Chapter

A

The Output of Educational Institutions and the Impact of Learning

INDICATOR A1

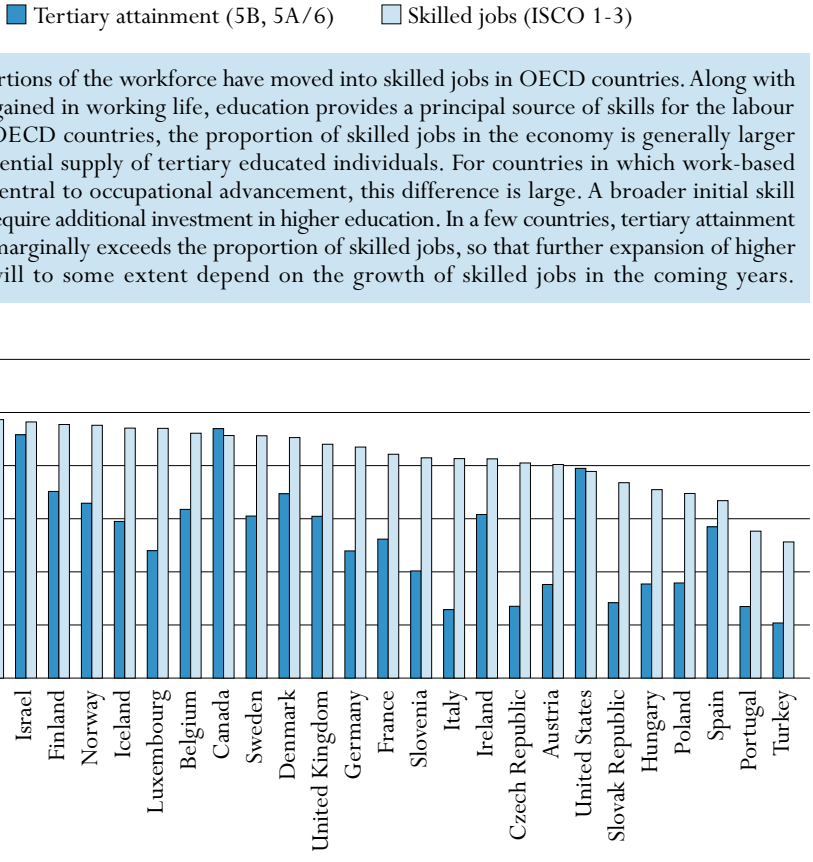
TO WHAT LEVEL HAVE ADULTS STUDIED?

This indicator profiles the educational attainment of the adult population, as captured through formal educational qualifications. As such, it provides a proxy for the knowledge and skills available to national economies and societies. To have a better understanding of the demand for education, the distribution of occupations across OECD countries and the matching of tertiary-educated individuals to skilled jobs are also examined in this indicator. Data on attainment by fields of education and by age groups are used to examine the distribution of skills in the population and to furnish a rough measure of skills that have recently entered the labour market and of those that will be leaving the labour market in the coming years.

Key results

Chart A1.1. Proportion of population in skilled jobs and proportion of population with tertiary education (2006)

The chart depicts the proportion of the 25-to-64-year-old working population in skilled jobs and the proportion of the 25-to-64-year-old population with tertiary education (2006).



Note: For the United States, ISCO groupings 3 and 9 are not separated and thus distributed among remaining ISCO categories.

Countries are ranked in descending order by the proportion of the population in skilled jobs.

Source: OECD. Table A1.3a and Table A1.6. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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Other highlights of this indicator

- The proportion of individuals who have completed upper secondary education has been growing in almost all OECD countries and has become the norm among the younger cohorts. As of 2006, in 18 OECD countries, the proportion of 25-to-34-year-olds having completed upper secondary education ranged from 80 to 97%.

- Tertiary attainment levels have also increased substantially, to 33% among 25-to-34-year-olds, on average across OECD countries. This suggests that overall tertiary attainment levels will continue to rise in the coming years. In France, Ireland, Japan and Korea, there is a difference of 25 percentage points or more in tertiary attainment between the oldest and youngest age groups.

- Social sciences, business and law are the major educational fields in most countries. In OECD countries, they constitute 28% of the overall ISCED 5A and 6 levels of educational attainment in the population. On average, there are 3.6 times as many individuals with degrees in these subjects in the younger cohort than in the older one. In the field of education, this ratio is close to 1 in the OECD countries.

- Across OECD countries between 1998 and 2006, there was a marked shift from semi-skilled jobs to skilled jobs, with an increase of almost 4 percentage points in skilled occupation and a close to 4 percentage point decline in semi-skilled occupations. At the same time, the proportion of the population working in unskilled occupations remained substantially the same. In most countries, the decline has not been at the very low end of the skill distribution but among semi-skilled jobs.

- The increase in skilled jobs has been met and exceeded in most OECD countries by increases in the proportion of the population with tertiary attainment. However, in most countries, there are still substantially more skilled jobs than tertiary educated individuals. On average, across OECD countries, 69% of all those with a tertiary type 5B qualification and 85% of those with a tertiary 5A/6 qualification have skilled jobs. However the matching of higher education to skilled jobs varies substantially among countries. Those with a 5A/6 qualification in Denmark, Finland, Luxembourg and the partner country Slovenia do substantially better in finding a skilled job given the labour market conditions for those with tertiary education.

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Policy context

A well-educated and well-trained population is essential for the social and economic well-being of countries and individuals. Education plays a key role in providing individuals with the knowledge, skills and competencies needed to participate effectively in society and in the economy. Education also contributes to the expansion of scientific and cultural knowledge. The population's level of educational attainment is a commonly used proxy for the stock of "human capital", that is, the skills available in the population and the labour force. However, comparing different countries' educational attainment levels presupposes that the skills and knowledge imparted at each level of education are similar.

The skill composition of the human capital stock varies substantially among countries depending on the industry structure and the general level of economic development. It is important to understand the mix of skills as well as changes in the skill structure among different age groups in order to gain an idea of the current and future supply of skills in the labour market. One way to track the supply of skills in different areas is to examine replacement ratios in the educational fields of those who recently entered the labour market with those leaving the labour market in the coming years. In gauging the potential effects of these changes in the composition of skills, it is necessary to consider the overall volume of individuals within a certain field, current and future industry composition, and the extent to which lifelong learning provides an alternative for accumulating specific skills.

The International Standard Classification of Occupations (ISCO) provides an opportunity to relate what is produced by the education system to the labour market. In essence, occupational classifications relate to the level of economic development and demand for skills and as such provide a measure of the overall need for education. A key issue for any education system is to supply the labour market with the level and diversity of skills that employers require. The match between educational attainment and occupations can thus be seen as a signal of the overall level and quality of educational investments.

Evidence and explanations

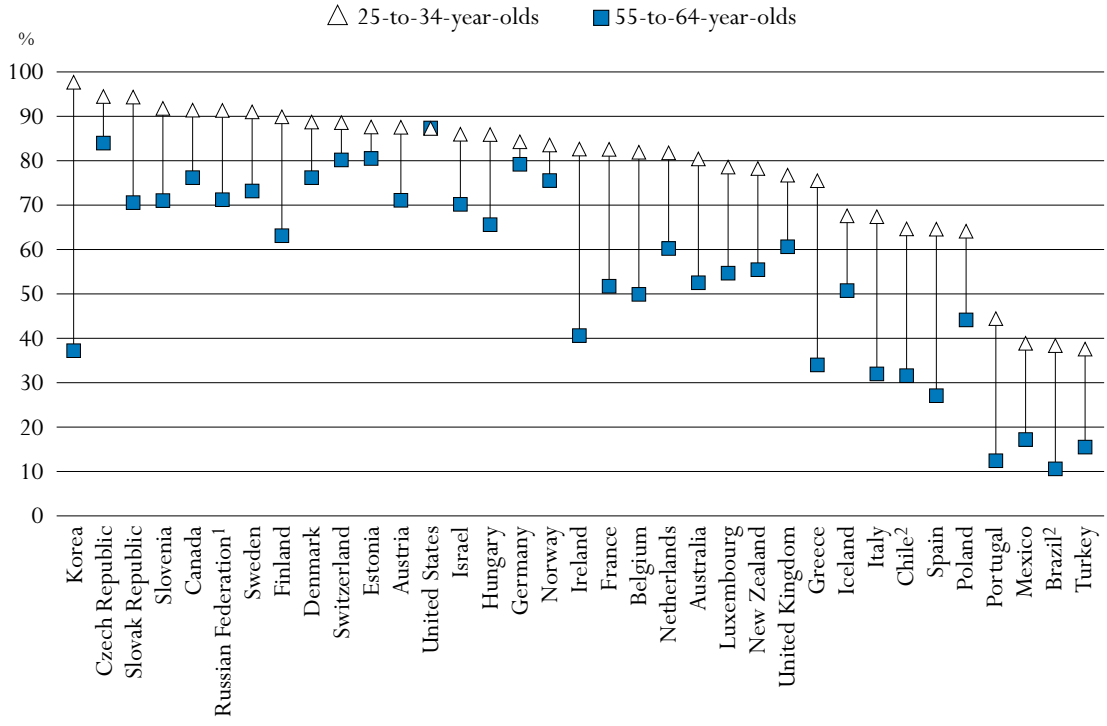
Attainment levels in OECD countries

On average, across OECD countries, fewer than one-third of adults (31%) have undertaken only primary or lower secondary levels of education, 42% of the adult population have completed an upper secondary education and one-quarter (27%) have attained tertiary level qualification (Table A1.1a). However, countries differ widely in the distribution of educational attainment in their population.

In 22 out of 29 OECD countries – as well as in the partner countries Estonia, Israel, the Russian Federation and Slovenia – 60% or more of the population aged 25 to 64 has completed at least upper secondary education (Table A1.2a). Some countries show a different profile, however. For instance, in Mexico, Portugal and Turkey and the partner country Brazil, more than 50% of the population aged 25 to 64 has not completed upper secondary education. Overall, a comparison of the levels of educational attainment in younger and older age groups indicates marked progress with regard to attainment of upper secondary education (Chart A1.2).

Chart A1.2. Population that has attained at least upper secondary education (2006)

Percentage, by age group



1. Year of reference 2002.
2. Year of reference 2004.

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

Source: OECD. Table A1.2a. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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On average across OECD countries, the proportion of 25-to-34-year-olds having attained upper secondary education is 23 percentage points higher than that of the 55-to-64-year-olds. This increase has been particularly dramatic in Belgium, France, Greece, Ireland, Italy, Korea, Portugal and Spain, as well as in the partner country Chile, all of which have seen growth of 30 or more percentage points.

In countries whose adult population generally has a high attainment level, differences in attainment among age groups are less pronounced (Table A1.2a). In countries in which more than 80% of 25-to-64-year-olds have at least upper secondary attainment, the difference in the proportion of 25-to-34-year-olds and 55-to-64-year-olds having attained upper secondary level is, on average, 12 percentage points. In Germany and the United States, the proportion of upper secondary attainment is almost the same for all age groups. For countries with more room for increases, the average gain in attainment between these age groups is 28 percentage points, but situations differ. In Norway and Switzerland, the difference in upper secondary attainment between 25-to-34-year-olds and 55-to-64-year-olds is less than 10 percentage points; in Korea it is 60 percentage points.

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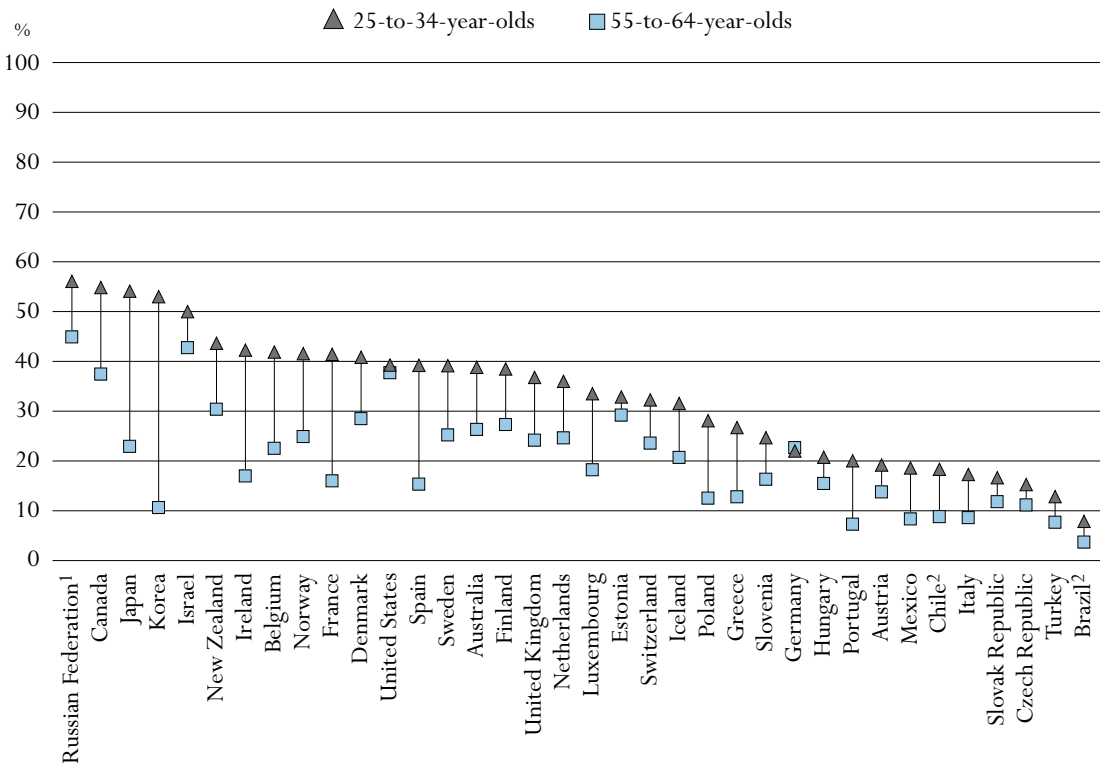
In almost all countries, 25-to-34-year-olds have higher tertiary attainment levels than the generation about to leave the labour market (55-to-64-year-olds). On average across OECD countries, 33% of the younger cohort has achieved a tertiary education, compared with 19% among the oldest cohort, while the average for the total population of 25-to-64-year-olds is 27%. The expansion of tertiary education differs substantially among countries. In France, Ireland, Japan and Korea, the difference in tertiary attainment between the oldest and youngest age groups is 25 percentage points or more (Table A1.3a).

Chart A1.3. Population that has attained at least tertiary education (2006)

Percentage, by age group



1. Year of reference 2002.
2. Year of reference 2004.

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

Source: OECD. Table A1.3a. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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This rapid expansion has put Japan and Korea in the top group (Chart A1.3). Changes in attainment levels between the youngest and oldest cohorts have been negative in Germany, and expansion has only been a few percentage points in the Czech Republic, the United States and the partner countries Brazil and Estonia, although attainment levels in the total population are still substantially above the OECD average in the United States and Estonia. The highest tertiary attainment levels in the total population are found in Canada and in the partner country the Russian Federation where 47% and 54%, respectively, of the population have a tertiary qualification.

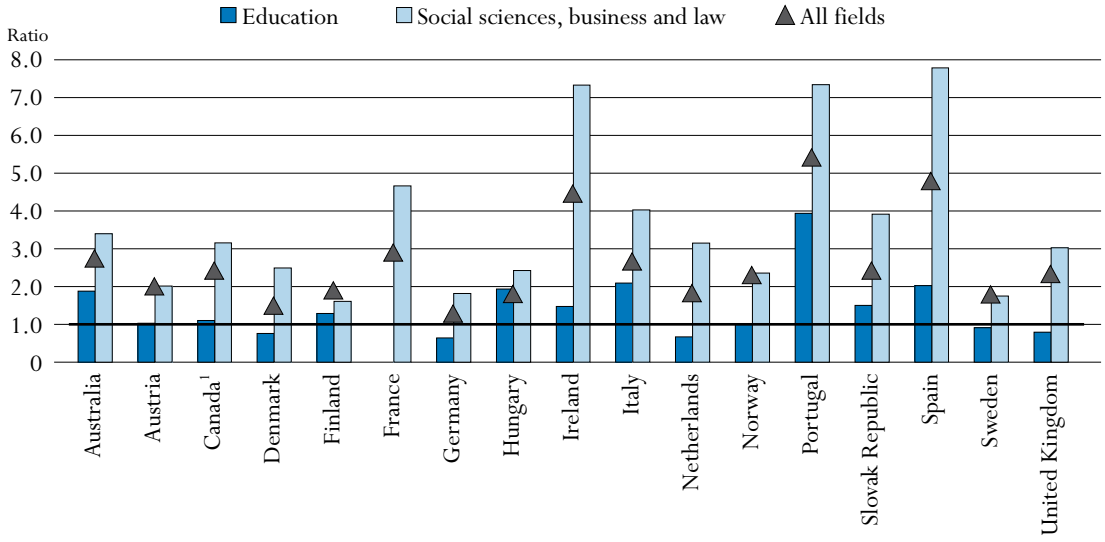
Variation in attainment levels by field of education

As shown above, tertiary attainment levels have risen sharply in many countries, among younger age groups. However, this increase is not spread evenly among different fields of education and has resulted in large shifts among these fields. Table A1.4 shows the distribution of adults at ISCED levels 5A and 6, by field of education. Social sciences, business, and law lead in most countries; however, science is the main field in Ireland, education in Norway, engineering in Finland and the Slovak Republic, and health and welfare in Denmark. Of the population with ISCED 5A and 6 levels of education among the countries included in Table A1.4, 28% are in the field of social sciences, business, and law, 15% in engineering, 14% in education, 13% in health and welfare, 12% in arts and humanities, and 10% in science.

The predominance of social sciences, business, and law is largely due to recent increases in tertiary qualifications in these fields. The ratios in Table A1.5 provide an indication of the shifts by comparing the number of 25-to-34-year-olds with an ISCED level 5A of education and 30-to-39-year-olds with an ISCED level 6 to the number of 55-to-64-year-olds with ISCED levels 5A and 6, for each field. Chart A1.4 shows these generational differences in the fields of social sciences and education.

Chart A1.4. Picture of generational difference in social sciences and in education (2004)

This chart depicts the ratio of 25-to-34-year-olds with an ISCED 5A level of education and 30-to-39-year-olds with an ISCED 6 to 55-to-64-year-olds with an ISCED 5A and 6 in social sciences and in education.



1. Year of reference 2001. Only ISCED 5A level of educationnal attainment.

Source: OECD. Table A1.5. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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There are three and a half times as many young adults with degrees in social sciences, business and law as in the older age group. This reflects the general increase in attainment levels, but it also reflects the attraction of this field of education. In France, Ireland, Italy, Portugal and Spain, more than four times as many young adults as those in the older age group have degrees in social sciences, business and law. In all countries except Finland, the expansion is above the average increase between the two age groups for all fields of education.

In education as a field of study, a comparison of younger and older age groups shows that supply has, on average, not increased. This largely reflects the relatively stable condition of most countries' education systems. However, in Denmark, Germany, the Netherlands, Sweden and the United Kingdom, the replacement ratio is less than 1, and this may signal a problem for replacing the older generation of teachers when they retire in the coming years.

Table A1.5 also shows large variations among countries in the extent to which younger individuals have chosen science or engineering as compared to the older age group. In these key educational fields, there is also substantial variation within countries, as supply levels in science have risen more than in engineering in all OECD countries except in Finland, Italy and Sweden. In Denmark, Hungary and Norway, some of the increases in science relative to engineering can be explained by the fact that science is a relatively small field in these countries.

Tertiary attainment and skilled jobs

Governments that seek to expand tertiary education have often considered that an advanced knowledge economy needs more high-level skills and thus requires educating a much greater proportion of the workforce beyond the secondary level. As noted in *Education at a Glance 2007*, there seems little or no evidence that the expansion of higher education has led to any negative labour market effects, which suggests that the number of skilled jobs to be filled still outnumbers the supply of tertiary educated. ISCO provides a further opportunity to take a closer look at the match between the education system and the labour market in different countries.

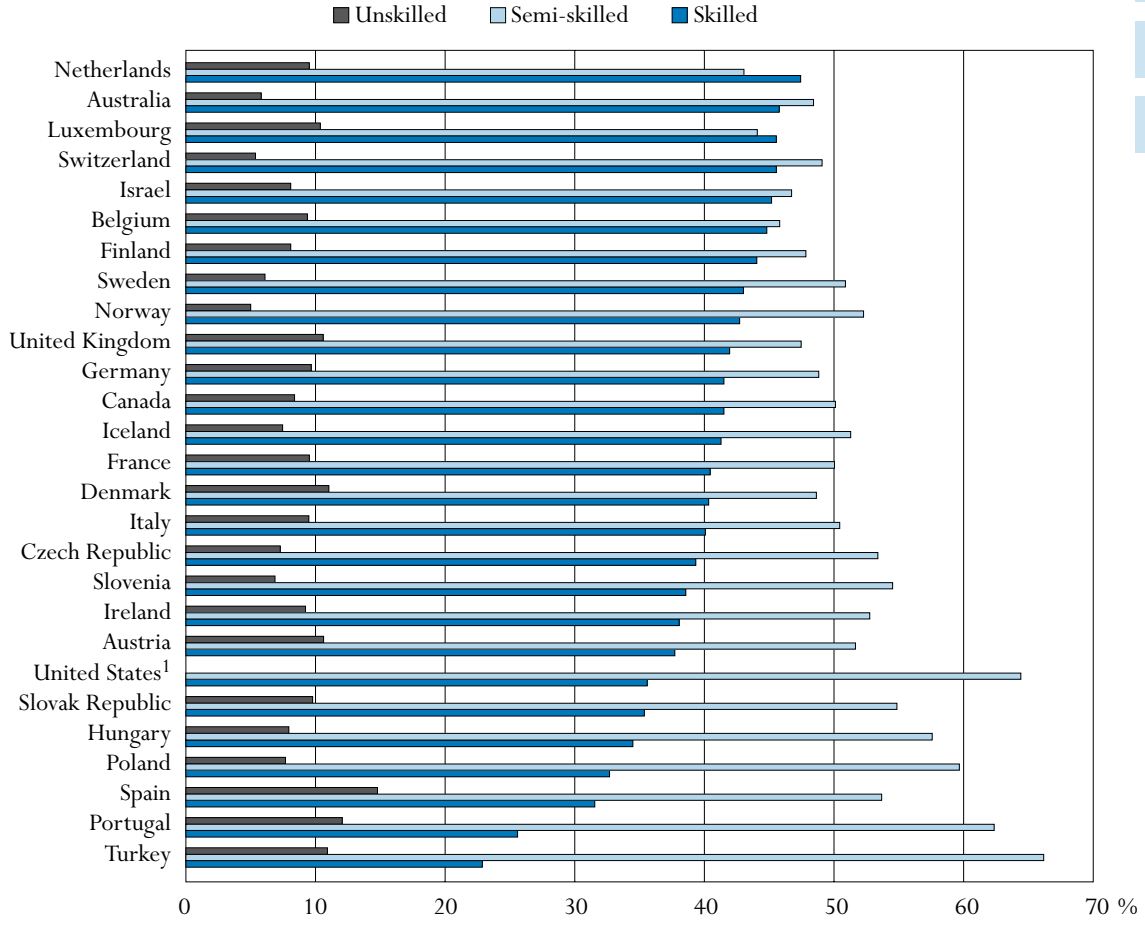
The possibility to accommodate increasing numbers of individuals with tertiary education depends on industry structure and the general level of economic development. The composition of occupational categories in a country captures these factors to some extent, as the distribution of occupations reflects the importance of different sectors and of high-end skills for the economy.

Table A1.6 shows the overall composition of the labour force with regard to occupational skill levels in 2006 and 1998. To facilitate the analysis of tertiary education and skilled jobs, ISCO 1-3 is categorised as skilled occupations, ISCO 4-8 as semi-skilled and ISCO 9 as unskilled. The table shows this classification for the total workforce as well as for the workforce of 25-to-64-year-olds so as to match the tertiary attainment population (25-to-64-year-olds).

On average across OECD countries, the largest occupational group is Technicians and associated professionals (ISCO 3) which has overtaken Craft and related trades workers (ISCO 7) as the main occupational category in the past eight years. Semi-skilled occupations have generally declined in OECD countries, with Clerks (ISCO 4), together with Craft and related trades workers (ISCO 7), showing the biggest drop since 1998. Service workers (ISCO 5) is the only semi-skilled occupation which has seen a relative rise since 1998. Service workers are a key group in Iceland, Norway, Sweden and the United States with more than 20% of the workforce. The number of workers in skilled occupations has generally increased since 1998 and the relative increase in professionals (ISCO 2) and Technicians and associated professionals (ISCO 3) has been around 2 percentage points. The proportion of the workforce at the two ends of the skills distribution – Legislators, senior officials and managers (ISCO 1) and Elementary occupations (ISCO 9) – have been stable over the period.

Chart A1.5. Distribution of skilled, semi-skilled and unskilled occupations in the workforce (2006)

Percentage, sorted by skilled occupations



1. ISCO groupings 3 and 9 are not separated and thus distributed among remaining ISCO categories.

Countries are ranked in descending order by skilled occupations.

Source: OECD. Table A1.6. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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The big shift in OECD countries since 1998 has thus been between skilled and semi-skilled occupations, with almost 4 percentage points more work in skilled occupations and close to 4 percentage points less in semi-skilled occupations. On average, in each of the eight years, 0.5% of the total work force has shifted to skilled occupations. The job squeeze seems thus not to be in the very low end (unskilled occupations) but in mid-range jobs. Among the countries with data for both 1998 and 2006, this translates into the creation of approximately 24 million skilled jobs, of which 16 million outside the United States, 8 million semi-skilled jobs, of which less than a million outside the United States; and approximately 3 million unskilled jobs outside the United States (elementary jobs are not included in the ISCO classification for the United States). Some caution is needed to interpret these figures as a few countries have revised their ISCO classification, but the figures presented in Table A1.6 show that the overall trend towards more skilled jobs in the OECD area is nevertheless evident.

Chart A1.5 shows the distribution of skilled, semi-skilled and unskilled occupations in 2006. The proportion of the workforce in unskilled occupations varies to some degree among countries but typically constitutes less then 10% of all jobs in most countries. The main difference among countries is the proportion of the workforce in skilled and semi-skilled jobs. This further reveals differences in the job market for individuals with tertiary education in OECD countries. In the long run, the high end of the labour market defines the need for such individuals. The proportion of the workforce in skilled professions surpasses the proportion in semi-skilled occupations in the Netherlands and Luxembourg, and, given current growth in skilled occupations among OECD countries, it is only a matter of time before this is also true in Australia, Belgium, Switzerland and the partner country Israel.

The difference between skilled jobs and the proportion with tertiary education, as shown in Chart A1.1, suggests that further expansion of tertiary education may still be an option in most countries. Chart A1.6 therefore relates changes in skilled jobs and changes in tertiary attainment between 1998 and 2006 to the difference in skilled jobs and tertiary educated that still exists in 2006. In relating occupations to educational attainment, it is necessary to recall that the supply of those with tertiary education differs among countries depending on labour market participation and employment rates among different educational groups and that tertiary attainment levels provide information on the potential supply of individuals with tertiary education on the labour market. To narrow down the labour market conditions that face higher educated individuals in different countries, the analysis is restricted to the 25-64-year-old population (as in Chart A1.1).

Shifts in the proportion of the population with tertiary education and the proportion of the population in skilled jobs suggest that tertiary attainment levels have risen relatively faster than skilled occupations in most OECD countries between 1998 and 2006. Notable exceptions are the Czech Republic, Germany and Italy, where the proportion of skilled jobs has outpaced attainment levels in the past eight years, and Austria and Denmark, where the expansion of tertiary attainment has matched that of skilled occupations. In Ireland and the Netherlands, the proportion of the 25-to-64-year-old population in skilled jobs has decreased, which means that relatively more semi-skilled and unskilled jobs have been created during this period (Chart A1.6).

Although the increase in the proportion of the population with tertiary education outpaced the increase in the proportion of the population in skilled jobs in most OECD countries during the past eight years, there still exists a substantial gap in many countries. For countries with large differences in skilled jobs and tertiary attainment levels, the fundamental question is whether higher growth in skilled occupations could be achieved if more individuals with tertiary education were available to the labour market or whether labour market experience and adult learning is sufficient to provide the necessary skills.

Four countries show little difference between the proportion of the population with tertiary attainment and the proportion of the population in skilled jobs. In Canada and the United States, the difference in tertiary attainment and skilled jobs is marginally negative and in Spain and the partner country Israel it is less than 5 percentage points. A close correspondence between tertiary attainment and skilled jobs suggests that individuals with tertiary education will find it more difficult to find skilled jobs at least until the growth in skilled occupations outpaces growth in attainment.

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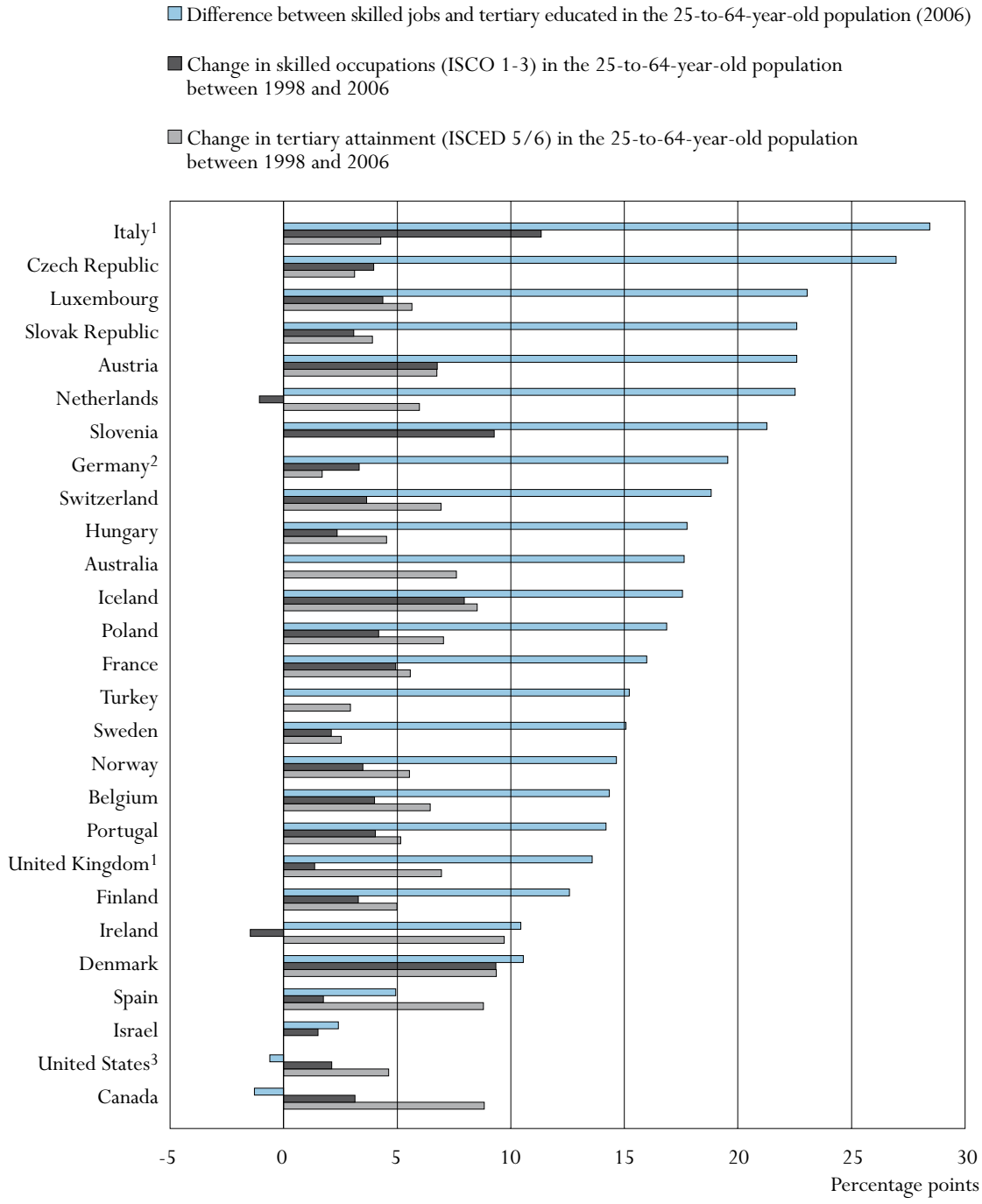
Chart A1.6. Difference between skilled jobs (ISCO 1-3) and proportion of tertiary educated in 2006 and changes in skilled jobs and tertiary attainment between 1998-2006

Percentage, sorted by skilled occupations



1. Change in survey methodology between 1998 and 2006 influences the comparability.
2. The year of reference is 1999, not 1998.
3. ISCO groupings 3 and 9 are not separated and thus distributed among remaining ISCO categories.

Countries are ranked in descending order of the difference between skilled jobs and tertiary attainment.

Source: OECD. Table A1.3a and Table A1.6. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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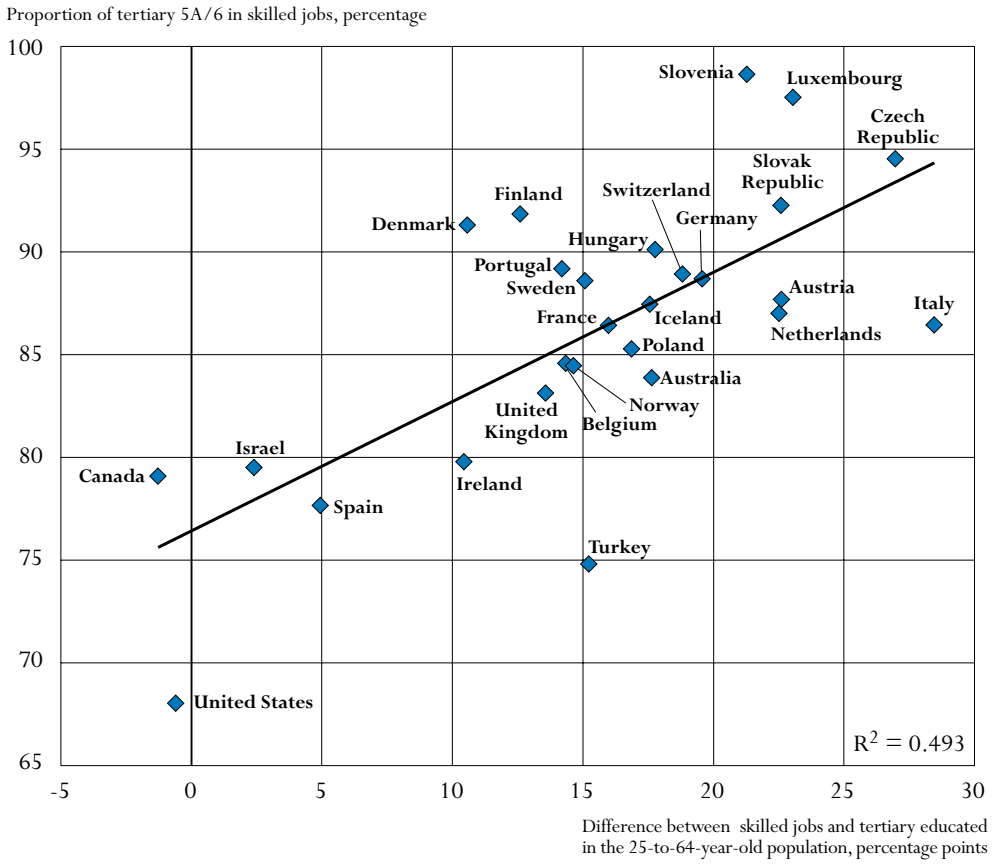
Matching tertiary educated individuals to skilled jobs

The match between tertiary educated individuals and jobs is shown in Table A1.7. Among OECD countries the main occupation for those with a tertiary 5B qualification is Technician and associate professionals (ISCO 3) but there are large differences among countries. In the Czech Republic, Denmark, France and Sweden, close to 50% of all tertiary type 5B individuals work in these occupations whereas in Austria, Germany, and Spain close to 20% of those with a tertiary 5B education work in Crafts and related trades (ISCO 7). In the United States, a large proportion of both 5B and 5A/6 educated individuals work in the service sector (ISCO 5).

The main destination for those with a 5A/6 level of qualification is Professionals (ISCO 2) with more than 60% of the working population entering these occupations in Austria, Germany, Luxembourg and Portugal and the partner country Slovenia. On average across OECD countries, 53% are in this category. On average, 14% of those with a 5A/6 level of qualification are also Legislators, senior officials or managers (ISCO 1); in Belgium, the United Kingdom and the United States this figure is above 20%.

Chart A1.7. Relationship between the matching of tertiary education (5A/6) to skilled jobs and the difference between skilled jobs and the proportion of tertiary educated in the economy



Source: OECD. Tables A1.3a, A1.6 and A1.7. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).
StatLink http://dx.doi.org/10.1787/401474646362

On average, across OECD countries, 69% of those with a tertiary-type 5B qualification and 85% of those with a tertiary 5A/6 level of qualification find skilled jobs. However the match between tertiary education and skilled jobs varies substantially among countries. Much of the variation is driven by supply and demand for skilled jobs in different countries. In other words, the more tertiary educated individuals relative to skilled jobs, the more difficult it is to match individuals with tertiary education to these jobs. Chart A1.7 shows this relationship by relating the difference between skilled jobs and tertiary education (from Chart A1.1) to the match between tertiary 5A/6 educated individuals and skilled jobs.

There is a strong relationship between a large portion of tertiary 5A/6 educated individuals in skilled jobs and the difference between the proportions of skilled jobs and the tertiary educated in the economy. Close to 50% of the matching of individuals with tertiary 5A/6 to skilled jobs is explained by differences in skilled jobs and tertiary education. Using a regression approach is also a way of levelling the playing field when evaluating countries' success in providing skilled jobs to highly educated individuals. Considering differences in supply and demand for skilled jobs, countries above the regression line match those with tertiary education to skilled jobs better and countries below the line do relatively worse in this respect.

By this reasoning Canada and the partner country Israel, which are below the OECD average of 85% of individuals with 5A/6 tertiary education in skilled jobs (Table A1.7), do relatively better than most countries when considering the proportion of tertiary educated individuals relative to skilled jobs in their economies. Given differences in the potential supply of and demand for high-end skills, those with tertiary education in Denmark, Finland, Luxembourg, and in the partner country Slovenia do substantially better in finding a skilled job. The opposite is true for those with a tertiary qualification in Italy, Turkey and the United States, where 8% or more end up outside skilled occupations than labour market conditions would suggest.

The matching of individuals with tertiary education to skilled jobs carries information about the quality of the schooling received and the responsiveness of tertiary education systems to changing demands. However, these figures should be interpreted with caution, because most occupations increasingly require higher skill levels to perform job tasks which are generally not reflected in the current ISCO classification. A better understanding of the differences among countries in these outcomes would require further refinement of the ISCO classification and additional information on fields of education.

Utilisation of human capital is a key issue, but the matching of individuals with tertiary education to skilled jobs is only one indication of the success of higher education systems. Other indicators provide additional and sometimes more crucial information on the outcomes of education systems. Data clearly show that there are substantial rewards associated with attaining tertiary education in all countries, and substantial penalties associated with failing to reach at least upper secondary education. The average earnings premium associated with tertiary education is everywhere more than 15% and in some countries more than 100% (see Indicator A9). Among OECD countries, the average unemployment rate among those with only lower secondary education is 4 percentage points higher than among those whose highest level is upper secondary, and 6 points higher than those with tertiary education (see Indicator A8).

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Definitions and methodologies

Data on population and educational attainment are taken from OECD and Eurostat databases, which are compiled from National Labour Force Surveys. See Annex 3 (*www.oecd.org/edu/eag2008*) for national sources.

Attainment profiles are based on the percentage of the population aged 25 to 64 that has completed a specified level of education. The International Standard Classification of Education (ISCED-97) is used to define the levels of education. See Annex 3 (*www.oecd.org/edu/eag2008*) for a description of ISCED-97 education programmes and attainment levels and their mappings for each country.

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

The data for Tables A1.4 and A1.5 originate from a special data collection by the Supply of Skills working group of INES Network B. Data on the distribution by fields of education among the population with tertiary-type 5A/6 levels of education was collected in most cases from the Eurostat labour force survey or national labour force surveys.

The data for Tables A1.6 and A1.7 are provided by the Supply of Skills working group of INES Network B. The information is based on a data collection of ISCO (International Standard Classification of Occupations) and ISCED information from OECD countries. ISCO is the most widely used classification system for organising occupations into groups according to the tasks and duties involved. The ISCO system is maintained by the International Labour Organisation (ILO). The current version, ISCO-88, is being updated for release in 2008.

The ISCO system facilitates international communication about jobs, makes international comparisons possible, and serves as a model for the development of national occupation classification systems. In the ISCO system, an occupation is classified into one of nine major groups, and then further into sub-groups. The analysis in Indicator A1 is at the major group level.

Like other international classification systems, ISCO changes only when major revisions are carried out. This means that ISCO does not fully capture changes in the labour market over time. Occupations evolve, as do their competency requirements. Some types of occupations disappear and others appear, and the nature of these new occupations is sometimes not fully described in ISCO. Accordingly, time series comparisons using the ISCO system should be interpreted with caution, considering the limitations of a static classification system.

Further references

For further information on expansion of tertiary education, see the OECD Education Working Paper, "Effects of Tertiary Expansion: Crowding-out effects and labour market matches for higher education" (on line at: *www.oecd.org/edu/workingpapers*).

The following additional material relevant to this indicator is available on line at:

StatLink http://dx.doi.org/10.1787/401474646362

- ***Educational attainment: adult population, by gender (2006)***
  Table A1.1b. Males
  Table A1.1c. Females
- ***Population that has attained at least upper secondary education, by gender (2006)***
  Table A1.2b. Males
  Table A1.2c. Females
- ***Population that has attained tertiary education, by gender (2006)***
  Table A1.3b. Males
  Table A1.3c. Females
- ***Table A1.3d. Attainment of tertiary education, by age (1998)***

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Table A1.1a.

Educational attainment: adult population (2006)

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

		Pre-primary and primary education	Lower secondary education	ISCED 3C (short programme)	Upper secondary education: ISCED 3C (long programme)/3B	Upper secondary education: ISCED 3A	Post-secondary non-tertiary education	Tertiary education: Type B	Tertiary education: Type A	Tertiary education: Advanced research programmes	All levels of education
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD countries	Australia	9	24	a	a	31	3	9	24	x(8)	100
	Austria	x(2)	18	2	47	6	10	7	10	x(8)	100
	Belgium	15	18	a	9	24	2	18	14	1	100
	Canada	5	10	a	x(5)	27	12	23	24	x(8)	100
	Czech Republic	n	10	a	42	35	a	x(8)	14	x(8)	100
	Denmark	1	16	2	43	4	n	8	27	1	100
	Finland	10	10	a	a	44	n	16	18	1	100
	France	14	19	a	30	11	n	11	15	1	100
	Germany	3	14	a	49	3	7	9	14	1	100
	Greece	28	11	3	3	26	8	7	15	n	100
	Hungary	2	20	a	30	29	2	n	17	n	100
	Iceland	3	27	6	16	10	8	4	25	1	100
	Ireland	16	18	n	a	25	11	11	19	n	100
	Italy	16	32	1	7	30	1	1	12	n	100
	Japan	x(5)	x(5)	x(5)	x(5)	60	a	18	23	x(8)	100
	Korea	11	12	a	x(5)	44	a	9	23	x(8)	100
	Luxembourg	18	9	8	17	20	5	8	15	2	100
	Mexico	48	30	a	7	x(2)	a	1	14	x(8)	100
	Netherlands	7	20	x(4)	16	23	3	2	28	1	100
	New Zealand	x(2)	22	8	11	9	11	15	23	x(8)	100
	Norway	n	21	a	31	12	3	2	30	1	100
	Poland	x(2)	14	33	a	31	4	x(8)	18	x(8)	100
	Portugal	57	15	x(5)	x(5)	13	1	x(8)	13	1	100
	Slovak Republic	1	13	x(4)	35	37	x(5)	1	13	n	100
	Spain	23	27	a	8	13	n	9	19	1	100
	Sweden	6	10	a	x(5)	47	6	9	22	x(8)	100
	Switzerland	3	10	2	46	6	3	10	17	3	100
	Turkey	61	10	a	8	10	a	x(8)	10	x(8)	100
	United Kingdom	n	14	17	23	16	n	9	21	n	100
	United States	5	8	x(5)	x(5)	48	x(5)	5	33	1	100
		Below upper secondary education			*Upper secondary level of education*			*Tertiary level of education*			
	OECD average	*31*			*42*			*27*			
	EU19 average	*31*			*45*			*24*			
Partner countries	Brazil[1]	57	14	x(5)	x(5)	22	a	x(8)	8	x(8)	100
	Chile[1]	24	26	x(5)	x(5)	37	a	3	10	x(8)	100
	Estonia	1	11	a	5	43	7	11	22	n	100
	Israel	4	17	a	x(5)	34	a	15	30	1	100
	Russian Federation[2]	3	8	x(4)	16	18	x(4)	33	20	n	100
	Slovenia	2	16	a	28	32	a	10	9	2	100

Notes: Due to discrepancies in the data, averages have not been calculated for each column individually.
1. Year of reference 2004.
2. Year of reference 2002.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/401474646362

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Table A1.2a.

Population that has attained at least upper secondary education[1] (2006)

Percentage, by age group

		Age group				
		25 to 64	25 to 34	35 to 44	45 to 54	55 to 64
OECD countries	Australia	67	80	68	63	52
	Austria	80	87	84	77	71
	Belgium	67	82	74	60	50
	Canada	86	91	89	85	76
	Czech Republic	90	94	94	89	84
	Denmark	82	88	84	78	76
	Finland	80	90	87	80	63
	France	67	82	72	61	52
	Germany	83	84	85	83	79
	Greece	59	75	67	53	34
	Hungary	78	86	82	77	66
	Iceland	63	67	67	64	51
	Ireland	66	82	71	58	41
	Italy	51	67	55	47	32
	Korea	77	97	90	62	37
	Luxembourg	66	78	67	60	55
	Mexico	32	39	36	28	17
	Netherlands	72	81	76	70	60
	New Zealand	69	78	72	69	55
	Norway	79	83	79	77	75
	Poland	53	64	51	49	44
	Portugal	28	44	28	20	12
	Slovak Republic	87	94	91	86	70
	Spain	50	64	55	43	27
	Sweden	84	91	90	82	73
	Switzerland	85	88	87	84	80
	Turkey	28	37	25	22	15
	United Kingdom	69	76	70	67	61
	United States	88	87	88	89	87
	OECD average	*68*	*78*	*72*	*65*	*55*
	EU19 average	*69*	*80*	*73*	*65*	*55*
Partner countries	Brazil[2]	30	38	32	27	11
	Chile[2]	50	64	52	44	32
	Estonia	88	87	93	92	80
	Israel	80	86	82	76	70
	Russian Federation[3]	88	91	94	89	71
	Slovenia	82	91	85	77	71

1. Excluding ISCED 3C short programmes.
2. Year of reference 2004.
3. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

StatLink http://dx.doi.org/10.1787/401474646362

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Table A1.3a.

Population that has attained tertiary education (2006)

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

		Tertiary-type B education					Tertiary-type A and Advanced research programmes					Total tertiary				
		25 to 64	25 to 34	35 to 44	45 to 54	55 to 64	25 to 64	25 to 34	35 to 44	45 to 54	55 to 64	25 to 64	25 to 34	35 to 44	45 to 54	55 to 64
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD countries	Australia	9	10	9	9	8	24	29	24	23	18	33	39	33	32	26
	Austria	7	6	8	9	7	10	13	11	9	7	18	19	19	18	14
	Belgium	18	22	20	15	13	14	19	15	12	10	32	42	35	27	22
	Canada	23	26	25	22	18	24	29	26	21	19	47	55	51	43	37
	Czech Republic	x(11)	x(12)	x(13)	x(14)	x(15)	14	15	15	13	11	14	15	15	13	11
	Denmark	8	9	8	7	7	27	32	28	26	22	35	41	36	33	28
	Finland	16	9	21	18	14	19	29	20	16	13	35	38	41	34	27
	France	11	18	11	8	5	16	24	15	12	11	26	41	27	19	16
	Germany	9	7	10	10	9	15	15	16	15	14	24	22	25	25	23
	Greece	7	9	9	6	3	15	18	18	14	9	22	27	26	20	13
	Hungary	0	1	0	0	0	17	20	17	17	15	18	21	17	17	15
	Iceland	4	3	4	6	3	26	28	30	24	18	30	32	34	29	21
	Ireland	11	14	12	9	6	20	28	20	15	11	31	42	33	24	17
	Italy	1	1	1	0	0	12	17	13	11	8	13	17	14	11	9
	Japan	18	24	21	16	9	23	30	25	24	14	40	54	46	39	23
	Korea	9	20	9	3	1	23	33	28	16	10	33	53	37	19	11
	Luxembourg	8	11	7	5	8	16	23	17	14	11	24	33	24	19	18
	Mexico	1	1	1	1	1	14	17	15	14	8	15	19	16	15	8
	Netherlands	2	2	2	2	2	28	34	28	28	23	30	36	30	30	25
	New Zealand	15	14	15	17	16	23	30	25	21	15	38	44	39	38	30
	Norway	2	2	2	4	2	31	40	32	27	23	33	42	35	30	25
	Poland	x(11)	x(12)	x(13)	x(14)	x(15)	18	28	17	13	13	18	28	17	13	13
	Portugal	x(11)	x(12)	x(13)	x(14)	x(15)	13	20	14	11	7	13	20	14	11	7
	Slovak Republic	1	1	1	1	1	13	16	12	13	11	14	17	13	14	12
	Spain	9	13	10	6	3	20	26	21	17	12	28	39	31	22	15
	Sweden	9	9	9	10	8	22	31	21	19	17	31	39	29	29	25
	Switzerland	10	9	11	11	8	20	23	22	19	15	30	32	33	29	24
	Turkey	x(11)	x(12)	x(13)	x(14)	x(15)	10	13	9	9	8	10	13	9	9	8
	United Kingdom	9	8	9	9	8	22	29	21	20	16	30	37	31	29	24
	United States	5	5	5	5	5	35	35	36	34	33	39	39	41	40	38
	OECD average	*8*	*10*	*9*	*8*	*6*	*19*	*25*	*20*	*17*	*14*	*27*	*33*	*28*	*24*	*19*
	EU19 average	*8*	*9*	*9*	*7*	*6*	*17*	*23*	*18*	*15*	*13*	*24*	*30*	*25*	*21*	*18*
Partner countries	Brazil [1]	x(11)	x(12)	x(13)	x(14)	x(15)	x(11)	x(12)	x(13)	x(14)	x(15)	8	8	9	9	4
	Chile [1]	3	4	3	2	1	10	14	9	9	8	13	18	13	11	9
	Estonia	11	9	12	13	10	22	24	23	22	19	33	33	36	35	29
	Israel	16	15	16	17	16	30	35	28	27	26	46	50	44	44	43
	Russian Federation [2]	33	34	37	34	26	21	21	21	20	19	54	55	58	54	44
	Slovenia	10	9	10	9	10	11	15	11	8	7	20	25	21	17	16

1. Year of reference 2004.
2. Year of reference 2002.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

StatLink http://dx.doi.org/10.1787/401474646362

Table A1.4.

Fields of education (2004)

Distribution by field of education for the 25-to-64-year-old population with ISCED 5A and 6-level of educational attainment (percentage)

	Education	Arts & humanities	Social sciences, business and law	Science	Engineering	Agriculture	Health and welfare	Services	Other fields	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
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[1, 2]	16	12	34	12	11	2	12	2	n	100
Czech Republic	m	m	m	m	m	m	m	m	m	m
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[3]	22	9	22	8	22	2	12	2	n	100
Greece	m	m	m	m	m	m	m	m	m	m
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
Japan	m	m	m	m	m	m	m	m	m	m
Korea	m	m	m	m	m	m	m	m	m	m
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
New Zealand	m	m	m	m	m	m	m	m	m	m
Norway	20	7	18	4	6	1	12	3	29	100
Poland	m	m	m	m	m	m	m	m	m	m
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
Switzerland	m	m	m	m	m	m	m	m	m	m
Turkey	m	m	m	m	m	m	m	m	m	m
United Kingdom	14	18	28	18	11	1	8	1	n	100
United States[2]	m	m	m	m	m	m	m	m	m	m
OECD average	***14***	***12***	***28***	***10***	***15***	***2***	***13***	***3***	***2***	***100***

OECD countries

Note: Science includes life sciences, mathematics and statistics, computer science and use.

1. Year of reference 2001.

2. Only ISCED 5A level of educational attainment.

3. Distribution for 20-year-olds and above.

Source: OECD, Network B special data collection, Supply of Skills working group.

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

StatLink http://dx.doi.org/10.1787/401474646362

Table A1.5.

Ratio of 25-to-34-year-olds with ISCED 5A and 30-to-39-year-olds with ISCED 6 levels of education to 55-to-64-year-olds with ISCED 5A and 6 levels of education, by field of education (2004)

OECD countries	Education	Arts and humanities	Social sciences, business and law	Science	Engineering	Agriculture	Health and welfare	Services	Other fields	All fields combined
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Australia	1.9	2.2	3.4	3.9	2.3	2.7	1.9	x(10)	2.9	2.6
Austria	1.0	1.8	2.0	4.8	1.8	1.6	1.4	x(10)	0.5	1.9
Belgium	x(10)	3.4	3.9	2.1	2.0	x(10)	2.4	x(10)	2.7	2.6
Canada[1, 2]	1.1	2.1	3.2	4.4	2.3	2.1	1.9	5.3	n	2.3
Czech Republic	m	m	m	m	m	m	m	m	m	m
Denmark	0.8	2.3	2.5	3.3	0.8	0.6	1.2	x(10)	n	1.4
Finland	1.3	1.3	1.6	1.6	1.9	1.4	3.9	2.0	n	1.8
France	x(10)	3.0	4.7	3.3	2.4	2.0	1.1	4.9	2.8	2.8
Germany	0.6	1.4	1.8	2.1	0.9	1.0	1.3	1.6	1.1	1.2
Greece	m	m	m	m	m	m	m	m	m	m
Hungary	1.9	2.7	2.4	6.2	0.8	0.9	1.4	1.3	n	1.7
Iceland	x(10)	x(10)	x(10)	x(10)	x(10)	x(10)	x(10)	x(10)	x(10)	2.7
Ireland	1.5	3.4	7.3	6.8	4.2	1.6	3.9	11.5	3.0	4.3
Italy	2.1	1.4	4.0	2.0	3.1	4.4	2.1	3.7	n	2.5
Japan	m	m	m	m	m	m	m	m	m	m
Korea	m	m	m	m	m	m	m	m	m	m
Luxembourg	x(10)	x(10)	x(10)	x(10)	x(10)	x(10)	x(10)	x(10)	x(10)	2.4
Mexico	x(10)	3.9	2.2	3.0	2.4	2.8	1.4	2.9	6.5	2.7
Netherlands	0.7	1.7	3.2	1.8	1.4	1.9	1.7	1.6	5.7	1.7
New Zealand	m	m	m	m	m	m	m	m	m	m
Norway	1.0	0.9	2.4	3.0	0.8	0.7	1.2	x(10)	9.0	2.2
Poland	m	m	m	m	m	m	m	m	m	m
Portugal	3.9	2.7	7.3	10.0	4.3	10.3	4.9	8.5	0.6	5.3
Slovak Republic	1.5	2.8	3.9	2.9	2.0	1.5	2.4	3.5	n	2.3
Spain	2.0	4.0	7.8	8.8	3.5	6.0	3.8	5.2	3.5	4.7
Sweden	0.9	1.9	1.7	4.3	4.7	2.5	1.3	x(10)	1.2	1.7
Switzerland	m	m	m	m	m	m	m	m	m	m
Turkey	m	m	m	m	m	m	m	m	m	m
United Kingdom	0.8	2.5	3.0	2.8	1.9	x(10)	2.8	x(10)	1.6	2.2
United States[2]	m	m	m	m	m	m	m	m	m	m
OECD average	***1.4***	***2.4***	***3.6***	***4.1***	***2.3***	***2.6***	***2.2***	***4.3***	***3.2***	***2.5***

Note: Science includes life sciences, mathematics and statistics, computer science and use.
1. Year of reference 2001.
2. Only ISCED 5A level of educational attainment.
Source: OECD, Network B special data collection, Supply of Skills working group.
StatLink http://dx.doi.org/10.1787/401474646362

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Table A1.6.

Proportion of the working age population in different occupations (ISCO) (1998, 2006)

Percentage, by ISCO groups

												Total workforce			25-to-64-year-old population		
		Legislators; senior officials; managers	Professionals	Technicians; associate professionals	Clerks	Service workers	Skilled agricultural and fishery workers	Craft and related trades workers	Plant and machine operators; assemblers	Elementary occupations	All occupations	Skilled occupations	Semi-skilled occupations	Unskilled occupations	Skilled occupations	Semi-skilled occupations	Unskilled occupations
		ISCO 1	ISCO 2	ISCO 3	ISCO 4	ISCO 5	ISCO 6	ISCO 7	ISCO 8	ISCO 9	Total (1-9)	ISCO 1-3	ISCO 4-8	ISCO 9	ISCO 1-3	ISCO 4-8	ISCO 9
OECD countries																	
Australia	2006	13	19	14	13	14	2	12	7	6	100	46	48	6	51	44	6
	1998	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Austria	2006	7	10	21	13	13	5	14	7	11	100	38	52	11	40	49	11
	1998	7	10	14	14	14	6	17	9	9	100	31	60	9	33	57	10
Belgium	2006	12	21	12	15	11	2	10	8	9	100	45	46	9	46	45	9
	1998	11	19	10	16	11	2	13	8	9	100	41	51	9	42	49	9
Canada	2006	9	17	15	14	14	2	10	10	8	100	41	50	8	46	47	7
	1998	10	16	14	14	14	3	10	11	9	100	39	52	9	43	50	8
Czech Republic	2006	7	11	22	7	12	2	18	14	7	100	39	53	7	40	52	7
	1998	7	10	18	8	12	2	21	13	9	100	35	57	9	37	55	9
Denmark	2006	3	15	22	12	17	1	12	8	11	100	40	49	11	45	46	9
	1998	3	13	16	13	16	1	13	9	15	100	32	53	15	36	51	13
Finland	2006	10	17	17	7	16	5	12	8	8	100	44	48	8	48	45	7
	1998	8	17	17	9	12	7	12	10	8	100	42	50	8	44	49	7
France	2006	9	13	18	12	13	4	12	9	10	100	40	50	10	42	48	10
	1998	8	11	17	14	13	5	14	11	8	100	36	56	8	37	55	8
Germany[1]	2006	5	14	22	12	12	2	15	7	10	100	42	49	10	44	47	9
	1998	5	13	20	13	12	1	18	8	10	100	38	52	10	40	50	9
Hungary	2006	8	13	14	9	15	3	18	12	8	100	34	58	8	35	57	8
	1998	6	12	13	9	13	4	23	11	9	100	31	60	9	33	58	9
Iceland	2006	9	17	15	8	20	5	13	6	7	100	41	51	7	47	48	5
	1998	8	12	14	9	18	7	17	7	9	100	34	57	9	39	54	7
Ireland	2006	15	17	6	13	17	1	14	8	9	100	38	53	9	41	50	9
	1998	18	15	5	13	14	1	13	10	10	100	39	52	10	43	48	9
Italy[2]	2006	9	10	22	11	11	2	17	9	9	100	40	50	9	41	49	10
	1998	3	10	15	14	16	4	19	9	9	100	28	62	9	30	61	9
Luxembourg[1]	2006	6	21	18	17	9	2	10	6	10	100	46	44	10	47	43	10
	1998	6	16	19	16	9	3	14	7	10	100	41	49	10	43	47	10
Netherlands[3]	2006	11	19	18	12	14	2	9	6	10	100	47	43	10	53	40	7
	1998	13	17	18	12	13	2	10	6	8	100	48	43	8	54	40	7
Norway	2006	6	12	25	7	24	3	11	7	5	100	43	52	5	48	48	4
	1998	11	9	20	10	20	4	11	8	7	100	40	53	7	44	51	5
Poland	2006	6	15	11	7	12	14	16	10	8	100	33	60	8	35	58	8
	1998	7	10	12	8	10	18	19	9	8	100	28	63	8	31	61	8
Portugal	2006	8	9	9	10	15	10	20	8	12	100	26	62	12	28	60	12
	1998	7	6	8	9	13	11	23	9	13	100	21	66	13	24	63	13

Note: OECD averages are caclulated for countries with data for both years and all ISCO groups.

1. 1999 instead of 1998.

2. Italy: change in survey methodology between 1998 and 2006 affects comparability. United Kingdom: change in national occupation coding frame in 2000 affects comparability for ISCO.

3. 2000 instead of 1998.

4. ISCO groupings 3 and 9 in 2006 are not separated and thus distributed among remaining ISCO categories.

Source: OECD, Network B special data collection, Supply of Skills working group.

