Highlights from Education at a Glance 2008

OECD

Highlights from Education at a Glance 2008

OECD

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where the governments of 30 democracies 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, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The Commission of the European Communities 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.

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.

Also available in French under the title:
Regards sur l'éducation 2008 : Panorama

Photo credits:
Cover © Carlos Restrepo/Fotolia.
Images: pp. 10-37 © Jeffrey Coolidge/The Image Bank/Getty Images.
pp. 38-47 © Tom Grill/Photographer's Choice RF/Getty Images.
pp. 48-65 © Julia Smith/Riser/Getty Images.
pp. 66-77 © Image Source/Image Source/Getty Images.
pp. 78-93 © Image Source/Image Source/Getty Images.

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

© OECD 2009

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) *contact@cfcopies.com*.

Foreword

Highlights from Education at a Glance 2008 *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 *2008, 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 and how well they make the transition into the world of work, overseas study and social barriers to education.*
- **The economic 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.*
- **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 sizes, teachers' salaries and the age and gender distribution of teachers.*
- **PISA:** *This special section introduces findings from the 2006 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 same terminology employed in Education at a Glance. *However, in one or two places terminology has been simplified. Readers who want to find out more should consult the Reader's Guide (see page 7).*

Tables and figures 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 figures and tables that appear in Education at a Glance 2008. *This material can generally be accessed via the StatLinks accompanying the tables and figures in the relevant indicator.*

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

Table of Contents

Reader's Guide 7

1. Education Levels and Student Numbers 11

To what level have adults studied? 12
What subjects did adults study in tertiary education? 14
Who participates in education? 16
How many secondary students go on to tertiary education? 18
How many students enrol in vocational programmes? 20
How many young people graduate from tertiary education? 22
How many students drop out of tertiary education? 24
How do men and women differ in education levels? 26
How successful are students in moving from education to work? 28
How much training are adults doing? 30
How many students study abroad? 32
Where do students go to study? 34
Is there a blue-collar barrier in higher education? 36

2. The Economic Benefits of Education 39

How much more do tertiary graduates earn? 40
How does education affect employment rates? 42
What are the incentives for people to invest in education? 44
What are the incentives for societies to invest in education? 46

3. Paying for Education 49

How much is spent per student? 50
Has spending per student increased? 52
What share of national wealth is spent on education? 54
What share of public spending goes on education? 56
What is the role of private spending? 58
How much do tertiary students pay? 60
What are education funds spent on? 62
How efficiently are resources used in education? 64

4. The School Environment 67

How long do students spend in the classroom? 68
How many students are in each classroom? 70
How much are teachers paid? 72
How much time do teachers spend teaching? 74
Who are the teachers? 76

Special Section: Introducing PISA 79

What is PISA? 80
What can students do in science? 82
What can students do in reading? 84
What can students do in mathematics? 86
How do girls and boys do in science? 88
How does student performance vary between and within schools? 90
How well do immigrant students do? 92

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.

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Reader's Guide

This section introduces some of the terminology used in this publication.

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 2008*. 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 2008* 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 2008* 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 represents 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, go to *www.unesco.org/education/information/nfsunesco/doc/isced_1997.htm*.

Country coverage

Sections 1 to 4: In the interest of simplifying figures and tables, data in the first four sections refer only to OECD countries. Readers should note that data in the full edition of *Education at a Glance 2008* cover a number of additional partner countries and territories.

Special Section – PISA: Data in the special section on PISA cover all countries and territories that took part in the most recent round of PISA.

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 figures refer to Belgium (Fl) for the Flemish Community, and Belgium (Fr) for the French Community.

EU19: The European Union countries prior to the Union's expansion in 2004, plus the four Eastern European member countries of the OECD, namely the Czech Republic, Hungary, Poland, the Slovak Republic.

EU25: The 25 members of the EU following the 2004 expansion (and excluding Romania and Bulgaria, which entered in 2007).

Notes to tables and figures

See the relevant indicator in *Education at a Glance 2008* or click on the hyperlink in the source.

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Symbols for missing data:

A number of symbols are employed in the tables and figures to denote missing data:

c There are too few observations to provide reliable estimates (*i.e.* there are fewer than 3% of students for this cell or too few schools for valid inferences). However, these statistics were included in the calculation of cross-country averages.

m Data are not available. In a few cases, data have been included in other categories (see Tables 1.2-1.4).

n Magnitude is either negligible or zero.

234

1. EDUCATION LEVELS AND STUDENT NUMBERS

To what level have adults studied?

What subjects did adults study in tertiary education?

Who participates in education?

How many secondary students go on to tertiary education?

How many students enrol in vocational programmes?

How many young people graduate from tertiary education?

How many students drop out of tertiary education?

How do men and women differ in education levels?

How successful are students in moving from education to work?

How much training are adults doing?

How many students study abroad?

Where do students go to study?

Is there a blue-collar barrier in higher education?

To what level have adults studied?

- *The numbers of people completing upper secondary and tertiary education have grown in almost all OECD countries.*
- *Among all adults (25-64 year-olds) in the OECD area, on average 42% have completed upper secondary education (including post-secondary non-tertiary education), and 27% tertiary education. Under a third – 31% – have gone no further than lower secondary education.*
- *Education levels tend to be higher among younger adults (25-34 year-olds), of whom 39% now have a tertiary qualification.*

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 indicator 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 22 OECD countries, 60% or more of all adults (25-64 year-olds) have completed at least upper secondary education (the numbers are higher for younger adults, see "Trends" below). However, these levels are not matched in all countries. In Mexico, Portugal and Turkey, more than half of adults have not completed upper secondary education.

At higher levels of education, more than a quarter of all adults (27%), have on average completed tertiary education in the OECD area. Tertiary attainment rates range from 47% of adults in Canada to 10% in Turkey (see Table A1.3a in *Education at a Glance 2008*).

Trends

Education has expanded rapidly in recent decades, meaning that in many countries younger people tend to have spent longer in education than their older counterparts. On average across OECD countries, the proportion of younger adults (25-34 year-olds) who have attained upper secondary education is 23 percentage points higher than among older adults (55-64 year-olds).

In countries where all adults generally have high levels of educational attainment, this gap between older and younger age groups is less pronounced. In Germany and the United States, upper secondary attainment is almost the same across all age groups. In other countries, the gaps are wider, although they vary greatly. In Norway and Switzerland, the difference in upper secondary attainment between younger and older adults is below 10 percentage points. In Belgium, France, Greece, Ireland, Italy, Portugal and Spain, it is at least 30 percentage points, while in Korea, which has seen a huge expansion in education provision in recent decades, the difference reaches 60 percentage points.

In almost all countries, younger adults are more likely to have attended university or other forms of tertiary education. On average across OECD countries, 33% of younger adults have attained tertiary education compared with 19% of older adults. In France, Ireland, Japan and Korea, the gap in tertiary attainment between the youngest and oldest groups of adults is at least 25 percentage points.

Definitions

Data on population and education attainment are taken from OECD and EUROSTAT databases, which are compiled from National Labour Force Surveys. Definitions of levels of education are based on the ISCED classification.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator A1).

Areas covered include:

- Educational attainment of adults (aged 25 to 64).
- Educational attainment, by gender.

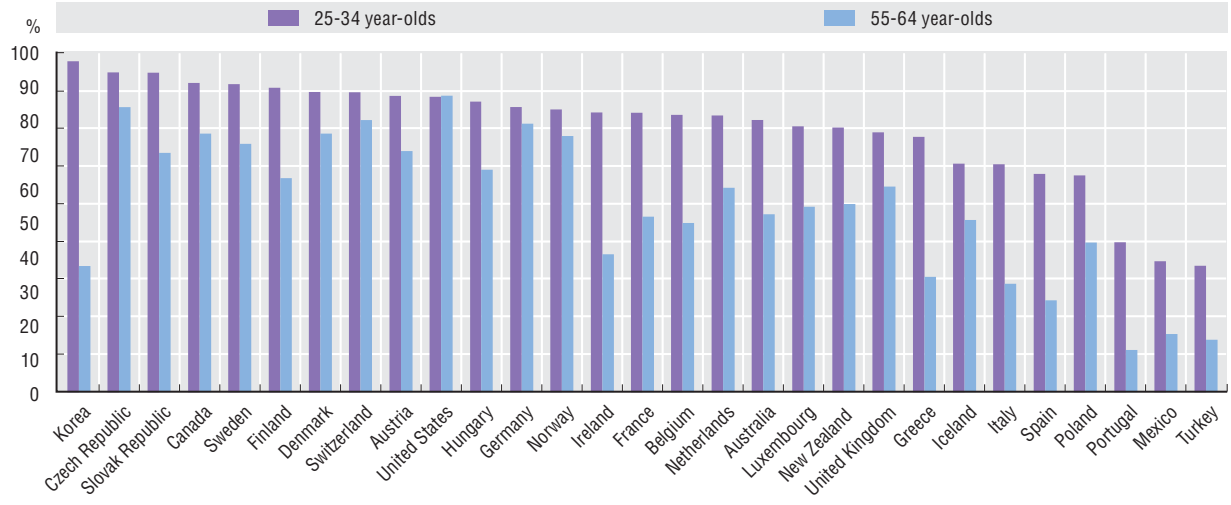
Further reading from OECD

Reviews of National Policies for Education (series).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 1.1. **Population that has attained upper secondary education, 2006**

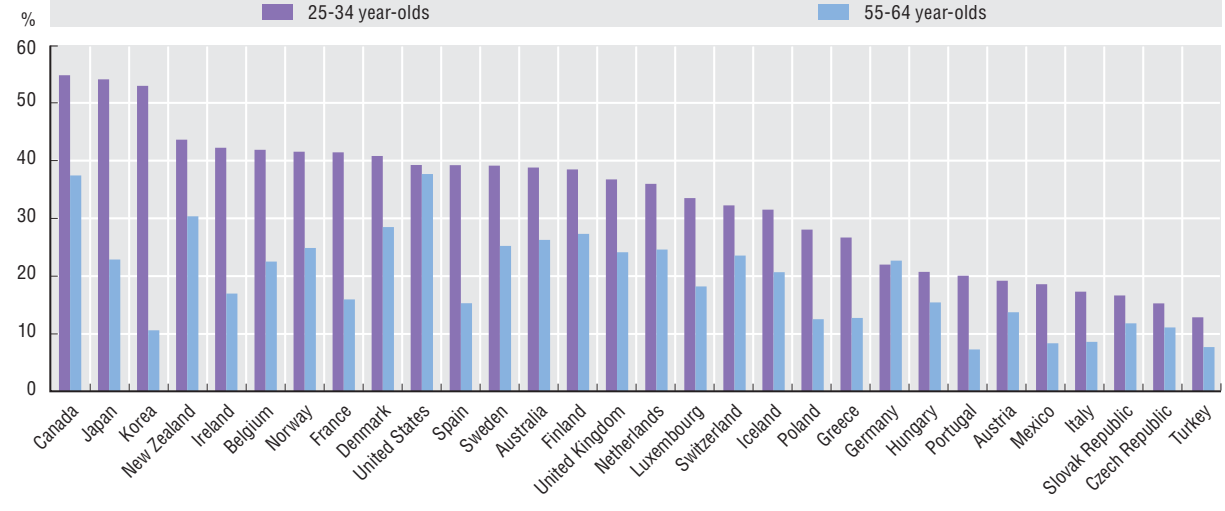
This figure shows the percentage of 25-34 year-olds and 55-64 year-olds who have been through at least upper secondary education. The rapid expansion of education in recent decades means younger people tend to have higher education levels.



Source: OECD (2008), *Education at a Glance 2008*, Table A1.2a, available at *http://dx.doi.org/10.1787/401474646362*.

Figure 1.2. **Population that has attained tertiary education, 2006**

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



Source: OECD (2008), *Education at a Glance 2008*, Table A1.3a, available at *http://dx.doi.org/10.1787/401474646362*.

What subjects did adults study in tertiary education?

- *Social sciences, business, and law forms the main field of study in most countries.*
- *On average, three-and-a-half times more younger adults (25-34 year-olds) have studied social sciences, business and law than among older adults (55-64 year-olds).*
- *The number of people who have studied education has remained largely stable across generations and among OECD countries.*

Significance

This indicator examines the distribution of skills in the population, particularly the skills that young people are bringing with them as they enter the labour market and the skills the labour market is losing as older workers retire.

Findings

As Figure 1.1 showed, younger adults (25-34 year-olds) are more likely than older adults (55-64 year-olds) to have attended university or other forms of tertiary education. In addition, the fields of study often differ between the age groups, which is helping to shift the balance of skills in the workforce (see "Trends" below).

Among all adults (25-64 year-olds) who have attained tertiary or postgraduate education in the OECD area, social sciences, business and law is the main field of study, accounting for 28% of the total. This is followed by engineering, 15%; education, 14%; health and welfare, 13%; arts and humanities, 12%; and science 10%. The remaining 7% is accounted for by services, agriculture and other fields.

Although social sciences, business and law are dominant in most OECD countries, there are some exceptions. In Ireland, science is the leading field of study (23%); in Norway, it is education (20%); in Finland and the Slovak Republic, engineering (27% and 26% respectively); and in Denmark, health and welfare (34%).

Trends

The predominance of social sciences, business, and law is largely driven by increases in the numbers of younger adults who have studied in these fields – three-and-a-half-times more than among older adults. This change reflects increases in attainment levels in general as well as the fact that many younger individuals have been attracted to this area of study.

In most OECD countries the numbers of people studying education has remained largely stable. But in Denmark, Germany, the Netherlands, Sweden and the United Kingdom, the number of young adults with qualifications in this area is too low to replace those older adults who are coming up to retirement, which could pose problems when it comes to finding replacements.

There are also large variations in the extent to which younger adults have chosen science or engineering compared with older adults. Supply levels in science have risen more than in engineering in all OECD countries, except Finland, Italy and Sweden.

Definitions

Data on population and educational attainment are taken from OECD and EUROSTAT databases, which are compiled from National Labour Force Surveys. Data on fields of study originate from a special data collection by the Supply of Skills working group of INES Network B.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator A1).

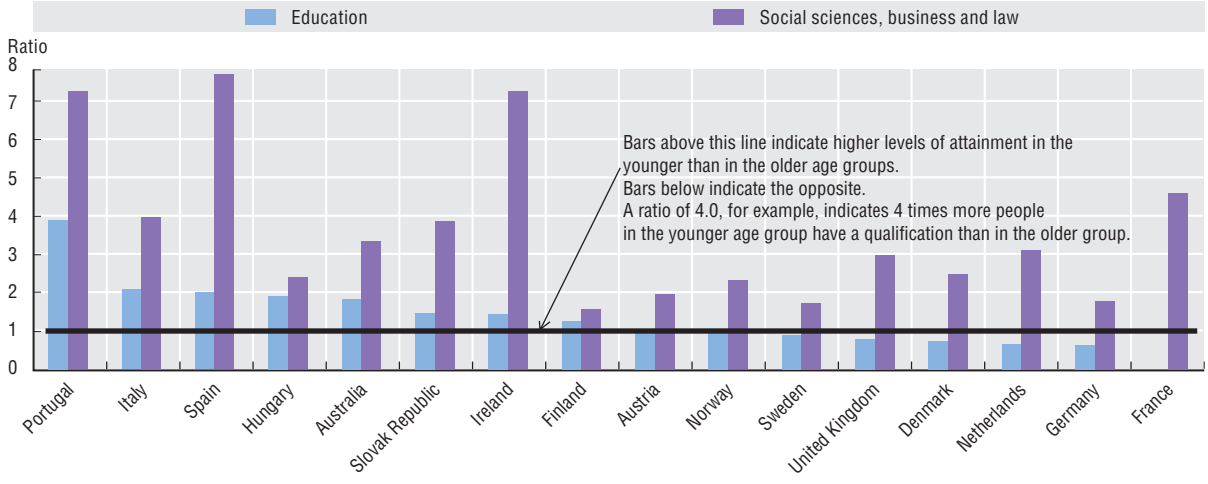
Areas covered include:

- Ratios for age groups by levels and areas of education.
- Relation between matching of higher educated to high skilled jobs.

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 1.3. **Generational differences in social sciences and in education, 2004**

This figure shows whether more young people have qualifications in certain areas than older people – or, specifically, the ratio of 25-39 year-olds to 55-64 year-olds with tertiary qualifications in education and social sciences, business and law.



Source: OECD (2008), *Education at a Glance 2008*, Table A1.4, available at *http://dx.doi.org/10.1787/401474646362*.

Table 1.1. **Fields of education, 2004**

This table shows the percentage of 25-64 year-olds with tertiary attainment (university-level education and advanced research programmes) in each field of education.

	Education	Arts and humanities	Social sciences, business and law	Science	Engineering	Agriculture	Health and welfare	Services	Other fields	Total
Australia	15	11	32	11	10	1	17	2	1	100
Austria	10	15	34	9	15	2	13	2	n	100
Belgium	4	15	30	13	19	2	12	2	3	100
Canada	16	12	34	12	11	2	12	2	n	100
Denmark	16	11	19	4	13	1	34	1	n	100
Finland	12	12	22	7	27	4	12	4	n	100
France	9	19	35	15	10	1	7	3	1	100
Germany	22	9	22	8	22	2	12	2	n	100
Hungary	27	5	23	4	21	6	9	5	n	100
Iceland	13	13	32	8	13	c	16	5	n	100
Ireland	12	13	22	23	11	2	10	3	5	100
Italy	4	19	33	12	14	2	15	1	n	100
Luxembourg	2	17	36	12	19	c	10	c	3	100
Mexico	5	17	31	11	13	3	11	7	1	100
Netherlands	20	8	30	6	12	2	17	3	2	100
Norway	20	7	18	4	6	1	12	3	29	100
Portugal	16	12	27	13	14	2	12	3	1	100
Slovak Republic	20	6	22	8	26	6	7	4	n	100
Spain	15	11	32	10	12	2	12	4	n	100
Sweden	22	7	24	7	15	1	19	3	1	100
United Kingdom	14	18	28	18	11	1	8	1	n	100
OECD average	14	12	28	10	15	2	13	3	2	100

Source: OECD (2008), *Education at a Glance 2008*, Table A1.4, available at *http://dx.doi.org/10.1787/401474646362*.

Who participates in education?

- *In most OECD countries, virtually everyone has access to at least 12 years of formal education.*
- *In more than one-half of OECD countries, 70% of 3-4 year-olds are enrolled in either pre-primary or primary programmes.*
- *From 1995 to 2006, enrolment rates for 20-29 year-olds increased by 8 percentage points.*

Significance

A well-educated population is essential to a country's economic and social development, so societies have a real interest in ensuring that children and adults have access to a wide range of educational opportunities. This indicator examines access to education, and its evolution, from 1995 to 2006. It looks mainly at when children begin their education and how long they remain in schooling. At the other end of the scale, it looks at the number of young people who continue studying once compulsory education has ended.

Findings

At least 90% of students in Belgium, France, Germany, Hungary, Iceland, Japan, Norway and Spain are enrolled in formal education for at least 14 years. However, in Mexico this figure falls to nine years and in Turkey to six years.

On average, a child is more likely to be enrolled in formal education at age 4 in the EU19 countries than in other OECD countries. In most OECD countries, full enrolment (meaning more than 90% enrolment) begins between the ages of 5 and 6. However, in Belgium, the Czech Republic, Denmark, France, Germany, Hungary, Iceland, Italy, Japan, Luxembourg, New Zealand, Norway, Portugal, the Slovak Republic, Spain, Sweden and the United Kingdom, at least 70% of 3-4 year-olds are enrolled in some kind of pre-primary or primary educational programme.

The age at which compulsory education ends ranges from 14 in Korea, Portugal and Turkey, to 18 in Belgium, Germany and the Netherlands. In all OECD countries, enrolment rates begin to decline after students reach the age of 16. However, in most, the sharpest decline occurs not at the end of compulsory education but at the end of upper secondary education.

On average in OECD countries, 25% of 20-29 year-olds are enrolled in tertiary education; for enrolment in education among 15-19 year-olds, the figure is 82%.

Trends

Enrolment rates for 20-29 year-olds in OECD countries rose by 8 percentage points between 1995 and 2006 (there was a similar increase for 15-19 year-olds, see Chart 2.1 in *Education at a Glance 2008*), and there were increases in all OECD countries except Portugal. Despite predictions of a levelling off, or even falls, in demand for tertiary education in OECD countries as the size of the youth population declines, demand seems to be holding up. In large part, this is because policies to widen access to education are increasing participation sufficiently to make up for any shortfalls.

Definitions

Data for the 2005-06 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.

In the table, percentages may be in excess of 100% for the following reasons:

- 3-4 year-olds: This category may include children aged under 3.
- 5-14 year-olds: There may be discrepancies between data on population ages and data on enrolments. Non-resident students may travel into the country for their schooling.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator C2).

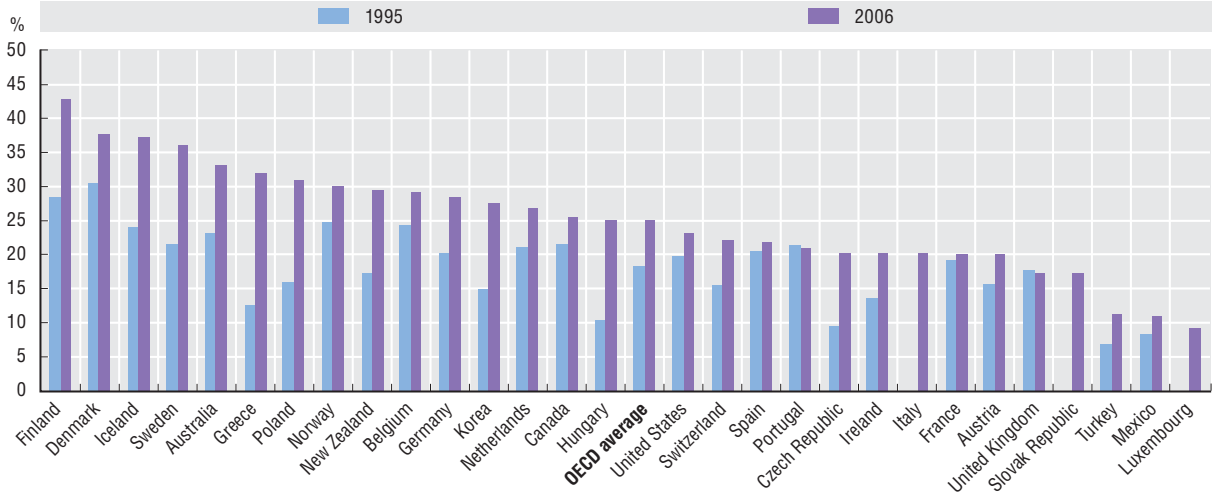
Areas covered include:

- Enrolment rates of 15-19 year-olds.
- Trends in enrolment rates for 15-19 and 20-29 year-olds.
- Students in secondary and tertiary education by type of institution and mode of study.

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 1.4. **Enrolment rates of 20-29 year-olds (1995, 2006)**

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



Source: OECD (2008), *Education at a Glance 2008*, Table C2.2, available at *http://dx.doi.org/10.1787/402156412821*.

Table 1.2. **Enrolment rates by age, 2006**

This table shows the percentage of people in each age group enrolled in full-time and part-time education.

	Percentage of age group in education					
OECD countries	3 to 4	5 to 14	15 to19	20 to 29	30 to 39	40 and over
Australia	41.7	99.6	82.7	33.2	13.8	5.9
Austria	67.9	98.1	82.0	20.0	3.3	0.3
Belgium	125.4	99.4	95.5	29.2	8.7	3.7
Canada	m	m	80.2	26.0	5.6	1.7
Czech Republic	79.5	99.9	89.9	20.2	4.2	0.3
Denmark	93.6	97.4	83.1	37.8	7.9	1.5
Finland	44.0	95.1	87.9	42.9	13.8	3.2
France	112.1	101.0	85.9	20.1	2.6	n
Germany	96.8	98.8	88.6	28.5	2.5	0.1
Greece	27.9	98.1	92.8	32.0	1.1	n
Hungary	82.2	100.3	87.5	24.9	6.0	0.6
Iceland	94.2	98.8	84.6	37.2	12.5	3.4
Ireland	23.6	101.2	87.8	20.2	5.8	0.1
Italy	104.9	100.7	81.5	20.2	3.4	0.1
Japan	83.4	100.7	m	m	m	m
Korea	24.4	94.9	85.9	27.6	2.1	0.5
Luxembourg	80.7	96.2	73.5	9.2	0.8	0.1
Mexico	53.1	100.9	48.8	10.9	3.5	0.6
Netherlands	37.3	99.6	88.7	26.9	2.7	0.7
New Zealand	90.8	101.0	74.4	29.4	12.3	5.4
Norway	89.3	98.8	86.3	30.0	6.9	1.6
Poland	37.3	94.5	92.6	31.0	4.4	m
Portugal	71.8	103.8	73.0	20.9	3.5	0.5
Slovak Republic	74.8	96.8	84.8	17.3	3.3	0.5
Spain	122.8	101.0	80.2	21.8	3.8	1.1
Sweden	84.2	98.8	87.8	36.1	13.2	3.0
Switzerland	26.2	100.3	83.5	22.1	3.7	0.4
Turkey	4.6	82.9	45.2	11.3	1.6	0.2
United Kingdom	90.1	100.7	69.7	17.3	5.8	1.8
United States	48.4	98.0	78.4	23.1	5.4	1.4
OECD average	**69.4**	**98.5**	**81.5**	**25.1**	**5.7**	**1.4**

Source: OECD (2008), *Education at a Glance 2008*, Table C2.1, available at *http://dx.doi.org/10.1787/402156412821*.

How many secondary students go on to tertiary education?

- *On average across the OECD area, 83% of young people graduate from upper secondary education.*
- *In the past 11 years, the proportion of students graduating at this level in OECD countries has increased by an average of 7 percentage points.*
- *In total across the OECD area, 56% of young people will go on to university-level education.*

Significance

This indicator shows how many students finish secondary education and then make the transition into tertiary 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 secondary education face severe difficulties when it comes to finding work.

Findings

Across the OECD area, 83% of young people finish upper secondary education. In 22 of 24 OECD countries with comparable data, upper secondary graduation rates exceed 70%, while in the Czech Republic, Finland, Germany, Greece, Iceland, Japan, Korea and Norway, they equal or exceed 90%.

In most countries, upper secondary education is designed to prepare students to enter university-level education (tertiary-type A). In Austria, Germany and Switzerland, however, students are more likely to graduate from upper secondary programmes that lead to vocationally oriented tertiary education (tertiary-type B), where courses typically run for two years with a focus on practical, technical or occupational skills.

In total across the OECD area, 56% of young people will go on to university-level education. In Australia, Finland, Hungary, Iceland, New Zealand, Norway, Poland, the Slovak Republic and Sweden, this rises to at least 65%, while in the United States the level stands at 64% (although this includes both university-level and vocationally oriented tertiary education). Turkey has seen a large increase in the number of students entering university-level education, but its entry rate is only 31% and it remains, with Mexico, at the bottom of the scale.

The proportion entering vocationally oriented tertiary education is generally smaller in OECD countries, mainly because these programmes are less developed. In OECD countries for which data are available, 16% of young adults, on average, enter these sorts of programmes, while 2.8% will eventually enter advanced research programmes.

Trends

Graduation from upper secondary education has effectively become the norm in most OECD countries. In recent years, the highest growth has occurred in Greece, Norway, Sweden and Turkey, while in Germany, Japan, New Zealand, the Slovak Republic, and the United States graduation levels have remained stable. The proportion of students in Mexico and Turkey graduating from upper secondary education has increased considerably since 2000, thus reducing the gap with other OECD countries.

Definitions

The data for the 2005-06 school year are based on the UOE data collection on education statistics, administered annually by the OECD. Upper secondary graduation rates are estimated as the number of students, regardless of age, who graduate for the first time from upper secondary programmes, divided by the population at the age at which students typically graduate from upper secondary education. The net entry rate to tertiary education for a specific age is obtained by dividing the number of first-time entrants of that age to each type of tertiary education by the total population in the corresponding age group. The sum of net entry rates is calculated by adding the rates for each year of age.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator A2).

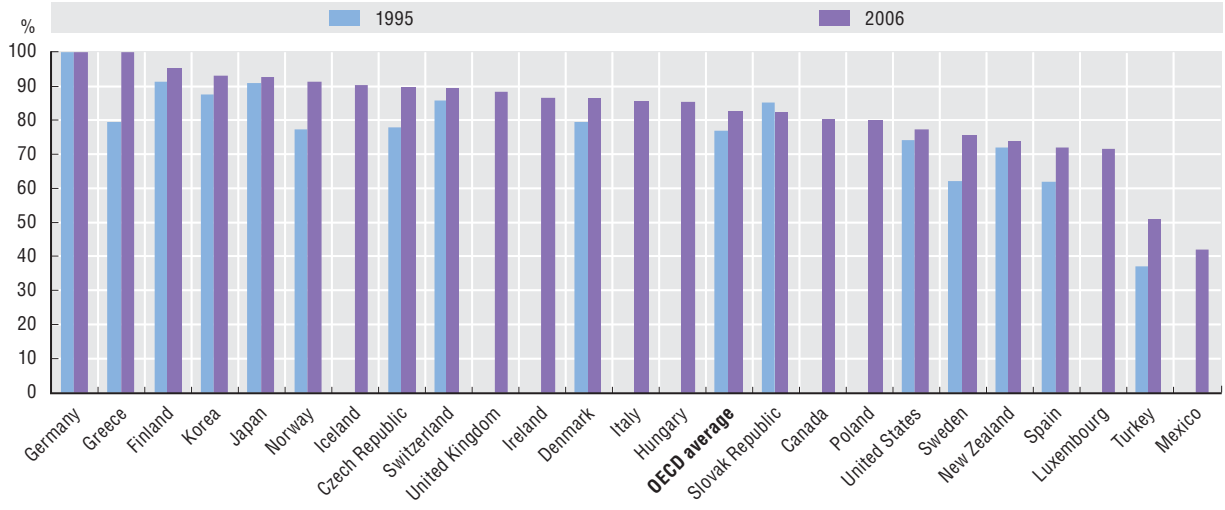
Areas covered include:

- Current upper secondary graduation rates and trends.
- Graduation rates from post-secondary non-tertiary education.
- Entry rate by field of education.

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 1.5. **Upper secondary graduation rates (1995, 2006)**

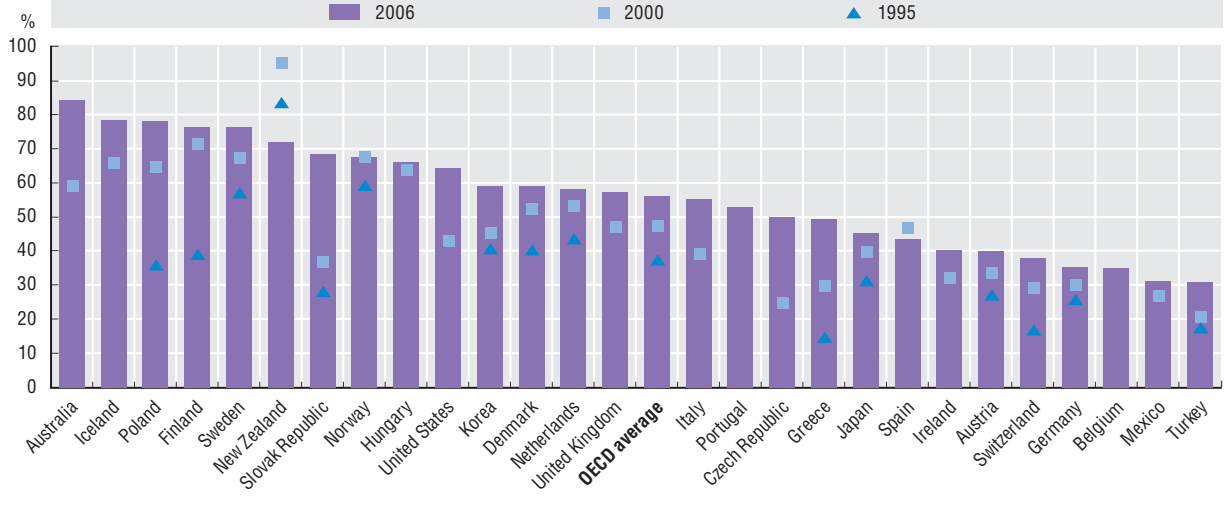
This figure shows the growth – or otherwise – in the numbers of young people graduating from upper secondary education.



Source: OECD (2008), *Education at a Glance 2008*, Table A2.2, available at *http://dx.doi.org/10.1787/401482730488*.

Figure 1.6. **Entry rates to university-level education (1995, 2000 and 2006)**

This figure shows the growth – or otherwise – in the percentage of young people entering university-level education. Entry rates have risen in most OECD countries.



Source: OECD (2008), Education at a Glance 2008, Table A2.5, available at http://dx.doi.org/10.1787/401482730488.

How many students enrol in vocational programmes?

- *In just under half of OECD countries, the majority of upper secondary students attend pre-vocational and vocational programmes.*
- *Vocational qualifications are concentrated in engineering, manufacturing and construction at both the upper secondary and post-secondary non-tertiary levels.*
- *The 14 OECD countries for which data are available spend, on average, USD 925 more per student in upper secondary vocational programmes than in general programmes.*

Significance

The increasing number of young people in upper secondary education means that countries have to cater to a more diverse student population at that level. In response, countries usually offer a variety of programmes, ranging from the largely academic to the largely vocational, which aim to prepare students to enter an occupation either directly or following further training (see definitions accompanying the table on the opposite page). Vocational programmes may be largely school-based or centred on apprenticeships in the workplace. This indicator shows the participation of students in vocational education and training at the upper secondary level.

