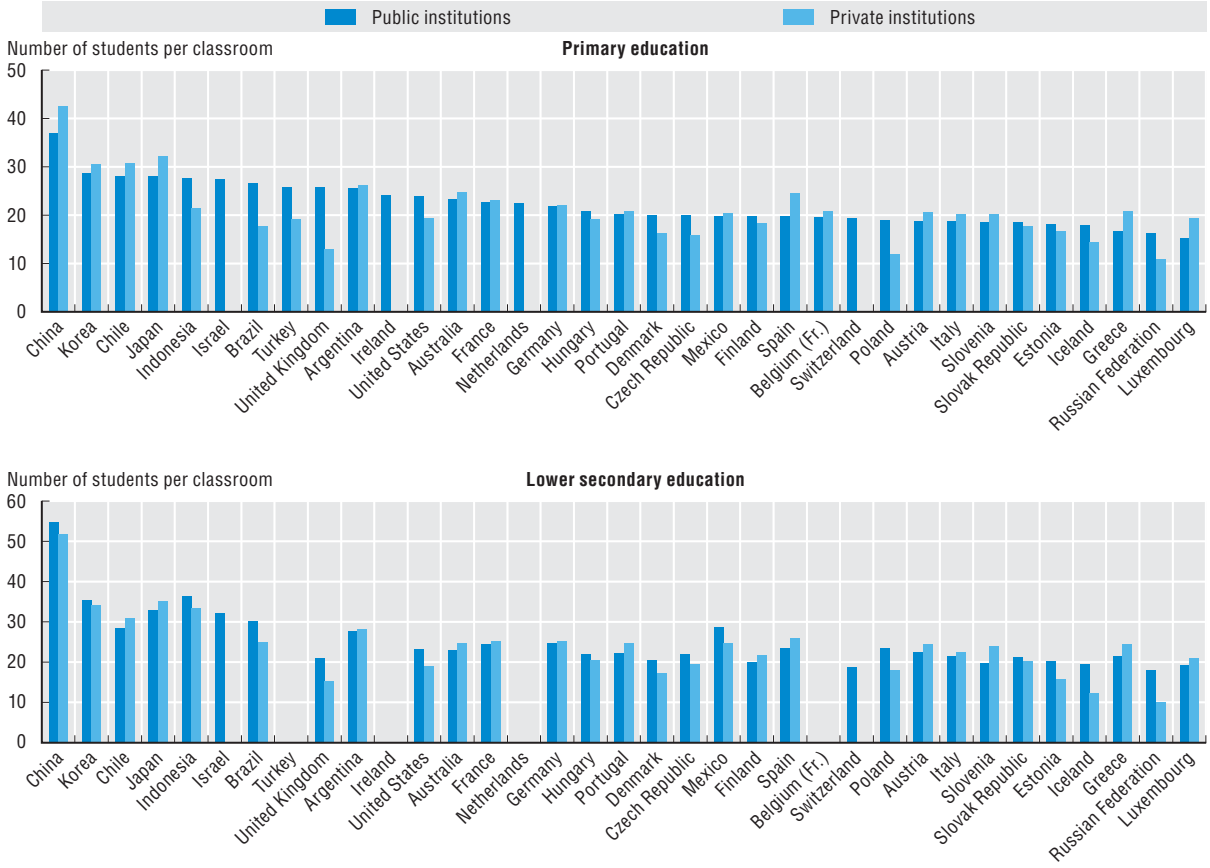
This figure shows the number of students on average in primary classes, and whether these numbers have risen or fallen.



Source: OECD (2011), *Education at a Glance 2011*, Tables D2.1 and D2.4, available at *http://dx.doi.org/10.1787/888932465170* and *http://dx.doi.org/10.1787/888932465227*.

Figure 4.4. **Average class size in public and private institutions, 2009**

These figures show whether class size differs between public and private schools.



Source: OECD (2011), *Education at a Glance 2011*, Table D2.1, available at *http://dx.doi.org/10.1787/888932465170*.

How much are teachers paid?

- *Salaries for lower secondary teachers with at least 15 years' experience range from less than USD 15 000 in Hungary, Indonesia and the Slovak Republic to more than USD 100 000 in Luxembourg.*
- *For both primary and secondary education, salaries at the top of the scale are on average around 64% higher than starting salaries.*
- *Salaries in primary and secondary education have grown in real terms since 2000 in almost all OECD countries, with the biggest rises in the Czech Republic, Estonia, and Turkey.*

Significance

This spread shows the starting, mid-career and maximum statutory salaries of teachers in public primary and secondary education. Since teachers' salaries are the largest single cost in education, teacher compensation is a critical consideration for policy makers seeking to maintain both the quality of teaching and a balanced education budget.

Findings

In most OECD countries, teachers' salaries rise with the level of education they teach. For example, in Belgium, Indonesia, Luxembourg and Poland, the salary of an upper secondary teacher with at least 15 years of experience is at least 25% higher than that of a primary teacher with the same amount of experience. In Chile, Iceland, Japan, Korea and Turkey, there is less than a 5% difference between upper secondary and primary school teachers' salaries; and in Australia, England, Estonia, Greece, Ireland, Portugal, Scotland, the Slovak Republic and Slovenia, both primary and secondary school teachers received the same salary. Salaries at the top of the scale are on average around 64% higher than starting salaries for both primary and secondary education, although this differential largely varies among countries in line with the number of years it takes to progress through the scale. For example, in the Czech Republic and in Greece, salaries at the top of the scale are 50% higher than starting salaries, and teachers in both countries must work 32 (the Czech Republic) or 33 years (Greece) to reach the top salary.

To get a sense of the relative value of teachers' salaries within countries, a number of comparisons are useful, such as in terms of GDP per capita (see Chart D3.3 in *Education at a Glance 2011*). They can also be compared with the earnings of other tertiary graduates. Salaries for teachers with 15 years of experience in lower secondary education are nearly 27% higher than the average earnings of workers with tertiary education in Spain. By contrast, they are below 60% of the latter in the Czech Republic, Hungary, Iceland and the Slovak Republic.

Trends

Between 2000 and 2009, teachers' salaries increased in real terms in most countries. The largest increases – of well over 50% – were seen in the Czech Republic, Estonia and Turkey, although these countries still have low real and relative salaries. The only exceptions to this trend were Australia, France, Japan and Switzerland.

Definitions

Data are from the 2010 OECD-INES Survey on Teachers and the Curriculum and refer to the 2008-09 school year. Gross teachers' salaries were converted using GDP and purchasing power parities (PPPs) exchange rate data from the OECD National Accounts database. Starting salaries refer to the average scheduled gross salary per year for a fully qualified full-time teacher. Earnings for workers with tertiary education are average earnings for full-time, full-year workers aged between 25 and 64 and with education at ISCED 5A/5B/6. Data presented here offer a simplified illustration of international comparisons in teacher compensation. Large differences in taxation, social benefits and allowances and additional payments for teachers as well as variations in teaching time, workloads and the use of part-time teachers must also be taken into account in making international comparisons of teachers' benefits. It is thus important to exercise caution in interpreting comparisons of teachers' salaries.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator D3).

Areas covered include:

- Teachers' salaries and trends.
- Additional payments for teachers.

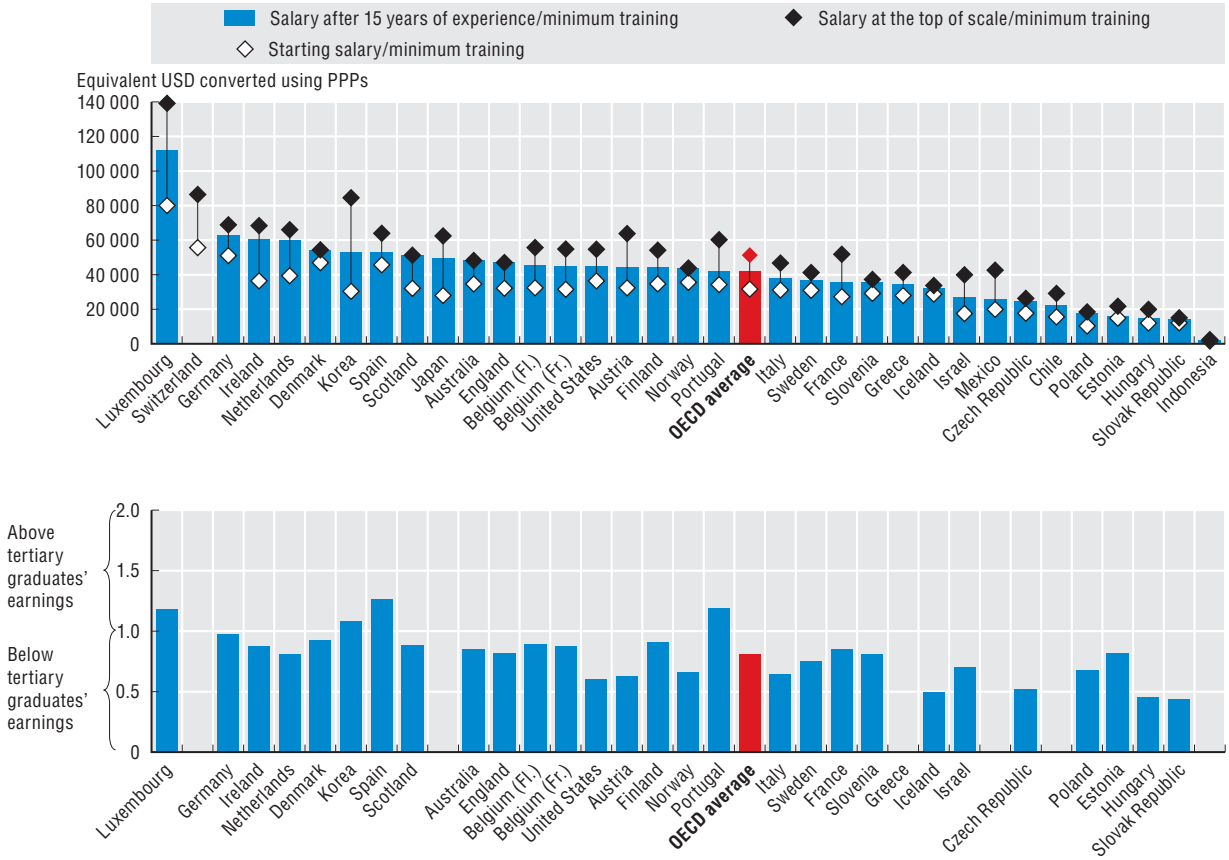
Further reading from the OECD

Evaluating and Rewarding the Quality of Teachers: International Practices (2009).

Teachers Matter: Attracting, Developing and Retaining Effective Teachers (2005).