StatLink http://dx.doi.org/10.1787/401474646362

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Table A1.6. *(continued)*

Proportion of the working age population in different occupations (ISCO) (1998, 2006)

Percentage, by ISCO groups

		Legislators; senior officials; managers	Professionals	Technicians; associate professionals	Clerks	Service workers	Skilled agricultural and fishery workers	Craft and related trades workers	Plant and machine operators; assemblers	Elementary occupations	All occupations	Total workforce: Skilled occupations	Total workforce: Semi-skilled occupations	Total workforce: Unskilled occupations	25-to-64-year-old population: Skilled occupations	25-to-64-year-old population: Semi-skilled occupations	25-to-64-year-old population: Unskilled occupations
		ISCO 1	ISCO 2	ISCO 3	ISCO 4	ISCO 5	ISCO 6	ISCO 7	ISCO 8	ISCO 9	Total (1-9)	ISCO 1-3	ISCO 4-8	ISCO 9	ISCO 1-3	ISCO 4-8	ISCO 9
Slovak Republic	2006	5	11	19	6	14	1	19	15	10	100	35	55	10	37	54	10
	1998	6	10	17	8	13	2	22	14	10	100	32	58	10	34	56	10
Spain	2006	8	12	12	9	15	3	17	9	15	100	32	54	15	33	52	14
	1998	9	12	9	10	14	5	17	11	14	100	29	57	14	32	55	13
Sweden[1]	2006	6	18	19	9	20	1	9	11	6	100	43	51	6	46	49	6
	1998	6	16	20	11	19	1	11	11	7	100	41	52	7	43	50	6
Switzerland	2006	6	18	21	12	14	4	15	5	5	100	46	49	5	49	46	6
	1998	6	16	20	14	14	4	15	5	5	100	42	52	5	45	49	6
Turkey	2006	6	11	6	7	8	9	28	14	11	100	23	66	11	26	64	11
	1998	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
United Kingdom[2]	2006	15	14	13	14	17	1	9	7	11	100	42	47	11	44	50	6
	1998	15	16	9	17	15	1	12	8	8	100	39	53	8	43	50	7
United States[4]	2006	15	21	a	13	28	1	10	12	a	100	36	64	a	39	61	a
	1998	15	15	3	14	26	4	2	17	4	100	33	63	4	37	59	4
OECD average	***2006***	***8.1***	***14.9***	***16.7***	***10.8***	***14.8***	***3.3***	***13.7***	***8.6***	***9.1***	***100***	***39.8***	***51.2***	***9.1***	***42.5***	***49.2***	***8.4***
OECD average	***1998***	***8.2***	***13.0***	***14.7***	***11.8***	***13.8***	***4.3***	***15.7***	***9.3***	***9.2***	***100***	***35.9***	***54.9***	***9.2***	***38.6***	***52.7***	***8.7***
Change 2006-1998		***0.0***	***1.9***	***2.1***	***-1.0***	***0.9***	***-0.9***	***-2.0***	***-0.7***	***-0.2***		***3.9***	***-3.8***	***-0.2***	***3.9***	***-3.6***	***-0.3***
Partner countries																	
Israel	2006	7	15	23	11	16	1	10	8	8	100	45	47	8	48	44	7
	1998	8	13	22	12	14	2	12	9	8	100	44	48	8	47	46	7
Slovenia	2006	7	15	17	8	12	7	11	16	7	100	39	55	7	41	52	6
	1998	6	10	13	12	12	10	11	21	5	100	29	66	5	32	63	5

Note: OECD averages are caclulated for countries with data for both years and all ISCO groups.

1. 1999 instead of 1998.
2. Italy: change in survey methodology between 1998 and 2006 affects comparability. United Kingdom: change in national occupation coding frame in 2000 affects comparability for ISCO.
3. 2000 instead of 1998.
4. ISCO groupings 3 and 9 in 2006 are not separated and thus distributed among remaining ISCO categories.

Source: OECD, Network B special data collection, Supply of Skills working group.

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Table A1.7.

Proportion of the working age population in different occupations by destination of tertiary education (2006)

Percentage of tertiary educated (ISCED 5B and 5A/6) in different occupations (ISCO)

		Legislators; senior officials; managers	Professionals	Technicians; associate professionals	Clerks	Service workers	Skilled agricultural and fishery workers	Craft and related trades workers	Plant and machine operators; assemblers	Elementary occupations	All occupations	Skilled occupations	Semi-skilled occupations	Unskilled occupations
		ISCO 1	ISCO 2	ISCO 3	ISCO 4	ISCO 5	ISCO 6	ISCO 7	ISCO 8	ISCO 9	Total (1-9)	ISCO 1-3	ISCO 4-8	ISCO 9
OECD countries														
Australia	5B	16	26	23	11	12	2	5	2	2	100	65	33	2
	5A/6	16	56	12	6	5	1	2	1	1	100	84	15	1
Austria	5B	13	25	25	4	5	6	18	2	2	100	62	35	2
	5A/6	12	62	13	5	3	1	1	1	1	100	88	11	1
Belgium	5B	11	45	16	19	4	1	2	1	1	100	72	26	1
	5A/6	22	52	10	11	2	0	1	0	1	100	85	15	1
Canada	5B	9	17	22	17	14	2	8	6	5	100	48	47	5
	5A/6	14	47	17	7	6	1	2	3	2	100	79	19	2
Czech Republic	5B	5	30	50	8	3	0	2	1	1	100	86	13	1
	5A/6	16	54	25	2	2	0	1	1	0	100	95	5	0
Denmark	5B	4	9	48	13	11	2	6	4	4	100	61	35	4
	5A/6	6	49	37	4	3	0	0	1	1	100	91	7	1
Finland	5B	14	15	41	12	8	3	4	2	2	100	70	28	2
	5A/6	19	56	16	3	3	1	1	0	1	100	92	8	1
France	5B	10	12	48	14	7	2	4	2	1	100	70	29	1
	5A/6	16	54	16	6	3	1	1	1	1	100	86	12	1
Germany	5B	8	13	37	7	8	2	18	3	3	100	59	38	3
	5A/6	9	65	14	5	2	0	1	1	2	100	89	10	2
Hungary	5B	11	15	37	18	13	0	2	2	2	100	63	35	2
	5A/6	18	58	15	5	3	1	1	1	0	100	90	10	0
Iceland	5B	12	38	41	5	3	0	1	0	0	100	91	9	0
	5A/6	16	59	12	4	5	1	1	1	1	100	87	11	1
Ireland	5B	16	23	11	16	17	1	9	3	4	100	50	46	4
	5A/6	15	55	9	8	6	0	2	1	2	100	80	18	2
Italy	5B	6	47	27	5	5	0	5	2	3	100	80	17	3
	5A/6	8	51	28	7	3	0	1	1	1	100	86	12	1
Luxembourg	5B	6	67	23	3	1	0	0	0	0	100	95	4	0
	5A/6	11	76	10	1	0	0	0	0	0	100	98	2	0
Netherlands	5B	19	31	31	10	7	0	2	0	0	100	80	20	0
	5A/6	14	55	18	6	4	0	1	1	1	100	87	12	1
Norway	5B	m	m	m	m	m	m	m	m	m	m	m	m	m
	5A/6	10	30	44	3	8	1	2	1	1	100	84	15	1
Poland	5B	m	m	m	m	m	m	m	m	m	m	m	m	m
	5A/6	14	58	13	6	4	1	1	1	0	100	85	14	0
Portugal	5B	10	41	30	9	4	1	3	1	1	100	81	18	1
	5A/6	11	61	18	6	3	0	1	0	1	100	89	10	1
Slovakia	5B	11	25	44	8	5	0	3	3	2	100	79	19	2
	5A/6	16	52	24	3	3	0	1	0	1	100	92	7	1

1. ISCO groupings 3 and 9 in 2006 are not separated and thus distributed among remaining ISCO categories.

Source: OECD, Network B special data collection, Supply of Skills working group.

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Table A1.7. *(continued)*

Proportion of the working age population in different occupations by destination of tertiary education (2006)

Percentage of tertiary educated (ISCED 5B and 5A/6) in different occupations (ISCO)

		Legislators; senior officials; managers	Professionals	Technicians; associate professionals	Clerks	Service workers	Skilled agricultural and fishery workers	Craft and related trades workers	Plant and machine operators; assemblers	Elementary occupations	All occupations	Skilled occupations	Semi-skilled occupations	Unskilled occupations
		ISCO 1	ISCO 2	ISCO 3	ISCO 4	ISCO 5	ISCO 6	ISCO 7	ISCO 8	ISCO 9	Total (1-9)	ISCO 1-3	ISCO 4-8	ISCO 9
Spain	5B	7	6	24	16	13	1	19	8	5	100	37	57	5
	5A/6	10	50	18	10	6	0	2	1	3	100	78	20	3
Sweden	5B	7	20	49	6	10	1	2	3	2	100	76	22	2
	5A/6	9	59	21	4	5	0	1	1	1	100	89	10	1
Switzerland	5B	12	29	27	7	7	4	11	2	1	100	68	31	1
	5A/6	12	56	21	4	4	0	2	1	1	100	89	10	1
Turkey	5B	m	m	m	m	m	m	m	m	m	m	m	m	m
	5A/6	15	43	16	12	6	2	3	1	1	100	75	24	1
United Kingdom	5B	20	14	29	11	13	1	6	2	3	100	63	33	3
	5A/6	21	45	18	8	5	0	1	1	1	100	83	16	1
United States[1]	5B	12	26	a	15	24	0	13	11	a	100	38	62	0
	5A/6	25	43	a	9	17	0	3	3	a	100	68	32	0
OECD average	***5B***	***11***	***27***	***32***	***10***	***9***	***1***	***6***	***3***	***2***	***100***	***69***	***29***	***2***
	5A/6	***14***	***53***	***19***	***6***	***5***	***1***	***2***	***1***	***1***	***100***	***85***	***14***	***1***
Partner countries														
Israel	5B	7	6	39	11	13	1	11	7	6	100	51	43	6
	5A/6	11	41	28	7	6	0	2	2	2	100	80	18	2
Slovenia	5B	13	49	26	4	3	1	2	1	0	100	88	12	0
	5A/6	21	71	7	1	1	0	0	0	0	100	99	1	0

1. ISCO groupings 3 and 9 in 2006 are not separated and thus distributed among remaining ISCO categories.

Source: OECD, Network B special data collection, Supply of Skills working group.

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INDICATOR A2

HOW MANY STUDENTS FINISH SECONDARY EDUCATION AND ACCESS TERTIARY EDUCATION?

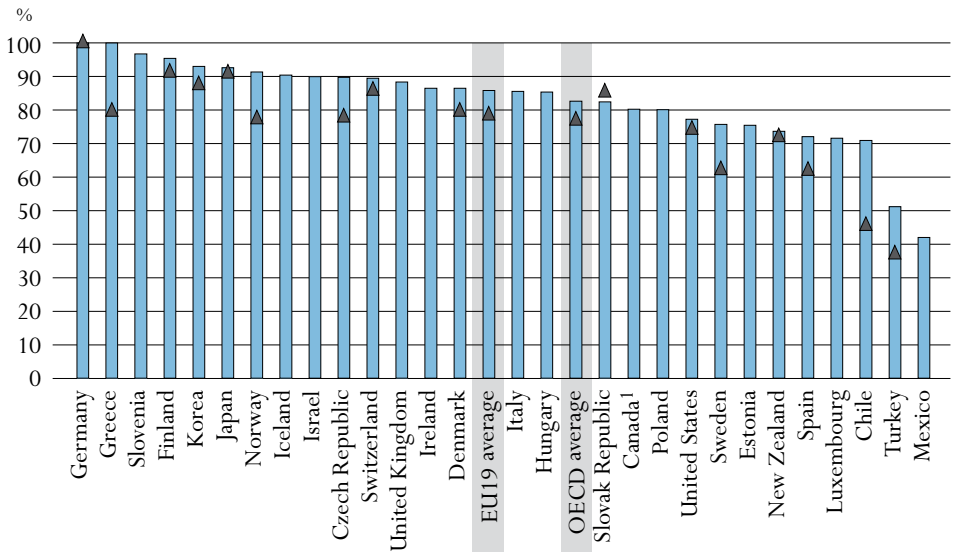
This indicator shows the current upper secondary graduate output of education systems, *i.e.* the percentage of the typical population of upper secondary school age that follows and successfully completes upper secondary programmes. It also shows the percentage of the youth cohort that will enter different types of tertiary education during their lifetime. Finally, it sheds light on the distribution of new entrants at the tertiary level across fields of study as well as the relative share of females among new entrants.

Key results

Chart A2.1. Upper secondary graduation rates (1995, 2006)

The chart shows the number of students completing upper secondary education programmes for the first time in 1995 and 2006, as a percentage of the age group normally completing this level; it gives an indication of how many young adults complete upper secondary education compared to a decade earlier.

In the last eleven years, the proportion of students graduating from upper secondary programmes has progressed by seven percentage points on average in OECD countries with comparable data. In 22 of 24 OECD countries and all partner countries with comparable data, the ratio of upper secondary graduates to the population at the typical age of graduation exceeds 70%. In the Czech Republic, Finland, Germany, Greece, Iceland, Japan, Korea and Norway and in the partner countries Israel and Slovenia, graduation rates equal or exceed 90%.



1. Year of reference 2005.

Countries are ranked in descending order of the upper secondary graduation rates in 2006.

Source: OECD. Table A2.2. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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Other highlights of this indicator

- Females are now more likely to complete upper secondary education than males in almost all OECD and partner countries, a reversal of the historical pattern. Today, graduation rates for females are below those for males only in Switzerland and Turkey.
- Most students obtain the upper secondary qualifications that give them access to tertiary-level study (ISCED 5A), although the extent to which students enter higher education varies significantly among countries.
- In some countries, a significant proportion of students broaden their knowledge at the post-secondary non-tertiary level after completing a first upper secondary programme. In the Czech Republic, 20% or more of a typical age cohort completes a post-secondary non-tertiary programme.
- Entry rates in tertiary-type A education increased substantially between 1995 and 2006, by 20 percentage points on average in OECD countries. Between 2000 and 2006, growth exceeded 10 percentage points in 11 of the 25 OECD countries for which data are available. In 2006, in Australia, Finland, Hungary, Iceland, New Zealand, Norway, Poland, the Slovak Republic and Sweden, and the partner country the Russian Federation, it is estimated that 65% and more of young adults will enter tertiary-type A programmes.
- The proportion of students who enter tertiary-type B programmes is generally smaller than for tertiary-type A programmes. In OECD countries for which data are available, 16% of young adults, on average, will enter tertiary-type B programmes, 56% will enter tertiary-type A and 2.8% will enter advanced research programmes.
- In Belgium, and to a lesser extent in the partner country Slovenia, wide access to tertiary-type B programmes counterbalances comparatively low rates of entry into tertiary-type A programmes. New Zealand stands out as a country with entry rates at both levels that are among the highest in OECD countries.
- In almost all countries, the majority of new entrants choose to follow tertiary programmes in the field of social sciences, business, law and services.
- Overall, females represent 54% of new entrants in tertiary education in OECD countries. However, the breakdown by gender varies considerably according to the field of education. Two fields are noteworthy for the strong representation of females, namely health and welfare and humanities, arts and education with 75% and 68%, respectively, of new entrants. The proportion of females choosing science (including life sciences, physical sciences, mathematics, computing, engineering, manufacturing, construction and agriculture) studies ranges from less than 25% in Japan, the Netherlands, Spain and Switzerland and the partner country Chile to more than 35% in Denmark, Iceland, Italy and New Zealand.

A2

Policy context

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

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

Entry rate is an estimated probability that a school leaver will enter tertiary education during his/her lifetime. So, entry rate is an indication of the accessibility of tertiary education and the perceived value of attending tertiary programmes. It gives a partial indication of the degree to which a population is acquiring the high-level skills and knowledge valued by the labour market in today's knowledge society. High tertiary entry and participation rates help to ensure the development and maintenance of a highly educated population and labour force.

As students' awareness of the economic and social benefits of tertiary education has increased, so have rates of entry into both tertiary-type A and tertiary-type B programmes. Continued growth in participation, accompanied by a widening diversity in the backgrounds and interests of those aspiring to tertiary studies, will demand new kinds of provision. Tertiary institutions will be challenged not only to meet growing demand through expansion of places offered, but also to adapt programmes, teaching and learning to match the diverse needs of the new generation of students. Moreover, the relative popularity of the various fields of study affects the demand for courses and teaching staff.

Evidence and explanations

Graduation from upper secondary programmes

Graduation from upper secondary education is becoming the norm in most OECD countries. Since 1995, the upper secondary graduation rate has increased by seven percentage points on average among OECD countries with comparable data. The highest growth occurred in Greece, Norway, Sweden and Turkey and in the partner country Chile, while levels in Germany, Japan, New Zealand, the Slovak Republic and the United States have been stable over the last decade. In Mexico and Turkey, the proportion of students graduating at the upper secondary level has progressed strongly since 2000, narrowing the gap between these and other OECD countries (Table A2.2).

In 22 of 24 OECD countries and all partner countries with comparable data, upper secondary graduation rates exceed 70% (Chart A2.1). In the Czech Republic, Finland, Germany, Greece, Iceland, Japan, Korea and Norway and in the partner countries Israel and Slovenia, graduation rates equal or exceed 90%.

The balance of educational attainment between males and females in the adult population differs in most countries. In the past, females did not have sufficient opportunities and/or incentives to reach the same level of education as males. They have generally been overrepresented among those not continuing to upper secondary education and thus underrepresented at higher levels of education. However, these gender differences are most evident in older age groups and have been significantly reduced or reversed among younger age groups (see Indicator A1).

Today, upper secondary graduation rates for females exceed those for males in 22 of 24 OECD countries and in all the partner countries for which total upper secondary graduation rates can be compared by gender (Table A2.1). The exceptions are Switzerland and Turkey, where graduation rates are higher for males. The gap is greatest in Denmark, Iceland, Ireland, New Zealand, Norway and Spain and in the partner countries Estonia and Slovenia, where female graduation rates exceed those of males by more than 10 percentage points.

Although graduation from upper secondary education is becoming the norm, the upper secondary curriculum can vary depending on the type of education or occupation for which it is designed. Most upper secondary programmes in OECD and partner countries are designed primarily to prepare students for tertiary studies; their orientation may be general, pre-vocational or vocational (see Indicator C1).

In 2006, the female graduation rate from general programmes is greater than the corresponding value for males for almost all OECD and partner countries with comparable data. The OECD average graduation rate from general programmes is 53% for females and 41% for males. The higher proportion of females is especially noteworthy in Austria, the Czech Republic, Italy, Norway, Portugal and the Slovak Republic and in the partner countries Estonia and Slovenia, where they outnumber males by three to two. Only in Korea and Turkey do the proportions for both sexes approach equality (Table A2.1)

Females are also more often than in the past graduates of vocational programmes and represent an average of 44% among OECD countries. This pattern can affect the entry rates in tertiary-type B programmes in the following years (Table A2.1).

Transitions following upper secondary education

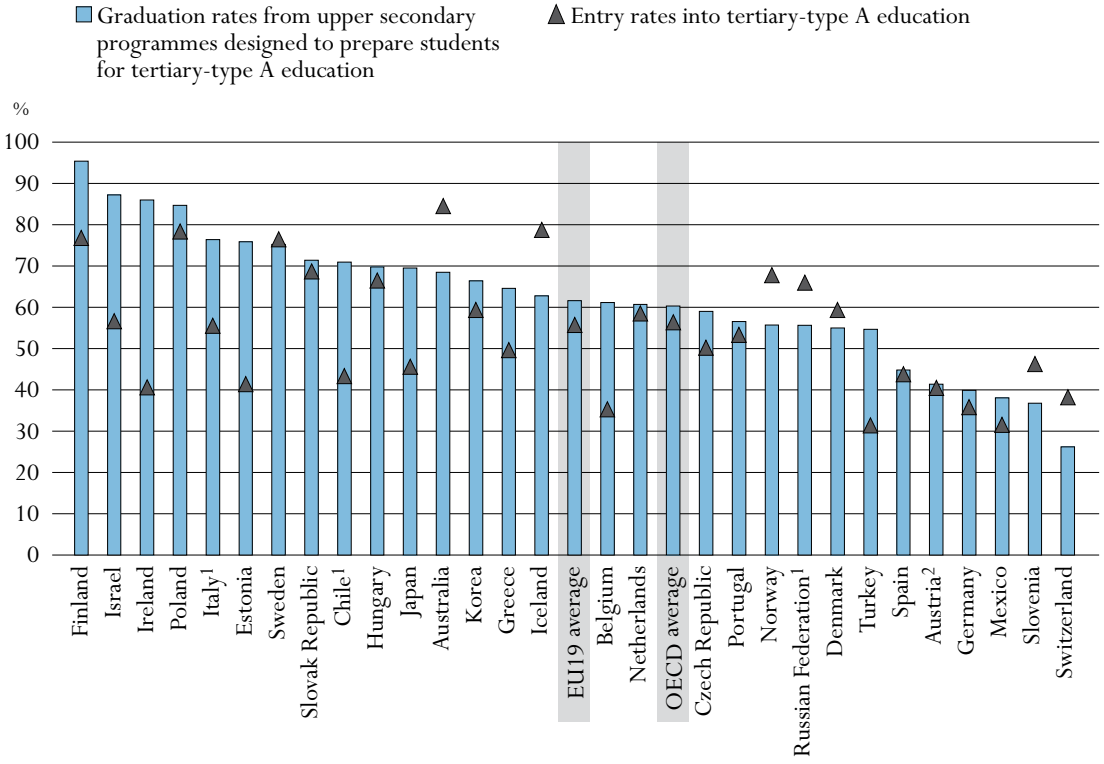
The vast majority of students who graduate from upper secondary education graduate from programmes designed to provide access to further tertiary education (ISCED 3A and 3B). Programmes to facilitate direct entry into tertiary-type A education are preferred by students in all countries except Austria, Germany and Switzerland and the partner country Slovenia, where both female and male students are more likely to graduate from upper secondary programmes leading to tertiary-type B programmes (Table A2.1).

The graduation rate for ISCED 3C (long programmes) is 20% on average in the OECD countries.

It is interesting, however, to contrast the proportion of students who graduate from programmes designed as preparation for entry into tertiary-type A programmes with the proportion who actually enter these programmes. Chart A2.2 shows this comparison and demonstrates significant variation among countries. For instance, in Belgium, Ireland, Italy,

Japan and Turkey, and in the partner countries Chile, Estonia and Israel, the difference between graduation rates from upper secondary programmes designed for tertiary-type A programmes and the eventual entry rate to such programmes is relatively large (more than 20 percentage points). This suggests that many students who achieve qualifications designed for university level entrance do not in fact take up university studies; however, at least in Belgium and the partner countries Estonia and Israel, such upper secondary programmes also give access to tertiary-type B programmes. In Israel, the difference may be explained by the wide variation in the age of entry to university, which is due in part to the two to three years of military service students undertake before entering higher education.

Chart A2.2. Access to tertiary-type A education for upper secondary graduates (2006)



1. Entry rate for tertiary-type A programmes is calculated as gross entry rate.
2. Includes ISCED 4A programmes ("Berufsbildende Höhere Schulen").

Countries are ranked in descending order of graduation rates from upper secondary programmes designed to prepare students for tertiary-type A education.

Source: OECD. Tables A2.1 and A2.4. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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In contrast, in Australia, Iceland, Norway and Switzerland and in the partner countries the Russian Federation and Slovenia, the upper secondary graduation rate is markedly lower than tertiary-type A entry rates. In Australia, Norway and Switzerland, this may be due to the high proportion of international/foreign students (see Indicator C3).

Graduation from post-secondary non-tertiary programmes

Post-secondary non-tertiary programmes of various kinds are offered in 26 OECD countries and 4 partner countries. From the point of view of international comparisons, these programmes straddle upper secondary and post-secondary education, but may be considered as either upper secondary or post-secondary programmes in a national context. Although the content of these programmes may not be significantly more advanced than upper secondary programmes, post-secondary non-tertiary programmes serve to broaden the knowledge of participants who have already gained an upper secondary qualification. These students tend to be older than those enrolled at the upper secondary level (Table A2.3).

Typical examples of such programmes are trade and vocational certificates, nursery teacher training in Austria and Switzerland, or vocational training in the dual system for holders of general upper secondary qualifications in Germany. In most countries, post-secondary non-tertiary programmes are vocationally oriented. In the Czech Republic, 20% or more of a typical age cohort complete a post-secondary non-tertiary programme.

In 13 of the 24 OECD countries for which data are available and 1 partner country, most, if not all, post-secondary non-tertiary students graduate from ISCED 4C programmes, which are designed primarily to prepare graduates for direct entry into the labour market. Although the gender difference is not apparent at the level of the OECD average, the proportion of males and females participating in such programmes in each country is very different. In Poland, twice as many females have completed an ISCED 4C programme as males, while the opposite is true in Ireland, where female graduates are seven times less numerous than males (Table A2.3).

Apprenticeships designed for students who have already graduated from an upper secondary programme are also included among post-secondary non-tertiary programmes. However, in 8 out of 24 OECD countries and 2 partner countries, 50% or more of post-secondary non-tertiary graduates have completed programmes designed to provide direct access to either tertiary-type A or B education. In Switzerland, more than two thirds of graduates complete ISCED 4B programmes (Table A2.3).

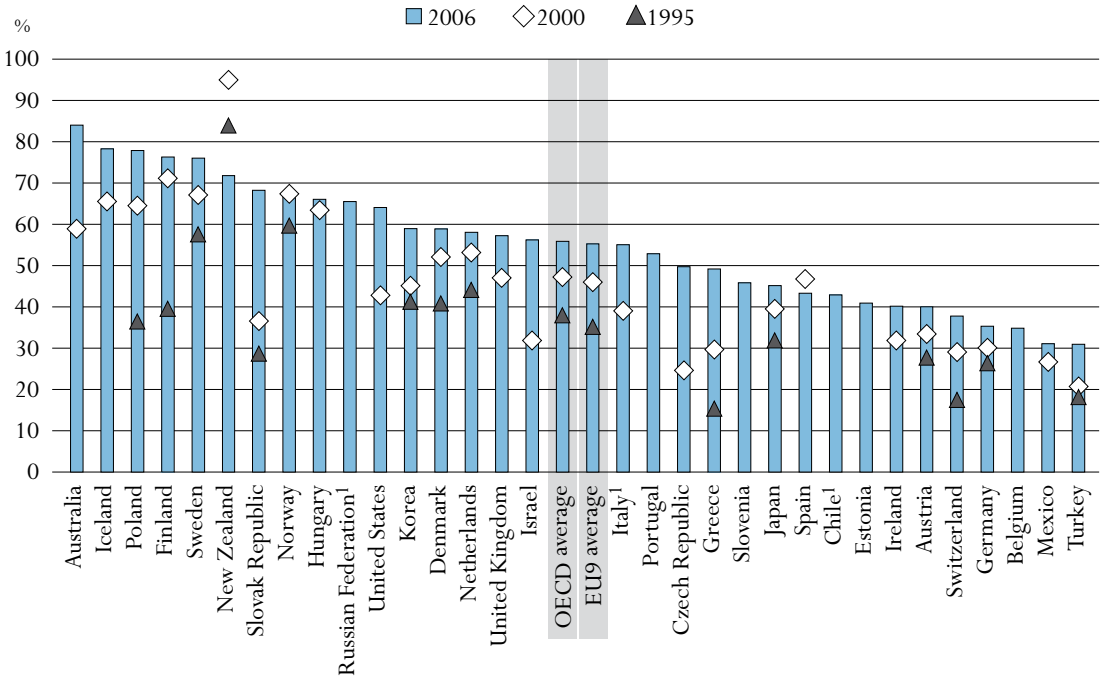
Overall access to tertiary education

Graduates from upper secondary programmes and those in the workforce who want to upgrade their skills can choose from a wide range of tertiary programmes. The higher the upper secondary graduation rates, the higher the expected entry rates in tertiary education. This indicator examines how students are oriented towards tertiary education and helps to understand the choices made by students at the end of upper secondary education. Furthermore, this orientation is extremely important and will affect dropout rates (see Indicator A4) but also unemployment rates (see Indicator A8) if the programmes proposed are not adjusted to labour market needs.

This indicator distinguishes among different categories of tertiary qualifications: programmes at tertiary-type B level (ISCED 5B); programmes at tertiary-type A level (ISCED 5A); and advanced research programmes at the doctorate level (ISCED 6). Tertiary-type A programmes are largely theory-based and designed to provide qualifications for entry into advanced research programmes and highly skilled professions. Tertiary-type B programmes are classified at the same level of competence as tertiary-type A programmes, but are more occupationally oriented

and lead to direct labour market access. They tend to be of shorter duration than tertiary-type A programmes (typically two to three years) and are generally not designed to lead to university degrees. The institutional location of programmes can give a relatively clear idea of their nature (*e.g.* university or non-university institution of higher education), but these distinctions have become blurred and are therefore not applied in the OECD indicators.

Chart A2.3. Entry rates into tertiary-type A education (1995, 2000 and 2006)



1. Entry rate for tertiary-type A programmes is calculated as gross entry rate in 2006.
Countries are ranked in descending order of entry rates for tertiary-type A education in 2006.
Source: OECD. Table A2.5. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).
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It is estimated that 56% of young adults in OECD countries will enter tertiary-type A programmes during their lifetime, assuming that current patterns of entry continue. In Australia, Finland, Hungary, Iceland, New Zealand, Norway, Poland, the Slovak Republic and Sweden, as well as in the partner country the Russian Federation, 65% and more of young adults enter tertiary-type A programmes. The United States has an entry rate of 64%, but both type A and type B programmes are included in the figures for tertiary-type A (Table A2.4).

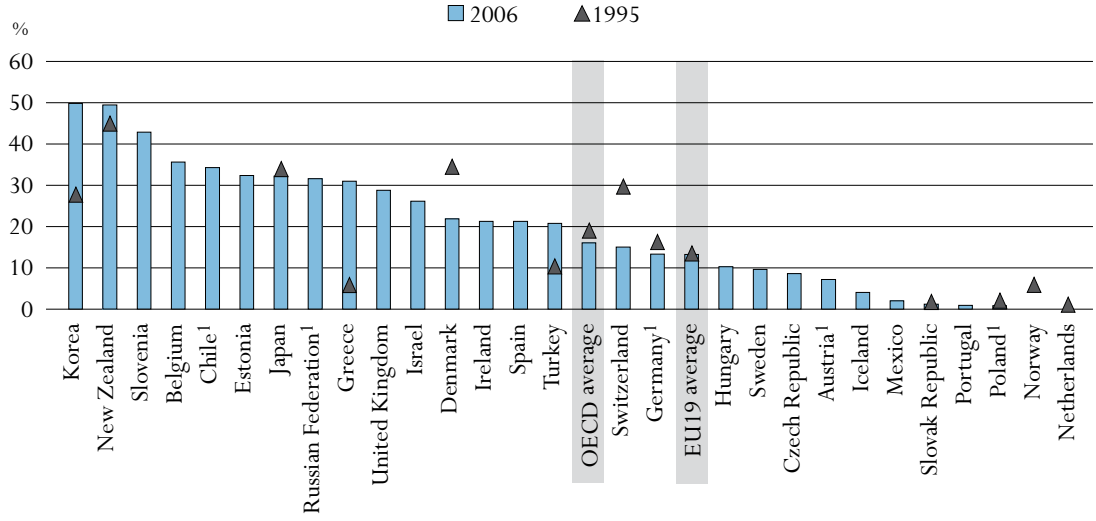
Although Turkey has had a large increase in the number of students entering tertiary-type A programmes, its entry rate is only 31% and it remains, with Mexico, at the bottom of the scale.

The proportion entering tertiary-type B programmes is generally smaller mainly because these programmes are less developed in most OECD countries. In OECD countries for which data are available, 16% of young adults, on average, enter tertiary-type B programmes. The OECD country average differs somewhat from the EU19 country average (13%). The figures range from 4%

or less in Iceland, Mexico, the Netherlands, Norway, Poland, Portugal and the Slovak Republic to 30% or more in Belgium, Greece and Japan, and in the partner countries Chile, Estonia, the Russian Federation and Slovenia, to more than 45% in Korea and New Zealand. The share of tertiary-type B programmes in the Netherlands is very small but will increase because of a new programme of "associate degrees". Finland no longer has tertiary-type B programmes in their education system (Table A2.4. and Chart A2.4).

In Belgium and to a lesser extent in the partner country Slovenia, broad access to tertiary-type B programmes counterbalances comparatively low entry rates into tertiary-type A programmes, while Iceland, Norway, Poland and Sweden have entry rates well above the OECD average for tertiary-type A programmes and comparatively very low rates for tertiary-type B programmes. New Zealand stands out, with entry rates at both levels that are among the highest in OECD countries.

Chart A2.4. Entry rates into tertiary-type B education (1995, 2006)



1. Entry rate for tertiary-type B programmes is calculated as gross entry rate in 2006.
Countries are ranked in descending order of entry rates for tertiary-type B education in 2006.
Source: OECD. Table A2.5. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

StatLink http://dx.doi.org/10.1787/401482730488

On average, in all OECD countries with comparable data, 8 percentage points more of today's young adults enter tertiary-type A programmes than in 2000, and more than 20 percentage points more than in 1995. Entry rates in tertiary-type A education increased by more than 15 percentage points between 2000 and 2006 in Australia, the Czech Republic, Greece, Italy and the Slovak Republic and the partner country Israel. New Zealand and Spain are the only OECD countries that show a decrease in entry to tertiary-type A programmes, although in Spain, the decrease is counterbalanced by a significant increase in entry rates to tertiary-type B programmes between 2000 and 2006 (Table A2.5). In New Zealand, the rise and fall in entry rates over the 2000 to 2006 period mirrored the rise and fall in the number of international students over the same period.

Among OECD countries, overall net entry rates to tertiary-type B programmes between 1995 and 2006 have been stable. They decreased slightly, except in Greece, Korea, New Zealand and Turkey, where they increased, and in Poland and the Slovak Republic where they remained stable. The reclassification of tertiary-type B to tertiary-type A programmes in Denmark after 2000 partly explains the changes observed between 1995 and 2006 (Table A2.5 and Charts A2.3 and A2.4).

More than 2.8% of today's young adults in the 20 OECD countries with comparable data will enter advanced research programmes during their lifetime. The figures range from less than 1% in Mexico and Turkey, and in the partner countries Chile and Slovenia, to 4% or more in Austria, Greece, Portugal, Spain and Switzerland (Table A2.4).

Rates of entry into tertiary education should also be considered in light of participation in post-secondary non-tertiary programmes, an important alternative to tertiary education in some OECD countries.

Pathways between tertiary-type A and tertiary-type B programmes

In some countries, tertiary-type A and B programmes are provided by different types of institutions but this is changing. It is increasingly common for universities or other institutions to offer programmes of both types; furthermore, the two levels are gradually growing more similar in terms of curriculum, orientation and learning outcomes.

Graduates from tertiary-type B programmes often have the opportunity to gain admission to tertiary-type A programmes, either in the second or third year of the programme or even to a master's programme. This path is often subject to conditions (special examination, personal or professional past achievements, completion of a "bridging" programme, etc.) depending on the country or programme. Conversely, students that leave tertiary-type A education without having graduated can in some cases be successfully re-oriented towards tertiary-type B programmes (see Indicator A4).

Countries with high entry rates may also be countries that have pathways between the two types of programmes. In Australia and New Zealand, 17 and 14%, respectively, of students who enter a tertiary-type A programme for the first time previously studied at the tertiary-type B level (Table A2.7 on line).

Age of new entrants into tertiary education

The age structure of entrants into tertiary education varies among OECD countries. The typical graduation age for upper secondary education may be different and/or upper secondary graduates may have entered the labour market before enrolling in tertiary education. People entering tertiary-type B programmes may also enter tertiary-type A programmes later in their lives. Adding together tertiary-type A and B entry rates to obtain overall tertiary-level entry rates would therefore result in overcounting.

Traditionally, students enter tertiary-type A programmes immediately after having completed upper secondary education, and this remains true in many OECD countries. For example, in Ireland, Japan, Korea, Mexico, the Netherlands, Poland and Spain and the partner country Slovenia, more than 80% of all first-time entrants into tertiary-type A programmes are under 23 years of age (Table A2.4).

In other OECD and partner countries, the transition to the tertiary level is often delayed, in certain cases by some time spent in the labour force. In these countries, first-time entrants into tertiary-type A programmes are typically older and show a much wider age range at entry. In Denmark, Iceland and Sweden and the partner country Israel, more than half of the students enter this level for the first time at the age of 22 or older (Table A2.4). The proportion of older first-time entrants to tertiary-type A programmes may reflect, among other factors, the flexibility of these programmes and their suitability to students outside the typical age cohort. It may also reflect a view of the value of work experience for higher education studies, which is characteristic of the Nordic countries and common in Australia, the Czech Republic, Hungary, New Zealand and Switzerland, where a sizeable proportion of new entrants is much older than the typical age of entry. It may also reflect some countries' mandatory military service, which would postpone entry into tertiary education. For example, the partner country Israel has mandatory military service from ages 18 to 21 for males and 18 to 20 for females. In Australia, Denmark, Finland, Hungary, Iceland, New Zealand, Norway, Portugal, Sweden and Switzerland, more than 20% of first-time entrants are aged 27 or older.

Entry rate by field of education

In almost all countries, the majority of students choose to follow tertiary programmes in the field of social sciences, business, law and services. This field accounts for over one-third of new entrants except in the Czech Republic, Finland, Germany, Korea, the Slovak Republic, Sweden and the United Kingdom. In Germany and the United Kingdom, the proportion of new entrants is highest in the field of humanities, art and education.

In OECD countries, an average of just over a quarter of all students are new entrants in the science field, which includes life sciences, physical sciences and agriculture, mathematics and computer science, engineering, manufacturing and construction. This proportion ranges from under 20% in Iceland, the Netherlands and Norway to 30% and more in Finland, Germany, Korea, Mexico, the Slovak Republic and Sweden and the partner countries Israel and the Russian Federation (Table A2.6).

The distribution of advanced research programmes by field of education is very different from that observed in tertiary education at a whole. Most students undertake studies in the field of sciences. Only Norway and Portugal have less than 30% of students in these fields, with 21 and 28%, respectively, of new entrants (Table A2.6b on line).

Overall, females represent 54% of the population of new entrants in tertiary education for OECD countries. However, the breakdown by gender varies considerably with the field of education. Women predominate among new entrants in health and welfare and humanities, arts and education where they represent 75 and 68%, respectively, of new entrants. In all countries for which data are available, females far outnumber males in those fields. Although females are in the majority in social sciences, business and law, they are less strongly represented, except in the Czech Republic, Finland, Hungary and the Slovak Republic and in the partner countries Estonia and Slovenia where they account for more than 60% of new entrants.

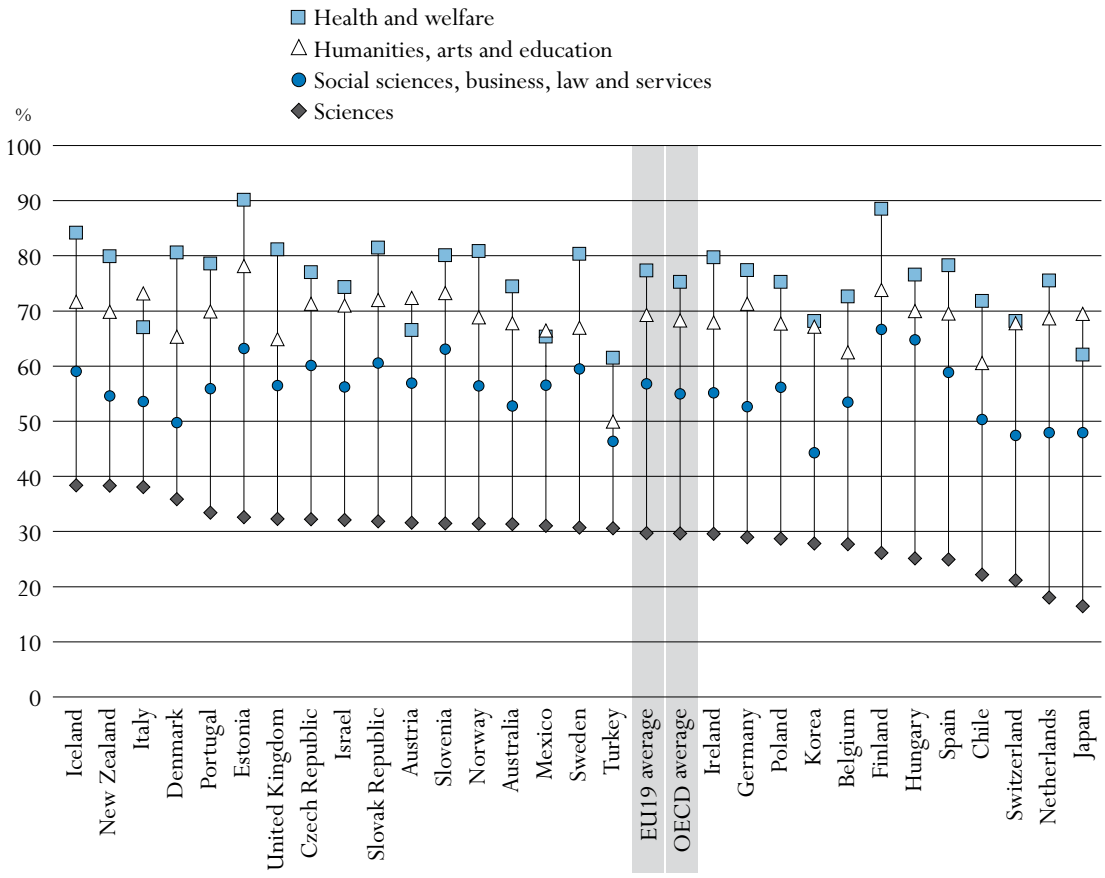
Sciences (including life sciences, physical sciences, mathematics, computing, engineering, manufacturing, construction and agriculture) attract a smaller proportion of females. The

A2

proportion of females choosing science studies ranges from less than 25% in Japan, the Netherlands and Switzerland and the partner country Chile to more than 35% in Denmark, Iceland, Italy and New Zealand (Chart A2.5). An increase in the proportion of females entering science fields could help alleviate shortages in the labour market in these fields (see Indicator A1).

The situation in the broad field of sciences differs to that in the other fields of education. Over 77% on average of those entering the field of engineering, manufacturing and construction for the first time are males. This proportion exceeds 85% in Ireland, Japan, the Netherlands and Switzerland. The proportion of females in this field, although a minority, is highest in Denmark and Iceland at over 30%. Males also account for 76% of new entrants in mathematics and computer science. The proportion of females in this field exceeds 30% only in Denmark, Finland, Germany, Ireland, Mexico, New Zealand and Turkey. Compared to the other fields included in sciences, females are better represented in life sciences, physical sciences and agriculture where they represent 50% of the new entrants.

Chart A2.5. Proportion of females in new entrants at the tertiary level, by field of education (2006)



Note: Sciences include life sciences, physical sciences, mathematics, computing, engineering, manufacturing, construction and agriculture.

Countries are ranked in descending order of the proportion of females in sciences.

Source: OECD. Table A2.6. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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Definitions and methodologies

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 (for details see Annex 3 at *www.oecd.org/edu/eag2008*).

In Table A2.1, upper secondary graduates are those who successfully complete the final year of upper secondary education, regardless of age. In some countries, successful completion requires a final examination, and in others it does not (see Annex 1).

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 (see Annex 1). The graduation rates take into account students graduating from upper secondary education at the typical (modal) graduation ages, as well as older students (*e.g.* those in "second chance" programmes) or younger students. The unduplicated total count of graduates is calculated by netting out students who graduated from another upper secondary programme in a previous year.

Counts of graduates for ISCED 3A, 3B and 3C programmes are not unduplicated. Therefore, gross graduation rates cannot be added, as some individuals graduate from more than one upper secondary programme and would be counted twice. The same applies for graduation rates by programme orientation, *i.e.* general or vocational. Moreover, the typical graduation ages are not necessarily the same for the different programme types. Pre-vocational and vocational programmes include both school-based programmes and combined school- and work-based programmes that are recognised as part of the education system. Entirely work-based education and training that is not overseen by a formal education authority is not taken into account.

In Table A2.2, data on trends in graduation rates at upper secondary level for the years 1995, 2000, 2001, 2002, 2003 and 2004 are based on a special survey carried out in OECD countries and four of the six partner countries in January 2007.

In Table A2.3, post-secondary non-tertiary graduates are those who successfully complete the final year of post-secondary non-tertiary education, regardless of age. In some countries, successful completion requires a final examination, and in others it does not.

Post-secondary non-tertiary graduation rates are estimated as the number of students, regardless of age, who graduate for the first time from post-secondary non-tertiary programmes, divided by the population at the age at which students typically graduate from these programmes (see Annex 1). The graduation rates take into account students graduating at the typical (modal) graduation ages, as well as older or younger students. The unduplicated total count of graduates is calculated by netting out students who graduated from another post-secondary non-tertiary programme in a previous year.

For some countries, an unduplicated count of post-secondary non-tertiary graduates is unavailable and graduation rates may be overestimated because of graduates who have completed multiple programmes at the same level. Counts of graduates for ISCED 4A, 4B and 4C programmes are not unduplicated. Gross graduation rates cannot be added, as some individuals graduate from more than one post-secondary non-tertiary programme and would thus be counted twice. Moreover, the typical graduation ages are not necessarily the same for the different programme types.

A2

Table A2.4 and Table A2.5 show the sum of net entry rates for all ages. The net entry rate 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. The result represents an estimate of the probability that a young person will enter tertiary education in his/her lifetime assuming current age-specific entry rates continue. Table A2.4 also shows the 20th, 50th and 80th percentiles of the age distribution of first-time entrants, *i.e.* the age below which 20, 50 and 80% of first-time entrants are found.

New (first-time) entrants are students who enrol at the relevant level of education for the first time. Foreign students enrolling for the first time in a post-graduate programme are considered first-time entrants.

Not all OECD countries can distinguish between students entering a tertiary programme for the first time and those transferring between different levels of tertiary education or repeating or re-entering a level after an absence. Thus first-time entry rates for each level of tertiary education cannot be added to form a total tertiary-level entrance rate because it would result in counting entrants twice.

In Table A2.5, data on trends in entry rates for the years 1995, 2000, 2001, 2002, 2003 and 2004 are based on a special survey carried out in OECD countries and four of the six partner countries in January 2007.

In Table A2.6, new entrants to tertiary education are classified by fields of education based on their subject of specialisation. These figures cover new entrants to all tertiary degrees reported in Table A2.4. The 25 fields of education used in the UOE data collection instruments follow the revised ISCED classification by field of education. The same classification by field of education is used for all levels of education.

Further references

The following additional material relevant to this indicator is available on line at:

StatLink http://dx.doi.org/10.1787/401482730488

- ***Table A2.6a. Percentage of new entrants in tertiary-type A, by field of education (2006)***
- ***Table A2.6b. Percentage of new entrants in advanced research programmes, by field of education (2006)***
- ***Table A2.6c. Percentage of new entrants in tertiary-type B, by field of education (2006)***
- ***Table A2.7. Pathways between tertiary-type A and tertiary-type B programmes (2006)***

A2

Table A2.1.

Upper secondary graduation rates (2006)

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

		Total (unduplicated)			ISCED 3A (designed to prepare for direct entry to tertiary-type A education)		ISCED 3B (designed to prepare for direct entry to tertiary-type B education)		ISCED 3C (long) similar to duration of typical 3A or 3B programmes		ISCED 3C (short) shorter than duration of typical 3A or 3B programmes		General programmes		Pre-vocational/ vocational programmes	
		M + F	Males	Females	M + F	Females	M + F	Females	M + F	Females	M + F	Females	M + F	Females	M + F	Females
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD countries	Australia	m	m	m	68	74	x(8)	x(9)	41	45	x(8)	x(9)	68	74	41	45
	Austria	m	m	m	17	20	50	38	m	m	m	m	17	20	50	38
	Belgium	m	m	m	61	67	a	a	20	18	14	17	37	43	58	60
	Canada[1]	80	77	84	77	82	a	a	8	7	a	a	77	82	8	7
	Czech Republic	90	88	92	59	69	n	n	30	22	a	a	18	23	72	69
	Denmark	86	78	96	55	66	a	a	50	56	n	n	55	66	51	56
	Finland	95	91	100	95	100	a	a	a	a	a	a	51	61	88	97
	France[1]	m	m	m	51	59	14	13	48	47	a	a	51	59	63	60
	Germany	103	102	104	40	45	62	59	a	a	1	1	40	45	63	59
	Greece	100	96	104	65	73	a	a	36	31	x(8)	x(9)	63	72	35	30
	Hungary	85	81	90	70	77	a	a	18	14	x(8)	x(9)	70	77	18	14
	Iceland	90	81	100	63	73	1	2	37	30	17	23	66	76	55	54
	Ireland	86	81	93	86	92	a	a	5	5	25	37	63	65	53	69
	Italy	86	84	88	76	81	2	3	a	a	21	19	31	41	69	62
	Japan	93	92	93	70	73	1	n	22	20	x(8)	x(9)	70	73	23	21
	Korea	93	92	94	66	67	a	a	27	27	a	a	66	67	27	27
	Luxembourg	72	69	74	41	49	9	7	20	17	2	2	28	33	44	41
	Mexico	42	38	46	38	42	a	a	4	4	a	a	38	42	4	4
	Netherlands	m	m	m	61	67	a	a	18	20	22	18	36	39	66	67
	New Zealand	74	63	85	x(1)	x(3)	x(1)	x(3)	x(1)	x(3)	x(1)	x(3)	x(1)	x(3)	x(1)	x(3)
	Norway	91	80	103	56	68	a	a	42	40	m	m	56	68	42	40
	Poland	80	76	84	85	90	a	a	13	8	a	a	59	70	36	26
	Portugal	m	m	m	57	67	x(4)	x(5)	x(4)	x(5)	x(4)	x(5)	40	50	13	13
	Slovak Republic	82	80	85	71	77	a	a	20	15	1	1	23	28	69	65
	Spain	72	64	80	45	53	a	a	18	19	17	19	45	53	35	38
	Sweden	76	73	79	75	79	x(4)	x(5)	n	n	m	m	34	40	42	39
	Switzerland	89	90	89	26	28	62	55	10	13	m	m	30	34	69	62
	Turkey	51	55	47	55	51	a	a	n	n	m	m	35	35	19	16
	United Kingdom	88	85	92	m	m	m	m	m	m	m	m	m	m	m	m
	United States	77	75	79	m	m	m	m	m	m	m	m	m	m	m	m
	OECD average	*83*	*79*	*87*	*60*	*66*	*8*	*7*	*20*	*18*	*7*	*8*	*47*	*53*	*45*	*44*
	EU19 average	*86*	*82*	*90*	*62*	*68*	*9*	*7*	*19*	*17*	*8*	*9*	*42*	*49*	*51*	*50*
Partner countries	Brazil[1]	m	m	m	62	72	8	10	a	a	a	a	62	72	8	10
	Chile	71	67	75	71	75	a	a	a	a	a	a	39	43	32	33
	Estonia	75	68	83	76	84	a	a	a	a	n	n	58	72	18	12
	Israel	90	88	92	87	91	a	a	3	1	a	a	58	63	32	29
	Russian Federation	m	m	m	56	x(4)	13	x(6)	20	11	4	2	56	x(12)	36	x(14)
	Slovenia	97	89	105	37	45	47	51	n	n	30	26	34	43	79	79

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

1. Year of reference 2005.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

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A2

Table A2.2.

Trends in graduation rates at upper secondary level (1995-2006)

Percentage of upper secondary graduates (first-time graduation) to the population at the typical age of graduation (1995, 2000, 2001, 2002, 2003, 2004, 2005, 2006)

		Typical age in 2006[1]	1995	2000	2001	2002	2003	2004	2005	2006
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD countries	Australia	17	m	m	m	m	m	m	m	m
	Austria	17-18	m	m	m	m	m	m	m	m
	Belgium	18	m	m	m	m	m	m	m	m
	Canada	17-18	m	m	m	m	m	m	80	m
	Czech Republic	18-19	78	m	84	83	88	87	89	90
	Denmark	19	80	90	91	93	87	90	86	86
	Finland	19	91	91	85	84	90	95	94	95
	France	17-20	m	m	m	m	m	m	m	m
	Germany	19-20	101	92	92	94	97	99	100	103
	Greece	18	80	54	76	85	96	93	102	100
	Hungary	19	m	m	m	m	m	m	84	85
	Iceland	20	m	67	67	79	79	84	80	90
	Ireland	18-19	m	74	77	78	91	92	91	86
	Italy	19	m	78	81	78	m	82	82	86
	Japan	18	91	94	93	92	91	91	93	93
	Korea	17	88	96	100	99	92	94	93	93
	Luxembourg	18-19	m	m	m	69	71	69	76	72
	Mexico	18	m	33	34	35	37	39	40	42
	Netherlands	17-20	m	m	m	m	m	m	m	m
	New Zealand	17-18	72	80	79	77	78	75	72	74
	Norway	18-20	77	99	105	97	92	100	93	91
	Poland	19-20	m	90	93	91	86	79	86	80
	Portugal	17-18	67	52	48	50	59	53	m	m
	Slovak Republic	19-20	85	87	72	60	56	83	84	82
	Spain	17	62	60	66	66	67	66	72	72
	Sweden	19	62	75	71	72	76	78	78	76
	Switzerland	18-20	86	88	91	92	89	87	89	89
	Turkey	16	37	37	37	37	41	55	48	51
	United Kingdom	16	m	m	m	m	m	m	86	88
	United States	18	74	74	70	72	75	74	76	77
	OECD average		*77*	*76*	*77*	*77*	*78*	*80*	*82*	*83*
	OECD average for countries with 1995 and 2006 data		*78*							*85*
	EU19 average		*78*	*77*	*78*	*77*	*80*	*82*	*86*	*86*
Partner countries	Brazil	18	m	m	m	m	m	m	m	m
	Chile	18	46	63	m	61	64	66	73	71
	Estonia	19	m	m	m	m	m	m	m	75
	Israel	17	m	m	m	90	89	93	89	90
	Russian Federation	17	m	m	m	m	m	m	m	m
	Slovenia	18-19	m	m	m	m	m	m	95	97

1. The typical age corresponds to the most common age at the end of the last school/academic year of the corresponding level and the programme in which the degree is obtained. It may change slightly over the year.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

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A2

Table A2.3.

Post-secondary non-tertiary graduation rates (2006)

Percentage of post-secondary non-tertiary graduates in the population at the typical age of graduation, by programme destination and gender

		Total (unduplicated)			ISCED 4A (designed to prepare for direct entry to tertiary-type A education)		ISCED 4B (designed to prepare for direct entry to tertiary-type B education)		ISCED 4C	
		M + F	Males	Females	M + F	Females	M + F	Females	M + F	Females
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD countries	**Australia**	m	m	m	a	a	a	a	21.7	25.8
	Austria	m	m	m	24.8	28.2	3.3	5.6	1.7	2.9
	Belgium	m	m	m	7.3	7.2	3.1	3.4	10.0	11.4
	Canada[1]	m	m	m	m	m	a	a	4.6	1.0
	Czech Republic	22.0	20.7	23.4	21.8	23.3	a	a	0.2	0.1
	Denmark	1.1	1.5	0.8	1.1	0.8	a	a	a	a
	Finland	3.1	3.2	3.1	a	a	a	a	7.1	7.7
	France[1]	m	m	m	0.7	0.9	a	a	0.7	0.8
	Germany	14.9	16.1	13.7	11.1	10.4	3.8	3.3	a	a
	Greece	13.3	12.0	14.6	a	a	a	a	13.4	14.8
	Hungary	18.6	16.4	20.8	a	a	a	a	23.4	26.1
	Iceland	8.3	8.4	8.1	n	n	n	n	8.5	8.4
	Ireland	11.3	19.6	2.8	a	a	a	a	11.3	2.8
	Italy	6.6	5.0	8.2	a	a	a	a	6.6	8.2
	Japan	m	m	m	m	m	m	m	m	m
	Korea	a	a	a	a	a	a	a	a	a
	Luxembourg	2.6	4.2	0.9	a	a	a	a	2.9	1.4
	Mexico	a	a	a	a	a	a	a	a	a
	Netherlands	m	m	m	a	a	a	a	1.4	1.0
	New Zealand	19.4	13.6	25.6	x(1)	x(3)	x(1)	x(3)	x(1)	x(3)
	Norway	7.4	8.4	6.3	1.1	0.4	a	a	6.5	6.1
	Poland	14.5	11.6	17.6	a	a	a	a	14.5	17.6
	Portugal	m	m	m	m	m	m	m	m	m
	Slovak Republic	3.1	3.8	2.5	3.1	2.5	a	a	a	a
	Spain	a	a	a	a	a	a	a	a	a
	Sweden	1.6	1.5	1.7	n	n	n	n	1.6	1.8
	Switzerland	14.5	10.0	19.0	5.1	4.6	10.3	15.6	a	a
	Turkey	a	a	a	a	a	a	a	a	a
	United Kingdom	m	m	m	m	m	m	m	m	m
	United States	m	m	m	m	m	m	m	m	m
	OECD average	***8.1***	***7.8***	***8.5***	***3.2***	***3.3***	***0.9***	***1.2***	***5.5***	***5.5***
	EU19 average	***8.7***	***8.9***	***8.5***	***4.1***	***4.3***	***0.6***	***0.7***	***5.6***	***5.7***
Partner countries	**Brazil**	a	a	a	a	a	a	a	a	a
	Chile	a	a	a	a	a	a	a	a	a
	Estonia	16.1	10.8	21.5	a	a	16.3	21.7	a	a
	Israel	m	m	m	m	m	a	a	a	a
	Russian Federation	m	m	m	a	a	a	a	5.7	5.6
	Slovenia	4.0	3.1	4.9	1.9	2.7	2.1	2.2	n	n

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

1. Year of reference 2005.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

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A2

Table A2.4.

Entry rates to tertiary education and age distribution of new entrants (2006)

Sum of net entry rates for each year of age, by gender and mode of participation

		Tertiary-type B			Tertiary-type A						Advanced research programmes		
		Net entry rates			Net entry rates			Age at:			Net entry rates		
		M+F	Males	Females	M+F	Males	Females	20th percentile[1]	50th percentile[1]	80th percentile[1]	M+F	Males	Females
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD countries	Australia	m	m	m	84	74	94	18.7	20.9	27.1	2.9	2.8	3.0
	Austria[2]	7	6	8	40	36	44	19.4	20.8	23.7	5.6	5.8	5.5
	Belgium	36	34	38	35	32	38	18.4	19.1	23.2	m	m	m
	Canada	m	m	m	m	m	m	m	m	m	m	m	m
	Czech Republic	9	5	12	50	45	55	19.6	20.5	24.1	3.1	3.5	2.6
	Denmark	22	23	21	59	47	71	20.8	22.6	27.9	2.1	2.2	2.0
	Finland	a	a	a	76	65	88	19.8	21.6	27.8	m	m	m
	France	m	m	m	m	m	m	m	m	m	m	m	m
	Germany[2]	13	11	16	35	36	35	19.9	21.2	24.0	m	m	m
	Greece	31	29	33	49	38	61	18.2	18.9	25.9	4.6	5.3	3.9
	Hungary	10	7	14	66	60	72	19.3	21.0	28.0	1.7	1.8	1.7
	Iceland	4	5	3	78	60	97	20.9	23.2	<40	1.4	1.2	1.6
	Ireland	21	19	23	40	36	44	18.3	19.1	20.6	m	m	m
	Italy[3]	m	m	m	55	47	63	19.2	19.8	23.5	2.2	2.1	2.2
	Japan	32	25	40	45	52	38	18.3	18.6	19.2	1.1	1.5	0.6
	Korea	50	47	53	59	62	56	18.3	18.8	20.0	2.0	2.5	1.4
	Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico	2	2	2	31	31	31	18.4	19.5	22.7	0.2	0.2	0.2
	Netherlands	n	n	n	58	54	62	18.4	19.7	22.6	m	m	m
	New Zealand	49	42	57	72	59	85	18.6	20.8	<40	2.4	2.4	2.3
	Norway	n	n	1	67	53	82	18.8	20.1	29.5	2.5	2.7	2.3
	Poland[2]	1	n	1	78	72	84	19.5	20.3	22.6	m	m	m
	Portugal	1	1	1	53	43	63	18.6	20.1	27.5	7.2	5.9	8.6
	Slovak Republic	1	1	2	68	56	80	19.5	20.7	26.5	3.1	3.3	3.0
	Spain	21	20	23	43	36	51	18.4	19.0	22.8	4.2	4.0	4.5
	Sweden	10	10	10	76	65	87	20.1	22.4	29.6	2.5	2.5	2.4
	Switzerland	15	18	12	38	38	38	20.0	21.7	27.4	4.5	5.1	3.8
	Turkey	21	23	18	31	34	28	18.5	19.8	23.3	0.7	0.8	0.5
	United Kingdom	29	20	38	57	50	65	18.5	19.6	25.4	2.3	2.5	2.1
	United States	x(4)	x(5)	x(6)	64	56	72	18.4	19.5	24.9	m	m	m
	OECD average	***16***	***14***	***18***	***56***	***50***	***62***				***2.8***	***2.9***	***2.7***
	EU19 average	***13***	***12***	***15***	***55***	***48***	***63***				***3.5***	***3.5***	***3.5***
Partner countries	Brazil	m	m	m	m	m	m	m	m	m	m	m	m
	Chile[2,3]	34	38	31	43	41	45	m	m	m	0.2	0.2	0.2
	Estonia	32	23	41	41	32	50	19.1	19.8	23.2	2.3	2.2	2.5
	Israel	26	24	28	56	52	61	21.3	23.7	26.9	2.2	2.1	2.4
	Russian Federation[2,3]	32	x(1)	x(1)	65	x(4)	x(4)	m	m	m	1.9	x(10)	x(10)
	Slovenia	43	42	44	46	34	58	19.2	19.7	20.8	0.4	0.4	0.3

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

1. Respectively 20, 50 and 80% of new entrants are below this age.
2. Entry rate for tertiary-type B programmes calculated as gross entry rate.
3. Entry rate for tertiary-type A programmes calculated as gross entry rate.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

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A2

Table A2.5.