Findings

At least 55% of upper secondary students are enrolled in pre-vocational or vocational programmes in most OECD countries that have dual system apprenticeship programmes (Austria, Germany, Luxembourg, the Netherlands and Switzerland) as well as Australia, Belgium, the Czech Republic, Finland, Italy, Norway, the Slovak Republic and the United Kingdom.

While upper secondary students in many education systems can enrol in vocational programmes, some OECD countries delay vocational training until after graduation from upper secondary education. In Austria, Hungary and Spain, some vocational programmes are offered as advanced upper secondary programmes; in Canada and the United States, they are offered as post secondary education.

There is some form of apprenticeship system in most OECD countries. In Austria, Germany and Hungary, apprenticeship contracts are established between the student (not the vocational training school) and the enterprise. In the United States, there are apprenticeship programmes, but they are not part of the formal education system. There are no formal apprenticeship systems in Japan, Korea, Spain and Sweden.

Spending on students in vocational programmes tends to be higher than for general programmes (see Table C1.3 in *Education at a Glance 2008*). The 14 OECD countries for which data are available spent, on average, USD 925 more per student in upper secondary vocational programmes than in general programmes. This gap was even wider in countries with large school- and work-based apprenticeship programmes: Germany and Switzerland spent, respectively, USD 6 284 and USD 7 118 more per student in vocational programmes than in general programmes. Employers contribute a large part of these funds.

What about the educational performance of students in vocational education? In the PISA 2006 round, 15-year-old students in pre-vocational and vocational programmes scored on average 35 points below students in general programmes in testing for science competencies When socio-economic factors were taken into account this gap narrowed to 24 score points (see Chart C1.1 in *Education at a Glance 2008*).

Definitions

Data on enrolment are for the 2005-06 school year; data on finance refer to the 2005 financial year. Both are based on the UOE data collection on education statistics administered annually by the OECD. Data on apprenticeship programmes (work-based learning) are based on a special survey conducted by the OECD in 2006.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator C1).

Areas covered include:

- Upper secondary enrolment patterns and enrolment in vocational and pre-vocational programmes.
- Spending on vocation education and training.
- The PISA performance of students in general and vocational programmes.

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2008

Table 1.3. **Upper secondary enrolment patterns, 2006**

This table shows the proportion of young people pursuing academic (general) or vocational programmes at upper secondary level.

	Distribution of enrolment by programme orientation	
	General	Pre-vocational and vocational
Australia	38.4	61.6
Austria	22.1	77.9
Belgium	30.6	69.4
Canada	94.6	5.4
Czech Republic	20.7	79.3
Denmark	52.2	47.8
Finland	34.6	65.4
France	56.9	43.1
Germany	40.6	59.4
Greece	66.1	33.9
Hungary	76.3	23.7
Iceland	63.3	36.7
Ireland	66.6	33.4
Italy	39.5	60.5
Japan	75.4	24.6
Korea	72.2	27.8
Luxembourg	37.1	62.9
Mexico	90.2	9.8
Netherlands	32.5	67.5
New Zealand	100.0	m
Norway	40.0	60.0
Poland	56.0	44.0
Portugal	68.5	31.5
Slovak Republic	26.3	73.7
Spain	57.5	42.5
Sweden	44.9	55.1
Switzerland	35.8	64.2
Turkey	63.7	36.3
United Kingdom	58.3	41.7
United States	100.0	m
OECD average	**53.8**	**46.2**

General programmes: Academically oriented, these programmes are not designed to prepare students specifically for occupations or for vocational education (less than a quarter of programme content is vocational or technical).
Pre-vocational or pre-technical: Aimed at preparing students for further vocational education and training and at introducing them to the world of work, but not at providing a qualification that can be used directly to enter the labour market (at least a quarter of programme content is vocational or technical).
Vocational: Designed to prepare students for direct entry into specific occupations.
Pre-vocational and vocational education and training can be either school-based, where no more than a quarter of the programme is presented outside the school environment, or combined school- and work-based, where at least a quarter of the programme content is presented outside the school environment, including through apprenticeships.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

Source: OECD (2008), *Education at a Glance 2008*, Table C1.1, available at *http://dx.doi.org/10.1787/402134482176*.

How many young people graduate from tertiary education?

- *On average across 25 OECD countries with comparable data, 37% of young people have completed university-level education (tertiary-type A).*
- *The proportion of young people in university-level education tends to be higher in countries where programmes are shorter.*
- *On average in OECD countries, graduation rates from university-level education have risen by 15 percentage points over the last 11 years.*

Significance

Tertiary education serves as an indicator of the rate 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 (which varies widely in structure and scope) 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 Greece and Turkey, 20% or less of young people graduate from university-level education (tertiary-type A); by contrast, the proportion is more than 45% in Australia, Finland, Iceland, New Zealand and Poland.

Disparities in graduation rates are even greater between men and women (see also Figure 1.8). On average in OECD countries, more women obtain university-level qualifications than men – 45% compared to 30%. The gap is greatest in Iceland, at 46 percentage points. In Poland and Sweden it falls to 25 percentage points, while in Austria, Germany, Switzerland and Turkey, the genders are quite balanced. In Japan significantly more men graduate from university-level education.

Countries with longer programmes tend to see lower graduation rates: in Austria, the Czech Republic, Germany and Greece, programmes in university-level education last at least five years, and university graduation rates are at or below 30%. In Australia, New Zealand, Sweden and the United Kingdom, programmes usually last between three and five years and graduation rates are around 40% or higher.

On average in the OECD area, 9% 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 Ireland, Japan and New Zealand. At the highest levels of tertiary education, about 1.4% of young people graduate from advanced research programmes in the OECD area (see Table A3.1 in *Education at a Glance 2008*).

Trends

On average across OECD countries, graduation rates from university-level education have increased by 15 percentage points over the past 11 years, and there were increases – often quite substantial – in virtually every country for which data are available.

Definitions

Data for the 2005-06 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. Graduation rates represent the estimated percentage of an age group that will complete tertiary education (Graduation rates should not be confused with completion, or dropout rates, which represent the proportion of people already enrolled in tertiary education who fail to complete their course, see pages 24-25). Data presented here refer only to first-time graduates.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator A3).

Areas covered include:

- Graduation rates and trends in tertiary education.
- Graduation rates by gender.

Further reading from OECD

Higher Education Management and Policy (journal).

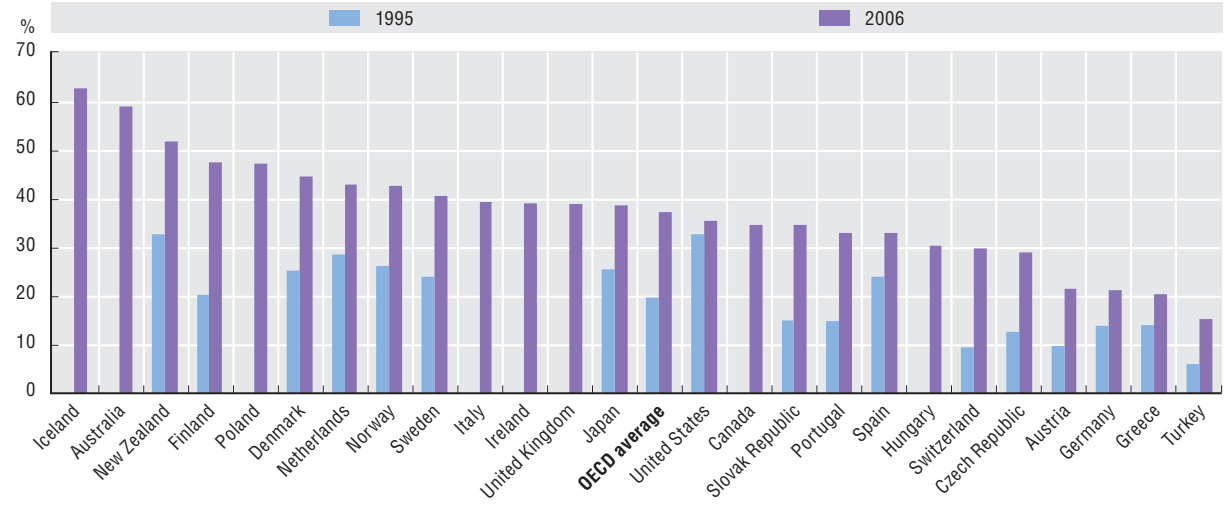
OECD Reviews of Tertiary Education (series of national reviews).

Higher Education and Regions: Globally Competitive, Locally Engaged (2007).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2008

Figure 1.7. **Graduation rates from university-level education (1995, 2006)**

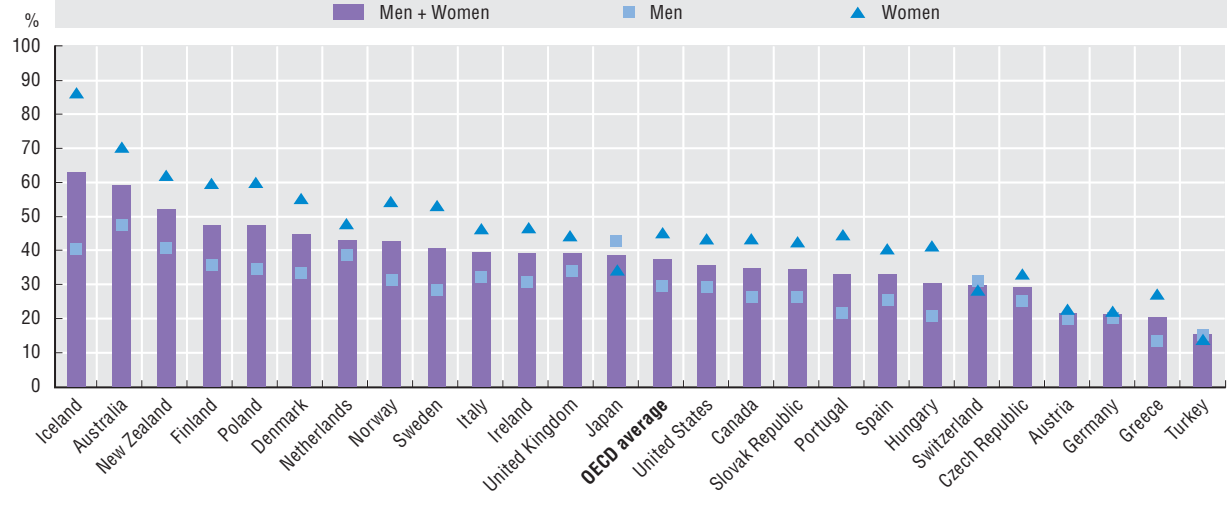
This figure shows the growth – or otherwise – in the percentage of young people who are first-time graduates from university-level education. On average, about 37% of young people graduate at this level in OECD countries.



Source: OECD (2008), *Education at a Glance 2008*, Table A3.2, available at *http://dx.doi.org/10.1787/401523756323*.

Figure 1.8. **Graduation rates from university-level education by gender, 2006**

This figure shows the percentage of young men and young women who are first-time graduates from university-level education. On average, about 45% of young women graduate at this level in OECD countries against about 30% of young men.



Source: OECD (2008), *Education at a Glance 2008*, Table A3.1, available at *http://dx.doi.org/10.1787/401523756323*.

How many students drop out of tertiary education?

- *In the 19 OECD countries for which there is comparable data, an average of 31% of students drop out of tertiary education.*
- *Completion rates in university-level education (tertiary-type A) are higher than for vocationally oriented tertiary education (tertiary-type B).*
- *There is no clear relationship between completion rates and levels of tuition fees.*

Significance

Dropping out is not necessarily an indication of an individual student's failure: in some countries, even a year of tertiary-level education may significantly improve a student's job-market prospects, while in others students may be able to retain credits from an initial period of study and then complete their studies after entering the workforce. However, high dropout rates may be an important indicator of problems in educational systems: courses may not be meeting students' educational expectations or their labour market needs, and may run for longer than students can justify being outside the labour market.

Findings

In the 19 OECD countries for which data are available, 31% of students fail to complete their course in tertiary education (making for a completion rate of 69%). Dropout rates range from more than 40% in Hungary, New Zealand and the United States to below 24% in Belgium (Fl.), Denmark, France, Germany and Japan.

At 69%, the average completion rate in university-level education (tertiary-type A) is higher than for vocationally oriented tertiary programmes (tertiary-type B), where it is around 62%.

Does the imposition of tuition fees make it more likely that students will complete their courses? The issue is much debated in OECD countries, but the data show no strong relationship between fee levels and completion rates. Tuition fees charged by university-level institutions exceed USD 1 500 in Australia, Canada, the Netherlands, New Zealand, the United Kingdom and the United States. But at 58% in New Zealand and 56% in the United States, completion rates in two of these countries are well below the OECD average of 69%, while in the others they are above. In Denmark, where tuition fees are not imposed, completion rates stand at 81%.

Dropout rates can, of course, be a sign of problems in education systems, but it can be misleading to regard a student's decision not to finish a programme as a failure. As noted above, even limited exposure to tertiary-level education can improve job-market prospects in some countries, while students may also postpone completing their studies to work for a time. In addition, students may also be successfully reoriented from one branch of education to another: in France, about 15% of tertiary-level students shift from university-level programmes to vocationally oriented tertiary education. Finally, some students may undertake tertiary studies with no intention of finishing a degree but simply to take particular courses for their own professional development.

Definitions

Data on completion rates were collected through a special survey undertaken in 2007. In simplified terms, the completion rate is calculated as the ratio of the number of students who graduate from a degree programme against the number of students who entered the programme. Dropouts are defined as students who leave the specified level of education without graduating from a first qualification at that level.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator A4).

Areas covered include:

- Completion rates in tertiary education.
- Completion rates in tertiary education by mode of study.

Further reading from OECD

Higher Education Management and Policy (journal).

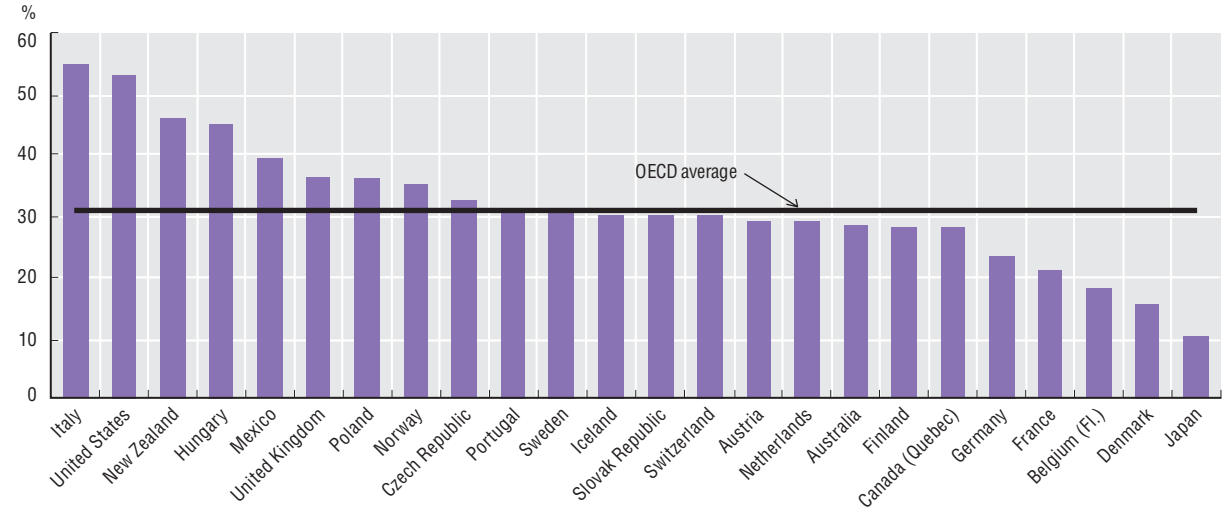
OECD Reviews of Tertiary Education (series of national reviews).

Higher Education and Regions: Globally Competitive, Locally Engaged (2007).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 1.9. **Dropout rates in tertiary education, 2005**

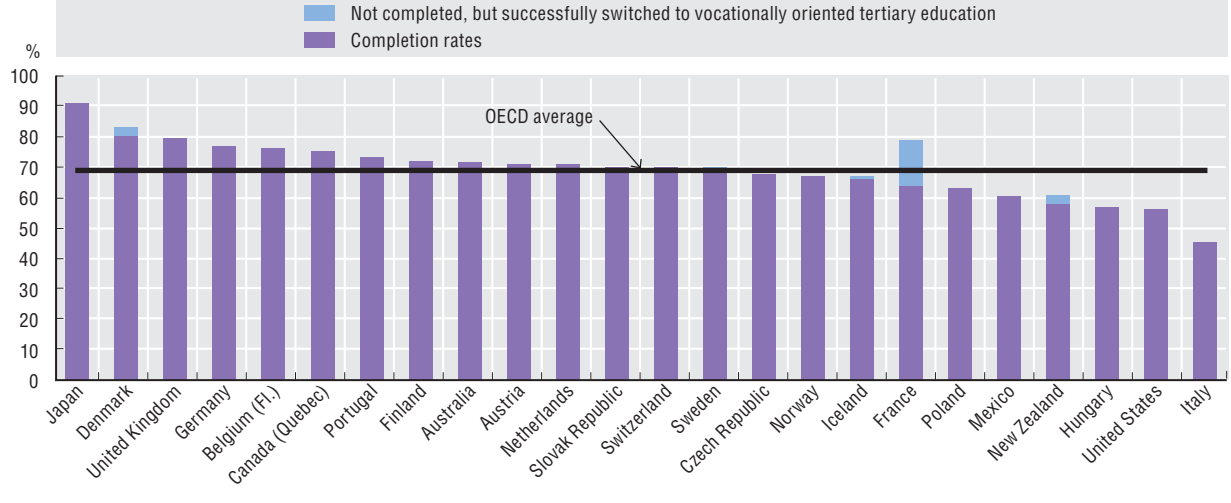
This figure shows the proportion of students who enter a tertiary programme but leave before completing a degree. On average, OECD countries have a dropout rate of about 31%.



Source: OECD (2008), *Education at a Glance 2008*, Table A4.1, available at *http://dx.doi.org/10.1787/401536355051*.

Figure 1.10. **Completion rates in university-level education, 2005**

This figure shows the proportion of students who complete a first degree in university-level education (tertiary-type A), or who successfully move over to a vocationally oriented tertiary programme (tertiary-type B).



Source: OECD (2008), *Education at a Glance 2008*, Table A4.1, available at *http://dx.doi.org/10.1787/401536355051*.

How do men and women differ in education levels?

- *Girls are now more likely to complete upper secondary education than boys in almost all OECD countries, a reversal of historical trends.*
- *At upper secondary level, girls are more likely than boys to pursue programmes aimed at entry to university-level education.*
- *Overall, women represent 54% of new entrants in tertiary education in OECD countries.*

Significance

Across OECD countries, girls and women are establishing their place alongside boys and men in upper levels of education. It appears that public policies over the past 20 years that have tried to foster equality in education have made a significant impact on young women's motivation and expectations.

Findings

Boys trail behind girls in upper secondary graduation rates in 22 of the 24 OECD countries for which data are available. The exceptions are in Switzerland and Turkey, where more boys than girls graduate from upper secondary education. The gender gap is greatest in Denmark, Iceland, Ireland, New Zealand, Norway and Spain, where graduation rates for girls exceed those for boys by more than 10 percentage points.

At upper secondary level, programmes may be general – with the main aim of preparing students for university-level education – or vocational and pre-vocational. For almost all OECD countries with comparable data, the graduation rate for girls from general programmes is higher: 53% for girls against 41% for boys. In Austria, the Czech Republic, Italy, Norway, Portugal and the Slovak Republic, girls outnumber boys by three to two. Girls' representation in vocational programmes has been increasing, and their graduation rate now stands at 44%.

In tertiary level education, women represent 54% of new entrants, but the courses they take differ from those pursued by men. Women predominate in health and welfare, where they represent 75% of new entrants, and in humanities, arts and education, with 68% of new entrants. By contrast, the proportion of women choosing science subjects ranges from less than 25% in Japan, the Netherlands and Switzerland to more than 35% in Denmark, Iceland, Italy and New Zealand. Men represent 77% of new entrants in the fields of engineering, manufacturing and construction.

Trends

Women today are far more likely to have completed tertiary education than women 30 years ago, with more than twice as many women aged 25 to 34 having completed tertiary education than those aged 55 to 64.

Definitions

Data are based on the UOE data collection on education statistics administered annually by the OECD. Upper secondary graduation rates are the number of students, regardless of age, who graduate for the first time from upper secondary programmes, divided by the population of people of typical upper secondary graduation age. The unduplicated count of graduates is calculated by netting out students who graduated from another upper secondary programme in the previous year. Net entry rates represent the number of first-time entrants to tertiary education of a particular age as a proportion of the total population of people of that age. The sum of net entry rates is calculated by adding the rates for each year of age.

In the table, percentages in excess of 100% reflect technical difficulties in defining typical graduation ages for upper secondary education and in applying ISCED classifications.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator A2).

Areas covered include:

- Post-secondary non-tertiary graduation rates (including by gender).
- Percentage of new entrants in tertiary education, by gender and field of education.

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Table 1.4. **Graduation rates for boys and girls in upper secondary education, 2006**

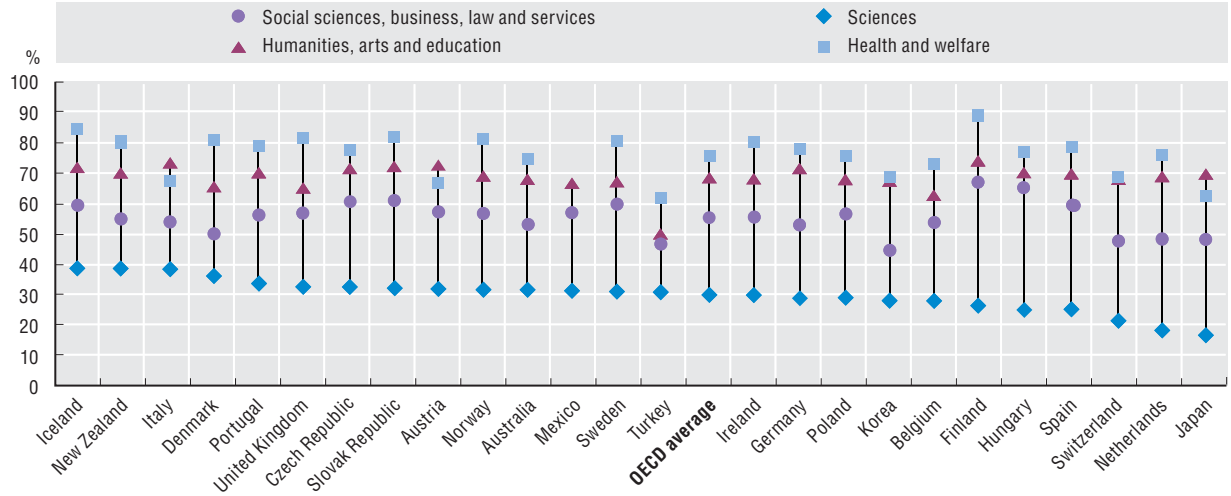
This table shows the percentage of boys and of girls graduating from upper secondary education, as well as the percentages of each gender pursuing general or vocational programmes at this level

	Total (unduplicated)			General programmes		Pre-vocational/vocational programmes	
	M + W	Men	Women	M + W	Women	M + W	Women
Australia	m	m	m	68	74	41	45
Austria	m	m	m	17	20	50	38
Belgium	m	m	m	37	43	58	60
Canada	80	77	84	77	82	8	7
Czech Republic	90	88	92	18	23	72	69
Denmark	86	78	96	55	66	51	56
Finland	95	91	100	51	61	88	97
France	m	m	m	51	59	63	60
Germany	103	102	104	40	45	63	59
Greece	100	96	104	63	72	35	30
Hungary	85	81	90	70	77	18	14
Iceland	90	81	100	66	76	55	54
Ireland	86	81	93	63	65	53	69
Italy	86	84	88	31	41	69	62
Japan	93	92	93	70	73	23	21
Korea	93	92	94	66	67	27	27
Luxembourg	72	69	74	28	33	44	41
Mexico	42	38	46	38	42	4	4
Netherlands	m	m	m	36	39	66	67
New Zealand	74	63	85	m	m	m	m
Norway	91	80	103	56	68	42	40
Poland	80	76	84	59	70	36	26
Portugal	m	m	m	40	50	13	13
Slovak Republic	82	80	85	23	28	69	65
Spain	72	64	80	45	53	35	38
Sweden	76	73	79	34	40	42	39
Switzerland	89	90	89	30	34	69	62
Turkey	51	55	47	35	35	19	16
United Kingdom	88	85	92	m	m	m	m
United States	77	75	79	m	m	m	m
OECD average	**83**	**79**	**87**	**47**	**53**	**45**	**44**

Source: OECD (2008), *Education at a Glance 2008*, Table A2.1, available at *http://dx.doi.org/10.1787/401482730488*.

Figure 1.11. **Proportion of women entering various fields of education at tertiary level, 2006**

This figure shows which subjects women study in tertiary education. On average, women make up less than 30% of science students, but more than 75% of health and welfare students.



Source: OECD (2008), *Education at a Glance 2008*, Table A2.6, available at *http://dx.doi.org/10.1787/401482730488*.

How successful are students in moving from education to work?

- *On average across OECD countries, a 15-year-old in 2006 could expect to continue in formal education for about another 6 years and 8 months.*
- *Until reaching the age of 30, he or she could also expect to hold a job for 6 years and 2 months, to be unemployed for just over 9 months, and to be out of the labour market (not employed, not in education and not looking for a job) for almost 1 year and 4 months.*
- *Between the ages of 25 and 29, there is a clear link between people's education levels and the likelihood of their being in work.*

Significance

This indicator shows the number of years young people can be expected to spend in education, employment and non-employment. During the past decade, young people have spent more time in initial education, delaying their entry into the workforce. Part of this additional time is spent combining work and study. The influence of the labour market on education, and *vice versa*, is both strong and complex.

Findings

On average, completing upper secondary education reduces unemployment among 20-24 year-olds by 7.4 percentage points and that of 25-29 year-olds by 6.8 percentage points. Not attaining an upper secondary qualification is a serious impediment to employment, while obtaining a tertiary qualification increases the likelihood of finding work.

In all countries except Austria, Germany, Japan, Mexico, the Netherlands, Switzerland and Turkey, women spend more years in education than men. Up to age 29, more men are employed than women, spending 1.5 years more in work.

On average, 83% of 15-19 year-olds are in education. That drops to 39.7% for 20-24 year-olds, and to below 13.8% for 25-29 year-olds. In many OECD countries, young people are beginning their transition to work at a later age, and sometimes over a longer period. This reflects not only the demand for education, but also the general state of the labour market.

Trends

Between 2000 and 2006 in OECD countries, the proportion of 15-19 year-olds in education increased by over 5 percentage points. For 20-24 year-olds, the increase was 6 percentage points and for 25-29 year-olds it was 2.2 percentage points. On average, however, only 15% of that older age group is in education; the rest are either working (69%) or outside the labour market and not employed (17%).

These increases in all the age groups reflect a continued expansion of education since the start of the decade, which has meant that more people in OECD countries are now outside the workforce, particularly among 15-19 year-olds. However, even though education expansion has lowered employment rates, the positive effects for individuals and society typically far exceed the lost productivity of the extra years of schooling.

Definitions

Data are collected as part of the annual OECD Labour Force Survey. 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.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator C4).

Areas covered include:

- Expected years in education and not in education for 15-29 year-olds, plus trends.
- Gender difference in expected years in education and not in education for 15-29 year-olds.

Further reading from OECD

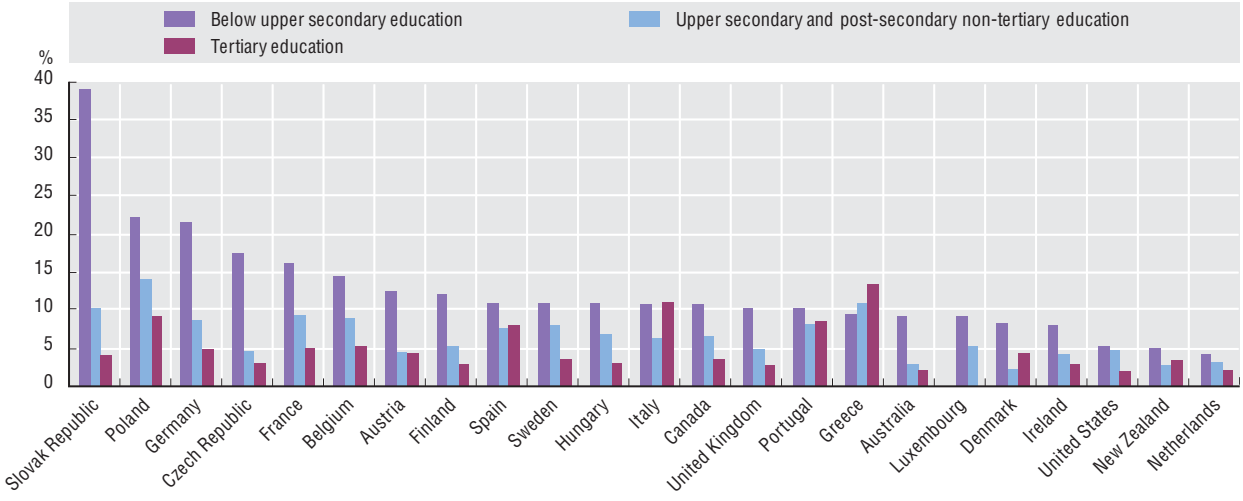
ICT and Learning: Supporting Out-of-School Youth and Adults (2006).

From Education to Work (2005).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 1.12. **Percentage of 25-29 year-olds who are unemployed and not in education, 2006**

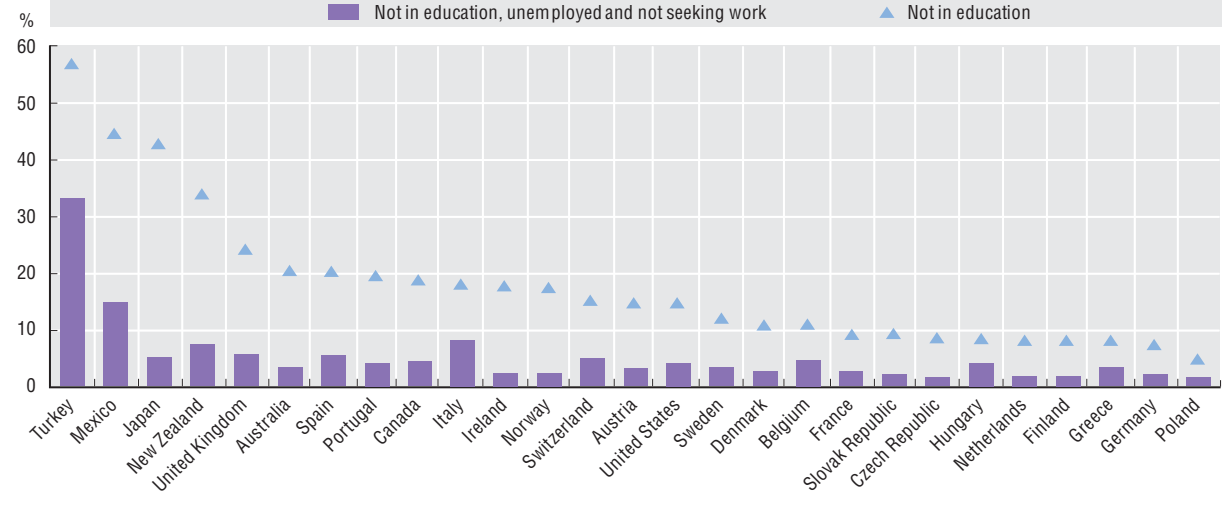
This figure shows the percentage of 25-29 year-olds who are unemployed and not in education, broken down by their level of education. Young people who have not studied beyond lower secondary education are more likely to be out of work.



Source: OECD (2008), *Education at a Glance 2008*, Table C4.3, available at *http://dx.doi.org/10.1787/402165765880*.

Figure 1.13. **Percentage of 15-19 year-olds who are not in the labour market or the education system, 2006**

This figure shows the percentage of 15-19 year-olds who are not in education, as well as the proportion who are not in education and not working and/or not seeking work.



Source: OECD (2008), *Education at a Glance 2008*, Table C4.2a, available at *http://dx.doi.org/10.1787/402165765880*.

How much training are adults doing?

- *There are large differences between countries in the time that workers spend in job training.*
- *Better-educated adults are more likely to participate in job training.*
- *In general, men do more training than women.*

Significance

Given ageing populations and the demand for different skills to cope with new technologies, globalisation and organisational changes, lifelong learning has become a necessity in OECD countries as workers strive to remain relevant in the labour force. This indicator examines the extent to which adults participate in non-formal job-related education and training (referred to subsequently as "job training"; see also "Definitions" below).

Findings

There are significant differences between countries in the numbers of adults (25-64 year-olds) taking part in job training. More than 35% of adults in Denmark, Finland, Sweden and the United States had participated in some type of job training programme during the 12 months prior to the survey. By contrast, in Greece, Hungary, Italy, the Netherlands, Poland, Portugal and Spain, the figure was less than 10%.