Figure 4.5. **Teachers' salaries in lower secondary education, 2009**

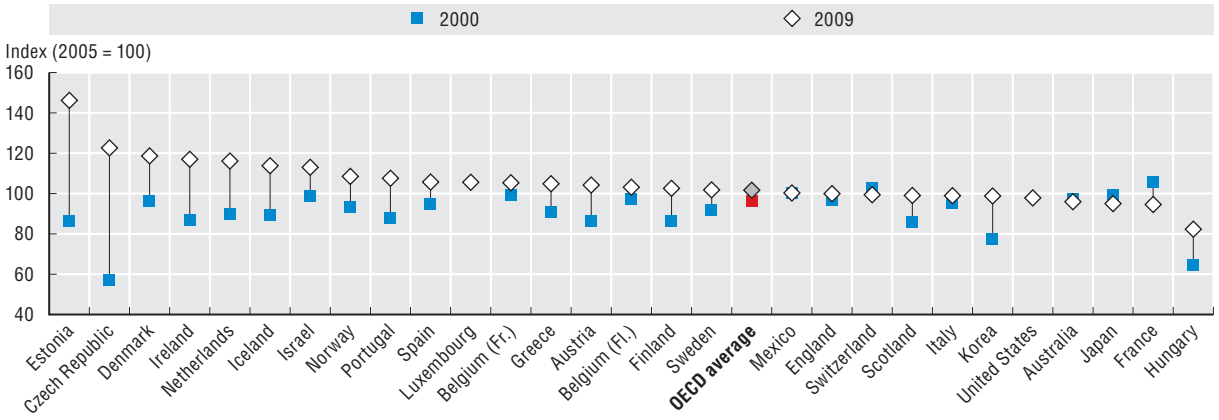
The upper chart in this figure shows how much teachers are paid, and how this varies depending on their years of experience. The lower chart shows the ratio of teachers' salaries (with 15 years' experience) with the earnings of full-time workers with tertiary education.



Source: OECD (2011), *Education at a Glance 2011*, Tables D3.1 and D3.2, available at *http://dx.doi.org/10.1787/888932465246* and *http://dx.doi.org/10.1787/888932465265*.

Figure 4.6. **Trends in teachers' salaries in lower secondary education (2000, 2009)**

This figure shows how the salaries of lower secondary teachers, with a minimum of 15 years of experience, have changed in real terms from 2000 to 2009.



Source: OECD (2011), *Education at a Glance 2011*, Table D3.3 available at *http://dx.doi.org/10.1787/888932465284*.

How much time do teachers spend teaching?

- *The number of teaching hours per year in public primary schools averages 779, but ranges from fewer than 600 hours in Greece, Hungary and Poland to over 1 000 hours in Chile, Indonesia and the United States.*
- *The average number of teaching hours per year in public upper secondary schools is 656, but ranges from 377 in Denmark to 1 368 in Argentina.*
- *The way teachers' working time is regulated varies substantially among countries.*

Significance

This spread examines the time teachers spend teaching and doing non-teaching work, such as preparing lessons and assessing students. Although working time and teaching time only partly determine teachers' actual workload, they do provide valuable insights into differences in what is demanded of teachers in different countries and so may be related to the attractiveness of teaching as a profession. The amount of time that teachers spend teaching is also one of the factors that affect the financial resources countries need to allocate to education.

Findings

Primary teachers tend to spend more hours teaching than secondary teachers, although the size of the gap varies between countries. A primary teacher is required to teach over 200 hours more per year than a lower secondary teacher in the Czech Republic, France, Indonesia and Korea, and over 200 hours more than an upper secondary teacher in Denmark, Israel, Japan, Norway and the Slovak Republic. By contrast, the gap with lower secondary and sometimes upper secondary teachers is less than 60 hours or almost non-existent in Brazil, Chile, Estonia, Germany, Hungary, Iceland, Poland, Scotland, Slovenia and the United States.

The composition of teachers' annual teaching time, in terms of days, weeks and hours a day, varies considerably between countries. In Korea, primary teachers put in the highest number of days of instruction (220), yet their average teaching time per day is only 3.8 hours (below the OECD average of 4.2). In Denmark, teachers must complete 200 days of instruction in 42 weeks, while in Iceland they must complete 176 days in 36 weeks. The number of hours taught per day of instruction explains the difference. While primary teachers in Iceland complete 24 fewer days of instruction than their counterparts in Denmark, they teach for about 30 minutes longer each day.

While some countries formally regulate only contact time, others also set working hours. Indeed, in most countries, teachers are formally required to work a specified number of hours each week, including teaching and non-teaching time, to earn their full-time salary. These hours vary between countries, as does the allocation of time to teaching and non-teaching activities. Usually, the number of teaching hours is specified, but some countries also regulate, at the national level, the amount of time a teacher must be present in the school.

In Belgium (Fr.), Finland, France, Italy, the Russian Federation and Slovenia, there are no formal requirements for primary and secondary education as to how much time teachers should spend on non-teaching duties. However, this does not mean that teachers are given total freedom to carry out other tasks.

Definitions

Data are from the 2010 OECD-INES Survey on Teachers and the Curriculum and refer to the 2008-09 school year. Teaching time is defined as the number of hours per year that a full-time teacher teaches a group or class of students. Working time refers to the normal working hours of a full-time teacher and includes time directly associated with teaching as well as the hours devoted to teaching-related activities, such as preparing lessons, counselling students, correcting assignments and tests, and meeting with parents and other staff.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator D4).

Areas covered include:

- Organisation of teachers' working time.
- Number of teaching hours per year, by level of education.

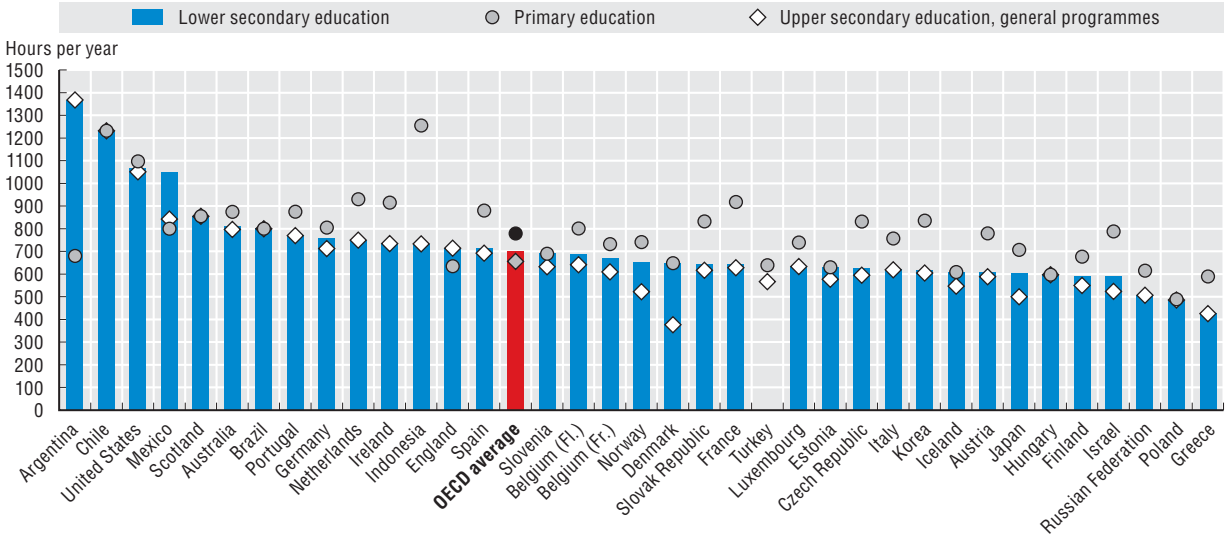
Further reading from the OECD

21st Century Learning Environments (2006).

Teachers Matter: Attracting, Developing and Retaining Effective Teachers (2005).

Figure 4.7. **Annual teaching hours by education level, 2009**

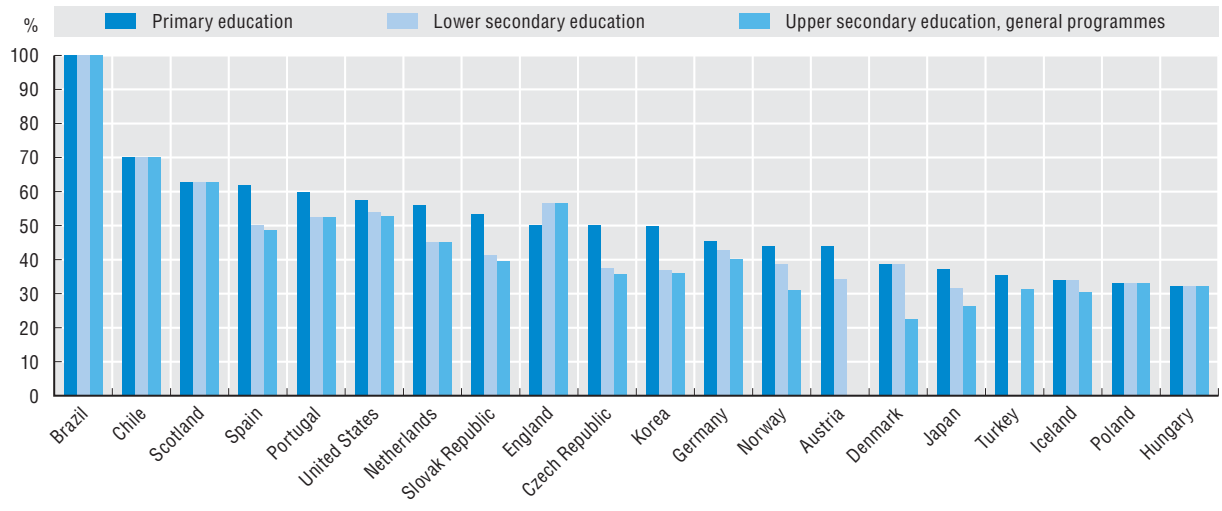
This figure shows the variation in annual teaching hours for teachers in different levels of education.



Source: OECD (2011), *Education at a Glance 2011*, Table D4.1, available at *http://dx.doi.org/10.1787/888932465398*.

Figure 4.8. **Percentage of teachers working time spent teaching, 2009**

This figure shows the amount of their working time that teachers spend teaching. Contact time with students is a major part of teachers' workloads, but duties also include preparing classes and correcting assignments.



Source: OECD (2011), *Education at a Glance 2011*, Table D4.1, available at *http://dx.doi.org/10.1787/888932465398*.

How are schools held accountable?

- *Most countries use a combination of mechanisms to hold schools accountable, including performance and regulatory accountability.*
- *National examinations – a prominent component of performance accountability – are used in 23 of 35 countries at the upper secondary level, while national assessments are more commonly used at the primary and lower-secondary levels.*
- *School inspections – a prominent component of regulatory accountability – are more common than required self-evaluations; however, practices vary considerably across countries, particularly in terms of the frequency in which schools are inspected.*

Significance

Accountability functions when those who are delegated authority have to account for what they are doing with this authority or responsibility. In education, elected or appointed government officials are legally responsible for ensuring that a nation's children and youth receive a quality education. Accountability thus often takes the form of collecting and sharing data, providing feedback, and making decisions based on the evidence received. School administrators demonstrate accountability to more senior education and political authorities, who in turn delegate responsibility to them to provide instruction.