Trends in entry rates at tertiary level (1995-2006)

Sum of net entry rates for each year of age (1995, 2000, 2001, 2002, 2003, 2004, 2005, 2006)

		Tertiary-type A[1]								Tertiary-type B							
		1995	2000	2001	2002	2003	2004	2005	2006	1995	2000	2001	2002	2003	2004	2005	2006
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
OECD countries	Australia	m	59	65	77	68	70	82	84	m	m	m	m	m	m	m	m
	Austria[2]	27	34	34	31	34	37	37	40	m	m	m	m	8	9	9	7
	Belgium	m	m	32	33	33	34	33	35	m	m	36	34	33	35	34	36
	Canada	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Czech Republic	m	25	30	30	33	38	41	50	m	9	7	8	9	10	8	9
	Denmark	40	52	54	53	57	55	57	59	33	28	30	25	22	21	23	22
	Finland	39	71	72	71	73	73	73	76	32	a	a	a	a	a	a	a
	France	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Germany[2]	26	30	32	35	36	37	36	35	15	15	15	16	16	15	14	13
	Greece	15	30	30	33	35	35	43	49	5	21	20	21	22	24	m	31
	Hungary	m	64	56	62	69	68	68	66	m	1	3	4	7	9	11	10
	Iceland	m	66	61	72	83	79	74	78	m	10	10	11	9	8	7	4
	Ireland	m	32	39	39	41	44	45	40	m	26	19	18	17	17	14	21
	Italy[2,3]	m	39	44	50	54	55	56	55	m	1	1	1	1	1	a	m
	Japan	31	40	41	42	43	42	44	45	33	32	31	30	31	32	32	32
	Korea	41	45	46	46	47	49	51	59	27	51	52	51	47	47	48	50
	Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico	m	27	27	35	29	30	30	31	m	1	2	2	2	2	2	2
	Netherlands	44	53	54	54	52	56	59	58	n	n	n	n	n	n	n	n
	New Zealand	83	95	95	101	107	86	79	72	44	52	50	56	58	50	48	49
	Norway	59	67	69	75	75	72	76	67	5	5	4	3	1	1	n	n
	Poland[2]	36	65	68	71	70	71	76	78	1	1	1	1	1	1	1	1
	Portugal	m	m	m	m	m	m	m	53	m	m	m	m	m	m	m	1
	Slovak Republic	28	37	40	43	40	47	59	68	1	3	3	3	3	2	2	1
	Spain	m	47	47	49	46	44	43	43	m	15	19	19	21	22	22	21
	Sweden	57	67	69	75	80	79	76	76	m	7	6	6	7	8	7	10
	Switzerland	17	29	33	35	38	38	37	38	29	14	13	14	17	17	16	15
	Turkey	18	21	20	23	23	26	27	31	9	9	10	12	24	16	19	21
	United Kingdom	m	47	46	48	48	52	51	57	m	29	30	27	30	28	28	29
	United States	m	43	42	64	63	63	64	64	m	14	13	x(4)	x(5)	x(6)	x(7)	x(8)
	OECD average	*37*	*47*	*48*	*52*	*53*	*53*	*55*	*56*	*18*	*15*	*16*	*16*	*16*	*15*	*15*	*16*
	OECD average for countries with 1995, 2000 and 2006 data	*37*	*49*						*57*	*18*	*18*						*18*
	EU19 average	*35*	*46*	*47*	*49*	*50*	*52*	*53*	*55*	*12*	*11*	*13*	*12*	*12*	*12*	*11*	*13*
Partner countries	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Chile[2,3]	m	m	32	33	33	34	48	43	m	m	36	34	33	35	37	34
	Estonia	m	m	m	m	m	m	55	41	m	m	m	m	m	m	34	32
	Israel	m	32	39	39	41	44	55	56	m	26	19	m	17	m	25	26
	Russian Federation[2,3]	m	m	m	m	m	m	67	65	m	m	m	m	m	m	33	32
	Slovenia	m	m	m	m	m	m	40	46	m	m	m	m	m	m	49	43

1. Entry rate for tertiary-type A programmes includes advanced research programmes for 1995, 2000, 2001, 2002, 2003.
2. Entry rate for tertiary-type B programmes calculated as gross entry rate in 2006.
3. Entry rate for tertiary-type A programmes calculated as gross entry rate in 2006.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

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A2

Table A2.6.

Percentage of new entrants in tertiary education and proportion of females, by field of education (2006)

		All fields of study	Health and welfare		Life sciences, physical sciences & agriculture		Mathematics and computer science		Humanities, arts and education		Social sciences, business, law and services		Engineering, manufacturing and construction		Not known or unspecified
		% of females	% of new entrants	% of females	% of new entrants	% of females	% of new entrants	% of females	% of new entrants	% of females	% of new entrants	% of females	% of new entrants	% of females	% of new entrants
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
OECD countries	Australia	55	15	74	7	52	6	19	22	68	41	53	8	22	n
	Austria	53	10	66	8	51	6	22	26	72	35	57	15	24	n
	Belgium	53	15	73	7	45	3	11	24	62	38	53	13	23	n
	Canada	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Czech Republic	56	11	77	7	58	6	21	18	71	32	60	15	25	10
	Denmark	56	23	81	4	46	8	32	18	65	35	50	12	35	n
	Finland	56	18	89	5	54	6	32	15	74	29	67	26	19	n
	France	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Germany	55	16	77	8	49	7	35	27	71	26	53	15	16	n
	Greece	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Hungary	59	8	77	5	46	3	24	20	70	51	65	13	19	n
	Iceland	60	10	84	6	59	4	17	31	72	40	59	9	33	n
	Ireland	54	13	80	6	58	3	30	25	68	37	55	15	13	1
	Italy	55	13	67	9	56	3	26	21	73	40	54	14	29	n
	Japan	49	14	62	4	31	x(4)	x(5)	23	69	37	48	16	13	6
	Korea	48	12	68	5	46	3	29	27	67	28	44	25	24	n
	Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico	50	8	65	6	46	9	35	16	66	41	57	19	24	1
	Netherlands	53	19	76	2	45	5	10	22	69	43	48	9	15	1
	New Zealand	58	11	80	8	56	8	34	29	70	36	55	6	23	1
	Norway	59	17	81	3	57	4	22	25	69	39	56	8	23	4
	Poland	53	6	75	6	54	6	15	22	68	47	56	13	23	n
	Portugal	58	19	79	6	60	7	23	19	70	35	56	14	27	n
	Slovak Republic	57	15	81	7	50	5	18	22	72	32	61	18	28	n
	Spain	55	12	78	3	50	6	16	20	70	35	59	17	23	7
	Sweden	56	13	80	6	54	6	27	26	67	30	59	18	25	n
	Switzerland	47	8	68	7	43	4	16	21	68	43	47	15	13	1
	Turkey	44	5	62	7	48	4	34	19	50	51	46	14	20	n
	United Kingdom	59	19	81	8	48	6	28	26	65	25	56	8	19	8
	United States	55	m	m	m	m	m	m	m	m	m	m	m	m	m
	OECD average	*54*	*13*	*75*	*6*	*50*	*5*	*24*	*22*	*68*	*37*	*55*	*14*	*22*	*2*
	EU19 average	*55*	*14*	*77*	*6*	*51*	*5*	*23*	*22*	*69*	*36*	*57*	*15*	*23*	*2*
Partner countries	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Chile	48	16	72	5	47	6	15	21	61	36	50	16	16	n
	Estonia	61	10	90	6	55	7	28	18	78	47	63	13	25	n
	Israel	54	8	74	6	49	3	27	21	71	38	56	21	28	3
	Russian Federation	m	6	m	10	m	x(4)	m	13	m	46	m	23	m	2
	Slovenia	56	6	80	5	59	4	23	13	73	52	63	20	26	n

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

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INDICATOR A3

HOW MANY STUDENTS FINISH TERTIARY EDUCATION?

This indicator first shows the current tertiary graduate output of education systems, *i.e.* the percentage of the population in the typical age cohort for tertiary education that successfully completes tertiary programmes, as well as the distribution of tertiary graduates across fields of education. It then describes the evolution of the number of new entrants and graduates at tertiary-type A level over the last eleven years. Finally, it looks at the number of science graduates in relation to employed persons. The indicator also sheds light on the internal efficiency of tertiary educational systems.

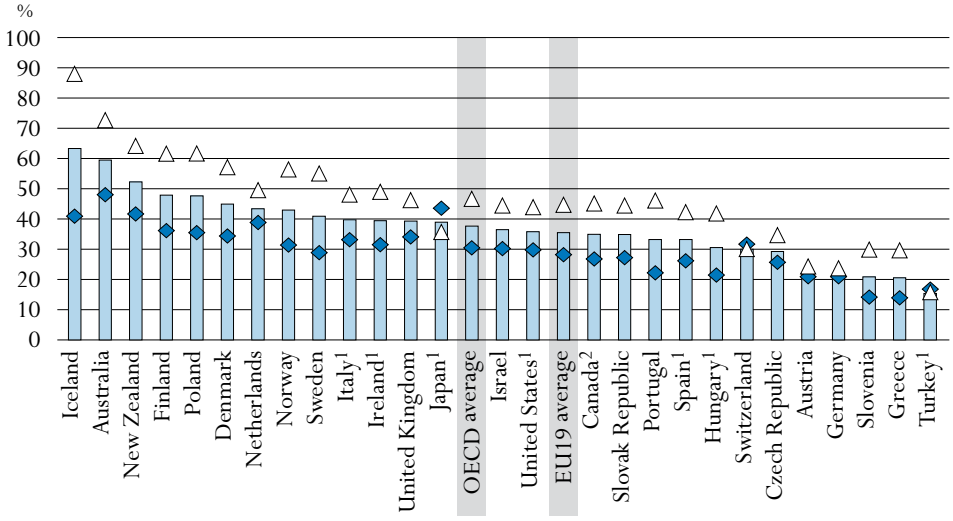
Key results

Chart A3.1. Tertiary-type A graduation rates by gender in 2006 (first-time graduation)

The chart shows the number of students completing tertiary-type A programmes for the first time in 2006 by gender, as a percentage of the relevant group.

Males + Females Males Females

Based on current patterns of graduation, on average 37% of an age cohort are estimated to have completed tertiary-type A education in 2006 among the 25 OECD countries with comparable data. Differences between countries are greater when gender is taken into consideration. Significantly more females obtain tertiary-type A qualifications than males, with graduation rates of 45% and 30%, respectively. The gender gap is more than 25 percentage points in Poland and Sweden and 46 percentage points in Iceland.



1. Gross graduation rate is calculated for tertiary-type A.
2. Year of reference 2005.

Countries are ranked in descending order of the graduation rates for tertiary-type A education, for both males and females.

Source: OECD. Table A3.1. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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Other highlights of this indicator

- Tertiary-type A graduation rates range from 20% or less in Greece and Turkey to more than 45% in Australia, Finland, Iceland, New Zealand and Poland.
- On average in OECD countries, the tertiary-type A graduation rate has risen by 15 percentage points over the last eleven years. In virtually every country for which comparable data are available, tertiary-type A graduation rates increased between 1995 and 2006, often quite substantially.
- Tertiary-type A graduation rates tend to be higher in countries in which the programmes are mainly of shorter duration.
- The graduation rate is 9% at the tertiary-type B level and 1.4% in programmes leading to advanced research qualifications.
- In 2006, more than half of those at the typical age of graduation completed their first tertiary-type A degree in Australia, Finland, Iceland and New Zealand. For Australia and New Zealand, around one graduate in five previously resided in another country.
- Tertiary-type A graduation rates (first degree) for females equal or exceed those for males in 26 out of 29 OECD countries and in all partner countries.
- On average in OECD countries, more than 70% of the tertiary-type A graduates in the humanities, arts, education or in health and welfare are females, but only around one-quarter of those in mathematics and computer science or in engineering, manufacturing and construction are females.

A3

Policy context

Upper secondary education has become the norm in most countries today. In addition, most students are graduating from upper secondary programmes designed to provide access to tertiary education, which is leading to increased enrolments in tertiary programmes (see Indicator A2). Countries with high graduation rates at the tertiary level are also the ones most likely to be developing or maintaining a highly skilled labour force.

Moreover, specific skills and knowledge of science are of particular interest as they represent an important source of innovation and growth in knowledge-based economies. Differences among countries in the output of tertiary graduates by field of education are likely to be affected by the relative rewards in the labour market for different fields, as well as the degree to which the market drives field selection in a particular country.

Evidence and explanations

Tertiary graduation rates show the rate at which each country's education system produces advanced skills. But tertiary programmes vary widely in structure and scope among countries. Tertiary graduation rates are influenced both by the degree of access to tertiary programmes and by the demand for higher skills in the labour market. They are also affected by the way in which the degree and qualification structures are organised within countries.

Graduation rates at the tertiary level

Tertiary-type A programmes are largely theory-based and are designed to provide qualifications for entry into advanced research programmes and professions with high skill requirements. The organisation of tertiary-type A programmes differs among countries. The institutional framework may be universities or other institutions. The duration of programmes leading to a first tertiary-type A qualification ranges from three years (*e.g.* the bachelor's degree in many colleges in Ireland and the United Kingdom in most fields of education, and the *licence* in France) to five years or more (*e.g.* the *Diplom* in Germany).

In many countries there is a clear distinction between first and second university degrees, (*i.e.* undergraduate and graduate programmes), but this is not always the case. In some systems, degrees that are internationally comparable to a master's degree are obtained through a single programme of long duration. To ensure international comparability, it is therefore necessary to compare degree programmes of similar cumulative duration, as well as completion rates for first degree programmes.

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

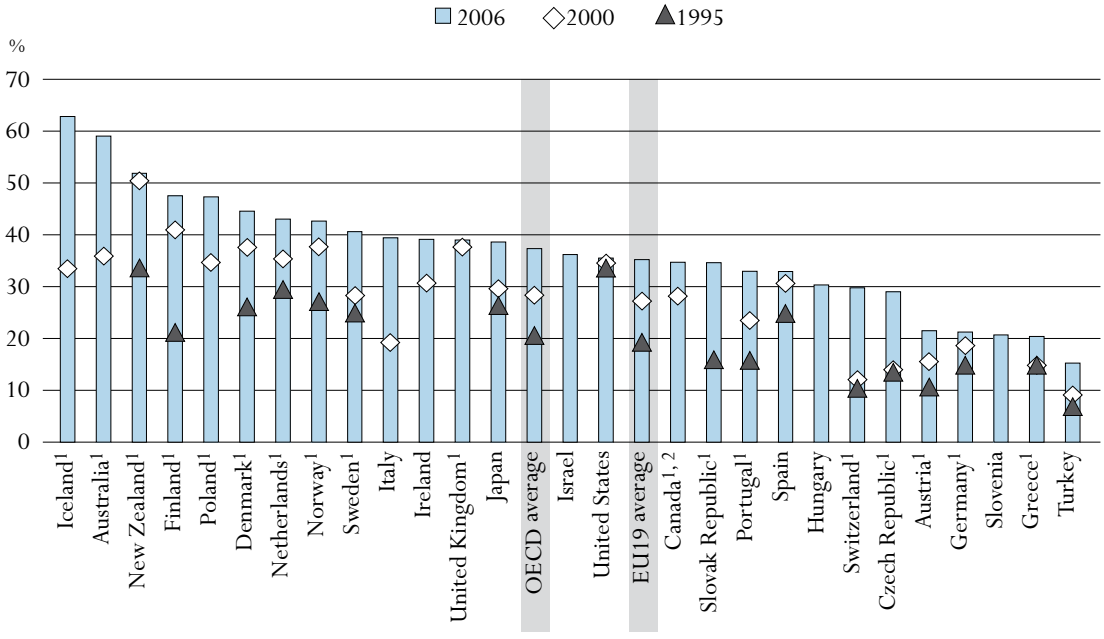
First-time tertiary-type A graduation rates

Based on current patterns of graduation, on average 37% of an age cohort are estimated to have completed tertiary-type A education in 2006 among the 25 OECD countries with comparable data. This figure ranged from 20% or less in Greece and Turkey to more than 45% in Australia, Finland, Iceland, New Zealand and Poland (Table A3.1).

Disparities among countries are greater when gender is taken into consideration. On average in OECD countries, the number of females who obtain tertiary-type A qualifications is significantly higher than the number of males; females' graduation rate is 45% compared to 30% for males. The gender gap is superior to 25 percentage points in Poland and Sweden and equal to 46 percentage points in Iceland. In Austria, Germany, Switzerland and Turkey, the sexes are quite balanced. In Japan significantly more males graduate from tertiary-type A programmes (Table A3.1 and Chart A3.1).

On average in OECD countries, tertiary-type A graduation rates increased by 15 percentage points over the last eleven years. In virtually every country for which comparable data are available, these rates increased between 1995 and 2006, often quite substantially. One of the most significant increases was reported in Italy where the rate doubled to 39% between 2000 and 2006. This was largely due to structural change. The reform of the Italian tertiary system in 2002 allowed university students who had originally enrolled in programmes of longer duration to obtain a degree after three years of study (Table A3.2 and Chart A3.2).

Chart A3.2. Tertiary-type A graduation rates in 1995, 2000 and 2006 (first-time graduation)



1. Net graduation rate is calculated by summing the graduation rates by single year of age in 2006.
2. Year of reference 2005.

Countries are ranked in descending order of the graduation rates for tertiary-type A education in 2006.

Source: OECD. Table A3.2. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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From 1995 to 2006, tertiary graduation rates evolved quite differently in OECD and partner countries. In New Zealand and Norway, increases were more marked from 1995 to 2000 than from 2000 to 2006. However, in the Czech Republic, Greece, Japan, Sweden and Switzerland, the increase occurred mainly in the last six years (Table A3.2 and Chart A3.2).

Changes in the number of new entrants and graduates at tertiary-type A level (1995, 2000 and 2006)

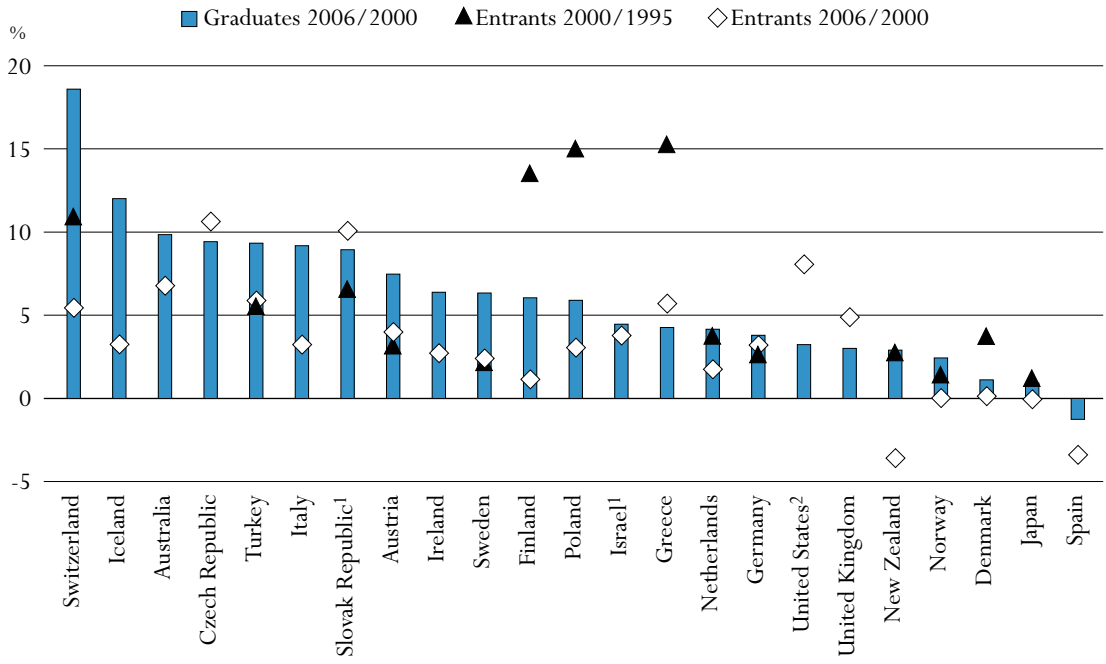
Changes in graduation rates need to be linked to changes in entry rates (see Indicator A2). A country's entry rate may increase in a given year for various reasons: the creation of new programmes, restructuring of the tertiary education system, or a rise in the numbers of students attaining upper secondary education and continuing their studies. The country's graduation rate logically rises a few years later if factors such as the dropout rate remain constant (See Indicator A4). The gap between the two indicators corresponds to the duration of the programme that students follow. A comparison of annual variations in numbers of new entrants (1995-2000) and of first-time graduates (2000-2006) is a good proxy for how the education system has evolved in recent years. Annual variations in numbers of new entrants (2000-2006) can help to predict future trends in graduates.

Entry rates increased significantly between 1995 and 2000 and between 2000 and 2006 in almost all OECD and partner countries (see Indicator A2). However patterns differ among countries. For 14 OECD countries with comparable data for both periods, the annual variation in numbers of new entrants evolved faster in the first period in Denmark, Finland, Greece, New Zealand, Poland and Switzerland; figures were relatively stable over both periods in Austria, Germany, Japan, the Netherlands, Norway, Sweden and Turkey; and the rate was higher in the latter period in the Slovak Republic. Many countries undertook reforms in their tertiary education system in the second half of the 1990s to improve access and graduation rates. This has resulted in a rapid evolution in the numbers of new entrants (1995-2000) and subsequently (2000-2006) of numbers of first-time tertiary-type A graduates (Chart A3.3)

In Iceland, Italy and Switzerland, the impressive increase in first-time graduates clearly exceeds the increase in new entrants in both the 1995-2000 and 2000-2006 periods. In Switzerland, for example, the creation in 1997 of the *Fachhochschulen* and their later extension to more institutions and programmes increased the numbers of new entrants (with an annual increase of 11% from 1995 to 2000) and thus from 2001 the number of tertiary-type A first-time graduates, which rose by an annual 19% from 2000 to 2006. However, this increase has corresponded to a decrease in the numbers of tertiary-type B graduates. Since quite a number of tertiary-type B programmes have become *Fachhochschulen* programmes, graduates of such programmes can receive permission to attend second degree programmes at the new *Fachhochschulen*, which means they can also become first-time tertiary-type A graduates. In these countries, the gap between changes in numbers of new entrants and numbers of first-time tertiary-type A graduates will certainly be reduced in the future; the growth in the number of first-time graduates should decrease and, as a consequence better match the change in the number of new entrants.

Denmark, Germany, Japan, the Netherlands, New Zealand, Norway and Spain and the partner country Israel are the countries in which the annual rate of growth in the number of new entrants

Chart A3.3. Average annual growth rate of the number of new entrants and first-time graduates at tertiary-type A level between 1995, 2000 and 2006



1. Year of reference 2002 instead of 2000 for graduates.
2. Includes tertiary-type B programmes.

Countries are ranked in descending order of the average annual growth rate of the number of first-time graduates at the tertiary-type A level between 2000 and 2006.

Source: OECD. Table A3.8 on line. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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and first-time graduates is very low (less than 5% or negative). In fact, Spain has seen an absolute decline in the number of graduates and new entrants over the 2000-2006 period, which is offset by a significant increase in graduation and entry rates for tertiary-type B programmes. The situation in Japan is explained by its low birth rate: the number of 22-year-olds – the typical graduation age of bachelors – dropped by more than one third between 1995 and 2006, from 2.1 to 1.5 million.

However some countries with a demographic situation similar to that of Japan continue to improve access to and graduation from the tertiary system. Italy, despite a decrease of 25% in the number of 23-to-25-year-olds between 1995 and 2006, has seen the number of graduates at tertiary-type A level increase every year by 9%.

Tertiary-type A: the shorter the programme, the higher the participation and graduation rates

The duration of tertiary studies tends to be longer in EU countries than in other OECD countries. Two-thirds of all OECD students graduate from programmes with a duration of three to less than five years compared to less than 55 % in EU countries (Table A3.1).

It is evident that, overall, tertiary-type A graduation rates tend to be higher in countries in which programmes are mainly of shorter duration. For example, in Austria, the Czech Republic, Germany and Greece, most students complete programmes of at least five years' duration and tertiary-type A graduation rates are at or below 30%. In the future, with the implementation of the Bologna process (Box A3.1), there may be fewer programmes of long duration in European countries. In contrast, tertiary-type A graduation rates are around 40% or more in Australia, New Zealand, Sweden and the United Kingdom, where programmes of three to less than five years are the norm (more than 90% of graduates follow programmes of three to less than five years). Poland is a notable exception: despite typically long tertiary-type A programmes, its tertiary-type A graduation rate is over 40% (Table A3.1).

First-time tertiary-type B graduation rates

Tertiary-type B programmes are classified at the same competency level as tertiary-type A programmes but are more occupationally oriented and usually lead to direct labour market access. They are typically of shorter duration than type A programmes – usually two to three years – and are generally not intended to lead to university-level degrees. Graduation rates for tertiary-type B programmes average some 9% of an age cohort for the 23 OECD countries with comparable data. In fact, graduation from tertiary-type B programmes is a significant feature of the tertiary system in only a few countries, most notably Ireland, Japan and New Zealand and the partner country Slovenia, where over 20% of the age cohort obtained tertiary-type B qualifications in 2006 (Table A3.1).

Trends in provision of and graduation from tertiary-type B programmes vary even though the OECD average has been stable over the past eleven years. For instance, in Spain, a sharp rise in tertiary-type B graduation rates between 1995 and 2006 is attributable to the development of new advanced level vocational training programmes. In contrast, in Finland these programmes are being phased out and the proportion of the age cohort graduating from them has thus fallen rapidly (Table A3.2).

Advanced research qualification rates

For the 29 OECD countries with comparable data, 1.4% of the population obtained an advanced research qualification (such as a Ph.D.) in 2006. The proportion ranges from 0.1% in the partner country Chile to more than 2% in Finland, Germany, Portugal, Sweden, Switzerland and the United Kingdom (Table A3.1).

Graduation rates: first and second degrees and advanced research qualifications

Graduation rates for first degrees are available for all countries; however, this is not the case for first-time graduation rates, as in some countries, educational data reporting systems do not include enough information to produce the figures on first-time graduates.

In 2006, on average among OECD countries, 37% of an age cohort are estimated to have completed their first degree at tertiary-type A level. The proportion exceeds 50% in Australia, Finland, Iceland and New Zealand. In Australia and New Zealand, around one student in five formerly resided in another country. By contrast, the graduation rate is less than 20% in Belgium, Mexico and Turkey and in the partner country Chile. Belgium and the partner

Box A3.1. Structure of higher education in Europe – the Bologna process

The Bologna process had its origins in the Sorbonne Joint Declaration on Harmonisation of the Architecture of the European Higher Education System, signed in 1998 by France, Germany, Italy and the United Kingdom. It was created with the purpose of providing a common framework in tertiary education among these countries at the bachelor, master and doctorate levels. Under the new system on average, the duration of the bachelor's degree is three years, that of the master's degree two years and that of the doctorate three years.

As part of this transformation process, the countries involved have substantially modified the structure of their education system. Some have completed the transformation and others are still in the process of doing so. The extension and scope of this process has gradually increased. It is planned that, by 2010, this common area will be fully operational in 45 countries, mainly in the European area. The reforms allow for easier recognition of diplomas and increased student mobility. They have also gradually entailed related objectives, such as mobility of researchers, a system of common credits (ECTS), the inclusion of joint degrees and European co-operation on quality assurance.

As the Bologna process aims at equivalent education systems in terms of graduation, this will allow for better comparability of data (*e.g.* for first or second degree programmes). In the short term, these reforms also lead to a structural increase in graduation rates. As some countries reduce the length of some of their programmes, students whose first diploma cursus was traditionally longer now graduate in three years. Many countries also propose new study programmes and thus increase their diploma offer at the tertiary level. For example, the large recent increase in the graduation rate in the Czech Republic (Table A3.2) is explained by the implementation of the new structure of the Bologna process and by the expansion of the tertiary system.

However, in some countries, certain fields have not yet shifted to the three cycles and remain as long cycles of five or six years. This is the case, for example, in medical studies, architecture, engineering and theology.

country Slovenia are the two countries in which more people obtained their first degree from more occupationally oriented programmes (tertiary-type B) than from the largely theory-based programmes (tertiary-type A). In Korea the rates of graduation from both types of programmes are similar (Table A3.3).

International students' contribution to graduate output

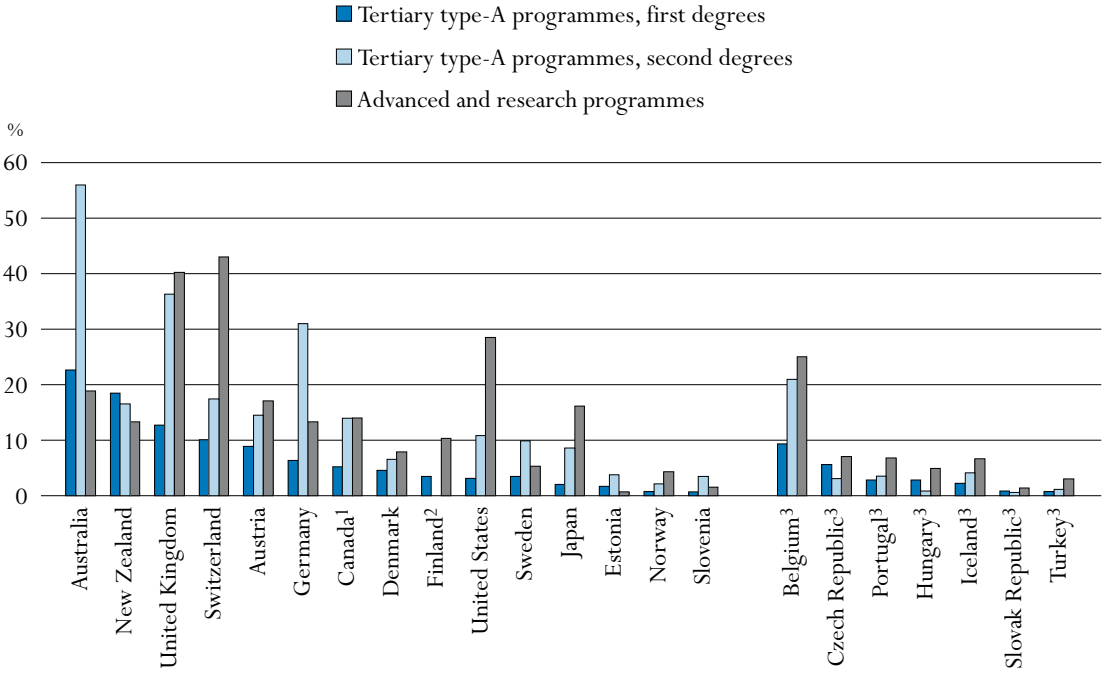
International students make a significant contribution to the tertiary graduate output in a number of countries and these students have a marked impact on estimated graduation rates. In order to compare graduation rates across countries it is important to examine the impact of international students on the graduate output.

A3

In Australia, Germany, Switzerland and the United Kingdom, more than 30% of tertiary-type A second degrees or advanced research degrees are awarded to international students. This pattern implies that the true domestic graduate output is significantly overestimated as a proportion of overall graduation rates. It is most significant for tertiary-type A second degree programmes in Australia and the United Kingdom and for advanced research programmes in Switzerland and the United Kingdom, where international graduates represent more than 35% of the graduate output. The contribution of international students to the graduate output is also significant – although to a lesser extent – in Austria, Canada, Japan, New Zealand and the United States. Among countries for which student mobility data are not available, the contribution of foreign students is significant in Belgium (Table A3.3 and Chart A3.4).

However, the contribution of international students to the tertiary graduate output of Denmark, Finland, Norway and Sweden and the partner countries Estonia and Slovenia is more limited. The same holds for foreign students in the Czech Republic, Hungary, Iceland, Portugal, the Slovak Republic and Turkey (Table A3.3 and Chart A3.4).

Chart A3.4. Proportion of international and foreign graduates in total graduate output, by type of tertiary education (2006)



1. Year of reference 2005.
2. First degrees programmes include second degrees.
3. Proportion of foreign graduates in tertiary graduate output. These data are not comparable with data on international graduates and are therefore presented separately.

Countries are ranked in descending order of the proportion of international graduates in tertiary-type A first degree programmes.
Source: OECD. Table A3.3. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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Graduation by field of education

Changing opportunities in the job market, differences in earnings among occupations and sectors, and the admission policies and practices of tertiary education institutions may all affect the fields in which students choose to study. In turn, the relative popularity of various fields of education affects the demand for programmes and teaching staff, as well as the supply of new graduates. The distribution of graduates by field of education is driven by the relative popularity of these fields among students, the relative number of students admitted to these fields in universities and equivalent institutions, and the degree structure of the various disciplines in a particular country.

In 26 of the 28 OECD countries for which data are available and in all partner countries, the fields of social sciences, business, law and services account for the largest concentration of tertiary-type A and advanced research qualifications (Table A3.4a). On average in OECD countries, more than one-third of tertiary-type A graduates obtain a degree in these fields. This ranges from less than 30% in Denmark, Finland, Germany, Korea, and Sweden to more than 45% in Hungary, Mexico, Poland and the United States and in the partner countries the Russian Federation and Slovenia. The field of humanities, arts and education accounts for the largest concentration of tertiary-type A and advanced research qualifications in Germany and the fields of health and welfare in Sweden.

An average of 24% of tertiary-type A and advanced research students receive qualifications in science-related fields (engineering, manufacturing and construction, life sciences, physical sciences and agriculture, mathematics and computing) in OECD countries. The proportion varies between less than 16% in Hungary, Iceland and in the partner country Brazil, to more than 30% in Finland and Korea. Similarly popular on average in OECD countries are the fields of humanities, arts and education, with 25% of tertiary-type A and advanced research student graduates.

For the 27 OECD countries with available data, the share of graduations by field of education at tertiary-type A level (including advanced research qualifications) have changed slightly over the last six years to the benefit of health and welfare and of social sciences, business, law and services. Those two areas represented around one-half of graduates in 2006. Rates in science-related fields (engineering, manufacturing and construction, life sciences, physical sciences and agriculture, mathematics and computing) have decreased overall from 25% in 2000 to 24% in 2006, especially in Ireland, Switzerland and Turkey where the decrease is over five percentage points (Table A3.4a). The effect of this decline may be felt at a moment when there is a risk of shortages in science fields on the labour market (See Indicator A1).

The picture is similar for tertiary-type B education, in which programmes are more occupationally oriented: social sciences, business, law and services have the largest concentration of graduates (39%), followed by humanities, arts and education (24%), and science-related fields (21%) (Table A3.4b on line). The selection of a field of education at this level is heavily dependent on opportunities to study similar subjects. For similar occupations, students may follow a programme at different levels of education, *i.e.* at the post-secondary non-tertiary, tertiary-type A or tertiary-type B level. For example, if nurses in a particular country are trained primarily in tertiary-type B programmes, the proportion of students graduating with qualifications in medical sciences from

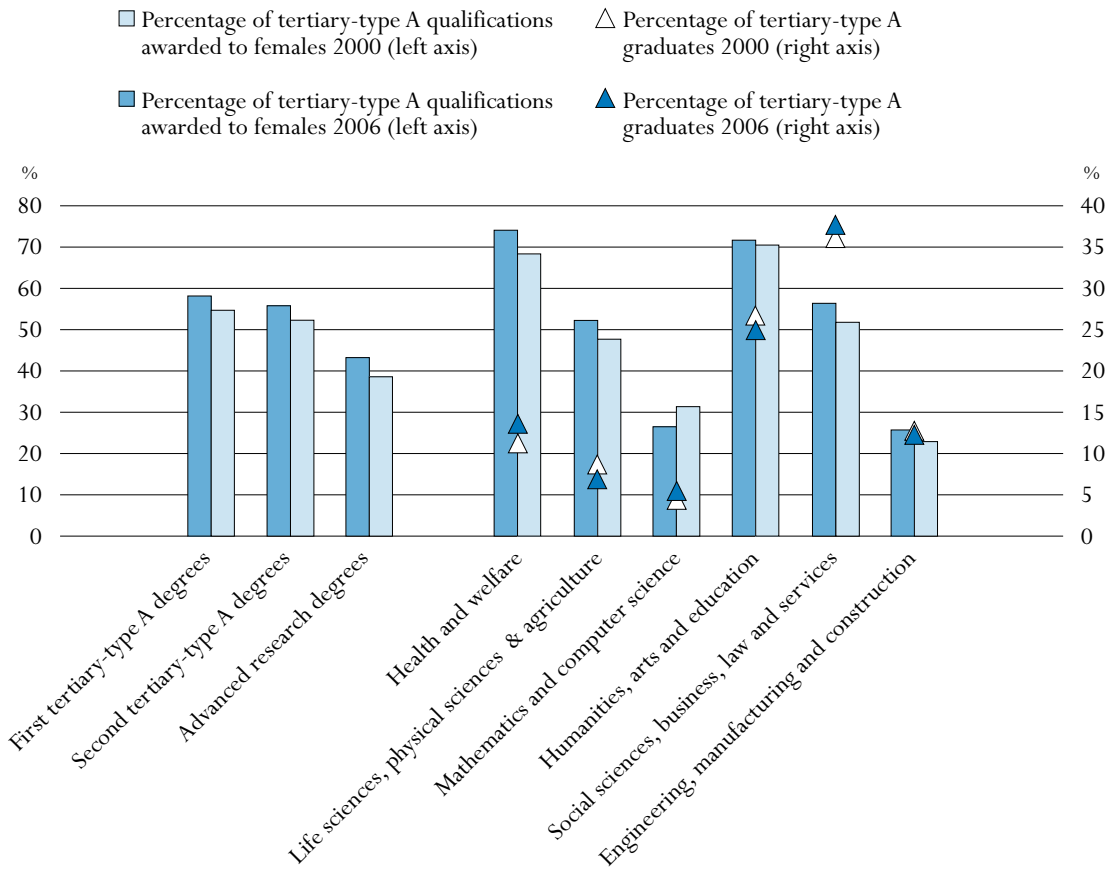
those programmes will be higher than in countries where they are primarily trained in upper secondary or tertiary-type A programmes.

Gender differences in tertiary graduation (first and second degrees and advanced research qualifications): the higher the level of education, the lower the proportion of females

There are fewer females at the highest levels of education: the proportion of females with a first or second tertiary-type A degree is 58% and 56%, respectively, whereas only 43% of advanced research qualifications are awarded to females. However, the gap between first degrees, second degrees and a Ph.D. decreased between 2000 and 2006 (Table A3.5a and Chart A3.5).

In all OECD countries except France and New Zealand, the proportion of female tertiary-type A graduates (first degree) increased between 2000 and 2006 (Table A3.5a).

Chart A3.5. Percentage of tertiary-type A qualifications awarded to females and breakdown of tertiary graduates by field of education, OECD average (2000, 2006)



Source: OECD. Tables A3.4a, A3.5a. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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On average in OECD countries, 58% of all tertiary-type A graduates (first degree) are females. Their tertiary-type A graduation rates equal or exceed those for men in 26 out of 29 OECD countries and in all partner countries. In Iceland and Portugal and in the partner countries Estonia and Slovenia the proportion of females obtaining a tertiary-type A qualification (first degree) is more than 65%, but it is less than 50% in Japan, Korea and Turkey (Table A3.5a).

The proportion of females obtaining a tertiary-type A qualification (second degree) is also greater than the proportion of males, especially in Poland, Portugal and Sweden and in the partner country Estonia, where the proportion equal or exceeds 70%. On average in OECD countries, females obtained 56% of these qualifications in 2006 compared to 52% in 2000 (Table A3.5a).

Males remain more likely than females to obtain advanced research qualifications in OECD countries. Graduation rates from advanced research programmes, *e.g.* Ph.D. programmes, are lower for females than for males in all countries except Iceland, Italy and Portugal and the partner countries Brazil, Estonia and Israel. On average in OECD countries, males still represented 57% of advanced research qualifications (compared to 61% in 2000). In Japan and Korea, around three-quarters of advanced research qualifications are still awarded to males, but the proportion was greater than 80% in 2000 (Table A3.5a).

However, major differences remain between fields of education. In 2006 in humanities, arts, education, and in health and welfare, more than 70% of tertiary-type A graduates on average in OECD countries were female, but only around 25% of mathematics and computer science and of engineering, manufacturing and construction graduates. In 2000, the proportion of females was 68% in health and welfare and 31% in mathematics and computing, an indication that the increase in the proportion of females' graduation has not helped to improve their representation in fields in which they are in minority (Table A3.5a).

Science graduates among those in employment

Examining the number of science (engineering, manufacturing and construction, life sciences, physical sciences and agriculture, mathematics and computing) graduates per 100 000 25-to-34-year-olds in employment provides another way of gauging the recent output of high-level skills from different education systems. The number of science graduates (all tertiary levels) per 100 000 employed persons ranges from below 800 in Hungary to above 2 200 in Australia, Finland, France, Ireland, Korea, New Zealand and the United Kingdom (Table A3.6).

The variation in the number of female science graduates of tertiary-type A education and advanced research programmes per 100 000 25-to-34-year-olds in employment is largely less than for males. The number of female science graduates ranges from less than 500 in Hungary, Japan and the Netherlands to more than 1 500 in Australia, New Zealand and Poland while the number of male science graduates varies from less than 500 in Turkey to over 2 500 in Australia, Finland and the United Kingdom. The OECD average is 985 female science graduates per 100 000 25-to-34-year-olds in employment compared to approximately 1 631 for males (Table A3.6).

This indicator does not, however, provide information on the number of graduates actually employed in scientific fields or, more generally, the number of those using their degree-related skills and knowledge at work.

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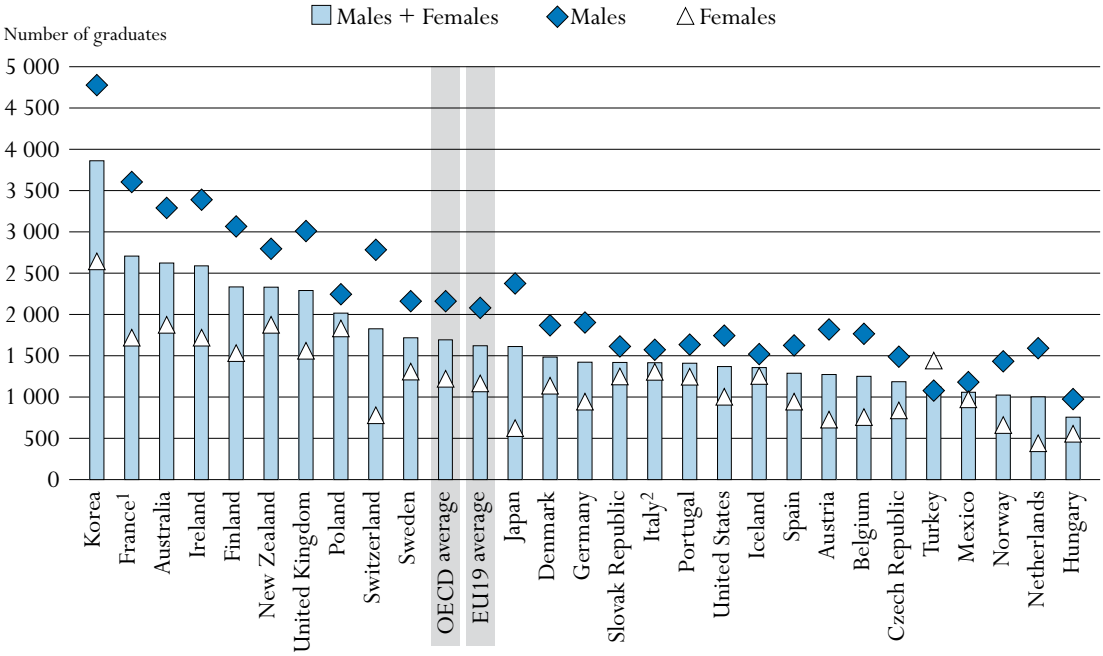
Chart A3.6. Number of tertiary science graduates per 100 000 employed 25-to-34-year-olds (2006)



1. Year of reference 2005 for the number of science graduates.
2. Advanced research programmes refer to 2005.

Countries are ranked in descending order of the number of tertiary science graduates in tertiary-type A programmes per 100 000 employed 25-to-34-year-olds.

Source: OECD. Table A3.6. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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Definitions and methodologies

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 (for details see Annex 3 at *www.oecd.org/edu/eag2008*).

Tertiary graduates are those who obtain a tertiary qualification in the specified reference year. This indicator distinguishes among different categories of tertiary qualifications: *i)* tertiary-type B qualifications (ISCED 5B); *ii)* tertiary-type A qualifications (ISCED 5A); and *iii)* advanced research degrees of doctorate standard (ISCED 6). For some countries, data are not available for these categories. In such cases, the OECD has assigned graduates to the most appropriate category (see Annex 3 at *www.oecd.org/edu/eag2008* for a list of programmes included for each country at the tertiary-type A and tertiary-type B levels). Tertiary-type A degrees are also subdivided by their corresponding total theoretical duration of studies, to allow for comparisons that are independent of differences in national degree structures.

In Tables A3.1 and A3.3 (from 2005 onwards), graduation rates for first tertiary programmes (tertiary-type A, tertiary-type B and advanced research programmes) are calculated as net graduation rates (*i.e.* as the sum of age-specific graduation rates). Net graduation rates represent the estimated percentage of the age cohort that will complete tertiary-type A/B education

(based on current patterns of graduation). Gross graduation rates are presented for countries that are unable to provide such detailed data. In order to calculate gross graduation rates, countries identify the age at which graduation typically occurs (see Annex 1). The number of graduates, regardless of their age, is divided by the population at the typical graduation age. In many countries, defining a typical age of graduation is difficult, however, because graduates are dispersed over a wide range of ages.

In Table A3.2, data on trends in graduation rates at tertiary level for the years 1995, 2000, 2001, 2002, 2003 and 2004 are based on a special survey carried out in OECD countries and four of the six partner countries in January 2007.

In Tables A3.4a and A3.5a, tertiary graduates who received their qualification in the reference year are classified by fields of education based on their subject of specialisation. These figures cover graduates from all tertiary degrees reported in Table A3.1. The 25 fields of education used in the UOE data collection instruments follow the revised ISCED classification by field of education. The same classification is used for all levels of education.

The labour force data used in Table A3.6 are taken from the OECD Labour Force database, compiled from national labour force surveys and the European Labour Force Survey.

Further references

The following additional material relevant to this indicator is available on line at:

StatLink http://dx.doi.org/10.1787/401523756323

- *Table A3.4b. Percentage of tertiary-type B graduates, by field of education (2000, 2006)*
- *Table A3.5b. Percentage of tertiary qualifications awarded to females in tertiary-type B programmes, by field of education (2000, 2006)*
- *Table A3.7. Trends in net graduation rates at advanced research qualification rates (1995-2006)*
- *Table A3.8. Average annual growth rate of the number of new entrants and first-time graduates at tertiary-type A level between 1995, 2000 and 2006*

A3

Table A3.1.

Graduation rates in tertiary education (2006)

Sum of graduation rates for single year of age by programme destination and duration

		Tertiary-type B programmes (first-time graduation)			Tertiary-type A programmes (first-time graduation)						Advanced research programmes[2]	
					All programmes			Proportion of graduates by duration of programmes (in %)				
								3 to less than 5 years	5 to 6 years[1]	More than 6 years	Ph.D or equivalent	
		M+F	Males	Females	M+F	Males	Females	M+F	M+F	M+F	M+F	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
OECD countries	Australia	m	m	m	59.1	47.3	71.2	95	4	n	1.8	
	Austria[3]	7.4	7.1	7.8	21.5	20.2	22.8	29	71	n	1.9	
	Belgium	m	m	m	m	m	m	m	m	m	1.3	
	Canada[5]	m	m	m	34.7	26.1	43.6	m	m	m	0.9	
	Czech Republic[3]	5.7	3.2	8.3	29.0	25.0	33.2	43	57	n	1.2	
	Denmark	10.0	10.8	9.1	44.6	33.7	55.7	63	37	n	1.2	
	Finland	0.1	0.1	n.	47.5	35.5	60.1	59	40	1	2.1	
	France[4, 5]	m	m	m	m	m	m	m	m	m	1.2	
	Germany[3]	10.8	8.2	13.4	21.2	20.2	22.2	40	60	n	2.3	
	Greece	12.2	9.0	15.7	20.4	13.2	28.1	n	100	x(8)	0.9	
	Hungary[3, 4]	4.0	2.6	5.6	30.3	20.8	40.4	m	m	m	0.7	
	Iceland	4.1	4.0	4.1	62.8	40.2	86.5	87	13	n	0.4	
	Ireland[3, 4]	27.1	28.4	25.9	39.1	30.8	47.5	55	45	n	1.3	
	Italy[3, 4, 6]	n	n	n	39.4	32.5	46.6	61	39	n	1.2	
	Japan[3, 4]	27.9	20.4	35.8	38.6	42.8	34.2	85	15	a	1.0	
	Korea	m	m	m	m	m	m	m	m	m	1.0	
	Luxembourg	m	m	m	m	m	m	m	m	m	m	
	Mexico	m	m	m	m	m	m	m	m	m	0.2	
	Netherlands	n	n	n	43.0	38.1	48.1	m	m	m	1.5	
	New Zealand	24.3	20.1	28.4	51.9	41.0	62.7	94	6	n	1.1	
	Norway	1.1	1.0	1.2	42.6	30.7	55.0	83	11	6	1.3	
	Poland	0.1	0.1	0.2	47.3	34.8	60.2	26	74	n	1.0	
	Portugal	8.7	6.5	10.9	32.9	21.5	44.7	33	67	n	3.3	
	Slovak Republic	1.2	0.7	1.7	34.6	26.5	43.0	23	77	n	1.5	
	Spain[4]	14.5	13.0	16.1	32.9	25.5	40.8	45	55	n	1.0	
	Sweden	4.9	4.0	5.8	40.6	28.2	53.6	96	4	n	2.2	
	Switzerland[3]	9.6	12.1	7.2	29.8	31.0	28.6	62	25	14	3.1	
	Turkey[4]	10.8	12.3	9.2	15.2	16.1	14.4	85	13	1	0.2	
	United Kingdom[7]	15.0	9.9	20.0	39.0	33.4	44.8	97	3	1	2.2	
	United States[3, 4]	9.9	7.3	12.7	35.5	29.1	42.4	55	39	6	1.4	
	OECD average	***9.1***	***7.9***	***10.4***	***37.3***	***29.8***	***45.2***	***64***	***34***	***1***	***1.4***	
	EU19 average	***7.6***	***6.5***	***8.8***	***35.2***	***27.5***	***43.2***	***54***	***46***	***n***	***1.6***	
Partner countries	Brazil[5]	m	m	m	m	m	m	m	m	m	1.4	
	Chile	m	m	m	m	m	m	m	m	m	0.1	
	Estonia	m	m	m	m	m	m	m	m	m	0.8	
	Israel	m	m	m	36.2	29.5	43.0	100	n	n	1.3	
	Russian Federation	m	m	m	m	m	m	m	m	m	1.5	
	Slovenia	25.9	20.5	31.6	20.7	13.5	28.4	m	m	m	1.3	

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

1. Excluding students who subsequently completed a longer programme.
2. Gross graduation rates are calculated for France, Ireland, Italy, Japan, Mexico, the Netherlands, Poland, the United Kingdom and the United States, and the partner countries Chile, Estonia and the Russian Federation.
3. Gross graduation rate is calculated for tertiary-type B.
4. Gross graduation rate is calculated for tertiary-type A.
5. Year of reference 2005.
6. Advanced research programme graduates refer to 2005.
7. The graduation rate for tertiary-type B programmes includes some graduates who have previously graduated at this level and therefore overestimates first-time graduation.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

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A3

Table A3.2.

Trends in tertiary graduation rates (1995-2006)

Percentage of tertiary graduates (first-time graduation, tertiary-type A and B) to the population at the typical age of graduation (1995, 2000, 2001, 2002, 2003, 2004, 2005, 2006)

		Tertiary-type A								Tertiary-type B							
		Typical age in 2006	1995	2000	2001	2002	2003	2004	2005	2006[1]	Typical age in 2006	1995	2000	2001	2002	2003	2004	2005	2006[2]
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
OECD countries	**Australia**	20-25	m	36	42	46	50	47	59	59	19-22	m	1	1	m	m	m	m	m
	Austria	22-26	10	15	17	18	19	20	20	21	20-21	m	m	m	m	m	7	8	7
	Belgium	22-24	m	m	m	m	m	m	m	m	21-22	m	m	m	m	m	m	m	m
	Canada	22-25	m	28	m	m	m	m	35	m	21-25	m	m	m	m	m	m	m	m
	Czech Republic	23-25	13	14	14	15	17	20	25	29	22-23	6	5	5	4	4	5	6	6
	Denmark	24	25	37	39	41	43	44	46	45	23-25	8	10	12	13	14	11	10	10
	Finland	25-29	20	41	45	49	48	47	48	48	30-34	34	7	4	2	1	a	a	a
	France	20-25	m	m	m	m	m	m	m	m	20-24	m	m	m	m	m	m	m	m
	Germany	24-27	14	18	18	18	18	19	20	21	21-23	13	11	11	10	10	10	11	11
	Greece	22-24	14	15	16	18	20	24	25	20	22-24	5	6	6	7	9	11	12	12
	Hungary	23-24	m	m	m	m	m	29	36	30	21	m	m	m	m	m	3	4	4
	Iceland	24-25	m	33	38	41	45	51	56	63	30-34	m	6	8	6	7	5	4	4
	Ireland	21-25	m	30	29	32	37	39	38	39	20-21	m	15	20	13	19	20	24	27
	Italy	23-25	m	19	21	25	m	36	41	39	22-23	m	n	1	1	m	n	n	n
	Japan	22.24	25	29	32	33	34	35	36	39	20	28	29	27	27	26	26	27	28
	Korea	21	m	m	m	m	m	m	m	m	19	m	m	m	m	m	m	m	m
	Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico	23	m	m	m	m	m	m	m	m	20	m	m	m	m	m	m	m	m
	Netherlands	21-23	29	35	35	37	38	40	42	43	n	n	n	n	n	n	n	n	n
	New Zealand	21-22	33	50	51	46	49	50	51	52	20-23	12	17	17	18	20	21	21	24
	Norway	22-25	26	37	40	38	39	45	41	43	21-22	6	6	6	5	5	3	2	1
	Poland	23-25	m	34	40	43	44	45	45	47	22	m	m	m	n	n	n	n	n
	Portugal	22-24	15	23	28	30	33	32	32	33	21-23	6	8	8	7	7	8	9	9
	Slovak Republic	23-24	15	m	m	23	25	28	30	35	21-22	1	2	2	3	2	3	2	1
	Spain	20-22	24	30	31	32	32	33	33	33	19	2	8	11	13	16	17	17	15
	Sweden	25	24	28	29	32	35	37	38	41	22-23	m	4	4	4	4	4	5	5
	Switzerland	24-26	9	12	19	21	22	26	27	30	23-29	13	14	11	11	12	12	8	10
	Turkey	22-24	6	9	9	10	11	11	11	15	20-22	m	m	m	m	m	m	m	11
	United Kingdom[3]	20-25	m	37	37	37	38	39	39	39	19-24	m	m	12	12	14	16	17	15
	United States	22	33	34	33	32	32	33	34	36	20	9	8	8	8	9	9	10	10
	OECD average		***20***	***28***	***30***	***31***	***33***	***35***	***36***	***37***		***10***	***8***	***9***	***8***	***9***	***9***	***9***	***9***
	OECD average for countries with 1995 and 2006 data		***20***							***34***		***10***							***10***
	EU19 average		***18***	***27***	***29***	***30***	***32***	***33***	***35***	***35***		***8***	***6***	***7***	***6***	***8***	***7***	***8***	***8***
Partner countries	**Brazil**	21-24	m	10	10	13	15	m	m	m	21-24	m	m	m	m	m	m	m	m
	Chile	24	m	m	m	m	m	m	m	m	20-22	m	m	m	m	m	m	m	m
	Estonia	22-24	m	m	m	m	m	m	m	m	22	m	m	m	m	m	m	m	m
	Israel	26	m	m	m	29	31	32	35	36	m	m	m	m	m	m	m	m	m
	Russian Federation	19-24	m	m	m	m	m	m	m	m	20	m	m	m	m	m	m	m	m
	Slovenia	25-26	m	m	m	m	m	m	18	21	23-26	m	m	m	m	m	m	24	26

Note : Up to 2004, graduation rates at the tertiary-type A or B levels were calculated on a gross basis. From 2005 and for countries with available data, graduation rates are calculated as net graduation rates (*i.e.* as the sum of age-specific graduation rates).

1. Net graduation rates are calculated in 2006 for Australia, Austria, the Czech Republic, Denmark, Finland, Germany, Greece, Iceland, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Sweden, Switzerland and the United Kingdom, and the partner countries Israel and Slovenia.

2. Net graduation rates are calculated in 2006 for Denmark, Finland, Greece, Iceland, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Turkey and the United Kingdom, and the partner country Slovenia.

3. The graduation rate for tertiary-type B programmes includes some graduates who have previously graduated at this level and therefore overestimates first-time graduation.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

StatLink http://dx.doi.org/10.1787/401523756323

A3

Table A3.3.

Graduation rates at different tertiary levels and proportion of international and foreign graduates in total graduate output (2006)

Calculations based on the number of graduates

		Tertiary-type B programmes (first degree)		Tertiary-type A programmes (first degree)		Tertiary-type A programmes (second degree)		Advanced research programmes	
		Graduation rate	Proportion of international/foreign graduates in total graduate output	Graduation rate	Proportion of international/foreign graduates in total graduate output	Graduation rate	Proportion of international/foreign graduates in total graduate output	Graduation rate	Proportion of international/foreign graduates in total graduate output
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD countries	Australia[1]	16.4	m	59.1	23	17.8	56	1.8	19
	Austria[1]	7.4	m	21.5	9	1.1	15	1.9	17
	Belgium[3]	30.6	6	19.4	9	10.4	21	1.3	25
	Canada[1, 4]	m	m	39.3	5.2	7.3	14	0.9	14
	Czech Republic[3]	5.7	1	29.8	6	8.5	3	1.2	7
	Denmark[1]	11.0	4	45.3	5	13.9	7	1.2	8
	Finland[2]	0.1	m	56.8	3	0.8	x(4)	2.1	10
	France[4]	24.9	m	34.8	m	m	m	1.2	m
	Germany[2]	10.8	m	21.2	6	1.7	31	2.3	13
	Greece	13.0	m	22.3	m	4.9	m	0.9	m
	Hungary[3]	4.5	1	35.9	3	5.0	1	0.7	5
	Iceland[3]	4.2	1	64.5	2	18.8	4	0.4	7
	Ireland	27.1	m	39.1	m	16.8	m	1.3	m
	Italy[5]	0.1	m	37.6	m	14.5	m	1.2	m
	Japan[1]	27.9	3	38.6	2	5.2	9	1.0	16
	Korea	34.5	m	35.0	m	3.5	m	1.0	m
	Luxembourg	m	m	m	m	m	m	m	m
	Mexico	1.3	m	18.4	m	2.6	m	0.2	m
	Netherlands	n	n	47.3	m	10.3	m	1.5	m
	New Zealand[1]	28.4	21	54.9	18	16.3	17	1.1	13
	Norway[1]	1.2	6	44.1	1	10.3	2	1.3	4
	Poland	0.8	m	47.3	m	31.0	m	1.0	m
	Portugal[3]	8.6	2	32.9	3	1.9	4	3.3	7
	Slovak Republic[3]	1.2	m	34.6	1	8.1	1	1.5	1
	Spain	14.5	m	30.6	m	m	m	1.0	m
	Sweden[1]	5.0	1	41.9	3	3.6	10	2.2	5
	Switzerland[2]	21.1	m	27.0	10	8.8	17	3.1	43
	Turkey[3]	10.8	n	15.4	1	2.2	1	0.2	3
	United Kingdom[1]	15.0	6	39.0	13	23.6	36	2.2	40
	United States[1]	9.9	1	35.5	3	15.9	11	1.4	28
	OECD average	*12.0*		*36.9*		*9.2*		*1.4*	
	EU19 average	*10.0*		*35.4*		*9.2*		*1.6*	
Partner countries	Brazil[4]	1.2	m	23.1	m	x(4)	m	1.4	m
	Chile	9.0	m	15.4	m	3.5	m	0.1	m
	Estonia[1]	21.9	n	28.1	2	7.6	4	0.8	1
	Israel	m	m	36.2	m	12.0	m	1.3	m
	Russian Federation	27.6	m	45.5	m	0.4	m	1.5	m
	Slovenia[1]	28.8	1	21.9	1	3.5	3	1.3	2

1. International graduates are defined on the basis of their country of residence.
2. International graduates are defined on the basis of their country of prior education.
3. Foreign graduates are defined on the basis of their country of citizenship. These data are not comparable with data on international graduates and are therefore presented separately in the chart.
4. Year of reference 2005.
5. Advanced research programme graduates refer to 2005.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

StatLink http://dx.doi.org/10.1787/401523756323

A3

Table A3.4a.