Adults with higher levels of education are more likely to participate in job training. Among the OECD countries surveyed, participation in job training is, on average, 14 percentage points higher among those who have completed tertiary education than among those who have completed only upper secondary education.

But even among individuals with similar levels of education, the number of hours spent in job training varies between countries. For those who have completed tertiary education, for example, the number of hours spent in job training ranges from fewer than 350 in Greece, Italy and the Netherlands to more than 1 000 hours in Denmark, Finland, France and Switzerland.

In all OECD countries, bar France, Finland and Hungary, employed men spend more hours in job training than employed women, although the difference between the genders is generally less than 100 hours. In Switzerland, however, the gap is almost 360 hours.

In most countries, participation in job training declines with age, although the extent of the decline varies among countries. In Austria, Belgium, France, Hungary and Spain, 55-64 year-olds spend one-quarter or less of the amount of time in job training than their younger peers. Only in the United States is there an increase in expected hours in job training among 35-54 year-olds as compared with younger adults. The fall-off in training as workers age may be due to older adults placing less value on investment in training and also to concerns among employers that their investment in training may not fully pay off if workers are nearing retirement.

Definitions

Data for countries in the European statistical system come from the European Labour Force Survey *ad hoc* module "Lifelong Learning 2003.""Non-formal education" is any organised and sustained educational activity that cannot be considered as formal education and does not lead to a qualification; "job-related" refers to education and training intended to help people in their work rather than their social or personal lives.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator C5).

Areas covered include:

- Participation in training by education attainment.
- Differences in duration of training by age group and by gender.

Further reading from OECD

Teaching, Learning and Assessment for Adults: Improving Foundation Skills (2008).

Qualifications Systems: Bridges to Lifelong Learning (2007).

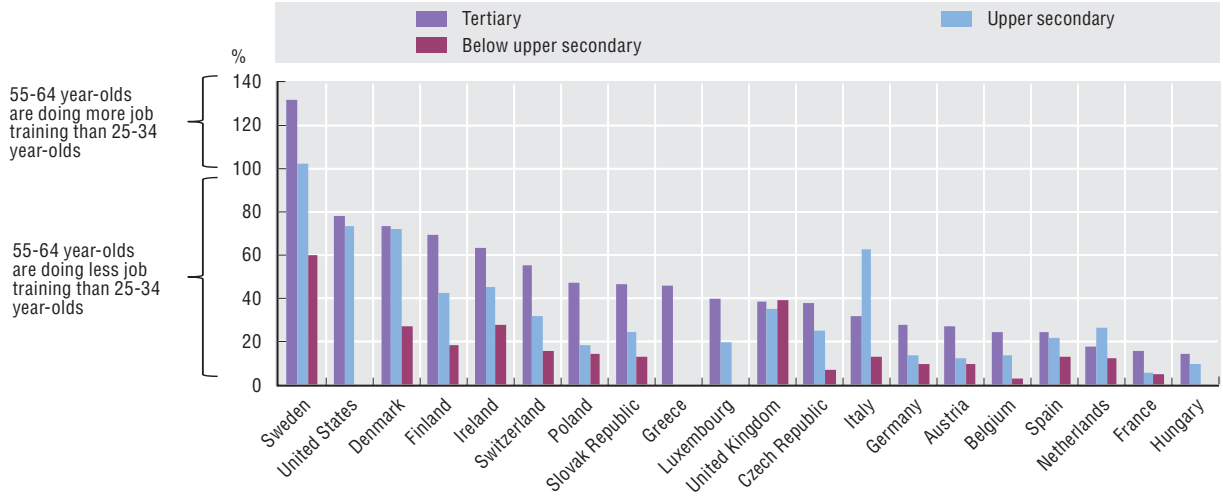
Promoting Adult Learning (2005).

Co-financing Lifelong Learning: Towards a Systemic Approach (2004).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 1.14. **Job training for 55-64 year-olds compared with 25-34 year-olds, 2003**

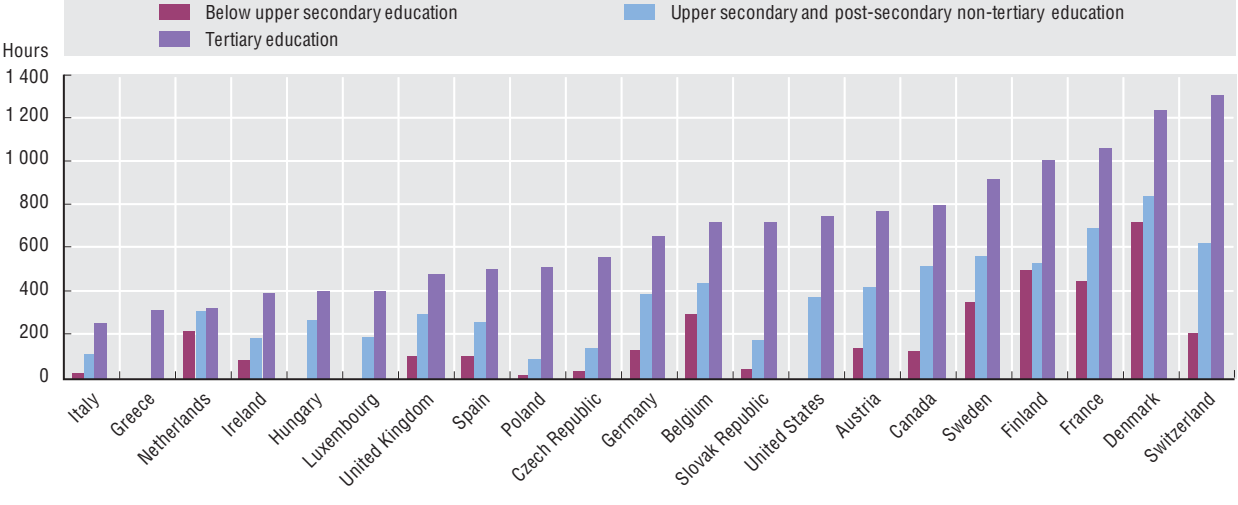
This figure shows the hours spent in job training by older workers as a percentage of the hours spent by younger workers, broken down by education levels. More highly educated workers do more training, but, with the exception of Sweden, the older age group always does less training than the younger group.



Source: OECD (2008), *Education at a Glance 2008*, Table C5.1b, available at *http://dx.doi.org/10.1787/402178012235*.

Figure 1.15. **Expected hours of job training for 25-64 year-olds by level of educational attainment, 2003**

This figure shows the number of hours of job training that 25-64 year-olds can expect to receive over the course of their career. Consistently, workers with higher levels of education receive more job training.



Source: OECD (2008), *Education at a Glance 2008*, Table C5.1a, available at *http://dx.doi.org/10.1787/402178012235*.

How many students study abroad?

- *In 2006, over 2.9 million students were enrolled in tertiary-level institutions outside their country of citizenship.*
- *Since 2000, the number of foreign students enrolled in tertiary-level education in OECD countries has increased by 54.1%.*
- *Asians account for almost 43% of international students in the OECD area.*

Significance

This indicator looks at the extent to which students are studying abroad. One way for students to expand their knowledge of other cultures and languages, and to better equip themselves in an increasingly globalised labour market, is to pursue their higher-level education in countries other than their own. 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

The number of foreign tertiary-level students in the OECD area rose by 3% in 2006 compared with the previous year, and by 2.7% worldwide. Since 2000, the increase in the OECD area was just over 54%.

In the OECD area, the countries that sent the most students abroad were France, Germany, Japan and Korea. Worldwide, however, China and India were the two biggest source countries. Indeed, Asia generally is the biggest source area for international students, accounting for just under 43% of the total in OECD countries. Their presence is particularly strong in Australia, Japan, Korea and New Zealand, where they account for more than 73% of international or foreign students. In the OECD area, the Asian group is followed by the Europeans, accounting for 23% of international students, followed by Africa with 9.9%, South America with 5% and North America with 3.5%. Altogether, 29.3% of international students enrolled in OECD countries come from other OECD countries.

There are big variations between countries in the percentage of international students enrolled in their tertiary education students. In Australia, international students represent 17.8% of the student body; 12% in Austria; 15.5% in New Zealand; 13.7% in Switzerland; and 14.1% in the United Kingdom. By contrast, in the Slovak Republic and Spain, international students account for only 1% or less of the tertiary-level student body.

In Australia, Germany, Switzerland and the United Kingdom, more than 30% of all master's degrees (or the equivalent) and advanced research degrees are awarded to international students.

Trends

Over the past three decades, the number of foreign students has grown substantially, from 0.6 million worldwide in 1975 to 2.9 million in 2006, a more than four-fold increase. This growth accelerated during the past ten years, mirroring the globalisation of economies and societies.

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 in order to study. Students are classified as foreign if they are not citizens of the country in which the data are collected.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicators A3 and C3).

Areas covered include:

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

Further reading from OECD

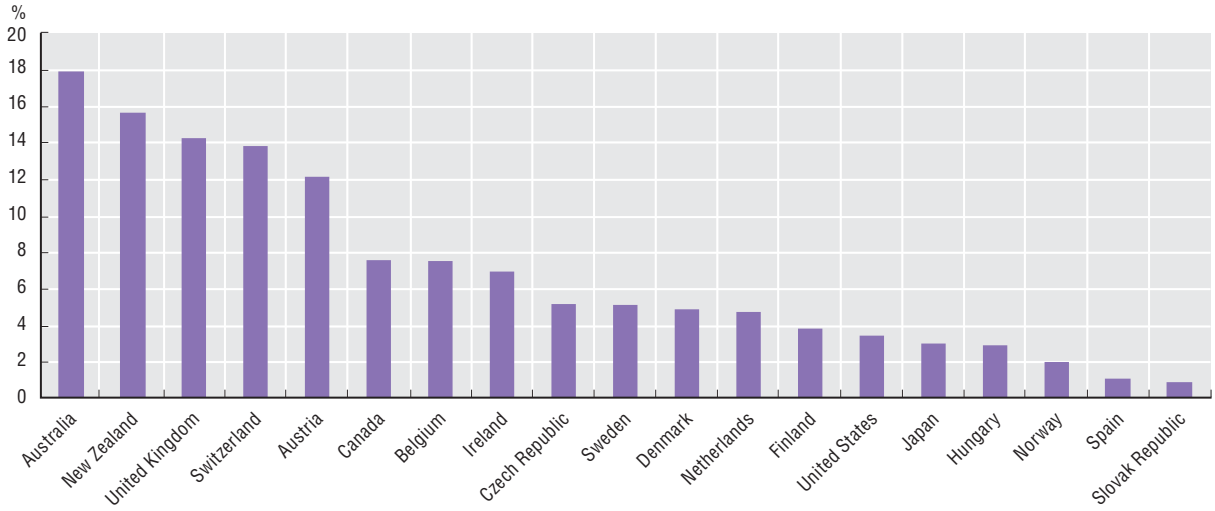
Cross-border Tertiary Education: A Way towards Capacity Development (2007).

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

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 1.16. **Percentage of international students enrolled in tertiary education, 2006**

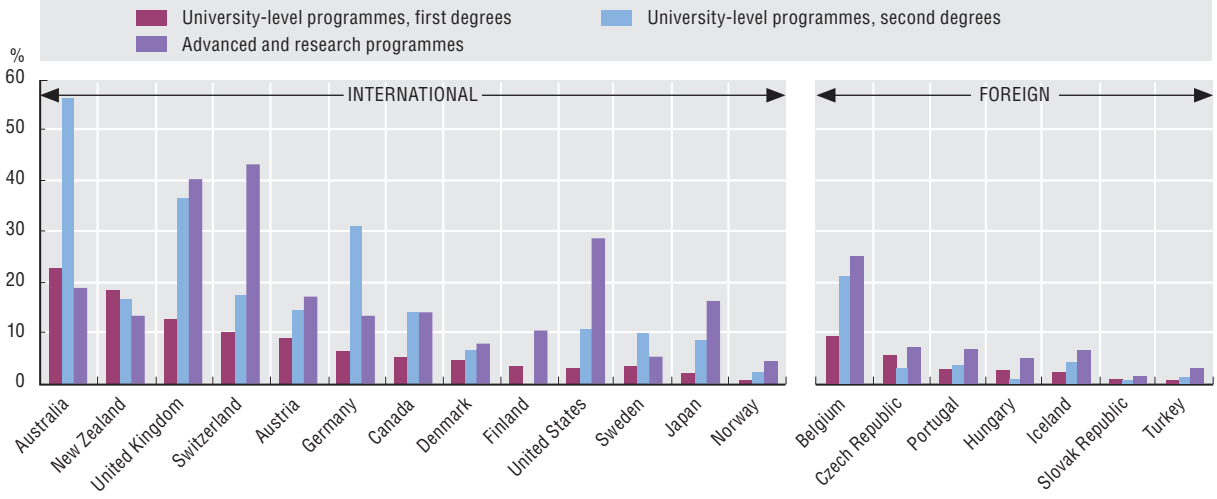
This figure shows the share of international students in each country's student body at tertiary level when that share exceeds 1%. In Australia and New Zealand, international students account for more than 15% of all students at this level.



Source: OECD (2008), *Education at a Glance 2008*, Table C3.1, available at *http://dx.doi.org/10.1787/402158641726*.

Figure 1.17. **Proportion of international/foreign students in total graduates, 2006**

This figure shows the percentage of graduates in tertiary education who are international and foreign students.



Source: OECD (2008), *Education at a Glance 2008*, Table A3.3, available at *http://dx.doi.org/10.1787/401523756323*.

Where do students go to study?

- *Four countries – France, Germany, the United Kingdom and the United States – receive about half of all foreign students worldwide.*
- *The United States saw a significant drop as a preferred destination of foreign students between 2000 and 2006, falling from just over 25% of the global market share to 20%.*
- *Countries with a language of instruction that is widely spoken and read (English, French, German and Russian) dominate as study destinations.*

Significance

This indicator describes students' preferred destinations and the impact of tuition fees on their decision of where to study abroad. Tuition fees are also an issue for destination countries amid a growing realisation of the trade benefits of international education. More of them are beginning to charge the full cost of education to their international students.

Findings

The four most popular destination countries in 2006 were as follows: the United States, which took in 20% of all foreign students worldwide; the United Kingdom, 11%; Germany, 9%; and France, 8%. Besides these, significant numbers of foreign students were also enrolled in Australia, which was the destination of 6% of the world's foreign students; Canada, 5%; Japan, 4%; and New Zealand, 2%.

The dominance of English-speaking destinations, such as Australia, Canada, the United Kingdom and the United States, may be explained by the fact that students intending to study abroad are most likely to have learned English in their home country or wish to improve their English language skills through immersion and study abroad. An increasing number of institutions in non-English-speaking countries now offer courses in English as a way of attracting more foreign students.

Public universities in many OECD countries charge higher tuition fees for international students than for domestic students. However, universities in France, Italy, Japan, Korea, Mexico and Spain make no differentiation while the Nordic countries have generally not imposed fees on either domestic or international students. However, there are signs that this is changing. Denmark recently adopted tuition fees for non-EU and non-EEA international students, and Finland, Norway and Sweden are examining similar options.

Trends

A number of countries saw a fall in their market shares in foreign students in the first half of this decade. The most notable decline was in the United States, which was the designation for one in four international students in 2000, but only one in five in 2006. Germany's market share fell by about 1 percentage point, while Belgium and the United Kingdom registered a decrease of about one-half of a percentage point. By contrast, New Zealand's share grew by 1.9% and France's by 1.2%. The slump in the United States' share may be attributable to the tightening of conditions of entry for foreign students following the September 2001 attacks, and to increasingly pro-active marketing by universities in the Asia-Pacific region.

Definitions

Data on international and foreign students are based on the UOE data collection on education statistics, administered annually by the OECD. Students are classified as international students if they left their country of origin and moved to another country for the purpose of study. Students are classified as foreign students if they are not citizens of the country in which the data are collected.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator C3).

Areas covered include:

- Trends in international education market shares.

Further reading from OECD

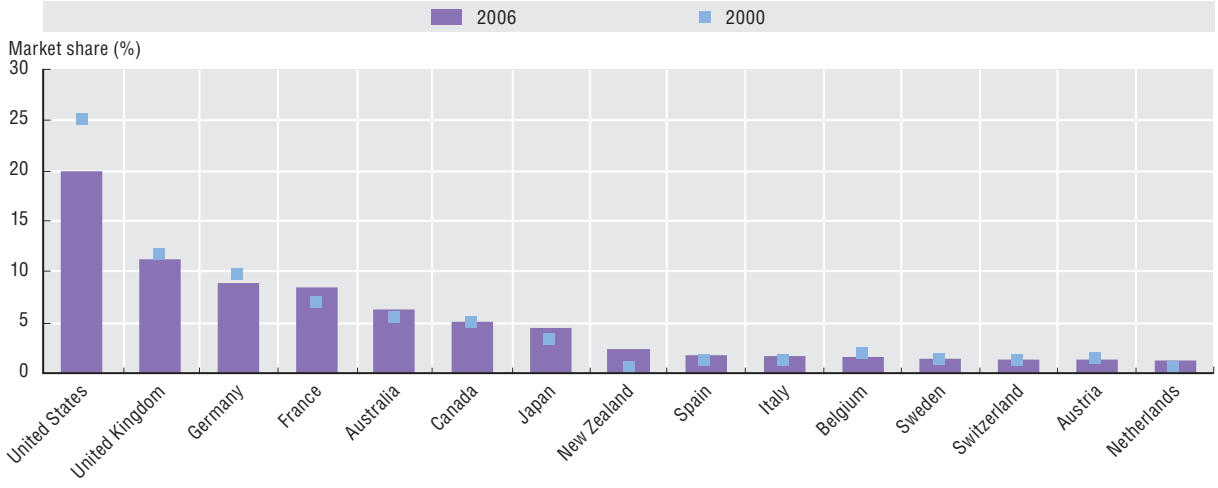
Cross-border Tertiary Education: A Way towards Capacity Development (2007).

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

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 1.18. **Trends in market share for international education (2000, 2006)**

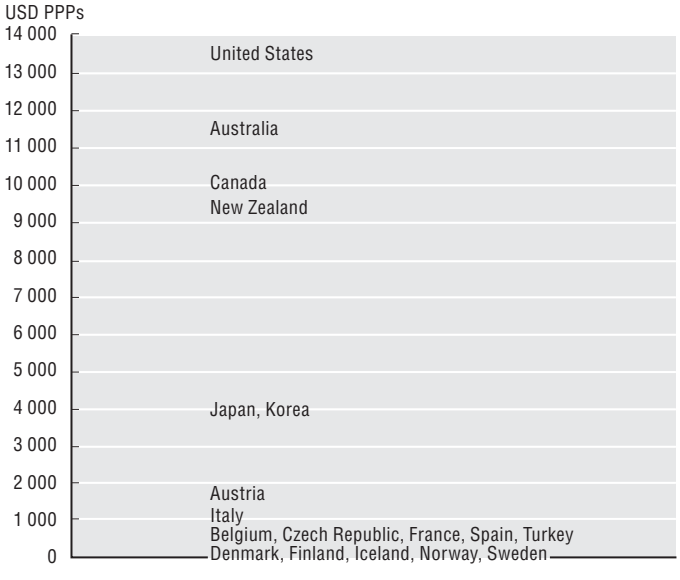
This figure shows the share of all foreign tertiary students taken by each of the major study destinations, and how that share has changed. Most notably, around a quarter of all foreign students went to the United States in 2000, but this has since fallen to about a fifth.



Source: OECD (2008), *Education at a Glance 2008*, Table C3.7, available at *http://dx.doi.org/10.1787/402158641726*.

Figure 1.19. **Average tuition fees charged to international students, 2004**

This figure shows the annual tuition fees charged by university-level institutions (tertiary-type A) to international students.



Source: OECD (2008), *Education at a Glance 2008*, Box C3.3, available at *http://dx.doi.org/10.1787/402158641726*.

Is there a blue-collar barrier in higher education?

– *There are large differences between countries in the numbers of students from blue-collar backgrounds who participate in higher education.*

– *In many countries, young people are substantially more likely to be in higher education if their fathers also completed higher education.*

Significance

This indicator examines the occupational status (white collar or blue collar) and the educational status of tertiary students' fathers in some European countries. Opening access to higher education is not only a matter of equity but also a way to broaden the pool of candidates for high-skilled jobs and to increase countries' overall competitiveness. In many countries, however, far fewer young people from blue-collar backgrounds study in higher education.

Findings

There is relatively little internationally comparable data on the socio-economic status of students in higher education (*i.e.*, university-level and vocationally oriented tertiary education, or tertiary types A and B, and advanced research programmes). This indicator covers only a sampling of European countries, but it marks a first attempt to illustrate the analytical potential that better data on this issue would offer.

Overall, there are large differences among countries in the degree to which students from a blue-collar background are represented in higher education in Europe. At 40%, Spain has the largest proportion of students whose fathers have blue-collar occupations, followed by Finland and Portugal at 29%. By contrast, for the remaining six countries covered here, young people from blue-collar families make up 20% or less of the student body.

These numbers, however, need to be understood in the context of the wider social picture – in other words, are the children of blue-collar families equitably represented in education? In Spain, the ratio of the percentage of students from blue-collar families (40%) and the percentage of 40-60 year-old men in blue collar jobs (45%) is close to 1 (about 0.89); by contrast, in Germany, 16% of students have blue-collar fathers, while 37% of men are in blue-collar jobs, making for a ratio of 0.43.

There are also large variations in the extent to which a father's level of education is reflected in the likelihood of his children attending tertiary education. For all ten countries covered here, the sons and daughters of graduate fathers are more likely to be in tertiary education than young people whose fathers did not attend higher education. For example, in Portugal, 9% of men in the relevant age group have tertiary qualifications, but their offspring account for 29% of tertiary students, a ratio of about 3.2; by contrast in Spain and Ireland the ratio drops to 1.5 and 1.1.

Previous schooling may play an important part in preparing the ground for equal opportunities in higher education. Data show that countries providing equal opportunities in higher education are often those that offer equal education between schools in lower secondary education. Students from less affluent backgrounds may thus be more likely to participate in higher education if they have already been given equal opportunities in lower levels of education.

Definitions

The participating countries surveyed their students using the EUROSTUDENT core questionnaire. The definitions for blue-collar background and higher education used in EUROSTUDENT varies between countries, but is harmonised within each country so that ratios provide consistent estimates.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator A7).

Areas covered include:

– Occupational and educational status of students' fathers.

– Proportion of students in higher education from a blue-collar background and between-school variance in PISA 2000.

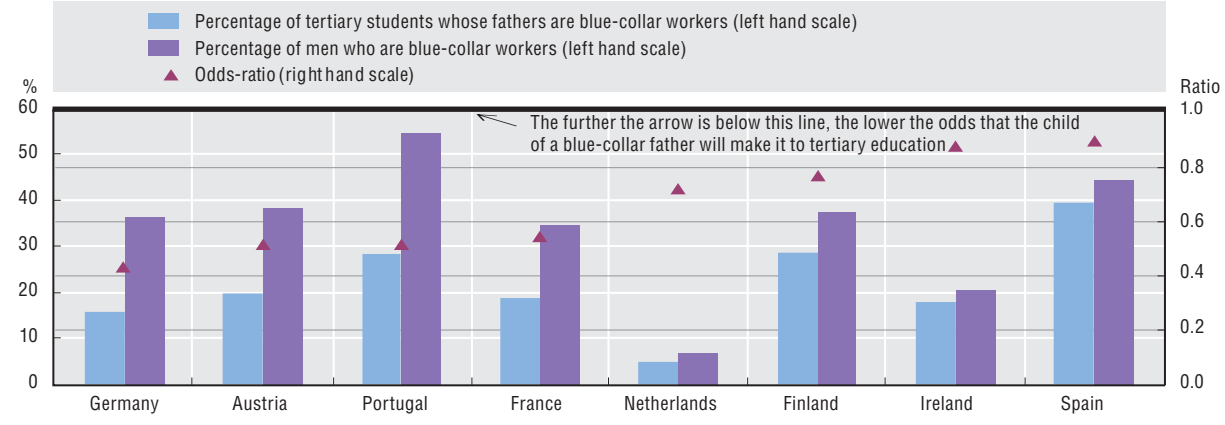
Further reading from OECD

No More Failures: Ten Steps to Equity in Education (2007).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 1.20. **Occupational status of students' fathers, 2004**

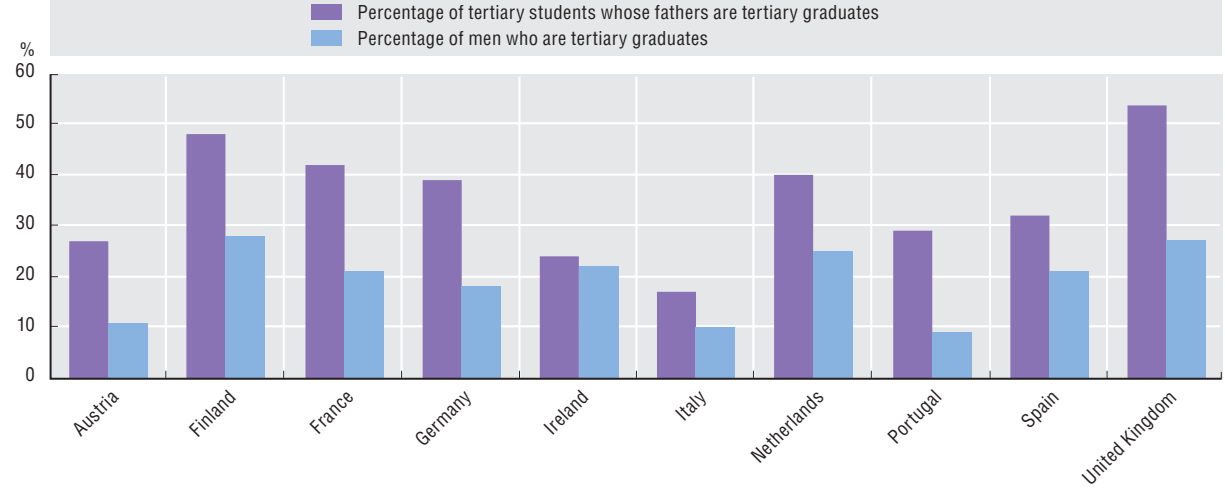
This figure shows the extent to which the children of men in blue-collar jobs (aged 40-60) are under-represented in tertiary education.



Source: OECD (2008), *Education at a Glance 2008*, Chart A7.1, available at *http://dx.doi.org/10.1787/401710587763*.

Figure 1.21. **Educational status of students' fathers, 2004**

This figure shows the extent to which the children of men (aged 40-60) who have attended tertiary education are over-represented in tertiary education.



Source: OECD (2008), *Education at a Glance 2008*, Chart A7.2, available at *http://dx.doi.org/10.1787/401710587763*.

2. THE ECONOMIC 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 much more do tertiary graduates earn?

- *Earnings increase with each level of education.*
- *Graduates of tertiary education earn more than people who completed only upper secondary education, with the gap ranging from 15% in New Zealand to 119% in Hungary.*
- *Older adults (55-64 year-olds) with tertiary education typically enjoy an even larger earnings premium than the general working-age population.*

Significance

This indicator examines the relative earnings of workers with different levels of education. Although higher levels of education are strongly linked to raised incomes, evidence suggests that some individuals might be receiving relatively low returns on their investment in education – that is, they earn relatively low wages even though they have relatively high levels of education.

Findings

The difference in earnings between tertiary graduates and people who have completed only upper secondary education is generally greater that between people who have completed upper secondary and people who have only completed lower secondary education. The earnings premium for adults (25-64 year-olds) with tertiary education, compared with upper-secondary education, ranges from 15% in New Zealand to 119% in Hungary.

Tertiary education boosts women's earnings more than men's in 10 of the 25 OECD countries examined in this indicator (Australia, Austria, Canada, Korea, the Netherlands, New Zealand, Norway, Spain, Switzerland and the United Kingdom). The reverse is true for the remaining countries, except for Turkey, where the benefits are about the same. However, in all countries, and at all levels of educational attainment, women generally earn less than their male counterparts.

Older people (55-64 year-olds) with tertiary education enjoy an even larger earnings premium than the general population as well as improved employment prospects. By contrast, older people with only lower secondary education see a widening in the earnings gap in every country bar Finland, Germany and New Zealand. In most countries, tertiary education increases the prospect of being employed at an older age and keeps improving earnings and productivity differentials through to the end of working life (see Charts A9.1 and A9.3 in *Education at a Glance 2008*).

Although the better educated usually earn more, this is not always the case. In some countries, factors such as national wage agreements tie many workers to similar salaries regardless of education levels. At the individual level, educational attainment is only one factor in determining an individual's income – experience and personal characteristics also play a part. Indeed, research from the United States suggests that for women and ethnic minorities, more than half of the variance in earnings cannot be explained by quantifiable factors, such as length of time in education or the workforce.

Definitions

Data on earnings are before income tax, except for Belgium, Korea and Turkey. Data on earnings for individuals in part-time work are excluded for the Czech Republic, Hungary, Luxembourg and Poland, while data on part-year earnings are excluded for Hungary, Luxembourg and Poland.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator A9).

Areas covered include:

- Trends in relative earnings of the population.
- Differences in earnings by gender and by age.

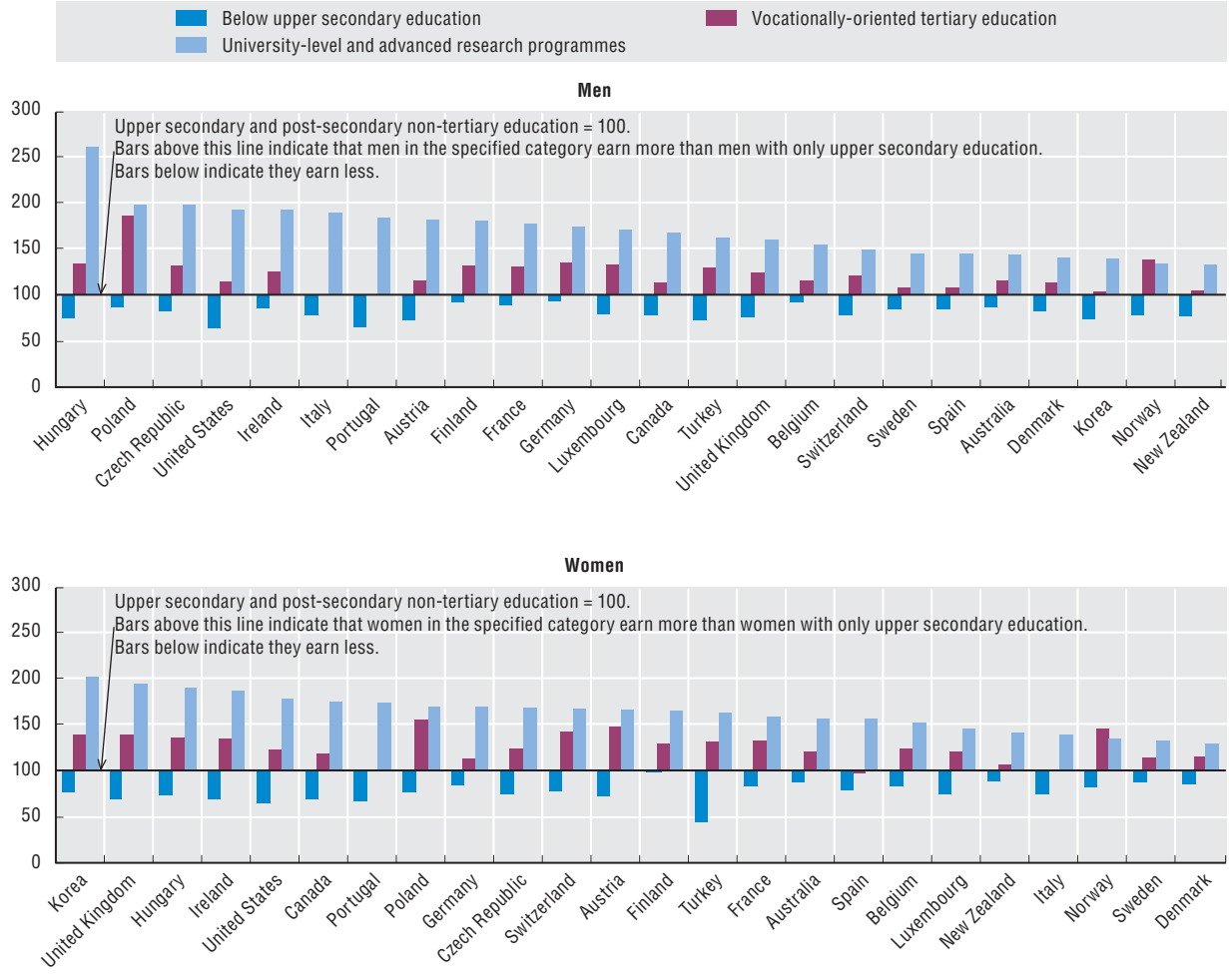
Further reading from OECD

Understanding the Social Outcomes of Learning (2007).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 2.1. **Relative earnings from employment, 2006**

These figures show the earnings of adult men and women (25-64 year-olds) by their level of educational attainment (relative to the earnings of graduates of upper secondary and post-secondary non-tertiary education).