Findings

Performance accountability focuses on school outcomes rather than processes. It has grown in importance over time partly due to growing interest in outcomes, as well as to the technological advances that have made it easier to test large populations of students.

National examinations are standardised tests that have formal consequences for students, such as an impact upon a student's eligibility to progress to a higher level of education or attainment of an officially recognised degree. National examinations are most prevalent at the upper secondary level and least prevalent at the primary level, where only 4 of 35 countries reported the existence of a national exam at that level. At the lower secondary level, 15 of 34 countries reported conducting national examinations.

The two subjects that are most commonly covered in national examinations include math, and the national language or language-of-instruction (reading, writing and literature). To a slightly lesser extent, modern foreign language, science and social studies are also common subjects covered in national examinations (see Tables D5.6a, D5.6b and D5.6c, available only online in *Education at a Glance 2011*).

The key purposes of national assessments are to provide feedback to improve instruction and to show the relative performance of students. Some 22 of 34 countries reported using national assessments at the lower secondary level. Some 30 of 35 countries reported using national assessments in at least one subject at the primary level. Only 11 of 35 countries reported using national assessments at the upper secondary level.

A large portion of regulatory accountability, which focuses on compliance with relevant laws and regulations, focuses on inputs and processes within the school. Formal school inspection involves one or more trained inspectors to evaluate quality based on a standard procedure. The results of a school inspection are given to the school in a formal report and are used to identify strengths and weaknesses, as well as to justify rewards or sanctions. The reports are also made available to education authorities, parents, and the public. The topics or areas covered by school inspections are compliance with rules and regulations, quality of instruction and student performance. School inspections at the lower secondary level are required as a part of the accountability systems in 24 of 31 countries.

Definitions

Data are from the 2010 OECD-INES Survey on School Accountability and refer to the school year 2008-09.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

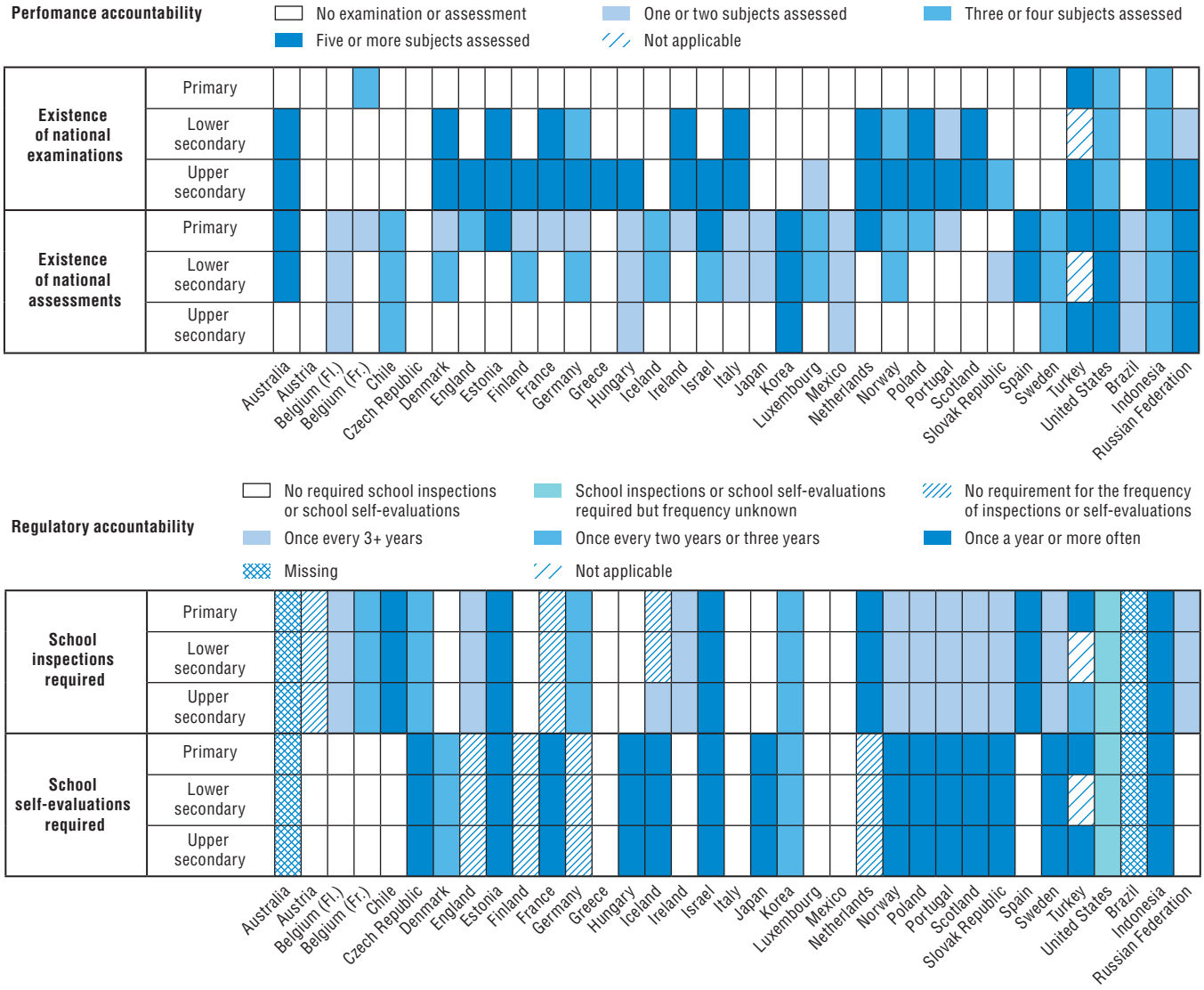
For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator D5).

Areas covered include:

- National examinations and assessments.
- School inspections and self-evaluations.
- Market accountability.

Figure 4.9. **Performance and regulatory accountability in public schools, 2009**

This figure outlines the various mechanisms used by public schools to ensure performance accountability (national examinations, national assessments) and regulatory accountability (school inspections, school self-evaluations), by education level.



Source: OECD (2011), *Education at a Glance 2011*, Tables D5.4a, D5.4b, D5.4c, D5.6a, D5.6b, D5.6c, D5.7a, D5.7b, D5.7c, D5.10a, D5.10b, and D5.10c, available at:
http://dx.doi.org/10.1787/888932465626;
http://dx.doi.org/10.1787/888932465645;
http://dx.doi.org/10.1787/888932465664;
http://dx.doi.org/10.1787/888932465702;
http://dx.doi.org/10.1787/888932465721;
http://dx.doi.org/10.1787/888932465740;
http://dx.doi.org/10.1787/888932465759;
http://dx.doi.org/10.1787/888932465778;
http://dx.doi.org/10.1787/888932465797;
http://dx.doi.org/10.1787/888932465892;
http://dx.doi.org/10.1787/888932465911;
http://dx.doi.org/10.1787/888932465930.

Who are the teachers?

- *On average in OECD countries, about 30% of primary teachers, 33% of lower secondary teachers and 36% of upper secondary teachers are at least 50 years old.*
- *On average, over 81% of primary school teachers in OECD countries are women.*
- *The proportion of women among teaching staff tends to decline at higher levels of education, reaching just over 40% at tertiary level.*

Significance

This spread presents a profile of the teaching workforce. Getting a better understanding of the teaching workforce means countries can anticipate teacher shortages and work to improve the teaching profession's attractiveness as a career choice.

Findings

On average across the OECD, about 30% of primary teachers are at least 50 years old, but the levels are much higher in some countries: 49% in Germany, 48% in Sweden and 45% in Italy. Germany and Italy also have high proportions of lower secondary teachers aged over 50: 52% and 60%, respectively. In Italy, fewer than 1% of lower secondary school teachers are aged below 30, compared with the OECD average of 12%.

As for the broader age distribution of teachers across the OECD area, the average percentage of teachers in the 40-49 age group is roughly the same in primary and lower and upper secondary education – between just over 28% and just under 30%. Teachers aged below 40 tend to be more prevalent in primary education, where they account for 42% of teachers on average. At lower secondary level, they account for just over 38% of teachers, and at upper secondary slightly under 35%.

Across all levels of education, including tertiary level, women represent just over 66% of all teachers in the OECD area, but the percentage of women teachers declines from each level of education to the next. For example, on average across the OECD area, women account for almost 97% of teachers at pre-primary level; just over 81% at primary level; less than 68% at lower secondary level; 56% at upper secondary level; and just over 40% in tertiary education.

Definitions

Data refer to the academic year 2008-09 and are based on the UOE data collection on education statistics administered by the OECD in 2010.

Going further

For additional data and notes go to "Indicator D7" at *www.oecd.org/edu/eag2011*.

Areas covered include:

- Age distribution of teachers by country and level of education.
- Gender distribution of teachers by country and level of education.

Further reading from the OECD

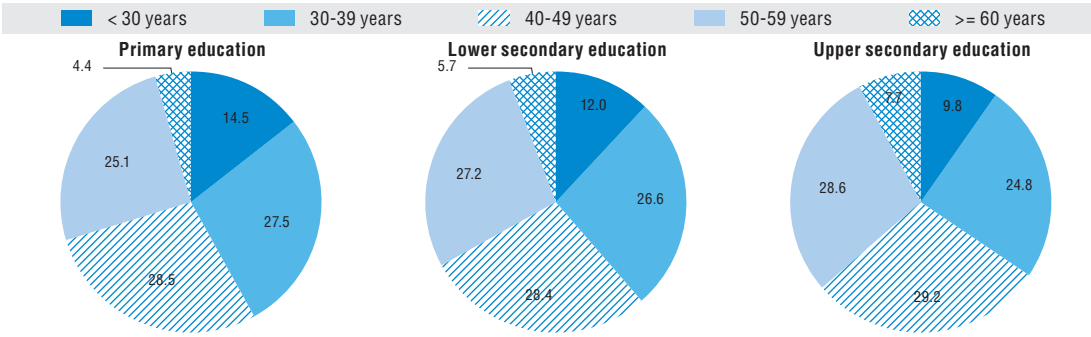
Educating Teachers for Diversity: Meeting the Challenge (2010).

Evaluating and Rewarding the Quality of Teachers: International Practices (2009).

Teachers Matter: Attracting, Developing and Retaining Effective Teachers (2005).