Percentage of tertiary-type A and advanced research programmes graduates, by field of education (2000, 2006)

		Health and welfare		Life sciences, physical sciences & agriculture		Mathematics and computer science		Humanities, arts and education		Social sciences, business, law and services		Engineering, manufacturing and construction		Not known or unspecified	
		2000	2006	2000	2006	2000	2006	2000	2006	2000	2006	2000	2006	2000	2006
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
OECD countries	Australia	15.0	13.3	8.0	6.2	5.1	8.2	25.2	22.3	38.8	42.8	7.9	7.2	n	n
	Austria	8.1	8.7	9.2	8.7	3.6	9.1	20.4	18.9	41.2	39.9	17.3	14.5	0.2	0.2
	Belgium	13.3	11.7	11.8	10.2	1.6	4.6	22.8	25.6	37.9	36.5	12.5	11.3	n	0.1
	Canada[1]	7.9	10.7	9.3	6.6	4.2	4.5	28.4	26.7	39.6	39.0	8.2	8.2	2.4	4.3
	Czech Republic	12.5	9.4	8.2	7.5	8.3	4.4	20.1	24.3	35.3	34.2	15.5	16.2	a	4.0
	Denmark	5.6	27.7	11.9	4.5	2.8	4.0	25.0	25.6	45.7	28.0	9.0	10.2	n	n
	Finland	19.3	19.2	6.9	5.7	3.3	5.3	20.5	19.9	26.1	29.2	24.0	20.7	n	n
	France[1]	2.9	8.8	13.3	8.8	5.5	5.9	27.3	19.1	39.5	44.8	11.2	12.6	0.3	n
	Germany	m	10.1	m	8.9	m	7.8	m	31.0	m	29.5	m	12.6	m	0.2
	Greece	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Hungary	7.3	8.8	4.8	4.1	1.1	4.6	31.5	27.7	45.5	48.5	9.8	6.3	a	n
	Iceland	15.3	12.4	7.6	5.8	3.8	2.9	37.8	35.3	28.4	36.9	7.1	6.8	a	n
	Ireland	7.8	14.2	11.8	14.8	9.6	n	29.2	28.6	32.2	34.4	9.3	8.0	0.2	n
	Italy[2]	17.3	14.2	6.9	6.6	3.7	2.1	18.5	22.3	37.6	37.8	16.0	14.9	n	2.1
	Japan	5.2	6.8	7.8	7.9	x(3)	x(4)	24.4	23.2	37.2	38.1	21.3	19.7	4.0	4.4
	Korea	6.6	8.5	9.7	7.5	4.5	5.2	26.5	26.1	25.3	26.7	27.4	26.0	a	n
	Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico	7.8	9.0	4.2	4.8	6.7	8.2	21.4	18.1	45.9	45.1	14.0	14.3	a	0.4
	Netherlands	21.1	16.5	6.0	3.3	1.7	4.6	23.6	24.2	37.0	42.8	10.6	8.3	n	0.2
	New Zealand	12.9	14.5	12.7	7.9	1.7	5.9	33.9	25.7	30.3	39.9	5.6	5.3	2.8	0.8
	Norway	25.3	25.0	4.0	4.0	3.6	5.5	29.9	26.9	25.4	30.9	6.8	7.6	4.9	0.2
	Poland	1.7	7.9	3.7	5.1	1.4	4.8	20.6	25.2	40.3	48.3	8.0	8.6	24.2	n
	Portugal	10.2	19.7	5.4	6.6	3.3	5.9	30.8	23.4	39.1	32.6	11.2	11.7	n	n
	Slovak Republic	8.5	16.5	6.6	7.7	4.6	4.0	26.5	22.2	38.4	34.4	15.4	15.3	a	n
	Spain	11.9	14.6	8.7	7.1	4.4	5.4	22.8	23.8	39.2	34.6	12.9	14.3	n	0.1
	Sweden	22.8	25.7	5.8	4.8	3.7	3.8	24.5	23.1	22.6	24.6	20.5	18.0	n	n
	Switzerland	11.4	9.7	9.0	9.5	6.9	4.0	21.7	23.3	34.9	40.2	15.7	13.0	0.4	0.4
	Turkey	9.5	5.9	12.4	7.9	3.5	3.3	34.2	34.7	27.0	38.7	13.3	9.4	a	n
	United Kingdom	8.3	12.4	12.0	8.5	5.5	6.8	25.7	27.4	28.8	34.7	9.9	8.8	9.8	1.4
	United States	9.8	9.8	7.9	6.2	3.7	3.9	27.3	28.6	44.6	45.3	6.5	6.2	0.3	n
	OECD average	*11.0*	*13.3*	*8.4*	*6.9*	*4.2*	*5.2*	*26.5*	*24.9*	*35.7*	*37.1*	*12.5*	*11.9*	*1.8*	*0.6*
Partner countries	Brazil[1]	m	13.3	m	4.9	m	3.3	m	32.8	m	40.9	m	4.7	m	n
	Chile	m	13.0	m	6.8	m	3.3	m	26.0	m	35.7	m	15.2	m	n
	Estonia	m	6.1	m	9.3	m	5.7	m	28.3	m	40.9	m	9.7	m	n
	Israel	m	8.5	m	7.4	m	5.0	m	26.8	m	40.6	m	11.7	m	n
	Russian Federation	m	4.3	m	9.8	m	x(4)	m	16.3	m	51.3	m	18.3	m	n
	Slovenia	m	10.6	m	5.8	m	2.5	m	25.4	m	45.5	m	10.2	m	n

1. Year of reference 2005.
2. Advanced research programme graduates refer to 2005.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

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A3

Table A3.5a.

Percentage of tertiary qualifications awarded to females in tertiary-type A and advanced research programmes, by field of education (2000, 2006)

		All fields of education: first tertiary-type A degree		All fields of education: second tertiary-type A degree		All fields of education: advanced research degree		Health and welfare		Life sciences, physical sciences & agriculture		Mathematics and computer science		Humanities, arts and education		Social sciences, business, law and services		Engineering, manufacturing and construction	
		2000	2006	2000	2006	2000	2006	2000	2006	2000	2006	2000	2006	2000	2006	2000	2006	2000	2006
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
OECD countries	Australia	57	59	56	46	40	47	76	77	50	55	27	23	70	70	52	54	21	24
	Austria	48	53	32	44	36	42	59	65	46	55	15	20	66	70	49	57	18	22
	Belgium	50	53	53	60	34	38	59	63	40	51	25	20	65	67	52	57	21	25
	Canada[1]	59	62	52	52	39	44	74	82	53	58	28	27	68	70	58	58	23	25
	Czech Republic	51	56	53	57	29	36	70	74	45	58	12	20	71	74	54	60	27	21
	Denmark	51	63	49	54	38	44	59	81	48	53	28	24	69	68	44	50	26	29
	Finland	59	64	59	63	45	48	84	87	51	56	35	37	77	78	65	71	19	22
	France[1]	57	55	56	55	41	41	60	56	49	50	31	25	73	73	59	60	24	26
	Germany	m	52	m	48	m	41	m	65	m	51	m	34	m	74	m	53	m	22
	Greece	m	64	m	53	m	35	m	m	m	m	m	m	m	m	m	m	m	34
	Hungary	60	65	36	68	38	44	70	80	42	49	17	20	71	77	51	67	21	29
	Iceland	67	69	59	62	50	53	82	90	57	55	22	18	83	80	57	61	25	38
	Ireland	55	60	60	60	47	46	75	83	53	49	41	x(10)	69	71	57	57	24	20
	Italy[2]	56	58	56	61	53	52	58	65	51	56	54	37	82	79	55	57	28	30
	Japan	37	43	23	29	19	27	50	58	30	32	x(9)	x(10)	67	68	26	38	9	11
	Korea	47	49	30	40	20	27	50	63	42	46	49	38	70	71	40	45	23	24
	Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico	52	55	m	50	36	41	61	64	41	46	43	40	65	68	55	59	22	28
	Netherlands	54	56	66	59	m	39	76	75	37	48	16	10	71	73	49	52	13	17
	New Zealand	64	61	54	62	43	50	79	81	46	55	34	27	73	73	53	57	33	28
	Norway	64	64	52	55	33	40	82	83	46	57	15	20	75	69	48	54	27	23
	Poland	m	63	68	70	m	50	68	71	64	65	58	29	78	78	64	68	24	32
	Portugal	67	67	72	70	52	60	77	80	62	65	56	36	80	78	63	64	35	36
	Slovak Republic	52	61	a	56	38	47	69	85	41	51	17	20	71	68	50	60	30	31
	Spain	59	60	m	m	44	47	76	78	52	56	34	27	72	74	60	61	27	32
	Sweden	60	65	93	76	37	43	79	83	53	58	39	30	75	78	57	62	25	31
	Switzerland	42	51	26	39	31	39	54	66	33	43	16	14	62	67	35	44	11	17
	Turkey	41	46	39	47	37	40	53	67	44	44	42	39	45	55	39	41	24	25
	United Kingdom	54	57	54	56	38	43	71	75	52	50	27	25	67	67	55	56	20	22
	United States	57	58	56	59	44	49	75	79	51	54	33	27	68	68	53	55	21	22
	OECD average	*55*	*58*	*52*	*56*	*39*	*43*	*68*	*74*	*48*	*52*	*31*	*26*	*70*	*72*	*52*	*56*	*23*	*26*
	EU19 average	*56*	*59*	*54*	*60*	*41*	*44*	*69*	*74*	*49*	*54*	*32*	*26*	*72*	*73*	*55*	*60*	*24*	*27*
Partner countries	Brazil[1]	m	62	m	m	m	55	m	74	m	53	m	28	m	79	m	56	m	31
	Chile	m	56	m	39	m	35	m	68	m	48	m	28	m	69	m	49	m	28
	Estonia	m	70	m	73	m	57	m	85	m	67	m	36	m	87	m	70	m	40
	Israel	m	59	m	58	m	51	m	77	m	54	m	30	m	76	m	57	m	26
	Russian Federation	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Slovenia	m	67	m	53	m	50	m	79	m	62	m	15	m	76	m	64	m	30

1. Year of reference 2005.
2. Second tertiary-type A degree graduates partially refer to 2005 and advanced reseach programme graduates refer to 2005.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

StatLink http://dx.doi.org/10.1787/401523756323

A3

Table A3.6.

Science graduates, by gender (2006)

Per 100 000 25-to-34-year-olds in employment

		Tertiary-type B			Tertiary-type A and advanced research programmes			All tertiary education		
		M + F	Males	Females	M + F	Males	Females	M + F	Males	Females
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD countries	**Australia**	444	592	255	2 178	2 656	1 572	2 622	3 248	1 827
	Austria	336	534	102	937	1 242	577	1 273	1 776	678
	Belgium	413	656	135	839	1 069	576	1 252	1 725	711
	Canada[1]	m	m	m	1 119	1 360	847	m	m	m
	Czech Republic	74	93	46	1 112	1 353	745	1 186	1 446	791
	Denmark	251	267	231	1 234	1 559	859	1 484	1 826	1 090
	Finland	n	n	n	2 289	2 971	1 449	2 335	3 026	1 484
	France[1]	835	1 264	316	1 871	2 300	1 353	2 706	3 564	1 670
	Germany	238	407	34	1 185	1 454	863	1 423	1 861	897
	Greece	m	m	m	m	m	m	m	m	m
	Hungary	60	78	33	697	855	475	757	934	508
	Iceland	47	80	6	1 310	1 398	1 200	1 357	1 478	1 206
	Ireland	1 034	1 511	456	1 555	1 837	1 213	2 589	3 348	1 670
	Italy[2]	n	n	n	1 416	1 530	1 257	1 416	1 530	1 257
	Japan	451	643	176	1 161	1 691	398	1 612	2 334	574
	Korea	1 820	2 314	1 103	2 042	2 420	1 493	3 863	4 735	2 596
	Luxembourg	m	m	m	m	m	m	m	m	m
	Mexico	127	150	89	930	990	836	1 057	1 140	925
	Netherlands	n	n	n	1 002	1 548	391	1 002	1 548	391
	New Zealand	516	683	318	1 813	2 069	1 509	2 330	2 752	1 827
	Norway	11	16	6	1 011	1 375	607	1 022	1 391	613
	Poland	a	a	a	2 016	2 203	1 781	2 016	2 203	1 781
	Portugal	262	350	161	1 035	1 140	915	1 410	1 594	1 199
	Slovak Republic	9	11	5	1 410	1 559	1 196	1 418	1 570	1 201
	Spain	445	644	183	844	941	714	1 289	1 585	897
	Sweden	151	204	90	1 478	1 800	1 112	1 716	2 118	1 260
	Switzerland	716	1 194	145	1 109	1 547	586	1 825	2 741	731
	Turkey	558	551	581	564	485	812	1 122	1 037	1 393
	United Kingdom	316	439	176	1 974	2 528	1 337	2 290	2 967	1 513
	United States	276	406	115	1 093	1 297	841	1 368	1 703	956
	OECD average	***361***	***503***	***183***	***1 340***	***1 631***	***985***	***1 694***	***2 118***	***1 172***
	EU19 average	***260***	***380***	***116***	***1 366***	***1 672***	***994***	***1 621***	***2 036***	***1 118***
Partner countries	**Brazil**	m	m	m	m	m	m	m	m	m
	Chile	m	m	m	m	m	m	m	m	m
	Estonia	m	m	m	m	m	m	m	m	m
	Israel	m	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m	m
	Slovenia	m	m	m	m	m	m	m	m	m

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

1. Year of reference 2005 for the number of sciences graduates.

2. Advanced research programmes graduates refer to 2005.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

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INDICATOR A4

HOW MANY STUDENTS COMPLETE AND DROP OUT OF TERTIARY EDUCATION?

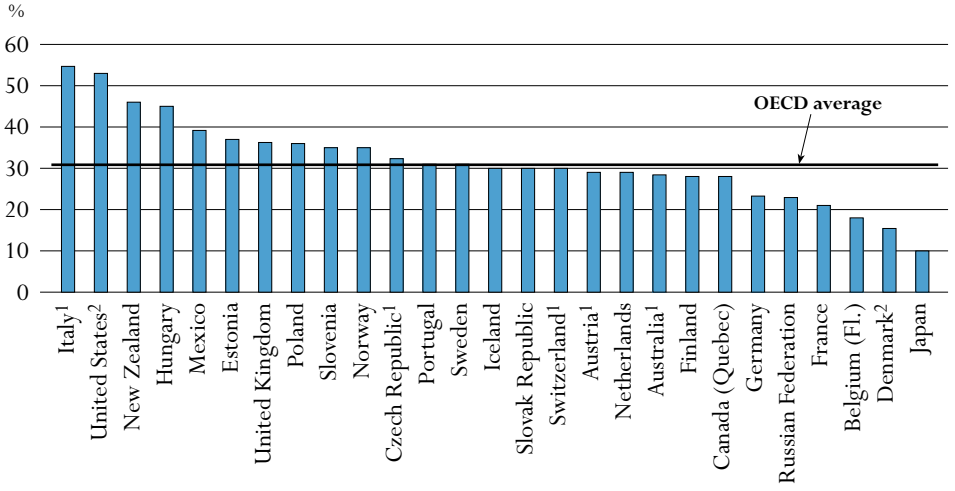
Tertiary education covers a wide range of programmes, but serves overall as an indicator of countries' production of advanced skills. A traditional university degree is associated with completion of tertiary-type A courses; tertiary-type B generally refers to shorter and often vocationally oriented courses. This indicator shows current tertiary completion rates in education systems, *i.e.* the percentage of students who follow and successfully complete tertiary programmes. Although "dropping out" is not necessarily an indicator of failure from the perspective of the individual student, high dropout rates may indicate that the education system is not meeting students' needs.

Key results

Chart A4.1. Proportion of students who enter a tertiary programme and leave without at least a first tertiary degree (2005)

The chart shows the proportion of students who enter a tertiary programme and leave without at least a first tertiary degree.

On average in the 19 OECD countries for which data are available, some 31% of tertiary students fail to successfully complete a programme equivalent to this level of education. Completion rates differ widely among OECD countries. In Hungary, Italy, New Zealand and the United States, more than 40% of those who enter tertiary programmes leave without tertiary qualifications (in either a tertiary-type A or a tertiary-type B programme) in contrast to their counterparts in Belgium (Flemish Community), Denmark, France, Germany and Japan and the partner country the Russian Federation where the proportion is less than 24%.



1. Only tertiary-type A programmes.
2. Only full-time students.

Countries are ranked in descending order of the proportion of students who enter into a tertiary programme and leave without at least a first tertiary degree.

Source: OECD. Table A4.1. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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Other highlights of this indicator

- Tertiary-type B completion rates are, at 62%, somewhat lower than those for tertiary-type A, and there is wide country variation. Tertiary-type B completion rates range from above 80% in Belgium (Flemish Community), Denmark and Japan to below 40% in New Zealand, Sweden and the United States.

- Beginning but not completing a tertiary-type A programme does not necessarily represent a failure if students benefit from the time spent in the programme to move successfully to the other tertiary education track. In France and to a lesser extent in Denmark and New Zealand, a significant proportion of students (15% in France and 3% in the two other countries) who do not complete the tertiary-type A programme are successfully re-oriented to a tertiary-type B programme.

- Full-time students have better chances of completing their course than do part-time students. On average in the ten countries for which data are available, 60% of part-time students completed at least a first tertiary-type A degree, while on average 68% of full-time students at this level graduate. The largest differences between full-time and part-time students are observed in Canada (Quebec) and New Zealand where completion rates for full-time students that enter tertiary-type A education are at least 25 percentage points higher than for students with part-time status.

- Non-completion of a degree does not mean that the skills and competencies acquired will be lost and are not valued by the labour market. This is particularly the case in Canada, where one year of study can provide students attractive opportunities for employment on the labour market. This helps explain students' decisions to leave the education system before graduating. In Sweden, students can leave a tertiary-type A programme before completing it, enter the labour market and continue their studies later. They do not lose the benefit of the modules already completed.

- There is no relationship observable between the charging of tuition fees and completion rates. In countries in which tuition fees charged by tertiary-type A educational institutions exceed USD 1 500 (Australia, Canada, the Netherlands, New Zealand, the United Kingdom and the United States), completion rates in tertiary-type A education are significantly lower than the OECD average in New Zealand and the United States but above 70% in the other countries. By contrast, the case of Denmark shows that no tuition fees and a high level of public subsidies available for students can lead to completion rates above the OECD average (81%).

A4

Policy context

Tertiary level dropout and completion rates can be useful indicators of the internal efficiency of tertiary education systems. However, students may leave a tertiary programme for many reasons: they may realise that they have chosen the wrong subject or educational programme; they may fail to meet the standards set by their educational institution, particularly in tertiary systems that provide relatively broad access; or they may find attractive employment before completing their programme. Dropping out is not necessarily an indication of an individual student's failure, but high dropout rates may well indicate that the education system is not meeting the needs of students. Students may find that the educational programmes offered do not meet their expectations or their labour market needs. It may also be that programmes take longer than the number of years for which students can justify being outside the labour market.

Evidence and explanations

Completion rates in tertiary education

Overall tertiary completion rates count as "completing" students who enter a tertiary-type A programme and who graduate with either a tertiary-type A or a type B qualification or those who enter a tertiary-type B programme and who graduate with either a tertiary-type A or a tertiary-type B qualification. On average among the 19 OECD countries for which data are available, some 31% of tertiary students fail to successfully complete a programme equivalent to this level of education. Completion rates differ widely among OECD and partner countries. In Hungary, New Zealand and the United States, more than 40% of those who enter a tertiary programme leave without a tertiary qualification (either tertiary-type A or tertiary-type B) in contrast to their counterparts in Belgium (Flemish Community), Denmark, France, Germany and Japan and the partner country the Russian Federation, where the proportion is less than 24% (Table A4.1 and Chart A4.1).

The difference between the proportion of skilled jobs and the proportion of people with tertiary education (see Indicator A1) suggests that most countries may benefit from further increase in the output of tertiary graduates. Increasing the proportion of students who enter a tertiary programme and leave with a tertiary qualification can help to improve the internal efficiency of tertiary education systems, especially when a small proportion of upper secondary graduates enter tertiary education or when the graduation rate is relatively low compared to the OECD average. In terms of three variables (entry, graduation and completion rates), two countries may have similar graduation rates but significant differences on the two other variables, so that they should adopt different strategies to improve their internal efficiency. For example, Japan and Sweden had similar first-time graduation rates in 2006 (39 and 41%, respectively) but also significant differences in the level of entry and completion rates in tertiary-type A education. Whereas Japan counterbalances below-average entry rates into tertiary-type A programmes (41% in 2001 against 48% on average) with, at 91%, the highest completion rates among OECD and partner countries, Sweden had an entry rate well above the average in 2001 (69%) but a below-average completion rate (69%).

Completion rates in tertiary-type A and tertiary-type B education

On average among the 24 OECD countries for which data are available, some 31% of tertiary-type A students fail to successfully complete the programme they enter. Completion rates differ widely among OECD countries. In Italy, Hungary, New Zealand and the United States, less than 60% of those who enter tertiary-type A programmes go on to successfully complete their

programme, in contrast to their counterparts in Denmark, the United Kingdom and the partner country the Russian Federation where the completion rates are around 80% and in Japan where it is 91%. Tertiary-type B completion rates are, at 62% on average, somewhat lower than those for tertiary-type A programmes, and again there is wide country variation. Tertiary-type B completion rates range from above 80% in Belgium (Flemish Community), Denmark and Japan to below 40% in New Zealand, Sweden and the United States (Table A4.1).

Increasing tuition fees to improve completion rates in tertiary-type A education is often debated in OECD countries whose educational institutions charge low tuition fees. In fact, increasing the tuition fees charged by tertiary-type A institutions and exemption from tuition fees for academic merit are measures already used in some OECD countries to try to increase students' incentives to finish their studies quickly. However, it is difficult to see a relationship between completion rates in tertiary-type A programmes and the level of tuition fees charged by tertiary-type A institutions. The countries in which tuition fees charged by tertiary-type A educational institutions exceed USD 1 500 are Australia, Canada, the Netherlands, New Zealand, the United Kingdom and the United States. Completion rates are significantly lower than the OECD average (69%) in New Zealand and the United States but above 70% in the others. By way of contrast, Denmark does not charge tuition fees and provides a high level of public subsidies for students but has completion rates above the OECD average (81%). This is not surprising because all indicators on tertiary education and especially on rates of return show that compared to upper secondary attainment, tertiary-type A educational attainment significantly benefits individuals in terms of earnings and employment. This can create a sufficiently big incentive, independently of the level of tuition fees, for students to finish their studies (see Indicators A9, A10 and B5).

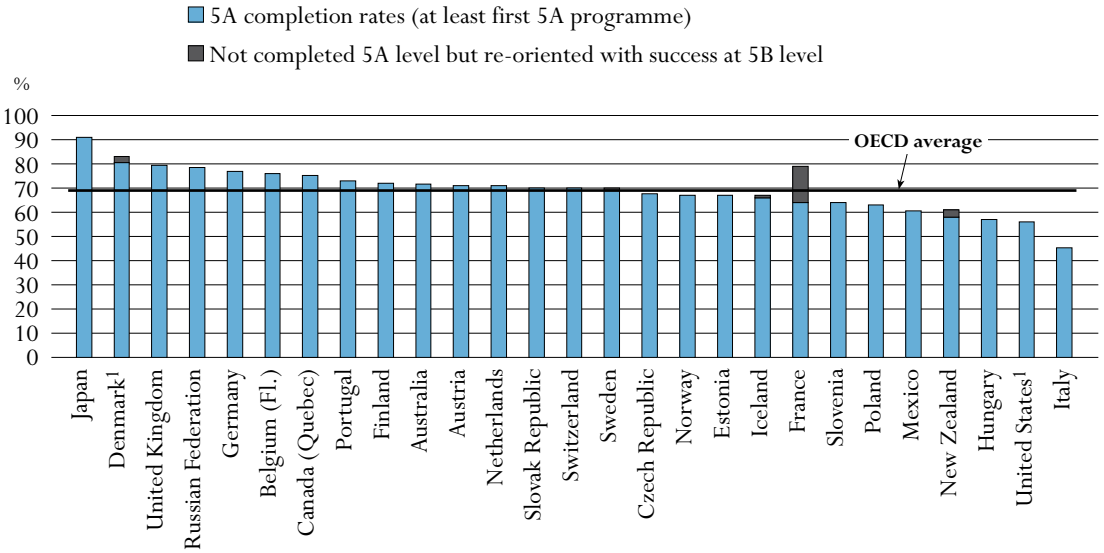
Consequences of non-completion of tertiary-type A programmes

Non-completion and delayed completion may have various consequences. On the one hand, it can be interpreted as an ineffective use of resources as it raises the cost of a tertiary degree and, in systems with limited capacities to enrol students, it may prevent (or delay) some students (with the qualifications to enter tertiary education) from starting their preferred programmes. It may also be detrimental to the quality of teaching and learning (OECD, 2008a). On the other hand, non-completion of a tertiary programme is not always associated with a failure of the education system or time lost and lower benefits for individuals (compared to those who terminate their studies after receiving an upper secondary qualification) for three main reasons.

First of all, beginning a tertiary-type A programme but not graduating is not necessarily linked to failure if students can be successfully re-oriented towards the other track of tertiary education. Thus, in France and to a lesser extent in Denmark and New Zealand, a significant proportion of students (15% in France and 3% in the other two) who have not completed tertiary-type A level are successfully re-oriented to tertiary-type B level. In other words, in France, out of 100 students who start a tertiary-type A programme, 64 will receive at least a first tertiary-type A qualification, 15 will be reoriented to a tertiary-type B programme and only 21 will leave without a tertiary qualification. Re-orientation is more frequent in tertiary-type B education; in Iceland, New Zealand and Sweden 22, 9 and 27%, respectively, of students who do not complete this level are re-oriented to a tertiary-type A programme. Among these countries, only New Zealand has a large proportion of students enrolled in tertiary-type B education (Table A4.1 and Chart A4.2).

A4

Chart A4.2. Completion rates in tertiary-type A education (2005)



1. Only full-time students.

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

Source: OECD. Table A4.1. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

StatLink http://dx.doi.org/10.1787/401536355051

Second, in some countries not all courses offered in tertiary-type A education are followed to obtain a degree. For instance, an individual might attend courses in a given programme on a part-time basis for professional development, with no intention of completing the associated degree. Some other tertiary students (generally mature students) may also follow courses that are not part of a programme leading to a degree to increase their lifelong learning perspectives. On average for the ten OECD countries for which data are available, students enrolled in part-time studies represent 23% of total enrolment and exceed 40% in Hungary, New Zealand, Poland and the partner economy the Russian Federation. On average, 60% of part-time students who enter a tertiary-type A programme achieve at least a first degree at this level; the average completion rate for full-time students in tertiary-type A education is 68%. The largest differences between full-time and part-time students are observed in Canada (Quebec) and New Zealand, where completion rates for full time students in tertiary-type A education are at least 25 percentage points higher than for students with part-time status (Table A4.2). The large number of part-time students in New Zealand partially explains the high proportion of people leaving without qualifications: part-time students may enrol in a few modules (*e.g.* for vocational upskilling reasons) with no intention of completing all the courses required for the qualification (Table A4.2 and Chart A4.1).

Lastly, in some countries many students successfully complete some parts of a qualification but do not finish the whole programme. Non-completion of a degree does not mean that the acquired skills and competencies are lost and not valued by the labour market in these countries. In Canada, for example, one year of study can provide students attractive opportunities for

employment. This may explain why students choose to leave the education system before graduating. In Sweden, students can leave a tertiary-type A programme before completing it, be employed for some time and later decide to continue their studies. They do not lose the benefit of the modules that they successfully completed in the past. In some other countries, students may successfully complete all modules they undertake, yet never enrol in enough modules to complete the qualification. For example, in New Zealand, where part-time study is more common, it is estimated that around one in five students complete all modules they enrol in, yet never enrol in enough modules to complete the qualification.

Thus, the extent to which non-completion of tertiary education is a policy problem will vary between countries and completion rates should be interpreted with caution. It will be interesting to see if changes in the labour market over the next decades in OECD and partner countries will have an effect on the incentives for individuals to complete tertiary studies. If there is further expansion of tertiary education over the next decade (which is a feasible option in most countries), completion of tertiary programmes will be more highly valued on the labour market and the benefit of entering tertiary education without graduating with at least a first degree will be eroded (see Indicator A1).

Definitions and methodologies

Data on completion rates were collected through a special survey undertaken in 2007. The completion rate is calculated as the ratio of the number of students who graduate from an initial degree during the reference year to the number of new entrants in this degree *n* years before, with *n* being the number of years of full-time study required to complete the degree. The calculation of the completion rate is defined from a cohort analysis in one-half of the countries listed in Table A4.1 (true cohort method). The estimation for the other countries assumes constant student flows at the tertiary level, owing to the need for consistency between the graduate cohort in the reference year and the entrant cohort *n* years before (cross-section method). This assumption may be an oversimplification (see Annex 3 at *www.oecd.org/edu/eag2008*).

Dropouts are defined as students who leave the specified level without graduating from a first qualification at that level. The first qualification refers to any degree, regardless of the duration of study, obtained at the end of a programme that does not have a previous degree at the same level as a pre-requisite.

A4

Table A4.1.

Completion rates in tertiary education (2005)

Calculated separately for tertiary-type A and tertiary-type B programmes: Number of graduates from these programmes divided by the number of new entrants to these programmes in the typical year of entrance

		Method	Year used for new entrants		Tertiary education		Tertiary-type A education		Tertiary-type B education	
			5A	5B	Completion rates (at least first 5B or 5A programme)[1]	Leaving without tertiary qualification	5A completion rates (at least first 5A programme)[2]	Not completed 5A level but re-oriented with success at 5B level	5B completion rates (at least first 5B programme)[3]	Not completed 5B level but re-oriented with success at 5A level
OECD countries	**Australia**	Cross-section	2003-05	m	m	m	72	m	m	m
	Austria	Cross-section	2000-03	m	m	m	71	m	m	m
	Belgium (Fl.)	Cross-section	1998-2001	2003-04	82	18	76	m	88	m
	Canada (Quebec)	True cohort	2000	2000	72	28	75	n	63	n
	Czech Republic	Cross-section	m	m	m	m	68	m	m	m
	Denmark[4]	True cohort	1995-96	1995-96	85	15	81	3	88	3
	Finland	True cohort	1995	1995	72	28	72	a	a	a
	France	True cohort	1996-2003	1996-2003	79	21	64	15	78	2
	Germany	Cross-section	2001-02	2003-04	77	23	77	n	77	n
	Greece	m	m	m	m	m	m	m	m	m
	Hungary	Cross-section	2001-04	2004-05	55	45	57	m	44	m
	Iceland	True cohort	1996-97	1996-97	70	30	66	1	55	22
	Ireland	m	m	m	m	m	m	m	m	m
	Italy	True cohort	1998-99	1998-99	m	m	45	m	m	m
	Japan	Cross-section	2000 and 2002	2004	90	10	91	m	87	m
	Korea	m	m	m	m	m	m	m	m	m
	Luxembourg	m	m	m	m	m	m	m	m	m
	Mexico	Cross-section	2002-03	2004-05	61	39	61	a	64	a
	Netherlands	True cohort	1997-98	1997-98	71	29	71	a	n	n
	New Zealand	True cohort	1998	1998	54	46	58	3	30	9
	Norway	True cohort	1994-95	1994-95	65	35	67	m	66	m
	Poland	Cross-section	2001-04	2003-04	64	36	63	m	71	m
	Portugal	Cross-section	2001-06	2004	69	31	73	m	59	m
	Slovak Republic	Cross-section	2000-03	2003-04	70	30	70	m	72	m
	Spain	m	m	m	m	m	m	m	m	m
	Sweden	True cohort	1995-96	1995-96	69	31	69	1	33	27
	Switzerland	True cohort	1996-2001	1996-2001	m	m	70	m	m	m
	Turkey	m	m	m	m	m	m	m	m	m
	United Kingdom	Cross-section	2003-04	2003-04	64	36	79	m	43	m
	United States[4]	True cohort	1999	2002	47	53	56	m	33	m
	OECD average				***69***	***31***	***69***	**~**	***62***	**~**
Partner countries	**Brazil**	m	m	m	m	m	m	m	m	m
	Chile	m	m	m	m	m	m	m	m	m
	Estonia	Cross-section	2003	2003	63	37	67	m	59	m
	Israel	m	m	m	m	m	m	m	m	m
	Russian Federation	Cross-section	2001-02	2002-03	77	23	79	m	76	m
	Slovenia	Cross-section	2001-02	2001-02	65	35	64	m	67	m

Note: The cross-section method refers to the number of graduates in the calendar year 2005 and is calculated according to the traditional OECD approach taking into account different durations. True section method is defined from a cohort analysis and based on Panel data.

1. Completion rates in tertiary education represent the proportion of those who enter a tertiary-type A or a tertiary-type B programme, who go on to graduate from either at least a first tertiary-type A or a first tertiary-type B programme.
2. Completion rates in tertiary-type A education represent the proportion of those who enter a tertiary-type A programme, who go on to graduate from at least a first tertiary-type A programme.
3. Completion rates in tertiary-type B education represent the proportion of those who enter a tertiary-type B programme, who go on to graduate from at least a first tertiary-type B programme.
4. Only full-time students.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

StatLink http://dx.doi.org/10.1787/401536355051

Table A4.2.

Completion rates in tertiary-type A education by mode of study (2005)

Proportion of those who enter a tertiary-type A programme, who go on to graduate from at least a first tertiary-type A programme, by mode of study

		Method	Year used for new entrants: 5A	Year used for new entrants: 5B	Porportion of new entrants enrolled in[1]: Full-time	Porportion of new entrants enrolled in[1]: Part time	5A completion rates (at least first 5A programme): Full-time	5A completion rates (at least first 5A programme): Part time
OECD countries	**Canada (Quebec)**	True cohort	2000	2000	91	9	79	38
	Denmark	True cohort	1995-96	1995-96	m	m	81	m
	Hungary	Cross-section	2001-04	2004-05	53	47	60	54
	Italy	True cohort	1998-99	1998-99	100	n	45	n
	Japan	Cross-section	2000 and 2002	2004	97	3	91	85
	Mexico	Cross-section	2002-03	2004-05	100	n	61	n
	Netherlands	True cohort	1997-98	1997-98	90	10	73	57
	New Zealand	True cohort	1998	1998	42	58	73	48
	Norway	True cohort	1994-95	1994-95	85	15	69	57
	Poland	Cross-section	2001-04	2003-04	50	50	66	61
	Slovak Republic	Cross-section	2000-03	2003-04	66	34	64	81
	United States	True cohort	1999	2002	m	m	56	m
	OECD average				***77***	***23***	***68***	***60***
Partner countries	**Estonia**	Cross-section	2003	2003	80	20	70	55
	Russian Federation	Cross-section	2001-02	2002-03	57	43	74	83

1. Based on the data collected in the 2008 OECD survey.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

StatLink http://dx.doi.org/10.1787/401536355051

INDICATOR A5

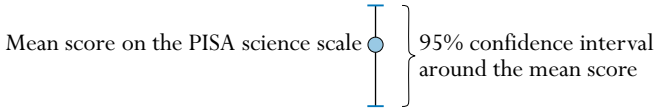
WHAT CAN 15-YEAR-OLDS DO IN SCIENCE?

This indicator examines the science performance of 15-year-old students, drawing on 2006 data from the OECD's Programme for International Student Assessment (PISA). It describes science proficiency in each country in terms of the percentage of students reaching one of six proficiency levels as well as in terms of the mean scores achieved by students on the overall science scale and on different aspects of science. It also examines the distribution of student scores within countries.

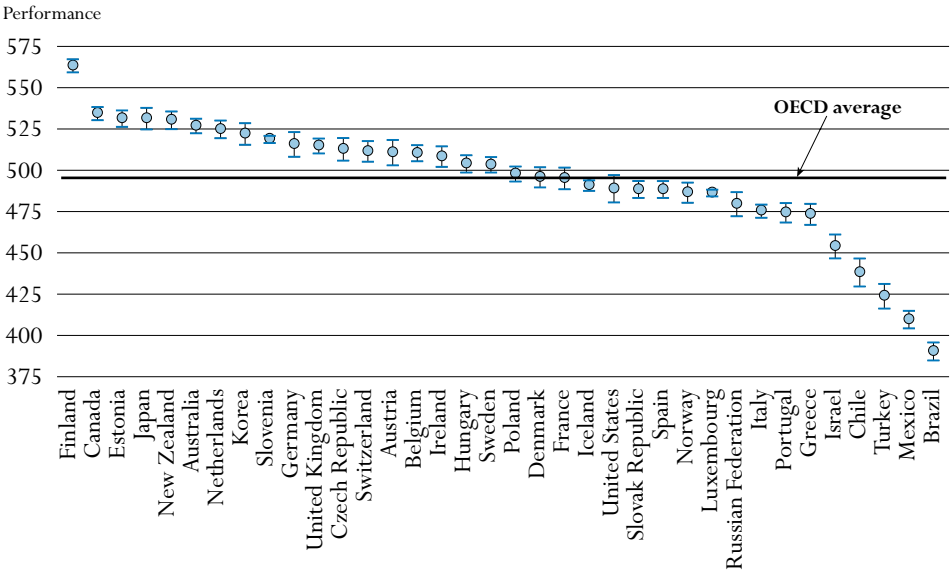
Key results

Chart A5.1. Distribution of student performance on the PISA science scale (2006)

The chart summarises the overall performance of 15-year-old students in different countries on the OECD PISA 2006 science scale. The width between the two blue dash symbols indicates the statistical uncertainty of the estimate of the mean performance.



Finland, with an average of 563 score points, achieved the highest score and was statistically above the average scores of all other countries. Four other high-scoring countries had mean scores of 530 to 534 points: Canada, Japan and New Zealand and the partner country Estonia. Eleven other countries (Australia, Austria, Belgium, the Czech Republic, Germany, Ireland, Korea, the Netherlands, Switzerland and the United Kingdom and the partner country Slovenia) also scored above the OECD average of 500 points. Five countries (Denmark, France, Hungary, Poland and Sweden) performed close to the OECD average, and the remaining 11 OECD countries and 4 partner countries performed below it.



Countries are ranked in descending order of mean score.

Source: OECD. Table A5.1. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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Other highlights of this indicator

- On average across OECD countries, 1.3% of 15-year-olds reached the highest level of science proficiency (Level 6 of the PISA 2006 science scale). In Finland and New Zealand this figure was at least 3.9%, three times the OECD average. In Australia, Canada, Japan and the United Kingdom, as well as in the partner country Slovenia, between 2 and 3% reached Level 6.

- With the exception of Finland and the partner country Estonia, all countries had at least 10% of students who performed at Level 1 or below. In 15 countries more than 20% of students performed at this level. In Mexico and in the partner country Brazil, a majority of students performed at Level 1 or below.

- Countries demonstrated relative strengths and weaknesses in the specific science competencies measured by PISA (*identifying scientific issues*, *explaining phenomena scientifically* and *using scientific evidence*). Students scored at least 10 points higher in *identifying scientific issues* than in the overall science score in Mexico and Portugal, and at least 10 points lower in the Czech Republic, Hungary, Poland and the Slovak Republic and in the partner countries Estonia and the Russian Federation. Students scored at least 10 points higher in *explaining phenomena scientifically* than in the overall science score in the Czech Republic, Hungary and the Slovak Republic, and at least 10 points lower in France and Korea and in the partner country Israel. Students scored at least 10 points higher in *using scientific evidence* than in the overall science score in France, Japan and Korea and at least 10 points lower in the Czech Republic, Norway and the Slovak Republic, and in the partner country Brazil.

- Males and females performed equally well on the overall science scale in the majority of countries, including 22 of the 30 OECD countries. In two OECD countries and one partner country, females outperformed males, on average, while males outperformed females in six OECD countries and two partner countries. In no OECD country was the gender difference larger than 12 points on the overall science scale. However, similarities in average performance mask certain gender differences. In most countries, females were stronger on average in *identifying scientific issues,* while males were stronger on average in *explaining phenomena scientifically.*

A5

Policy context

For much of the last century, school science and mathematics curricula were dominated by the need to provide the foundations for the professional training of a small number of scientists, engineers and mathematicians. With the growing role of science, mathematics and technology in modern life, however, the objectives of personal fulfilment, employment and full participation in society increasingly require that all adults – not just those aspiring to a scientific career – be scientifically, mathematically and technologically literate. Many situations, problems and issues encountered by individuals in their daily lives require an understanding of science and technology before they can be fully understood or addressed. Individuals need the ability to use science knowledge and apply scientific thought processes not only at the personal level, but at the community, national and global levels as well. An understanding of science and technology is central to a young person's preparedness for life in modern society. It also empowers individuals to participate in the determination of public policy where issues of science and technology affect their lives. This indicator examines the scientific literacy of 15-year-old students and draws on data from the Programme for International Student Assessment (PISA) 2006, in which science was a major focus.

Evidence and explanations

This indicator examines the scientific literacy of 15-year-old students in several ways (see Box A5.1 for a PISA definition of scientific literacy). First, it describes performance in terms of the mean scores achieved by students on the overall science scale and how the means compare among countries and to the OECD average. Then, it describes proficiency in terms of the percentage of students reaching different performance levels on the science scale in each country, highlighting performance at the low and high ends of the distribution. Finally, it shows the countries in which students were relatively stronger and weaker in the three different science competencies as well as gender differences in performance on these competencies.

Mean scores on the overall science scale

One way to summarise student performance and to compare the relative standing of countries in terms of student performance is through the mean scores for students in each country. To the extent that high average performance at age 15 can be considered predictive of a highly skilled future workforce, countries with high average performance will have an important economic and social advantage. This section describes country means on the overall scale.

Chart A5.2 summarises student performance in different countries on the overall science scale, in terms of the mean student score. It indicates which countries performed above, at, or below the OECD average, and it also shows the comparative performance of individual countries with each of the other countries. Only differences that are statistically significant should be taken into account.

Students in Finland scored 563 points on average, compared to the OECD mean of 500. This score was an estimated 29 points above that of any other country, making Finland the highest scoring country in science.

Four other high-scoring countries had mean scores of 530 to 534 points: Canada, Japan and New Zealand and the partner country Estonia. Other countries scoring statistically significantly above the OECD average included Australia, Austria, Belgium, the Czech Republic, Germany, Ireland, Korea, the Netherlands, Switzerland and the United Kingdom and the partner country Slovenia.

Box A5.1. What is scientific literacy in PISA?

Scientific literacy is defined as the extent to which an individual:

- Possesses scientific knowledge and uses that knowledge to identify questions, acquire new knowledge, explain scientific phenomena, and draw evidence-based conclusions about science-related issues.
- Understands the characteristic features of science as a form of human knowledge and enquiry.
- Shows awareness of how science and technology shape our material, intellectual and cultural environments.
- Engages in science-related issues and with the ideas of science, as a reflective citizen.

What scales are reported? PISA summarises student performance on an overall science scale that provides a picture of students' accumulated understanding of science at age 15. The results for the overall science scale are completed by a more detailed analysis of performance with scales on the science competencies (identifying scientific issues, explaining phenomena scientifically and using scientific evidence), knowledge domains (knowledge about science and knowledge of science) and content areas ("Physical systems", "Living systems", and "Earth and space systems"). The three competencies were a key organising element of the framework and are reported on individually because of their importance to the practice of science and their connection to key cognitive abilities such as inductive/deductive reasoning, systems-based thinking, critical decision making, transformation of information, construction and communication of arguments and explanations based on data, thinking in terms of models, and use of science.

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

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

Five countries (Denmark, France, Hungary, Poland and Sweden) performed close to the OECD average. The 15 remaining countries (11 OECD countries and 4 partner countries) performed statistically significantly below it. Of the 30 OECD countries, 21 had scores within 25 points of the OECD average of 500. In this closely clustered group of countries, each had a mean score very similar to a number of the others. There is a discontinuity in the mean scores below that of Greece (473): the next highest country, Israel, scored 454 points and only two OECD countries scored below 473 points.

A5

Chart A5.2. Multiple comparisons of mean performance on the PISA science scale (2006)

	Country mean	S.E.	Finland	Canada	Estonia	Japan	New Zealand	Australia	Netherlands	Korea	Slovenia	Germany	United Kingdom	Czech Republic	Switzerland	Austria	Belgium	Ireland	Hungary	Sweden
	563	(2.0)	563	534	531	531	530	527	525	522	519	516	515	513	512	511	510	508	504	503
			(2.0)	(2.0)	(2.5)	(3.4)	(2.7)	(2.3)	(2.7)	(3.4)	(1.1)	(3.8)	(2.3)	(3.5)	(3.2)	(3.9)	(2.5)	(3.2)	(2.7)	(2.4)
Finland	563	(2.0)		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Canada	534	(2.0)	▼		○	○	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Estonia	531	(2.5)	▼	○		○	○	○	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Japan	531	(3.4)	▼	○	○		○	○	○	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
New Zealand	530	(2.7)	▼	○	○	○		○	○	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Australia	527	(2.3)	▼	▼	○	○	○		○	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Netherlands	525	(2.7)	▼	▼	○	○	○	○		○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Korea	522	(3.4)	▼	▼	▼	○	○	○	○		○	○	○	○	▲	▲	▲	▲	▲	▲
Slovenia	519	(1.1)	▼	▼	▼	▼	▼	▼	▼	○		○	○	○	▲	○	▲	▲	▲	▲
Germany	516	(3.8)	▼	▼	▼	▼	▼	▼	▼	○	○		○	○	○	○	○	○	▲	▲
United Kingdom	515	(2.3)	▼	▼	▼	▼	▼	▼	▼	○	○	○		○	○	○	○	○	▲	▲
Czech Republic	513	(3.5)	▼	▼	▼	▼	▼	▼	▼	○	○	○	○		○	○	○	○	▲	▲
Switzerland	512	(3.2)	▼	▼	▼	▼	▼	▼	▼	▼	▼	○	○	○		○	○	○	○	▲
Austria	511	(3.9)	▼	▼	▼	▼	▼	▼	▼	▼	○	○	○	○	○		○	○	○	○
Belgium	510	(2.5)	▼	▼	▼	▼	▼	▼	▼	▼	▼	○	○	○	○	○		○	○	▲
Ireland	508	(3.2)	▼	▼	▼	▼	▼	▼	▼	▼	▼	○	○	○	○	○	○		○	○
Hungary	504	(2.7)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	○	○	○	○		○
Sweden	503	(2.4)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	○	▼	○	○	
Poland	498	(2.3)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	○	○
Denmark	496	(3.1)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	○	○
France	495	(3.4)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Iceland	491	(1.6)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
United States	489	(4.2)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Slovak Republic	488	(2.6)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Spain	488	(2.6)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Norway	487	(3.1)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Luxembourg	486	(1.1)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Russian Federation	479	(3.7)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Italy	475	(2.0)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Portugal	474	(3.0)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Greece	473	(3.2)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Israel	454	(3.7)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Chile	438	(4.3)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Turkey	424	(3.8)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Mexico	410	(2.7)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Brazil	390	(2.8)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼

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

▲ Mean performance statistically significantly higher than in comparison country
○ No statistically significant difference from comparison country
▼ Mean performance statistically significantly lower than in comparison country

Source: PISA 2006 Science Competencies for Tomorrow's World, Volume 1, Figure 2.11b.
StatLink http://dx.doi.org/10.1787/401573312123

A5

Chart A5.2. *(continued)* Multiple comparisons of mean performance on the PISA science scale (2006)

Poland	Denmark	France	Iceland	United States	Slovak Republic	Spain	Norway	Luxembourg	Russian Federation	Italy	Portugal	Greece	Israel	Chile	Turkey	Mexico	Brazil	Country mean	S.E.		
498	496	495	491	489	488	488	487	486	479	475	474	473	454	438	424	410	390				
(2.3)	(3.1)	(3.4)	(1.6)	(4.2)	(2.6)	(2.6)	(3.1)	(1.1)	(3.7)	(2.0)	(3.0)	(3.2)	(3.7)	(4.3)	(3.8)	(2.7)	(2.8)	S.E.			
▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(2.0)	563	Finland	
▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(2.0)	534	Canada	
▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(2.5)	531	Estonia	
▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(3.4)	531	Japan	
▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(2.7)	530	New Zealand	
▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(2.3)	527	Australia	
▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(2.7)	525	Netherlands	
▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(3.4)	522	Korea	
▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(1.1)	519	Slovenia	
▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(3.8)	516	Germany	
▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(2.3)	515	United Kingdom	
▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(3.5)	513	Czech Republic	
▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(3.2)	512	Switzerland	
▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(3.9)	511	Austria	
▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(2.5)	510	Belgium	
▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(3.2)	508	Ireland	
○	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(2.7)	504	Hungary	
○	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(2.4)	503	Sweden	
	○	○	▲	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(2.3)	498	Poland	
○		○	○	○	○	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(3.1)	496	Denmark	
○	○		○	○	○	○	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(3.4)	495	France	
▼	○	○		○	○	○	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(1.6)	491	Iceland	
○	○	○	○		○	○	○	○	○	▲	▲	▲	▲	▲	▲	▲	▲	(4.2)	489	United States	
▼	○	○	○	○		○	○	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	(2.6)	488	Slovak Republic	
▼	○	○	○	○	○		○	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	(2.6)	488	Spain	
▼	▼	○	○	○	○	○		○	○	▲	▲	▲	▲	▲	▲	▲	▲	(3.1)	487	Norway	
▼	▼	▼	▼	○	○	○	○		○	▲	▲	▲	▲	▲	▲	▲	▲	(1.1)	486	Luxembourg	
▼	▼	▼	▼	○	▼	▼	○	○		○	○	○	▲	▲	▲	▲	▲	(3.7)	479	Russian Federation	
▼	▼	▼	▼	▼	▼	▼	▼	▼	○		○	○	▲	▲	▲	▲	▲	(2.0)	475	Italy	
▼	▼	▼	▼	▼	▼	▼	▼	▼	○	○		○	▲	▲	▲	▲	▲	(3.0)	474	Portugal	
▼	▼	▼	▼	▼	▼	▼	▼	▼	○	○	○		▲	▲	▲	▲	▲	(3.2)	473	Greece	
▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼		▲	▲	▲	▲	(3.7)	454	Israel	
▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼		▲	▲	▲	(4.3)	438	Chile	
▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼		▲	▲	(3.8)	424	Turkey	
▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼		▲	(2.7)	410	Mexico	
▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼		(2.8)	390	Brazil	

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

▲ Mean performance statistically significantly higher than in comparison country
○ No statistically significant difference from comparison country
▼ Mean performance statistically significantly lower than in comparison country

Source: PISA 2006 Science Competencies for Tomorrow's World, Volume 1, Figure 2.11b.
StatLink http://dx.doi.org/10.1787/401573312123

Proficiency in science

PISA also provides data on students' proficiency in scientific literacy, which is examined at six levels, each representing tasks of increasing complexity (Box A5.2). Chart A5.3 presents an overall profile of students' proficiency on the science scale; the length of the coloured components of the bars shows the percentage of students at each proficiency level. It indicates, for each country, the percentage of students below Level 2, on the left side, and at least at Level 2 on the right side. 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. In OECD countries, 19.2% of students on average were classified below Level 2, including 5.2% below Level 1, while 1.3% on average reached Level 6 (the highest level), 9.0% reached Level 5 or higher, 29.3% reached Level 4 or higher, 56.7% reached Level 3 or higher, and 80.8% reached Level 2 or higher (Table A5.2).

High levels of proficiency

Examining individual countries' performance by proficiency level shows that in Finland and New Zealand at least 3.9% of students reached Level 6, the highest level on the PISA science scale, three times the OECD average. In Australia, Canada, Japan and the United Kingdom and in the partner country Slovenia, between 2% and 3% reached Level 6.

Including Level 5 brings the level of high performers to 9.0% on average across OECD countries. Over one in five students in Finland (20.9%) and over one in six in New Zealand (17.6%) reached at least Level 5. In, Australia, Canada and Japan the figure was between 14% and 16%. By contrast, two OECD countries and one partner country in the survey had less than 1% of students reaching either Level 5 or Level 6, and six OECD countries and three partner countries had 5% or fewer reaching the two highest levels. It appears that the pool of 15-year-olds who were highly proficient in science is very unevenly distributed across countries.

Medium levels of proficiency

In 12 OECD countries and 2 partner countries, at least one-third of students reached Level 4 and higher on the science scale. In all but five OECD countries and four partner countries, the majority of students reached Level 3 or higher. In all countries, except three OECD countries and three partner countries, three-quarters of students reached at least Level 2.

Low levels of proficiency

The percentage of students at very low proficiency levels is an important indicator of the extent to which young people are being prepared to participate fully in society and in the labour market. 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. For OECD countries, 19.2% of students on average were classified as below Level 2, including 5.2% below Level 1. In every country except, Finland and the partner country Estonia, 10% or more of students performed at Level 1 or below, and in 11 OECD countries and four partner countries the proportion exceeded 20%. In Mexico and in the partner country Brazil, a majority of students could not complete tasks above Level 1 consistently.

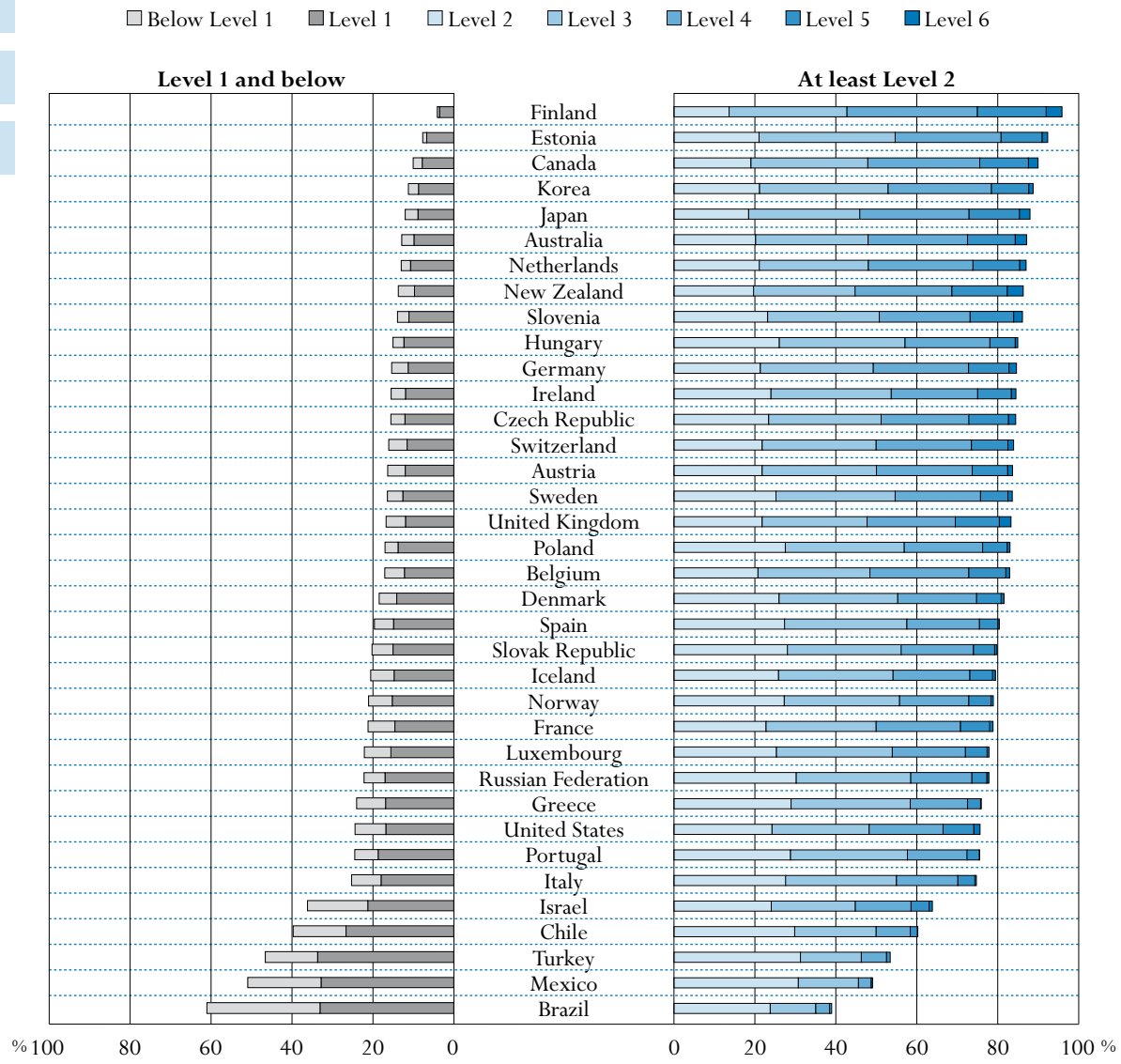
Box A5.2. What can students at each proficiency level do and what scores are associated with the levels?

Level	Lower score limit	Percentage of students able to perform tasks at each level or above (OECD average)	What students can typically do
6	707.9	1.3% of students across the OECD can perform tasks at Level 6 on the science scale	At Level 6, students can consistently identify, explain and apply scientific knowledge and *knowledge about science* in a variety of complex life situations. They can link different information sources and explanations and use evidence from those sources to justify decisions. They clearly and consistently demonstrate advanced scientific thinking and reasoning, and they demonstrate willingness to use their scientific understanding in support of solutions to unfamiliar scientific and technological situations. Students at this level can use scientific knowledge and develop arguments in support of recommendations and decisions that centre on personal, social or global situations.
5	633.3	9.0% of students across the OECD can perform tasks at least at Level 5 on the science scale	At Level 5, students can identify the scientific components of many complex life situations, apply both scientific concepts and *knowledge about science* to these situations, and can compare, select and evaluate appropriate scientific evidence for responding to life situations. Students at this level can use well-developed inquiry abilities, link knowledge appropriately and bring critical insights to situations. They can construct explanations based on evidence and arguments based on their critical analysis.
4	558.7	29.3% of students across the OECD can perform tasks at least at Level 4 on the science scale	At Level 4, students can work effectively with situations and issues that may involve explicit phenomena requiring them to make inferences about the role of science or technology. They can select and integrate explanations from different disciplines of science or technology and link those explanations directly to aspects of life situations. Students at this level can reflect on their actions and they can communicate decisions using scientific knowledge and evidence.
3	484.1	56.7% of students across the OECD can perform tasks at least at Level 3 on the science scale	At Level 3, students can identify clearly described scientific issues in a range of contexts. They can select facts and knowledge to explain phenomena and apply simple models or inquiry strategies. Students at this level can interpret and use scientific concepts from different disciplines and can apply them directly. They can develop short statements using facts and make decisions based on scientific knowledge.
2	409.5	80.8% of students across the OECD can perform tasks at least at Level 2 on the science scale	At Level 2, students have adequate scientific knowledge to provide possible explanations in familiar contexts or draw conclusions based on simple investigations. They are capable of direct reasoning and making literal interpretations of the results of scientific inquiry or technological problem solving.
1	334.9	94.8% of students across the OECD can perform tasks at least at Level 1 on the science scale	At Level 1, students have such a limited scientific knowledge that it can only be applied to a few, familiar situations. They can present scientific explanations that are obvious and that follow explicitly from given evidence.

A5

Chart A5.3. Science proficiency of 15-year-old students (PISA 2006)

Percentage of students at each proficiency level on the science scale



Countries are ranked in descending order of percentage of 15-year-olds at Levels 2, 3, 4, 5 and 6.
Source: OECD. Table A5.2. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).
StatLink http://dx.doi.org/10.1787/401573312123

Mean scores on the three science competency scales

One of the strengths of PISA 2006 is that it looks both at students' science competencies and also the science knowledge domains (the latter is not addressed in this indicator). It is important, but not sufficient, for students to understand scientific theories and facts well enough to explain phenomena scientifically. They must also be able to recognise questions that can be addressed scientifically and see how the results can be used, in order to apply their scientific knowledge.

Students' skill profiles on the three science competency scales – *identifying scientific issues*, *using scientific evidence* and *explaining phenomena scientifically* – differed among countries. Understanding students' comparative strengths in different science competencies and knowledge domains can inform policy makers, thus helping them to develop appropriate strategies for achieving scientific literacy. A simplified way of looking at these relative strengths is in terms of a sequence in dealing with science problems: first identifying the problem, then applying knowledge of scientific phenomena, and finally interpreting and using the results. Traditional science teaching often concentrates on *explaining phenomena scientifically*, which requires familiarity with key science knowledge and theories. Yet if students are unable to recognise a science problem and then to interpret findings in ways that are relevant to the real world, they are not fully scientifically literate. A student who has mastered a scientific theory but cannot weigh evidence, for example, will make limited use of science in adult life. This suggest that countries with students who are relatively weak in *identifying scientific issues* or *using scientific evidence* may need to consider how students can acquire wider scientific skills, while those weak in *explaining phenomena scientifically* may need to focus more on mastery of scientific knowledge.

Chart A5.4 presents the performance difference between the overall science scale and each science competency scale. Blue indicates that a country was relatively stronger on that scale than on the overall scale, with the deepest colour indicating the largest difference and thus high relative strength. Grey indicates that a country performed relatively weaker on that scale than on the overall scale, with the deepest colour indicating the greatest weakness and thus high relative weakness.

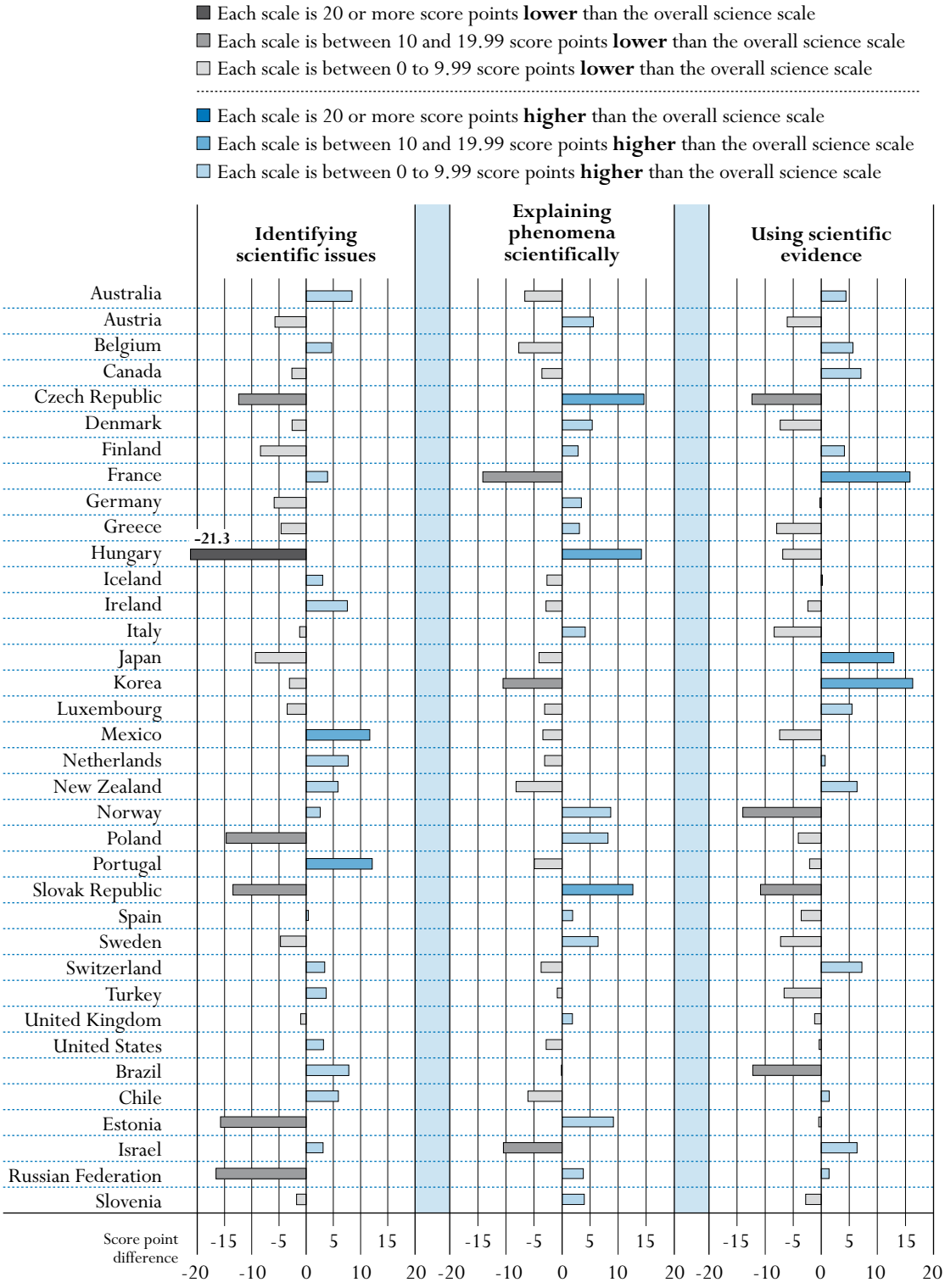
Countries with similar strengths and weaknesses in science competencies can be separated into different groups.