Source: OECD (2008), *Education at a Glance 2008*, Table A9.1.a, available at *http://dx.doi.org/10.1787/401781614508*.

How does education affect employment rates?

- *In most countries, employment rates increase as people's levels of education rise – tertiary graduates are more likely to be employed than upper secondary graduates.*
- *Differences in employment rates between men and women are widest among low educated groups.*
- *Increasingly, people with upper secondary education and above are less likely to be unemployed than those with lower levels of education.*

Significance

This indicator examines the relationship between education and employment. The better educated individuals are, the more likely they are to be employed. As populations in OECD countries age, higher levels of education and longer participation in employment can help to ensure more people are economically active and help to alleviate the burden of financing public pension schemes.

Findings

Employment rates for graduates of tertiary education are around 9% higher, on average, than for graduates of upper secondary education. In Greece, Poland, the Slovak Republic and Turkey, that difference is 12% or more.

The gap in employment rates among men aged 25 to 64 is particularly wide between those who have completed upper secondary school and those who have not. In the Czech Republic, Hungary and the Slovak Republic, the difference is extreme, with rates of employment among men with a higher level of education at least 30% higher than those with a lower level of education.

Where employment rates differ among OECD countries, it is largely the result of variations in the level of women's participation in the workforce in individual countries. That said, employment rates for women are generally lower than those for men. For those with very low levels of education, the gap is particularly wide. The gap between men and women's employment rates is 10 percentage points at tertiary level, widening to 23 percentage points at below upper-secondary level.

Trends

Although employment rates for 55-64 year-olds are generally lower than those of the working-age population as a whole (by about 20 percentage points), they have been increasing in recent years, particularly among the more educated. In this age group, the average employment rate stands at 40.2% for those with below upper secondary education, 52.4% for those with upper secondary and post-secondary non-tertiary education, and 65.9% for those with tertiary education.

Between 1997 and 2006, the difference in unemployment rates between people with tertiary education and those with upper secondary and post-secondary non-tertiary education decreased; but the gap between people in this latter group and those with less than upper secondary education increased – from 3.4% to 4.2% (see Table A8.5a in *Education at a Glance 2008*). For those with only lower secondary education, it is becoming more difficult to find employment, which suggests that in most OECD countries, this skill level is not sufficient to obtain a suitable job.

Definitions

Employed persons are defined as those who, during the survey reference week, work for pay or profit for at least one hour, or have a job, but are temporarily not at work because of injury, illness, holiday, strike, education leave, maternity or paternity leave, etc. Unemployed persons are defined as those who are, during the survey reference week, without work, actively seeking employment and available to start work.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance* 2008 (Indicator A8).

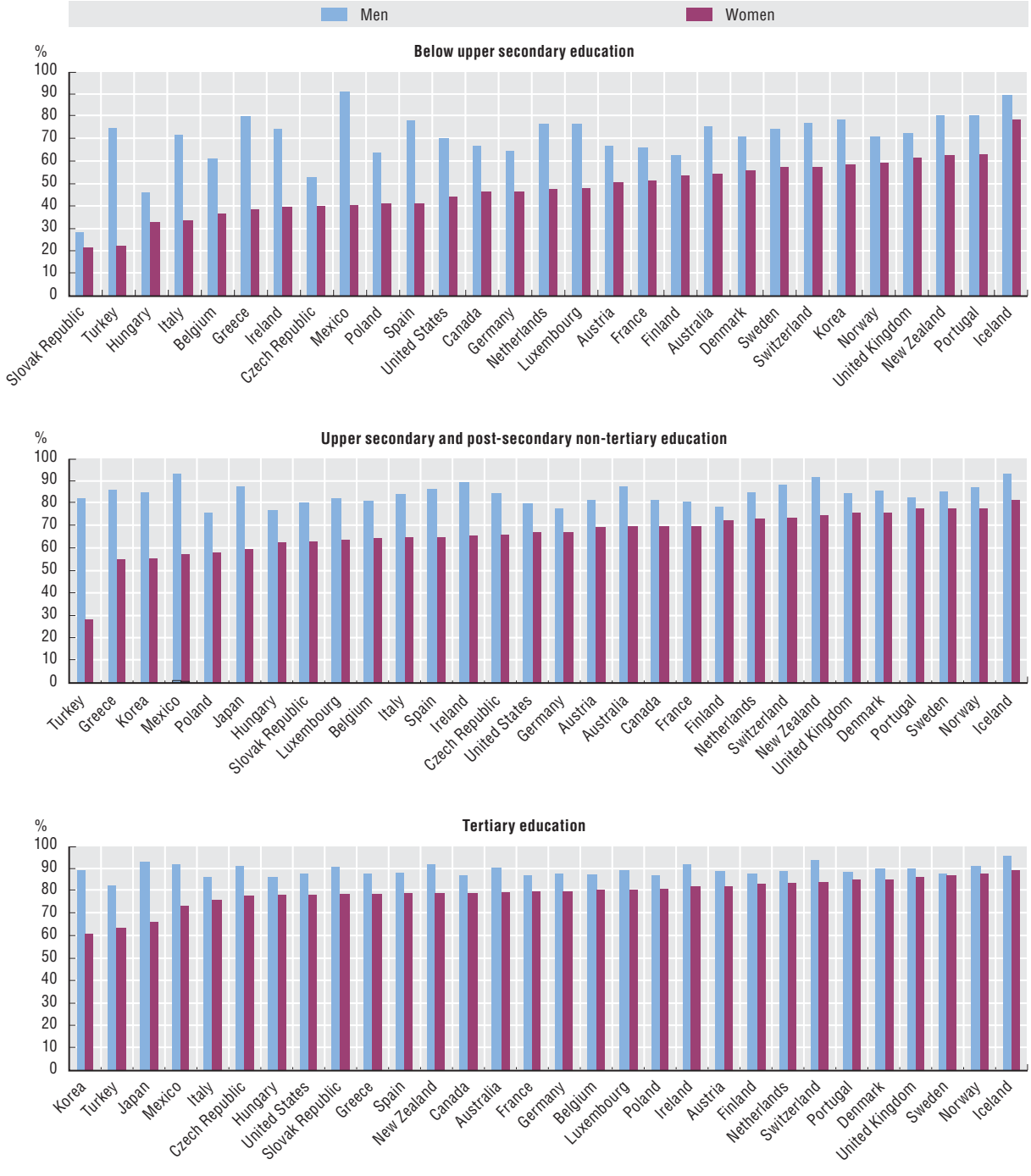
Areas covered include:

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

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 2.2. **Employment rates by level of educational attainment, 2006**

These figures show the employment rates for men and women depending on their levels of education. Graduates of tertiary education are more likely to have a job than people whose education ended before upper secondary level.



Source: OECD (2008), *Education at a Glance 2008*, Tables A8.3b and A8.3c, available at *http://dx.doi.org/10.1787/401775543762*.

What are the incentives for people to invest in education?

- *The rate of return to upper secondary and post-secondary non-tertiary education ranges from 6.1% to 18% for men and 5.4% to 18.5% for women.*
- *For a tertiary education, on average across 19 OECD countries, the rate of return is 12% for men and 11% for women.*
- *In most countries, the financial rewards for returning to education at age 40 are sizeable.*

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 several ways: directly, through the payment of tuition fees, for example, and indirectly, by sacrificing potential income when they are in college and not in work. As with any investment, a rate of return can be calculated. In this case, the rate of return is driven mainly by the reality that people with higher levels of education earn more (see Figure 2.1) and are more likely to be in work (see Figure 2.2). Where the rate of return is high, it implies a real financial incentive for people to continue their education. In terms of public policy, it may also indicate a scarcity of highly educated people in the labour force. Policy responses may include widening access to education and making greater use of loans, rather than direct subsidies, to fund higher education.

Findings

Across the 19 OECD countries for which relevant data are available, the rate of return from attaining upper secondary education or post-secondary non-tertiary education varies between 6.1 and 18% for men and 5.4 and 18.5% for women. The returns are highest in the Czech Republic, the United Kingdom and the United States, but the benefits are experienced in very different ways. In the United Kingdom and the United States they come largely in the form of greater earnings potential; in the Czech Republic the main benefit flows from higher rates of employment. In Denmark, France and Germany, returns at these levels of education tend to be lower, with rates at or below 7% for men.

For tertiary education, the rate of return is especially high in the Czech Republic, Hungary, Poland and Portugal, and ranges from roughly 20% to 30%. It is much lower – between 5% and 8% – in Denmark, Germany, Norway, Spain and Sweden; with the exception of Spain, this is largely due to levels of income tax and social contributions in these countries.

Increasingly, people are not just investing in education in their teens and 20s. Indeed, it is becoming ever more important for people to upgrade their skills and knowledge throughout their working lives. But do the financial rewards justify returning to study? Generally, yes, even for a 40-year-old who foregoes income while studying full-time. The internal rate of return at age 40 is higher for people pursuing tertiary rather than upper secondary education, but even for the latter there are clear rewards in most countries, although they are not substantial in most of the Nordic countries, New Zealand and Switzerland, and even negative in Finland and Germany.

Definitions

The economic returns to education are measured by the internal rate of return (IRR), which is basically the interest rate that an individual can expect to receive on the investment made by spending time and money to obtain an education. Because of changes in some assumptions, results presented here and in *Education at a Glance 2008* are not comparable with estimates in *Education at a Glance 2007*.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, and a technical explanation of how the IRR is derived, see *Education at a Glance* 2008 (Indicator A10).

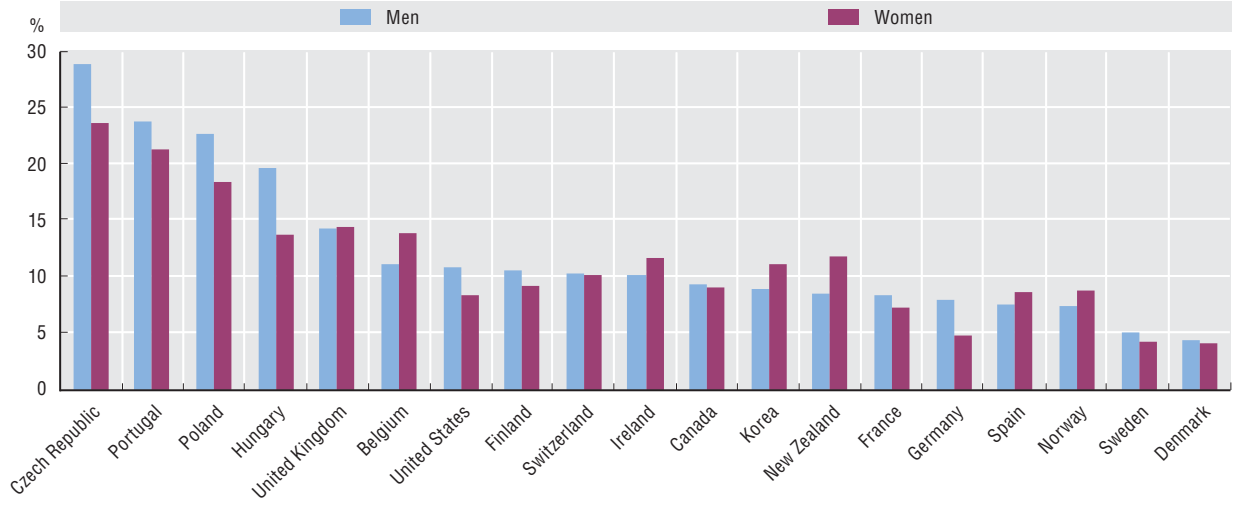
Further reading from OECD

Promoting Adult Learning (2005).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 2.3. **Private internal rates of return (IRR) for a young person attaining tertiary education, 2004**

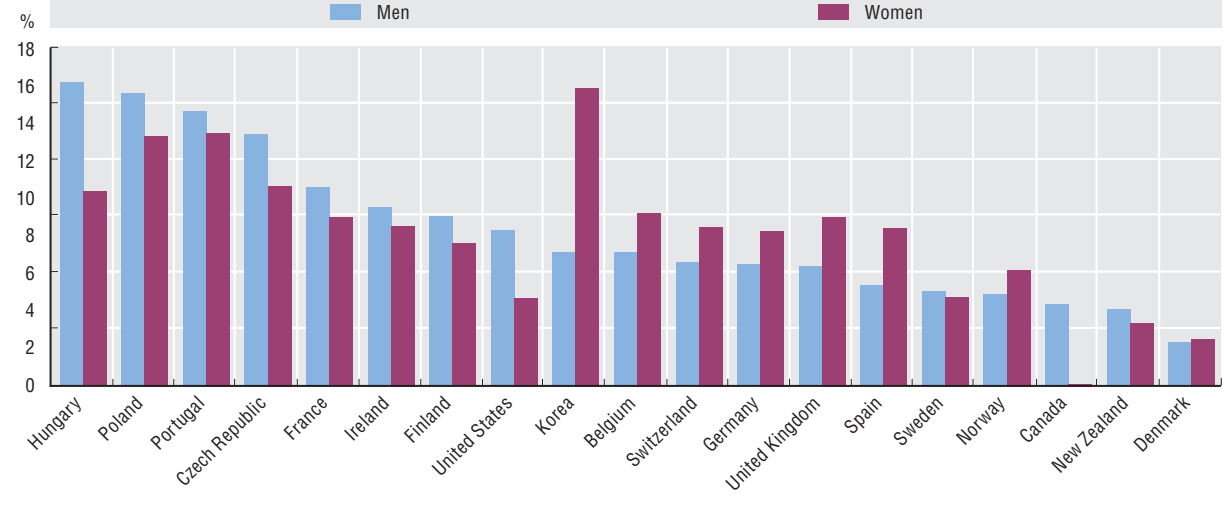
This figure shows the rates of return for a young man or woman who attains tertiary education at the typical age (i.e. in the teens and early 20s). The calculation is based on assumption that foregone earnings are at the level the student could have earned with an upper secondary education.



Source: OECD (2008), *Education at a Glance 2008*, Table A10.2, available at *http://dx.doi.org/10.1787/401828118341*.

Figure 2.4. **Private internal rates of return (IRR) for a person aged 40 attaining tertiary education, 2004**

This figure shows the rates of return for a man or woman who attains tertiary education at age 40. The calculation is based on assumption that foregone earnings are at the level the student could have earned with an upper secondary education.



Source: OECD (2008), *Education at a Glance 2008*, Table A10.4, available at *http://dx.doi.org/10.1787/401828118341*.

What are the incentives for societies to invest in education?

- *The benefits to the public purse are higher when people complete tertiary rather than upper secondary education.*
- *On average among the 19 OECD countries considered, obtaining tertiary education at the typical age – late teens or early 20s – generates a return of 11% for men and 9% for women.*
- *For people who obtain tertiary education at age 40, the public rates of return for men fall to 9.5% and for women to 6.6%.*

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. Of course, they must also be understood in the much wider context of the benefits that societies gain from raising levels of education.

Findings

Across the 19 OECD countries for which relevant data are available, public rates of return are substantially higher for tertiary education than for upper secondary education, both when it is undertaken at the usual age (late teens and early 20s) and at age 40. On average, tertiary education generates a return of 11% for men and 9% for women as part of initial education; at age 40 the public returns are 9.5% for men and 6.6% for women. Tertiary education as part of initial education yields returns of close to 10% or more in Belgium, the Czech Republic, Hungary, Ireland, Korea, Poland, Portugal, the United Kingdom and the United States.

Some of these benefits will typically be shared among lower income groups, but depending on the will to redistribute wealth, it would make sense in most countries for the government to step in and improve access and incentives to invest in education in mid-career. This is particularly true for Hungary, Korea, New Zealand and Poland where rates of return reach 15% for males. There thus seems to be room for additional expansion of higher education through either public or private financing.

It should be noted also that the social benefits of education extend beyond providing additional income to the government in the form of taxes. For instance, better educated individuals are generally healthier, which lowers public expenditure on provision of health care. As earnings generally rise with educational attainment, there is also more consumption of goods and services, and this gives rise to fiscal effects beyond income tax and social security contributions. However, because of their complex nature, it is all but impossible to include these indirect effects in calculations on rates of return from education.

Definitions

The economic returns to education are measured by the internal rate of return (see Figure 2.2). Because of changes in some assumptions, results presented here and in *Education at a Glance 2008* are not comparable with those in previous editions of *Education at a Glance*.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance* 2008 (Indicator A10).

Areas covered include:

- Public internal rates of return for an individual obtaining higher education, as part of initial education and returning to education at age 40.

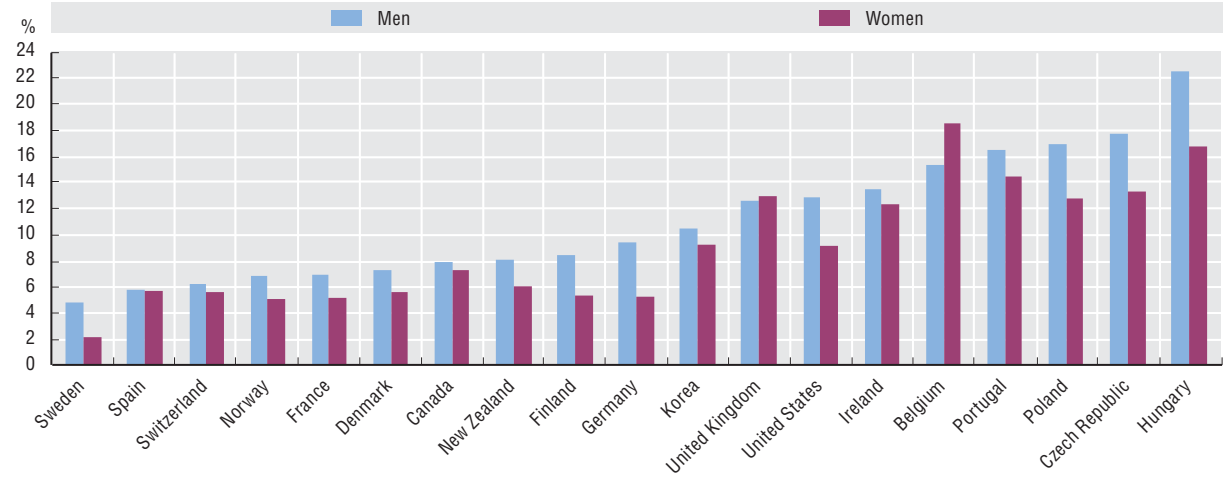
Further reading from OECD

Understanding the Social Outcomes of Learning (2007).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 2.5. **Public internal rates of return (IRR) for a young person attaining tertiary education, 2004**

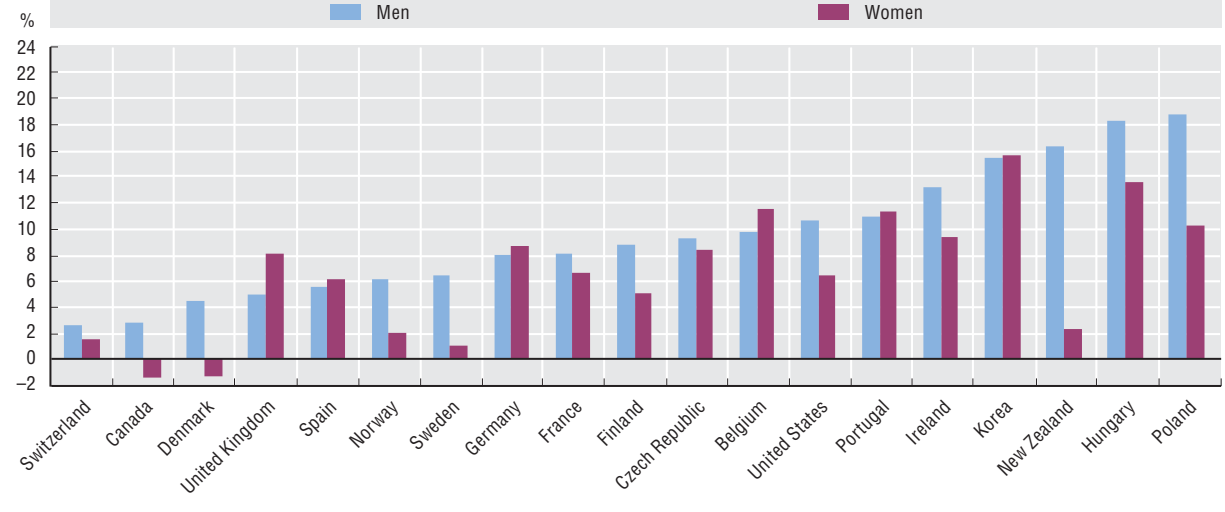
This figure shows the benefit to the public purse (calculated on the basis of the public IRR) from men and women attaining tertiary education at the typical age (teens and early 20s).



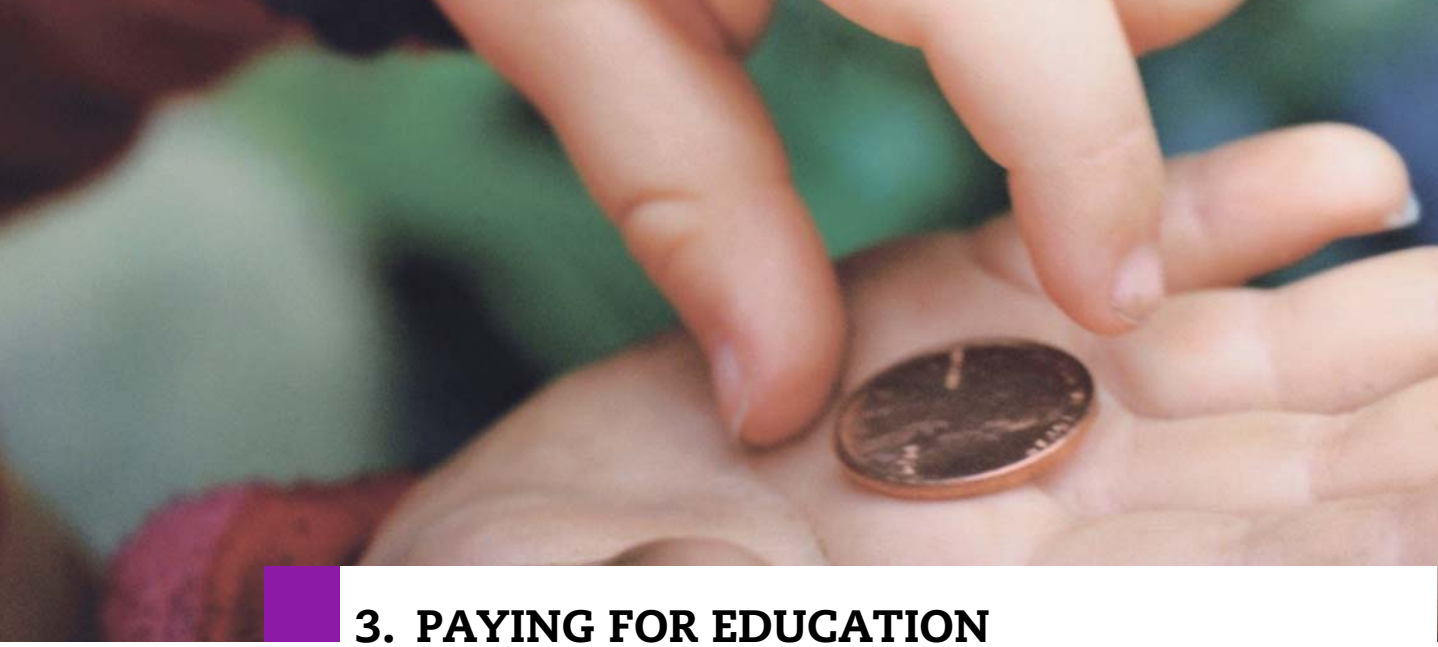
Source: OECD (2008), *Education at a Glance 2008*, Chart A10.4, available at *http://dx.doi.org/10.1787/401828118341*.

Figure 2.6. **Public internal rates of return (IRR) for a person aged 40 attaining tertiary education, 2004**

This figure shows the benefit to the public purse (calculated on the basis of the public IRR) from men and women attaining tertiary education at age 40.



Source: OECD (2008), *Education at a Glance 2008*, Chart A10.4, available at *http://dx.doi.org/10.1787/401828118341*.



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 on education?

What is the role of private spending?

How much do tertiary students pay?

What are education funds spent on?

How efficiently are resources used in education?

How much is spent per student?

- *OECD countries as a whole spend USD 8 553 per student each year between primary and tertiary education, although spending levels vary widely among countries.*
- *In OECD countries as a whole, more than twice as much is spent per student at the tertiary level than at the primary level.*
- *Most spending in education is devoted to salaries for teachers and other staff.*

Significance

This indicator shows the levels of public and private spending on education. In current debates about learning, the demand for high-quality education, which may mean spending more per student, is often tempered by the desire not to raise taxes. While it is difficult to determine the level of spending needed to prepare a student for work and life, international comparisons can be helpful in assessing the effectiveness of different types of education systems. (For trends in spending, see overleaf.)

Findings

OECD countries as a whole spend USD 8 553 per student each year for primary, secondary and tertiary education. But spending varies widely among individual countries, from USD 4 000 per student or less in Mexico, Poland and the Slovak Republic, to more than USD 10 000 per student in Austria, Denmark, Norway, Switzerland and the United States.

The drivers of expenditure per student vary among countries: among the five countries with the highest expenditure on educational institutions per student enrolled in primary to tertiary education, Switzerland is one of the countries with the highest teachers' salaries at secondary level (see Section 4), the United States is one of the countries with the highest level of private expenditure at tertiary level and Austria, Denmark and Norway are among the countries with the lowest student to teaching staff ratios (see Section 4).

In each OECD country, spending rises sharply from primary to tertiary education. On average, spending on educational institutions per student at secondary level is 1.2 times that for primary education, while the ratio between spending at the tertiary and primary levels is 2.2 times. OECD countries as a whole spend USD 6 173 per student at the primary level, USD 7 736 at the secondary level and USD 15 559 at the tertiary level.

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 account for a large slice of expenditure. Once R&D activities and ancillary services are excluded, expenditure on educational core services in tertiary institutions falls to an average USD 7 976 per student. By contrast, spending on ancillary services at primary, secondary and post-secondary non-tertiary levels exceeds 10% only in Finland, France, the Slovak Republic, Sweden and the United Kingdom.

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 Japan is about the same as in Germany, at USD 12 326 and USD 12 446, respectively. But because it takes students longer to complete a degree in Germany than in Japan, the cumulative expenditure for each tertiary student is almost USD 16 000 higher in Japan than in Germany (see Chart B1.5 in *Education at a Glance 2008*).

Definitions

Spending per student at a particular level of education is calculated by dividing the total expenditure on educational institutions at that level by the corresponding full-time equivalent enrolment. The OECD average is calculated as the simple average over all OECD countries for which data are available. The OECD total reflects the value of the data when the OECD area is considered as a whole.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator B1).

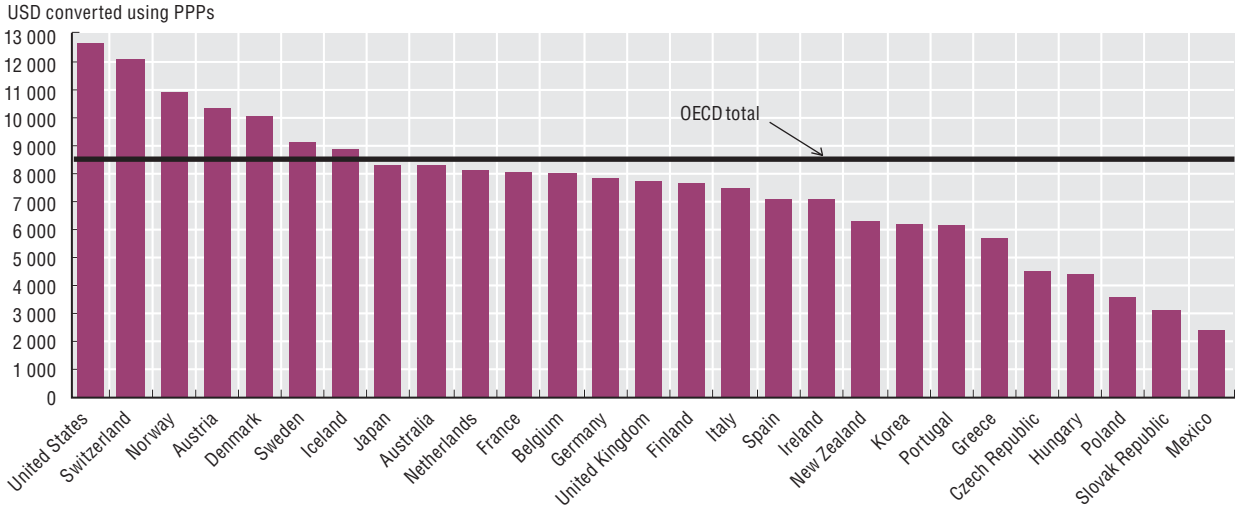
Areas covered include:

- Annual expenditure on educational institutions per student for all services.
- Cumulative expenditure on educational institutions per student.

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 3.1. **Annual expenditure per student, 2005**

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

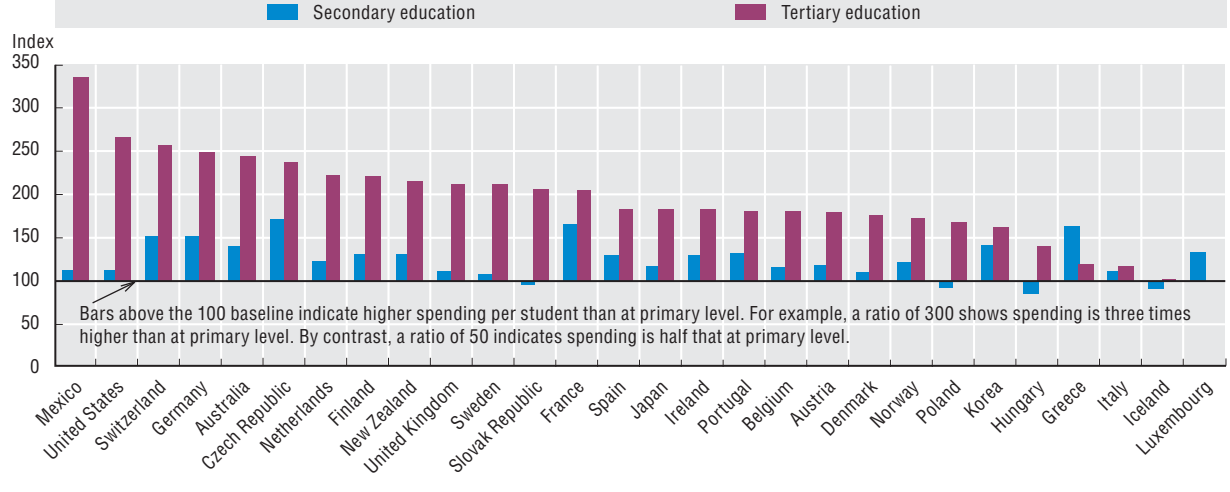


Source: OECD (2008), *Education at a Glance 2008*, Table B1.1a, available at http://dx.doi.org/10.1787/401862824252.

Figure 3.2. **Expenditure at secondary or tertiary levels relative to primary levels, 2005**

Primary education = 100

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



Source: OECD (2008), *Education at a Glance 2008*, Table B1.1a, available at *http://dx.doi.org/10.1787/401862824252.*

Has spending per student increased?

- *Expenditure on educational institutions per student at primary, secondary and post-secondary non-tertiary level increased on average by 35% between 1995 and 2005.*
- *Expenditure on educational institutions in primary and secondary education rose faster than student numbers in all countries between 1995 and 2005.*
- *At tertiary level, however, expenditure per student shrank in some cases, as spending failed to keep up with rising student numbers.*

Significance

This indicator looks at whether spending on education has increased – or otherwise – in recent years. Policy makers are under constant pressure to find ways of improving the quality of educational services while expanding access to educational opportunities, notably at the tertiary level. Over time, spending on educational institutions does indeed tend to rise, in large part because teachers' salaries rise in line with general earnings. However, if rising unit costs are not accompanied by increasing outcomes, it raises the spectre of falling productivity levels.

Findings

Expenditure on educational institutions per student at the primary, secondary and post-secondary non-tertiary levels increased in every country, on average, by 35% between 1995 and 2005 during a period of relatively stable student numbers. The increase is quite similar for each of the two consecutive five-year periods; only the Czech Republic, Italy, Norway and Switzerland showed a decrease between 1995 and 2000, followed by an increase between 2000 and 2005. 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 2005 fell in some cases, as expenditure failed to keep up with expanding student numbers. Such spending remained stable between 1995 and 2000 but then increased by 11% on average in OECD countries from 2000 to 2005, as governments invested massively in response to the expansion of tertiary education. Australia, Austria, the Czech Republic, Finland, Mexico, Norway, Poland, the Slovak Republic and the United Kingdom followed this pattern. However, the increase in expenditure per student between 2000 and 2005 did not totally counterbalance the decrease between 1995 and 2000 in the Czech Republic, Norway and the Slovak Republic. Only in Hungary was there a decrease in expenditure on educational institutions per tertiary student over the two five-year periods.

Between 2000 and 2005, Belgium, Germany, Hungary, Ireland, the Netherlands, and Sweden recorded decreases in per-student expenditure in tertiary education. In all of these countries, except for Belgium and Germany, these declines were mainly the result of rapid increases – at least 10% – in tertiary student numbers. In the nine OECD countries where enrolments in tertiary education rose by more than 20% between 2000 and 2005, seven (the Czech Republic, Greece, Iceland, Mexico, Poland, the Slovak Republic and Switzerland) increased their per-student expenditure at tertiary level by at least the same proportion, while two (Hungary and Sweden) did not.