Figure 4.10. **Age distribution of teachers, 2009**

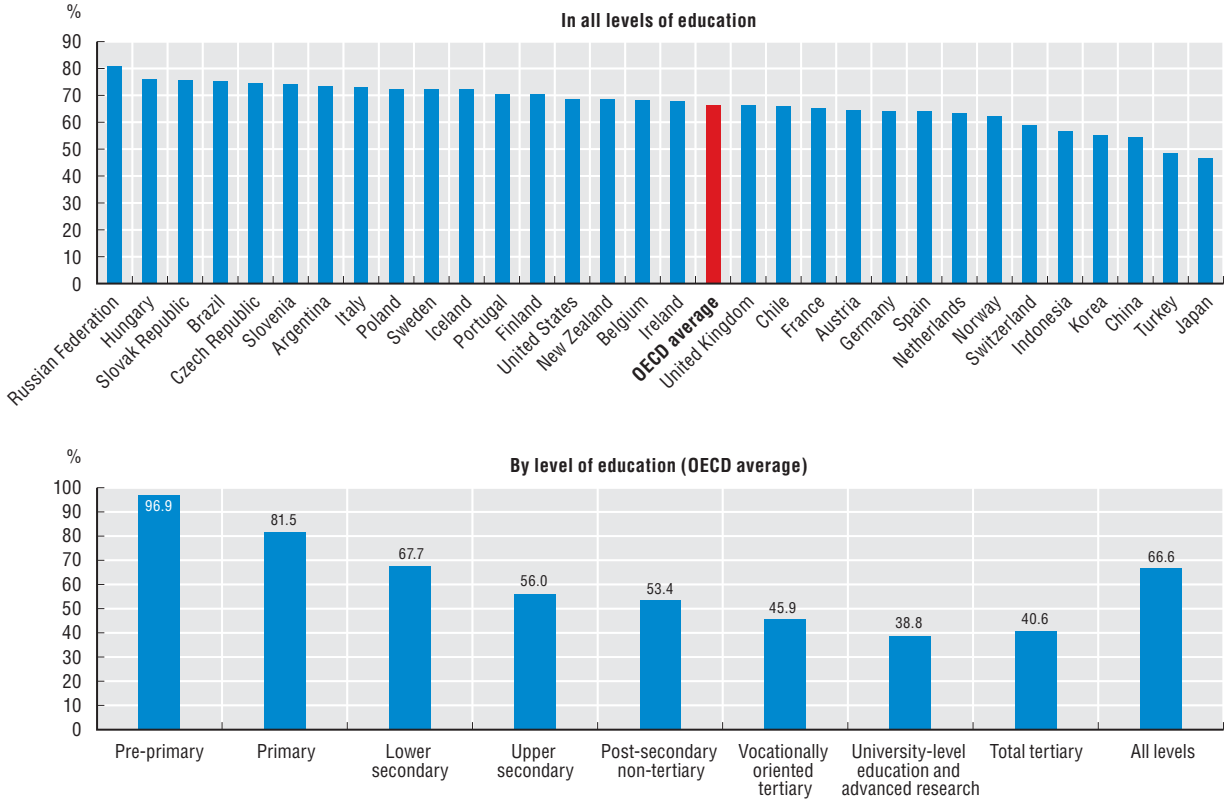
This figure shows the average percentage of teachers in each age group in primary, lower secondary and upper secondary education.



Source: OECD (2011), *Education at a Glance 2011*, Table D7.1 (web only), available at *http://dx.doi.org/10.1787/888932466652*.

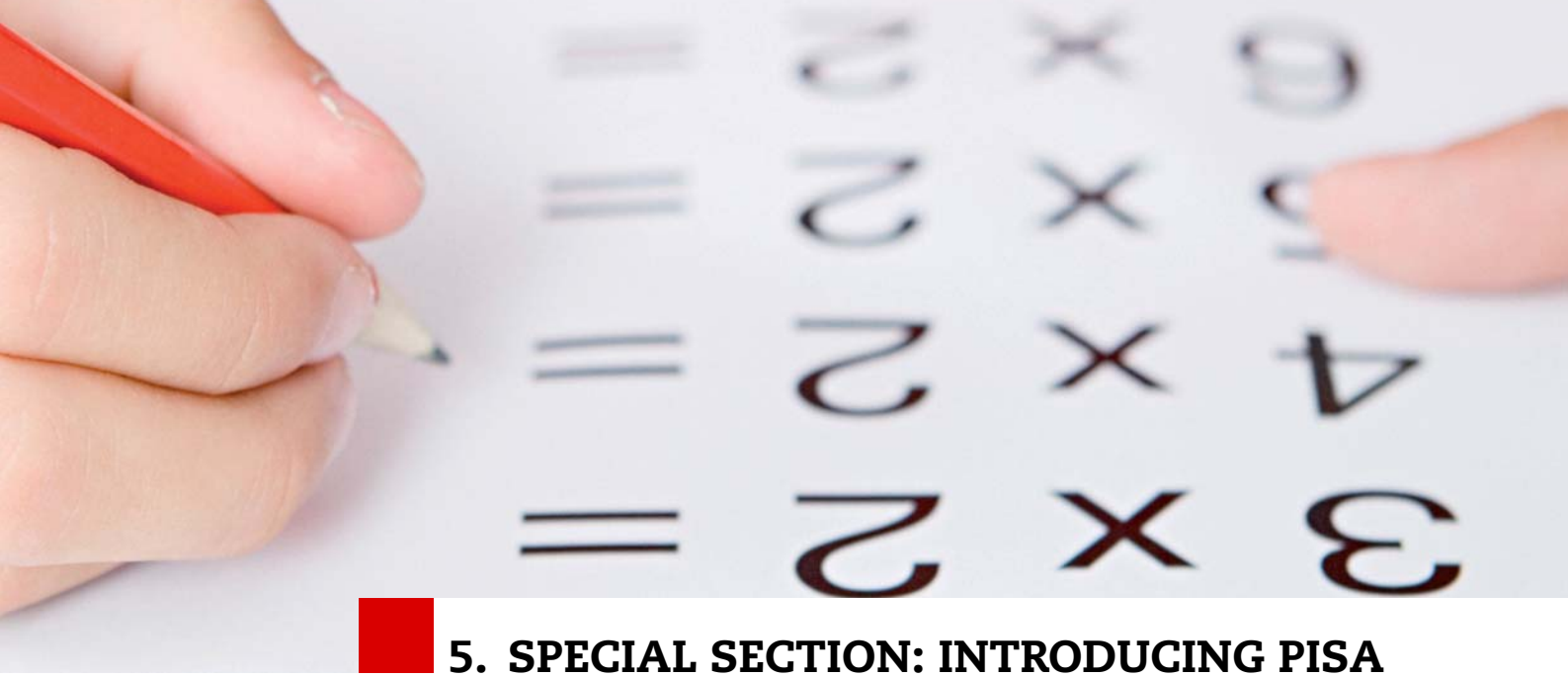
Figure 4.11. **Gender distribution of teachers, 2009**

These figures show the percentage of women teachers across all levels of education, and by each level of education in OECD countries.



Source: OECD (2011), *Education at a Glance 2011*, Table D7.2 (web only), available at *http://dx.doi.org/10.1787/888932466671*.

Name
1 × 2 =
2 × 2 =
3 × 2 =
4 × 2 =



5. SPECIAL SECTION: INTRODUCING PISA

What is PISA?

How well do OECD students perform in reading?

How well do OECD students perform in other subjects?

How does social background affect performance?

How does an immigrant background affect performance?

How does the enjoyment of reading affect performance?

What is PISA?

- *PISA assessments are held every three years, with each round assessing student performance in reading, mathematics and science.*
- *Around 70 countries have taken part in PISA since it began in 2000, accounting for more than 90% of the world economy.*
- *Around 470 000 students participated in PISA 2009, representing about 26 million 15-year-olds.*

Introduction

PISA, the OECD's Programme for International Student Assessment, evaluates the quality, equity and efficiency of school systems throughout the world. The programme represents a commitment made by governments to regularly monitor the outcomes of education systems within an internationally agreed framework.

PISA assesses the extent to which students near the end of compulsory education have acquired some of the knowledge and skills that are essential for full participation in society. Every three years, hundreds of thousands of 15-year-old students are assessed on their reading, mathematics and science performance. Factors influencing their performance and potential for lifelong learning, including their social background, are also explored in separate questionnaires. The organisation of schools is also taken into account through a questionnaire filled out by school principals. The resulting data provides a basis for international co-operation in defining and implementing educational goals in innovative ways.

Key features of PISA

Policy orientation: PISA is designed to provide governments with the data they need to draw policy lessons.

"Literacy" concept: PISA is concerned with the capacity of students to apply knowledge and skills in key subject areas and to analyse, reason and communicate effectively as they pose, solve and interpret problems in a variety of situations.

Relevance to lifelong learning: PISA goes beyond assessing students' curricular competencies to report on their motivation to learn, their beliefs about themselves and their learning strategies.

Regularity: PISA's triennial cycle allows countries to monitor their progress in meeting key learning objectives.

Breadth: PISA assessments cover all 34 OECD countries and a large number of other partner countries and economies.

Definitions

Results reported in this section are based on student assessments administered as part of the PISA 2009 round undertaken by the OECD. The term "students" refers to 15-year-olds enrolled in an educational institution at secondary level, regardless of the grade level, type of institution or whether they attended school full-time or part-time.

Once students have completed the assessments, their results are processed to produce a score point average and ranking for their country. Note, however, that because the students who take part in PISA represent only a sample of 15-year-olds in each country, each ranking can be determined only with a 95% likelihood.

The score-point scale is divided into six proficiency levels. Attaining a certain level indicates that a student has certain proficiencies. For example, students attaining Level 6 in reading were described as being able to conduct fine-grained analysis of texts, which requires detailed comprehension of both explicit information and unstated implications; and reflect on and evaluate what they read at a more general level. By contrast, students at Level 1 were described as having such a limited reading literacy that they can only find explicitly-stated information and make low-level inferences.

The discussion in this special section on PISA in *Education at a Glance 2011: Highlights* covers the 34 OECD member countries and the following five G20 partner countries or economies only: Argentina, Brazil, Indonesia, the Russian Federation and Shanghai-China. Full data coverage for all the countries that took part in the latest PISA round can be found in *PISA at a Glance 2009*.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *PISA 2009 Results: What Students Know and Can Do: Student Performance in Reading, Mathematics and Science* (Volume I).

Table S.1. **Country and economy coverage for PISA 2009**

This table lists the countries and economies that took part in PISA 2009 assessments.

OECD countries	Partner countries and economies
Australia	Albania
Austria	Argentina
Belgium	Azerbaijan
Canada	Brazil
Chile	Bulgaria
Czech Republic	Colombia
Denmark	Costa Rica[1]
Estonia	Croatia
Finland	Georgia[1]
France	Himachal Pradesh-India[1]
Germany	Hong Kong-China
Greece	Indonesia
Hungary	Jordan
Iceland	Kazakhstan
Ireland	Kyrgyzstan
Israel	Latvia
Italy	Liechtenstein
Japan	Lithuania
Korea	Macao, China
Luxembourg	Malaysia[1]
Mexico	Malta[1]
Netherlands	Mauritius[1]
New Zealand	Miranda-Venezuela[1]
Norway	Moldova
Poland	Montenegro
Portugal	Netherlands-Antilles[1]
Slovak Republic	Panama
Slovenia	Peru
Spain	Qatar
Sweden	Romania
Switzerland	Russian Federation
Turkey	Serbia
United Kingdom	Shanghai-China
United States	Singapore
	Tamil Nadu-India[1]
	Chinese Taipei
	Thailand
	Trinidad and Tobago
	Tunisia
	Uruguay
	United Arab Emirates[1]
	Viet Nam[1]

1. These partner countries and economies carried out the assessment in 2010 instead of 2009.

How well do OECD students perform in reading?