- In Mexico and Portugal, students were relatively stronger in *identifying scientific issues* than in overall science. But in the Czech Republic, Hungary, Poland and the Slovak Republic and the partner countries Estonia and the Russian Federation, students scored more than 10 points lower in *identifying scientific issues* than in overall science.
- In some countries, students were relatively stronger in *explaining phenomena scientifically* than in other science competencies. Students scored 10 or more points higher in *explaining phenomena scientifically* than in the overall science score in the Czech Republic, Hungary and the Slovak Republic. In some countries, the reverse was true – students were stronger in other science competencies than in *explaining phenomena scientifically*. Students scored 10 or more points higher in overall science than in *explaining phenomena scientifically* in France and Korea and in the partner country Israel.
- In some countries, students showed relative strength in *using scientific evidence*. Students scored 10 or more points higher in *using scientific evidence* than in the overall science score in France, Japan and Korea. In some countries, students showed relative weakness in *using scientific evidence*. Students scored 10 or more points lower in *using scientific evidence* than in the overall science score in the Czech Republic, Norway and the Slovak Republic, and in the partner country Brazil.

In some of these cases, the differences between performances in two different competencies were substantial. For example, in France and Korea, students scored 30 and 27 points, respectively, higher in *using scientific evidence* than in *explaining phenomena scientifically*.

A5

Chart A5.4. Comparison of the performances on the different competency scales in science (PISA 2006)



Source: OECD. Table A5.3. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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Gender differences

Contrary to reading and mathematics, for which significant gender differences were observed, there was no difference between males and females in average overall science performance in most countries, including 22 of the 30 OECD countries. Only Denmark, Luxembourg, Mexico, the Netherlands, Switzerland and the United Kingdom showed a small advantage for males (between 6 and 10 score points) while Greece and Turkey showed an advantage for females (between 11 and 12 score points). For the remaining OECD countries there are no statistically significant differences. Among the partner countries, Brazil and Chile showed an advantage for males, while Slovenia showed an advantage for females (Table A5.1).

However, similarities in average performance mask certain gender differences: in most countries, females were stronger in *identifying scientific issues*, while males were stronger in *explaining phenomena scientifically* (Chart A5.5, Table A5.3).

- On *identifying scientific issues* females outperformed males by 17 score points, on average for the OECD countries. In a number of countries their advantage was quite large; for example, it was more than 25 points in Finland, Greece, Iceland and Turkey and in the partner country Slovenia.

- On the other hand, on *explaining phenomena scientifically,* males outperformed females by 15 score points, on average. Again, the difference was large in some cases. In the partner country Chile it was 34 score points, and among OECD countries it was 25 score points in Luxembourg, 22 in Hungary and the Slovak Republic, and 21 in the Czech Republic, Denmark, Germany and the United Kingdom.

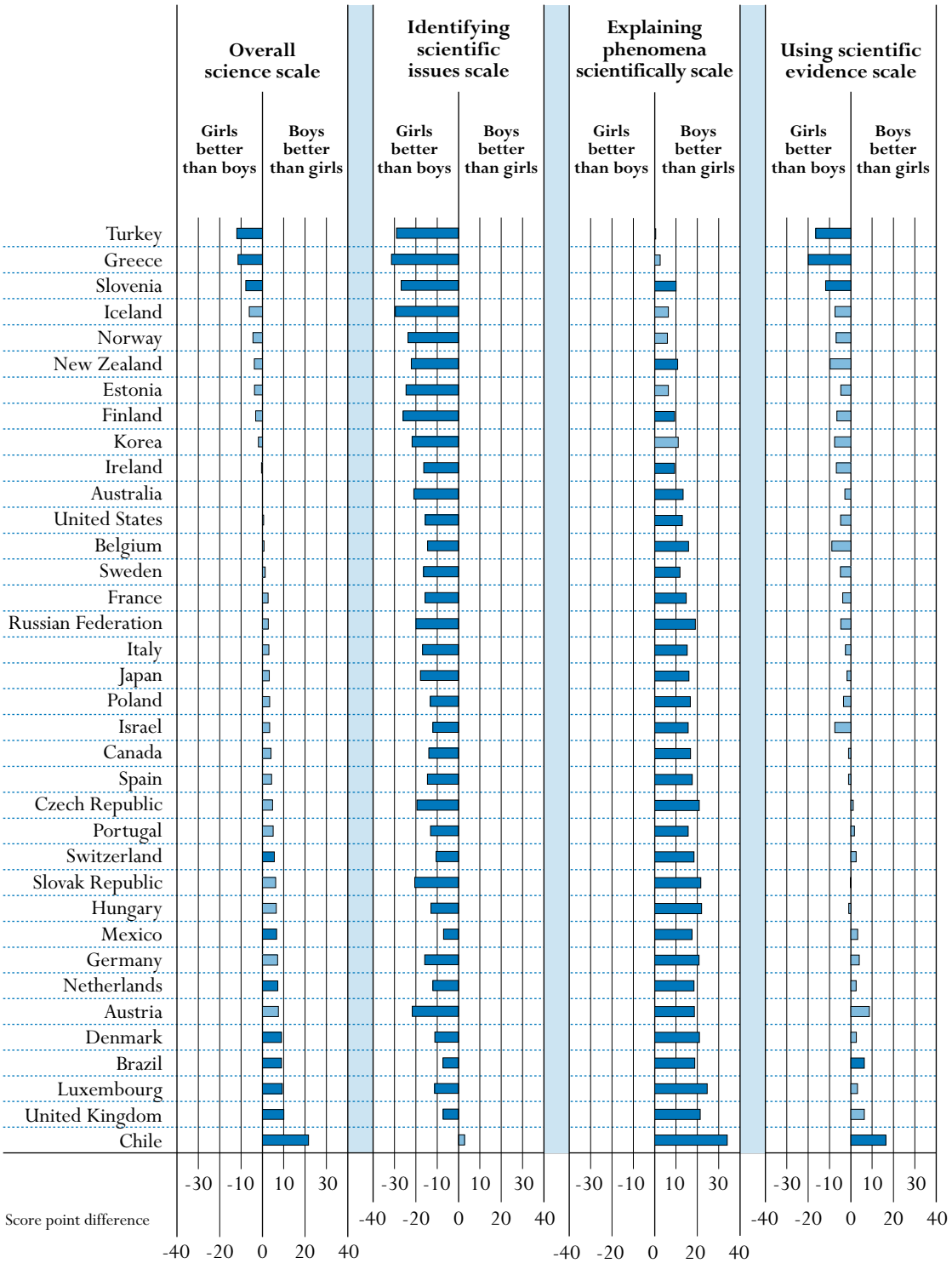
- In contrast to *identifying scientific issues* and *explaining phenomena scientifically*, there were few significant gender differences in the competency *using scientific evidence*, with only three OECD countries showing females outperforming males and a small overall difference, favouring females, of 3 score points.

When interpreting these gender differences in conjunction with the overall performance of countries on the respective scales, the differences imply that males or females sometimes had very different levels of performance in different areas of science. For example, females' mean score in *identifying scientific issues* in France was above the OECD average at 507 points, but their mean performance in *explaining phenomena scientifically* was much lower at 474 points, equivalent to some of the lowest-performing OECD countries.

The fact that females performed consistently stronger than males in *identifying scientific issues* and weaker in *explaining phenomena scientifically* may suggest a systematic gender difference in the way students relate to science and to the science curriculum. It appears that males may be better on average at mastering scientific knowledge and females better at distinguishing scientific questions in a given situation. While it should be emphasised that in many countries the gender differences were small relative to differences within each gender, overall performance could be raised significantly if the factors behind the gender difference could be identified and tackled.

A5

Chart A5.5. Gender differences in student performance on the PISA science scales (2006)



Note: Statistically significant differences are marked in darker tone.
Countries are ranked in ascending order of difference between boys and girls (B - G) for the overall science scale.
Source: OECD. Tables 5.1 and A5.3. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).
StatLink http://dx.doi.org/10.1787/401573312123

Definitions and methodologies

The achievement scores are based on assessments administered as part of the Programme for International Student Assessment (PISA) undertaken by the Organisation for Economic Co-operation and Development (OECD). PISA was administered most recently during the 2006 school year.

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

Further references

For further information about PISA 2006, see *PISA 2006: Science Competencies for Tomorrow's World* (OECD, 2007c), and the *PISA 2006 Technical Report* (OECD, 2008b). PISA data are also available on the PISA website: *www.pisa.oecd.org*.

A5

Table A5.1.

Mean score, variation and gender differences in student performance on the PISA science scale (2006)

		All students				Gender differences					
		Mean score		Standard deviation		Boys		Girls		Difference (B - G)	
		Mean	S.E.	S.D.	S.E.	Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.
OECD countries	**Australia**	527	(2.3)	100	(1.0)	527	(3.2)	527	(2.7)	0	(3.8)
	Austria	511	(3.9)	98	(2.4)	515	(4.2)	507	(4.9)	8	(4.9)
	Belgium	510	(2.5)	100	(2.0)	511	(3.3)	510	(3.2)	1	(4.1)
	Canada	534	(2.0)	94	(1.1)	536	(2.5)	532	(2.1)	4	(2.2)
	Czech Republic	513	(3.5)	98	(2.0)	515	(4.2)	510	(4.8)	5	(5.6)
	Denmark	496	(3.1)	93	(1.4)	500	(3.6)	491	(3.4)	**9**	(3.2)
	Finland	563	(2.0)	86	(1.0)	562	(2.6)	565	(2.4)	-3	(2.9)
	France	495	(3.4)	102	(2.1)	497	(4.3)	494	(3.6)	3	(4.0)
	Germany	516	(3.8)	100	(2.0)	519	(4.6)	512	(3.8)	7	(3.7)
	Greece	473	(3.2)	92	(2.0)	468	(4.5)	479	(3.4)	**-11**	(4.7)
	Hungary	504	(2.7)	88	(1.6)	507	(3.3)	501	(3.5)	6	(4.2)
	Iceland	491	(1.6)	97	(1.2)	488	(2.6)	494	(2.1)	-6	(3.4)
	Ireland	508	(3.2)	94	(1.5)	508	(4.3)	509	(3.3)	0	(4.3)
	Italy	475	(2.0)	96	(1.3)	477	(2.8)	474	(2.5)	3	(3.5)
	Japan	531	(3.4)	100	(2.0)	533	(4.9)	530	(5.1)	3	(7.4)
	Korea	522	(3.4)	90	(2.4)	521	(4.8)	523	(3.9)	-2	(5.5)
	Luxembourg	486	(1.1)	97	(0.9)	491	(1.8)	482	(1.8)	**9**	(2.9)
	Mexico	410	(2.7)	81	(1.5)	413	(3.2)	406	(2.6)	**7**	(2.2)
	Netherlands	525	(2.7)	96	(1.6)	528	(3.2)	521	(3.1)	**7**	(3.0)
	New Zealand	530	(2.7)	107	(1.4)	528	(3.9)	532	(3.6)	-4	(5.2)
	Norway	487	(3.1)	96	(2.0)	484	(3.8)	489	(3.2)	-4	(3.4)
	Poland	498	(2.3)	90	(1.1)	500	(2.7)	496	(2.6)	3	(2.5)
	Portugal	474	(3.0)	89	(1.7)	477	(3.7)	472	(3.2)	5	(3.3)
	Slovak Republic	488	(2.6)	93	(1.8)	491	(3.9)	485	(3.0)	6	(4.7)
	Spain	488	(2.6)	91	(1.0)	491	(2.9)	486	(2.7)	4	(2.4)
	Sweden	503	(2.4)	94	(1.4)	504	(2.7)	503	(2.9)	1	(3.0)
	Switzerland	512	(3.2)	99	(1.7)	514	(3.3)	509	(3.6)	**6**	(2.7)
	Turkey	424	(3.8)	83	(3.2)	418	(4.6)	430	(4.1)	**-12**	(4.1)
	United Kingdom	515	(2.3)	107	(1.5)	520	(3.0)	510	(2.8)	**10**	(3.4)
	United States	489	(4.2)	106	(1.7)	489	(5.1)	489	(4.0)	1	(3.5)
	OECD total	***491***	***(1.2)***	***104***	***(0.6)***	***492***	***(1.4)***	***490***	***(1.3)***	***3***	***(1.3)***
	OECD average	***500***	***(0.5)***	***95***	***(0.3)***	***501***	***(0.7)***	***499***	***(0.6)***	***2***	***(0.7)***
Partner countries	**Brazil**	390	(2.8)	89	(1.9)	395	(3.2)	386	(2.9)	**9**	(2.3)
	Chile	438	(4.3)	92	(1.8)	448	(5.4)	426	(4.4)	**22**	(4.8)
	Estonia	531	(2.5)	84	(1.1)	530	(3.1)	533	(2.9)	-4	(3.1)
	Israel	454	(3.7)	111	(2.0)	456	(5.6)	452	(4.2)	3	(6.5)
	Russian Federation	479	(3.7)	90	(1.4)	481	(4.1)	478	(3.7)	3	(2.7)
	Slovenia	519	(1.1)	98	(1.0)	515	(2.0)	523	(1.9)	**-8**	(3.2)

Note: Statistically significant values are indicated in bold.

Source: PISA 2006: Science Competencies for Tomorrow's World, Volume 2, Table 2.1c.

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A5

Table A5.1. *(continued)*

Mean score, variation and gender differences in student performance on the PISA science scale (2006)

		Percentiles											
		5th		10th		25th		75th		90th		95th	
		Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.
OECD countries	Australia	358	(3.5)	395	(3.4)	459	(2.6)	598	(2.5)	653	(2.9)	685	(3.4)
	Austria	341	(9.3)	378	(6.2)	443	(5.4)	582	(4.1)	633	(3.6)	663	(4.1)
	Belgium	336	(7.3)	374	(5.4)	442	(3.8)	584	(2.4)	634	(2.3)	660	(2.7)
	Canada	372	(4.7)	410	(3.7)	472	(2.5)	601	(2.2)	651	(2.4)	681	(2.8)
	Czech Republic	350	(6.0)	385	(5.2)	443	(4.6)	583	(3.9)	641	(4.3)	672	(4.7)
	Denmark	341	(5.9)	373	(4.8)	432	(4.3)	562	(2.9)	615	(3.7)	646	(4.3)
	Finland	419	(4.4)	453	(3.3)	506	(2.9)	622	(2.5)	673	(2.9)	700	(3.1)
	France	320	(6.3)	359	(5.5)	424	(5.3)	570	(4.0)	623	(4.0)	653	(3.8)
	Germany	345	(8.1)	381	(7.0)	447	(5.3)	587	(3.6)	642	(3.2)	672	(3.6)
	Greece	317	(7.3)	353	(5.4)	413	(4.4)	537	(3.3)	589	(4.1)	619	(3.8)
	Hungary	358	(4.4)	388	(4.2)	442	(3.5)	566	(3.3)	617	(3.1)	646	(4.2)
	Iceland	328	(4.9)	364	(3.1)	424	(2.6)	560	(2.3)	614	(2.9)	644	(3.4)
	Ireland	351	(5.8)	385	(4.4)	444	(4.6)	575	(3.4)	630	(3.7)	660	(4.9)
	Italy	318	(3.1)	351	(2.8)	409	(3.0)	543	(2.4)	598	(2.6)	630	(2.8)
	Japan	356	(6.1)	396	(6.2)	465	(5.1)	603	(3.1)	654	(3.1)	685	(3.6)
	Korea	367	(8.4)	403	(5.7)	462	(4.1)	586	(3.8)	635	(4.7)	662	(5.9)
	Luxembourg	322	(3.9)	358	(2.8)	419	(2.0)	556	(2.4)	609	(2.8)	640	(2.6)
	Mexico	281	(4.4)	306	(4.2)	354	(3.6)	465	(2.9)	516	(3.0)	544	(3.5)
	Netherlands	362	(5.9)	395	(5.4)	456	(4.7)	596	(2.6)	646	(3.4)	675	(3.6)
	New Zealand	347	(5.2)	389	(4.5)	455	(3.6)	608	(2.9)	667	(3.3)	699	(3.1)
	Norway	328	(7.8)	365	(5.6)	422	(3.9)	553	(3.0)	610	(3.5)	641	(3.4)
	Poland	352	(3.8)	381	(2.9)	434	(2.7)	562	(3.1)	615	(3.3)	645	(3.3)
	Portugal	329	(5.4)	357	(4.8)	411	(4.2)	539	(3.0)	588	(2.9)	617	(3.2)
	Slovak Republic	334	(5.6)	368	(3.7)	426	(3.2)	555	(4.0)	609	(4.1)	638	(3.9)
	Spain	338	(4.1)	370	(3.7)	427	(3.0)	552	(3.1)	604	(3.0)	633	(3.1)
	Sweden	347	(3.8)	381	(4.0)	439	(3.3)	569	(2.8)	622	(2.6)	654	(3.4)
	Switzerland	340	(5.0)	378	(4.9)	445	(3.9)	584	(3.5)	636	(3.8)	665	(4.6)
	Turkey	301	(2.8)	325	(3.2)	366	(2.6)	475	(5.8)	540	(9.7)	575	(9.8)
	United Kingdom	337	(5.4)	376	(4.3)	441	(3.2)	590	(3.1)	652	(2.9)	685	(3.5)
	United States	318	(4.5)	349	(5.9)	412	(5.4)	567	(4.6)	628	(4.3)	662	(4.8)
	OECD total	*321*	*(1.8)*	*354*	*(1.9)*	*416*	*(1.6)*	*567*	*(1.3)*	*626*	*(1.3)*	*659*	*(1.5)*
	OECD average	*340*	*(1.0)*	*375*	*(0.9)*	*434*	*(0.7)*	*568*	*(0.6)*	*622*	*(0.7)*	*652*	*(0.8)*
Partner countries	Brazil	254	(4.5)	281	(3.2)	328	(2.3)	447	(4.5)	510	(5.6)	549	(5.3)
	Chile	295	(4.8)	323	(4.1)	374	(4.0)	501	(5.9)	560	(6.5)	595	(6.1)
	Estonia	392	(4.7)	422	(3.8)	474	(3.2)	589	(3.1)	640	(3.3)	668	(3.7)
	Israel	275	(5.7)	310	(5.2)	374	(4.8)	535	(4.6)	601	(4.5)	636	(5.5)
	Russian Federation	333	(5.6)	364	(5.4)	418	(4.4)	541	(4.2)	596	(3.9)	627	(4.2)
	Slovenia	358	(3.8)	391	(2.8)	449	(2.7)	589	(2.1)	647	(3.3)	680	(3.0)

Source: PISA 2006: Science Competencies for Tomorrow's World, Volume 2, Table 2.1c.

StatLink http://dx.doi.org/10.1787/401573312123

A5

Table A5.2.

Percentage of students at each proficiency level on the PISA science scale (2006)

		Proficiency levels													
		Below Level 1 (below 334.94 score points)		Level 1 (from 334.94 to 409.54 score points)		Level 2 (from 409.54 to 484.14 score points)		Level 3 (from 484.14 to 558.73 score points)		Level 4 (from 558.73 to 633.33 score points)		Level 5 (from 633.33 to 707.93 score points)		Level 6 (above 707.93 score points)	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD countries	Australia	3.0	(0.3)	9.8	(0.5)	20.2	(0.6)	27.7	(0.5)	24.6	(0.5)	11.8	(0.5)	2.8	(0.3)
	Austria	4.3	(0.9)	12.0	(1.0)	21.8	(1.0)	28.3	(1.0)	23.6	(1.1)	8.8	(0.7)	1.2	(0.2)
	Belgium	4.8	(0.7)	12.2	(0.6)	20.8	(0.8)	27.6	(0.8)	24.5	(0.8)	9.1	(0.5)	1.0	(0.2)
	Canada	2.2	(0.3)	7.8	(0.5)	19.1	(0.6)	28.8	(0.6)	27.7	(0.6)	12.0	(0.5)	2.4	(0.2)
	Czech Republic	3.5	(0.6)	12.1	(0.8)	23.4	(1.2)	27.8	(1.1)	21.7	(0.9)	9.8	(0.9)	1.8	(0.3)
	Denmark	4.3	(0.6)	14.1	(0.8)	26.0	(1.1)	29.3	(1.0)	19.5	(0.9)	6.1	(0.7)	0.7	(0.2)
	Finland	0.5	(0.1)	3.6	(0.4)	13.6	(0.7)	29.1	(1.1)	32.2	(0.9)	17.0	(0.7)	3.9	(0.3)
	France	6.6	(0.7)	14.5	(1.0)	22.8	(1.1)	27.2	(1.1)	20.9	(1.0)	7.2	(0.6)	0.8	(0.2)
	Germany	4.1	(0.7)	11.3	(1.0)	21.4	(1.1)	27.9	(1.1)	23.6	(0.9)	10.0	(0.6)	1.8	(0.2)
	Greece	7.2	(0.9)	16.9	(0.9)	28.9	(1.2)	29.4	(1.0)	14.2	(0.8)	3.2	(0.3)	0.2	(0.1)
	Hungary	2.7	(0.3)	12.3	(0.8)	26.0	(1.2)	31.1	(1.1)	21.0	(0.9)	6.2	(0.6)	0.6	(0.2)
	Iceland	5.8	(0.5)	14.7	(0.8)	25.9	(0.7)	28.3	(0.9)	19.0	(0.7)	5.6	(0.5)	0.7	(0.2)
	Ireland	3.5	(0.5)	12.0	(0.8)	24.0	(0.9)	29.7	(1.0)	21.4	(0.9)	8.3	(0.6)	1.1	(0.2)
	Italy	7.3	(0.5)	18.0	(0.6)	27.6	(0.8)	27.4	(0.6)	15.1	(0.6)	4.2	(0.3)	0.4	(0.1)
	Japan	3.2	(0.4)	8.9	(0.7)	18.5	(0.9)	27.5	(0.9)	27.0	(1.1)	12.4	(0.6)	2.6	(0.3)
	Korea	2.5	(0.5)	8.7	(0.8)	21.2	(1.0)	31.8	(1.2)	25.5	(0.9)	9.2	(0.8)	1.1	(0.3)
	Luxembourg	6.5	(0.4)	15.6	(0.7)	25.4	(0.7)	28.6	(0.9)	18.1	(0.7)	5.4	(0.3)	0.5	(0.1)
	Mexico	18.2	(1.2)	32.8	(0.9)	30.8	(1.0)	14.8	(0.7)	3.2	(0.3)	0.3	(0.1)	0.0	a
	Netherlands	2.3	(0.4)	10.7	(0.9)	21.1	(1.0)	26.9	(0.9)	25.8	(1.0)	11.5	(0.8)	1.7	(0.2)
	New Zealand	4.0	(0.4)	9.7	(0.6)	19.7	(0.8)	25.1	(0.7)	23.9	(0.8)	13.6	(0.7)	4.0	(0.4)
	Norway	5.9	(0.8)	15.2	(0.8)	27.3	(0.8)	28.5	(1.0)	17.1	(0.7)	5.5	(0.4)	0.6	(0.1)
	Poland	3.2	(0.4)	13.8	(0.6)	27.5	(0.9)	29.4	(1.0)	19.3	(0.8)	6.1	(0.4)	0.7	(0.1)
	Portugal	5.8	(0.8)	18.7	(1.0)	28.8	(0.9)	28.8	(1.2)	14.7	(0.9)	3.0	(0.4)	0.1	(0.1)
	Slovak Republic	5.2	(0.6)	15.0	(0.9)	28.0	(1.0)	28.1	(1.0)	17.9	(1.0)	5.2	(0.5)	0.6	(0.1)
	Spain	4.7	(0.4)	14.9	(0.7)	27.4	(0.8)	30.2	(0.7)	17.9	(0.8)	4.5	(0.4)	0.3	(0.1)
	Sweden	3.8	(0.4)	12.6	(0.6)	25.2	(0.9)	29.5	(0.9)	21.1	(0.9)	6.8	(0.5)	1.1	(0.2)
	Switzerland	4.5	(0.5)	11.6	(0.6)	21.8	(0.9)	28.2	(0.8)	23.5	(1.1)	9.1	(0.8)	1.4	(0.3)
	Turkey	12.9	(0.8)	33.7	(1.3)	31.3	(1.4)	15.1	(1.1)	6.2	(1.2)	0.9	(0.3)	0.0	a
	United Kingdom	4.8	(0.5)	11.9	(0.6)	21.8	(0.7)	25.9	(0.7)	21.8	(0.6)	10.9	(0.5)	2.9	(0.3)
	United States	7.6	(0.9)	16.8	(0.9)	24.2	(0.9)	24.0	(0.8)	18.3	(1.0)	7.5	(0.6)	1.5	(0.2)
	OECD total	6.9	(0.3)	16.3	(0.3)	24.2	(0.4)	25.1	(0.3)	18.7	(0.3)	7.4	(0.2)	1.4	(0.1)
	OECD average	5.2	(0.1)	14.1	(0.1)	24.0	(0.2)	27.4	(0.2)	20.3	(0.2)	7.7	(0.1)	1.3	(0.0)
Partner countries	Brazil	27.9	(1.0)	33.1	(1.0)	23.8	(0.9)	11.3	(0.9)	3.4	(0.4)	0.5	(0.2)	0.0	(0.0)
	Chile	13.1	(1.1)	26.7	(1.5)	29.9	(1.2)	20.1	(1.4)	8.4	(1.0)	1.8	(0.3)	0.1	(0.1)
	Estonia	1.0	(0.2)	6.7	(0.6)	21.0	(0.9)	33.7	(1.0)	26.2	(0.9)	10.1	(0.7)	1.4	(0.3)
	Israel	14.9	(1.2)	21.2	(1.0)	24.0	(0.9)	20.8	(1.0)	13.8	(0.8)	4.4	(0.5)	0.8	(0.2)
	Russian Federation	5.2	(0.7)	17.0	(1.1)	30.2	(0.9)	28.3	(1.3)	15.1	(1.1)	3.7	(0.5)	0.5	(0.1)
	Slovenia	2.8	(0.3)	11.1	(0.7)	23.1	(0.7)	27.6	(1.1)	22.5	(1.1)	10.7	(0.6)	2.2	(0.3)

Source: PISA 2006: Science Competencies for Tomorrow's World, Volume 2, Table 2.1a.

StatLink http://dx.doi.org/10.1787/401573312123

A5

Table A5.3.

Mean score, variation and gender differences in student performance on the PISA science competency scales (2006)

		Identifying scientific issues scale									
		All students				Gender differences					
		Mean score		Standard deviation		Boys		Girls		Difference (B - G)	
		Mean	S.E.	S.D.	S.E.	Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.
OECD countries	**Australia**	535	(2.3)	98	(1.2)	525	(3.2)	546	(2.6)	**-21**	(3.6)
	Austria	505	(3.7)	90	(2.2)	495	(4.2)	516	(4.7)	**-22**	(4.6)
	Belgium	515	(2.7)	100	(2.3)	508	(3.8)	523	(3.1)	**-14**	(4.3)
	Canada	532	(2.3)	97	(1.3)	525	(2.7)	539	(2.4)	**-14**	(2.4)
	Czech Republic	500	(4.2)	99	(3.4)	492	(4.8)	511	(5.3)	**-19**	(5.7)
	Denmark	493	(3.0)	90	(1.4)	488	(3.5)	499	(3.2)	**-11**	(3.2)
	Finland	555	(2.3)	84	(1.1)	542	(2.7)	568	(2.6)	**-26**	(2.8)
	France	499	(3.5)	104	(2.4)	491	(4.6)	507	(3.7)	**-16**	(4.7)
	Germany	510	(3.8)	98	(2.4)	502	(4.5)	518	(3.9)	**-16**	(3.4)
	Greece	469	(3.0)	92	(2.1)	453	(4.1)	485	(3.1)	**-31**	(4.3)
	Hungary	483	(2.6)	81	(1.8)	477	(3.4)	489	(3.3)	**-13**	(4.1)
	Iceland	494	(1.7)	103	(1.4)	479	(2.9)	509	(2.4)	**-30**	(4.1)
	Ireland	516	(3.3)	95	(1.7)	508	(4.4)	524	(3.5)	**-16**	(4.6)
	Italy	474	(2.2)	99	(1.5)	466	(2.9)	483	(2.5)	**-17**	(3.4)
	Japan	522	(4.0)	106	(2.5)	513	(5.1)	531	(6.6)	**-18**	(8.5)
	Korea	519	(3.7)	91	(2.4)	508	(4.9)	530	(4.2)	**-22**	(5.7)
	Luxembourg	483	(1.1)	92	(0.9)	477	(1.7)	489	(1.8)	**-11**	(2.8)
	Mexico	421	(2.6)	85	(1.6)	418	(2.9)	425	(2.8)	**-7**	(2.2)
	Netherlands	533	(3.3)	103	(2.9)	527	(3.8)	539	(3.5)	**-12**	(3.2)
	New Zealand	536	(2.9)	106	(1.6)	525	(3.7)	547	(3.7)	**-22**	(4.9)
	Norway	489	(3.1)	94	(2.0)	478	(3.9)	501	(3.3)	**-24**	(3.7)
	Poland	483	(2.5)	84	(1.1)	476	(2.8)	490	(2.7)	**-13**	(2.5)
	Portugal	486	(3.1)	91	(1.9)	480	(3.6)	493	(3.4)	**-13**	(3.1)
	Slovak Republic	475	(3.2)	96	(3.6)	465	(4.5)	485	(3.6)	**-20**	(5.1)
	Spain	489	(2.4)	89	(1.1)	482	(2.7)	496	(2.6)	**-15**	(2.1)
	Sweden	499	(2.6)	96	(1.4)	491	(2.9)	507	(3.1)	**-16**	(3.0)
	Switzerland	515	(3.0)	95	(1.4)	510	(3.1)	520	(3.3)	**-10**	(2.4)
	Turkey	427	(3.4)	79	(2.7)	414	(4.1)	443	(3.6)	**-29**	(3.8)
	United Kingdom	514	(2.3)	106	(1.5)	510	(2.9)	517	(2.8)	**-7**	(3.2)
	United States	492	(3.8)	100	(1.7)	484	(4.6)	500	(3.8)	**-16**	(3.6)
	OECD total	***491***	***(1.1)***	***102***	***(0.6)***	***483***	***(1.3)***	***499***	***(1.2)***	***-16***	***(1.4)***
	OECD average	***499***	***(0.5)***	***95***	***(0.4)***	***490***	***(0.7)***	***508***	***(0.6)***	***-17***	***(0.7)***
Partner countries	**Brazil**	398	(2.8)	93	(1.9)	394	(3.2)	402	(3.0)	**-7**	(2.5)
	Chile	444	(4.1)	89	(1.7)	445	(5.0)	443	(4.1)	3	(4.5)
	Estonia	516	(2.6)	77	(1.3)	504	(3.1)	528	(2.6)	**-25**	(2.8)
	Israel	457	(3.9)	114	(2.0)	451	(5.9)	463	(4.0)	-12	(6.6)
	Russian Federation	463	(4.2)	89	(1.3)	453	(4.6)	472	(4.1)	**-20**	(2.6)
	Slovenia	517	(1.4)	87	(0.8)	504	(2.0)	530	(2.0)	**-27**	(2.8)

Note: Statistically significant values are indicated in bold.

Source: PISA 2006: Science Competencies for Tomorrow's World, Volume 2, Tables 2.2c, 2.3c and 2.4c.

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Table A5.3. *(continued-1)*

Mean score, variation and gender differences in student performance on the PISA science competency scales (2006)

		Explaining phenomena scientifically scale									
		All students				Gender differences					
		Mean score		Standard deviation		Boys		Girls		Difference (B - G)	
		Mean	S.E.	S.D.	S.E.	Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.
OECD countries	Australia	520	(2.3)	102	(1.0)	527	(3.1)	513	(2.7)	**13**	(3.6)
	Austria	516	(4.0)	100	(2.1)	526	(4.4)	507	(4.7)	**19**	(4.8)
	Belgium	503	(2.5)	102	(1.9)	510	(3.4)	494	(3.1)	**16**	(4.1)
	Canada	531	(2.1)	100	(1.2)	539	(2.6)	522	(2.3)	**17**	(2.5)
	Czech Republic	527	(3.5)	102	(1.8)	537	(4.3)	516	(4.6)	**21**	(5.7)
	Denmark	501	(3.3)	96	(1.4)	512	(3.8)	491	(3.7)	**21**	(3.4)
	Finland	566	(2.0)	88	(1.1)	571	(2.5)	562	(2.5)	**9**	(3.0)
	France	481	(3.2)	100	(1.8)	489	(4.2)	474	(3.4)	**15**	(4.1)
	Germany	519	(3.7)	103	(2.0)	529	(4.5)	508	(3.7)	**21**	(3.7)
	Greece	476	(3.0)	93	(1.9)	478	(4.3)	475	(3.0)	3	(4.2)
	Hungary	518	(2.6)	94	(1.5)	529	(3.2)	507	(3.6)	**22**	(4.4)
	Iceland	488	(1.5)	92	(1.2)	491	(2.6)	485	(2.1)	6	(3.7)
	Ireland	505	(3.2)	100	(1.6)	510	(4.4)	501	(3.5)	**9**	(4.6)
	Italy	480	(2.0)	100	(1.3)	487	(2.8)	472	(2.5)	**15**	(3.4)
	Japan	527	(3.1)	97	(1.8)	535	(4.6)	519	(4.4)	**16**	(6.6)
	Korea	512	(3.3)	91	(2.3)	517	(4.8)	506	(4.0)	11	(5.7)
	Luxembourg	483	(1.1)	97	(0.9)	495	(1.8)	471	(2.0)	**25**	(3.0)
	Mexico	406	(2.7)	83	(1.6)	415	(3.3)	398	(2.6)	**18**	(2.3)
	Netherlands	522	(2.7)	95	(1.7)	531	(3.1)	512	(3.1)	**18**	(3.0)
	New Zealand	522	(2.8)	111	(1.5)	528	(4.0)	517	(3.6)	**11**	(5.2)
	Norway	495	(3.0)	101	(1.7)	498	(3.9)	492	(3.2)	6	(3.9)
	Poland	506	(2.5)	95	(1.2)	514	(2.9)	498	(2.8)	**17**	(2.7)
	Portugal	469	(2.9)	87	(1.7)	477	(3.6)	462	(3.0)	**16**	(3.2)
	Slovak Republic	501	(2.7)	97	(1.9)	512	(4.0)	490	(3.0)	**22**	(4.7)
	Spain	490	(2.4)	98	(1.0)	499	(2.8)	481	(2.7)	**18**	(2.6)
	Sweden	510	(2.9)	99	(1.8)	516	(3.0)	504	(3.5)	**12**	(3.1)
	Switzerland	508	(3.3)	102	(1.8)	517	(3.4)	498	(3.9)	**18**	(2.8)
	Turkey	423	(4.1)	86	(3.5)	423	(4.7)	423	(4.5)	1	(4.1)
	United Kingdom	517	(2.3)	110	(1.4)	527	(3.0)	506	(2.7)	**21**	(3.5)
	United States	486	(4.3)	110	(1.5)	492	(5.3)	480	(4.0)	**13**	(3.6)
	OECD total	*489*	*(1.2)*	*107*	*(0.6)*	*497*	*(1.4)*	*481*	*(1.3)*	*15*	*(1.2)*
	OECD average	*500*	*(0.5)*	*98*	*(0.3)*	*508*	*(0.7)*	*493*	*(0.6)*	*15*	*(0.7)*
Partner countries	Brazil	390	(2.7)	91	(2.0)	400	(3.0)	382	(2.9)	**19**	(2.4)
	Chile	432	(4.1)	94	(1.8)	448	(5.1)	414	(4.1)	**34**	(4.6)
	Estonia	541	(2.6)	91	(1.3)	544	(3.2)	537	(3.0)	6	(3.3)
	Israel	443	(3.6)	109	(2.0)	451	(5.4)	436	(4.0)	**16**	(6.4)
	Russian Federation	483	(3.4)	90	(1.3)	493	(4.0)	474	(3.4)	**19**	(2.6)
	Slovenia	523	(1.5)	105	(1.1)	528	(2.3)	518	(2.2)	**10**	(3.3)

Note: Statistically significant values are indicated in bold.

Source: PISA 2006: Science Competencies for Tomorrow's World, Volume 2, Tables 2.2c, 2.3c and 2.4c.

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A5

Table A5.3. *(continued-2)*

Mean score, variation and gender differences in student performance on the PISA science competency scales (2006)

		Using scientific evidence scale									
		All students				Gender differences					
		Mean score		Standard deviation		Boys		Girls		Difference (B - G)	
		Mean	S.E.	S.D.	S.E.	Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.
OECD countries	Australia	531	(2.4)	107	(1.1)	530	(3.4)	533	(3.0)	-3	(4.2)
	Austria	505	(4.7)	116	(3.4)	509	(4.9)	500	(6.2)	9	(6.1)
	Belgium	516	(3.0)	113	(2.4)	512	(3.8)	521	(3.8)	-9	(4.7)
	Canada	542	(2.2)	99	(1.3)	541	(2.7)	542	(2.3)	-1	(2.3)
	Czech Republic	501	(4.1)	113	(2.4)	501	(5.0)	500	(5.4)	1	(6.5)
	Denmark	489	(3.6)	107	(1.7)	490	(4.1)	487	(4.0)	3	(3.8)
	Finland	567	(2.3)	96	(1.2)	564	(3.0)	571	(2.7)	**-7**	(3.3)
	France	511	(3.9)	114	(2.6)	509	(5.0)	513	(4.2)	-4	(4.7)
	Germany	515	(4.6)	115	(3.3)	517	(5.6)	513	(4.5)	4	(4.3)
	Greece	465	(4.0)	107	(3.2)	456	(5.6)	475	(3.7)	**-20**	(5.4)
	Hungary	497	(3.4)	102	(2.1)	497	(4.1)	498	(4.5)	-1	(5.2)
	Iceland	491	(1.7)	111	(1.4)	487	(3.1)	495	(2.5)	-7	(4.4)
	Ireland	506	(3.4)	102	(1.6)	503	(4.8)	509	(3.5)	-7	(4.8)
	Italy	467	(2.3)	111	(1.6)	466	(3.2)	468	(3.1)	-2	(4.2)
	Japan	544	(4.2)	116	(2.5)	543	(5.8)	545	(6.4)	-2	(8.9)
	Korea	538	(3.7)	102	(2.9)	535	(5.2)	542	(4.5)	-8	(6.4)
	Luxembourg	492	(1.1)	113	(1.1)	493	(2.0)	490	(2.2)	3	(3.5)
	Mexico	402	(3.1)	94	(1.8)	404	(3.7)	401	(3.0)	3	(2.7)
	Netherlands	526	(3.3)	106	(2.0)	527	(3.8)	524	(3.7)	3	(3.5)
	New Zealand	537	(3.3)	121	(1.7)	532	(4.4)	541	(4.3)	-10	(5.8)
	Norway	473	(3.6)	109	(1.9)	469	(4.2)	476	(3.9)	-7	(3.8)
	Poland	494	(2.7)	98	(1.4)	492	(3.0)	495	(3.0)	-3	(2.8)
	Portugal	472	(3.6)	103	(1.9)	473	(4.2)	471	(4.0)	2	(3.8)
	Slovak Republic	478	(3.3)	108	(2.5)	478	(4.8)	478	(3.6)	0	(5.6)
	Spain	485	(3.0)	101	(1.2)	484	(3.4)	485	(3.1)	-1	(2.5)
	Sweden	496	(2.6)	106	(1.5)	494	(3.1)	499	(3.2)	-5	(3.4)
	Switzerland	519	(3.4)	111	(1.9)	520	(3.6)	517	(3.9)	2	(2.9)
	Turkey	417	(4.3)	97	(3.2)	410	(5.2)	426	(4.6)	**-16**	(4.7)
	United Kingdom	514	(2.5)	117	(1.7)	517	(3.1)	510	(3.1)	6	(3.8)
	United States	489	(5.0)	116	(2.5)	486	(6.1)	491	(4.6)	-5	(4.1)
	OECD total	*492*	*(1.5)*	*117*	*(0.9)*	*490*	*(1.7)*	*493*	*(1.6)*	*-2*	*(1.5)*
	OECD average	*499*	*(0.6)*	*108*	*(0.4)*	*498*	*(0.8)*	*501*	*(0.7)*	*-3*	*(0.8)*
Partner countries	Brazil	378	(3.6)	105	(2.7)	382	(3.9)	375	(3.8)	**6**	(2.7)
	Chile	440	(5.1)	103	(1.9)	447	(6.2)	431	(5.2)	**16**	(5.3)
	Estonia	531	(2.7)	93	(1.3)	529	(3.2)	533	(3.0)	-5	(3.3)
	Israel	460	(4.7)	133	(2.3)	456	(6.7)	464	(5.4)	-8	(7.6)
	Russian Federation	481	(4.2)	102	(1.6)	478	(4.5)	483	(4.4)	-5	(3.1)
	Slovenia	516	(1.3)	100	(1.0)	510	(2.3)	522	(2.0)	**-12**	(3.4)

Note: Statistically significant values are indicated in bold.

Source: PISA 2006: Science Competencies for Tomorrow's World, Volume 2, Tables 2.2c, 2.3c and 2.4c.

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INDICATOR A6

WHAT ARE THE PARENTS' PERCEPTIONS RELATED TO SCHOOL AND SCIENCE LEARNING?

As part of the PISA 2006 assessment, ten OECD countries complemented the perspectives of students and school principals with data collected from the students' parents. These data provide important insights into parents' perceptions of their child's school and instructional quality and how such perceptions relate both to student performance and to the impact which social background has on learning outcomes.

Key results

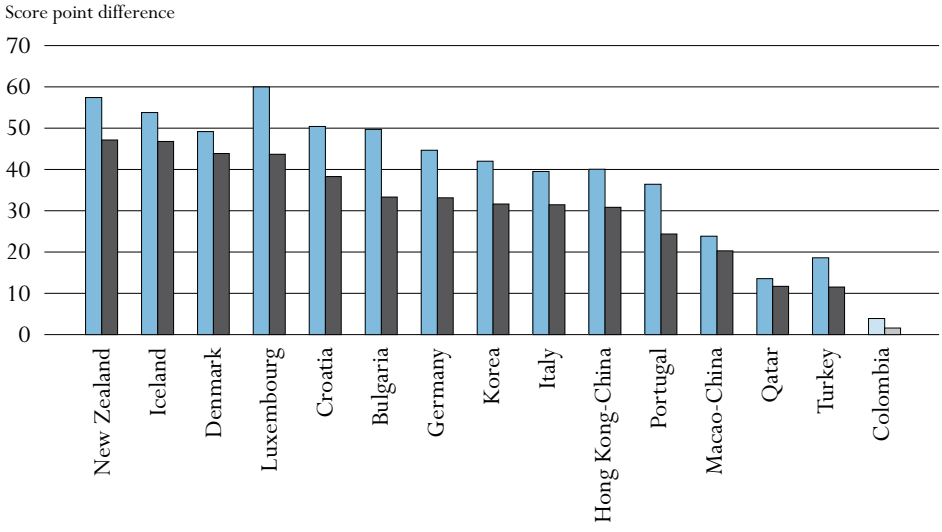
Chart A6.1. Parents' reports of child's past science reading and student performance on the PISA science scale (2006)

This chart shows the performance difference on the science scale between students whose parents answered "very often or regularly", and those whose parents answered "never or only sometimes", to the question: "Thinking back to when your child was about 10 years old, how often would your child have read books on scientific discoveries?"

Difference in score **before** accounting for the socio-economic background of students

Difference in score **after** accounting for the socio-economic background of students

Compared with 15-year-old students who had not, at the age of 10, read books on scientific discoveries, students who had done so performed, on average, 45 score points higher in the PISA 2006 science assessment, more than the equivalent of a school year, and this advantage remained significant, at 35 score points, even after taking into account socio-economic factors (one school year corresponds to an average of 38 score points on the PISA science scale).



Note: Statistically significant differences are marked in darker tone.

Countries are ranked in descending order of score point difference after accounting for the socio-economic background of students.

Source: OECD PISA 2006, Table A6.1.

StatLink http://dx.doi.org/10.1787/401666117553

Other highlights of this indicator

- Among the 10 OECD countries with available data, on average, 77% of parents "strongly agreed or agreed" that standards of achievement were high in their child's school. Their children scored 20 score points higher on average than students whose parents "disagreed or strongly disagreed" with that statement.
- An average of 79% of parents reported being satisfied with the disciplinary atmosphere in their child's school and 85% felt that the school did a good job of educating students. In both cases, their children had a performance advantage of 12 score points on average.
- On average, 88% of parents "strongly agreed or agreed" that their child's teachers seemed competent and dedicated, but the relationship to student performance was inconsistent across countries, with an average advantage of 7 score points.
- Around 80% of parents reported to be satisfied with the content taught and the instructional methods used in their child's school and 75% considered that their child's progress was carefully monitored. However, in both cases, the difference in students' scores varied markedly among countries for a small overall average advantage of 2 score points.
- Although 73% of parents "strongly agreed or agreed" that the school provided regular and useful information on their child's progress, the relationship of this measure with student performance varied but was largely negative across countries.

A6

Evidence and explanations

Box A6.1. The parent questionnaire

The PISA 2006 parent questionnaire took about ten minutes to complete and one questionnaire was administered per student assessed by PISA. It covered both the parents' socio-economic background and aspects of the following research areas:

- Parental reports related to school and science learning: The students' past science activities, parental perceptions of the value and quality of the student's schooling, parental views on science-related careers and parental general and personal value of science;
- Parental views on the environment: Parental awareness of environmental views and environmental optimism;
- Annual spending on children's education;
- Parental background: Age, occupation (both parents), education (both parents) and household income.

Ten OECD countries, Denmark, Germany, Iceland, Italy, Korea, Luxembourg, New Zealand, Poland, Portugal and Turkey participated in this questionnaire. Also the six following partner countries and economies provided data on this questionnaire: Bulgaria, Colombia, Croatia, Hong Kong-China, Macao-China and Qatar.

Socio-economic background and the role of parents

Parents' responses showed a close relationship between their child's involvement in science-related activities at age 10 and their science performance at age 15. Students whose parents reported that their child had, at the age of 10, read books on scientific discoveries "very often" or "regularly", performed 45 score points higher on the PISA 2006 science assessment (on average across the nine OECD countries that answered this question in the parent questionnaire; Poland did not answer the question) than did students whose parents reported that their children had done this "never" or "only sometimes". This performance advantage was greater than the average performance differences associated with one school year (one school year corresponds to an average of 38 score points on the PISA science scale). The performance advantage was largest in New Zealand, Luxembourg and Iceland where it corresponded to between 54 and 60 score points on the science scale. Even after accounting for the parents' socio-economic level, this performance advantage was still important, with an average difference of 35 score points (Chart A6.1).

Parents in the bottom quarter of the socio-economic distribution were less likely to report that their child had read books on scientific discoveries "very often" or "regularly". In fact, in the top quarter of the socio-economic distribution the percentage was, at 18.3% on average across the nine OECD countries, almost twice that in the bottom quarter (9.6%). It is noteworthy, however, that in most countries the performance advantage of students in the bottom quarter of the socio-economic distribution who had read books on scientific discoveries "very often" or "regularly"

at age 10, according to their parents, remained significant, with an average difference of 29 score points. In Denmark, for example, the performance advantage was 64 score points in the most socio-economically disadvantaged quarter and in Iceland, Luxembourg and Germany it was still 35 score points or more (Table A6.1b). One explanation for this observation is that educational activities in childhood can make up for a sizeable part of socio-economic disadvantage.

Similar effects for socio-economically disadvantaged families, while slightly less pronounced, are observed for children who very often or regularly watched TV programmes about science at age 10 or who watched, read or listened to science fiction. On the frequency with which 10-year-olds visited websites about science topics or attended a science club, according to the reports of parents, the relationships are mixed, but the percentages of students engaged in these activities were generally small (*PISA 2006: Science Competencies for Tomorrow's World* [OECD, 2007c]).

Parents' perceptions of school quality

Parents' views of their child's school with regard to high performance aspirations, the disciplinary climate or the competence and dedication of the teachers were also important predictors of student performance.

On average, 77% of parents "strongly agreed or agreed" that standards of achievement were high in their child's school, a figure which ranges from around 71% in Germany and Korea to more than 87% in New Zealand and Poland. Students of parents who "strongly agreed or agreed" that achievement standards were high in their child's school scored, on average across the ten OECD countries, 20 points higher than students whose parents "disagreed or strongly disagreed" with that statement (Chart A6.2a). In Germany and Korea the advantage was 30 score points. Some of this performance difference is accounted for by socio-economic factors, but in Germany, Korea, Luxembourg and Turkey, the performance advantage of students whose parents reported high standards of achievement was more than 23 points in both the top and bottom quarters of the socio-economic distribution (Table A6.2a).

An average of 79% of parents reported being satisfied with the disciplinary atmosphere in their child's school, and their children had a performance advantage of 12 score points on the PISA 2006 science scale on average across the ten OECD countries. This advantage was as high as 21 score points in Germany and 25 score points in New Zealand (Chart A6.2b). However, while the percentage of parents reporting satisfaction with the disciplinary atmosphere in their child's school was, on average, around 80% in both the top and bottom quarters of the socio-economic distribution, the associated performance advantage was about three times larger (at 18 score points) for the top socio-economic group than for the bottom socio-economic group (Table A6.2b).

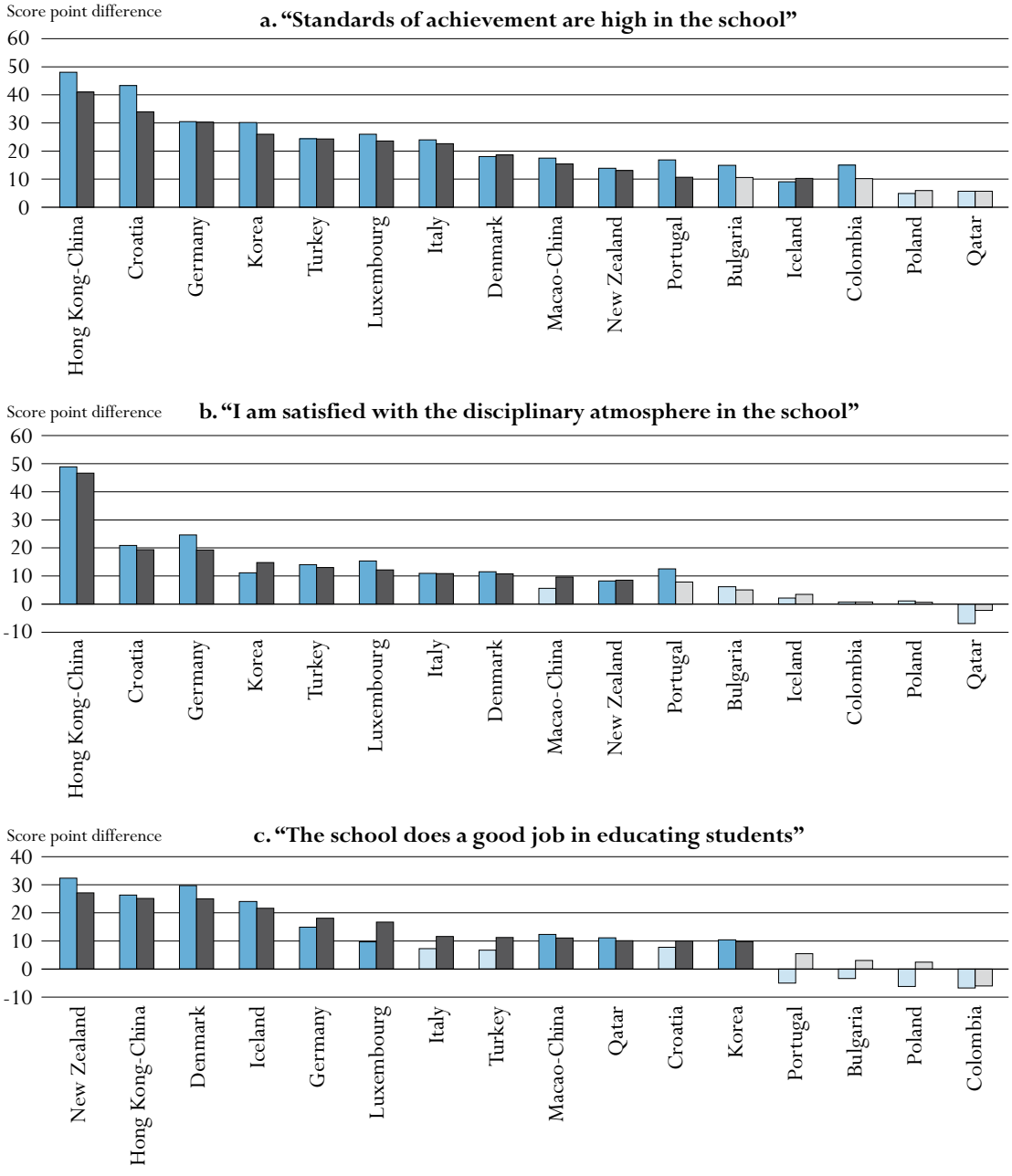
The picture was similar for parents who reported that their child's school did a good job in educating students. An average performance advantage of 12 score points was observed for students of parents who "strongly agreed or agreed" with this statement. In Denmark, Iceland and New Zealand this performance advantage exceeded 24 score points (Chart A6.2c). On average across the ten OECD countries, around 85% of the 15-year-olds' parents, both at the bottom and the top quarters of the socio-economic distribution, "strongly agreed or agreed" that their child's school did a good job in educating students, but the associated performance advantage was very different among countries in these two quarters. Denmark was the only country where the advantage was observed in both the bottom and top quarters (Table A6.2c).

A6

Chart A6.2. Parents' view of their child's school and socio-economic background (PISA 2006)

Score point differences between students whose parents "strongly agree or agree" and those whose parents "strongly disagree or disagree" with the following statements:

Difference in score **before** accounting for the socio-economic background of students
Difference in score **after** accounting for the socio-economic background of students



Note: Statistically significant differences are marked in darker tone.

For each chart, countries are ranked in descending order of score point difference after accounting for the socio-economic background of students.

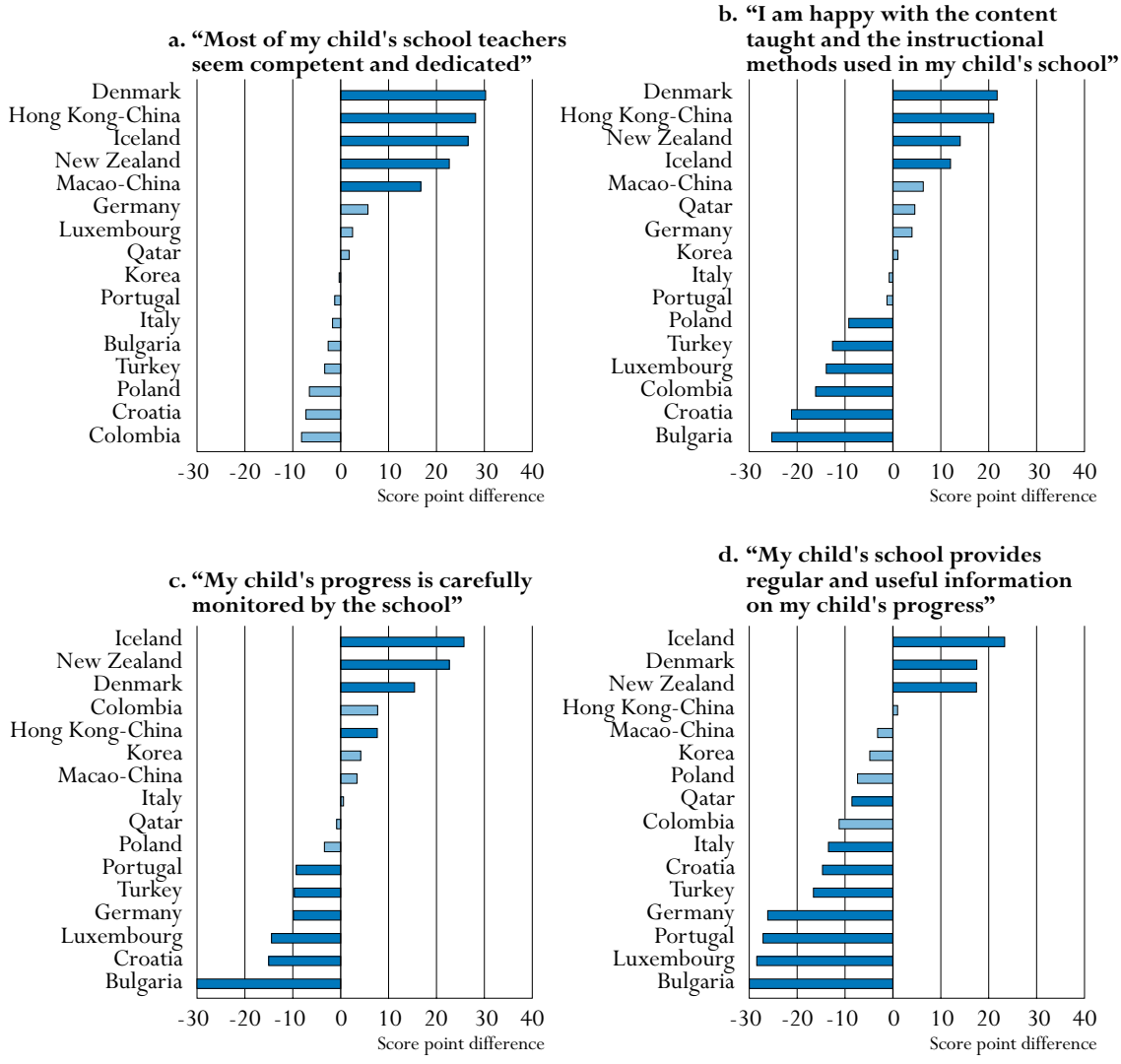
Source: OECD PISA 2006, Tables A6.2a, A6.2b and A6.2c.

StatLink http://dx.doi.org/10.1787/401666117553

On average, 88% of parents "strongly agreed or agreed" that their child's teachers seemed competent and dedicated, ranging from 80% in Germany to more than 90% in Italy, New Zealand, Poland and Portugal. The relationship of this measure with student performance was inconsistent across countries, but was positive on average (7 score points) (Chart A6.3a). Denmark was the only country showing a stable performance advantage (30 score points or more) in both the bottom and the top quarter of the socio-economic distribution. Luxembourg and Turkey showed a performance advantage (23 and 27 score points, respectively) in the bottom quarter, and Portugal did the same in the top quarter (22 score points) (Table A6.3a).

Chart A6.3. Parents' perceptions of instructional quality (PISA 2006)

Performance difference on the science scale between students whose parents "strongly agree or agree", and those whose parents "strongly disagree or disagree", with the following statements:



Note: Statistically significant differences are marked in darker tone.

For each chart, countries are ranked in descending order of score point difference.

Source: OECD PISA 2006, Tables A6.3a, A6.3b, A6.3c and A6.3d.

StatLink http://dx.doi.org/10.1787/401666117553

Around 80% of the parents reported being satisfied with the content taught and the instructional methods used in their child's school. The percentage varied among countries from 71 to 87%. The difference in the score of students whose parents "strongly agreed or agreed" compared to other students varied markedly among countries. Some showed an advantage (22 score points for Denmark, 12 for Iceland and 14 for New Zealand) while others showed a disadvantage (-14 score points for Luxembourg, -9 for Poland and -13 for Turkey) (Chart A6.3b). Whereas 83% of parents in the bottom quarter of the socio-economic distribution were happy with the content taught and the instructional methods used in their child's school, the proportion was 76% in the top quarter. In Denmark the performance advantage was 25 score points in the socio-economically most disadvantaged quarter, and 29 in the most advantaged. The performance advantage in the socio-economically most advantaged quarter in Iceland and Portugal was 20 and 22 score points, respectively (Table A6.3b).

While 75% of parents "strongly agreed or agreed" with the statement "My child's progress is carefully monitored", the performance advantage varied, ranging from 26 score points in Iceland to -14 score points in Luxembourg, with an overall average of 2 score points (Chart A6.3c). Also here Denmark had a consistent performance advantage in both the bottom and top quarters of the socio-economic distribution. Iceland showed an advantage of 22 score points in the bottom quarter while New Zealand also had a 22 score point advantage but in the top quarter (Table A6.3c).

On average, 73% of parents "strongly agreed or agreed" that the school provided regular and useful information on their child's progress, but this ranged from less than 50% in Germany to over 90% in Poland. The relationship of this measure with student performance was inconsistent across countries, with an average of -7 score points (Chart A6.3d). In the bottom socio-economic quarter, three countries, Luxembourg, Portugal and Turkey showed a significant negative relationship while in the top socio-economic quarter Denmark and New Zealand had a significant relationship of more than 20 score points (Table A6.3d).

Definitions and methodologies

The achievement scores are based on assessments administered as part of the Programme for International Student Assessment (PISA) undertaken by the Organisation for Economic Co-operation and Development (OECD). PISA was administered most recently during the 2006 school year.

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

In examining the results from the PISA parent questionnaire, it should be noted that in some countries non-response was considerable. Countries with a high percentage of missing data in the parent questionnaire are listed in the following together with the proportion of missing data in brackets: Portugal (11%), Italy (14%), Germany (20%), Luxembourg (24%), New Zealand (32%), Iceland (36%) and Qatar (40%).

Further references

For further information about PISA 2006, see *PISA 2006: Science Competencies for Tomorrow's World* (OECD, 2007c), and the *PISA 2006 Technical Report* (OECD, 2008b). PISA data are also available on the PISA website: *www.pisa.oecd.org*.

A6

Table A6.1.