Definitions

Spending per student at a particular level of education is calculated by dividing the total expenditure on educational institutions at that level by the corresponding full-time equivalent enrolment. The OECD average is calculated as the simple average over all OECD countries for which data are available. The OECD total reflects the value of the data when the OECD area is considered as a whole.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* Indicator B1).

Areas covered include:

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

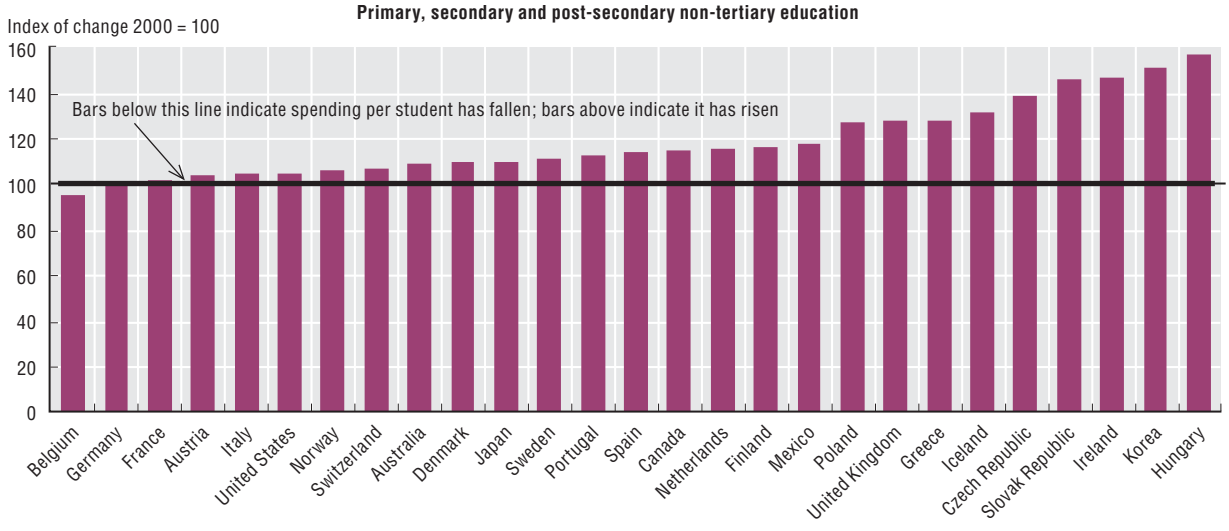
Further reading from OECD

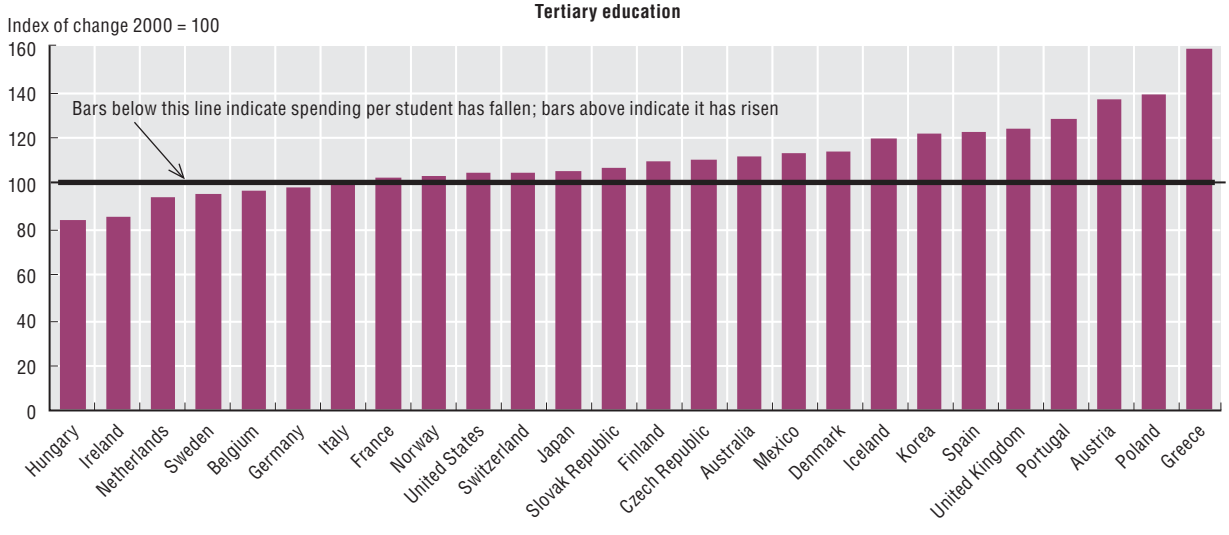
Trends Shaping Education (2008).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 3.3. **Trends in expenditure per student (2000, 2005)**

These figures show the increase – or otherwise – in spending in real terms (on educational institutions) per student.





Source: OECD (2008), *Education at a Glance 2008*, Table B1.5, available at *http://dx.doi.org/10.1787/401862824252*.

What share of national wealth is spent on education?

- *OECD countries spend 6.1% of their collective GDP on education.*
- *Between 1995 and 2005, expenditure on educational institutions for all levels of education increased by an average of 42% in OECD countries, reflecting the fact that more people are competing upper secondary and tertiary education than ever before.*
- *On average in OECD countries, expenditure on educational institutions for all levels of education combined increased relatively more than GDP between 1995 and 2005.*

Significance

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

Findings

OECD countries spend 6.1% of their collective GDP on education, but levels vary greatly between countries: as a proportion of GDP, Iceland spends nearly twice as much as Greece.

A little under two-thirds, 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 2% of combined GDP. As a percentage of GDP, the United States spends up to three times more than Italy and the Slovak Republic on tertiary education.

Differences in spending on educational institutions are most striking at the pre-primary level, where they range from less than 0.2% of GDP in Australia, Ireland and Korea to 0.8% or more in Denmark, Hungary and Iceland (see Table B2.2 in *Education at a Glance 2008*). However, as pre-primary education is structured and funded very differently between OECD countries it is unsafe to draw inferences from these data on access to and quality of early childhood education.

Trends

Since more people completed secondary and tertiary education between 1995 and 2005 than ever before, 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 42% 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.

On average in OECD countries, expenditure for all levels of education combined increased relatively more than GDP between 1995 and 2005 (see Chart B2.3 in *Education at a Glance 2008*). The increase in expenditure on educational institutions as a proportion of GDP exceeded 0.8 percentage points over this decade in Denmark, Greece, Mexico and the United Kingdom.

Definitions

Data refer to the financial year 2005 and are based on the UOE data collection on education statistics administered by the OECD in 2007. 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).

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator B2).

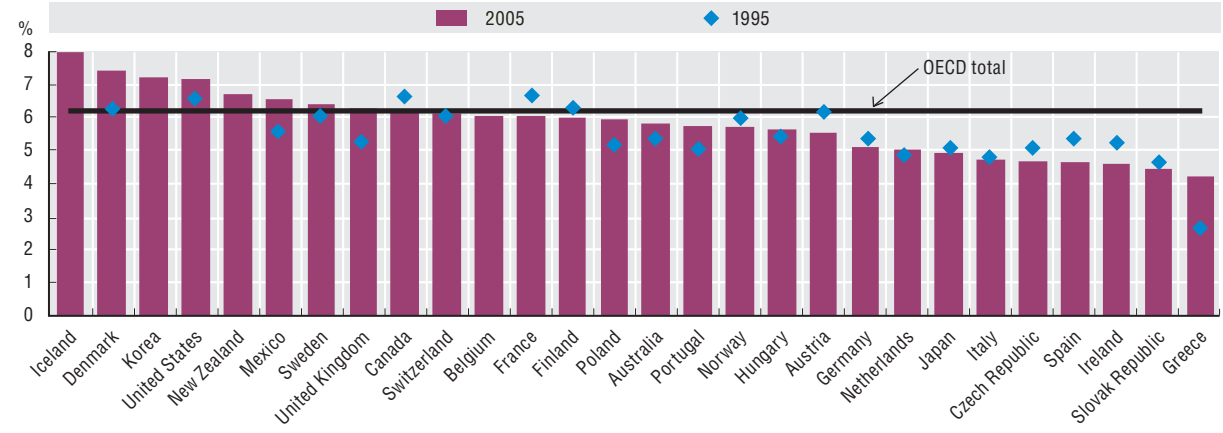
Areas covered include:

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

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 3.4. **Trends in education expenditure as a percentage of GDP (1995, 2005)**

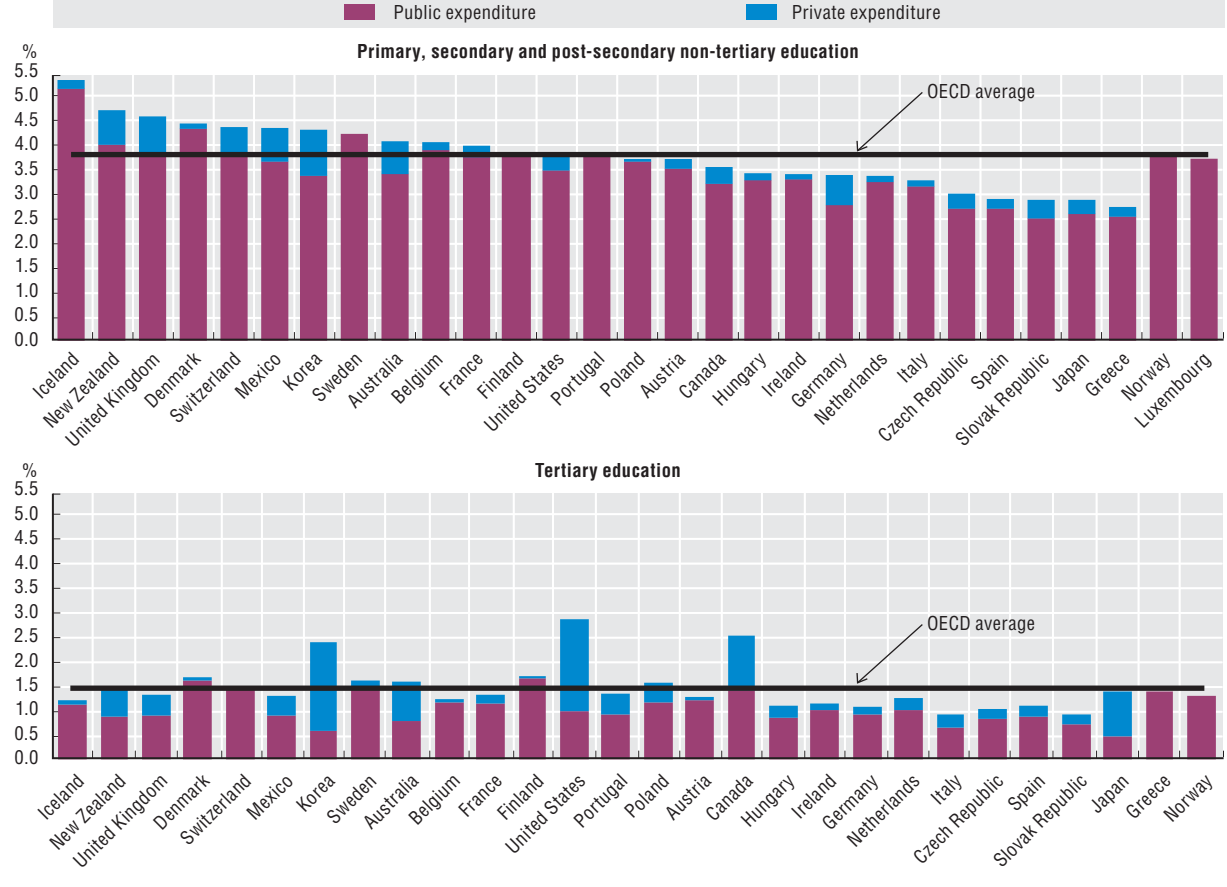
This figure shows the share of national income countries devote to spending on educational institutions, and how that share changed between 1995 and 2005.



Source: OECD (2008), *Education at a Glance 2008*, Table B2.1, available at *http://dx.doi.org/10.1787/401864037554*.

Figure 3.5. **Expenditure as a percentage of GDP by level of education, 2005**

These figures show the share of national income that countries devote to each level of education.



Source: OECD (2008), *Education at a Glance 2008*, Table B2.4, available at *http://dx.doi.org/10.1787/401864037554*.

What share of public spending goes on education?

- *Even in countries with little public involvement in other areas, public funding of education is a social priority, accounting for 13.2% of total public expenditure on average in OECD countries.*
- *Public funding of primary, secondary and post-secondary, non-tertiary education is, on average, about three times that of tertiary education in OECD countries.*
- *Between 1995 and 2005, 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 value placed on education relative to that of other public investments, such as health care, social security, and defence and national security. Since the second half of the 1990s, education has had to compete with a wide range of other areas covered by government budgets for public financial support. This indicator 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 13.2% of total public expenditure to education in 2005. However, levels range from 10% or below in the Czech Republic, Germany, Italy and Japan, to more than 23% 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 Korea, Mexico, and the Slovak Republic is among the highest of OECD countries, yet total public spending accounts for a relatively low proportion of GDP in these countries.

On average in OECD countries, public funding of primary, secondary and post-secondary non-tertiary education is nearly three times that of tertiary education, mainly owing to enrolment rates and demographics or because the private share of spending tends to be higher at the tertiary level.

An average of 85% of public expenditure on education in OECD countries is directed to public institutions. However, more than 20% of public spending is distributed, directly or indirectly, to the private sector in Denmark, New Zealand, Norway and the United Kingdom. At tertiary level, most public expenditure goes to public institutions; however a larger share than at lower levels of education goes to the private sector, equivalent to 26% of public expenditure for countries for which there are comparable data.

Trends

Although budget consolidation puts pressure on education along with every other service, from 1995 to 2005 public expenditure on education typically grew faster than total public spending and as fast as national income. Over this period the proportion of public budgets spent on education in OECD countries rose from 11.9% to 13.2%. The figures suggest that the greatest relative increases in the share of public expenditure on education during this period took place in Denmark, increasing from 12.2 to 15.5%; the Netherlands, from 8.9 to 11.5%; New Zealand, from 16.5 to 19.4%; the Slovak Republic, from 14.1 to 19.5%; and Sweden, from 10.7 to 12.6%.

Definitions

Data refer to the financial year 2005 and are based on the UOE data collection on education statistics administered by the OECD in 2007. 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.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator B4).

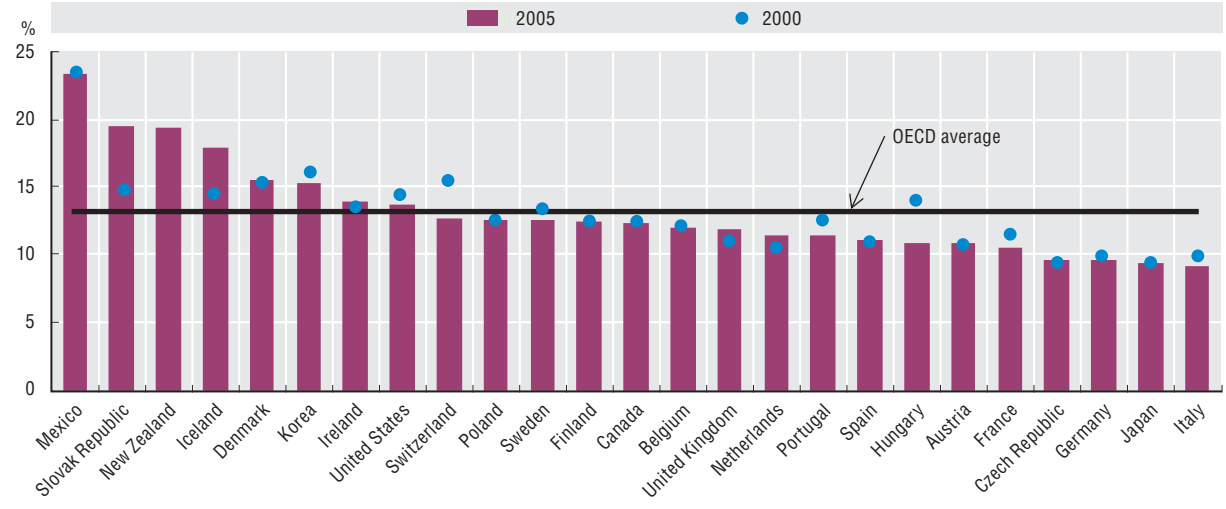
Areas covered include:

- Total public expenditure on education.
- Distribution of total public expenditure on education.

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 3.6. **Trends in spending on education as a percentage of total public expenditure (2000, 2005)**

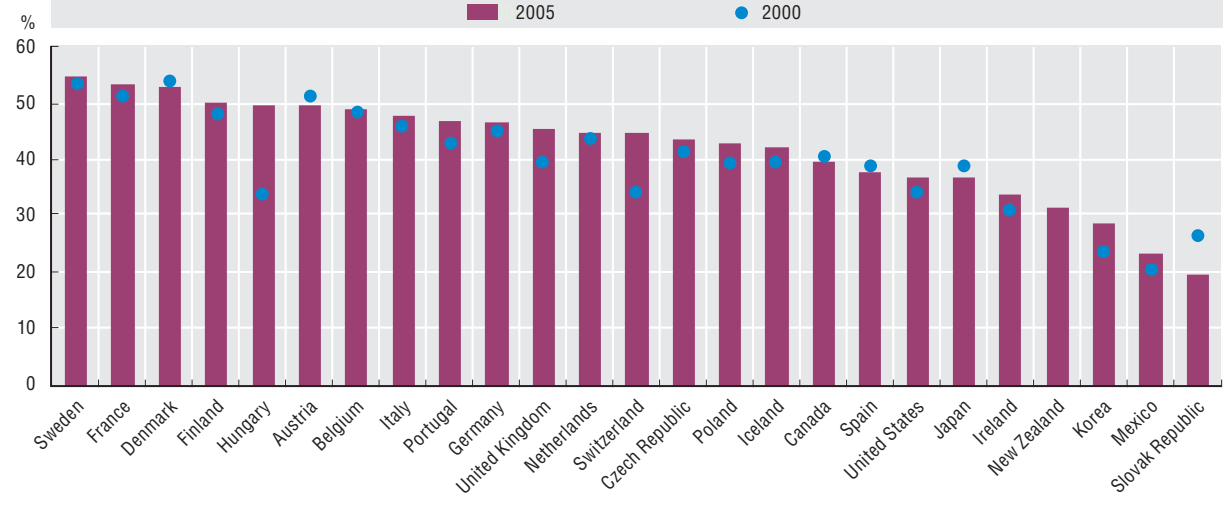
This figure shows total public spending on education (which includes spending on educational institutions and spending such as public subsidies to households), and how it has evolved from 2000 to 2005.



Source: OECD (2008), *Education at a Glance 2008*, Table B4.1, available at *http://dx.doi.org/10.1787/402021027265*.

Figure 3.7. **Total public expenditure as a percentage of GDP (2000, 2005)**

This figure shows the size of public spending as a percentage of the overall economy. These data provide context for looking at how much public spending is devoted to education.



Source: OECD (2008), *Education at a Glance 2008*, Chart B4.2, available at *http://dx.doi.org/10.1787/402021027265*.

What is the role of private spending?

- *On average, over 90% of primary, secondary and post-secondary non-tertiary education in OECD countries is paid for publicly.*
- *In tertiary education the proportion funded privately varies widely, from less than 5% in Denmark, Finland and Greece to over 75% in Korea.*
- *On average, the share of private funding in tertiary institutions slightly increased from 21% in 1995 to 23% in 2000 and to 27% in 2005.*

Significance

Private funding is increasingly seen as forming a part of investment in education, particularly for pre-primary and tertiary education, where full or nearly full public funding is less common than for other levels of education. This indicator shows how the financing of educational institutions is shared between public and private entities, particularly at the tertiary level.

Findings

In all OECD countries for which comparable data are available, public funding for all levels of education represents 86% of all funds, on average. Excluding pre-primary and tertiary education, this percentage rises to 92% on average.

Private funding tends to be concentrated at two levels of education – pre-primary and tertiary. At the pre-primary level, it represents an average of 20% of total funding in OECD countries, which is higher than the percentage for all levels of education combined (see Chart B3.2 in *Education at a Glance 2008*). At tertiary level, private funding represents on average 27% 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 Greece, to more than 40% in Australia, Canada, Japan, New Zealand and the United States to over 75% in Korea.

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

Trends

While public funding for all levels of education increased across OECD countries for which comparable data are available between 2000 and 2005, private spending on education increased even more in nearly three-quarters of these countries. As a result, the decrease in the share of public funding on educational institutions was more than 5 percentage points in Mexico, Portugal, the Slovak Republic and the United Kingdom.

On average among the 18 OECD countries for which trend data are available, the share of public funding for tertiary education decreased slightly between 1995 and 2000 and every year between 2000 and 2005. In more than half of those countries, the private share increased by 3 percentage points or more during that period.

Definitions

Data refer to the financial year 2005 and are based on the UOE data collection on education statistics, administered by the OECD in 2007. Private spending includes all direct expenditure on educational institutions, whether partially covered by public subsidies or not.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator B3).

Areas covered include:

- Relative proportions of public and private expenditure on educational institutions for all levels of education, and trends.

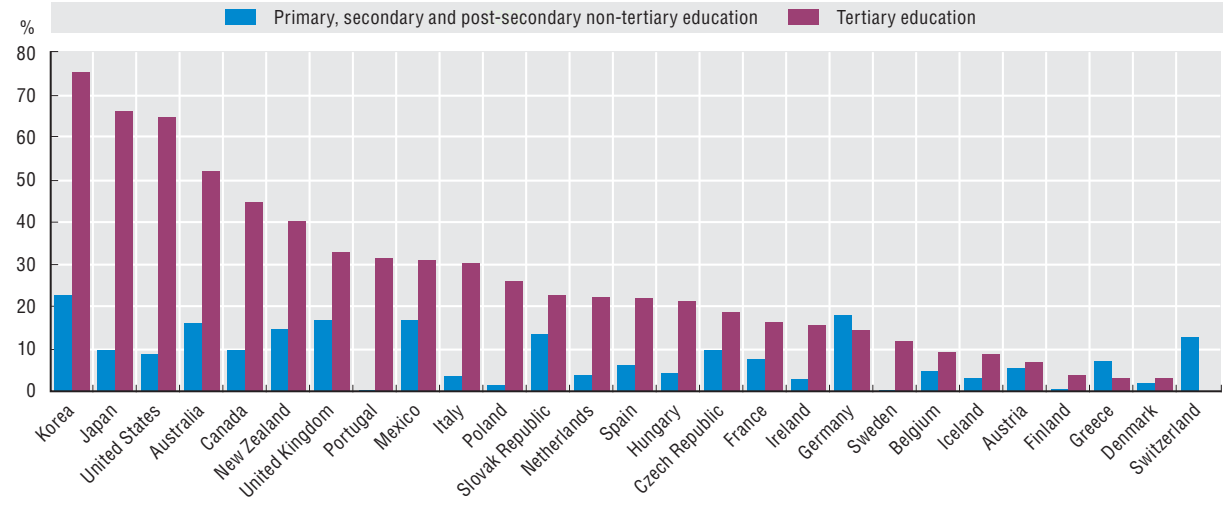
Further reading from OECD

Reviews of National Policies for Education (series).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 3.8. **Share of private expenditure on educational institutions, 2005**

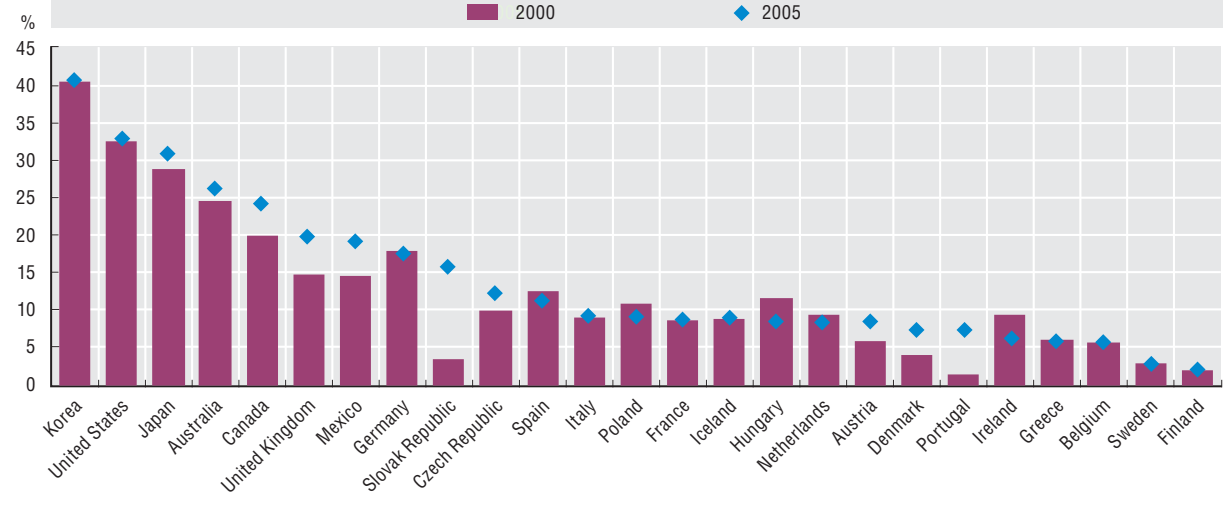
This figure shows the percentage of spending on educational institutions accounted for by private spending.



Source: OECD (2008), *Education at a Glance 2008*, Tables B3.2a and B3.2b, available at *http://dx.doi.org/10.1787/402017824643*.

Figure 3.9. **Trends in share of private expenditure (2000, 2005)**

This figure shows the increase – or otherwise – in private spending as a percentage of total expenditure on all levels of education from 2000 to 2005.



Source: OECD (2008), *Education at a Glance 2008*, Table B3.1, available at *http://dx.doi.org/10.1787/402017824643*.

How much do tertiary students pay?

- *Public tertiary institutions charge no annual tuition fees in the Nordic countries, the Czech Republic, Ireland and Poland; in a number of other countries they charge fees exceeding USD 1 500.*
- *An average of 18% of public spending on tertiary education is devoted to supporting students, households and other private entities.*
- *There is no systematic link between low annual tuition fees and a low proportion of students who benefit from public subsidies.*
- *OECD countries where students are required to pay tuition fees and can benefit from particularly large public subsidies do not show lower levels of access to universities compared to the OECD average.*

Significance

This indicator 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 or loans – is a subject for debate in many countries.

Findings

There are large differences among OECD countries in the average tuition fees charged in tertiary education. Public universities charge negligible or low fees in the Nordic countries, the Czech Republic and Turkey; by contrast, tuition fees in the United States reach more than USD 5 000. However, tuition fees are only one part of the picture. It is important also to look at broader support that may be available to students. In this context, countries can be placed into four main groups:

1. No or low tuition fees, but generous student support systems; these include the Nordics, the Czech Republic and Turkey.
2. High tuition fees and well-developed student support systems; these include Australia, Canada, the Netherlands, New Zealand, the United Kingdom, and the United States.
3. High tuition fees but less developed student support systems; these include Japan and Korea.
4. Low tuition fees and less developed student support systems; these include Austria, Belgium, France, Ireland, Italy, Poland and Spain.

Although tuition fees for tertiary education are generally high (more than USD 1 500) in group 2, large public subsidies are available to students. At 67%, the average entry rate into universities among these countries is slightly higher than for countries in group 1, where tuition fees are low and public subsidies high. In countries with low tuition fees and relatively low subsidies for students, such as those in group 4, the average entry rate into tertiary education is a relatively low 48%.

The question of loans *versus* grants in supporting tertiary students is under debate in a number of countries. Public loan systems have developed particularly well in Australia, Sweden and Turkey, where about 80% or more of students benefit from a public loan during their university studies. In Norway, 100% of students take out public loans. In contrast, the United States has the highest level of tuition fees in public universities, but less than 40% of students there benefit from public loans during their studies. Some studies conclude that loans may encourage middle and upper-income students to finish their studies, but not lower-income students; the converse may be true for grants.

Definitions

Data refer to the financial year 2005 and are based on the UOE data collection on education statistics administered by the OECD in 2007. 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, transportation, medical expenses, books and supplies, social, recreational and other purposes, and interest-related subsidies for private loans.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (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 OECD

Higher Education Management and Policy (journal).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

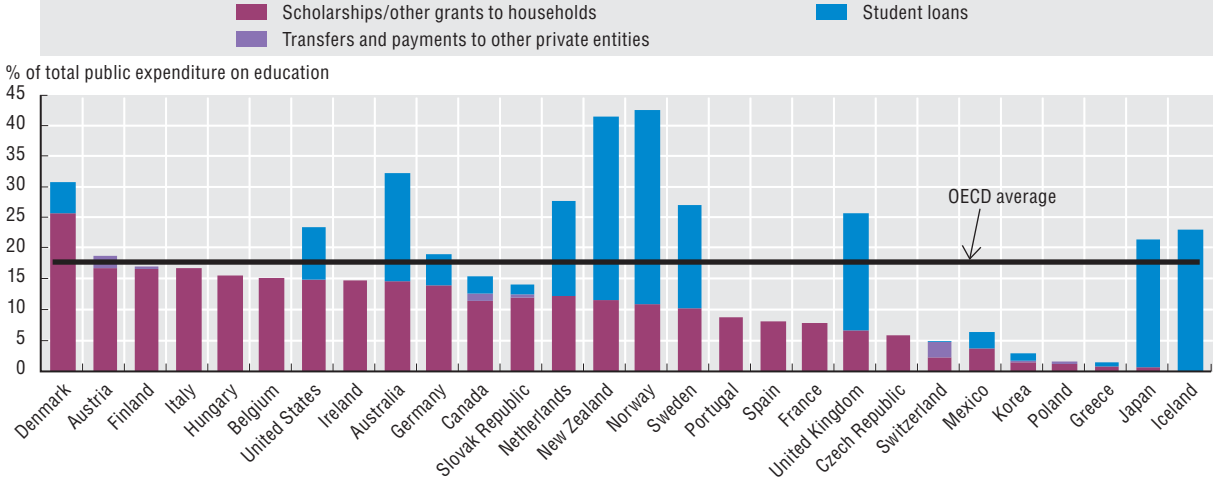
Figure 3.10. **Tuition fees in tertiary education, 2004/5**

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

Source: OECD (2008), *Education at a Glance 2008*, Table B5.1a, available at *http://dx.doi.org/10.1787/402038326553*.

Figure 3.11. **Public subsidies for tertiary education, 2005**

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 (2008), *Education at a Glance 2008*, Table B5.2, available at *http://dx.doi.org/10.1787/402038326553*.

What are education funds spent on?

- *In primary, secondary and post-secondary non-tertiary education combined, current expenditure accounts for an average of just under 92% of total spending in OECD countries.*
- *Staff salaries account for 80% of current expenditure at the primary, secondary and post-secondary non-tertiary levels.*
- *On average, spending on research and development (R&D) in universities and other higher education institutions accounts for one-quarter of expenditures at that level.*

Significance

This indicator shows how OECD countries spend their funds for education, including the split between capital expenditure, which is one-off spending on things like school buildings, and current expenditure, which is recurring spending on things like teacher 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

In primary, secondary, and post-secondary non-tertiary education, current expenditure accounts for nearly 92% of total spending, on average, across all OECD countries. In large part this is attributable to the labour-intensiveness of education, with teacher salaries accounting for a very large slice of current – and total – education spending (see below). At these levels of education, the split between current and capital spending varies significantly between countries. The current shares range from less than 80% in Luxembourg to at least 97% in Belgium, Mexico and Portugal.

Current spending accounts for a slightly smaller share of average expenditure on tertiary education across the OECD area, about 90%. This is largely due to higher capital outlays for constructing, renovating and or repairing buildings and facilities in tertiary education, which are generally more advanced than at lower levels of education. In about a third of OECD countries for which data are available, the proportion spent on capital expenditure at tertiary level is 10% or more. In the Czech Republic, Greece and Spain it is above 15%.

On average across OECD countries, staff salaries account for 80% of current expenditure at the primary, secondary and post-secondary non-tertiary levels, rising to 90% or more in Greece, Mexico and Portugal. On average, OECD countries spend 0.2% of GDP on ancillary services provided by primary, secondary and post-secondary non-tertiary institutions, representing 6% of total spending on these institutions.

At tertiary level, OECD countries spend an average of 32% of current expenditure for purposes other than staff salaries. This is explained by 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 explain a significant part of the differences in overall spending on students at this level. High levels of R&D spending in universities in Australia, Austria, Belgium, Canada, Finland, France, Germany, the Netherlands, Norway, 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 2005 and are based on UOE data collection on education statistics administered by the OECD in 2007. 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.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator B6).