- *On average across OECD countries, just over four in five students (81%) attain the essential reading skills needed to participate effectively and productively in society.*
- *The partner economy Shanghai-China shows the highest average reading performance in 2009, followed by the OECD countries Korea and Finland.*
- *Girls have significantly higher average reading scores than boys in every OECD country.*

Significance

This spread examines the reading literacy of 15-year-old students and draws on data from the 2009 PISA tests, in which reading was the major focus. A key priority for all countries is to ensure that as many students as possible attain at least Level 2, which corresponds to the essential skills needed to participate effectively and productively in society. Students who fail to reach this level struggle to perform many everyday tasks, and are unlikely to become lifelong learners or do well in the labour market. For countries to gain a competitive advantage in the knowledge economy, efforts should be focused on educating their students to handle complex reading tasks at Levels 5 and 6.

Findings

An average of just over four in five students (81%) in OECD countries reach a reading proficiency of at least Level 2, however, nearly all students (99%) can read at a basic level. In OECD countries Finland and Korea, and the partner economies Hong Kong-China and Shanghai-China, over 90% of students attain Level 2 or above.

At the other end of the performance scale, an average of 8% of students in OECD countries can complete complex reading tasks at Level 5 or 6. These top performers form a pool of talent that will help countries to compete in the global knowledge economy. In New Zealand and Shanghai-China, 16% to 19% of students are top performers, at least twice the OECD average. Among top-performing students, only a few can complete the most difficult tasks and attain Level 6, the highest proficiency level introduced in PISA 2009. On average, 1% of students in OECD countries reaches this level; while in Australia, New Zealand and Shanghai-China, the corresponding figure is 2% to 3%.

The OECD countries Finland and Korea and the partner economies Hong Kong-China and Shanghai-China show average reading scores well above any other participants in PISA 2009. Australia, Canada, Japan and New Zealand also score well above the OECD average, by nearly one-third of a proficiency level. Another seven OECD countries – Belgium, Estonia, Iceland, the Netherlands, Norway, Poland and Switzerland – also perform significantly above the OECD average.

Overall, there is a wide range in country scores, indicating large differences in how well students in different countries can read. On average, students in Shanghai-China are proficient to near the bottom of Level 4. At this level, students can identify, interpret and reflect on information in relatively complex written material. In the lowest-performing OECD country, Mexico, students are, on average, proficient to the bottom of Level 2.

Girls outperform boys in reading in every PISA country. In OECD countries, the average gender gap is over half a proficiency level. Wide gender gaps are seen in the Nordic countries, including the highest-scoring OECD country, Finland, and a few other high-performing countries, such as New Zealand. In Finland, boys score one-fifth of a proficiency level above the OECD average whereas girls score close to one proficiency level higher. In some countries, the great majority of underperformers are boys. On average in OECD countries, only one in eight girls, but one in four boys, fails to reach Level 2.

Definitions

In the 2009 PISA survey, reading tasks are ranked by difficulty and are associated with each of the seven proficiency levels from 1b (easiest) to 6 (hardest). A student reaches a given proficiency level if the test results show that he or she has at least a 50% chance of performing a task at that level. Students are classified at the highest level at which they are proficient. In reading, one proficiency level is equal to 73 score points.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *PISA 2009 Results: What Students Know and Can Do: Student Performance in Reading, Mathematics and Science* (Volume I).

Areas covered include:

- Distribution of student reading performance on the PISA scale.
- Mean score, variation and gender difference in student reading performance.

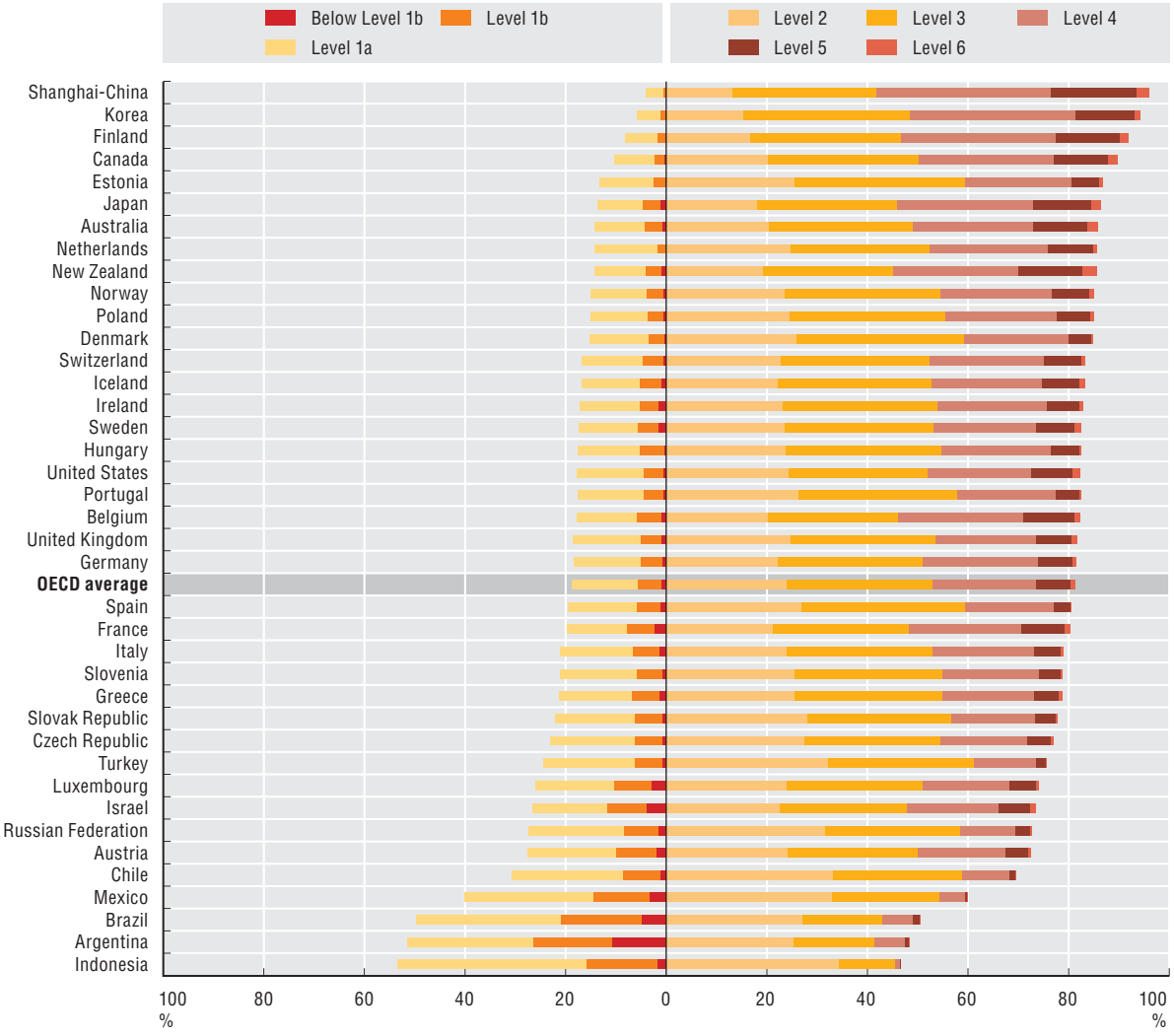
Further reading from the OECD

PISA 2009 Results: What Students Know and Can Do: Student Performance in Reading, Mathematics and Science (Volume I) (2009).

PISA 2009 Assessment Framework (2009).

Figure S.1. **Average student performance in reading, 2009**

This figure shows the percentage of students at each level of reading performance; students with scores at Level 6 are the strongest performers, those at Level 1 and below are the weakest.



Source: OECD (2010), *PISA 2009 Results: What Students Know and Can Do: Student Performance in Reading, Mathematics and Science* (Volume I), Figure I.2.14, available at *http://dx.doi.org/10.1787/888932343133*.

How well do OECD students perform in other subjects?

- *Across OECD countries on average, nearly four in five students (78%) attain the skills needed to reason mathematically and over four in five students (82%) possess the scientific knowledge to draw conclusions based on simple investigations.*
- *In OECD countries, an average of 13% of students are top performers in mathematics and more than 8% are top performers in science.*
- *On average in OECD countries, boys outperform girls in mathematics; in science, however, boys and girls demonstrate similar proficiencies.*

Significance

This spread examines the proficiency of 15-year-old students in mathematics and science, drawing on data from the PISA tests. A key priority for all countries is to ensure that as many students as possible attain at least Level 2 in these subjects, which corresponds to the essential skills needed to reason mathematically and scientifically. Students who fail to reach this level will find it difficult to participate fully in society at a time when science and technology play a large role. By contrast, students capable of the advanced thinking required at Levels 5 and 6 could become part of a corps of future innovators who will boost their countries' technological and innovative capacities in science- and math-related industries.

Findings

On average across OECD countries, nearly four in five students (78%) attain the skills needed to reason mathematically (Level 2). In OECD countries, over 90% of students in Finland and Korea reach this level, but only a minority of students in Chile and Mexico do. At the other end of the scale, one in eight students (13%), on average in OECD countries, is proficient at Level 5 or 6. These top performers are capable of complex mathematical tasks requiring broad, well-developed thinking and reasoning skills. Korea is the highest-performing OECD country in mathematics, where one in four students (26%) reaches this level. Only 3% of students in OECD countries attain Level 6 in mathematics, the highest proficiency level. However, in Shanghai-China, more than one-quarter of students (27%) do so. The OECD countries with the largest percentage of students attaining Level 6 are Korea and Switzerland, with a figure of 8%.

Of all the subjects assessed by PISA, mathematics is the one where high-performing East Asian countries and economies show the largest advantage over all other countries. Shanghai-China is furthest ahead, with students there more than half a proficiency level above any other country or economy. Among OECD countries, Canada, Finland, Japan, Korea, the Netherlands and Switzerland all perform between one-half and an entire proficiency level above the OECD average in mathematics. Boys outperform girls in mathematics by an average of 12 points across OECD countries. This is a small gap compared to the 39 points, on average, in favour of girls in reading performance.

In science, an average of over four in five students (82%) in OECD countries possess the scientific knowledge to draw conclusions based on simple investigations (Level 2). Over 90% of students reach this level in Canada, Estonia, Finland, Korea and the partner economies Hong Kong-China, Macao-China and Shanghai-China. Proficiency in Level 5 or 6 averages one in twelve students (8.5%) in OECD countries. These top performers are capable of applying scientific knowledge and skills to a variety of complex scientific questions drawn from the real world. In Finland, New Zealand and the partner economy Shanghai-China, between 17% and 25% of students reach at least Level 5, which means that their pool of future workers with high proficiency in science is more than twice that of the average OECD country. Only 1% of students in OECD countries attains Level 6 in science, the highest proficiency level. However, in New Zealand and the partner economy Shanghai-China, 4% of students do so.