Parents' reports of child's past science reading and student performance on the PISA science scale (2006)

Results based on reports from parents of the students who were assessed and reported proportionate to the number of 15-year-olds enrolled in the school, on the following statement

		"Thinking back to when your child was about 10 years old, how often would your child have read books on scientific discoveries?"									
		Performance on the science scale of students whose parents answered:						Difference in science performance between "very often or regularly" and "never or only sometimes"			
		"Very often or regularly"				"Never or only sometimes"		Before accounting for ESCS[1]		After accounting for ESCS	
		% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif. (agree - disagree)	S.E.	Dif. (agree - disagree)	S.E.
OECD countries	Denmark	9.8	(0.62)	557	(6.1)	508	(3.0)	**49.2**	(6.5)	**43.9**	(6.1)
	Germany	12.7	(0.63)	567	(6.0)	522	(3.5)	**44.7**	(5.3)	**33.2**	(5.5)
	Iceland	10.7	(0.63)	556	(7.2)	502	(1.8)	**53.7**	(7.5)	**46.8**	(7.4)
	Italy	12.5	(0.44)	517	(4.3)	477	(2.0)	**39.6**	(3.7)	**31.5**	(3.1)
	Korea	17.8	(0.77)	558	(5.5)	516	(3.1)	**42.0**	(4.7)	**31.6**	(3.6)
	Luxembourg	16.7	(0.57)	545	(3.9)	485	(1.4)	**60.0**	(4.1)	**43.7**	(4.1)
	New Zealand	12.5	(0.52)	601	(5.7)	544	(2.8)	**57.4**	(6.3)	**47.2**	(5.9)
	Poland	m	m	m	m	m	m	m	m	m	m
	Portugal	10.8	(0.52)	510	(6.1)	474	(3.0)	**36.4**	(6.2)	**24.3**	(5.6)
	Turkey	16.0	(0.63)	440	(6.6)	421	(3.7)	**18.6**	(5.3)	**11.5**	(4.3)
Partner countries/economies	Bulgaria	11.3	(0.68)	478	(9.22)	429	(5.96)	**49.7**	(7.10)	**33.3**	(5.21)
	Colombia	24.9	(0.99)	392	(4.30)	388	(3.45)	3.9	(3.79)	1.6	(4.11)
	Croatia	11.3	(0.49)	540	(4.55)	490	(2.51)	**50.4**	(4.30)	**38.3**	(4.10)
	Hong Kong-China	9.2	(0.50)	581	(5.45)	541	(2.49)	**40.0**	(5.52)	**30.8**	(5.38)
	Macao-China	7.4	(0.41)	533	(5.56)	509	(1.15)	**23.8**	(5.82)	**20.3**	(5.81)
	Qatar	15.4	(0.57)	374	(3.87)	360	(1.37)	**13.5**	(4.12)	**11.7**	(4.32)

		"Thinking back to when your child was about 10 years old, how often would your child have read books on scientific discoveries?"													
		Performance on the science scale of students whose parents are in the low quarter of the PISA index of economic, social and cultural status and answered:								Performance on the science scale of students whose parents are in the high quarter of the PISA index of economic, social and cultural status and answered:							
		"Very often or regularly"				"Never or only sometimes"		Difference in score		"Very often or regularly"				"Never or only sometimes"		Difference in score	
		% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif.	S.E.	% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif.	S.E.
OECD countries	Denmark	8.4	(1.35)	533	(13.3)	469	(4.7)	**64**	(13.6)	12.1	(1.35)	592	(9.3)	545	(4.6)	**47**	(9.9)
	Germany	8.3	(1.06)	503	(17.9)	468	(5.4)	**35**	(16.4)	16.1	(1.03)	609	(6.5)	571	(3.5)	**38**	(6.5)
	Iceland	7.2	(1.14)	508	(17.9)	467	(4.2)	**41**	(18.5)	13.4	(1.41)	585	(10.2)	532	(4.1)	**53**	(11.3)
	Italy	9.3	(0.67)	461	(7.1)	440	(2.6)	**21**	(7.1)	17.2	(0.82)	551	(7.4)	509	(2.8)	**42**	(6.4)
	Korea	11.6	(0.82)	520	(8.3)	491	(4.7)	**29**	(8.5)	27.5	(1.75)	581	(8.8)	551	(4.6)	**30**	(6.8)
	Luxembourg	9.0	(1.07)	470	(10.7)	430	(3.1)	**41**	(11.1)	25.2	(1.40)	574	(6.5)	539	(3.6)	**35**	(7.1)
	New Zealand	11.4	(1.31)	528	(15.3)	503	(4.7)	25	(15.1)	16.2	(1.21)	644	(9.1)	593	(4.1)	**51**	(9.9)
	Poland	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Portugal	7.3	(0.90)	447	(10.3)	436	(4.3)	11	(11.7)	16.6	(1.10)	554	(6.9)	525	(3.7)	**29**	(7.1)
	Turkey	14.0	(1.63)	387	(11.3)	391	(4.6)	-3	(14.4)	20.5	(1.30)	495	(11.3)	468	(7.9)	**27**	(7.2)
Partner countries/economies	Bulgaria	7.2	(0.89)	390	(15.2)	368	(6.5)	21	(14.9)	17.4	(1.56)	532	(11.7)	497	(7.2)	**34**	(9.6)
	Colombia	24.3	(2.28)	357	(6.4)	359	(4.4)	-2	(7.5)	27.7	(1.59)	431	(8.3)	433	(4.4)	-2	(9.3)
	Croatia	6.0	(0.80)	480	(13.0)	453	(3.6)	**27**	(11.9)	17.8	(1.20)	564	(7.4)	528	(3.5)	**36**	(7.6)
	Hong Kong-China	5.6	(0.71)	546	(15.1)	514	(3.5)	**32**	(15.1)	13.8	(1.27)	603	(8.1)	571	(4.8)	**33**	(8.6)
	Macao-China	5.1	(0.63)	497	(11.3)	493	(2.7)	3	(11.9)	9.6	(0.98)	538	(11.1)	516	(2.8)	21	(11.7)
	Qatar	13.1	(1.11)	337	(6.6)	339	(2.3)	-1	(6.7)	17.9	(1.19)	403	(9.3)	382	(3.6)	**21**	(10.0)

Note: Statistically significant values are indicated in bold.

1. ESCS: PISA index of economic, social and cultural status.

Source: OECD PISA 2006 database and *PISA 2006: Science Competencies for Tomorrow's World*, Volume 2, Table 4.14.

StatLink http://dx.doi.org/10.1787/401666117553

A6

Table A6.2a.

Parents' view of the standards of achievement of their child's school and socio-economic background (PISA 2006)

Results based on reports from parents of the students who were assessed and reported proportionate to the number of 15-year-olds enrolled in the school, on the following statement

		"Standards of achievement are high in the school"									
		Performance on the science scale of students whose parents:						Difference in science performance between "strongly agree or agree" and "disagree or strongly disagree"			
		"Strongly agree or agree"				"Disagree or strongly disagree"		Before accounting for ESCS[1]		After accounting for ESCS	
		% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif. (agree - disagree)	S.E.	Dif. (agree - disagree)	S.E.
OECD countries	Denmark	77.3	(1.33)	517	(2.9)	499	(4.6)	**18.0**	(4.8)	**18.6**	(4.5)
	Germany	71.4	(1.06)	537	(3.5)	507	(4.6)	**30.5**	(3.9)	**30.3**	(3.6)
	Iceland	72.4	(0.90)	510	(2.2)	501	(3.5)	**9.0**	(4.2)	**10.3**	(3.9)
	Italy	80.1	(0.53)	486	(2.2)	462	(3.5)	**24.0**	(3.7)	**22.6**	(3.5)
	Korea	71.5	(1.10)	532	(3.7)	502	(4.4)	**30.2**	(5.1)	**26.0**	(4.3)
	Luxembourg	76.6	(0.67)	501	(1.7)	475	(3.1)	**26.0**	(3.6)	**23.6**	(3.6)
	New Zealand	87.1	(0.75)	553	(2.8)	539	(4.9)	**13.9**	(5.5)	**13.1**	(5.1)
	Poland	88.4	(0.67)	502	(2.4)	498	(4.2)	4.9	(4.0)	5.9	(3.8)
	Portugal	76.1	(0.91)	482	(3.1)	465	(3.8)	**16.9**	(4.0)	**10.6**	(3.6)
	Turkey	72.9	(0.91)	431	(4.6)	407	(3.3)	**24.4**	(4.3)	**24.3**	(3.7)
Partner countries/economies	Bulgaria	87.2	(0.8)	435	(6.5)	420	(7.3)	**14.9**	(7.3)	10.6	(5.85)
	Colombia	86.2	(1.3)	391	(3.4)	376	(5.8)	**15.0**	(5.8)	10.2	(5.29)
	Croatia	65.8	(1.0)	510	(2.6)	467	(3.1)	**43.3**	(3.3)	**33.9**	(2.87)
	Hong Kong-China	53.8	(1.3)	567	(3.4)	519	(2.7)	**48.0**	(4.0)	**41.0**	(3.52)
	Macao-China	73.9	(0.7)	515	(1.3)	498	(2.2)	**17.5**	(2.6)	**15.4**	(2.72)
	Qatar	80.2	(0.6)	363	(1.5)	357	(2.7)	5.7	(3.1)	5.7	(3.24)

		"Standards of achievement are high in the school"													
		Performance on the science scale of students whose parents are in the low quarter of the PISA index of economic, social and cultural status and:								Performance on the science scale of students whose parents are in the high quarter of the PISA index of economic, social and cultural status and:							
		"Strongly agree or agree"				"Disagree or strongly disagree"		Difference in score		"Strongly agree or agree"				"Disagree or strongly disagree"		Difference in score	
		% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif.	S.E.	% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif.	S.E.
OECD countries	Denmark	78.9	(2.13)	476	(5.1)	464	(9.4)	12	(10.2)	76.2	(2.20)	557	(4.7)	532	(6.7)	**25**	(7.4)
	Germany	71.0	(1.57)	480	(5.8)	451	(7.5)	**29**	(6.9)	72.2	(1.65)	587	(3.9)	553	(5.8)	**34**	(6.2)
	Iceland	74.8	(1.75)	470	(4.8)	472	(6.7)	-3	(7.8)	71.7	(1.75)	539	(4.2)	538	(7.3)	2	(8.1)
	Italy	78.0	(1.11)	447	(2.8)	422	(4.4)	**25**	(4.4)	80.1	(0.88)	520	(3.5)	502	(6.2)	**18**	(6.5)
	Korea	68.1	(1.35)	504	(4.5)	476	(5.8)	**28**	(5.3)	76.9	(1.95)	564	(6.5)	542	(5.2)	**23**	(8.5)
	Luxembourg	76.3	(1.47)	440	(3.4)	414	(6.3)	**26**	(6.9)	77.8	(1.20)	553	(3.5)	524	(6.5)	**29**	(6.9)
	New Zealand	88.4	(1.56)	506	(4.9)	497	(13.5)	**10**	(13.4)	88.0	(1.20)	603	(4.0)	594	(8.7)	9	(9.3)
	Poland	88.7	(1.07)	466	(3.4)	457	(8.0)	9	(8.5)	87.4	(1.06)	549	(3.7)	540	(8.2)	9	(8.7)
	Portugal	75.0	(1.33)	436	(4.4)	440	(5.9)	-4	(6.4)	82.5	(1.41)	534	(3.8)	509	(7.2)	**25**	(8.2)
	Turkey	72.8	(1.75)	397	(4.3)	373	(4.4)	**24**	(5.8)	72.2	(1.80)	481	(9.7)	456	(7.5)	**26**	(8.7)
Partner countries/economies	Bulgaria	85.8	(1.66)	370	(6.6)	361	(10.2)	9	(10.0)	87.0	(1.40)	507	(8.0)	480	(10.6)	**27**	(11.6)
	Colombia	83.8	(1.86)	360	(4.1)	353	(7.2)	7	(7.8)	89.5	(1.41)	433	(4.0)	425	(10.9)	8	(10.9)
	Croatia	55.6	(1.73)	469	(4.6)	438	(4.1)	**30**	(4.9)	76.0	(1.52)	543	(4.0)	507	(4.9)	**36**	(6.3)
	Hong Kong-China	43.8	(1.51)	543	(4.0)	493	(4.2)	**50**	(5.1)	65.6	(2.50)	589	(5.5)	549	(5.2)	**40**	(7.3)
	Macao-China	68.8	(1.32)	497	(3.3)	484	(4.3)	**12**	(5.6)	77.5	(1.23)	522	(3.1)	504	(5.4)	**18**	(6.2)
	Qatar	80.0	(1.28)	338	(2.7)	344	(5.2)	-6	(6.1)	80.9	(1.35)	390	(3.7)	368	(8.8)	**22**	(9.7)

Note: Statistically significant values are indicated in bold.

1. ESCS: PISA index of economic, social and cultural status.

Source: OECD PISA 2006 database and *PISA 2006: Science Competencies for Tomorrow's World,* Volume 2, Table 4.12 and Table 5.7.

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A6

Table A6.2b.

Parents' view of the disciplinary atmosphere in their child's school and socio-economic background (PISA 2006)

Results based on reports from parents of the students who were assessed and reported proportionate to the number of 15-year-olds enrolled in the school, on the following statement

		"I am satisfied with the disciplinary atmosphere in the school"									
		Performance on the science scale of students whose parents:						Difference in science performance between "strongly agree or agree" and "disagree or strongly disagree"			
		"Strongly agree or agree"				"Disagree or strongly disagree"		Before accounting for ESCS[1]		After accounting for ESCS	
		% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif. (agree - disagree)	S.E.	Dif. (agree - disagree)	S.E.
OECD countries	Denmark	74.3	(1.32)	516	(3.2)	501	(4.3)	**15.4**	(5.1)	**12.2**	(4.8)
	Germany	73.8	(1.08)	534	(3.9)	513	(3.9)	**20.8**	(4.1)	**19.4**	(3.6)
	Iceland	76.2	(0.73)	510	(2.2)	498	(4.0)	**12.5**	(4.8)	7.9	(4.7)
	Italy	80.9	(0.56)	483	(2.4)	475	(3.3)	**8.2**	(3.7)	**8.5**	(3.5)
	Korea	78.4	(0.82)	526	(3.6)	514	(3.9)	**11.5**	(4.1)	**10.7**	(3.5)
	Luxembourg	82.9	(0.70)	497	(1.5)	486	(3.9)	**11.1**	(4.2)	**14.8**	(4.1)
	New Zealand	82.7	(0.82)	555	(2.7)	531	(4.2)	**24.7**	(4.3)	**19.3**	(4.0)
	Poland	79.9	(0.94)	502	(2.4)	500	(3.5)	2.2	(3.3)	3.5	(2.9)
	Portugal	80.4	(1.00)	479	(3.2)	473	(3.8)	5.6	(4.2)	**9.7**	(3.8)
	Turkey	81.9	(0.74)	426	(4.0)	420	(5.0)	6.2	(4.3)	5.1	(3.8)
Partner countries/economies	Bulgaria	80.3	(0.9)	432	(6.6)	439	(5.9)	-6.9	(4.94)	-2.2	(4.26)
	Colombia	82.7	(1.1)	389	(3.6)	388	(4.2)	0.8	(4.57)	0.8	(4.06)
	Croatia	82.2	(0.7)	497	(2.7)	486	(3.6)	**10.9**	(3.66)	**10.9**	(3.46)
	Hong Kong-China	88.5	(0.7)	550	(2.4)	501	(5.4)	**48.8**	(5.60)	**46.6**	(5.42)
	Macao-China	83.7	(0.6)	513	(1.3)	499	(3.2)	**14.0**	(3.62)	**13.0**	(3.59)
	Qatar	79.4	(0.7)	362	(1.4)	361	(3.2)	1.1	(3.62)	0.7	(3.70)

		"I am satisfied with the disciplinary atmosphere in the school"													
		Performance on the science scale of students whose parents are in the low quarter of the PISA index of economic, social and cultural status and:								Performance on the science scale of students whose parents are in the high quarter of the PISA index of economic, social and cultural status and:							
		"Strongly agree or agree"				"Disagree or strongly disagree"		Difference in score		"Strongly agree or agree"				"Disagree or strongly disagree"		Difference in score	
		% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif.	S.E.	% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif.	S.E.
OECD countries	Denmark	71.7	(2.38)	479	(5.2)	461	(8.8)	18	(9.6)	76.4	(2.01)	557	(4.7)	532	(7.6)	**24**	(8.2)
	Germany	72.8	(1.46)	474	(6.7)	467	(6.0)	7	(7.4)	75.5	(1.76)	582	(4.0)	565	(6.2)	**17**	(7.1)
	Iceland	73.6	(1.76)	471	(5.1)	467	(6.9)	4	(8.9)	81.1	(1.34)	541	(4.2)	531	(8.3)	10	(9.0)
	Italy	80.2	(1.02)	443	(2.9)	435	(4.5)	8	(5.0)	80.9	(0.88)	518	(3.8)	509	(6.1)	9	(6.9)
	Korea	78.2	(1.44)	498	(4.4)	484	(7.2)	**14**	(6.9)	79.2	(1.75)	562	(6.1)	546	(5.5)	**16**	(7.0)
	Luxembourg	85.1	(1.24)	434	(3.3)	426	(7.5)	9	(8.1)	81.7	(1.22)	551	(3.4)	530	(7.1)	**21**	(7.3)
	New Zealand	80.4	(1.67)	507	(5.3)	503	(9.9)	4	(10.6)	86.4	(1.19)	606	(4.0)	574	(8.0)	**32**	(9.1)
	Poland	80.9	(1.47)	464	(3.4)	469	(6.0)	-6	(6.5)	79.4	(1.33)	552	(3.7)	535	(6.7)	**16**	(7.0)
	Portugal	83.4	(1.35)	437	(4.2)	435	(7.4)	2	(7.2)	79.4	(1.26)	535	(4.0)	510	(5.2)	**24**	(6.5)
	Turkey	81.3	(1.54)	392	(4.0)	386	(6.0)	6	(7.6)	82.5	(1.27)	477	(8.7)	463	(10.3)	14	(8.4)
Partner countries/economies	Bulgaria	82.7	(1.70)	366	(6.9)	385	(9.3)	-19	(10.0)	79.2	(1.66)	506	(7.9)	492	(8.5)	14	(7.1)
	Colombia	84.6	(1.52)	359	(4.2)	355	(7.6)	4	(8.3)	84.7	(1.57)	434	(4.3)	427	(8.2)	7	(8.9)
	Croatia	82.4	(1.21)	456	(4.1)	451	(6.2)	5	(6.6)	82.4	(1.42)	537	(3.8)	521	(7.3)	16	(8.1)
	Hong Kong-China	87.8	(1.15)	519	(4.0)	482	(8.0)	37	(9.2)	90.0	(1.12)	580	(4.2)	535	(11.5)	**45**	(11.1)
	Macao-China	80.1	(1.44)	496	(3.1)	483	(4.6)	**13**	(5.5)	84.7	(1.30)	520	(2.8)	504	(8.2)	16	(8.7)
	Qatar	77.9	(1.28)	337	(2.4)	345	(4.9)	-9	(5.2)	80.7	(1.43)	388	(3.7)	376	(9.4)	12	(10.3)

Note: Statistically significant values are indicated in bold.

1. ESCS: PISA index of economic, social and cultural status.

Source: OECD PISA 2006 database and *PISA 2006: Science Competencies for Tomorrow's World*, Volume 2, Table 4.14.

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A6

Table A6.2c.

Parents' view of the good job in educating students done by their child's school and socio-economic background (PISA 2006)

Results based on reports from parents of the students who were assessed and reported proportionate to the number of 15-year-olds enrolled in the school, on the following statement

		"The school does a good job in educating students"									
		Performance on the science scale of students whose parents:						Difference in science performance between "strongly agree or agree" and "disagree or strongly disagree"			
		"Strongly agree or agree"				"Disagree or strongly disagree"		Before accounting for ESCS[1]		After accounting for ESCS	
		% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif.	S.E.	Dif.	S.E.
OECD countries	Denmark	78.0	(1.18)	519	(3.1)	489	(4.5)	**29.7**	(5.0)	**25.0**	(4.8)
	Germany	76.2	(0.91)	532	(3.7)	517	(4.4)	**14.9**	(3.9)	**18.1**	(3.7)
	Iceland	82.6	(0.65)	512	(2.0)	488	(5.0)	**24.1**	(5.5)	**21.7**	(5.1)
	Italy	92.1	(0.35)	482	(2.1)	474	(4.3)	7.3	(4.0)	**11.6**	(3.8)
	Korea	79.4	(0.81)	525	(3.6)	515	(4.2)	**10.4**	(4.3)	**9.8**	(3.8)
	Luxembourg	83.5	(0.60)	497	(1.5)	487	(3.7)	**9.7**	(4.0)	**16.7**	(3.6)
	New Zealand	91.2	(0.57)	554	(2.7)	522	(6.3)	**32.3**	(6.8)	**27.1**	(6.4)
	Poland	90.0	(0.55)	501	(2.3)	508	(4.9)	-6.2	(4.4)	2.4	(4.3)
	Portugal	89.1	(0.74)	477	(3.1)	482	(5.3)	-5.0	(5.5)	5.5	(5.1)
	Turkey	85.0	(0.71)	426	(4.0)	419	(5.0)	6.7	(4.5)	**11.2**	(4.2)
Partner countries/economies	Bulgaria	94.3	(0.4)	433	(6.4)	437	(8.6)	-3.4	(8.99)	3.1	(7.82)
	Colombia	95.8	(0.5)	388	(3.4)	395	(6.4)	-6.8	(6.52)	-6.1	(6.03)
	Croatia	91.7	(0.5)	496	(2.6)	488	(4.7)	7.8	(4.40)	**10.0**	(4.18)
	Hong Kong-China	78.8	(0.8)	550	(2.6)	524	(3.5)	**26.3**	(3.68)	**25.1**	(3.37)
	Macao-China	82.0	(0.6)	513	(1.3)	501	(3.3)	**12.3**	(3.85)	**11.0**	(3.80)
	Qatar	84.7	(0.7)	364	(1.5)	353	(3.7)	**11.1**	(4.20)	**10.1**	(4.17)

		"The school does a good job in educating students"													
		Performance on the science scale of students whose parents are in the low quarter of the PISA index of economic, social and cultural status and:								Performance on the science scale of students whose parents are in the high quarter of the PISA index of economic, social and cultural status and:							
		"Strongly agree or agree"				"Disagree or strongly disagree"		Difference in score		"Strongly agree or agree"				"Disagree or strongly disagree"		Difference in score	
		% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif.	S.E.	% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif.	S.E.
OECD countries	Denmark	73.6	(2.19)	482	(5.5)	447	(8.9)	**35**	(10.3)	80.1	(1.87)	558	(4.4)	524	(8.3)	**34**	(8.5)
	Germany	77.8	(1.51)	474	(6.2)	466	(8.7)	8	(9.8)	75.3	(1.55)	585	(3.7)	559	(5.6)	**26**	(5.9)
	Iceland	82.0	(1.52)	470	(4.8)	468	(8.2)	2	(9.4)	85.3	(1.38)	546	(4.3)	507	(10.4)	**39**	(11.5)
	Italy	93.2	(0.71)	442	(2.7)	436	(6.3)	6	(6.5)	90.9	(0.56)	517	(3.3)	508	(7.6)	9	(7.0)
	Korea	79.8	(1.13)	498	(4.4)	482	(6.8)	**15**	(5.6)	80.2	(1.70)	561	(6.3)	550	(5.7)	11	(8.0)
	Luxembourg	88.5	(1.15)	437	(3.2)	403	(8.0)	**34**	(8.2)	81.4	(1.32)	549	(3.5)	541	(6.9)	8	(7.3)
	New Zealand	89.8	(1.38)	507	(5.1)	493	(12.6)	14	(13.1)	93.0	(1.00)	603	(3.9)	581	(12.3)	22	(12.9)
	Poland	93.6	(0.66)	465	(3.2)	462	(10.8)	3	(10.9)	86.9	(1.04)	549	(3.6)	543	(7.0)	7	(7.0)
	Portugal	92.6	(0.98)	436	(4.1)	444	(10.3)	-8	(10.3)	85.2	(1.32)	532	(3.8)	511	(7.5)	**21**	(7.9)
	Turkey	88.3	(1.08)	392	(3.2)	382	(7.3)	10	(6.5)	82.3	(1.46)	476	(9.0)	463	(8.1)	13	(7.5)
Partner countries/economies	Bulgaria	94.9	(0.88)	368	(6.3)	386	(19.7)	-18	(18.6)	93.4	(1.05)	505	(8.0)	486	(14.6)	19	(16.8)
	Colombia	96.3	(0.91)	357	(3.9)	374	(12.4)	-17	(12.8)	96.5	(0.68)	432	(3.9)	440	(15.3)	-8	(14.9)
	Croatia	92.3	(0.86)	455	(3.9)	452	(8.3)	4	(8.5)	91.2	(0.90)	535	(3.5)	528	(7.6)	7	(7.3)
	Hong Kong-China	77.8	(1.37)	520	(4.1)	494	(6.5)	**26**	(7.9)	79.0	(1.34)	581	(4.7)	554	(6.9)	**27**	(6.5)
	Macao-China	79.1	(1.44)	494	(3.0)	488	(4.9)	6	(5.8)	82.0	(1.44)	520	(2.7)	506	(8.1)	14	(8.6)
	Qatar	84.1	(1.23)	339	(2.5)	336	(6.0)	3	(6.5)	86.8	(1.22)	387	(3.6)	373	(10.9)	14	(11.7)

Note: Statistically significant values are indicated in bold.

1. ESCS: PISA index of economic, social and cultural status.

Source: OECD PISA 2006 database and *PISA 2006: Science Competencies for Tomorrow's World,* Volume 2, Table 4.12 and Table 5.7.

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A6

Table A6.3a.

Parents' perceptions of competence and dedication of their child's teachers (PISA 2006)

Results based on reports from parents of the students who were assessed and reported proportionate to the number of 15-year-olds enrolled in the school, on the following statement

		"Most of the teachers in the school seem competent and dedicated"							
		Performance on the science scale of students whose parents:							
		"Strongly agree or agree"				"Disagree or strongly disagree"		Difference in science performance between "strongly agree or agree" and "disagree or strongly disagree"	
		% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif. (agree - disagree)	S.E.
OECD countries	Denmark	87.8	(0.69)	516	(2.9)	486	(5.3)	**30.3**	(5.6)
	Germany	79.7	(0.68)	530	(3.7)	524	(4.6)	5.7	(4.2)
	Iceland	85.9	(0.62)	512	(1.8)	485	(5.1)	**26.6**	(5.1)
	Italy	91.2	(0.35)	481	(2.1)	483	(4.4)	-1.7	(4.1)
	Korea	83.3	(0.71)	523	(3.6)	523	(3.9)	-0.3	(4.3)
	Luxembourg	84.5	(0.67)	496	(1.6)	493	(4.3)	2.5	(4.8)
	New Zealand	93.4	(0.41)	553	(2.6)	530	(7.0)	**22.7**	(7.3)
	Poland	90.1	(0.55)	500	(2.4)	507	(4.2)	-6.5	(4.0)
	Portugal	93.8	(0.44)	477	(2.9)	479	(6.8)	-1.2	(6.7)
	Turkey	86.7	(0.62)	424	(3.6)	427	(7.2)	-3.3	(5.5)
Partner countries/economies	Bulgaria	95.4	(0.44)	433	(6.2)	436	(10.0)	-2.6	(9.2)
	Colombia	94.4	(0.55)	388	(3.4)	396	(6.8)	-8.2	(6.8)
	Croatia	92.2	(0.41)	495	(2.5)	502	(5.3)	-7.2	(4.9)
	Hong Kong-China	89.7	(0.56)	547	(2.5)	519	(4.8)	**28.1**	(4.8)
	Macao-China	89.0	(0.53)	513	(1.3)	496	(3.5)	**16.7**	(3.9)
	Qatar	86.7	(0.55)	362	(1.3)	360	(3.8)	1.8	(4.1)

		"Most of the teachers in the school seem competent and dedicated"															
		Performance on the science scale of students whose parents are in the low quarter of the PISA index of economic, social and cultural status and:								Performance on the science scale of students whose parents are in the high quarter of the PISA index of economic, social and cultural status and:							
		"Strongly agree or agree"				"Disagree or strongly disagree"		Difference in score		"Strongly agree or agree"				"Disagree or strongly disagree"		Difference in score	
		% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif.	S.E.	% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif.	S.E.
OECD countries	Denmark	87.6	(1.40)	478	(5.1)	447	(10.1)	**30**	(11.1)	88.4	(1.27)	555	(4.4)	518	(10.0)	**37**	(9.9)
	Germany	84.6	(1.13)	474	(5.8)	462	(8.2)	13	(7.8)	78.2	(1.29)	580	(4.3)	567	(5.7)	13	(7.4)
	Iceland	84.6	(1.32)	473	(4.4)	457	(9.0)	17	(9.7)	87.5	(1.24)	542	(4.0)	520	(11.9)	23	(12.2)
	Italy	92.4	(0.58)	441	(2.7)	441	(8.0)	0	(7.8)	89.2	(0.59)	517	(3.5)	509	(4.9)	7	(5.1)
	Korea	84.2	(1.24)	495	(4.8)	495	(7.0)	0	(7.4)	82.6	(1.43)	558	(6.2)	565	(6.3)	-7	(8.0)
	Luxembourg	87.7	(1.26)	436	(3.2)	413	(9.8)	**23**	(10.4)	79.4	(1.21)	548	(3.8)	543	(6.3)	6	(7.3)
	New Zealand	92.9	(1.06)	507	(4.8)	489	(18.1)	18	(17.8)	94.6	(0.60)	603	(3.8)	582	(13.9)	21	(14.3)
	Poland	93.4	(0.68)	463	(3.3)	475	(10.3)	-12	(10.5)	87.2	(0.98)	549	(3.7)	539	(7.2)	10	(7.7)
	Portugal	96.1	(0.79)	436	(4.0)	433	(15.7)	3	(15.4)	91.1	(1.04)	531	(3.8)	509	(8.8)	**22**	(9.7)
	Turkey	89.5	(0.90)	393	(3.7)	366	(7.3)	**27**	(8.0)	83.3	(1.49)	472	(8.1)	482	(12.8)	-9	(8.8)
Partner countries/economies	Bulgaria	95.6	(0.68)	369	(6.2)	364	(20.4)	6	(19.4)	95.4	(0.77)	503	(7.7)	495	(14.6)	9	(14.5)
	Colombia	94.4	(0.96)	357	(4.1)	374	(11.7)	-17	(13.1)	93.0	(1.13)	432	(4.2)	436	(11.4)	-4	(12.1)
	Croatia	92.4	(0.76)	455	(3.8)	462	(9.4)	-8	(9.3)	90.1	(0.89)	534	(3.4)	537	(8.2)	-3	(7.6)
	Hong Kong-China	90.1	(1.12)	518	(3.9)	486	(8.5)	**31**	(9.7)	89.0	(1.07)	577	(4.6)	560	(10.3)	17	(9.9)
	Macao-China	86.2	(1.04)	494	(2.8)	484	(6.4)	10	(7.2)	90.6	(1.06)	520	(2.9)	499	(7.1)	**20**	(8.0)
	Qatar	86.6	(1.15)	338	(2.5)	340	(6.2)	-2	(6.7)	85.3	(1.23)	391	(3.5)	361	(9.4)	**30**	(9.9)

Note: Statistically significant values are indicated in bold.

Source: OECD PISA 2006 database and *PISA 2006: Science Competencies for Tomorrow's World*, Volume 2, Table 5.7.

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A6

Table A6.3b.

Parents' perceptions of the content taught and the instructional methods used in their child's school (PISA 2006)

Results based on reports from parents of the students who were assessed and reported proportionate to the number of 15-year-olds enrolled in the school, on the following statement

		"I am happy with the content taught and the instructional methods used in the school"							
		Performance on the science scale of students whose parents:							
		"Strongly agree or agree"				"Disagree or strongly disagree"		Difference in science performance between "strongly agree or agree" and "disagree or strongly disagree"	
		% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif. (agree - disagree)	S.E.
OECD countries	Denmark	77.3	(0.96)	518	(3.0)	496	(4.3)	**21.8**	(4.6)
	Germany	71.2	(0.95)	529	(4.0)	525	(3.7)	4.0	(3.7)
	Iceland	78.3	(0.82)	510	(2.0)	498	(4.1)	**12.0**	(4.6)
	Italy	85.8	(0.54)	481	(2.1)	482	(4.2)	-0.8	(4.0)
	Korea	76.8	(0.75)	523	(3.6)	522	(3.7)	1.0	(3.5)
	Luxembourg	75.4	(0.77)	491	(1.7)	505	(2.8)	**-13.9**	(3.5)
	New Zealand	86.5	(0.63)	553	(2.7)	539	(5.1)	**14.0**	(5.6)
	Poland	83.8	(0.66)	500	(2.5)	509	(4.0)	**-9.2**	(4.1)
	Portugal	86.6	(0.71)	477	(3.1)	479	(4.5)	-1.3	(4.9)
	Turkey	73.4	(0.92)	421	(4.0)	434	(5.1)	**-12.6**	(4.4)
Partner countries/economies	Bulgaria	90.6	(0.6)	431	(6.3)	456	(7.9)	**-25.3**	(7.3)
	Colombia	92.6	(0.5)	387	(3.4)	404	(6.6)	**-16.2**	(6.9)
	Croatia	85.0	(0.6)	492	(2.7)	513	(3.7)	**-21.2**	(4.0)
	Hong Kong-China	82.1	(0.7)	548	(2.5)	527	(3.7)	**21.1**	(3.5)
	Macao-China	84.2	(0.6)	512	(1.3)	505	(2.8)	6.3	(3.3)
	Qatar	78.4	(0.7)	363	(1.6)	358	(3.1)	4.6	(3.8)

		"I am happy with the content taught and the instructional methods used in the school"															
		Performance on the science scale of students whose parents are in the low quarter of the PISA index of economic, social and cultural status and:								Performance on the science scale of students whose parents are in the high quarter of the PISA index of economic, social and cultural status and:							
		"Strongly agree or agree"				"Disagree or strongly disagree"		Difference in score		"Strongly agree or agree"				"Disagree or strongly disagree"		Difference in score	
		% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif.	S.E.	% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif.	S.E.
OECD countries	Denmark	77.3	(2.05)	480	(5.4)	455	(9.5)	**25**	(11.0)	76.4	(1.92)	558	(4.7)	529	(6.7)	**29**	(7.1)
	Germany	74.7	(1.49)	471	(6.3)	473	(7.4)	-2	(7.7)	70.1	(1.49)	581	(4.2)	569	(5.3)	12	(6.4)
	Iceland	81.1	(1.55)	470	(4.6)	473	(8.2)	-3	(9.0)	78.4	(1.65)	544	(4.5)	524	(8.0)	**20**	(9.3)
	Italy	88.3	(0.69)	442	(2.7)	435	(6.7)	7	(6.7)	82.7	(0.97)	516	(3.5)	513	(6.1)	3	(6.2)
	Korea	77.8	(1.03)	494	(4.4)	499	(7.0)	-5	(5.9)	76.4	(1.49)	560	(6.2)	556	(5.4)	5	(6.2)
	Luxembourg	84.3	(1.31)	433	(3.4)	436	(8.2)	-3	(9.0)	65.6	(1.51)	549	(4.1)	545	(4.7)	4	(6.0)
	New Zealand	88.6	(1.31)	507	(5.2)	504	(14.2)	2	(15.2)	86.8	(1.09)	603	(4.0)	590	(7.6)	13	(8.1)
	Poland	89.7	(0.93)	463	(3.5)	459	(8.9)	5	(9.6)	77.6	(1.41)	549	(3.9)	545	(5.7)	5	(6.2)
	Portugal	91.1	(0.83)	436	(4.2)	440	(8.5)	-4	(9.1)	82.5	(1.52)	534	(3.7)	512	(6.1)	**22**	(6.7)
	Turkey	78.2	(2.07)	390	(5.2)	391	(7.9)	-1	(11.8)	67.1	(1.47)	472	(8.8)	481	(9.3)	-10	(6.1)
Partner countries/economies	Bulgaria	93.4	(0.89)	368	(6.5)	390	(20.5)	-23	(20.7)	86.5	(1.23)	502	(7.9)	506	(10.5)	-4	(9.5)
	Colombia	95.2	(0.88)	358	(3.9)	367	(12.4)	-9	(13.0)	89.5	(1.03)	433	(4.1)	427	(12.2)	7	(12.7)
	Croatia	90.4	(0.78)	453	(3.9)	472	(6.3)	**-19**	(6.2)	77.3	(1.52)	531	(3.8)	546	(5.4)	**-15**	(5.7)
	Hong Kong-China	83.4	(1.21)	518	(3.7)	494	(7.5)	**25**	(8.0)	79.5	(1.63)	578	(5.2)	565	(7.4)	13	(8.6)
	Macao-China	82.0	(1.17)	493	(3.1)	491	(5.8)	3	(7.0)	83.1	(1.08)	518	(3.0)	515	(6.2)	3	(7.0)
	Qatar	77.7	(1.28)	340	(2.7)	334	(4.6)	7	(5.3)	80.5	(1.54)	387	(3.7)	380	(9.2)	8	(10.1)

Note: Statistically significant values are indicated in bold.

Source: OECD PISA 2006 database and *PISA 2006: Science Competencies for Tomorrow's World*, Volume 2, Table 5.7.

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A6

Table A6.3c.

Parents' perceptions of the school's monitoring of their child's progress (PISA 2006)

Results based on reports from parents of the students who were assessed and reported proportionate to the number of 15-year-olds enrolled in the school, on the following statement

		"My child's progress is carefully monitored by the school"							
		Performance on the science scale of students whose parents:							
		"Strongly agree or agree"				"Disagree or strongly disagree"		Difference in science performance between "strongly agree or agree" and "disagree or strongly disagree"	
		% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif. (agree - disagree)	S.E.
OECD countries	Denmark	71.6	(1.08)	517	(2.9)	501	(4.1)	**15.4**	(3.8)
	Germany	61.4	(1.07)	525	(4.2)	534	(4.0)	**-9.8**	(4.1)
	Iceland	81.6	(0.73)	512	(1.9)	487	(4.7)	**25.7**	(5.1)
	Italy	84.6	(0.50)	481	(2.1)	481	(3.6)	0.6	(3.2)
	Korea	66.1	(1.00)	525	(3.8)	520	(3.4)	4.2	(3.5)
	Luxembourg	71.7	(0.68)	491	(1.9)	505	(2.6)	**-14.4**	(3.6)
	New Zealand	85.3	(0.70)	554	(2.7)	532	(5.4)	**22.7**	(5.6)
	Poland	82.4	(0.75)	501	(2.3)	505	(4.0)	-3.4	(3.7)
	Portugal	83.6	(0.65)	476	(3.0)	485	(4.0)	**-9.3**	(3.6)
	Turkey	63.8	(1.20)	421	(4.0)	431	(4.6)	**-9.6**	(3.3)
Partner countries/economies	Bulgaria	83.5	(0.79)	427	(6.2)	465	(7.2)	**-37.8**	(5.7)
	Colombia	93.4	(0.53)	390	(3.3)	382	(6.9)	7.7	(6.2)
	Croatia	78.0	(0.83)	492	(2.7)	507	(3.4)	**-15.0**	(3.4)
	Hong Kong-China	75.3	(0.87)	546	(2.6)	539	(3.8)	**7.7**	(3.8)
	Macao-China	83.1	(0.57)	511	(1.2)	508	(3.2)	3.4	(3.6)
	Qatar	75.7	(0.63)	362	(1.5)	363	(3.1)	-0.8	(3.8)

		"My child's progress is carefully monitored by the school"													
		Performance on the science scale of students whose parents are in the low quarter of the PISA index of economic, social and cultural status and:								Performance on the science scale of students whose parents are in the high quarter of the PISA index of economic, social and cultural status and:							
		"Strongly agree or agree"				"Disagree or strongly disagree"		Difference in score		"Strongly agree or agree"				"Disagree or strongly disagree"		Difference in score	
		% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif.	S.E.	% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif.	S.E.
OECD countries	Denmark	72.7	(2.07)	479	(5.8)	460	(6.9)	**19**	(8.6)	69.5	(1.88)	559	(4.9)	533	(6.7)	**26**	(7.5)
	Germany	69.0	(1.82)	469	(6.5)	477	(8.4)	-8	(9.2)	56.7	(1.70)	579	(4.2)	577	(5.2)	2	(6.3)
	Iceland	81.5	(1.66)	474	(4.6)	452	(8.2)	**22**	(9.1)	83.0	(1.45)	542	(3.9)	523	(10.2)	18	(10.4)
	Italy	85.6	(0.85)	442	(2.6)	436	(6.0)	6	(5.9)	82.8	(0.80)	516	(3.3)	513	(4.8)	3	(4.3)
	Korea	65.7	(1.87)	498	(4.9)	489	(5.2)	9	(5.4)	65.9	(1.91)	560	(6.8)	557	(4.7)	3	(6.2)
	Luxembourg	80.1	(1.34)	433	(3.6)	436	(7.0)	-3	(8.1)	64.7	(1.70)	548	(4.1)	546	(5.0)	1	(6.5)
	New Zealand	85.4	(1.44)	507	(5.2)	501	(12.1)	5	(13.0)	87.6	(1.23)	604	(4.0)	582	(9.4)	**22**	(10.1)
	Poland	85.7	(1.05)	464	(3.5)	471	(7.8)	-7	(8.3)	79.6	(1.29)	551	(3.7)	539	(7.3)	11	(7.8)
	Portugal	87.9	(1.01)	436	(4.1)	442	(9.6)	-6	(9.6)	78.2	(1.34)	530	(4.1)	526	(5.5)	5	(6.6)
	Turkey	66.7	(1.81)	389	(4.3)	393	(4.4)	-4	(5.7)	60.6	(2.23)	472	(9.1)	476	(8.7)	-4	(5.9)
Partner countries/economies	Bulgaria	89.6	(1.19)	367	(6.4)	389	(11.6)	**-22**	(11.2)	75.3	(1.40)	498	(8.2)	519	(8.1)	**-21**	(6.3)
	Colombia	93.5	(1.04)	360	(3.8)	336	(10.6)	**24**	(10.1)	93.4	(0.94)	434	(3.9)	423	(10.1)	11	(9.9)
	Croatia	82.6	(1.35)	452	(3.9)	471	(6.6)	**-19**	(6.7)	71.5	(1.59)	531	(3.7)	543	(5.3)	**-12**	(5.2)
	Hong Kong-China	75.3	(1.55)	517	(4.5)	508	(5.9)	9	(7.8)	73.9	(1.99)	577	(4.7)	572	(6.4)	5	(5.6)
	Macao-China	81.0	(1.10)	493	(3.0)	492	(5.8)	1	(6.8)	81.2	(1.32)	519	(3.0)	513	(6.7)	6	(7.6)
	Qatar	75.6	(1.45)	338	(2.6)	340	(5.0)	-2	(5.7)	75.7	(1.59)	389	(3.8)	376	(6.9)	14	(7.7)

Note: Statistically significant values are indicated in bold.

Source: OECD PISA 2006 database and *PISA 2006: Science Competencies for Tomorrow's World*, Volume 2, Table 5.7.

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Table A6.3d.

Parents' perceptions of the regularity and usefulness of the information provided by the school on their child's progress (PISA 2006)

Results based on reports from parents of the students who were assessed and reported proportionate to the number of 15-year-olds enrolled in the school, on the following statement

		"The school provides regular and useful information on my child's progress"							
		Performance on the science scale of students whose parents:							
		"Strongly agree or agree"				"Disagree or strongly disagree"		Difference in science performance between "strongly agree or agree" and "disagree or strongly disagree"	
		% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif. (agree - disagree)	S.E.
OECD countries	**Denmark**	68.4	(1.06)	518	(3.0)	500	(3.8)	**17.5**	(3.9)
	Germany	46.2	(1.08)	515	(4.7)	541	(3.3)	**-26.1**	(4.1)
	Iceland	81.2	(0.73)	512	(2.1)	489	(4.3)	**23.3**	(4.9)
	Italy	83.2	(0.57)	479	(2.1)	492	(3.2)	**-13.5**	(2.7)
	Korea	62.7	(0.90)	521	(4.0)	526	(3.3)	-4.8	(3.5)
	Luxembourg	58.1	(0.88)	483	(2.1)	512	(2.1)	**-28.4**	(3.2)
	New Zealand	82.3	(0.83)	554	(2.7)	537	(5.1)	**17.4**	(5.3)
	Poland	92.7	(0.37)	501	(2.3)	508	(5.2)	-7.4	(4.8)
	Portugal	83.4	(0.80)	473	(3.0)	500	(4.1)	**-27.1**	(4.1)
	Turkey	66.9	(1.09)	419	(4.2)	436	(4.3)	**-16.6**	(3.6)
Partner countries/economies	**Bulgaria**	84.8	(0.85)	427	(6.1)	472	(9.1)	**-45.1**	(7.6)
	Colombia	92.5	(0.65)	388	(3.3)	400	(6.2)	-11.3	(6.0)
	Croatia	83.8	(0.57)	493	(2.7)	508	(3.9)	**-14.7**	(3.9)
	Hong Kong-China	57.1	(0.96)	545	(3.1)	544	(2.6)	1.0	(3.1)
	Macao-China	75.0	(0.69)	510	(1.4)	513	(2.3)	-3.2	(2.9)
	Qatar	64.7	(0.74)	359	(1.6)	368	(2.7)	**-8.6**	(3.4)

		"The school provides regular and useful information on my child's progress"													
		Performance on the science scale of students whose parents are in the low quarter of the PISA index of economic, social and cultural status and:								Performance on the science scale of students whose parents are in the high quarter of the PISA index of economic, social and cultural status and:							
		"Strongly agree or agree"				"Disagree or strongly disagree"		Difference in score		"Strongly agree or agree"				"Disagree or strongly disagree"		Difference in score	
		% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif.	S.E.	% of students	S.E.	Mean score	S.E.	Mean score	S.E.	Dif.	S.E.
OECD countries	**Denmark**	67.0	(2.15)	479	(6.1)	465	(7.1)	15	(9.4)	69.4	(1.83)	558	(4.3)	534	(8.1)	**24**	(8.3)
	Germany	59.1	(1.74)	467	(6.7)	476	(6.5)	-9	(6.8)	36.2	(1.61)	574	(6.0)	580	(3.6)	-6	(6.4)
	Iceland	80.8	(1.63)	473	(4.7)	459	(7.4)	15	(8.8)	82.3	(1.64)	542	(4.0)	529	(10.4)	13	(10.9)
	Italy	85.1	(1.13)	440	(2.9)	446	(5.2)	-5	(5.7)	80.8	(0.87)	515	(3.2)	518	(5.9)	-3	(5.0)
	Korea	64.0	(1.54)	493	(4.9)	497	(5.3)	-4	(4.9)	61.9	(1.66)	559	(6.9)	559	(5.1)	0	(6.7)
	Luxembourg	68.2	(1.59)	427	(3.9)	447	(4.4)	**-20**	(5.8)	48.1	(1.69)	544	(4.4)	550	(4.1)	-6	(5.5)
	New Zealand	81.9	(1.96)	507	(5.3)	498	(10.2)	10	(11.1)	84.1	(1.39)	605	(4.0)	583	(8.1)	**22**	(8.7)
	Poland	95.0	(0.78)	465	(3.2)	457	(10.4)	7	(10.6)	90.3	(0.81)	548	(3.7)	545	(9.0)	3	(9.4)
	Portugal	88.8	(1.10)	433	(4.0)	467	(8.5)	**-34**	(8.4)	77.5	(1.82)	528	(3.7)	534	(6.4)	-5	(6.4)
	Turkey	69.3	(2.16)	385	(4.4)	402	(4.8)	**-17**	(6.9)	61.1	(1.95)	473	(9.6)	477	(8.4)	-4	(6.9)
Partner countries/economies	**Bulgaria**	91.0	(1.10)	366	(6.7)	401	(13.4)	**-36**	(14.2)	76.3	(1.91)	496	(7.2)	527	(10.8)	**-31**	(8.0)
	Colombia	94.3	(0.87)	358	(4.0)	370	(9.8)	-12	(11.0)	91.8	(1.00)	432	(4.1)	439	(9.0)	-7	(9.8)
	Croatia	87.9	(1.03)	454	(3.9)	461	(8.4)	-7	(8.4)	78.3	(1.31)	532	(3.7)	542	(5.6)	-10	(5.7)
	Hong Kong-China	53.5	(1.62)	515	(4.9)	514	(4.2)	2	(5.9)	59.7	(1.93)	574	(5.3)	577	(5.4)	-2	(5.8)
	Macao-China	72.8	(1.53)	491	(3.2)	497	(4.4)	-6	(5.5)	73.1	(1.40)	517	(2.9)	519	(5.4)	-2	(5.9)
	Qatar	65.0	(1.57)	331	(3.0)	353	(4.2)	**-22**	(5.6)	66.0	(1.64)	391	(4.4)	376	(6.3)	14	(8.0)

Note: Statistically significant values are indicated in bold.

Source: OECD PISA 2006 database and *PISA 2006: Science Competencies for Tomorrow's World*, Volume 2, Table 5.7.

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INDICATOR A7

DOES THEIR PARENTS' SOCIO-ECONOMIC STATUS AFFECT STUDENTS' PARTICIPATION IN HIGHER EDUCATION?

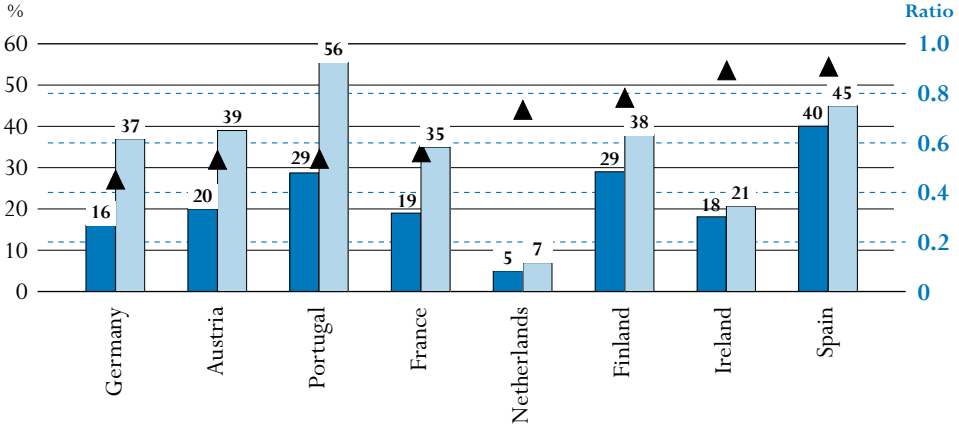
This indicator examines the socio-economic status of students enrolled in higher education, an important gauge of access to higher education for all. Internationally comparable data on the socio-economic status of students in higher education are not widely available. This indicator is a first attempt to illustrate the analytical potential that better data on this issue would offer. It takes a close look at data from ten OECD countries, examining the occupational status (white-collar or blue-collar) of students' fathers and the fathers' educational background, along with data from the OECD Programme for International Student Assessment (PISA) 2000 survey.

Key results

Chart A7.1. Occupational status of students' fathers (2004)

The chart compares the proportion of fathers of higher education students from a blue-collar background with the proportion of all men of the corresponding age group (40-to-60-year-olds), in percentage.

There are large differences among countries in the degree to which students from a blue-collar background participate in higher education. Ireland and Spain stand out as providing the most equitable access to higher education, whereas students from a blue-collar background in Austria, France, Germany and Portugal are about one-half as likely to be in higher education as their proportion in the population would suggest.



Countries are ranked in ascending order of the odds ratio.
Source: EUROSTUDENT 2005.
StatLink http://dx.doi.org/10.1787/401710587763

Other highlights of this indicator

- Measuring the socio-economic status of students in higher education by their fathers' educational background reveals large differences among countries. In many countries, students are substantially more likely to be in higher education if their fathers completed higher education. They are more than twice as likely to be in higher education in Austria, France, Germany, Portugal and the United Kingdom than are students whose fathers did not complete higher education. In Ireland and Spain this ratio drops to 1.1 and 1.5, respectively.

- For the countries providing information on the socio-economic status of students in higher education, inequalities in previous schooling appear to be reflected in the intake of students from less advantaged backgrounds. Countries providing more equitable access to higher education – such as Finland, Ireland and Spain – were also those with the most equal between-school performances in PISA 2000.

A7

Policy context

The pool of available workers with sufficient education and skills will be increasingly important for countries' innovation and future growth. Few countries can afford to rely solely on families that are rich in wealth and/or human capital to provide them. The transfer of low-skill jobs to countries with substantially lower cost structures further suggests that if a large fraction of the workforce has skills levels that are too low to allow them to compete for jobs in the international arena, the result will be an increasing social burden and deepening inequalities.

The socio-economic status of students in higher education can help to show the extent to which countries are making full use of their potential to generate future human capital. A key issue for educational systems is to provide equal opportunities for all individuals, regardless of their socio-economic status. Levelling the playing field between affluent and less affluent students is not simply a matter of equity; it is a way of increasing the recruiting ground for highly skilled jobs and overall labour competitiveness.

Expanding higher education also depends on the quality of the outputs of schools. Findings from the PISA 2000 survey suggest that in most countries, students' performance is linked to their socio-economic status. Intervention at an earlier stage (primary and lower secondary education) therefore appears to be warranted to correct such disadvantages. Successful completion rates of upper secondary education by students with lower socio-economic status is another important threshold that needs to be considered in understanding potentially skewed intake to higher education.

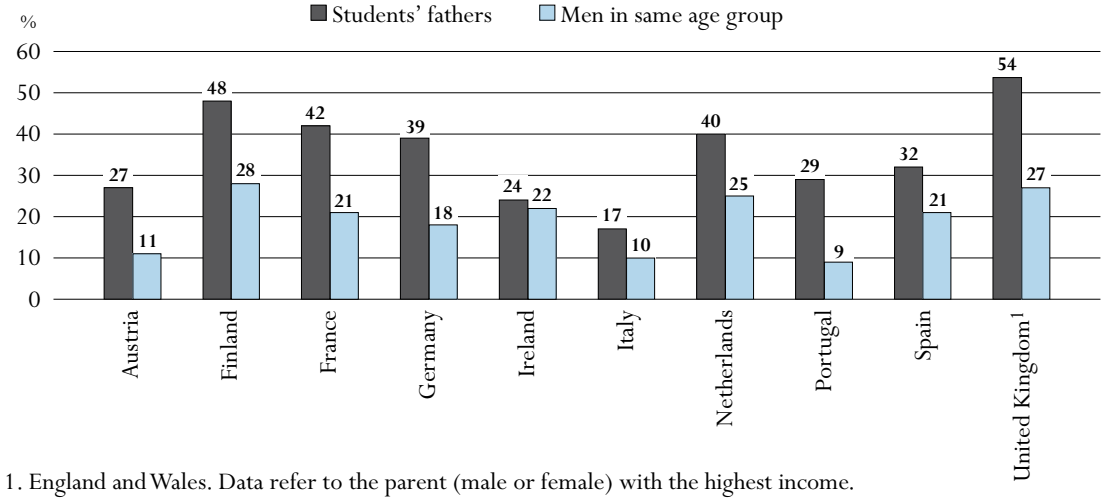
Evidence and explanations

Chart A7.1 above shows substantial differences among countries in the socio-economic composition of the student body in higher education. Note that students in higher education are defined as those attending courses at ISCED levels 5A, 5B and 6. At 40%, Spain has the largest proportion of students whose fathers have blue-collar occupations, followed by Finland and Portugal at 29%. For the remaining five countries covered in this indicator, students whose fathers have blue-collar occupations comprise 20% or less of the student body. The overall intake of students from such backgrounds depends on the proportion of blue-collar jobs within the country. As such, the relation between the two country bars in Chart A7.1 is informative about the student body's socio-economic status. This relation is illustrated by the odds-ratio shown in the chart. With the exception of Ireland and Spain, countries still recruit to higher education proportionally more students whose fathers have white-collar occupations.

The proportion of students in higher education whose fathers completed higher education provides another perspective on the same topic. Chart A7.2a shows the proportion of students' fathers with higher education and the corresponding proportion of men with higher education in the same age group as the students' fathers. Finland, France, the Netherlands and the United Kingdom have the largest intake of students whose fathers hold a higher education degree, whereas Ireland and Italy have the lowest intake from this group. This reflects to some extent attainment levels in different countries, so that to have a better view of the social selectivity in higher education, the attainment level of men in the same age group as students' fathers needs to be taken into account. The ratio of the proportion of students' fathers with higher education to the proportion of men of the corresponding age group with higher education is shown in Chart A7.2b.

Chart A7.2a. Educational status of students' fathers (2004)

Proportion of students' fathers with higher education compared with men of corresponding age group as students' fathers with higher education



1. England and Wales. Data refer to the parent (male or female) with the highest income.
Source: EUROSTUDENT 2005.

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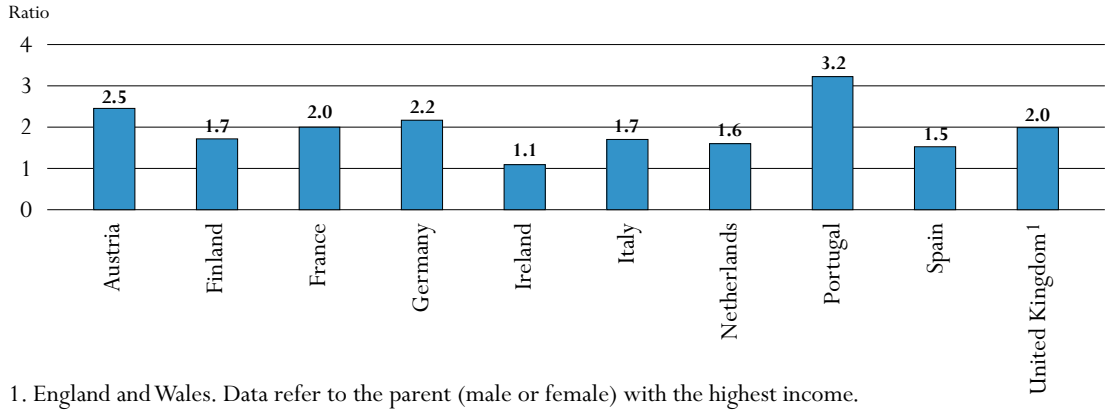
Chart A7.2b. Educational status of students' fathers (2004)

Ratio of the proportion of students' fathers with higher education to the proportion of men of the corresponding age group as students' fathers with higher education



1. England and Wales. Data refer to the parent (male or female) with the highest income.
Source: EUROSTUDENT 2005.

StatLink http://dx.doi.org/10.1787/401710587763

For all ten countries, more students are recruited from families in which the father has higher education than is warranted by the percentage of such families in the population. There are also substantial differences among countries on this socio-economic status indicator. The strongest selectivity into higher education is found in Portugal, with a ratio of 3.2. In Austria, France, Germany and the United Kingdom, students are about twice as likely to be in higher education if their fathers hold a university degree as their proportion in the population would suggest. Ireland stands out with a ratio (1.1) almost matching that of the general population.

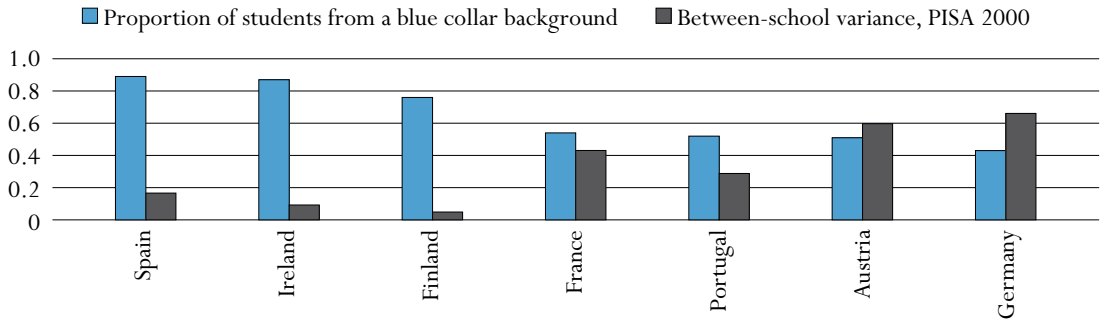
A7

In most countries, there is a strong socio-economic selection into higher education. Students from homes with a higher education background are overrepresented and students from a blue-collar background are underrepresented (in many cases severely so). Countries vary, however, and in this relatively restricted sample, Ireland and Spain perform substantially better in terms of providing higher education for all, irrespective of the students' background.

Differences between countries in the duration of higher degree programmes, the type of degree students pursue and the existence of non-university institutions all play a role in explaining participation in higher education by students from less advantaged backgrounds. Students from family backgrounds with less education are more often enrolled in non-university institutions, and this may explain, to some extent, differences in the socio-economic status of students, as not all countries provide this type of higher education opportunity. Countries that have expanded tertiary education in recent years will also, by default, have a higher intake of students from less advantaged backgrounds.

Beside these and other factors, there are indications that previous schooling plays an important role in preparing the ground for equal opportunities in higher education. Not surprisingly, inequalities in the performance of students in the PISA survey (15-year-olds) carry forward to higher education. Measures such as the PISA index of economic, social and cultural status (ESCS) of students and variation of PISA scores related to students' fathers' educational background are linked to the intake of students from less affluent backgrounds. The more prominent link, however, appears to be related to inequalities between schools and the extent to which education systems are stratified.

Chart A7.3. Proportion of students in higher education from a blue-collar background (2004) and between-school variance in PISA 2000



Note: The first bar shows the ratio of students' fathers with a blue-collar background to men of the corresponding age group (40-to-60-year-olds) in blue collar occupations. The second bar shows the between-school variance in mathematics from the PISA 2000 survey.
Countries are ranked in descending order of the proportion of students from a blue-collar background.
Source: OECD PISA 2000 survey, EUROSTUDENT 2005.
StatLink http://dx.doi.org/10.1787/401710587763

Chart A7.3 shows the relation between the ratio of students from blue-collar backgrounds (from Chart A7.1) and the between-school variance in mathematics performance in PISA 2000. Data from the PISA 2000 survey provide a better match than more recent surveys as some PISA 2000 students have reached university age when surveyed by Eurostudent. For the blue bar, a ratio closer to 1 indicates an intake of students from a blue-collar background in line with the population as a whole. The dark-gray bar shows between-school variance in PISA. The lower the between-school variance, the more equal the school system in terms of

providing similar quality of education irrespective of the schools attended by the students. Ranking countries on equal opportunities in higher education largely resembles the ranking of countries with respect to providing equal education between schools. Among the countries for which data are available on the socio-economic status of students in higher education, it appears that providing a good quality education across all schools is important to have more students from less affluent backgrounds participating in higher education.