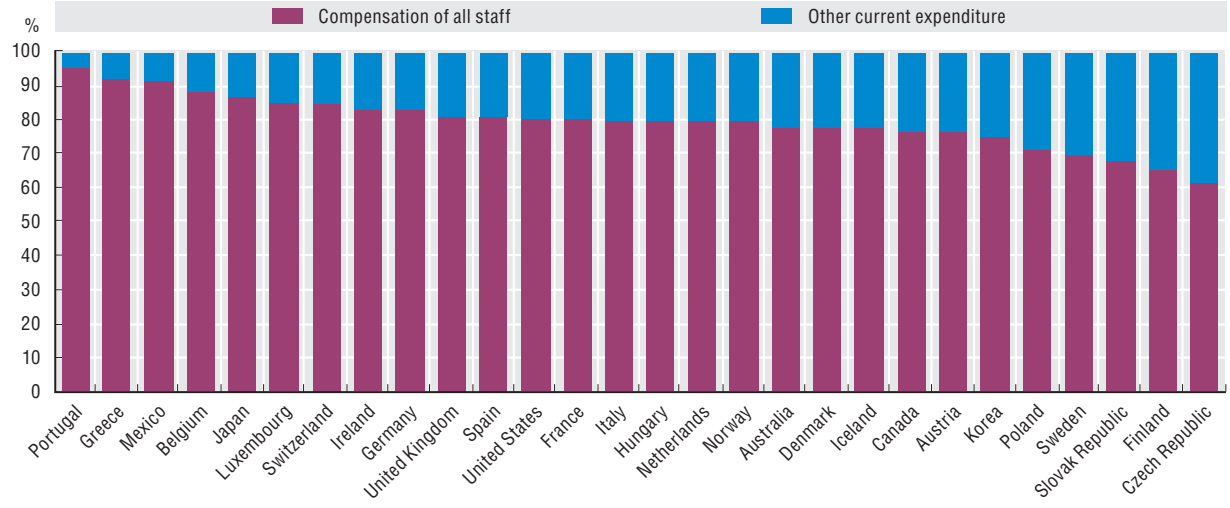
Areas covered include:

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

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 3.12. **Staff costs as a proportion of current expenditure in education, 2005**

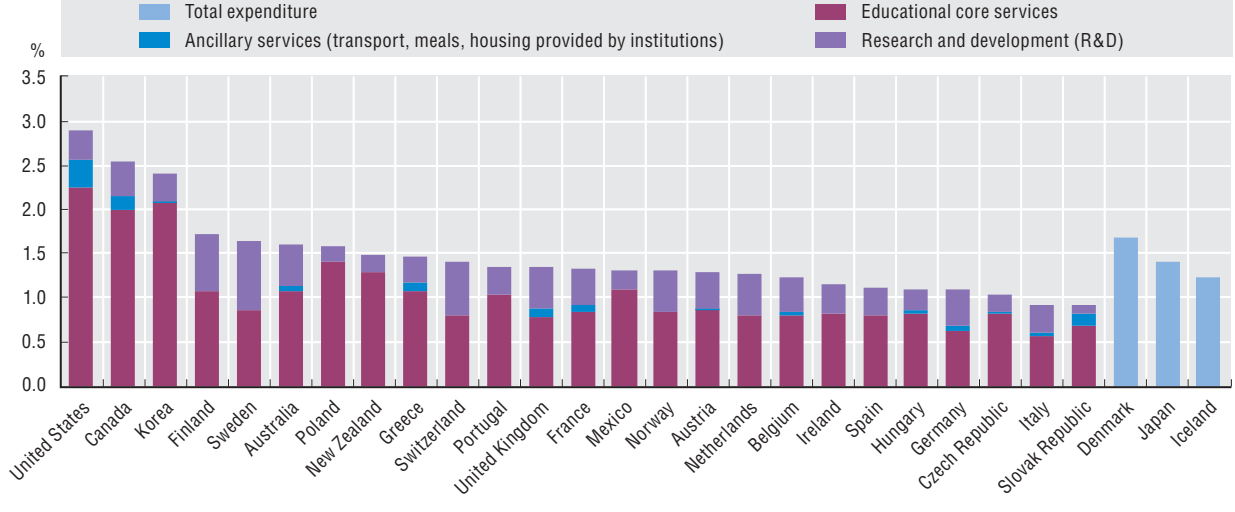
This figure shows the proportion of current expenditure devoted to paying staff in primary, secondary and post-secondary non-tertiary education. Other areas of current spending include transport, student counselling, and recurring spending on school materials and research.



Source: OECD (2008), *Education at a Glance 2008*, Table B6.2b, available at *http://dx.doi.org/10.1787/402057518843*.

Figure 3.13. **Expenditure on services and research in tertiary education, 2005**

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



Source: OECD (2008), *Education at a Glance 2008*, Table B6.1, available at available at *http://dx.doi.org/10.1787/402057518843*.

How efficiently are resources used in education?

- *Even where countries have similar spending levels, their policy option in education may differ greatly. This goes some way towards explaining why there is no simple relationship between spending and student performance.*
- *In countries with the lowest salary cost per student at upper secondary level, low salary levels as a proportion of GDP is usually the main driver.*

Significance

This indicator examines the relationship between resources invested and outcomes achieved in upper secondary education across OECD countries. With increasing pressure on public budgets, there is growing interest in ensuring that funding, particularly public funding, for education is used as efficiently and effectively as possible.

Findings

There is a positive relationship between the cumulative amounts spent on students between the age of 6 and 15 and their results in PISA testing. However, this relationship is not a strong one, and explains merely 15% of the variation in mean performance between countries.

To illustrate the point, cumulative spending per student up to the age of 15 years in the Czech Republic is roughly a third of, and in Korea roughly a half of, spending levels in the United States, but while both the Czech Republic and Korea are among the top 10 performers on the PISA science scale, the United States performs below the OECD average. Similarly, Spain and the United States perform almost equally well on PISA science scores, but the United States spends about USD 95 600 per student up until the age of 15, while Spain spends about USD 61 860.

In summary, the results suggest that while spending on education is a necessary prerequisite for high-quality education, it is not enough on its own. Effective use of resources is also essential.

To better understand how effectively resources are used, it is useful to examine the factors that contribute to differences between countries in the salary cost per student. As explained previously, teacher compensation accounts for the lion's share of education spending. Compensation of teachers is a function of four factors: instruction time of students; teaching time; teachers' salaries; and class size. Differences among countries in these four factors may explain differences in the level of expenditure per student.

Compensation cost per student varies from USD 570 in the Slovak Republic to about USD 9 850 in Luxembourg. However, as salary levels depend in part on a country's relative wealth, compensation costs must also be looked at as a percentage of GDP per capita. Viewed in this light, teacher compensation cost per student varies from 3.9% of GDP per capita in the Slovak Republic (less than half the OECD average rate of 10.9%) to over five times that rate in Portugal (20.9%, nearly twice the OECD average).

Definitions

Student performance scores are based on the 2006 PISA round. Cumulative spending per student (expressed in USD using purchasing power parities) is approximated by multiplying public and private expenditure on educational institutions per student in 2005 at each level of education by the theoretical duration of education at these levels between the ages of 6 and 15 years.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator B7).

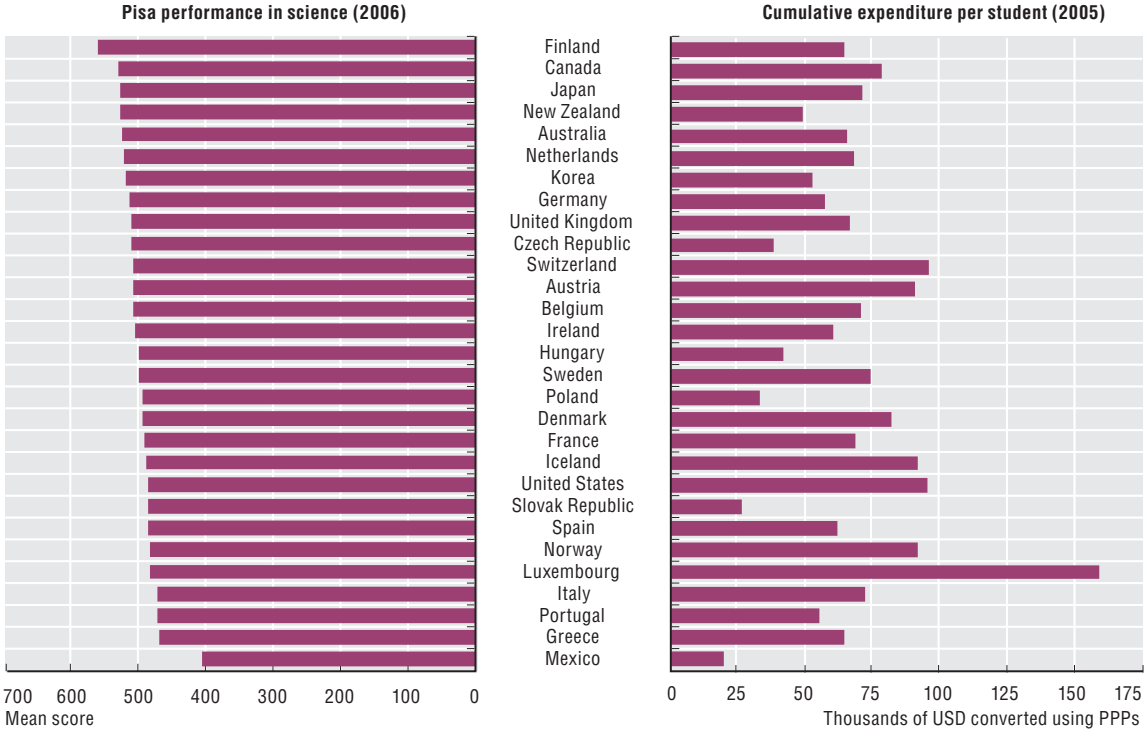
Areas covered include:

- Contribution of various factors to salary cost per student.
- Relationship between PISA performance and expenditure per student.

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 3.14. **Relationship between PISA performance and spending (2005, 2006)**

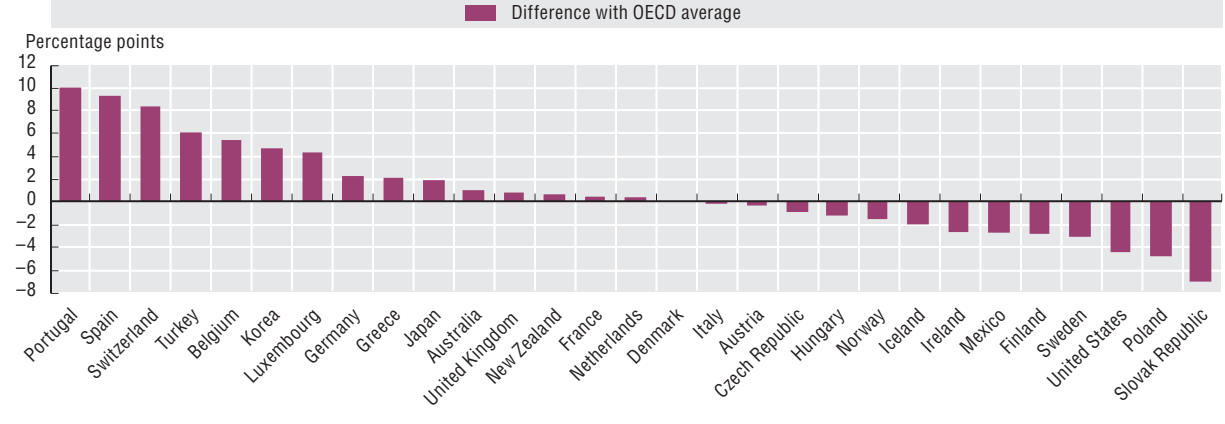
This figure shows the relationship between the performance of 15-year-old students on science subjects in the PISA 2006 round and cumulative expenditure per student between the ages of 6 and 15.



Source: OECD (2008), *Education at a Glance 2008*, Table B7.1, available at *http://dx.doi.org/10.1787/402072442032* and *PISA 2006*.

Figure 3.15. **Salary cost per student as a percentage of GDP per capita, 2005**

This figure shows the extent to which the salary cost per student in each country (as a percentage of GDP per capita) differs from the OECD average. The salary cost is worked out on the basis of four factors: teacher salaries, instruction time for students, teachers' teaching time and class size (which are not represented individually in this figure).



Source: OECD (2008), *Education at a Glance 2008*, Table B7.2, available at *http://dx.doi.org/10.1787/402072442032*.

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?

Who are the teachers?

How long do students spend in the classroom?

- *In OECD countries, 7-8 year-olds receive 770 hours per year of compulsory instruction; 9-11 year-olds receive an additional 40 hours, and 12-14 year-olds an additional 126 hours.*
- *The teaching of reading, writing and literature, mathematics and science accounts for nearly 50% of compulsory instruction time for 9-11 year-old students in OECD countries, and 40% for 12-14 year-olds.*
- *There are big differences among OECD countries in the proportion of compulsory education for 9-11 year-olds that is devoted to reading and writing.*

Significance

This indicator examines the amount of time students spend in formal education between the ages of 7 and 15. 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 6 907 hours. However, formal requirements range from fewer than 6 000 hours in Finland, Korea, Norway and Sweden to over 8 000 hours in Italy and the Netherlands.

In OECD countries, 9-11 year-olds spend an average of nearly half the compulsory curriculum on 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 and writing, for example, accounts for 13% or less of instruction time in Australia, for example, 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 Australia, England, Japan, Mexico and the Netherlands, 1% or less of instruction time for 9-11 year-old students is spent on learning other languages, while the same age group in the Czech Republic, Luxembourg, Portugal, Spain and Sweden spend 10% or more of their time in school learning other languages.

On average among OECD countries, 40% of the compulsory curriculum is devoted to reading, writing and literature for 12-14 year-olds. However, a relatively larger part of the curriculum is devoted to social studies and modern foreign languages.

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. Australia offers the greatest degree of flexibility in the compulsory curriculum for 9-11 year-olds: up to 59% of that curriculum can be shaped by the students themselves.

Definitions

Data on teaching time distinguish between "compulsory" and "intended" teaching time. Compulsory teaching time refers to the minimum amount of teaching 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 2007 OECD-INES Survey on Teachers and the Curriculum and refer to the 2005-06 school year.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator D1).

Areas covered include:

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

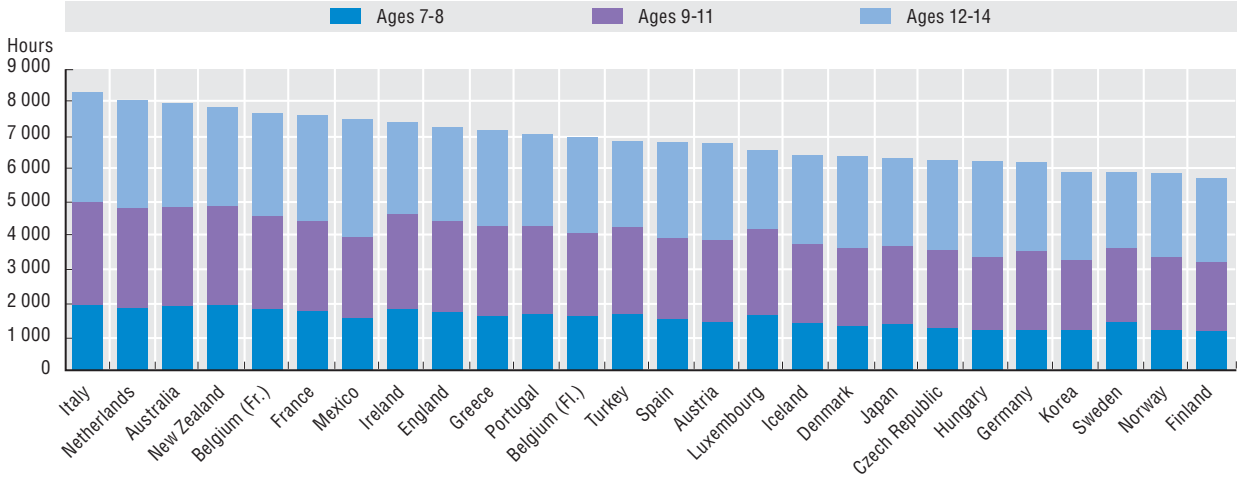
Further reading from OECD

21st Century Learning Environments (2006).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 4.1. **Total number of instruction hours in public institutions, 2006**

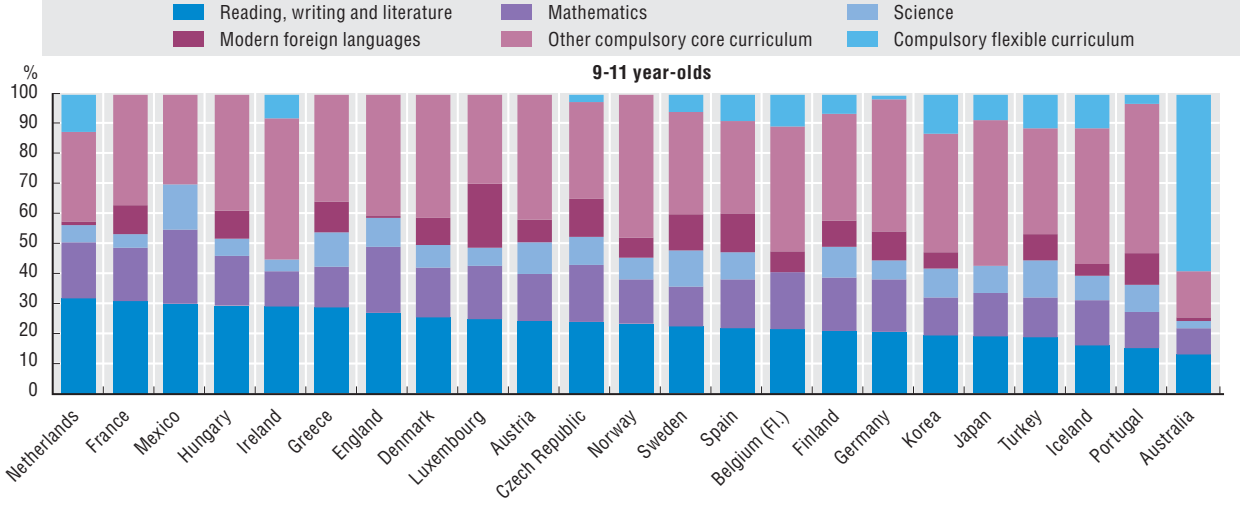
This figure shows the hours of instruction that students receive between ages 7 and 14 in terms of "intended instruction hours" (this represents the compulsory instruction time public schools are required to deliver as well as the time devoted to non-compulsory instruction).



Source: OECD (2008), *Education at a Glance 2008*, Table D1.1, available at *http://dx.doi.org/10.1787/402183135853*.

Figure 4.2. **Instruction time by subject, 2006**

This figure shows the percentage of compulsory instruction time devoted to each subject.



Source: OECD (2008), *Education at a Glance 2008*, Tables D1.2a and D1.2b, available at *http://dx.doi.org/10.1787/402183135853*.

How many students are in each classroom?

- *On average, there are just over 21 students per class at primary levels in the OECD area, but this varies from 32 per class in Korea to half that number in Luxembourg.*
- *The number of students per class increases by an average of nearly three students between primary and lower secondary education.*
- *The student-to-teacher ratio in lower and upper secondary education is lower in private than in public institutions.*

Significance

This indicator 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 per class, ranging from 32 students per class in Korea to fewer than 20 in Austria, Denmark, Greece, Iceland, Italy, Luxembourg, Mexico, Portugal, the Slovak Republic and Switzerland.

In lower secondary education, the average class size is 24 students, ranging from 36 students per class in Korea to 20 or fewer in Denmark, Iceland, Ireland (public institutions), Luxembourg and Switzerland.

At the primary level, the ratio of students to teaching staff, expressed in full-time equivalents, ranges from 26 students or more per teacher in Korea, Mexico and Turkey to fewer than 11 in Greece, Hungary, Italy, Norway and Portugal. The OECD average in primary education is 16 students per teacher, and 13 students per teacher at secondary level (see Chart D2.3 in *Education at a Glance 2008*).

Across the OECD, average class sizes at the primary and lower secondary levels do not differ by more than 1 to 2 students per class between public and private institutions. However, there are differences between countries. For example, in Poland, Turkey, the United Kingdom and the United States, the average class size in public primary schools is notably higher – four students or more per class – than in private schools. It should be noted, however, that the private sector accounts for at most 5% of primary students in these countries. At lower secondary level, where private education is more prevalent, differences in class size tend to be smaller than at the primary level.

Trends

Among countries with comparable data, class size tended to decrease between 2000 and 2006 among those countries that had larger class sizes in 2000, such as Japan, Korea and Turkey, while it increased or remained the same in countries that had the smallest class sizes in 2000, such as Iceland. However, overall there was little substantial change in class sizes.

Definitions

Data refer to the 2005-06 school year, and are based on the UOE data collection on education statistics administered by the OECD in 2007. Class sizes have 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.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator D2).

Areas covered include:

- Average class size, by type of institution and level of education.
- Ratio of students to teaching staff.

Further reading from OECD

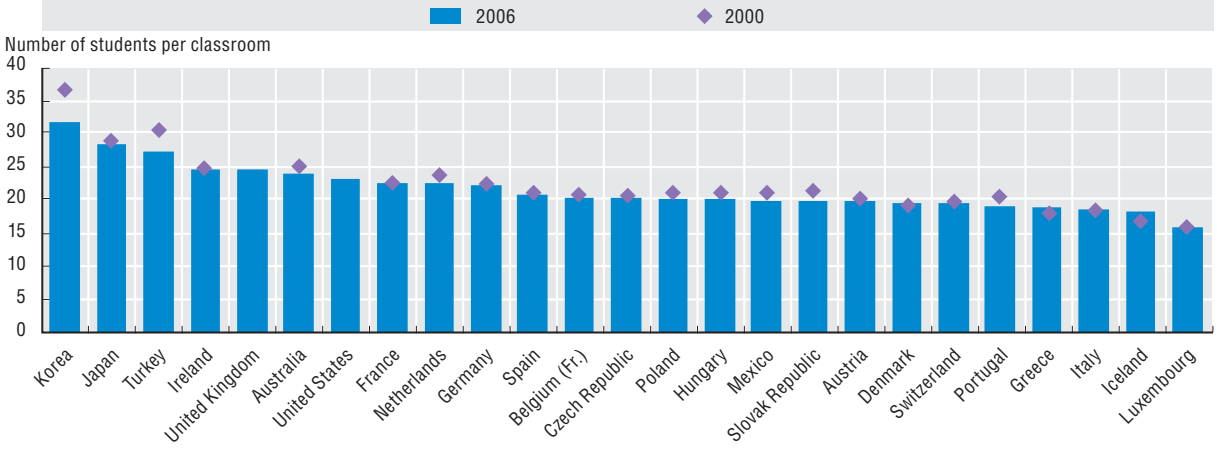
Improving School Leadership (Vol. 1: Policy and Practice) (2008).

21st Century Learning Environments (2006).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 4.3. **Trends in average class size in primary education (2000, 2006)**

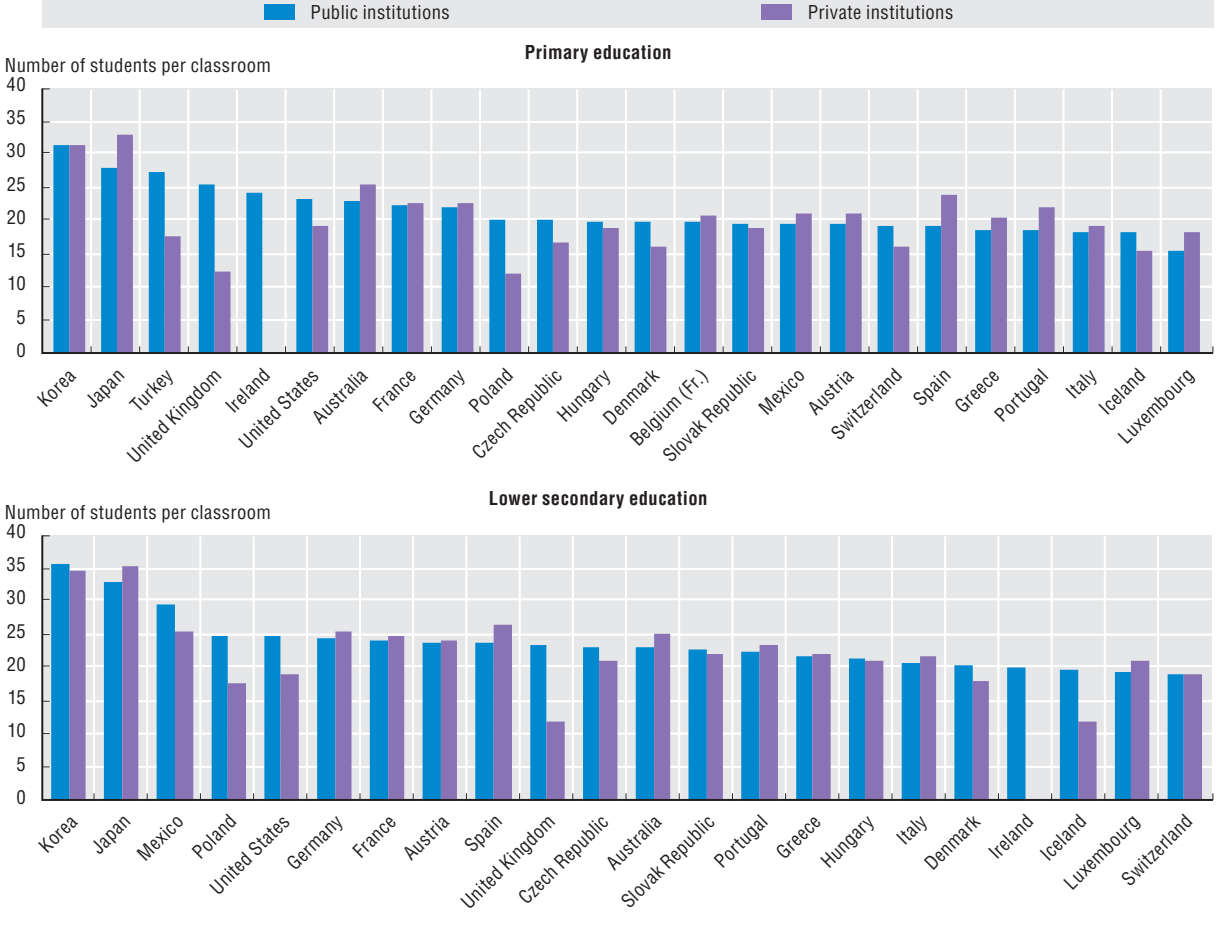
This figure shows the number of students on average in primary classes, and whether these numbers have risen or fallen.



Source: OECD (2008), *Education at a Glance 2008*, Chart D2.1, available at *http://dx.doi.org/10.1787/402267680060*.

Figure 4.4. **Average class size in public and private institutions, 2006**

These figures show whether class sizes differ between public and private schools.



Source: OECD (2008), *Education at a Glance 2008*, Table D2.1, available at *http://dx.doi.org/10.1787/402267680060*.

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 to more than USD 90 000 in Luxembourg.*
- *For both primary and secondary education, salaries at the top of the scale are on average around 70% higher than starting salaries.*
- *Salaries in primary and secondary education have grown in real terms since 1996.*

Significance

This indicator 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 increase with the level of education they teach. For example, in Belgium (Fl.), Belgium (Fr.), Luxembourg, the Netherlands and Switzerland, the salary of an upper secondary teacher with at least 15 years' experience is at least 25% higher than that of a primary teacher with the same experience. The difference is less than 5%, however, in Australia, the Czech Republic, England, Greece, Ireland, Japan, Korea, New Zealand, Portugal, Scotland, Turkey and the United States.

Salaries at the top of the scale are on average around 70% 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. Top-of-the-scale salaries in Korea are almost three times starting salaries, but it takes 37 years to reach the top of the scale. In Portugal the ratio is similar to Korea's, but teachers reach the top of the salary scale after 26 years of service.

Trends

Teachers' salaries grew in real terms at both primary and secondary levels in virtually all OECD countries between 1996 and 2006. The biggest increases occurred in Finland, Hungary and Mexico. Trends have also varied at different points on the salary scale. For instance, starting salaries have risen faster than mid-career or top-of-the-scale salaries in Australia, Denmark, England and Scotland. By contrast, in Japan, the Netherlands and Portugal, the biggest growth has been in salaries of teachers with at least 15 years of experience.

Finding the right balance in setting salaries at different stages of teachers' careers represents an important challenge in education. For example, if teachers are attracted by higher salaries in the early stages of their careers, they may expect salary increases to continue throughout their working lives. If those increases fail to materialise, it may reduce teachers' satisfaction and motivation, creating problems in teacher retention.

Definitions

Data are from the 2007 OECD-INES Survey on Teachers and the Curriculum and refer to the 2005-06 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. 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.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator D3).

Areas covered include:

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

Further reading from OECD

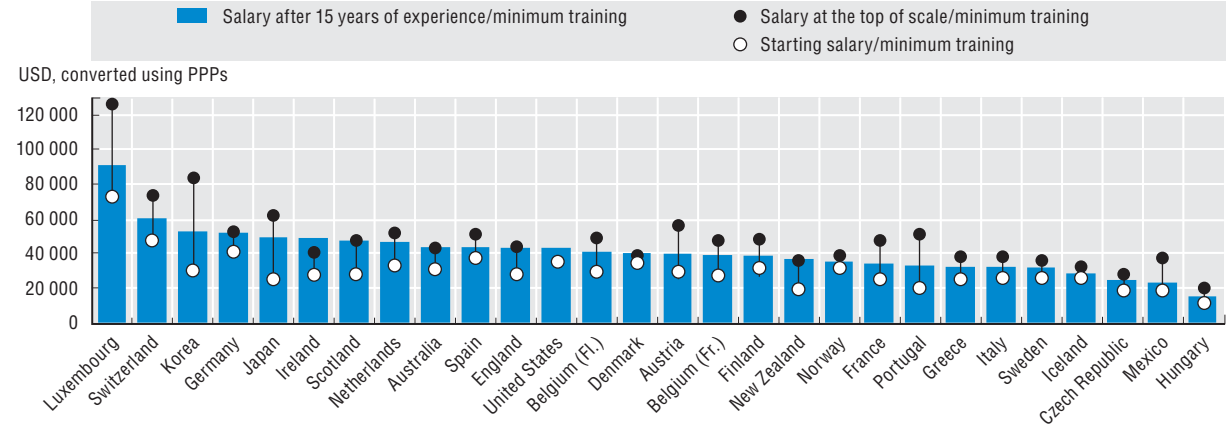
Improving School Leadership (Vol. 1: Policy and Practice) (2008).

21st Century Learning Environments (2006).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 4.5. **Teachers' salaries in lower secondary education, 2006**

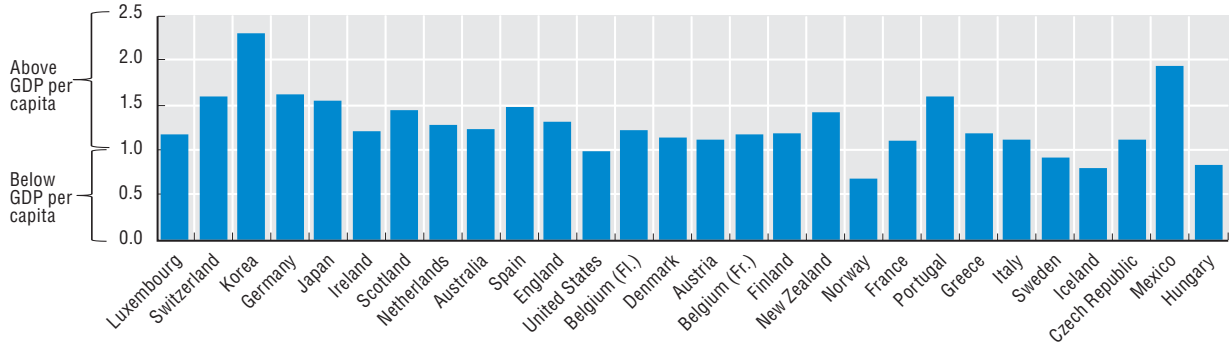
This figure shows how much teachers are paid, and how this varies depending on their years of experience.



Source: OECD (2008), *Education at a Glance 2008*, Table D3.1, available at *http://dx.doi.org/10.1787/402280862627*.

Figure 4.6. **Ratio of teachers' salaries to GDP per capita, 2006**

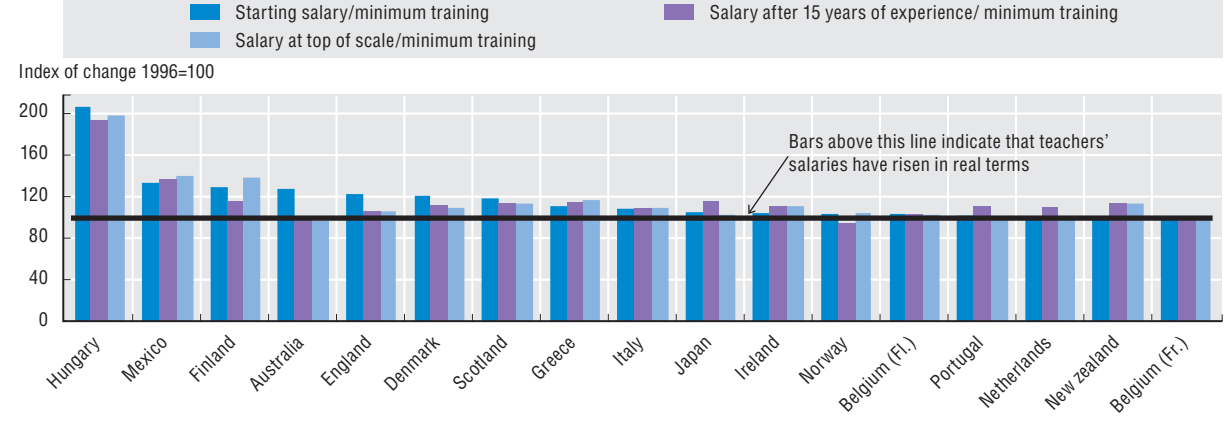
This figure compares the salaries of teachers (with 15 years' experience) with GDP per capita, so offering a way of assessing the salaries' relative value.