The partner economy Shanghai-China ranks first in science proficiency, where students score one proficiency level above the average; Finland and the partner economy Hong Kong-China share second place. Differences among the remaining six highest-performing countries – Australia, Canada, Estonia, Japan, Korea and New Zealand – are, in many cases, too close to be statistically significant. Overall, the range in country performance is particularly wide among partners countries, but much less so among OECD countries. In 28 of the 34 OECD countries, on average, students are proficient to Level 3 in science. Of all the subjects assessed by PISA, science is the one in which gender gaps in performance are narrowest across OECD countries, and boys and girls achieve the same average scores.

Definitions

In the PISA survey, mathematics and science tasks are ranked by difficulty and are associated with each of the six proficiency levels from 1 (easiest) to 6 (hardest). A student reaches a given proficiency level if the test results show that he or she has at least a 50% chance of performing a task at that level. Students are classified at the highest level at which they are proficient.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *PISA 2009 Results: What Students Know and Can Do: Student Performance in Reading, Mathematics and Science* (Volume I).

Areas covered include:

- Distribution of student performance in mathematics and science.
- Mean score, variation and gender difference in student performances.

Further reading from the OECD

PISA 2003 Assessment Framework (2003).

Learning for Tomorrow's World, First Results From PISA 2003 (2004).

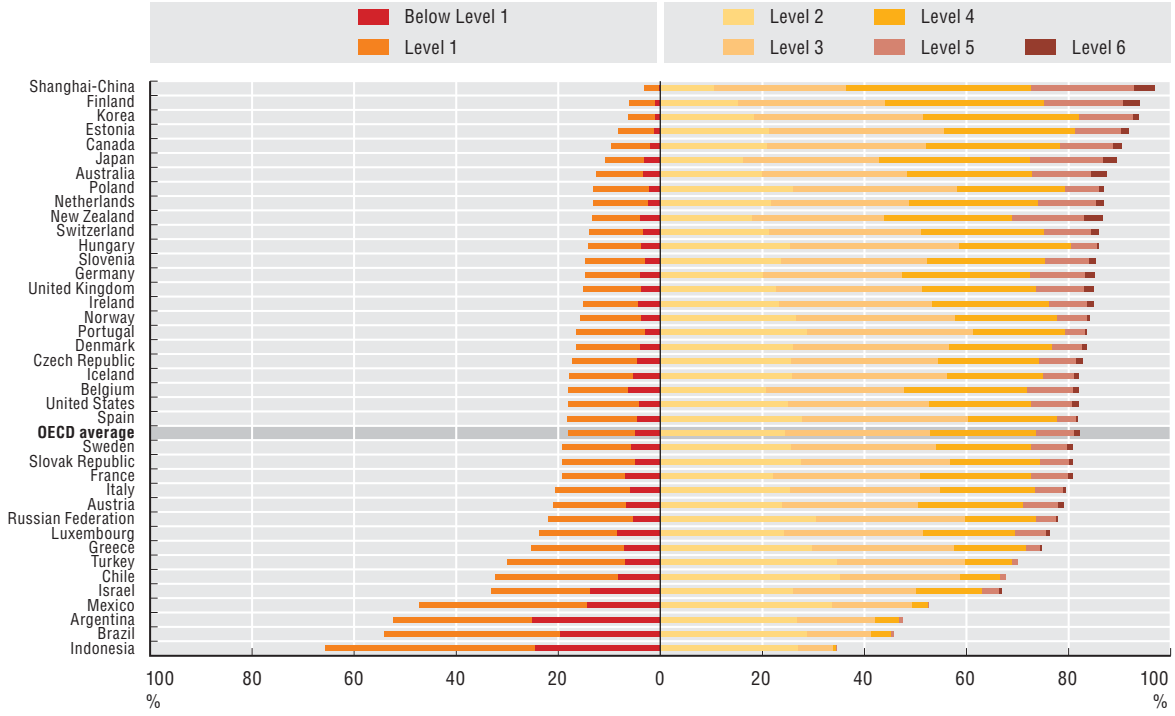
Assessing Scientific, Reading and Mathematical Literacy: A Framework for PISA 2006 (2006).

PISA 2006, Science Competencies for Tomorrow's World, Volume 1: Analysis (2007).

Figure S.2. **Average student performance in mathematics, 2009**

These figures show the percentage of students at each level of mathematics and science performance; students with scores at Level 6 are the strongest performers, those at Level 1 and below are the weakest.

Figure S.3. **Average student performance in science, 2009**



Source: OECD (2010), *PISA 2009 Results: What Students Know and Can Do: Student Performance in Reading, Mathematics and Science* (Volume I), Figures I.3.10 and I.3.21, available at *http://dx.doi.org/10.1787/888932343152* and *http://dx.doi.org/10.1787/888932343152*.

How does social background affect performance?

- *There is significant difference in reading performance between students from various socio-economic backgrounds, particularly in France and New Zealand.*
- *Across OECD countries, nearly one-third of disadvantaged students are identified as "resilient", meaning that they perform better in reading than would be predicted from their socio-economic backgrounds.*
- *23% of boys, but 40% of girls, from disadvantaged backgrounds are considered resilient.*

Significance

All countries face the challenge of providing their students with equitable learning opportunities, as performance differences related to student background are evident in every country. But PISA results show that some countries have been more successful than others in minimizing the impact of socio-economic background on students' performance in reading. Despite the strong association between socio-economic background and reading performance, many students from disadvantaged backgrounds confound predictions and perform well. Thus educators must not assume that someone from a disadvantaged background is incapable of high achievement.

Findings

By measuring the average difference in performance between students from different socio-economic backgrounds, clear distinctions appear in every country. On average across OECD countries, a 38-point difference in reading performance is associated with a one unit increase in socio-economic status. This performance difference is greatest in France and New Zealand, where it is at least 30% wider than the OECD average.

Although students' background has a clear effect on school performance in all countries, the strength of this relationship varies across school systems. On average across OECD countries, 14% of variation in students' reading performance can be explained by their socio-economic backgrounds. In Belgium, Chile, Germany, Hungary, Luxembourg, New Zealand and Turkey the link between reading performance and socio-economic background is greater than the OECD average. By contrast, in Iceland, less than 7% of variation in student performance is explained by socio-economic background. Figures are also below the OECD average in Canada, Estonia, Finland, Indonesia, Italy, Japan, Korea, Norway and the Russian Federation.

These findings show that in all countries, a student's socio-economic background is associated with his or her reading performance to some extent. However, in the three countries with the highest reading performance, namely Korea, Finland and Canada, the link between student background and performance is weaker than average for both measures. This highlights that it is possible to achieve the highest levels of performance while providing students with equitable learning opportunities.

Based on the performance of students from different socio-economic backgrounds across countries, PISA can predict how well a student will perform and identify "resilient" students. By comparing a students' reading performance to what would be expected of them given their socio-economic background, PISA can determine resilient students who manage to rise above their disadvantages. Each student's performance can then be measured in terms of how much they exceed or fall below this prediction.

On average across OECD countries, 31% of students from disadvantaged backgrounds are resilient. In Korea, 56% of such students are resilient, meaning that most students from modest backgrounds in Korea do far better in reading than would be expected. In Finland, Japan and Turkey, there are between 10% and 15% more resilient students than the OECD average. In contrast, the figure is 10% less in Argentina, Austria, Luxembourg and the Russian Federation.

In all countries, girls from disadvantaged backgrounds are far more likely to show resilience in reading performance than boys. Across the OECD, 39% of girls compared to 22% of boys are considered resilient. The majority of these girls are found in Finland, Korea, Poland and Portugal; in Korea, some 65% of disadvantaged girls are resilient. In Poland, Portugal and Slovenia there are 25% more resilient girls than resilient boys.

Definitions

Socio-economic background is measured according to the *PISA index of social, cultural and economic status*, which is based on information, provided by students, about their parents' education and occupations and their home possessions, such as a desk to use for studying and the number of books in the home. A 15-year-old who is among the 25% most socio-economically disadvantaged students in his or her own country and whose reading performance is ranked among the international group of students who most exceed expectations is described as "resilient". Such a student combines the characteristics of having the weakest prospects and doing the best given those prospects.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator A5).

Areas covered include:

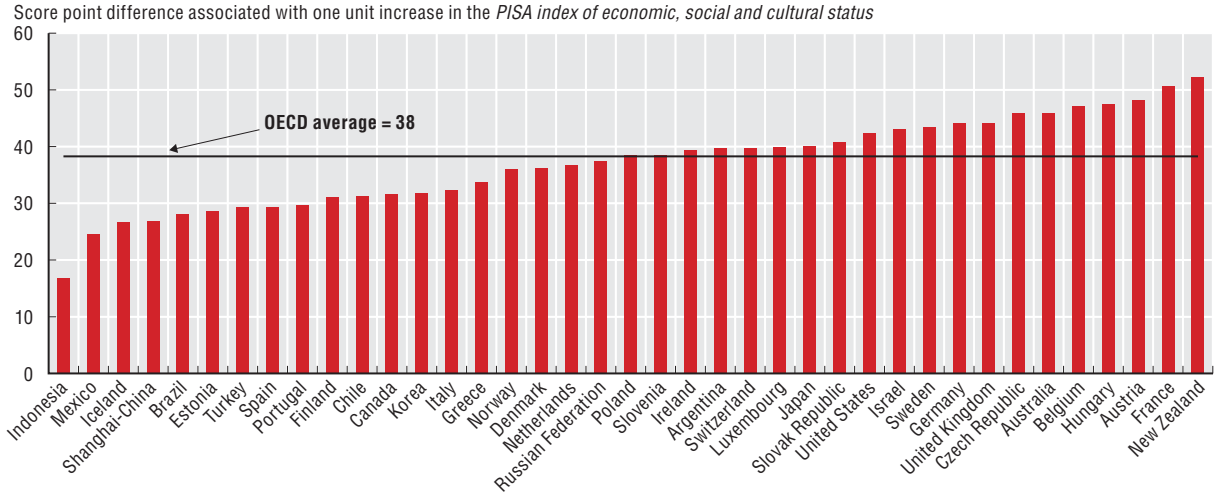
- Strength of the relationship between reading performance and socio-economic background.
- Percentage of resilient students among disadvantaged students.

Further reading from the OECD

Against the Odds: Disadvantaged Students Who Succeed in School (2011).