At present, there is limited internationally comparable data on the socio-economic status of students in higher education. More information and better country coverage are required for a more thorough understanding of which policies might work and when actions need to be taken to improve the prospect of having more students from disadvantaged backgrounds in higher education. In the present sample, there is a fairly strong link between inequalities between schools in lower secondary education and inequalities in higher education. Better country coverage and data over time would help to understand the main obstacles to a more equitable distribution of students in higher education. The economic motivation for recruiting more students from less affluent homes is in place and better information on student background is essential to know how best this objective can be achieved.

Definitions and methodologies

The participating countries survey their students using the Eurostudent core questionnaire within a specific time frame. In many cases, these questions are integrated into larger national surveys. Most countries have surveyed students attending ISCED 5A and 5B programmes; exceptions are Austria, Germany, Italy and Spain which only surveyed students in ISCED 5A, and Portugal which surveyed students in levels 5A, 5B and 6. The fact that some countries included ISCED levels 5B and 6 whereas other countries did not may distort comparability to some extent. The definition used in Eurostudent for blue-collar background and higher education varies among countries but is harmonised within each country so that ratios will provide consistent estimates. Note also that the corresponding age group for students' fathers with higher education is 40-to-64-year-olds in Italy and that the corresponding age group for students' fathers in blue-collar occupations is defined in Ireland as "fathers of children who are 15 years old or younger".

The number of responses varied between 994 students in Latvia and 25 385 in France, with a response rate of between 30% (Germany) and 100% (Spain, Portugal) depending on survey method used. Most countries used a randomised design (stratified, quota) in sampling the students. However, survey methods varied: a postal questionnaire was used in four countries; an online survey in two countries; telephone interviews in one country; face-to-face interviews in three countries; and classroom questionnaires in two countries.

Further references

This indicator draws on data collected as part of the Eurostudent project (*www.eurostudent.eu*) and published in the *Eurostudent Report 2005: Social and Economic Conditions of Student Life in Europe 2005,* HEIS (HIS) (2005), available on the Eurostudent website.

OECD (2001), *Knowledge and Skills for Life: First Results from PISA 2000,* OECD, Paris.

The following additional material relevant to this indicator is available on line at:

StatLink http://dx.doi.org/10.1787/401710587763

- ***Table A7.1. Occupational and educational status of students' fathers (2004)***

INDICATOR A8

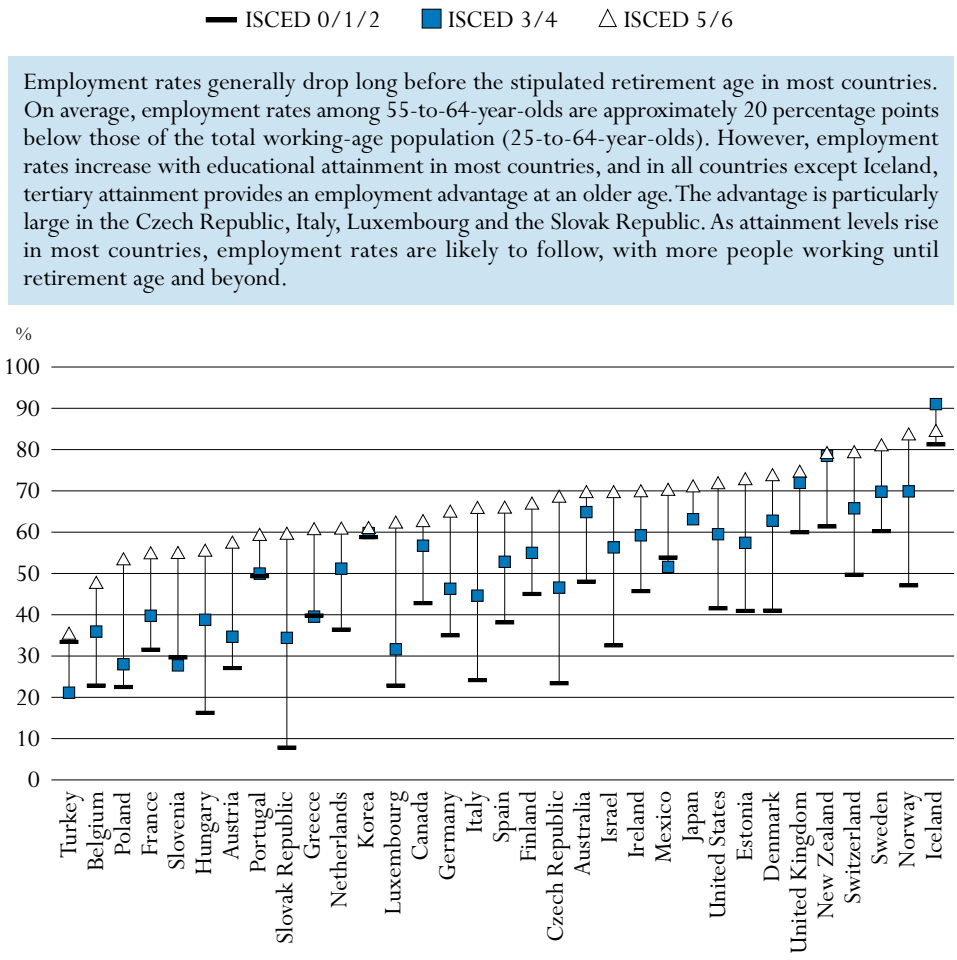
HOW DOES PARTICIPATION IN EDUCATION AFFECT PARTICIPATION IN THE LABOUR MARKET?

This indicator examines the relationships between educational attainment and labour force status, for both males and females, and considers changes over time. It also focuses on employment rates among those nearing retirement age to shed some light on the employment of an ageing population and the links with educational attainment.

Key results

Chart A8.1. Employment rates of 55-to-64-year-olds (2006)

This chart shows the percentage of the 55-to-64-year-old population that is employed, by educational attainment.



Employment rates generally drop long before the stipulated retirement age in most countries. On average, employment rates among 55-to-64-year-olds are approximately 20 percentage points below those of the total working-age population (25-to-64-year-olds). However, employment rates increase with educational attainment in most countries, and in all countries except Iceland, tertiary attainment provides an employment advantage at an older age. The advantage is particularly large in the Czech Republic, Italy, Luxembourg and the Slovak Republic. As attainment levels rise in most countries, employment rates are likely to follow, with more people working until retirement age and beyond.

Countries are ranked in ascending order of employment rates in tertiary education.
Source: OECD. Table A8.4. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).
StatLink http://dx.doi.org/10.1787/401775543762

Other highlights of this indicator

- Employment rates rise with educational attainment. With few exceptions, the employment rate for graduates of tertiary education is markedly higher than the rate for upper secondary graduates. For males, the gap is particularly wide between upper secondary graduates and those without an upper secondary qualification.

- Those with low educational attainment are both less likely to be labour force participants and more likely to be unemployed. Differences in employment rates between males and females are also wider among less educated groups. The chance of being employed is 23 percentage points higher for males than for females among those without upper secondary qualifications but falls to 10 points for the most highly qualified.

- Education is an important factor for employment at an older age. On average, 40.2% of 55-to-64-year-olds with below upper secondary education are employed, 52.4% of those with upper secondary and post-secondary non-tertiary education, and 65.9% of those with a tertiary qualification.

- As employment rises with education, increasing educational attainments will likely alleviate some of the concerns about the costs associated with an ageing population. Countries that seem to be well positioned to benefit from this employment-attainment effect are Finland, Greece, Ireland, Japan, and Spain, where tertiary attainment levels have risen sharply between 45-to-54-year-olds and 55-to-64-year-olds and where employment levels for those with tertiary education are particularly favourable.

A8

Policy content

To further their economic development, OECD countries' economies and labour markets depend upon a stable supply of well-educated workers. As skills levels tend to rise with educational attainment, the costs incurred when those with higher levels of education do not work also rise. As populations in OECD countries age, higher levels of education and longer participation in employment can lower dependency ratios and help to alleviate the burden of financing public pension schemes.

Employment rates normally rise with educational attainment. This is principally due to the larger investment in human capital made by more educated individuals and the need to recoup their investment. However, between country variations in employment rates often reflect cultural differences and, most notably, differences in the labour participation rates among female workers. Similarly, unemployment rates are generally lower for higher-educated individuals, but this is typically because higher educational attainment makes an individual more attractive in the labour market. Unemployment rates therefore include information both on the individual's desire to work and on the individual's attractiveness to potential employers.

In a sense, employment rates are more closely tied to supply while unemployment rates are more closely tied to demand. Time series on both measures thus carry important information for policy makers about the supply, and potential supply, of skills for the labour market and about employers' demand for these skills. Information about supply of and demand for skills is particularly important among the age group approaching retirement age as it can help to indicate potential remedies and policies for prolonging the working life of the adult population.

Evidence and explanations

Employment

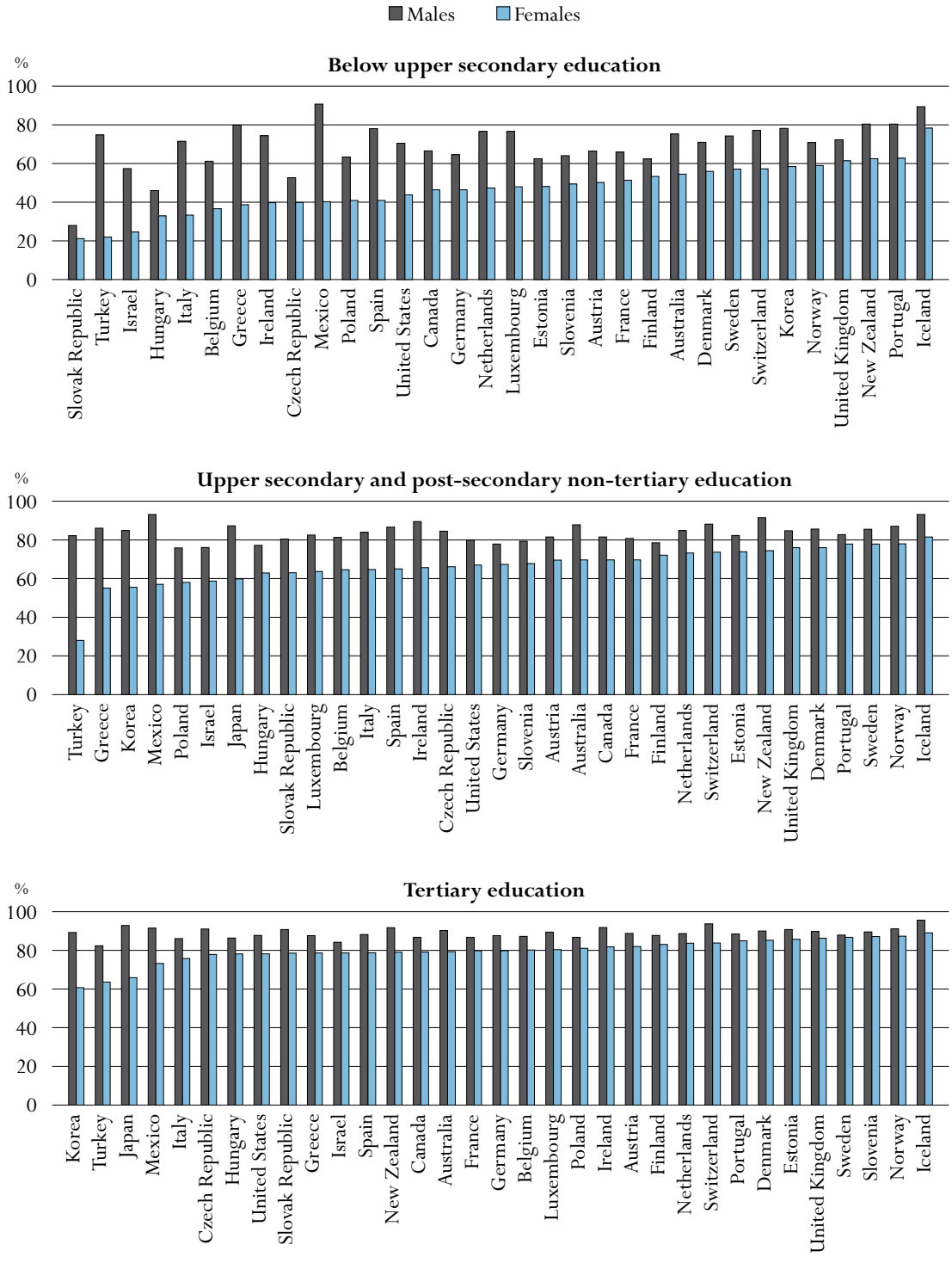
Variations among countries in the female employment rate are a primary factor in differences in overall employment rates. The countries with the highest overall rate of employment for 25-to-64-year-olds – Denmark, Iceland, New Zealand, Norway, Sweden, Switzerland and the United Kingdom – also have among the highest female employment rates. The overall employment rate for males aged 25 to 64 ranges from 77% or less in Belgium, Finland, France, Hungary, Poland, the Slovak Republic and Turkey to over 85% in Iceland, Japan, Korea, New Zealand, Mexico and Switzerland (Table A8.1a). In contrast, employment rates among females range from 55% or less in Greece, Italy, Mexico, Poland, Spain and Turkey to above 77% in Iceland and Sweden, an indication of different cultural and social patterns.

Employment rates for graduates of tertiary education are markedly higher – around 9 percentage points on average for OECD countries – than for upper secondary graduates. For 2006, the difference ranges from a few percentage points to 12 percentage points or more in Greece, Poland, the Slovak Republic, Turkey, and the partner countries Israel and Slovenia (Table A8.3a). While there have been some large changes over time in employment rates of educational groups within countries, the OECD averages for lower secondary, upper secondary and tertiary educated adults have been rather stable over the last decade.

The gap in employment rates of males aged 25 to 64 is particularly wide between upper secondary graduates and those who are not. The extreme cases are the Czech Republic, Hungary and the Slovak Republic, where employment rates for males who have achieved an upper secondary education are at least 30 percentage points higher than for males who have not. The gap in employment rates between males with and without an upper secondary education is 7 percentage points or less in Greece, Iceland, Korea, Luxembourg, Mexico and Portugal (Chart A8.2 and Table A8.3b).

Chart A8.2. Employment rates, by educational attainment (2006)

Percentage of the 25-to-64-year-old population that is employed



Countries are ranked in ascending order of the employment rate of females.

Source: OECD. Tables A8.3b and A8.3c. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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A8

In 2006, employment rates for females aged 25 to 64 show substantial differences, not only between those with and without an upper secondary education (15 percentage points or more in 24 out of the 29 OECD countries for which data were available), but also between those with upper secondary and those with tertiary attainment (10 percentage points or more in 18 countries).

Employment rates for females with a lower secondary education are particularly low, averaging 50% for OECD countries overall and less than 30% in Poland, the Slovak Republic, Turkey and the partner countries Chile and Israel. Employment rates for females with tertiary-type A attainment equal or exceed 75% everywhere except Japan, Korea, Mexico and Turkey, but remain below those of males in all countries (Table A8.1a).

On average among OECD countries, the difference between the employment rates of males and females decreases significantly at successively higher levels of educational attainment from 23 percentage points at the below upper secondary level to 10 percentage points at the tertiary level (Tables A8.3b and A8.3c).

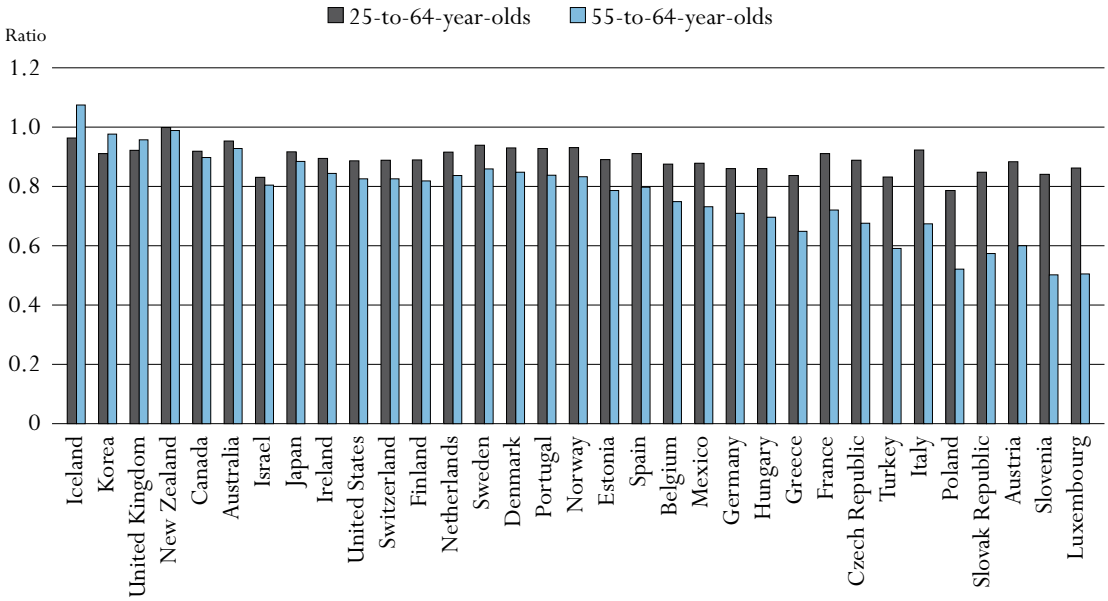
Long-term benefits of education

Employment rates of 55-to-64-year-olds are generally lower, by about 20 percentage points, than those of the working age population as a whole (25-to-64-year-olds) (Tables A8.3a and A8.4). For 55-to-64-year-olds with less than upper secondary education, employment rates are 17.9 percentage points lower, for those with upper secondary education, they are 23.1 percentage points lower, and for those with tertiary education, they are 18.4 percentage points lower than those of 25-to-64-year-olds with the corresponding levels of education.

Employment in the older age group has increased in recent years, particularly strongly among those with upper secondary and post-secondary non-tertiary education in OECD countries as a whole and among those with below upper secondary education in the European Union (EU19). Still, there are large differences between the employment rates of different educational groups. The average employment rate for 55-to-64-year-olds in OECD countries is 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 a tertiary qualification (Table A8.4).

Another way of examining the benefits of higher education in prolonging working life is to compare employment rates of those with upper secondary education and those with tertiary education. They are generally lower for those with upper secondary and post-secondary non-tertiary education than for those with tertiary education in the working-age population (25-to-64-year-olds). In most countries the employment advantage of a tertiary education increases with age (Chart A8.3). Employment rates for upper secondary and post-secondary non-tertiary relative to tertiary education drops for older adults in all but three countries. In Austria, Luxembourg, the Slovak Republic and the partner country Slovenia the disadvantage of having only an upper secondary education at an older age is particularly pronounced. However, in comparing the impact of educational attainment on employment, it is important to consider business cycles. A stronger labour market typically has stronger effects on employment among lower educated individuals.

Chart A8.3. Upper secondary and post-secondary non-tertiary employment rates relative to tertiary employment rates among the 55-to-64-year-old and the 25-to-64-year-old population, 2006



Countries are ranked in ascending order of the difference in relative employment between 25-to-64-year-olds and the older cohort.
Source: OECD. Table A8.4. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).
StatLink http://dx.doi.org/10.1787/401775543762

Countries in which tertiary education expanded in the 1970s (among 45-to-54-year-olds) and for which there are currently large differences in employment rates between educational attainment levels will likely see increases in overall employment in the coming years. Countries that seem well positioned to benefit from this employment-attainment effect of higher educational attainment are Finland, Greece, Ireland, Japan, and Spain, where tertiary attainment levels have risen sharply between 45-to-54-year-olds and 55-to-64-year-olds (Table A1.3a) and where employment levels for those with tertiary education are particularly favourable. Since almost all countries show higher attainment levels among the 45-to-54-year-olds to 55-to-64-year-olds and as employment rates generally rise with attainment levels, some concerns about the ageing of the population may be somewhat alleviated by increases in educational attainment in recent decades.

Unemployment rates fall with higher educational attainment

The employment prospects of individuals with different levels of educational attainment depend largely on the requirements of labour markets and on the supply of workers with different skills. Unemployment rates therefore provide a signal of the match between what the education system produces and the demand for skills in the labour market. Those with lower educational qualifications are at particular risk of economic marginalisation since they are both less likely to be labour force participants and more likely to be without a job even if they actively seek one.

A8

Among OECD countries, an upper secondary education is typically considered the minimum for a satisfactory competitive position in the labour market. On average, the rate of unemployment among those with an upper secondary education is 4 percentage points lower than among those who have not completed upper secondary education (Table A8.5a). Depending on a country's industry composition and level of economic development, the unemployment risk associated with the lack of an upper secondary level of education varies and is particularly great (10% or more) in the Czech Republic and Germany and especially in the Slovak Republic (34%). Only in Greece, Korea, Mexico and Turkey is the lack of upper secondary education not associated with a higher risk of unemployment; in these countries the unemployment rate is lower for below upper secondary education than for upper secondary and post-secondary non-tertiary education.

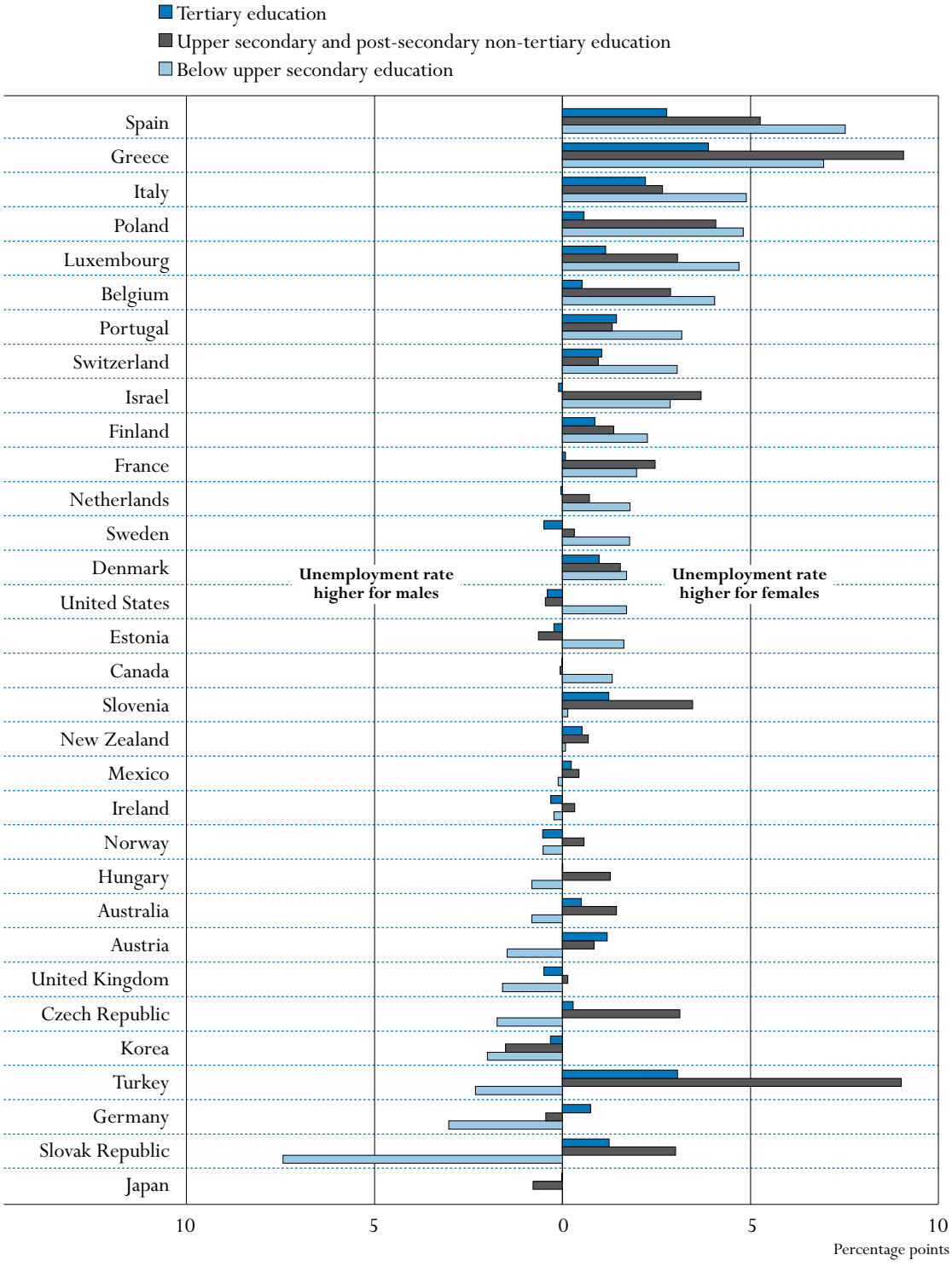
On average in OECD countries, male labour force participants aged 25 to 64 and with education below the upper secondary level are more than twice as likely to be unemployed as those who have completed upper secondary education (Table A8.5b on line). The negative association between unemployment rates and educational attainment is similar for females (Table A8.5c on line). Differences in unemployment rates for males and females generally decrease with educational attainment (Chart A8.4). Among females with tertiary education, unemployment rates are above 2 percentage points of those of males only in Greece, Italy, Spain, and Turkey. In 12 OECD countries, unemployment rates for males with less than upper secondary education are higher than those for females.

Between 1997 and 2006, on average among OECD countries, unemployment rates for those with upper secondary and post-secondary non-tertiary education decreased by almost 1.3 percentage points (Table A8.5a). Unemployment rates have improved by 3 percentage points or more in Finland, France, Ireland, Spain and Sweden. Unemployment rates for those with less than upper secondary education have also improved during the period by over 5 percentage points in Finland, Ireland, New Zealand and Spain. However, unemployment rates for those with less than upper secondary education have risen dramatically in the Czech Republic and the Slovak Republic (by more than 10 percentage points) so that the overall improvement in unemployment rates for those with below upper secondary education is modest: they have decreased by 0.5 percentage points across all OECD countries. For those with tertiary education the decrease, in the unemployment rate is 0.6 percentage points.

From 1997 to 2006, the difference in unemployment rates between those with an upper secondary education and those with tertiary education has decreased, from 2.6% to 1.9%. In contrast, the difference between upper secondary and lower secondary unemployment rates increased from 3.4% to 4.2% during this period. The greater difficulty encountered for finding employment with only a lower secondary education suggests that there is relatively little demand for this level of education in most OECD countries.

Although the difference between the unemployment rate for individuals with upper secondary and tertiary education has decreased somewhat in recent years, an upper secondary education makes less difference in the labour market than a tertiary education. The unemployment rate for those with a tertiary education is, except in Denmark, Italy, Mexico, New Zealand, always lower than for those with an upper secondary education (Table A8.5a).

Chart A8.4. Difference between unemployment rates of females and males, by level of educational attainment (2006)



Countries are ranked in descending order of the difference in unemployment rates of females and males who have completed below upper secondary education.

Source: OECD. Tables A8.5b and A8.5c on line. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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A8

Definition and methodologies

Under the auspices of the International Labour Organisation (ILO) and their conferences of labour statisticians, concepts and definitions for measuring labour force participation were established and are now used as a common reference (ILO, 1982). The employment rate refers to the number of persons in employment as a percentage of the population of working age. Unemployment rates refer to unemployed persons as a percentage of the civil labour force.

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

Further references

The following additional material relevant to this indicator is available on line at:

StatLink http://dx.doi.org/10.1787/401775543762

- *Total adult population*
  Table A8.1b. Employment rates and educational attainment (2006)
  Table A8.2b. Unemployment rates and educational attainment (2006)
- *By gender*
  Table A8.3b. Trends in employment rates of males by educational attainment (1997-2006)
  Table A8.3c. Trends in employment rates of females by educational attainment (1997-2006)
  Table A8.5b. Trends in unemployment rates of males by educational attainment (1997-2006)
  Table A8.5c. Trends in unemployment rates of females by educational attainment (1997-2006)

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Table A8.1a.

Employment rates and educational attainment, by gender (2006)

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

OECD countries		Pre-primary and primary education	Lower secondary education	ISCED 3C (short programmes)	Upper secondary education		Post-secondary non-tertiary education	Tertiary education		All levels of education
					ISCED 3C (long programmes)/ 3B	ISCED 3A		Type B	Type A and advanced research programmes	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Australia	Males	65.1	79.5	a	a	87.7	88.9	89.0	90.7	84.9
	Females	35.5	60.7	a	a	68.4	78.7	75.8	80.9	67.4
Austria	Males	x(2)	65.7	78.3	80.8	78.9	87.6	85.3	91.4	81.0
	Females	x(2)	49.2	61.4	67.2	69.8	78.9	83.6	80.9	66.4
Belgium	Males	47.4	71.0	a	81.6	80.8	87.5	86.8	87.6	76.4
	Females	26.9	45.2	a	60.2	65.5	75.3	79.0	82.5	60.5
Canada	Males	56.0	71.0	a	x(5)	80.8	82.9	86.7	86.7	81.5
	Females	33.0	53.2	a	x(5)	68.7	72.5	78.7	79.6	71.3
Czech Republic	Males	c	54.2	a	82.2	88.2	x(5)	x(8)	91.1	83.4
	Females	c	40.2	a	61.9	69.7	x(5)	x(8)	77.9	64.1
Denmark	Males	54.3	71.4	88.1	86.3	78.6	91.9	89.2	90.3	84.6
	Females	45.8	54.5	70.0	77.3	63.6	c	80.6	86.1	75.3
Finland	Males	52.7	72.5	a	a	78.4	c	83.6	90.4	77.6
	Females	45.8	60.8	a	a	71.9	c	82.5	83.5	73.1
France	Males	52.2	75.4	a	80.6	81.8	x(9)	89.2	85.3	77.7
	Females	40.2	60.0	a	68.6	72.1	x(9)	82.3	77.9	66.2
Germany	Males	54.0	67.4	a	78.0	62.9	84.3	85.9	88.7	78.8
	Females	34.4	48.8	a	66.5	54.4	76.8	78.7	80.4	65.6
Greece	Males	75.6	86.4	86.2	89.7	85.2	86.5	86.9	88.0	83.8
	Females	36.4	44.5	57.5	55.3	51.0	67.9	73.7	80.8	53.4
Hungary	Males	20.0	48.2	a	75.7	79.2	81.5	87.1	86.4	73.0
	Females	6.1	35.2	a	59.2	64.9	67.4	84.4	78.0	58.2
Iceland	Males	92.1	88.9	90.0	94.2	83.3	97.7	95.2	95.7	92.4
	Females	77.2	76.9	85.6	87.8	75.8	84.3	90.3	88.7	82.5
Ireland	Males	62.8	84.8	c	a	88.7	91.2	91.3	92.1	84.5
	Females	30.9	47.5	c	a	64.1	69.3	77.3	84.5	63.0
Italy	Males	51.5	78.6	81.4	84.1	83.8	88.0	85.1	86.2	78.1
	Females	17.1	42.9	53.1	62.0	65.1	71.1	71.8	75.9	51.0
Japan	Males	x(5)	x(5)	x(5)	x(5)	87.3	a	93.0	92.8	89.5
	Females	x(5)	x(5)	x(5)	x(5)	59.8	a	64.6	68.4	62.2
Korea	Males	73.6	81.4	a	x(5)	84.8	a	89.6	89.1	85.3
	Females	57.9	59.0	a	x(5)	55.5	a	61.3	60.5	57.8
Luxembourg	Males	72.7	81.6	81.4	78.9	86.8	81.6	86.2	90.6	82.4
	Females	46.3	44.7	54.5	54.5	68.7	70.3	81.5	79.7	61.4
Mexico	Males	89.5	93.5	a	92.0	x(2)	a	92.1	91.5	91.3
	Females	37.8	49.2	a	59.7	x(2)	a	77.3	72.8	47.4
Netherlands	Males	63.5	81.4	x(4)	81.4	87.5	84.0	85.7	88.9	84.0
	Females	34.9	51.9	x(4)	68.4	76.4	75.5	81.7	83.8	68.2
New Zealand	Males	x(2)	77.4	89.5	90.3	90.5	92.6	91.5	91.9	88.1
	Females	x(2)	57.8	74.4	73.2	75.7	74.9	78.2	79.7	71.8

Source: OECD. See Annex 3 for a description of ISCED-97 levels, ISCED-97 country mappings and national data sources (*www.oecd.org/edu/eag2008*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/401775543762

A8

Table A8.1a. *(continued)*

Employment rates and educational attainment, by gender (2006)

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

		Pre-primary and primary education	Lower secondary education	ISCED 3C (short programmes)	Upper secondary education: ISCED 3C (long programmes)/ 3B	Upper secondary education: ISCED 3A	Post-secondary non-tertiary education	Tertiary education: Type B	Tertiary education: Type A and advanced research programmes	All levels of education
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Norway	Males	c	71.1	a	87.7	84.1	88.1	93.2	90.9	84.6
	Females	c	59.4	a	78.1	76.4	86.6	88.3	87.3	76.6
Poland	Males	x(2)	48.9	68.2	a	75.5	81.4	x(8)	86.8	70.8
	Females	x(2)	29.7	47.4	a	57.0	65.0	x(8)	81.0	55.7
Portugal	Males	78.7	86.3	x(5)	x(5)	82.7	81.7	x(8)	88.5	81.7
	Females	60.0	74.1	x(5)	x(5)	78.1	72.1	x(8)	85.0	68.3
Slovak Republic	Males	c	30.0	x(4)	75.8	86.3	a	86.1	91.0	77.1
	Females	c	21.8	x(4)	56.4	67.5	a	74.8	79.0	57.8
Spain	Males	68.9	85.0	a	89.0	85.3	92.8	88.8	87.8	82.7
	Females	31.7	49.7	a	64.1	65.6	64.6	74.8	80.1	57.0
Sweden	Males	65.5	79.4	a	x(5)	85.4	86.4	85.3	88.8	83.9
	Females	45.7	64.6	a	x(5)	78.1	75.9	84.3	87.9	77.8
Switzerland	Males	73.7	77.3	81.1	88.9	82.7	85.9	94.4	93.3	88.9
	Females	49.4	58.1	67.2	73.5	72.6	79.8	88.2	81.9	72.9
Turkey	Males	73.9	78.4	a	83.4	81.0	a	x(8)	82.4	77.2
	Females	22.2	20.0	a	30.1	26.6	a	x(8)	63.6	26.4
United Kingdom	Males	c	60.2	83.4	83.1	87.0	c	88.2	90.5	82.8
	Females	c	47.8	73.1	73.5	80.0	41.4	84.5	87.1	74.1
United States	Males	72.8	68.9	x(5)	x(5)	79.9	x(5)	84.8	88.1	81.6
	Females	40.0	46.0	x(5)	x(5)	67.0	x(5)	76.1	78.5	68.9
OECD average	***Males***	***64.4***	***73.0***		***84.2***	***82.9***	***87.1***	***88.5***	***89.4***	***82.3***
	Females	***38.9***	***50.1***		***64.9***	***66.6***	***72.4***	***79.0***	***79.8***	***64.1***
EU19 average	***Males***	***58.6***	***69.9***		***84.9***	***82.3***	***86.2***	***86.9***	***88.9***	***80.2***
	Females	***35.9***	***48.1***		***63.9***	***67.6***	***69.4***	***79.7***	***81.7***	***64.1***
Partner countries										
Chile[1]	Males	24.4	63.2	x(5)	x(5)	71.8	a	81.1	84.3	74.3
	Females	8.8	26.8	x(5)	x(5)	59.6	a	69.5	80.0	60.8
Estonia	Males	c	64.8	a	69.7	84.1	85.3	88.8	91.6	81.8
	Females	c	49.2	a	61.3	74.1	78.2	81.8	87.9	76.1
Israel	Males	30.8	61.7	a	x(5)	76.0	a	82.7	84.9	75.5
	Females	11.9	28.6	a	x(5)	58.7	a	72.1	82.1	61.9
Slovenia	Males	39.4	68.4	a	77.5	81.3	a	87.3	91.4	78.7
	Females	30.3	51.8	a	65.7	69.2	a	83.4	90.9	68.7

Note: Owing to incomplete data, some averages have not been calculated.

1. Year of reference 2004.

Source: OECD. See Annex 3 for a description of ISCED-97 levels, ISCED-97 country mappings and national data sources (*www.oecd.org/edu/eag2008*).

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

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A8

Table A8.2a.

Unemployment rates and educational attainment, by gender (2006)

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

					Upper secondary education			Tertiary education		
		Pre-primary and primary education	Lower secondary education	ISCED 3C (short programmes)	ISCED 3C (long programmes)/ 3B	ISCED 3A	Post-secondary non-tertiary education	Type B	Type A and advanced research programmes	All levels of education
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD countries										
Australia	Males	7.8	5.4	a	a	3.3	c	2.0	2.0	3.6
	Females	6.7	4.9	a	a	4.8	4.2	2.8	2.4	4.0
Austria	Males	x(2)	9.1	c	3.4	4.0	2.1	1.9	2.1	3.6
	Females	x(2)	7.8	c	4.4	4.8	2.8	c	4.1	4.6
Belgium	Males	14.9	8.6	a	6.9	5.1	c	3.4	3.5	6.3
	Females	18.8	12.5	a	11.3	7.5	c	3.8	4.5	7.9
Canada	Males	10.2	8.4	a	x(5)	5.7	5.6	4.6	3.7	5.4
	Females	13.2	9.1	a	x(5)	5.6	5.7	4.2	3.9	5.2
Czech Republic	Males	c	23.3	a	5.1	2.6	x(8)	x(8)	2.1	4.8
	Females	c	21.6	a	10.0	5.2	x(8)	x(8)	2.4	8.0
Denmark	Males	c	4.2	c	1.9	c	c	2.7	2.7	2.6
	Females	c	6.7	c	3.5	c	c	4.5	3.5	4.1
Finland	Males	8.9	9.4	a	a	6.4	c	3.7	2.8	5.9
	Females	11.7	11.3	a	a	7.8	c	4.2	3.9	6.6
France	Males	11.3	9.4	a	5.1	6.8	x(9)	4.4	5.5	6.6
	Females	12.2	11.9	a	8.0	7.7	x(9)	4.4	5.7	8.2
Germany	Males	28.5	19.7	a	10.6	9.8	6.6	4.6	4.4	9.9
	Females	25.9	17.2	a	10.4	8.8	5.4	5.6	5.1	10.0
Greece	Males	4.5	5.5	c	c	3.7	7.5	4.7	4.2	4.7
	Females	10.0	15.1	c	25.4	12.6	14.5	10.7	7.2	11.5
Hungary	Males	34.7	14.3	a	6.5	4.1	c	c	2.2	6.2
	Females	51.2	13.5	a	9.1	5.5	5.6	c	2.2	6.9
Iceland	Males	c	c	c	c	c	c	c	c	1.5
	Females	c	c	c	c	c	c	c	c	2.0
Ireland	Males	7.8	4.4	c	a	3.3	2.6	2.8	2.2	3.8
	Females	6.4	5.0	c	a	3.2	3.9	2.7	1.7	3.3
Italy	Males	7.1	4.9	6.4	2.6	3.5	5.8	2.8	3.8	4.3
	Females	11.4	9.8	13.1	5.9	5.9	10.2	6.2	5.9	7.4
Japan	Males	x(5)	x(5)	x(5)	x(5)	4.9	a	3.9	2.7	4.1
	Females	x(5)	x(5)	x(5)	x(5)	4.1	a	3.2	2.5	3.7
Korea	Males	3.6	3.7	a	x(5)	4.0	a	3.8	2.7	3.6
	Females	1.5	1.9	a	x(5)	2.5	a	3.3	2.3	2.3
Luxembourg	Males	c	c	c	3.3	c	c	c	2.4	2.5
	Females	9.4	9.8	c	6.8	5.0	c	c	4.2	5.6
Mexico	Males	2.1	2.6	a	2.3	a	a	1.1	2.9	2.4
	Females	2.0	2.9	a	2.4	a	a	2.0	3.2	2.5
Netherlands	Males	6.8	3.2	x(4)	3.5	3.0	2.6	2.2	2.3	3.1
	Females	9.0	5.0	x(4)	4.4	3.5	3.9	2.8	2.3	3.8
New Zealand	Males	x(2)	3.5	2.0	2.4	1.8	1.7	2.2	2.1	2.3
	Females	x(2)	3.7	2.0	3.5	1.8	c	2.6	2.7	2.8

Source: OECD. See Annex 3 for a description of ISCED-97 levels, ISCED-97 country mappings and national data sources (*www.oecd.org/edu/eag2008*).
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
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A8

Table A8.2a. *(continued)*

Unemployment rates and educational attainment, by gender (2006)

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

		Pre-primary and primary education	Lower secondary education	ISCED 3C (short programmes)	Upper secondary education: ISCED 3C (long programmes)/ 3B	Upper secondary education: ISCED 3A	Post-secondary non-tertiary education	Tertiary education: Type B	Tertiary education: Type A and advanced research programmes	All levels of education
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Norway	Males	c	5.0	a	1.5	c	c	c	2.1	2.7
	Females	c	4.5	a	2.3	c	c	c	1.5	2.5
Poland	Males	x(2)	20.3	13.5	a	8.5	8.7	x(8)	4.7	11.1
	Females	x(2)	23.2	18.3	a	13.1	9.7	x(8)	5.3	12.9
Portugal	Males	6.5	5.3	x(5)	x(5)	6.3	c	x(8)	4.5	6.0
	Females	9.4	9.2	x(5)	x(5)	7.8	c	x(8)	6.0	8.5
Slovak Republic	Males	94.4	45.2	x(4)	11.3	5.5	a	c	2.0	9.9
	Females	91.0	38.7	x(4)	17.0	8.4	a	c	3.3	13.0
Spain	Males	7.3	5.7	c	4.5	4.7	c	4.1	4.1	5.3
	Females	13.7	13.9	c	10.7	9.4	c	8.1	6.5	10.2
Sweden	Males	7.3	6.4	a	x(5)	5.0	4.5	5.2	4.3	5.1
	Females	10.2	7.6	a	x(5)	5.1	6.4	4.1	3.9	5.1
Switzerland	Males	c	6.4	c	2.4	5.8	c	c	2.2	2.7
	Females	13.1	8.2	c	3.7	4.8	c	c	3.6	4.3
Turkey	Males	8.9	8.4	a	6.8	8.0	x(8)	x(8)	5.9	8.2
	Females	5.8	13.3	a	14.7	17.8	x(8)	x(8)	9.0	8.7
United Kingdom	Males	c	8.8	4.8	4.3	3.3	c	3.0	2.3	4.1
	Females	c	6.3	4.1	4.9	2.8	c	1.5	2.1	3.6
United States	Males	5.8	8.8	x(5)	x(5)	4.8	x(5)	4.0	2.6	4.3
	Females	7.9	10.0	x(5)	x(5)	4.3	x(5)	3.2	2.2	3.8
OECD average	***Males***	***14.7***	***9.6***			***5.0***			***3.1***	***4.9***
	Females	***16.2***	***10.9***			***6.5***			***3.9***	***6.1***
EU19 average	***Males***	***18.5***	***11.5***			***5.0***			***3.3***	***5.6***
	Females	***20.8***	***12.9***			***6.9***			***4.2***	***7.4***
Partner countries										
Chile[1]	Males	5.8	6.9	x(5)	x(5)	6.8	a	12.6	6.0	6.6
	Females	6.1	8.9	x(5)	x(5)	9.2	a	10.7	7.1	8.4
Estonia	Males	c	11.3	a	7.4	5.8	c	5.6	2.4	5.8
	Females	c	13.1	a	c	6.1	c	4.5	2.3	4.8
Israel	Males	21.3	11.1	a	a	7.1	a	5.6	4.1	6.8
	Females	21.1	13.9	a	a	10.8	a	6.0	3.7	7.3
Slovenia	Males	12.7	6.3	a	4.3	4.0	a	2.6	2.0	4.2
	Females	12.7	6.7	a	8.0	7.4	a	4.2	2.9	6.3

Note: Owing to incomplete data, some averages have not been calculated.

1. Year of reference 2004.

Source: OECD. See Annex 3 for a description of ISCED-97 levels, ISCED-97 country mappings and national data sources (*www.oecd.org/edu/eag2008*).

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

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Table A8.3a.

Trends in employment rates by educational attainment (1997-2006)

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

		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Australia	Below upper secondary	59.5	59.5	59.1	60.8	59.9	60.0	61.0	60.6	62.9	63.5
	Upper secondary and post-secondary non-tertiary	76.1	75.9	76.2	76.7	78.0	77.8	78.7	78.8	79.8	80.4
	Tertiary education	83.4	83.8	82.0	82.9	83.1	83.5	83.2	83.3	84.4	84.4
Austria	Below upper secondary	52.9	52.6	53.3	53.8	53.6	54.7	55.0	52.2	53.3	55.7
	Upper secondary and post-secondary non-tertiary	75.4	75.3	75.6	74.6	74.6	75.3	75.4	73.9	74.3	75.8
	Tertiary education	85.8	86.4	87.0	86.7	86.5	86.0	85.0	82.5	84.5	85.9
Belgium	Below upper secondary	47.5	47.5	49.1	50.5	49.0	48.8	48.9	48.8	49.0	49.0
	Upper secondary and post-secondary non-tertiary	73.4	72.0	74.5	75.1	73.9	73.8	72.8	73.1	74.0	73.2
	Tertiary education	83.9	84.3	85.4	85.3	84.5	83.7	83.6	83.9	84.2	83.6
Canada	Below upper secondary	52.5	53.5	54.4	55.0	54.4	55.3	56.4	57.1	56.4	56.9
	Upper secondary and post-secondary non-tertiary	73.9	74.5	75.4	76.1	75.4	75.9	76.3	76.7	76.3	76.0
	Tertiary education	81.7	82.3	82.4	82.7	81.9	82.0	82.0	82.2	82.2	82.6
Czech Republic	Below upper secondary	51.1	49.5	46.9	46.9	46.7	45.3	46.0	42.3	41.2	43.9
	Upper secondary and post-secondary non-tertiary	79.7	78.2	76.4	75.5	75.7	76.2	75.8	74.8	75.5	75.6
	Tertiary education	89.3	88.7	87.4	86.8	87.8	87.1	86.5	86.4	85.8	85.1
Denmark	Below upper secondary	m	60.9	61.7	62.2	61.5	61.2	62.6	61.7	61.5	62.8
	Upper secondary and post-secondary non-tertiary	m	79.1	80.7	81.0	81.0	80.3	79.8	79.9	79.9	81.3
	Tertiary education	m	87.5	87.9	88.6	87.2	86.0	85.2	85.5	86.4	87.4
Finland	Below upper secondary	54.7	56.2	58.6	57.3	58.2	57.7	58.0	57.1	57.9	58.4
	Upper secondary and post-secondary non-tertiary	72.2	73.1	74.3	74.9	75.5	74.4	73.6	74.4	75.2	75.6
	Tertiary education	82.6	83.2	84.7	84.4	85.1	85.1	85.1	84.2	84.1	85.0
France	Below upper secondary	56.3	56.3	56.4	57.0	57.7	57.8	58.9	59.1	58.6	58.1
	Upper secondary and post-secondary non-tertiary	75.0	75.0	75.1	75.8	76.5	76.7	76.3	75.6	75.6	75.6
	Tertiary education	81.3	81.6	81.8	83.1	83.7	83.3	83.3	82.9	83.0	83.0
Germany	Below upper secondary	45.7	46.1	48.7	50.6	51.8	50.9	50.2	48.6	51.6	53.8
	Upper secondary and post-secondary non-tertiary	68.2	67.9	69.9	70.4	70.5	70.3	69.7	69.5	70.6	72.5
	Tertiary education	82.3	82.2	83.0	83.4	83.4	83.6	83.0	82.7	82.9	84.3
Greece	Below upper secondary	57.4	57.3	57.1	57.9	57.6	58.5	59.7	58.2	59.2	59.5
	Upper secondary and post-secondary non-tertiary	63.3	64.6	64.7	64.7	65.2	65.7	66.8	68.0	69.1	69.7
	Tertiary education	80.2	80.8	81.1	81.4	80.4	81.3	81.9	82.0	82.0	83.3
Hungary	Below upper secondary	36.2	36.2	35.8	35.8	36.6	36.7	37.4	36.9	38.1	38.2
	Upper secondary and post-secondary non-tertiary	70.7	70.9	72.1	72.1	71.9	71.7	71.4	70.9	70.4	70.4
	Tertiary education	81.4	81.0	82.1	82.4	82.6	82.0	82.7	82.9	83.0	81.8
Iceland	Below upper secondary	83.8	85.6	87.2	87.3	87.2	86.4	83.7	81.6	83.0	83.6
	Upper secondary and post-secondary non-tertiary	88.0	88.6	90.5	89.0	89.7	89.4	88.7	87.8	88.2	88.6
	Tertiary education	94.6	94.7	95.1	95.0	94.7	95.4	92.7	92.0	92.0	92.0
Ireland	Below upper secondary	50.3	53.4	54.4	60.7	58.4	56.7	56.6	57.5	58.4	58.7
	Upper secondary and post-secondary non-tertiary	68.7	71.7	74.8	77.0	77.3	76.6	75.6	75.9	76.7	77.3
	Tertiary education	81.9	85.2	87.2	87.2	87.0	86.3	86.1	86.2	86.8	86.5
Italy	Below upper secondary	m	47.8	48.0	48.6	49.4	50.5	50.7	51.7	51.7	52.5
	Upper secondary and post-secondary non-tertiary	m	70.1	70.3	71.2	72.1	72.3	72.4	73.5	73.5	74.4
	Tertiary education	m	80.8	80.7	81.4	81.6	82.2	82.0	81.2	80.4	80.6
Japan	Below upper secondary	69.6	68.8	68.2	67.1	67.5	m	m	m	m	m
	Upper secondary and post-secondary non-tertiary	75.3	75.8	74.2	73.8	74.4	71.9	71.8	72.0	72.3	73.1
	Tertiary education	80.7	79.5	79.2	79.0	79.8	79.1	79.2	79.3	79.4	79.8
Korea	Below upper secondary	71.2	66.1	66.9	68.0	67.8	68.4	66.5	66.4	65.9	66.2
	Upper secondary and post-secondary non-tertiary	71.7	66.5	66.4	68.7	69.3	70.5	69.6	70.1	70.1	70.3
	Tertiary education	80.2	76.1	74.6	75.4	75.7	76.1	76.4	76.7	76.8	77.2
Luxembourg	Below upper secondary	m	m	56.5	58.3	60.0	59.3	60.3	59.1	61.8	60.8
	Upper secondary and post-secondary non-tertiary	m	m	73.9	74.6	74.8	73.6	73.3	72.6	71.7	73.4
	Tertiary education	m	m	85.0	84.3	85.5	85.2	82.3	84.1	84.0	85.2
Mexico	Below upper secondary	61.8	61.3	61.4	60.7	60.5	61.3	60.9	62.2	61.8	62.8
	Upper secondary and post-secondary non-tertiary	70.1	69.1	69.1	70.7	69.8	69.7	69.5	70.3	71.2	73.1
	Tertiary education	83.2	83.2	82.0	82.5	80.9	80.9	81.2	81.4	82.0	83.3

OECD countries

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

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Table A8.3a. *(continued)*

Trends in employment rates by educational attainment (1997-2006)

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

			1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
OECD countries	**Netherlands**	Below upper secondary	m	55.3	60.7	57.6	58.8	60.7	59.4	59.4	59.5	60.6
		Upper secondary and post-secondary non-tertiary	m	76.8	79.5	79.4	80.0	79.8	78.8	77.9	77.9	79.1
		Tertiary education	m	85.4	87.2	86.3	86.3	86.5	85.9	85.3	85.6	86.4
	New Zealand	Below upper secondary	63.6	63.0	64.1	65.2	66.4	67.4	67.8	69.3	70.4	70.6
		Upper secondary and post-secondary non-tertiary	80.5	79.4	80.0	80.2	80.4	81.4	81.6	82.9	84.5	84.5
		Tertiary education	82.4	81.6	82.0	82.3	83.8	83.0	82.7	83.4	84.3	84.6
	Norway	Below upper secondary	66.7	67.7	67.1	65.3	63.3	64.2	64.1	62.1	64.3	64.7
		Upper secondary and post-secondary non-tertiary	83.3	83.9	82.9	82.7	82.7	81.5	79.6	78.8	82.4	83.1
		Tertiary education	90.2	90.2	90.2	89.9	89.6	89.5	88.8	89.3	88.8	89.2
	Poland	Below upper secondary	62.4	62.5	59.2	56.1	54.3	51.6	51.5	51.6	52.4	53.6
		Upper secondary and post-secondary non-tertiary	68.8	69.1	72.3	69.2	68.2	66.6	65.1	64.3	64.6	65.6
		Tertiary education	86.7	87.2	86.6	84.5	84.1	83.1	82.6	82.3	82.7	83.5
	Portugal	Below upper secondary	m	71.6	71.9	72.8	73.0	72.8	72.2	71.9	71.5	71.7
		Upper secondary and post-secondary non-tertiary	m	80.0	81.9	83.2	82.6	82.3	81.6	80.3	79.3	80.2
		Tertiary education	m	89.3	90.0	90.7	90.8	88.5	87.3	88.0	87.3	86.4
	Slovak Republic	Below upper secondary	38.9	37.4	33.2	30.9	30.5	28.2	28.5	22.0	21.7	23.5
		Upper secondary and post-secondary non-tertiary	75.9	75.1	72.5	70.6	70.2	70.5	71.2	70.3	70.8	71.9
		Tertiary education	89.8	88.6	87.0	85.6	86.7	86.6	87.1	83.6	84.0	84.9
	Spain	Below upper secondary	48.2	49.5	51.0	53.8	55.1	55.7	56.6	57.6	58.6	59.8
		Upper secondary and post-secondary non-tertiary	66.6	67.5	69.6	72.1	71.8	71.6	72.4	73.2	74.7	75.9
		Tertiary education	75.5	76.3	77.6	79.7	80.7	80.8	81.6	81.9	82.4	83.4
	Sweden	Below upper secondary	67.2	66.4	66.5	68.0	68.8	68.2	67.5	67.0	66.1	66.9
		Upper secondary and post-secondary non-tertiary	78.6	79.3	79.6	81.7	81.9	81.8	81.3	80.7	81.3	81.9
		Tertiary education	85.0	85.5	85.6	86.7	86.9	86.5	85.8	85.4	87.3	87.3
	Switzerland	Below upper secondary	68.5	69.2	69.4	65.5	70.4	69.5	67.6	66.4	66.0	65.3
		Upper secondary and post-secondary non-tertiary	80.1	81.3	81.1	81.9	81.6	81.3	80.8	80.3	80.3	80.1
		Tertiary education	89.1	90.3	90.9	90.9	91.3	90.6	89.7	89.7	90.0	90.2
	Turkey	Below upper secondary	56.9	57.4	55.8	53.1	51.9	50.5	49.1	50.1	49.1	49.0
		Upper secondary and post-secondary non-tertiary	66.8	66.0	63.9	64.0	62.4	61.8	61.1	61.5	63.2	62.7
		Tertiary education	81.7	81.3	79.0	78.5	78.3	76.3	74.9	75.2	76.1	75.5
	United Kingdom	Below upper secondary	64.8	64.8	64.8	65.5	66.0	65.3	66.1	65.9	65.3	66.3
		Upper secondary and post-secondary non-tertiary	79.1	80.2	80.6	81.1	81.3	81.1	81.6	81.2	81.7	80.7
		Tertiary education	87.3	87.3	87.7	87.8	88.3	87.8	88.0	87.6	87.9	88.1
	United States	Below upper secondary	55.2	57.6	57.8	57.8	58.4	57.0	57.8	56.5	57.2	58.0
		Upper secondary and post-secondary non-tertiary	75.7	75.8	76.2	76.7	76.2	74.0	73.3	72.8	72.8	73.3
		Tertiary education	85.4	85.3	84.6	85.0	84.4	83.2	82.2	82.0	82.5	82.7
	OECD average	***Below upper secondary***	***57.7***	***58.0***	***58.2***	***58.3***	***58.5***	***57.9***	***58.0***	***57.3***	***57.7***	***58.4***
		Upper secondary and post-secondary non-tertiary	***74.3***	***74.6***	***75.1***	***75.5***	***75.5***	***75.2***	***74.9***	***74.7***	***75.3***	***75.9***
		Tertiary education	***84.2***	***84.5***	***84.6***	***84.7***	***84.7***	***84.4***	***83.9***	***83.8***	***84.1***	***84.4***
	EU19 average	***Below upper secondary***	***52.4***	***54.0***	***54.4***	***55.0***	***55.1***	***54.8***	***55.1***	***54.1***	***54.6***	***55.5***
		Upper secondary and post-secondary non-tertiary	***72.5***	***73.7***	***74.6***	***75.0***	***75.0***	***74.8***	***74.5***	***74.2***	***74.6***	***75.3***
		Tertiary education	***83.8***	***84.5***	***85.0***	***85.1***	***85.2***	***84.8***	***84.5***	***84.1***	***84.4***	***84.8***
Partner countries	**Estonia**	Below upper secondary	m	m	m	m	m	44.1	49.0	50.9	50.0	56.5
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	71.9	72.9	72.6	73.6	78.1
		Tertiary education	m	m	m	m	m	81.6	80.3	82.4	84.5	87.7
	Israel	Below upper secondary	m	m	m	m	m	43.5	42.7	40.4	41.2	41.8
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	66.6	65.9	66.4	66.6	67.5
		Tertiary education	m	m	m	m	m	79.1	79.3	79.2	80.3	81.2
	Slovenia	Below upper secondary	m	m	m	m	m	55.6	54.2	55.9	56.1	55.9
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	74.0	72.7	74.4	74.6	74.1
		Tertiary education	m	m	m	m	m	86.1	86.1	86.8	87.0	88.2

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

StatLink http://dx.doi.org/10.1787/401775543762

A8

Table A8.4.