Source: OECD (2008), *Education at a Glance 2008*, Table D3.1, available at *http://dx.doi.org/10.1787/402280862627*.

Figure 4.7. **Trends in teachers' salaries in lower secondary education (1996, 2006)**

This figure shows how the salaries of teachers with different levels of experience have changed in real terms from 1996 to 2006.



Source: OECD (2008), *Education at a Glance 2008*, Table D3.2, available at *http://dx.doi.org/10.1787/402280862627*.

How much time do teachers spend teaching?

- *The number of teaching hours per year in public primary schools averages 812, but ranges from fewer than 650 hours in Denmark and Turkey to 1 080 in the United States.*
- *The average number of teaching hours per year in upper secondary schools is 667, but ranges from 364 in Denmark to 1 080 in the United States.*
- *The way teachers' working time is regulated varies substantially among countries.*

Significance

This indicator 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 insight 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 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. In France and Korea, a primary teacher is required to teach over 220 hours more than a lower secondary teacher and 250 hours more than an upper secondary teacher. By contrast, the gap is less than 50 hours or almost non-existent in Denmark, Iceland, New Zealand, Scotland and the United States.

The composition of teachers' annual teaching time, in terms of days, weeks and hours a day, varies considerably between countries. For instance, while teachers in Denmark teach for 42 weeks a year (in primary and secondary education) and teachers in Iceland for 3 to 36 weeks a year, teachers in Iceland actually put in more hours of teaching over the year than counterparts in Denmark. Korea is the only country in which primary teachers teach more than five days a week, on average; yet their total annual teaching time is below the average because they teach, on average, fewer hours per day.

While some countries formally regulate contact time only, 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 and New Zealand, there are no formal requirements for 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 2007 OECD-INES Survey on Teachers and the Curriculum and refer to the 2005-06 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 and hours devoted to teaching-related activities, such as preparing lessons, counselling students, correcting assignments and tests, and meeting with parents and other staff.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator D4).

Areas covered include:

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

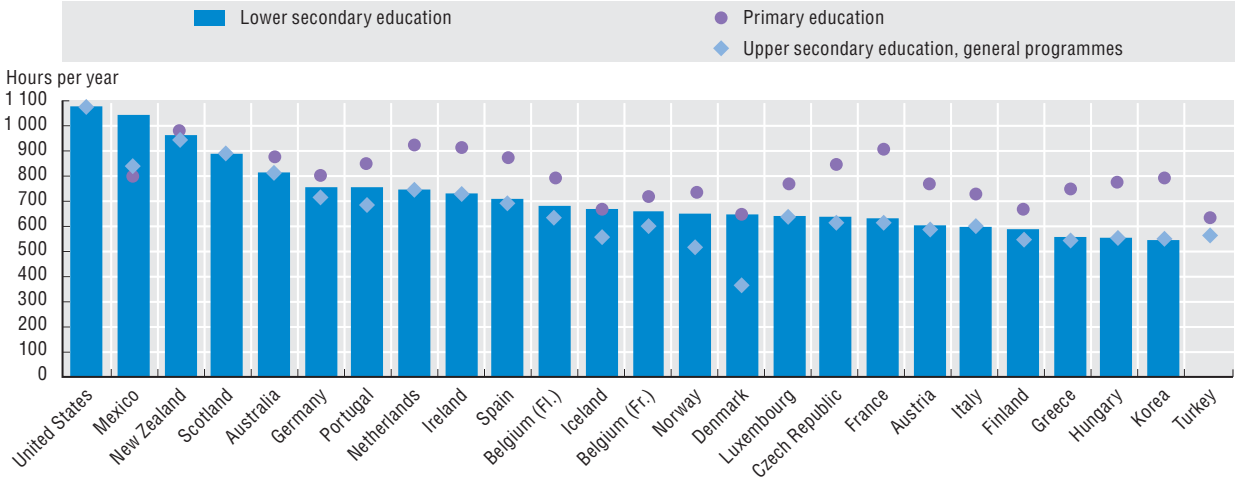
Further reading from OECD

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

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 4.8. **Annual teaching hours by education level, 2006**

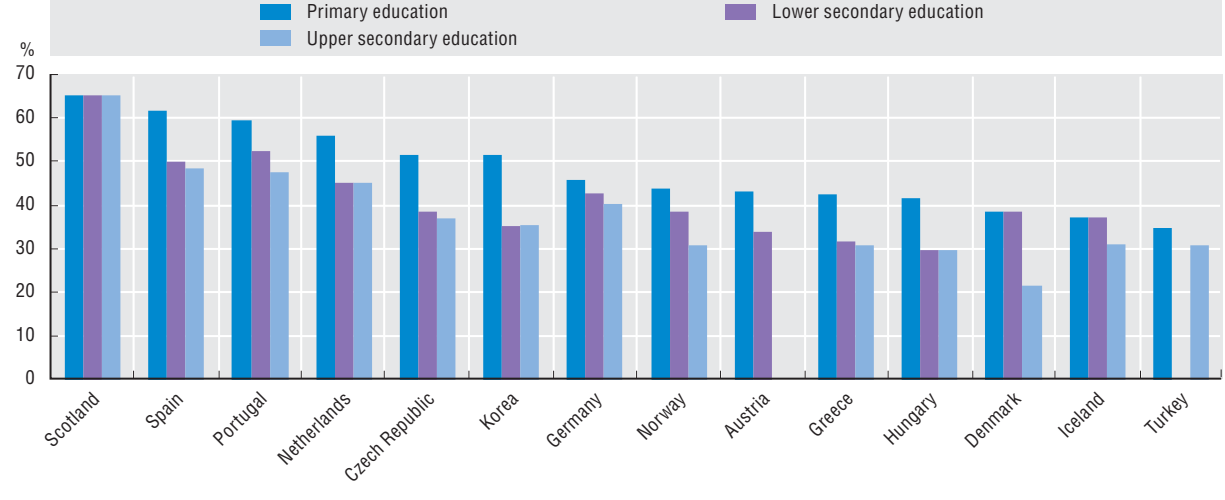
This figure shows the variation in teaching hours for teachers in different levels of education.



Source: OECD (2008), *Education at a Glance 2008*, Table D4.1, available at *http://dx.doi.org/10.1787/402318043535*.

Figure 4.9. **Percentage of teachers working time spent teaching, 2006**

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 (2008), *Education at a Glance 2008*, Table D4.1, available at *http://dx.doi.org/10.1787/402318043535*.

Who are the teachers?

– *The ageing of the teaching workforce is raising recruitment concerns. On average in OECD countries, almost 29% of primary teachers, just over 32% of lower secondary teachers and more than 35% of upper secondary teachers are 50 or older.*

– *On average, nearly 80% of primary school teachers in OECD countries are women.*

Significance

This indicator 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, nearly 29% of primary teachers are 50 or older, but the levels are much higher in some countries: 53% in Germany and 48% in Italy and Sweden. Except Sweden, these countries also have high proportions of lower secondary teachers aged over 50: nearly 51% for Germany and above 69% for Italy. In Italy, only 6% of lower secondary school teachers are in the 30-39 age group.

As for the broader age distribution of teachers across the OECD area, the percentage of teachers in the 40-49 age group is roughly the same in primary and lower and upper secondary education – between about 29 and 30%. Teachers aged 39 or below tend to be more prevalent in primary education, where they account for just over 42% of teachers. At lower secondary level, they account for just over 38% of teachers, and at upper secondary just over 34%.

Looking at all levels of education, including tertiary, women represent an average of just under 65% of all teachers in the OECD area, but the percentage of women teachers tends to fall from one level of education to the next: on average across the OECD area, women account for just under 97% of teachers at pre-primary level; just under 80% at primary level; just under 66% at lower secondary level; just over 52% at upper secondary level; and just under 39% in tertiary education.

Trends

Between 1992 and 2002, the teaching workforce showed a significant ageing trend in most OECD countries studied. An ageing workforce has budgetary implications, since more experienced teachers usually earn higher salaries. An increase in teacher compensation can limit the capacity of school systems to take other initiatives; and more resources might be required to update skills, knowledge and motivation among those who have been teaching for a long time. In addition, unless appropriate action is taken to train and recruit more teachers, teacher shortages are likely to increase as more teachers retire.

According to Australian research, the growing "feminisation" of teaching may be the result of a combination of factors, including low teaching salaries relative to other professions, especially for men, cultural stereotyping of teaching as "women's work," particularly primary education, and men's fear that, if they enter the teaching profession, particularly as primary school teachers, they may be potentially vulnerable to accusations of child abuse. In addition, research from Finland and Ireland, two countries where the teaching profession enjoys a relatively high status, suggests that boys tend to have lower school examination results than girls, and thus comprise a smaller proportion of well-qualified applicants for teaching positions.

Definitions

Data refer to the academic year 2005-06 and are based on the UOE data collection on education statistics administered by the OECD in 2007. Information on trends is taken from OECD's *Teachers Matter: Attracting, Developing and Retaining Effective Teachers* (2005).

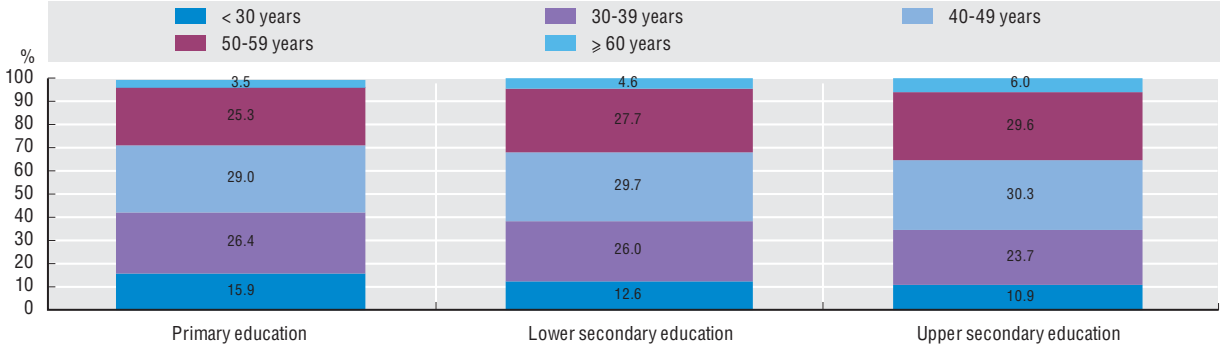
Further reading from OECD

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

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure 4.10. **Teachers' age distribution, OECD average, 2006**

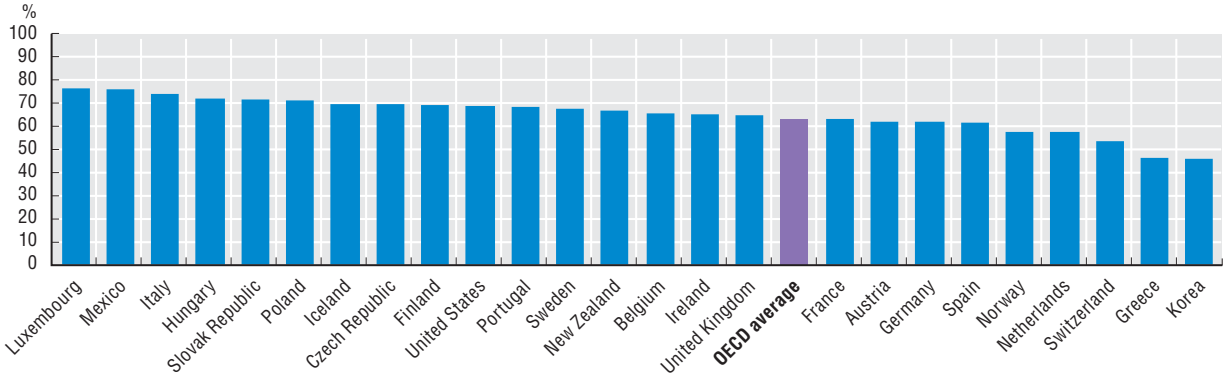
This figure shows the OECD average for the percentage of teachers in each age group in primary, lower secondary and upper secondary education.



Source: OECD (2008), *Education at a Glance 2008*, Table D7.1 on line, available at *www.oecd.org/dataoecd/54/59/41251742.xls*.

Figure 4.11. **Gender distribution of teachers in OECD countries, 2006**

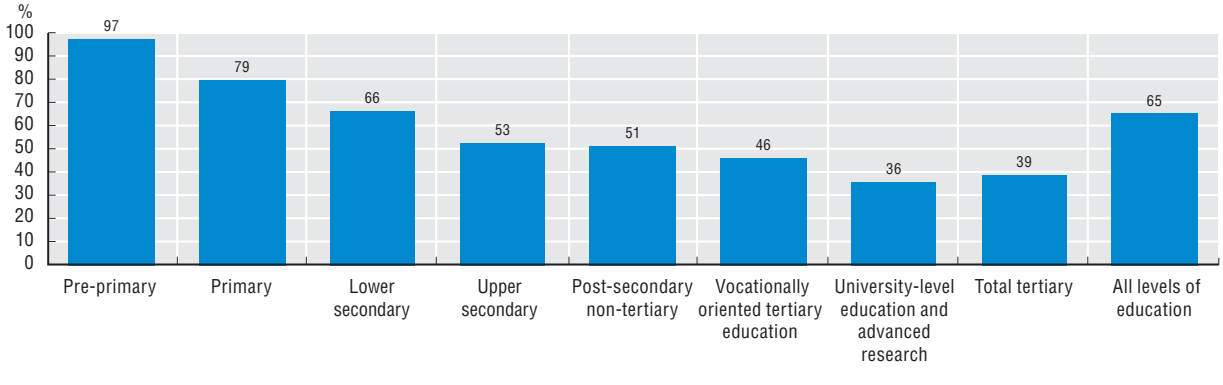
This figure shows the percentage of women teachers in all levels of education in OECD countries.



Source: OECD (2008), *Education at a Glance 2008*, Table D7.2 on line, available at *www.oecd.org/dataoecd/54/59/41251742.xls*.

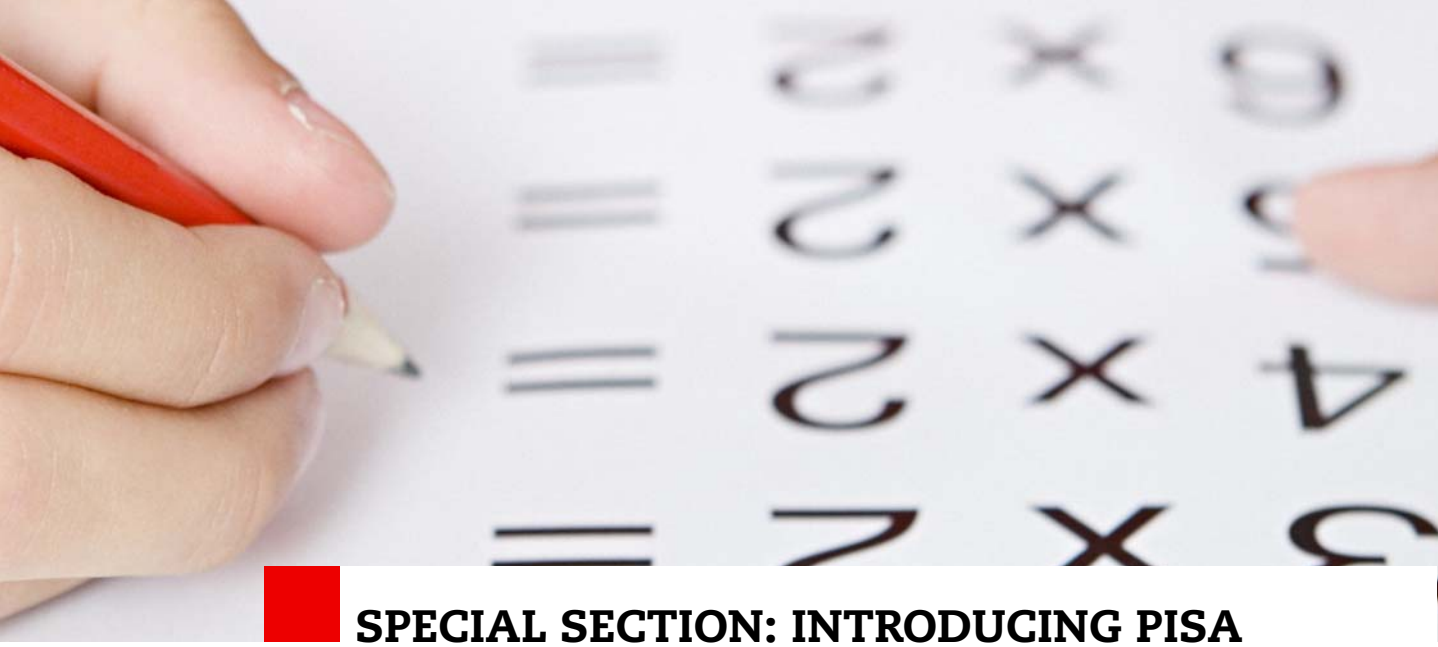
Figure 4.12. **Gender distribution of teachers, OECD average, 2006**

This figure shows the percentage of women teachers on average across the OECD area at each level of education.



Source: OECD (2008), *Education at a Glance 2008*, Table D7.2 on line, available at *www.oecd.org/dataoecd/54/59/41251742.xls*.

ame.
1 × 2 =
2 × 2 =
3 × 2 =
4 × 2 =



SPECIAL SECTION: INTRODUCING PISA

What is PISA?

What can students do in science?

What can students do in reading?

What can students do in mathematics?

How do girls and boys do in science?

How does student performance vary between and within schools?

How well do immigrant students do?

What is PISA?

- *More than 60 countries have taken part in PISA since it began in 2000, accounting for more than 90% of the world economy.*
- *In the most recent PISA round, in 2006, more than 400 000 randomly selected students took part, representing about 20 million 15-year-olds in the schools of the participating countries.*
- *PISA assessments are held every three years, and the next will be in 2009; each round assesses students in reading, mathematics and science, with a special focus on one of those subjects in each round.*

Introduction

PISA seeks to measure how well students who are nearing the end of compulsory education are prepared to meet the challenges of today's knowledge societies – what PISA refers to as "literacy". The aim of the assessment is *not* to judge the extent to which students have mastered a specific school curriculum. Rather, it focuses on young people's ability to use their knowledge and skills to meet real-life challenges.

The tests involve a sample of 15-year-old students in each country, who complete pencil-and-paper measuring reading, mathematical and scientific literacy. Students also fill in questionnaires about themselves, which cover a range of questions, including their attitudes to learning and their family background, while their principals complete questionnaires about their schools.

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 three-yearly cycle means countries can monitor their progress in meeting key learning objectives.

Wider context: PISA is contextualised within the wider system of OECD education indicators.

Breadth: PISA assessments cover all 30 OECD countries and a large number of other partner countries and economies.

How PISA reports results

Score points: Once students have completed the assessments, their results are processed to produce a score point average and ranking for their country. For example, in the PISA 2006 round, the top ranking country, Finland, had a science score of 563, while at the other end of the scale the partner country Kyrgyzstan had a score of 322. (Note, however, that because the students who take part in PISA represent only a sample of 15-year-olds in each country, each country's ranking can be determined only with a 95% likelihood.)

Proficiency levels: The score-point scale is further divided into a number of proficiency levels, six in science and mathematics and five in reading in the 2006 PISA round. For example, a student with a score of about 708 was ranked at the highest level – Level 6 – in science; a student with a score of about 335 was ranked at Level 1, the lowest level.

Attaining a certain level indicates that a student has certain proficiencies. For example, students attaining Level 6 in science were described as being able to "consistently identify, explain and apply scientific knowledge and knowledge about science in a variety of complex life situations"; by contrast students at Level 1 were described as having "such a limited scientific knowledge that it can only be applied to a few, familiar situations".

Definitions for this section

Achievement scores: All results reported in this section are based on assessments administered as part of the PISA 2006 round undertaken by the OECD.

Students: The term "students" refers to 15-year-olds enrolled in an educational institution at secondary level, regardless of the grade level or type of institution in which they were enrolled and regardless of whether they attended school full-time or part-time.

Going further

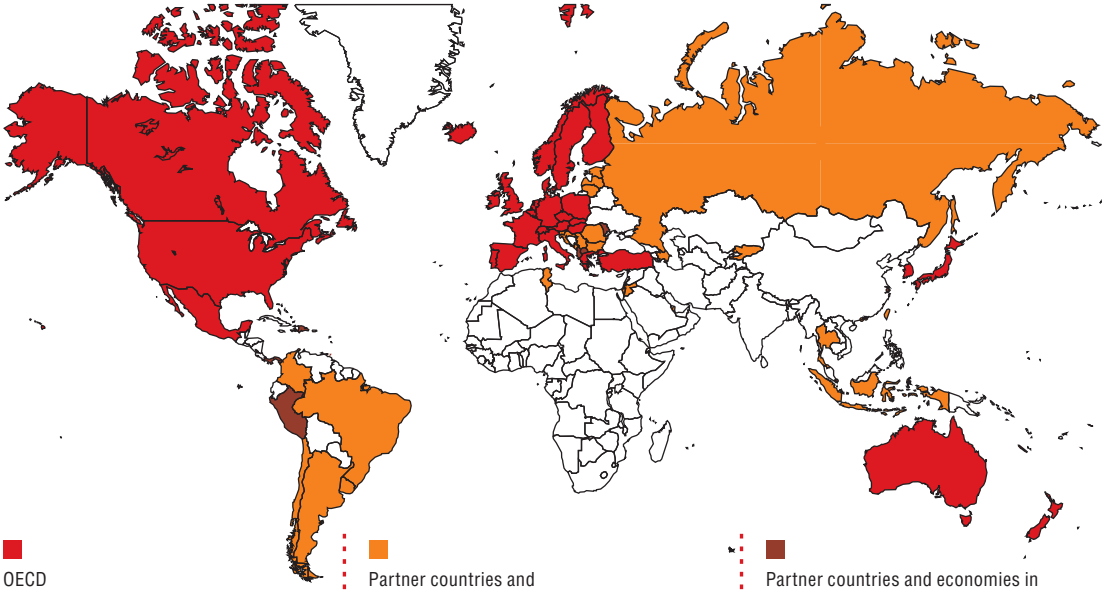
To find out more about PISA, visit *www.pisa.oecd.org*.

Further reading from OECD

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

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

A map of PISA countries and economies



OECD countries

Australia
Austria
Belgium
Canada
Czech Republic
Denmark
Finland
France
Germany
Greece
Hungary
Iceland
Ireland
Italy
Japan
Korea
Luxembourg
Mexico
Netherlands
New Zealand
Norway
Poland
Portugal
Slovak Republic
Spain
Sweden
Switzerland
Turkey
United Kingdom
United States

Partner countries and economies in PISA 2006

Argentina
Azerbaijan
Brazil
Bulgaria
Chile
Colombia
Croatia
Estonia
Hong Kong-China
Indonesia
Israel
Jordan
Kyrgyzstan
Latvia
Liechtenstein
Lithuania
Macao-China
Montenegro
Qatar
Romania
Russian Federation
Serbia
Slovenia
Chinese Taipei
Thailand
Tunisia
Uruguay

Partner countries and economies in previous PISA surveys or in PISA 2009

Albania
Shanghai-China
Dominican Republic
Macedonia
Moldova
Panama
Peru
Singapore
Trinidad and Tobago

What can students do in science?

- *On average among OECD countries, 1.3% of students reached the highest level of science proficiency on the PISA scale (Level 6).*
- *With the exception of Finland, and the partner countries/economies Estonia and Hong Kong-China, all countries had at least 10% of students who perform at Level 1 or below.*
- *Girls and boys showed no difference in average overall science performance in most countries, including 22 of the 30 OECD countries.*

Significance

This indicator examines the scientific literacy of 15-year-old students and draws on data from the 2006 PISA round, in which science was the major focus. Given the pervasiveness of science, mathematics and technology in modern life, it has become increasingly important for adults to be literate in these subjects in order to maximise their employment and earnings prospects and to participate fully in society.

Findings

On average across OECD countries, 1.3% of students reached the highest level on the PISA science scale, Level 6, but in Finland and New Zealand over 3.9% did so. In Australia, Canada, Japan and the United Kingdom, and partners Hong Kong-China, Liechtenstein and Slovenia, between 2.1% and 2.9% of students reached Level 6. Among other characteristics, students at this level can consistently identify, explain and apply scientific knowledge and knowledge about science in a variety of complex life situations, and clearly and consistently demonstrate advanced scientific thinking and reasoning.

Including students who scored at Level 5 brings the percentage of high performers to 9% across OECD countries. In Finland, 20.9% of students performed at Levels 5 and 6. Other countries with a high proportion of students at these levels were New Zealand, 17.6%; Japan, 15.1%; and Australia, 14.6%; as well as partner economies Hong Kong-China, 15.9% and Chinese Taipei, 14.6%.

Among students in OECD countries, an average of 19.2% were classified as below Level 2 and 5.2% were below Level 1. At Level 2, students start to demonstrate the science competencies that will enable them to participate actively in life situations related to science and technology; at Level 1, students have such a limited scientific knowledge that it can only be applied to a few, familiar situations.

In two OECD countries, Mexico and Turkey, around one-half of the students were not proficient at Level 2. In nine of the partner countries/economies at least 50% of students did not get to Level 2. Thus, a level of basic science competency held by the overwhelming majority of the population in some countries, and by eight out of ten students on average in OECD countries, was not achieved in many other countries.

Definitions

See introduction to this section.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *PISA 2006: Science Competencies for Tomorrow's World* (Chapter 2) and *Education at a Glance 2008* (Indicator A5).

Areas covered include:

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

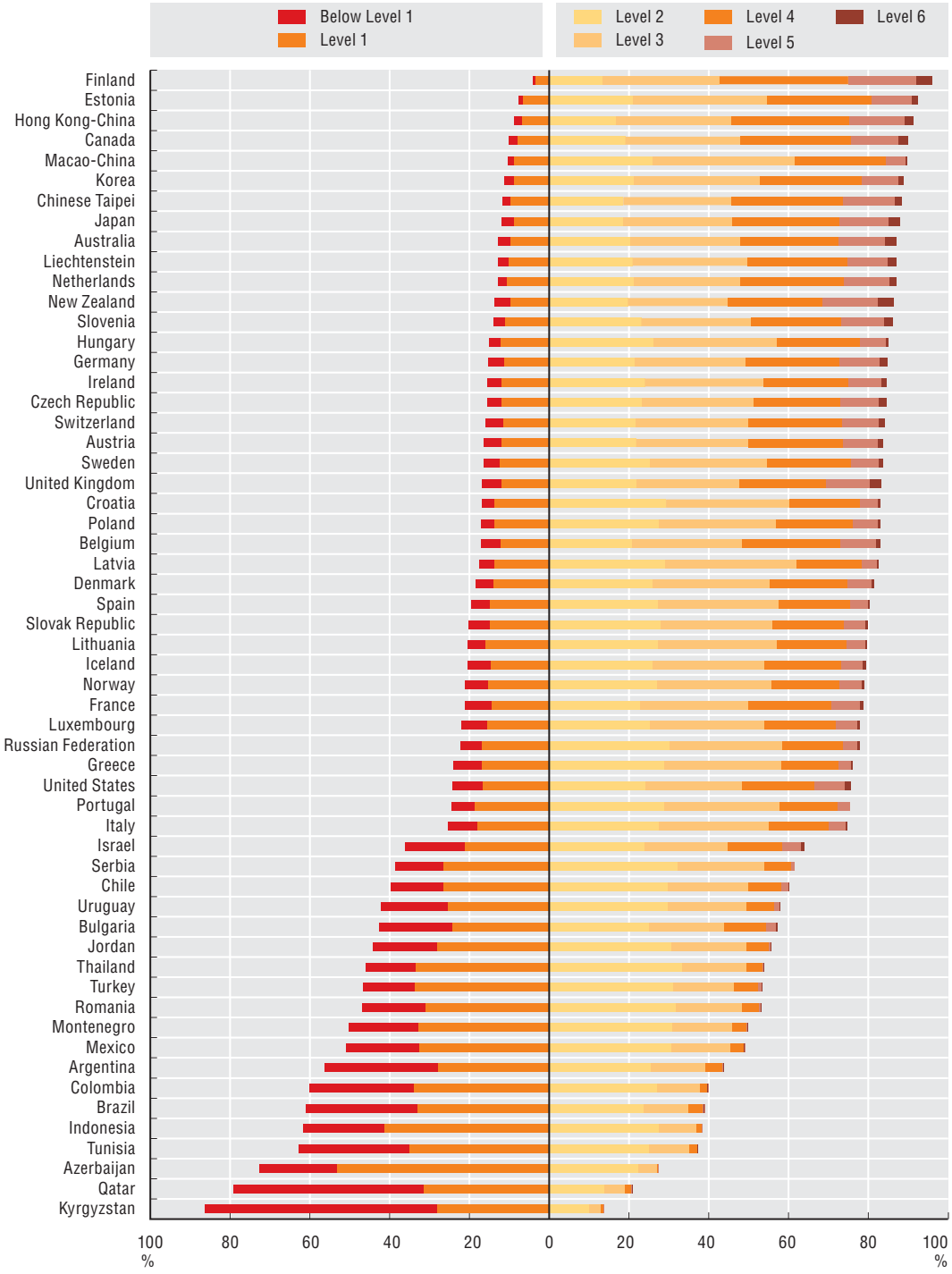
Further reading from OECD

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

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure S.1. **Student performance in science in PISA 2006**

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



Source: OECD (2007), *PISA 2006, Science Competencies for Tomorrow's World, Volume 1: Analysis*, Fig 2.11a, available at *http://dx.doi.org/10.1787/141844475532*.

What can students do in reading?

- *In OECD countries, an average of 8.6% of students read at Level 5 – the highest level – of the PISA reading literacy scale; around 20% read at or below Level 1.*
- *Although there were large differences in the mean performance of countries in reading literacy, variations among students within each country were much larger.*
- *With 21.7%, Korea had the highest percentage of students at the highest reading level; in contrast, under 1% of students in Mexico achieved this level.*

Significance

This indicator examines the reading skills of 15-year-old students in the 2006 PISA round. PISA defines reading literacy as the ability to understand, use and reflect on written texts in order to achieve one's goals, develop one's knowledge and potential, and participate in society. This definition goes beyond the traditional notion of decoding information and literal interpretation of what is written towards more applied tasks.

Findings

In the OECD area, an average of 8.6% of students were at Level 5 in reading. This level – the highest in the PISA reading literacy scale – indicates students can locate and use information that is difficult to find in unfamiliar texts, show detailed understanding of these texts, and build hypotheses that may be contrary to expectations. Korea had the highest percentage of students, 21.7%, reading at Level 5, while more than 14.5% of students in Canada, Finland and New Zealand also read at this high level. In contrast, under 1% of students in Mexico achieved this level. In nine of the partner countries/economies, the percentage of students performing at the highest level was less than half of one percent.

Countries with quite similar percentages of students at Level 5 had quite different mean scores for the overall student population. Take Finland and New Zealand: these two countries had similar percentages of students at Level 5 with 16.7 and 15.9% respectively, but their averages were significantly different – 547 score points for Finland and 521 for New Zealand. This difference could be partly explained by the fact that Finland had only 4.8% of students at Level 1 or below, whereas New Zealand had 14.5%.

A number of OECD countries – Greece, Italy, Mexico, the Slovak Republic, Spain and Turkey – had at least 25% of students reading at or below Level 1, the lowest level in PISA. At Level 1, students are capable of completing only the simplest reading tasks developed for PISA, which threatens to have life-long implications. Extensive evidence suggests that it is difficult in later life to compensate for learning gaps in initial education. Literacy skills and continuing education and training seem to be mutually reinforcing, with the result that continuing education is often not pursued by the adults who need it most.

In general, girls scored higher in reading than boys. This gap may be due to girls' greater engagement with most forms of reading, the diversity of materials they read, and their greater use of school and community libraries.