Figure S.4. **Difference in reading performance between students from different socio-economic backgrounds, 2009**

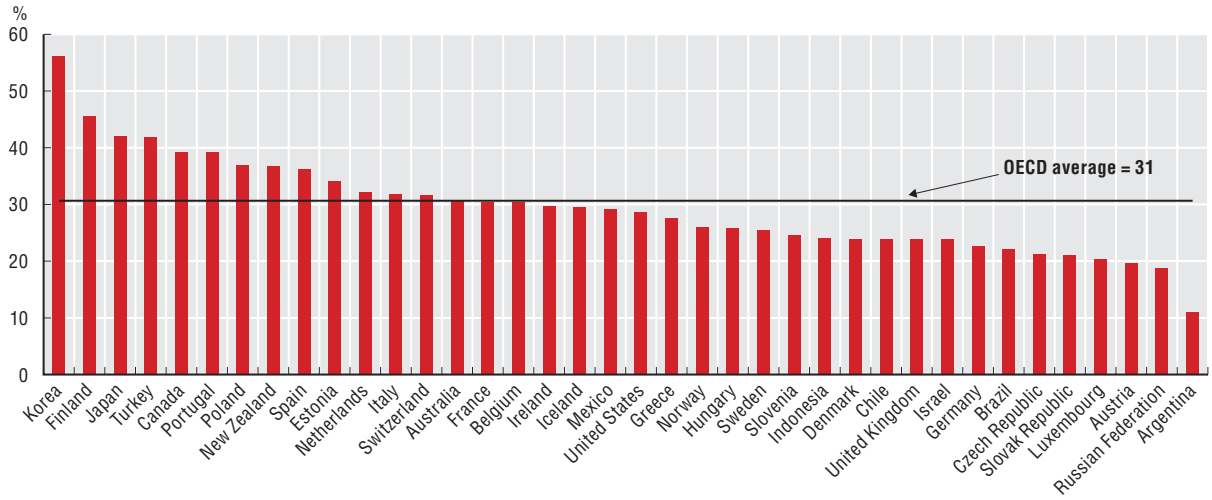
This figure shows the difference in reading performance between average students and those with a one unit increase in the PISA index of economic, social and cultural status. *It demonstrates the link between advantaged socio-economic backgrounds and higher reading performance.*



Source: OECD (2011), *Education at a Glance 2011*, Table A5.1, available at *http://dx.doi.org/10.1787/888932462719*.

Figure S.5. **Percentage of resilient students among disadvantaged students, 2009**

This figure shows the percentage of resilient students among disadvantaged students. Resilient students overcome their socio-economic disadvantages to perform in the top quarter of students from all countries, after accounting for socio-economic background. On average across OECD countries, 31% of students from disadvantaged backgrounds are resilient.



Source: OECD (2011), *Education at a Glance 2011*, Table A5.3, available at *http://dx.doi.org/10.1787/888932462757*.

How does an immigrant background affect performance?

- *Students with an immigrant background tend to be socio-economically disadvantaged, and face considerable challenges in education performance.*
- *Even after adjusting for socio-economic background, students with an immigrant background score an average of 27 points below their peers.*
- *In many countries, first-generation immigrant students are at a significantly greater risk of being poor performers. Across OECD countries, they are around twice as likely to perform among the bottom quarter of students.*

Significance

This spread examines the performance differences related to immigrant status. In general, students with an immigrant background are socio-economically disadvantaged, and this accounts for part of the performance disadvantage among these students. They face considerable challenges in reading and other aspects of education. In general, they continue to show lower levels of performance even after their socio-economic background is taken into account. However, the differences in performance vary greatly, and in some countries, students from an immigrant background perform just as well as their non-immigrant peers.

Findings

Students who do not have an immigrant background tend to outperform students with an immigrant background in most countries. The exceptions are Australia for both first- and second-generation students, and Israel and Hungary, where second-generation students outperform students who do not have an immigrant background. On average across OECD countries, students from an immigrant background scored 44 points below their non-immigrant peers in reading. However, the size of the performance gap among students varies markedly across countries.

In many OECD countries, first-generation immigrant students are at a significantly greater risk of being poor performers. They lag an average of 52 score points behind students without an immigrant background, a difference greater than the equivalent of one school year's progress. In Austria, Belgium, Brazil, Denmark, Finland, France, Greece, Iceland, Italy, Mexico, Norway, Slovenia, Spain and Sweden, first-generation immigrant students are at least twice as likely to perform among the bottom quarter of students compared to those who do not have an immigrant background (see Table A5.2 in *Education at a Glance 2011*).

Students with an immigrant background tend to be socio-economically disadvantaged, contributing in part to the performance disadvantage among these students. On average across OECD countries, students with an immigrant background tend to have a socio-economic background that is 0.4 of a standard deviation lower than that of their non-immigrant peers.

After taking into consideration the effect of socio-economic background on reading performance, differences between students with and without an immigrant background are reduced but a performance gap still persists. In Luxembourg, for example, accounting for the socio-economic status of students reduces the performance disadvantage of students with an immigrant background from 52 to 19 score points. Across OECD countries, the gap is reduced on average from 44 to 27 score points, but the difference nonetheless amounts to nearly half a proficiency level in reading (see Table A5.2 in *Education at a Glance 2011*). That a substantial gap remains indicates that students from immigrant backgrounds may have difficulties at school that can be directly attributed to their immigrant status.

Definitions

In PISA 2009, one school year's progress corresponds to an average of 39 score points on the PISA reading scale. This was determined by calculating the difference in scores among the sizeable number of 15-year-olds in 32 OECD countries who were enrolled in at least two different grade levels.

PISA distinguishes between three types of student immigrant status: *i)* students without an immigrant background, also referred to as native students, are students who were born in the country where they were assessed by PISA or who had at least one parent born in the country; *ii)* second-generation students are students who were born in the country of assessment but whose parents are foreign-born; and *iii)* first-generation students are foreign-born students whose parents are also foreign-born. Students with an immigrant background thus include students who are first or second-generation immigrants.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

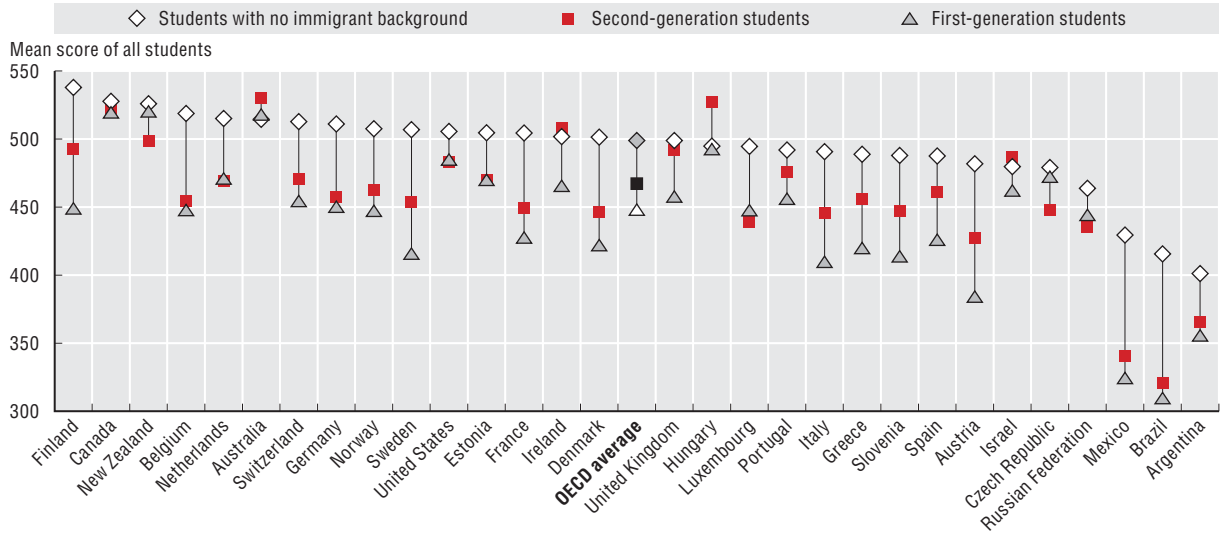
For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator A5).

Areas covered include:

- Immigrant background and reading performance.
- Reading performance after accounting for socio-economic background.

Figure S.6. **Reading performance, by immigrant status, 2009**

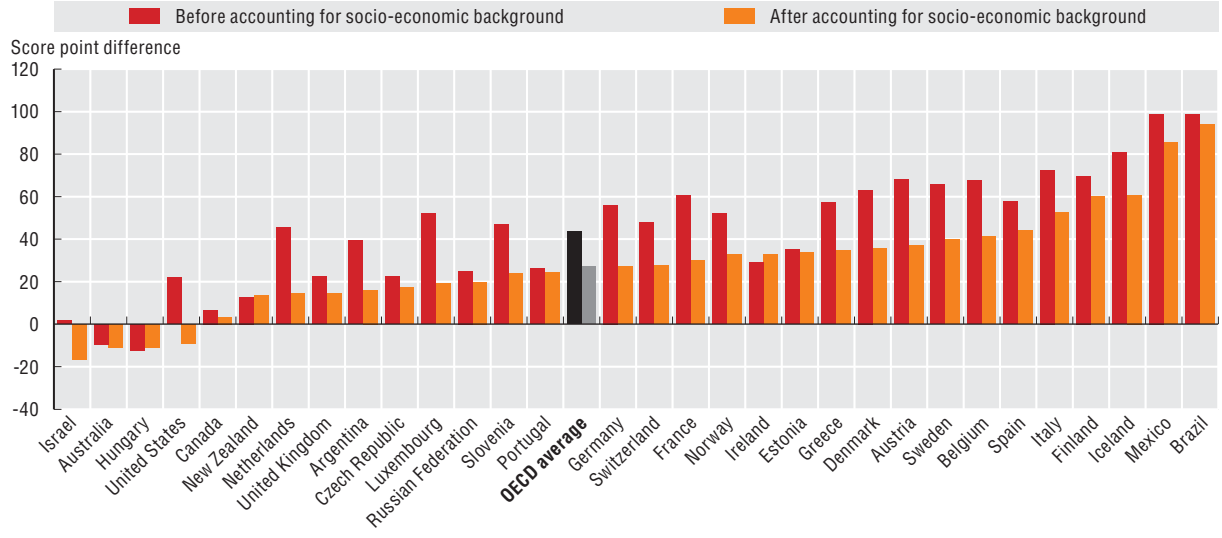
This figure shows the average reading performance of students according to their immigrant status for those countries with significant shares of 15-year-olds with an immigrant background. Students who do not have an immigrant background tend to outperform students with an immigrant background.



Source: OECD (2011), *Education at a Glance 2011*, Table A5.2, available at *http://dx.doi.org/10.1787/888932462738*.

Figure S.7. **Reading performance after accounting for socio-economic background, by immigrant status, 2009**

This figure shows the effect that a disadvantaged socio-economic background has on the reading performance of immigrant students. On average across OECD countries, the performance disadvantage of students with an immigrant background is reduced from 44 to 27 score points.



Source: OECD (2011), *Education at a Glance 2011*, Table A5.2, available at *http://dx.doi.org/10.1787/888932462738*.

How does the enjoyment of reading affect performance?