Definitions

See introduction to this section.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see Chapter 6 in *PISA 2006: Science Competencies for Tomorrow's World, Vol. 1 Analysis.*

Further reading from OECD

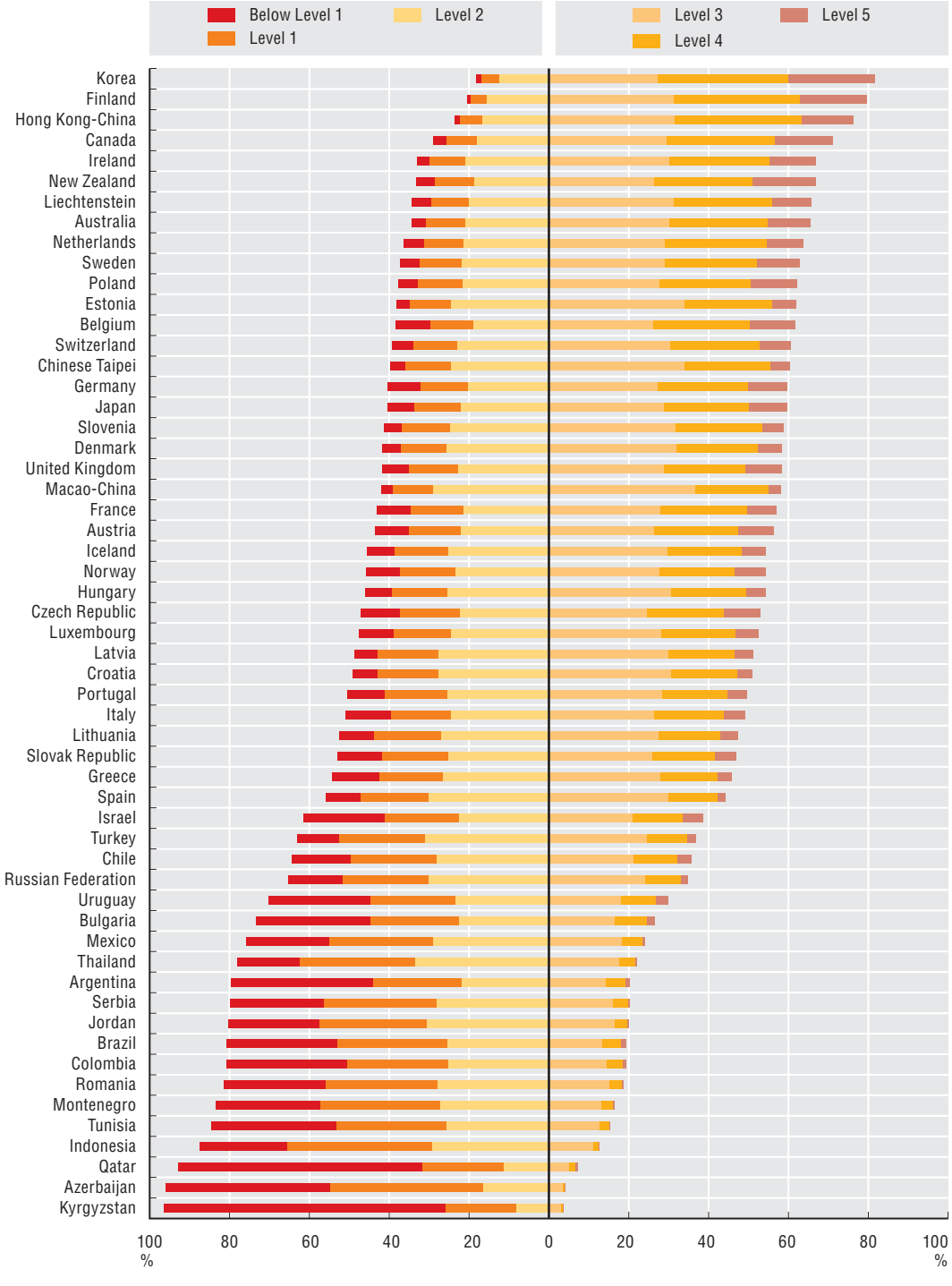
PISA 2006: Science Competencies for Tomorrow's World, Vol. 1: Analysis (2007).

PISA: Reading for Change: Performance and Engagement across Countries: Results from PISA 2000 (2002).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure S.2. **Student performance in reading in PISA 2006**

This figure shows the percentage of students at each performance level in reading; students with scores at Level 5 are the strongest performers, those at Level 1 and below are the weakest.



Source: OECD (2007), *PISA 2006, Science Competencies for Tomorrow's World, Volume 1: Analysis*, Table 6.1a, available at *http://dx.doi.org/10.1787/142046885031*.

What can students do in mathematics?

- *In the OECD area, 3.3% of students reached the highest level on the PISA mathematics scale.*
- *An average of just over 21% of students performed at or below Level 1, the lowest level.*
- *Boys scored higher than girls in mathematics in PISA; however, their advantage is smaller than that of girls in reading.*

Significance

This indicator looks at the performance of 15-year-old students in the assessment of mathematics skills in the 2006 PISA round. PISA uses a concept of mathematical literacy that is concerned with the capacity of students to analyse, reason and communicate effectively as they pose, solve and interpret mathematical problems in a variety of situations involving quantitative, spatial, probabilistic or other mathematical concepts.

Findings

Among OECD countries, 3.3% of students were proficient at Level 6, the highest level on the PISA mathematics scale. This level indicates students are capable of applying insight and understanding, and a mastery of formal mathematics, to develop new strategies to respond to new problems. In Korea, 9.1% of the students achieved this level; in Belgium, the Czech Republic, Finland and Switzerland the proportion was 6% or more; in partner economies Chinese Taipei and Hong Kong-China, the figures were 11.8 and 9.0% respectively. By contrast, 0.1% of the students in Mexico reached Level 6 and in the partner countries Colombia, Indonesia, Jordan, Kyrgyzstan and Tunisia the percentages were even lower.

At the other end of the scale, in the OECD area, an average of 13.6% of students performed at Level 1, the lowest level, and 7.7% below Level 1, but there were wide differences between countries. In Finland, Korea and the partner economy Hong Kong-China, less than 10% of students performed at or below Level 1. In all other OECD countries, the percentage of students performing at or below Level 1 ranged from 10.8% in Canada to 56.5% in Mexico. Students performing below Level 1 usually do not demonstrate success on the most basic type of mathematics that PISA seeks to measure. Such students will have serious difficulties in using mathematics as an effective tool to benefit from further education and learning opportunities throughout life.

In general, boys performed better in mathematics than girls. The largest gender differences were in Austria and Japan, with boys showing 23- and 20-point advantages, respectively, over girls. However, the advantage that boys enjoyed in mathematics was smaller than that of girls in reading (see previous indicator).

Results from PISA showed wide disparities in student performance in mathematics within most countries, which suggests that education systems still have some way to go to serve the wide range of student abilities, including those who perform exceptionally well and those most in need.

Definitions

See introduction to this section.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see Chapter 6 in *PISA 2006: Science Competencies for Tomorrow's World, Vol. 1: Analysis*.

Further reading from OECD

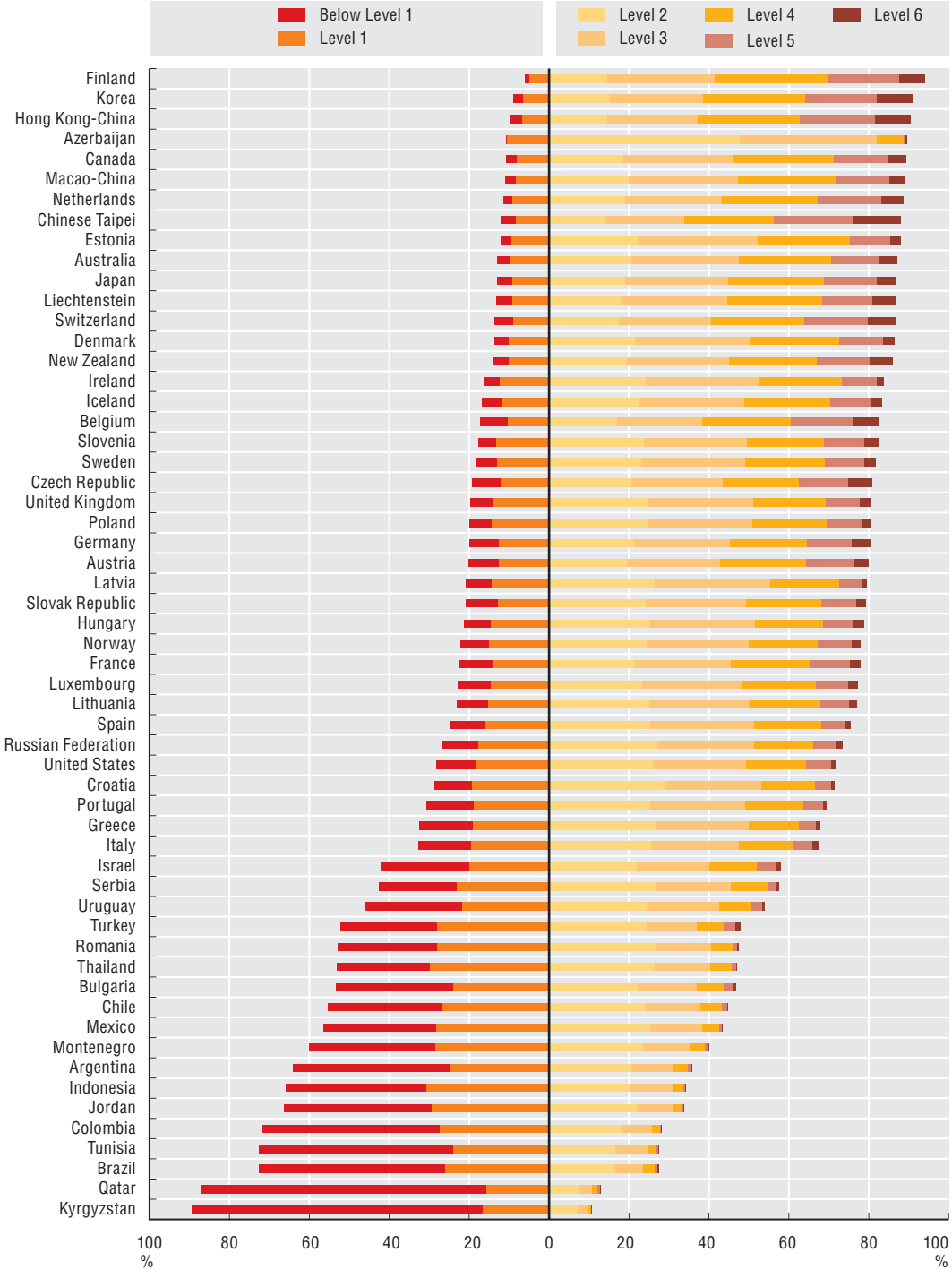
PISA 2006: Science Competencies for Tomorrow's World, Vol. 1: Analysis (2007).

PISA: Learning for Tomorrow's World: First Results from PISA 2003 (2004).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure S.3. **Student performance in mathematics in PISA 2006**

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



Source: OECD (2007), *PISA 2006, Science Competencies for Tomorrow's World, Volume 1: Analysis*, Table 6.2a, available at *http://dx.doi.org/10.1787/142046885031*.

How do girls and boys do in science?

- *Girls and boys show no difference in average overall science performance in most countries, based on results from the PISA 2006 round.*
- *Girls outperform boys in identifying scientific issues by an average of 17 points on the PISA science scale.*
- *By an average of 15 points on the PISA science scale, boys outperform girls in explaining phenomena scientifically.*

Significance

This indicator shows the difference in performance between 15-year-old boys and girls in the PISA 2006 assessment of science literacy, which was a special focus in this most recent round of PISA. Performance was measured in three different skills: *identifying scientific issues*, *using scientific evidence*, and *explaining phenomena scientifically*. In many countries, the differences between genders were small compared to the differences within genders. However, overall performance could be raised significantly if the factors behind gender differences were identified and addressed.

Findings

Unlike in reading and mathematics, where there were significant gender differences, there was no difference between girls and boys in average overall science performance in most OECD countries. Only Denmark, Luxembourg, Mexico, the Netherlands, Switzerland and the United Kingdom showed a small advantage, of 6 to 10 points, for boys, while Greece and Turkey showed an advantage of between 11 and 12 points for girls.

Boys and girls did, however, display varying strengths in different areas of the science tests. In most countries, girls were stronger in *identifying scientific issues*. In Finland, Greece, Iceland and Turkey, girls outperformed boys in this area by more than 25 points on the PISA science scale. On the other hand, boys were stronger in *explaining phenomena scientifically*. In the Czech Republic, Denmark, Germany, Hungary, Luxembourg, the Slovak Republic, and the United Kingdom, boys outperformed girls in this area by more than 20 points.

The picture was more balanced in the area of *using scientific evidence*. Only two OECD countries – Greece and Turkey – and one partner country – Slovenia – showed a significant gender difference in this area, with girls outperforming boys.

The consistency with which girls were stronger in *identifying scientific issues* and weaker in *explaining phenomena scientifically* may suggest that there is a systemic gender difference in the way students relate to science and to the science curriculum. It appears that boys may be better, on average, at mastering scientific knowledge and girls better at distinguishing scientific questions in a given situation. But it should be emphasised that in many countries the gender differences were small relative to differences within each gender. Still, results from PISA suggest that it could be possible to raise overall performance significantly if the factors behind the gender difference could be identified and tackled.

Definitions

See introduction to this section.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator A5).

Areas covered include:

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

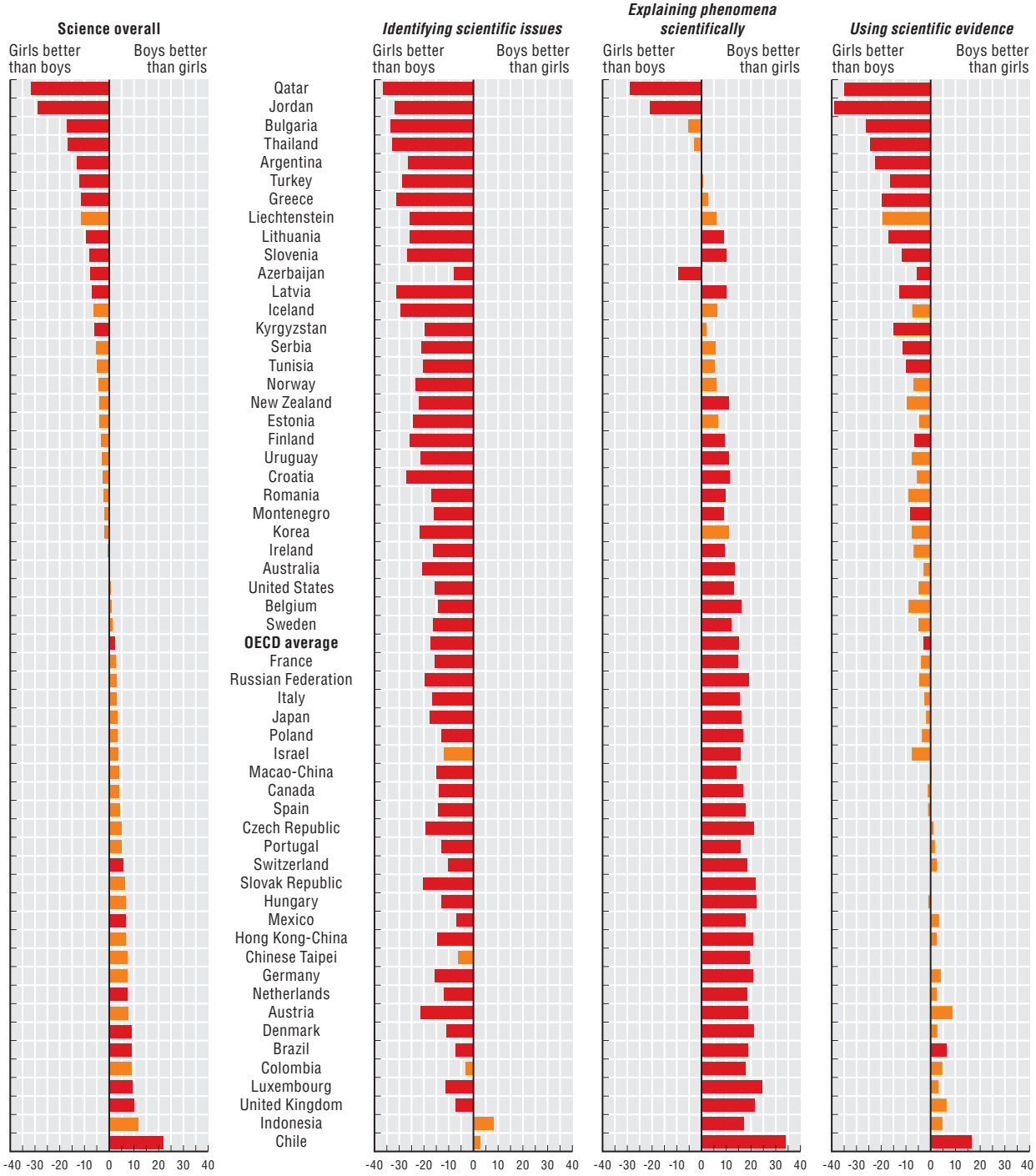
Further reading from OECD

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

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure S.4. **Gender differences in student performance in science in PISA 2006**

This figure shows the difference in how well boys and girls do in science testing in PISA; the left-hand column reflects overall performance and the other three columns reflect performance on three different science skills. The lighter shading indicates that differences are not statistically significant.



Source: OECD (2008), *Education at a Glance 2008*, Table A5.5, available at *http://dx.doi.org/10.1787/401573312123*, and OECD (2007), *PISA 2006: Science Competencies for Tomorrow's World*, Tables 2.1c, 2.2c, 2.3c and 2.4c, available at *http://dx.doi org/10.1787/142056138443*.

How does student performance vary between and within schools?

- *Among OECD countries, Mexico showed the smallest overall variation in student performance*
- *Finland had the smallest variation in "between-school" performance.*
- *At the other end of the scale, there were large variations in "between-school" performance in a number of OECD countries, including Germany, the Czech Republic, Austria and Hungary.*

Significance

As well as examining variations in the performance of 15-year-old students between different countries, PISA also provides an opportunity to examine variations in performance *within* countries. Such variations are important as they may reflect the impact of non-educational factors on student performance, especially the impact of students' socio-economic background. Identifying the characteristics of students, schools and education systems that perform well despite the impact of social disadvantage can provide clues to making education policy more effective in overcoming inequalities.

Findings

The figure opposite shows the extent of variation in student performance in PISA 2006 (science competencies only). A longer bar indicates that there was a lot of variation within a country in how well students performed – some may have done very well, others poorly. A shorter bar indicates that a large number of students performed at more or less the same level. Finland, for instance, has a very short bar, indicating that – as well as achieving the highest overall performance in PISA – it had one of the lowest levels of variation in student performance. By contrast, in Australia, Germany, New Zealand, the United Kingdom and the United States the variance in student performance was between 10 and 25.2% larger than the OECD average.

Each bar is also broken into two parts: the left side represents the extent to which variations in student performance was due to differences *between* schools, and the right side represents variation *within* schools. Not surprisingly, all countries showed considerable within-school variance, reflecting the varying abilities of students to be found in any school. What is more striking from a policy perspective were the between-school differences, which ranged from 4.7% of the OECD average in Finland to well over 60% in Germany.

What explains such variations? In part they reflect the structures of education systems. Some countries adopt a comprehensive approach, requiring each school to provide for the full range of student abilities, interests and backgrounds. Other countries group students through tracking or streaming – sometimes in separate schools and sometimes in different classes within schools – based on their academic potential or interests in specific programmes. (But note that in many countries, these approaches are combined to some extent.)

Socio-economic background also plays a role. In some countries, certain schools may essentially be "blue collar" and others "white collar". Typically, students from poorer families do less well in education than their better-off counterparts, which explains some of the between-school difference. However, these differences may also reflect certain structural features of schools and schooling systems, particularly where students are tracked by ability, as well as the policies and practices of school administrators and teachers. In effect, attending one school rather than another may make it more – or less – likely that a student will do well.

Definitions

See introduction to this section.

Going further

For additional explanation and background, see Chapters 4 and 5 of *PISA 2006: Science Competencies for Tomorrow's World, Vol. 1: Analysis*.

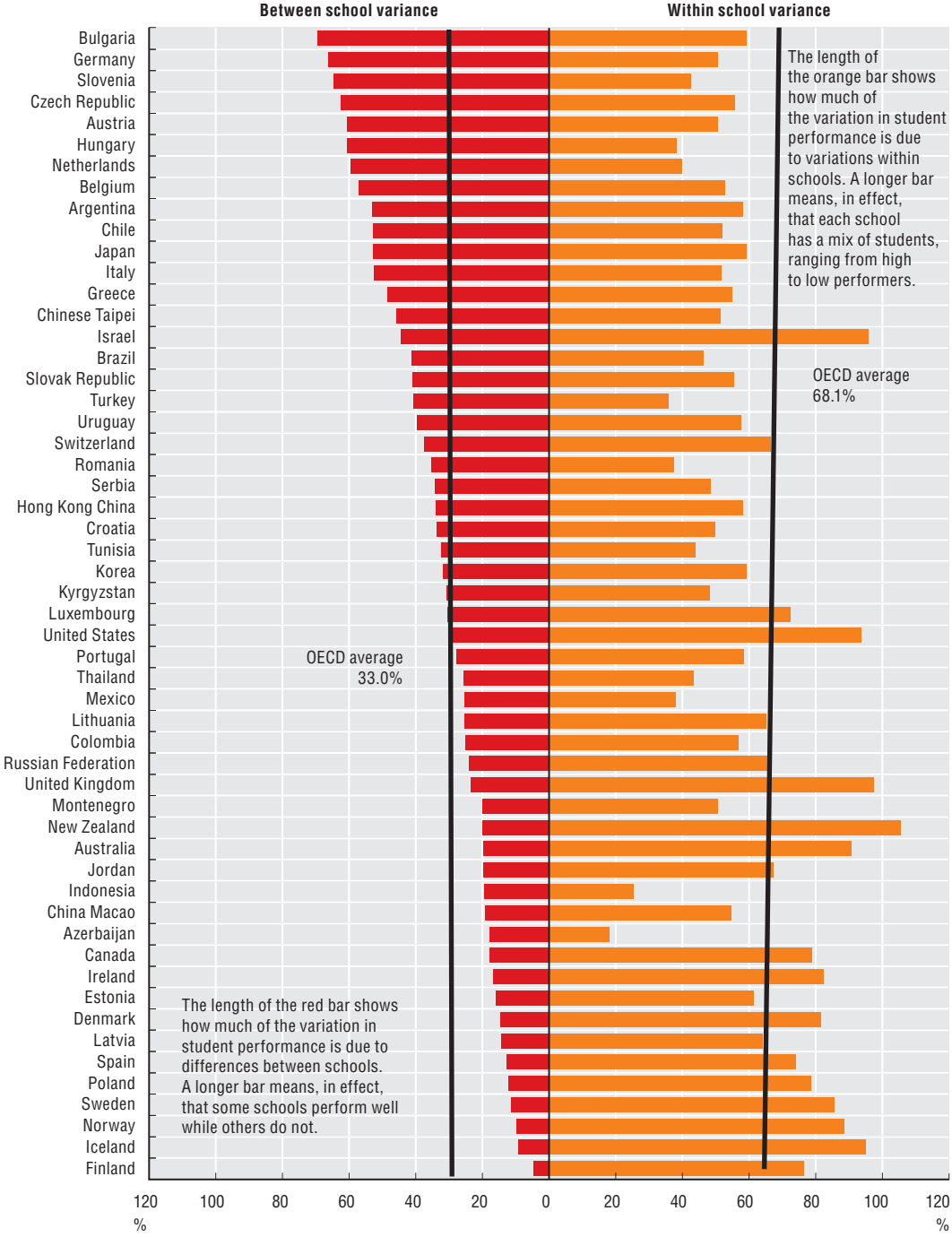
Further reading from OECD

No More Failures: Ten Steps to Equity in Education (2007).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure S.5. **"Within-school" and "between-school" variation from the OECD average in science in PISA 2006**

The figure looks at how much of the variation in students performance is attributable to the range of performances in each school ("within-school") or to differences in performance from one school to the other ("between-school"). The total length of the bar reflects overall variation in student performance. A shorter bar indicates most students perform at about the same level; a longer bar indicates wider variations.



Source: OECD (2007), *PISA 2006, Science Competencies for Tomorrow's World, Volume 1: Analysis*, Table 4.1a, available at http://dx.doi.org/10.1787/141848881750.

How well do immigrant students do?

- *Immigrants (first and second generation) account for 10% of 15-year-old students in Germany and France and between 21 and 23% in Switzerland, Australia, New Zealand and Canada.*
- *First-generation immigrant students lagged, on average, 58 score points behind their native counterparts in PISA 2006.*
- *However, the performance difference varied greatly between countries, and in some, such as Australia and Ireland, immigrants did as well as natives.*

Significance

In most OECD countries, policy makers and the general public are paying increasing attention to international migration. In part, this is a consequence of the growth of immigrant population in recent years. Between 1990 and 2000 alone, the number of people living outside their country of birth nearly doubled worldwide to 175 million, and many OECD countries now have a sizeable component of first- and second-generation immigrant students. Ensuring that schools meet the needs of these students is important if they are to play a full role in society.

Findings

Among countries with a significant share of first-generation immigrant students (*i.e.,* children born abroad of foreign parents), such students lagged, on average, 58 score points behind their native counterparts in science. This was a sizeable difference considering that 38 score points were roughly equivalent to the OECD average of a school year's difference. Much of this difference remained even after accounting for socio-economic factors.

It should be noted, however, that this average concealed large variations between countries. In Canada, the gap was just 22 points, but it rose to between 77 and 95 points in Austria, Belgium, Denmark, Germany, Sweden and Switzerland. By contrast, first-generation immigrant students do as well as their native peers in Australia, Ireland and New Zealand.

It is also worth examining the performance of second-generation migrant students (those who were born in the host country but whose parents were born abroad). Such students are more likely to be more fluent in the local language than their first-generation peers and are also likely to have gone through the same education system as their native counterparts. In Canada, Sweden and Switzerland they did better than their first-generation counterparts, but in New Zealand they did worse. And in several countries, including, Austria, Belgium, Denmark, Germany and the Netherlands, they still scored 79 to 93 points lower than native students.

In a number of countries, as many migrant children as natives attained the very highest scores in PISA. However, in a number of countries, including Austria, Denmark, Germany, Luxembourg, the Netherlands and Switzerland, three times more second-generation than native students failed to reach Level 2 on the science competencies scale (at this level, students are likely to face considerable difficulties making their way in the adult world).

What determines the performance of immigrant students? Language is, of course, an issue, but probably of greater significance is family background, both in terms of socio-economic status and levels of parental education. In some immigrant families, parents may have much lower levels of education than the norm, which can greatly restrict to play a supporting role in their children's education.

Definitions

See introduction to this section.

Going further

For additional explanation and background, see Chapter 4 of *PISA 2006: Science Competencies for Tomorrow's World* (Vol. 1, Analysis).

Further reading from OECD

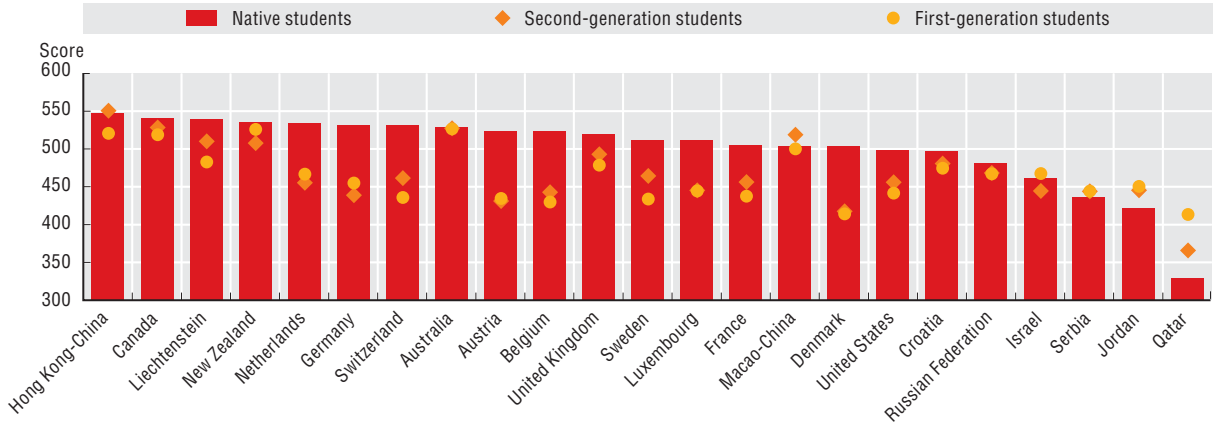
Where Immigrant Students Succeed: A Comparative Review of Performance and Engagement in PISA 2003 (2006).

No More Failures: Ten Steps to Equity in Education (2007).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

Figure S.6. **Performance of immigrant students in science in PISA 2006**

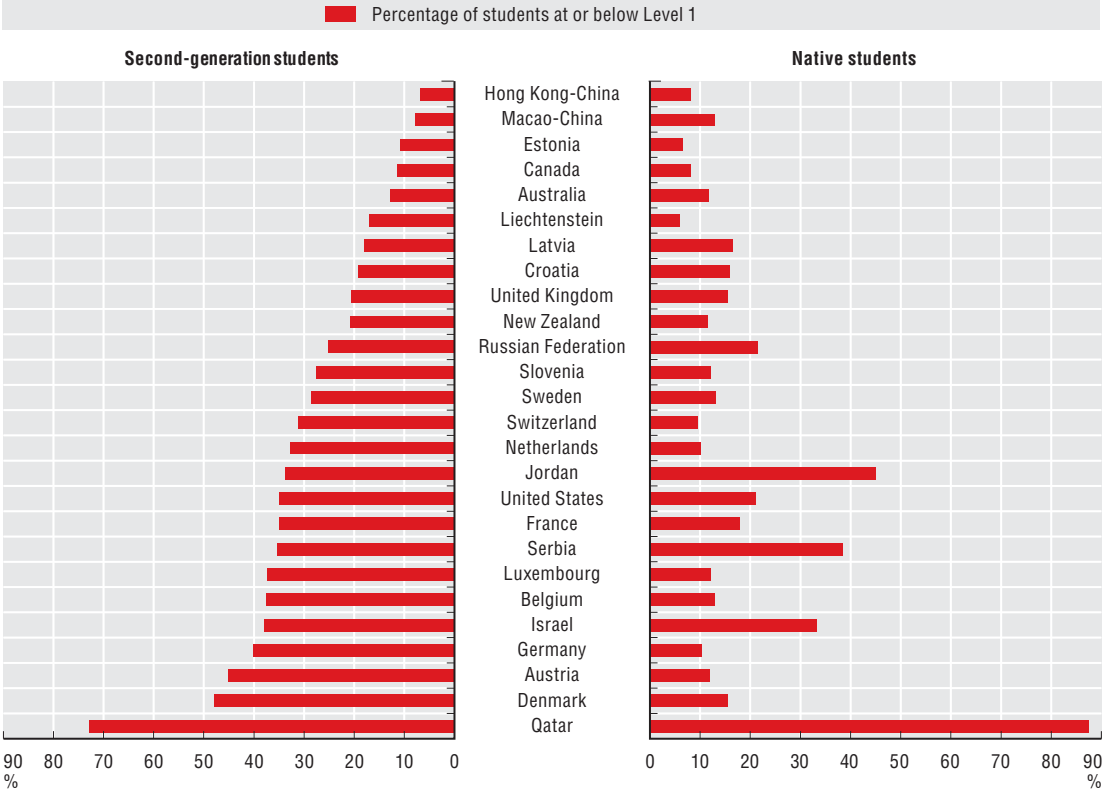
This figure shows the performance of first and second-generation students compared with native students.



Source: OECD (2007), *PISA 2006, Science Competencies for Tomorrow's World, Volume 1: Analysis*, Table 4.2a, available at *http://dx.doi.org/10.1787/141848881750.*

Figure S.7. **Percentage of immigrant students who perform poorly in PISA 2006**

This figure shows the proportion of second-generation and native students with the weakest scores (at or below Level 1) in science in PISA 2006.



Source: OECD (2007), *PISA 2006, Science Competencies for Tomorrow's World, Volume 1: Analysis*, Table 4.2b, available at *http://dx.doi.org/10.1787/141848881750.*

ISBN 978-92-64-04061-8
Highlights from Education at a Glance 2008
© OECD 2009

Statistical Note

Sections 1-4

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.

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.

Note that both the OECD average and the OECD total can be significantly affected by missing data. Given the relatively small number of countries, no statistical methods are

used to compensate for this. In cases where the data value is negligible (code "n") for the corresponding calculation, the value zero is imputed for the purpose of calculating OECD averages.

Special Section: PISA

Readers wishing to find out more about the data presented in this section, and the statistical methods used to analyse it, should visit *www.pisa.oecd.org* or consult *PISA 2006, Science Competencies for Tomorrow's World, Volume 1* and *Volume 2* (OECD, 2007).

HIGHLIGHTS FROM EDUCATION AT A GLANCE 2008 – ISBN 978-92-64-04061-8 – © OECD 2009

OECD PUBLISHING, 2, rue André-Pascal, 75775 PARIS CEDEX 16
PRINTED IN FRANCE
(96 2009 01 1 P) ISBN 978-92-64-04061-8 – No. 56541 2009

Highlights from Education at a Glance 2008

Highlights from Education at a Glance 2008 is a new companion publication to 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?
- **The economic 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 OECD's Programme for International Student Assessment (PISA), which examines the abilities of 15-year-old students in 57 countries and territories.

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.

Highlights from Education at a Glance 2008 is an ideal introduction to the OECD's unrivalled collection of internationally comparable data on education and learning.

The full text of this book is available on line via this link:
www.sourceoecd.org/education/9789264040618

Those with access to all OECD books on line should use this link:
www.sourceoecd.org/9789264040618

SourceOECD is the OECD online library of books, periodicals and statistical databases.
For more information about this award-winning service and free trials ask your librarian, or write to us at **SourceOECD@oecd.org.**

OECD*publishing*
www.oecd.org/publishing

ISBN 978-92-64-04061-8
96 2009 01 1 P