- *On average across OECD countries, 64% of students report that they read for enjoyment.*
- *Across OECD countries, the quarter of students who most enjoy reading scored one-and-a-half proficiency levels higher in reading than the quarter who enjoy reading the least.*
- *In most countries, students who read fiction for enjoyment are much more likely to be good readers.*

Significance

Students who enjoy reading, and therefore make it a regular part of their lives, are able to build their reading skills through practice. PISA reveals strong associations between reading enjoyment and performance. This does not mean that enjoyment of reading has a direct impact on reading scores, but rather that it is an important precondition for becoming an effective reader. Therefore, to bolster reading performance, schools need to both instruct students in reading techniques as well as foster an interest in reading.

Findings

Across all OECD countries, students who read for enjoyment are likely to be more proficient readers than students who do not read for enjoyment. Motivated readers tend to read more, which, in turn, leads to improved vocabulary and comprehension skills. For example, students who reported that they did not read for enjoyment scored 460 points on the 2009 PISA reading exam, whereas students who reported reading between one and two hours per day scored 532 points (see Table A6.2 in *Education at a Glance 2011*). Across OECD countries, the quarter of students who most enjoy reading score one-and-a-half proficiency levels higher in reading than the quarter who enjoy reading the least.

The quarter of students who display the highest levels of reading enjoyment attain at least PISA proficiency Level 4, meaning that they have a 50% chance of completing a relatively complex reading task. In Australia and Finland, two of the best-performing countries overall, over 25% of differences in reading performance is associated with how much students enjoy reading. In these countries and in New Zealand, the quarter of students who most enjoy reading reach exceptionally high levels of reading proficiency, roughly the middle of Level 4.

In 16 OECD countries, at least 20% of the variation in reading performance is explained by students' enjoyment of reading. Across OECD countries, there is an average difference of 103 points between the average scores of the top and bottom quarters of students ranked by reading enjoyment. The quarter of students who least enjoy reading are generally only able to perform relatively simple reading tasks at baseline proficiency Level 2 (see Definitions on page 84).

In most countries, students who read fiction are particularly likely to be good readers. On average across OECD countries, students who read fiction for their own enjoyment at least several times a month score 53 points above those who do so less frequently. This is equivalent to three-quarters of a proficiency level and more than a year's worth of formal schooling.

In every country except Korea, girls reported reading for enjoyment more than boys. On average across OECD countries, just over half of boys (52%) but nearly three-quarters of girls (73%) said that they read for enjoyment.

The poor performance among students who do not read for enjoyment at all calls for education systems to encourage reading both in and outside of school. However, in over two-thirds of countries that participated in PISA, the score point difference associated with at least some daily leisure reading is far greater than the score point difference associated with increasing amounts of time spent reading. This means that policymakers should focus on encouraging students simply to read daily for enjoyment rather than for a set number of hours a day.

Definitions

Reading enjoyment is measured on an index based on student responses to a questionnaire. Students where asked how strongly they agreed with statements about their attitudes toward reading, such as: *i)* I read only if I have to; *ii)* reading is one of my favourite hobbies; *iii)* I find it hard to finish books; *iv)* I feel happy if I receive a book as a present; etc.

Information on data for Israel:
http://dx.doi.org/10.1787/888932315602.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2011* (Indicator A6).

Areas covered include:

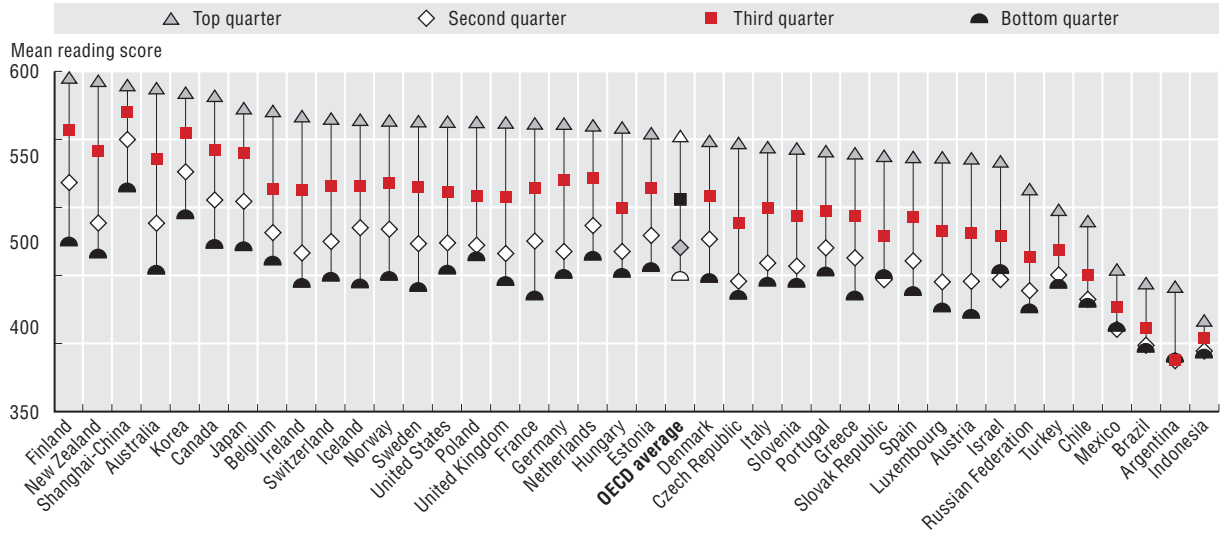
- Enjoyment of reading and student performance.
- Changes and trends in whether students read for enjoyment.
- Reading habits of boys and girls.

Further reading from the OECD

PISA 2009 Results: Learning to Learn: Student Engagement, Strategies and Practices (Volume III) (2010).

Figure S.8. **Relationship between enjoying reading and performance in reading, 2009**

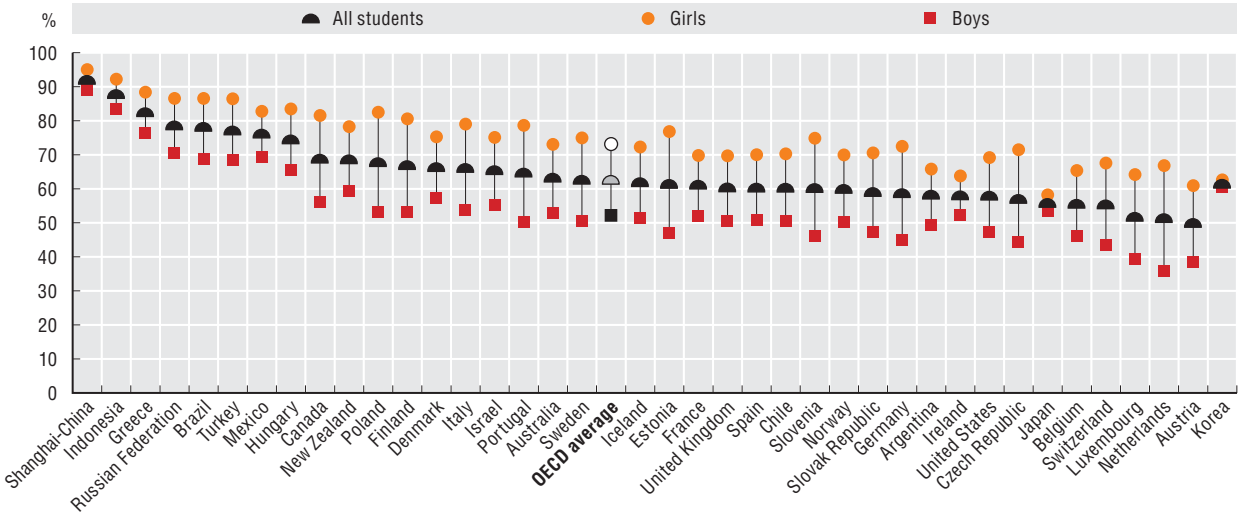
This figure shows the relationship between the enjoyment of reading and stronger performance on the PISA reading exam. Across OECD countries, students who most enjoy reading attain higher scores than those who least enjoy reading.



Source: OECD (2011), *Education at a Glance 2011*, Table A6.1, available at *http://dx.doi.org/10.1787/888932462776*.

Figure S.9. **Percentage of students who spend time reading for enjoyment, by gender, 2009**

This figure shows the percentage of boys and girls who spend time reading for enjoyment. In every country except Korea, girls reported reading for enjoyment more than boys.



Source: OECD (2011), *Education at a Glance 2011*, Table A6.4, available at *http://dx.doi.org/10.1787/888932462833*.

Statistical Note

Coverage of 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 an OECD average is presented and for some an OECD total.

OECD average: This is calculated as the unweighted mean of the data values of all OECD countries for which data are available or can be estimated. The OECD average 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. In the special section on PISA (pp. 83-95), the OECD average corresponds to the arithmetic mean of the respective country estimates.

OECD total: This 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.

EU21 average: This is calculated as the unweighted mean of the data values of the 21 members of the European Union for which data are available or can be estimated (see the Reader's Guide).

G20 average: This is calculated as the unweighted mean of the data values of all G20 countries (see the Reader's Guide) for which data are available or can be estimated (the European Commission is not included in the calculation). The G20 average is not computed if data for China or India are not available.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where governments work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The European Union takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

OECD PUBLISHING, 2, rue André-Pascal, 75775 PARIS CEDEX 16
(96 2011 05 1 P) ISBN 978-92-64-11421-0 – No. 58239 2011

Education at a Glance 2011 Highlights

Education at a Glance 2011: Highlights summarises the OECD's flagship compendium of education statistics, *Education at a Glance*. It provides easily accessible data on key topics in education today, including:

- Education levels and student numbers: How far have adults studied, and what access do young people have to education?
- Economic and social benefits of education: How does education affect people's job prospects, and what is its impact on incomes?
- Paying for education: What share of public spending goes on education, and what is the role of private spending?
- The school environment: How many hours do teachers work, and how does class size vary?
- PISA: A special section introduces findings from the 2009 round of the OECD Programme for International Student Assessment (PISA), which examined the knowledge and skills of 15-year-old students in more than 70 countries and economies.

Each indicator is presented on a two-page spread. The left-hand page explains the significance of the indicator, discusses the main findings, examines key trends and provides readers with a roadmap for finding out more in the OECD education databases and in other OECD education publications. The right-hand page contains clearly presented charts and tables, accompanied by dynamic hyperlinks (*StatLinks*) that direct readers to the corresponding data in Excel™ format.

Please cite this publication as:

OECD (2011), *Education at a Glance 2011: Highlights*, OECD Publishing.
http://dx.doi.org/10.1787/eag_highlights-2011-en

This work is published on the *OECD iLibrary,* which gathers all OECD books, periodicals and statistical databases. Visit ***www.oecd-ilibrary.org***, and do not hesitate to contact us for more information.

OECD*publishing*
www.oecd.org/publishing

ISBN 978-92-64-11421-0
96 2011 05 1 P