Trends in employment rates among 55-to-64-year-olds, by educational attainment (1997-2006)

Number of 55-to-64-year-olds in employment as a percentage of the population aged 55 to 64, by level of educational attainment

		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Growth rate 1999/2005
Australia	Below upper secondary	35.6	36.1	35.3	38.6	37.9	39.5	43.3	42.7	45.9	48.0	4.5
	Upper secondary and post-secondary non-tertiary	47.9	51.3	50.5	53.3	55.8	60.3	61.3	62.9	62.3	64.7	3.6
	Tertiary education	63.2	64.1	61.6	64.8	65.6	67.4	67.5	69.0	69.5	69.8	2.0
Austria	Below upper secondary	20.9	20.4	20.6	19.5	18.8	20.2	22.0	19.7	23.5	27.0	2.3
	Upper secondary and post-secondary non-tertiary	31.3	32.0	32.0	28.4	28.6	29.7	30.7	28.8	30.7	34.6	-0.6
	Tertiary education	60.5	59.2	64.3	59.0	56.8	54.3	49.8	47.5	53.7	57.6	-3.0
Belgium	Below upper secondary	15.8	16.4	16.8	19.3	16.8	18.8	20.4	21.4	21.5	22.8	4.1
	Upper secondary and post-secondary non-tertiary	30.4	29.6	32.8	31.1	31.9	32.9	32.8	34.9	38.1	35.8	2.5
	Tertiary education	41.2	41.5	46.4	46.1	45.6	44.1	45.6	47.3	49.3	47.8	1.0
Canada	Below upper secondary	34.6	35.3	36.7	36.7	36.5	37.8	39.9	41.6	40.6	42.8	1.7
	Upper secondary and post-secondary non-tertiary	48.3	49.4	50.2	52.2	51.8	53.5	55.5	56.4	57.1	56.6	2.2
	Tertiary education	56.0	55.1	56.0	57.4	56.8	57.9	61.2	60.9	62.2	62.8	1.8
Czech Republic	Below upper secondary	19.2	17.8	17.4	17.4	16.9	16.6	20.1	18.3	19.6	23.4	2.0
	Upper secondary and post-secondary non-tertiary	42.5	40.5	40.4	39.1	39.6	43.4	45.6	44.7	46.7	46.4	2.4
	Tertiary education	71.2	70.9	70.9	65.6	70.7	70.3	69.2	70.2	69.2	68.7	-0.4
Denmark	Below upper secondary	m	35.4	36.0	41.5	41.3	39.9	44.0	42.1	41.8	41.0	2.5
	Upper secondary and post-secondary non-tertiary	m	53.5	58.6	58.3	60.4	60.2	61.8	61.9	61.0	62.7	0.7
	Tertiary education	m	68.3	71.5	74.5	73.8	72.3	73.3	74.0	72.9	73.9	0.3
Finland	Below upper secondary	29.0	29.6	33.0	32.5	36.6	38.6	41.6	41.4	43.4	45.0	4.7
	Upper secondary and post-secondary non-tertiary	37.9	36.4	39.8	43.4	48.2	45.3	46.9	51.5	53.4	54.9	5.0
	Tertiary education	55.4	56.6	58.5	60.1	62.3	62.9	64.9	65.5	65.6	67.0	1.9
France	Below upper secondary	27.8	26.9	28.3	28.3	30.1	32.4	31.4	31.6	32.2	31.5	2.2
	Upper secondary and post-secondary non-tertiary	37.5	36.6	36.8	36.0	38.3	41.0	38.3	38.5	39.8	39.6	1.3
	Tertiary education	56.5	55.8	55.7	55.3	56.8	59.4	55.1	56.1	55.9	55.0	0.1
Germany	Below upper secondary	25.5	25.1	25.7	25.7	26.6	26.8	27.1	27.4	32.4	35.0	3.9
	Upper secondary and post-secondary non-tertiary	38.1	36.4	37.1	36.7	36.4	37.6	37.7	39.9	43.4	46.2	2.7
	Tertiary education	58.3	58.3	58.4	58.4	58.1	58.9	58.5	59.4	62.7	65.1	1.2
Greece	Below upper secondary	41.7	40.3	39.0	39.8	39.1	39.5	41.2	37.5	39.4	39.8	0.2
	Upper secondary and post-secondary non-tertiary	31.1	28.4	30.8	31.8	29.8	29.8	32.7	35.0	38.2	39.4	3.7
	Tertiary education	49.0	45.6	50.4	51.2	46.8	51.4	53.3	57.3	59.9	60.9	2.9
Hungary	Below upper secondary	12.2	10.7	11.3	12.5	12.7	12.0	13.3	14.0	15.8	16.2	5.7
	Upper secondary and post-secondary non-tertiary	22.9	22.7	26.2	29.3	31.6	35.6	37.7	38.4	39.0	38.7	6.8
	Tertiary education	46.9	43.9	49.5	52.2	53.4	53.5	57.5	60.0	59.9	55.6	3.3
Iceland	Below upper secondary	80.4	83.0	81.4	80.6	83.0	85.8	79.8	77.3	82.1	81.2	0.1
	Upper secondary and post-secondary non-tertiary	86.8	90.8	91.3	89.4	88.1	86.5	86.5	86.0	86.4	90.9	-0.9
	Tertiary education	92.7	94.3	96.6	90.8	89.7	91.7	92.6	90.1	89.1	84.6	-1.3
Ireland	Below upper secondary	35.9	37.3	37.7	40.8	40.7	41.2	42.1	42.7	44.5	45.7	2.8
	Upper secondary and post-secondary non-tertiary	41.3	42.9	47.2	48.7	53.0	53.7	54.1	54.6	56.2	59.1	2.9
	Tertiary education	65.2	65.2	69.4	66.6	66.5	67.6	69.5	68.5	70.3	70.0	0.2
Italy	Below upper secondary	m	23.1	22.6	22.5	21.7	22.8	23.2	23.6	23.6	24.1	0.7
	Upper secondary and post-secondary non-tertiary	m	41.1	40.3	40.6	40.4	41.6	42.4	42.5	43.6	44.5	1.3
	Tertiary education	m	62.3	60.7	58.3	59.4	62.2	63.9	64.6	66.7	66.0	1.6
Japan	Below upper secondary	59.1	59.5	59.7	59.2	59.7	m	m	m	m	m	a
	Upper secondary and post-secondary non-tertiary	62.3	62.7	62.3	61.4	62.2	60.1	60.5	61.7	61.7	63.0	a
	Tertiary education	73.6	72.5	72.7	71.8	69.3	70.4	70.1	70.2	72.2	71.2	-0.1
Korea	Below upper secondary	62.3	58.1	58.8	59.2	59.1	59.4	57.5	58.1	58.2	58.8	-0.2
	Upper secondary and post-secondary non-tertiary	66.6	55.5	53.6	53.4	53.6	57.1	57.0	57.9	59.2	59.7	1.7
	Tertiary education	73.4	71.5	63.8	56.5	63.5	66.1	61.1	62.1	60.9	61.1	-0.8
Luxembourg	Below upper secondary	m	m	16.7	16.3	13.8	17.4	20.2	20.4	21.5	22.8	4.4
	Upper secondary and post-secondary non-tertiary	m	m	31.5	33.0	29.0	29.2	36.1	30.3	29.8	31.5	-0.9
	Tertiary education	m	m	67.2	65.3	65.7	62.0	59.3	61.9	60.1	62.4	-1.8
Mexico	Below upper secondary	53.9	52.1	53.0	50.6	50.0	51.3	51.9	52.9	51.7	53.8	-0.4
	Upper secondary and post-secondary non-tertiary	53.3	46.1	53.8	47.7	50.6	50.0	47.9	50.0	45.7	51.5	-2.7
	Tertiary education	65.1	70.3	72.6	68.7	64.1	65.1	68.6	65.5	68.2	70.4	-1.0

OECD countries

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

StatLink http://dx.doi.org/10.1787/401775543762

Table A8.4. *(continued)*

Trends in employment rates among 55-to-64-year-olds, by educational attainment (1997-2006)

Number of 55-to-64-year-olds in employment as a percentage of the population aged 55 to 64, by level of educational attainment

			1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Growth rate 1999/2005
OECD countries	**Netherlands**	Below upper secondary	m	22.8	27.7	27.7	28.8	32.0	32.7	34.0	34.6	36.4	3.8
		Upper secondary and post-secondary non-tertiary	m	37.3	39.6	43.5	44.7	46.1	47.4	48.0	48.7	51.0	3.5
		Tertiary education	m	52.0	57.0	56.2	55.5	59.5	61.7	60.7	61.9	61.0	1.4
	New Zealand	Below upper secondary	44.3	45.7	47.7	48.9	52.2	53.3	55.7	58.1	61.2	61.4	4.2
		Upper secondary and post-secondary non-tertiary	64.2	64.5	64.8	65.0	69.4	72.9	72.2	74.2	75.2	78.4	2.5
		Tertiary education	69.1	68.9	68.2	66.9	70.8	72.3	72.2	76.6	78.4	79.3	2.3
	Norway	Below upper secondary	51.6	52.3	51.4	53.1	51.6	53.1	54.4	50.2	48.8	47.1	-0.9
		Upper secondary and post-secondary non-tertiary	69.7	69.6	69.7	68.1	69.1	69.0	69.1	67.4	70.2	69.8	0.1
		Tertiary education	85.9	85.6	86.4	86.2	85.4	86.0	84.8	85.1	84.7	83.8	-0.3
	Poland	Below upper secondary	32.2	29.6	28.1	24.9	24.2	22.3	24.0	23.1	23.2	22.4	-3.1
		Upper secondary and post-secondary non-tertiary	29.5	29.2	32.7	28.3	31.1	31.0	29.0	27.1	29.2	27.9	-1.9
		Tertiary education	56.5	59.1	59.2	51.4	53.6	53.6	52.6	53.4	55.4	53.5	-1.1
	Portugal	Below upper secondary	m	49.2	49.6	49.8	49.4	50.5	50.6	49.9	49.7	49.3	0.0
		Upper secondary and post-secondary non-tertiary	m	45.6	55.5	50.2	43.5	48.3	48.7	41.4	47.5	49.8	-2.6
		Tertiary education	m	61.9	62.7	69.4	68.5	62.2	61.6	62.2	61.2	59.5	-0.4
	Slovak Republic	Below upper secondary	10.6	10.7	8.8	6.7	6.7	6.9	8.8	4.7	5.9	7.8	-6.5
		Upper secondary and post-secondary non-tertiary	27.7	28.8	27.9	27.0	26.8	27.2	27.9	30.9	33.6	34.3	3.2
		Tertiary education	60.1	61.9	59.1	54.0	56.2	51.7	55.0	51.6	54.2	59.7	-1.4
	Spain	Below upper secondary	30.7	31.3	31.4	33.1	35.0	35.3	36.4	36.4	37.8	38.1	3.1
		Upper secondary and post-secondary non-tertiary	44.0	49.1	49.2	50.7	48.9	48.6	48.3	47.5	50.7	52.7	0.5
		Tertiary education	62.1	65.1	61.9	63.8	66.9	68.4	67.5	67.8	64.7	66.1	0.7
	Sweden	Below upper secondary	55.7	54.9	55.1	56.5	58.5	59.1	59.5	60.5	58.6	60.3	1.0
		Upper secondary and post-secondary non-tertiary	64.7	65.4	66.0	65.9	67.3	68.6	68.7	69.0	69.5	69.6	0.9
		Tertiary education	76.6	76.3	76.4	79.3	80.0	80.9	81.8	81.3	83.1	81.1	1.4
	Switzerland	Below upper secondary	53.7	51.8	53.0	47.5	54.3	53.5	52.8	51.0	51.2	49.6	-0.6
		Upper secondary and post-secondary non-tertiary	65.2	65.7	65.2	66.9	68.4	63.8	66.2	65.9	65.4	65.6	0.0
		Tertiary education	77.1	80.7	82.2	77.9	80.7	79.6	79.5	79.4	79.3	79.5	-0.6
	Turkey	Below upper secondary	43.1	44.0	41.4	37.7	38.5	37.3	34.5	35.5	33.3	33.4	-3.6
		Upper secondary and post-secondary non-tertiary	24.3	28.3	25.1	19.6	20.0	23.7	20.1	25.5	25.7	21.0	0.4
		Tertiary education	44.6	41.3	42.1	37.4	36.7	38.3	33.9	34.3	35.3	35.5	-2.9
	United Kingdom	Below upper secondary	49.0	49.6	49.9	50.6	51.9	53.0	56.6	56.1	55.2	59.9	1.7
		Upper secondary and post-secondary non-tertiary	60.1	61.7	62.9	63.9	64.3	65.3	67.4	68.3	69.6	71.8	1.7
		Tertiary education	65.6	63.8	66.1	65.9	70.3	68.8	71.0	70.9	72.3	74.7	1.5
	United States	Below upper secondary	40.5	42.2	40.3	40.4	40.9	40.5	41.8	39.9	39.4	41.5	-0.4
		Upper secondary and post-secondary non-tertiary	58.1	58.1	57.9	57.7	57.9	57.8	58.1	58.0	58.0	59.4	0.0
		Tertiary education	69.8	69.3	70.2	69.7	70.4	70.2	70.3	71.4	72.2	71.9	0.5
	OECD average	***Below upper secondary***	***38.6***	***37.6***	***37.1***	***37.3***	***37.8***	***37.8***	***38.9***	***38.3***	***39.2***	***40.2***	***0.9***
		Upper secondary and post-secondary non-tertiary	***47.4***	***46.9***	***47.7***	***47.3***	***48.0***	***49.0***	***49.6***	***50.0***	***51.2***	***52.4***	***1.2***
		Tertiary education	***63.8***	***63.5***	***64.6***	***63.4***	***64.0***	***64.3***	***64.4***	***64.8***	***65.7***	***65.9***	***0.3***
	EU19 average	***Below upper secondary***	***29.0***	***29.5***	***29.2***	***29.7***	***30.0***	***30.8***	***32.4***	***31.8***	***32.9***	***34.1***	***2.0***
		Upper secondary and post-secondary non-tertiary	***38.5***	***39.9***	***41.4***	***41.4***	***41.8***	***42.9***	***43.9***	***43.9***	***45.7***	***46.9***	***1.7***
		Tertiary education	***58.9***	***59.3***	***61.3***	***60.7***	***61.4***	***61.3***	***61.6***	***62.1***	***63.1***	***63.5***	***0.5***
Partner countries	**Estonia**	Below upper secondary	m	m	m	m	m	29.4	34.2	33.4	36.3	40.9	
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	52.7	52.9	52.0	53.4	57.3	
		Tertiary education	m	m	m	m	m	67.6	65.4	66.9	73.9	72.9	
	Israel	Below upper secondary	m	m	m	m	m	31.7	32.7	30.1	31.8	32.5	
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	54.6	52.5	52.7	52.3	56.2	
		Tertiary education	m	m	m	m	m	62.4	65.4	66.9	67.7	69.8	
	Slovenia	Below upper secondary	m	m	m	m	m	21.8	19.9	24.8	26.7	29.6	
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	21.1	19.5	25.7	26.9	27.6	
		Tertiary education	m	m	m	m	m	45.1	47.8	49.5	50.7	55.1	

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

StatLink http://dx.doi.org/10.1787/401775543762

Table A8.5a.

Trends in unemployment rates by educational attainment (1997-2006)

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

		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Australia	Below upper secondary	9.6	9.0	8.4	7.5	7.6	7.5	7.0	6.2	6.3	5.6
	Upper secondary and post-secondary non-tertiary	6.1	5.8	5.1	4.5	4.7	4.3	4.3	3.9	3.4	3.8
	Tertiary education	3.5	3.3	3.4	3.6	3.1	3.3	3.0	2.8	2.5	2.3
Austria	Below upper secondary	6.7	6.9	6.1	6.3	6.4	6.9	7.9	7.8	8.6	7.9
	Upper secondary and post-secondary non-tertiary	3.4	3.6	3.2	3.0	3.0	3.4	3.4	3.8	3.9	3.7
	Tertiary education	2.5	2.0	1.9	1.6	1.5	1.9	2.0	2.9	2.6	2.5
Belgium	Below upper secondary	12.5	13.1	12.0	9.8	8.5	10.3	10.7	11.7	12.4	12.3
	Upper secondary and post-secondary non-tertiary	6.7	7.4	6.6	5.3	5.5	6.0	6.7	6.9	6.9	6.7
	Tertiary education	3.3	3.2	3.1	2.7	2.7	3.5	3.5	3.9	3.7	3.7
Canada	Below upper secondary	12.9	11.9	10.8	10.2	10.5	11.0	10.9	10.2	9.8	9.3
	Upper secondary and post-secondary non-tertiary	8.1	7.5	6.7	5.9	6.3	6.7	6.5	6.2	5.9	5.6
	Tertiary education	5.4	4.7	4.5	4.1	4.7	5.1	5.2	4.8	4.6	4.1
Czech Republic	Below upper secondary	12.1	14.5	18.8	19.3	19.2	18.8	18.3	23.0	24.4	22.3
	Upper secondary and post-secondary non-tertiary	3.4	4.6	6.5	6.7	6.2	5.6	6.0	6.4	6.2	5.5
	Tertiary education	1.2	1.9	2.6	2.5	2.0	1.8	2.0	2.0	2.0	2.2
Denmark	Below upper secondary	m	7.0	7.0	6.9	6.2	6.4	6.7	8.2	6.5	5.5
	Upper secondary and post-secondary non-tertiary	m	4.6	4.1	3.9	3.7	3.7	4.4	4.8	4.0	2.7
	Tertiary education	m	3.3	3.0	3.0	3.6	3.9	4.7	4.4	3.7	3.2
Finland	Below upper secondary	15.6	13.8	13.1	12.1	11.4	12.2	11.1	11.3	10.7	10.1
	Upper secondary and post-secondary non-tertiary	11.9	10.6	9.5	8.9	8.5	8.8	8.7	7.9	7.4	7.0
	Tertiary education	6.5	5.8	4.7	4.7	4.4	4.5	4.2	4.5	4.4	3.7
France	Below upper secondary	15.0	14.9	15.3	13.9	11.9	11.8	10.4	10.6	11.1	11.0
	Upper secondary and post-secondary non-tertiary	9.6	9.6	9.2	7.9	6.9	6.8	6.6	6.7	6.5	6.6
	Tertiary education	7.0	6.6	6.1	5.1	4.8	5.2	5.3	5.7	5.4	5.1
Germany	Below upper secondary	16.7	16.5	15.6	13.7	13.5	15.3	18.0	20.4	20.2	19.9
	Upper secondary and post-secondary non-tertiary	10.1	10.3	8.6	7.8	8.2	9.0	10.2	11.2	11.0	9.9
	Tertiary education	5.7	5.5	4.9	4.0	4.2	4.5	5.2	5.6	5.5	4.8
Greece	Below upper secondary	6.5	7.5	8.4	8.0	7.7	7.4	7.1	8.2	8.2	7.2
	Upper secondary and post-secondary non-tertiary	9.6	10.7	11.4	11.3	10.2	10.1	9.5	10.0	9.3	8.7
	Tertiary education	7.3	6.3	7.8	7.4	6.9	6.7	6.1	7.2	7.0	6.1
Hungary	Below upper secondary	12.6	11.4	11.1	9.9	10.0	10.5	10.6	10.8	12.4	14.8
	Upper secondary and post-secondary non-tertiary	6.9	6.2	5.8	5.3	4.6	4.4	4.8	5.0	6.0	6.1
	Tertiary education	1.7	1.7	1.4	1.3	1.2	1.5	1.4	1.9	2.3	2.2
Iceland	Below upper secondary	4.4	3.2	2.0	2.6	2.6	3.2	3.3	2.5	2.3	2.5
	Upper secondary and post-secondary non-tertiary	2.7	c	c	c	c	c	c	c	c	c
	Tertiary education	c	c	c	c	c	c	c	c	c	c
Ireland	Below upper secondary	14.5	11.6	9.2	5.6	5.2	5.9	6.3	6.1	6.0	5.7
	Upper secondary and post-secondary non-tertiary	6.5	4.5	3.5	2.3	2.4	2.8	2.9	3.0	3.1	3.2
	Tertiary education	4.0	3.0	1.7	1.6	1.8	2.2	2.6	2.2	2.0	2.2
Italy	Below upper secondary	m	10.8	10.6	10.0	9.2	9.0	8.8	8.2	7.8	6.9
	Upper secondary and post-secondary non-tertiary	m	8.1	7.9	7.2	6.6	6.4	6.1	5.4	5.2	4.6
	Tertiary education	m	6.9	6.9	5.9	5.3	5.3	5.3	5.3	5.7	4.8
Japan	Below upper secondary	3.9	4.4	5.6	5.9	5.9	m	m	m	m	m
	Upper secondary and post-secondary non-tertiary	3.4	3.3	4.5	4.6	4.8	5.6	5.7	5.1	4.9	4.6
	Tertiary education	2.3	2.7	3.3	3.4	3.2	3.8	3.7	3.4	3.1	3.0
Korea	Below upper secondary	1.4	6.0	5.4	3.7	3.1	2.2	2.2	2.6	2.9	2.6
	Upper secondary and post-secondary non-tertiary	2.4	6.8	6.4	4.1	3.6	3.0	3.3	3.5	3.8	3.5
	Tertiary education	2.3	4.9	4.7	3.6	3.5	3.2	3.1	2.9	2.9	2.9
Luxembourg	Below upper secondary	m	m	3.4	3.1	1.7	3.8	3.3	5.7	5.1	4.9
	Upper secondary and post-secondary non-tertiary	m	m	1.1	1.4	1.0	1.2	2.6	3.7	3.2	3.8
	Tertiary education	m	m	c	c	c	1.8	4.0	3.2	3.2	2.9
Mexico	Below upper secondary	2.6	2.3	1.5	1.5	1.6	1.7	1.8	2.2	2.3	2.2
	Upper secondary and post-secondary non-tertiary	4.4	3.3	2.5	2.2	2.3	2.3	2.2	3.0	3.1	2.6
	Tertiary education	2.8	3.1	3.5	2.4	2.5	3.0	3.0	3.7	3.7	2.9

OECD countries

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

StatLink http://dx.doi.org/10.1787/401775543762

A8

Table A8.5a. *(continued)*

Trends in unemployment rates by educational attainment (1997-2006)

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

			1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
OECD countries	**Netherlands**	Below upper secondary	m	0.9	4.3	3.9	2.9	3.0	4.5	5.5	5.8	4.8
		Upper secondary and post-secondary non-tertiary	m	1.7	2.3	2.3	1.6	2.0	2.8	3.8	4.1	3.5
		Tertiary education	m	c	1.7	1.9	1.2	2.1	2.5	2.8	2.8	2.3
	New Zealand	Below upper secondary	7.3	8.5	7.4	6.4	5.6	4.8	4.2	3.6	3.3	3.1
		Upper secondary and post-secondary non-tertiary	4.3	5.0	4.8	3.8	3.7	3.5	3.3	2.2	2.1	2.2
		Tertiary education	3.5	4.0	3.6	3.3	2.7	3.2	3.0	2.6	2.2	2.4
	Norway	Below upper secondary	4.0	2.9	2.5	2.2	3.4	3.4	3.9	4.0	7.3	4.7
		Upper secondary and post-secondary non-tertiary	3.1	2.4	2.5	2.6	2.7	2.9	3.6	3.8	2.6	2.1
		Tertiary education	1.7	1.5	1.4	1.9	1.7	2.1	2.5	2.4	2.1	1.8
	Poland	Below upper secondary	10.5	9.8	13.9	17.7	20.0	22.4	22.4	22.4	21.4	16.5
		Upper secondary and post-secondary non-tertiary	10.8	10.2	8.6	11.3	12.9	14.3	14.5	14.2	13.7	10.6
		Tertiary education	2.1	2.5	3.1	4.3	5.0	6.3	6.6	6.2	6.2	5.0
	Portugal	Below upper secondary	m	4.4	4.0	3.6	3.6	4.4	5.7	6.4	7.5	7.6
		Upper secondary and post-secondary non-tertiary	m	5.1	4.4	3.5	3.3	4.3	5.1	5.6	6.7	7.1
		Tertiary education	m	2.8	3.0	2.7	2.8	3.9	4.9	4.4	5.4	5.4
	Slovak Republic	Below upper secondary	22.4	24.3	30.3	36.3	38.7	42.3	44.9	47.7	49.2	44.0
		Upper secondary and post-secondary non-tertiary	8.5	8.8	11.9	14.3	14.8	14.2	13.5	14.6	12.7	10.0
		Tertiary education	2.8	3.3	4.0	4.6	4.2	3.6	3.7	4.8	4.4	2.6
	Spain	Below upper secondary	18.9	17.0	14.7	13.7	10.2	11.2	11.3	11.0	9.3	9.0
		Upper secondary and post-secondary non-tertiary	16.8	15.3	12.9	10.9	8.4	9.4	9.5	9.4	7.3	6.9
		Tertiary education	13.7	13.1	11.1	9.5	6.9	7.7	7.7	7.3	6.1	5.5
	Sweden	Below upper secondary	11.9	10.4	9.0	8.0	5.9	5.8	6.1	6.5	8.5	7.3
		Upper secondary and post-secondary non-tertiary	9.4	7.8	6.5	5.3	4.6	4.6	5.2	5.8	6.0	5.1
		Tertiary education	5.2	4.4	3.9	3.0	2.6	3.0	3.9	4.3	4.5	4.2
	Switzerland	Below upper secondary	6.2	5.6	5.0	5.0	3.7	4.2	5.9	6.9	7.2	7.6
		Upper secondary and post-secondary non-tertiary	3.0	2.8	2.3	2.0	1.9	2.3	3.1	3.6	3.6	3.2
		Tertiary education	4.4	2.8	1.7	1.3	1.3	2.2	2.9	2.8	2.7	2.2
	Turkey	Below upper secondary	4.4	4.4	5.3	4.6	6.7	8.5	8.8	8.1	8.7	8.3
		Upper secondary and post-secondary non-tertiary	6.3	6.6	8.2	5.5	7.4	8.7	7.8	10.1	9.2	9.0
		Tertiary education	3.9	4.8	5.1	3.9	4.7	7.5	6.9	8.2	6.9	6.9
	United Kingdom	Below upper secondary	8.6	7.7	7.4	6.7	5.9	6.3	5.4	5.2	4.9	5.7
		Upper secondary and post-secondary non-tertiary	5.6	4.5	4.6	4.2	3.4	3.7	3.5	3.4	2.8	4.0
		Tertiary education	2.9	2.6	2.7	2.1	2.0	2.4	2.4	2.3	2.0	2.2
	United States	Below upper secondary	10.4	8.5	7.7	7.9	8.1	10.2	9.9	10.5	9.0	8.3
		Upper secondary and post-secondary non-tertiary	4.8	4.5	3.7	3.6	3.8	5.7	6.1	5.6	5.1	4.6
		Tertiary education	2.3	2.1	2.1	1.8	2.1	3.0	3.4	3.3	2.6	2.5
	OECD average	***Below upper secondary***	***10.1***	***9.3***	***9.2***	***8.9***	***8.6***	***9.3***	***9.6***	***10.1***	***10.3***	***9.6***
		Upper secondary and post-secondary non-tertiary	***6.7***	***6.5***	***6.0***	***5.6***	***5.4***	***5.7***	***5.9***	***6.2***	***5.8***	***5.4***
		Tertiary education	***4.1***	***4.0***	***3.8***	***3.5***	***3.3***	***3.7***	***4.0***	***4.1***	***3.9***	***3.5***
	EU19 average	***Below upper secondary***	***13.2***	***11.3***	***11.3***	***11.0***	***10.4***	***11.2***	***11.5***	***12.5***	***12.6***	***11.8***
		Upper secondary and post-secondary non-tertiary	***8.5***	***7.4***	***6.8***	***6.5***	***6.1***	***6.4***	***6.6***	***6.9***	***6.6***	***6.1***
		Tertiary education	***4.7***	***4.4***	***4.1***	***3.8***	***3.5***	***3.8***	***4.1***	***4.3***	***4.1***	***3.7***
Partner countries	**Estonia**	Below upper secondary	m	m	m	m	m	19.0	14.8	15.4	13.0	11.7
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	10.5	9.5	9.5	8.4	5.7
		Tertiary education	m	m	m	m	m	5.8	6.5	5.0	3.8	3.2
	Israel	Below upper secondary	m	m	m	m	m	14.0	15.2	15.6	14.0	12.8
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	9.8	10.3	10.6	9.5	8.7
		Tertiary education	m	m	m	m	m	6.4	6.4	6.1	5.1	4.5
	Slovenia	Below upper secondary	m	m	m	m	m	8.4	8.7	8.4	8.7	7.0
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	5.2	5.5	5.3	5.7	5.6
		Tertiary education	m	m	m	m	m	2.3	3.0	2.8	3.0	3.0

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

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INDICATOR A9

WHAT ARE THE ECONOMIC BENEFITS OF EDUCATION?

This indicator examines the relative earnings of workers with different levels of educational attainment in 25 OECD countries and the partner countries Israel and Slovenia. It also presents data on the distribution of pre-tax earnings at five ISCED levels of educational attainment to help show how returns to education vary within countries among individuals with comparable levels of educational attainment.

Key results

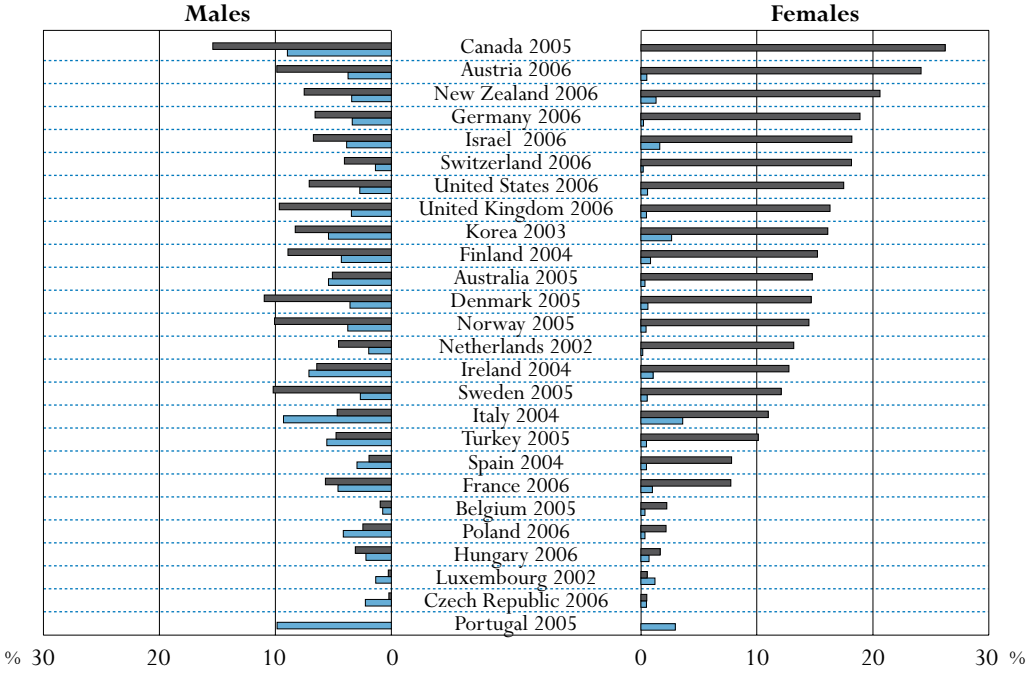
Chart A9.1. Share of 25-to-64-year-olds with lower education and high earnings and vice versa (2006 or latest available year)

This chart shows the proportion of the tertiary-educated population with low earnings and the proportion of the population with education below the upper secondary level and with high earnings (2006 or latest available year).

25-to-64-year-olds with tertiary education and earnings amounting to one half of the country median or less

25-to-64-year-olds with below upper secondary education and earnings amounting to twice the country median or more

Although education generally leads to substantial earnings advantages, this is not the case for all individuals. The share of individuals with tertiary education who earn substantially less than the median varies among countries; this is typically explained by part-time or part-year work but nevertheless may send the wrong signal from an educational perspective. Females with tertiary education are more disadvantaged than males in terms of realising low earnings; in Austria, Canada and New Zealand, 20% or more of the female population earn less than half the median. While males are less likely to have low earnings, more than 10% earn less than half of the median in Canada, Denmark, Norway and Sweden. This dispersion in educational outcomes provides an indication of the overall investment risk associated with higher education.



Countries are ranked in descending order of the share of 25-to-64-year-old females with tertiary education and earnings amounting to one half of the country median or less.

Source: OECD. Tables A9.4b and A9.4c on line. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

StatLink http://dx.doi.org/10.1787/401781614508

Other highlights of this indicator

- Earnings increase with each level of education. Those who have attained upper secondary, post-secondary non-tertiary or tertiary education enjoy substantial earnings advantages compared with those of the same gender who have not completed upper secondary education. The earnings premium for those with tertiary education has generally not deteriorated in recent years, and in Germany, Hungary, and Italy it has increased substantially.

- The educational earnings advantage increases with age. The difference in relative earnings generally rises for 55-to-64-year-olds with a tertiary education compared to the total population (25-to-64-year-olds). For those with below upper secondary education the earnings disadvantage increases at an older age in all countries but Finland, Germany and New Zealand.

- With few exceptions, females earn less than males with similar levels of educational attainment. For all levels of education, average earnings of females between the ages of 30 and 44 range from 51% of those of males in Korea to 89% in Slovenia.

- There are significant differences among countries in the dispersion of earnings among individuals with similar levels of educational attainment. The proportion of individuals with tertiary-type A and advanced research programmes in the lowest earnings category (at or below half of the median) varies from 0% in Luxembourg and Portugal to 18% in Canada. Countries also differ in the shares of males and females in the upper and lower categories of earnings.

A9

Policy context

One way in which markets provide incentives for individuals to develop and maintain appropriate skills is through wage differentials, in particular through the higher earnings of persons with higher levels of education. At the same time, education involves costs that must be balanced against these higher earnings. This indicator examines relative earnings associated with different levels of education and the variation in these earnings.

The dispersion in earnings among groups at different levels of educational attainment provides information about the risk associated with investing in education. Relative earnings offer information on what a typical student can, on average, expect to earn after completing a degree or educational programme. The dispersion in earnings provides a more nuanced picture by giving a range of possible outcomes for different educational attainment levels.

The dispersion of earnings is relevant for policies that support attainment of higher levels of education. Evidence suggests that some individuals may receive relatively low returns to investments in education, that is, they earn relatively low wages in spite of relatively high levels of educational attainment. Policy makers may need to consider the characteristics of education programmes that appear to generate low rates of return for some people or the characteristics of individuals in such programmes, such as their gender, time in the labour force, or occupation.

Evidence and explanations

Education and earnings

Earnings differentials according to educational attainment

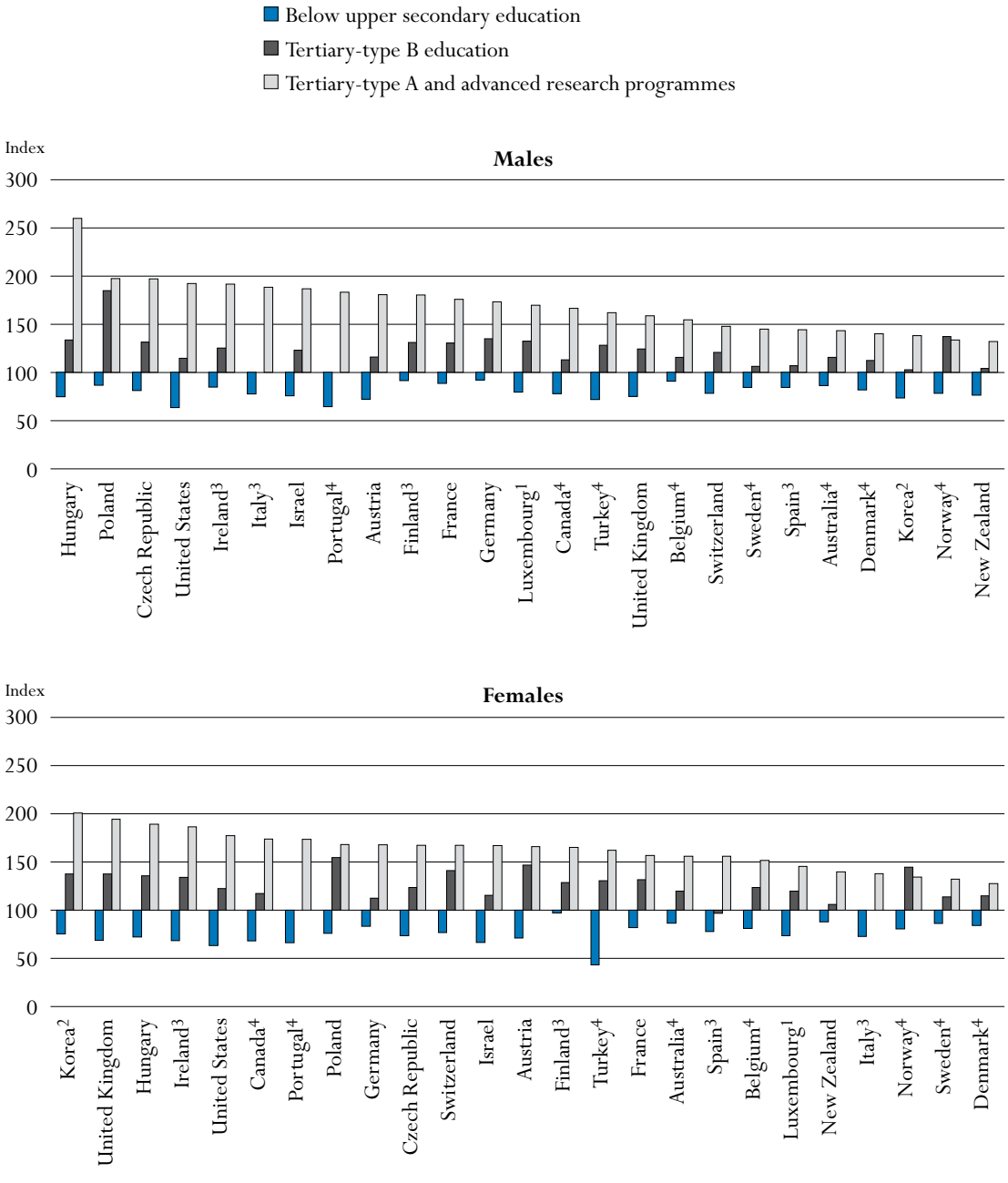
Earnings differentials are key measures of the financial incentives for an individual to invest in further education. They may also reflect differences in the supply of educational programmes at different levels (or barriers to access to those programmes). The earnings benefit of completing tertiary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

Chart A9.2 shows a strong positive relationship between educational attainment and average earnings. In all countries, graduates of tertiary education earn more overall than upper secondary and post-secondary non-tertiary graduates. Earnings differentials between those with tertiary education – especially tertiary-type A and advanced research programmes– and those with upper secondary education are generally more pronounced than the differentials between upper secondary and lower secondary or below. This suggests that in many countries, upper secondary (and, with a small number of exceptions, post-secondary non-tertiary) education forms a dividing line beyond which additional education attracts a particularly high premium. As private investment costs beyond upper secondary education typically rise considerably in most countries, a high premium assures an adequate supply of individuals willing to invest time and money in further education.

A9

Chart A9.2. Relative earnings from employment (2006)

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



1. Year of reference 2002.
2. Year of reference 2003.
3. Year of reference 2004.
4. Year of reference 2005.

Countries are ranked in descending order of the relative earnings of the population with a tertiary-type A (including advanced research programmes) level of educational attainment.

Source: OECD. Table A9.1a. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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Males with a degree from a tertiary-type A or advanced research programme have a substantial earnings premium in the Czech Republic, Hungary and Poland that is close to or more than 100%. In Korea and United Kingdom females have a similar advantage. Females with below secondary education are particularly disadvantaged in Canada, Israel, Turkey, the United Kingdom and the United States, as are males in Portugal and the United States. Table A9.1a shows that the earnings premium for 25-to-64-year-olds with tertiary education, relative to those with upper secondary education, ranges from 15% in New Zealand to 119% in Hungary.

The relative earnings premium for those with tertiary education has been on the rise in most countries over the past ten years, indicating that the demand for more educated individuals still exceeds supply in most countries (Table A9.2a). In Germany, Hungary, Ireland and Italy, the earnings premium has increased substantially during this period. In these countries tertiary attainment levels are low compared to the OECD average, particularly in view of the proportion of the population working in skilled jobs (see Indicator A1).

Some countries have seen a decline in the earnings premium over the past ten years. Spain, but also New Zealand, have seen a marginal decrease in the earnings premiums for those with tertiary education. Whether this is an indication of weakening demand or whether these figures reflect the fact that younger tertiary educated individuals with relatively low starting salaries have entered the labour market, is difficult to know.

Education and earnings at an older age

Table A9.1a also shows how relative earnings vary with age. The difference in relative earnings for those with a tertiary education at age 55 to 64 compared with the total population (25-64-year-olds) is generally larger; on average, the earnings differential increases with 14 index points. These benefits of education are shown in Chart A9.3. While employment opportunities at an older age improve for those with tertiary education in most countries (see Indicator A8), the earnings advantages also increase. In all countries except Australia, Canada, the Netherlands, Turkey and the United Kingdom. Earnings increase for 55-to-64-year-olds is more frequent for those with tertiary education than for those with below upper secondary education.

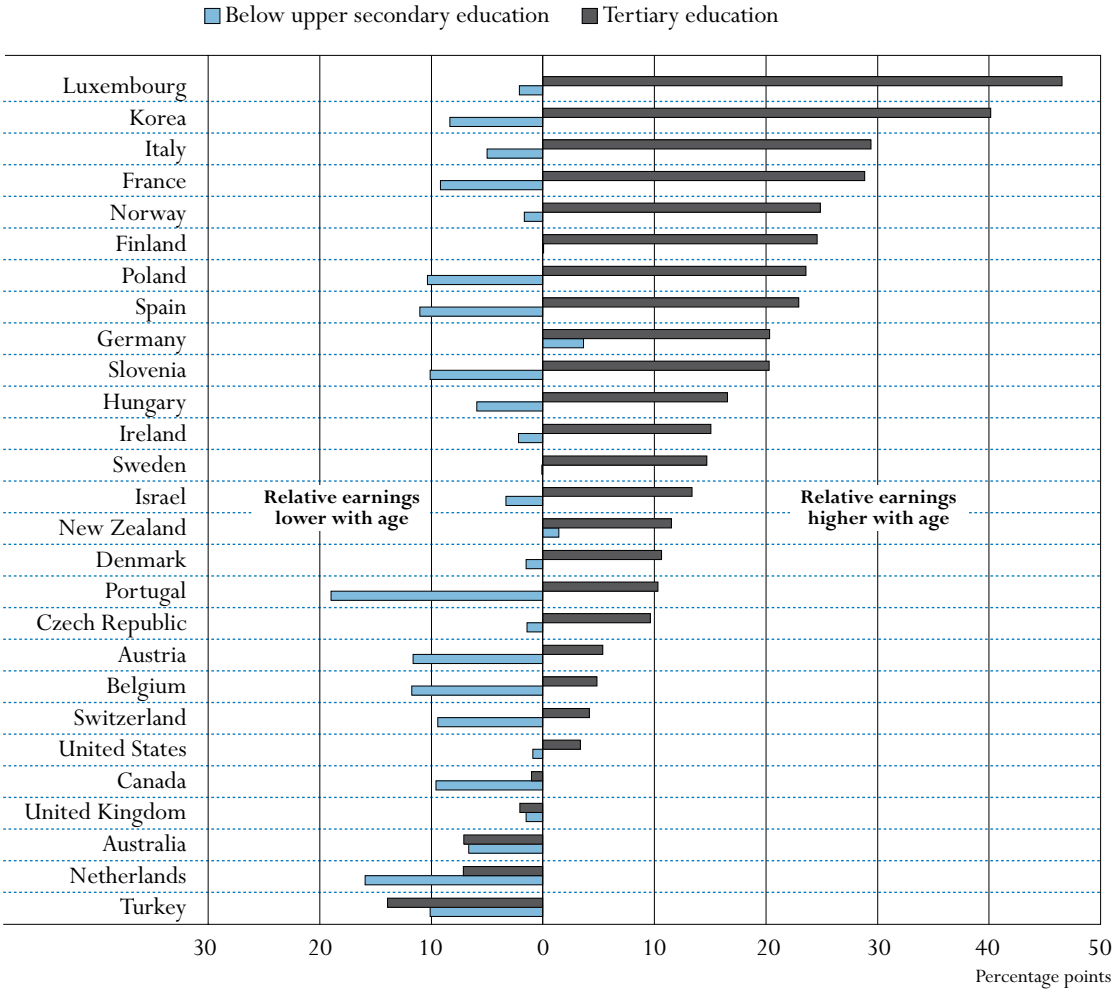
For those with below upper secondary education the earnings disadvantage increases with age in all countries but Finland, Germany and New Zealand. The increasing earnings disadvantage at an older age for those with below upper secondary education is less marked than the earnings advantage for those with a tertiary education, which indicates that tertiary education is a key to higher earnings at an older age. In most countries, then, tertiary education not only increases the prospect of being employed at an older age but also keeps improving earnings and productivity differentials through to the end of working life.

Education and gender disparity in earnings

For 25-to-64-year-olds, financial rewards from tertiary education benefit females more than males in Australia, Austria, Canada, Korea, the Netherlands, New Zealand, Norway, Spain, Switzerland and the United Kingdom. The reverse is true in the remaining countries, with the exception of Turkey, where – relative to upper secondary education – the earnings of males and females are equally enhanced by tertiary education (Table A9.1a).

Chart A9.3. Difference in relative earnings for the 55-to-64-year-old population and total population (25-to-64-year-olds)

Earnings relative to upper secondary and post-secondary non-tertiary education



Countries are ranked in descending order of the difference in relative earnings for the 55-to-64-year-old population and total population (25-to-64-year-olds) at the tertiary level of education.

Source: OECD. Table A9.1a. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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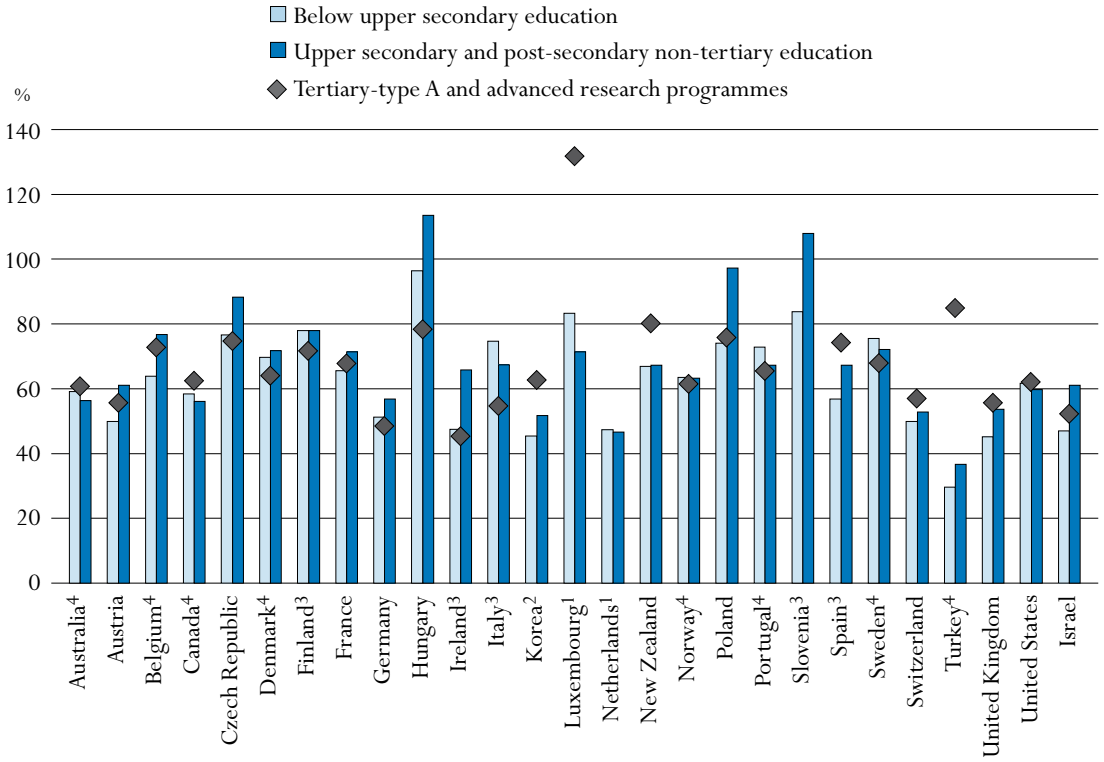
Both males and females with upper secondary, post-secondary non-tertiary or tertiary attainment have substantial earnings advantages (compared with those of the same gender who do not complete upper secondary education), but earnings differentials between males and females with the same educational attainment remain substantial. In all countries, considering all levels of educational attainment, females in the 30-to-44-year-old age group earn less than their male counterparts (Table A9.1b). For all levels of education taken together (*i.e.* dividing total earnings by the total number of income earners, by gender), average earnings of females between the ages of 30 and 44 range from 51% of those of males in Korea to 89% in Slovenia.

This relative differential must be interpreted with caution, however, since in most countries earnings data include part-time work, which is often a major characteristic of female employment and is likely to vary significantly from one country to another. In Luxembourg, Hungary and Poland, where part-time work and part-year earnings are excluded from the calculations, earnings of females between the ages of 30 and 44 reach 84, 86 and 78%, respectively, of those of males.

Chart A9.4. Differences in earnings between females and males (2006 or latest available year)

Average earnings of females as a percentage of average earnings of males (55-to-64 age group), by level of educational attainment



1. Year of reference 2002.
2. Year of reference 2003.
3. Year of reference 2004.
4. Year of reference 2005.

Notes: 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.

Source: OECD. Table A9.1b. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

StatLink http://dx.doi.org/10.1787/401781614508

The gap in earnings between males and females presented in Chart A9.4 is due in part to differences in occupations, in the amount of time spent in the labour force, and in the incidence of part-time work. However, among 55-to-64-year-olds, the gap between male and female earnings widens in most countries. Notable exceptions are females with an upper secondary and post-secondary non-tertiary education in Hungary, Poland and Slovenia who earn as much or more than males, and females with a tertiary-type A education or a degree from an advanced research programme in Luxembourg who earn over 30% more than their male colleagues.

While the overall earnings gap between males and females is generally more pronounced for the oldest age cohort, the earnings differentials between males and females in general have narrowed in some countries in recent years (Table A9.3). The most noticeable changes have taken place for females with lower upper secondary education in Hungary, New Zealand and the United States where the earnings gap has closed by more than 10 percentage points over the past decade.

The distribution of earnings within levels of educational attainment

Data on the distribution of levels of earnings among different educational groups can show how tightly earnings are distributed around the country median. Apart from providing information on equity in earnings, they give information about the risks associated with investing in education. As such, the distribution of earnings complements relative earnings by giving information on how these average earnings are distributed within educational groups.

Tables A9.4a, A9.4b and A9.4c show the distributions of earnings among 25-to-64-year-olds for 25 OECD countries and the partner economy Israel among individuals with a given level of educational attainment. Distributions are given for the combined male and female populations, as well as for males and females separately. The five earnings categories range from "At or below one-half of the median" to "More than twice the median". Tables A9.4b and A9.4c (on line) also present the distribution of earnings among males and females relative to the median of the entire adult population with earnings from work.

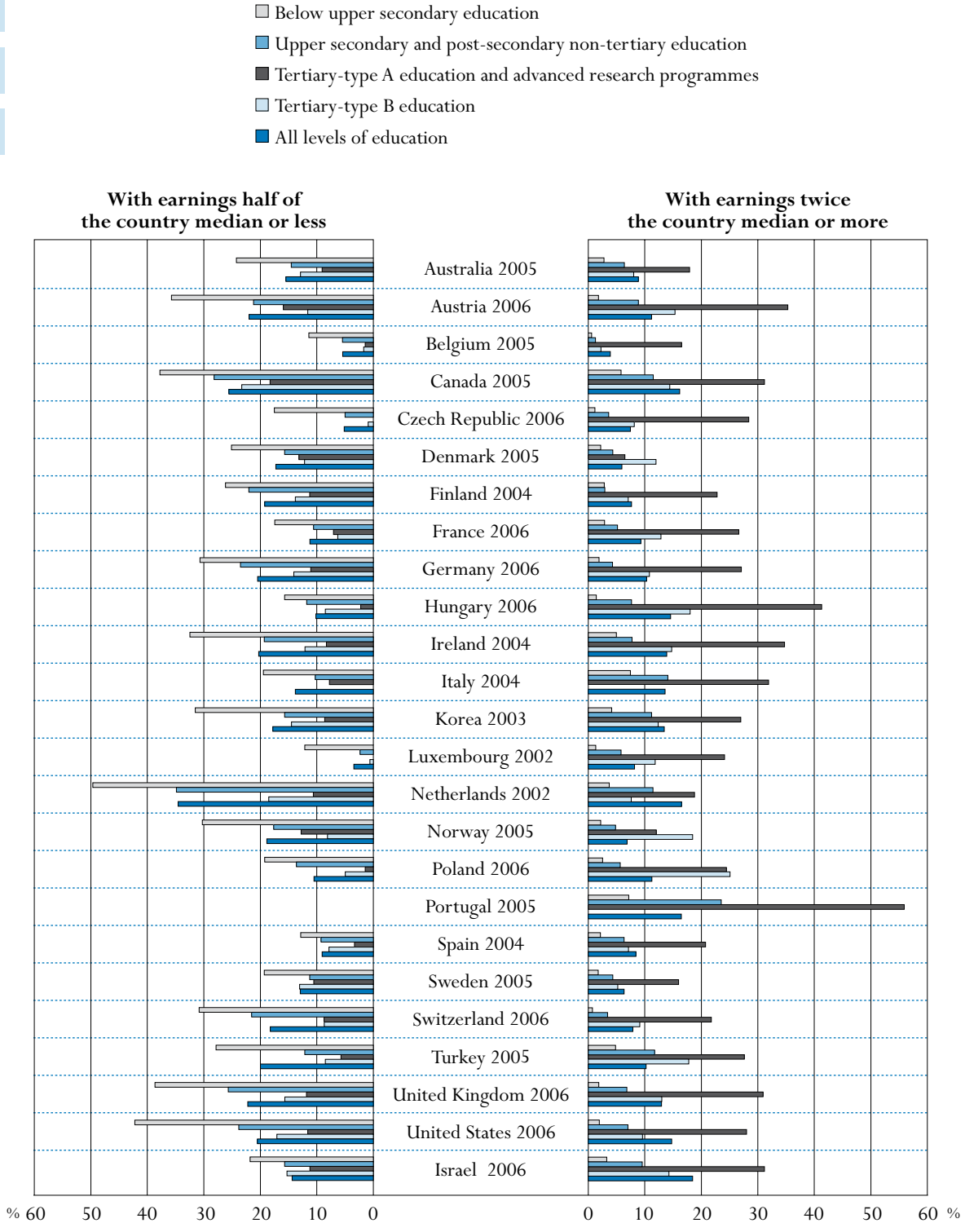
Indicators based on average earnings do not reveal the range of earnings of individuals with a given level of educational attainment. Chart A9.1 shows that substantial proportions of those with tertiary education, particularly among females, earn half of the country median or less. A large part of the low earnings among the higher educated is typically explained by part-time or part-year work. For countries reporting only full-time and full-year earnings, substantially less of the tertiary educated population has low earnings and the disadvantage for females is eliminated. Whether part-time or part-year work is voluntary or involuntary matters for how to act on these results, but from a societal perspective low earnings or low labour participation both indicate less efficient allocation and utilisation of investments in human capital.

Table A9.4a and Chart A9.5 show that in most countries the share of individuals in the lowest earnings categories falls as the level of educational attainment rises. This result is another way of viewing the well-established positive relationship between earnings and educational attainment. Nonetheless, individuals with higher levels of education are still found in the lower earnings categories in most countries; this suggests that there is a substantial risk associated with investing in tertiary education. The proportion of individuals with the highest educational attainment (tertiary-type A and advanced research programmes) in the lowest earnings category (at or below half of the median) varies from 0% in Luxembourg and Portugal to 18% in Canada.

Across all levels of education, Belgium, the Czech Republic, Luxembourg and Portugal have no or relatively few individuals with earnings either at or below one-half the median. Not surprisingly, a more equal distribution of earnings is generally associated with lower earnings differentials for those with tertiary education but this only explains a portion of a country's earnings inequalities. Factors other than investment in human capital (measured by educational levels) appear to be more important in explaining countries' overall wage structure.

A9

Chart A9.5. Share of 25-to-64-year-olds in earnings categories, by level of educational attainment (2006 or latest year available)



Source: OECD. Table A9.4a. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).
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The interpretation of earnings dispersion data

Factors ranging from differences in institutional arrangements to variations in individual abilities are likely to determine the extent of the dispersion of earnings among individuals of similar educational attainment. At an institutional level, countries in which wage setting is more centralised would tend to have less dispersion, owing to a degree of convergence between occupational status and educational attainment. More broadly, the dispersion of earnings also reflects the fact that educational attainment cannot be fully equated with proficiency and skills. Skills other than those related to educational attainment, as well as experience, are also rewarded in the labour market. Differences in the scale and operation of training systems for adult learners also influence national patterns of dispersion, as do recruitment considerations that are not related to skills, such as gender, race or age discrimination (and consequently the relative effectiveness of national legislative frameworks in countering such problems).

More generally, there are gaps in our understanding of what determines earnings. Research in the United States has shown that for individuals of the same race and sex, over one-half of the variance in earnings is not explained by quantifiable factors such as years of schooling, age, duration of labour market experience, or indeed the schooling, occupation and income of their parents. Some research on the determinants of earnings has highlighted the importance that employers give to so-called non-cognitive skills – such as persistence, reliability and self-discipline – and raises the need for policy-oriented research on the role of education systems, and particularly early childhood education, in developing and signalling such skills.

Definitions and methodologies

Earnings data in Table A9.1a are based on an annual reference period in Austria, Canada, the Czech Republic, Denmark, Finland, Ireland, Italy, Korea, Luxembourg, Norway, Portugal, Spain, Sweden, Turkey and the United States. Earnings are reported weekly in Australia, New Zealand and the United Kingdom, and monthly in Belgium, France, Germany, Hungary, Poland and Switzerland, and the partner country Israel. Data on earnings are before income tax, while earnings for Belgium, Korea and Turkey are net of income tax. 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.

The earnings data shown in this indicator differ across countries in a number of ways. The results should therefore be interpreted with caution. In particular, in countries reporting annual earnings, differences in the incidence of seasonal work among individuals with different levels of educational attainment will have an effect on relative earnings that is not reflected in the data for countries reporting weekly or monthly earnings. Similarly, the prevalence of part-time and part-year earnings in most countries suggest that caution is needed in interpreting earnings differentials in countries, particularly between males and females.

Further references

The following additional material relevant to this indicator is available on line at:

StatLink http://dx.doi.org/10.1787/401781614508

- ***Table A9.2b. Trends in relative earnings: male population (1997-2006)***
- ***Table A9.2c. Trends in relative earnings: female population (1997-2006)***

- *Table A9.4b. Distribution of 25-to-64-year-old males by level of earnings and educational attainment (2006 or latest available year)*
- *Table A9.4c. Distribution of 25-to-64-year-old females by level of earnings and educational attainment (2006 or latest available year)*

A9

Table A9.1a.

Relative earnings of the population with income from employment (2006 or latest available year)

By level of educational attainment and gender for 25-to-64-year-olds, 25-to-34-year-olds and 55-to-64-year-olds (upper secondary and post-secondary non-tertiary education = 100)

			Below upper secondary education			Post-secondary non-tertiary education			All tertiary education		
			25-64	25-34	55-64	25-64	25-34	55-64	25-64	25-34	55-64
OECD countries											
Australia	2005	Males	86	90	81	105	107	104	136	124	133
		Females	86	82	85	104	99	105	146	142	143
		M+F	81	88	74	96	98	94	131	126	124
Austria	2006	Males	72	73	66	135	117	159	155	136	157
		Females	71	68	54	123	122	129	158	147	153
		M+F	66	68	55	124	113	148	157	137	162
Belgium	2005	Males	91	95	82	98	95	108	137	124	139
		Females	81	85	68	108	105	103	134	131	128
		M+F	89	95	78	100	98	102	133	123	138
Canada	2005	Males	78	86	66	107	114	94	140	134	133
		Females	68	82	68	97	106	98	144	157	138
		M+F	77	88	68	106	111	98	138	137	137
Czech Republic	2006	Males	81	83	80	m	m	m	194	160	201
		Females	73	78	69	m	m	m	163	146	168
		M+F	74	80	72	m	m	m	183	152	192
Denmark	2004	Males	82	80	83	92	44	94	133	113	143
		Females	84	77	81	85	40	92	126	123	131
		M+F	82	81	81	97	45	104	125	112	136
Finland	2004	Males	91	90	94	m	m	m	161	139	182
		Females	97	93	94	m	m	m	146	145	158
		M+F	94	94	94	m	m	m	149	130	173
France	2006	Males	89	93	82	87	91	94	157	135	185
		Females	82	85	75	98	113	53	146	142	167
		M+F	85	93	76	87	97	78	149	133	178
Germany	2006	Males	92	85	90	115	116	155	163	142	178
		Females	83	83	81	117	114	110	153	138	150
		M+F	90	86	93	112	112	127	164	139	185
Hungary	2006	Males	75	76	73	126	112	135	259	219	277
		Females	72	77	62	116	117	114	189	180	190
		M+F	73	76	67	120	114	124	219	196	235
Ireland	2004	Males	85	84	85	100	112	92	171	158	198
		Females	68	63	61	100	112	97	168	151	145
		M+F	85	78	83	102	113	97	169	150	184
Italy	2004	Males	78	83	71	m	m	m	188	169	201
		Females	73	70	79	m	m	m	138	155	162
		M+F	79	81	74	m	m	m	165	157	194
Korea	2003	Males	73	87	71	m	m	m	127	117	169
		Females	75	126	62	m	m	m	176	148	206
		M+F	67	100	58	m	m	m	141	125	181
Luxembourg	2002	Males	79	84	78	114	209	121	149	143	185
		Females	74	70	91	120	114	m	131	128	165
		M+F	78	80	76	117	118	127	145	138	192
Netherlands	2002	Males	84	95	68	m	m	m	143	136	143
		Females	72	70	69	m	m	m	155	145	158
		M+F	84	93	68	m	m	m	148	140	141
New Zealand	2006	Males	76	87	83	99	112	98	120	114	135
		Females	88	76	83	91	105	95	123	124	128
		M+F	78	83	79	110	120	106	115	113	126
Norway	2005	Males	78	76	77	113	108	119	134	108	152
		Females	81	76	77	118	114	129	135	129	150
		M+F	78	76	76	120	115	127	129	110	154
Poland	2006	Males	86	85	79	114	110	119	194	169	216
		Females	76	82	60	116	115	112	165	157	168
		M+F	84	86	73	109	106	114	173	155	197

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

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A9

Table A9.1a. *(continued)*

Relative earnings of the population with income from employment (2006 or latest available year)

By level of educational attainment and gender for 25-to-64-year-olds, 25-to-34-year-olds and 55-to-64-year-olds (upper secondary and post-secondary non-tertiary education = 100)

			Below upper secondary education			Post-secondary non-tertiary education			All tertiary education		
			25-64	25-34	55-64	25-64	25-34	55-64	25-64	25-34	55-64
Portugal	2005	Males	64	73	47	m	m	m	183	167	184
		Females	66	71	51	m	m	m	173	170	178
		M+F	67	74	48	m	m	m	177	166	188
Spain	2004	Males	84	94	76	83	100	m	132	123	153
		Females	78	86	64	95	103	177	141	139	162
		M+F	85	94	74	89	104	133	132	126	155
Sweden	2005	Males	84	81	83	122	92	124	135	109	148
		Females	86	79	87	106	84	128	126	116	139
		M+F	86	81	86	121	87	131	126	108	141
Switzerland	2006	Males	78	83	72	105	93	102	138	126	138
		Females	77	77	68	116	105	127	159	148	153
		M+F	74	80	65	110	98	112	156	138	160
Turkey	2005	Males	72	77	60	m	m	m	153	171	129
		Females	43	37	49	m	m	m	154	133	307
		M+F	69	70	59	m	m	m	149	156	135
United Kingdom	2006	Males	75	74	81	m	m	m	149	141	157
		Females	69	60	68	m	m	m	177	172	165
		M+F	70	74	69	m	m	m	159	151	157
United States	2006	Males	63	71	62	109	106	106	183	162	172
		Females	63	64	64	112	109	114	170	171	177
		M+F	66	72	65	109	105	110	176	160	180
Partner countries											
Israel	2006	Males	76	73	77	102	101	92	166	147	181
		Females	67	78	59	123	110	108	150	145	151
		M+F	78	79	74	102	94	87	151	137	165
Slovenia	2004	Males	74	76	66	m	m	m	217	180	233
		Females	71	77	51	m	m	m	190	172	184
		M+F	73	77	63	m	m	m	198	168	219

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

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A9

Table A9.1b.

Differences in earnings between females and males (2006 or latest available year)

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

			Below upper secondary education		Upper secondary and post-secondary non-tertiary education		Tertiary-type B education		Tertiary-type A and advanced research programmes		All levels of education	
			30 to 44	55 to 64	30 to 44	55 to 64	30 to 44	55 to 64	30 to 44	55 to 64	30 to 44	55 to 64
OECD countries	Australia	2005	58	59	58	56	64	62	61	60	62	59
	Austria	2006	59	50	56	61	68	77	62	55	56	53
	Belgium	2005	67	64	74	77	80	80	76	72	77	69
	Canada	2005	52	58	61	56	59	60	68	62	64	57
	Czech Republic	2006	68	77	75	88	71	93	64	74	70	80
	Denmark	2005	70	70	70	72	71	72	65	64	71	69
	Finland	2004	71	78	68	78	67	74	65	71	70	73
	France	2006	67	66	73	71	77	62	66	67	73	64
	Germany	2006	51	51	61	57	53	40	63	48	59	49
	Hungary	2006	91	96	92	114	100	90	66	78	86	90
	Ireland	2004	49	47	62	66	64	77	66	45	65	27
	Italy	2004	68	75	73	67	m	m	57	54	73	68
	Korea	2003	49	45	44	52	59	107	76	62	51	37
	Luxembourg	2002	79	83	92	71	83	105	78	131	84	56
	Netherlands	2002	51	47	60	47	m	m	m	m	62	50
	New Zealand	2006	66	67	60	67	63	58	61	80	63	66
	Norway	2005	64	63	63	63	67	71	64	61	72	62
	Poland	2006	67	74	75	97	66	74	67	75	78	90
	Portugal	2005	73	73	72	67	m	m	72	65	79	68
	Spain	2004	64	57	68	67	64	56	76	74	75	65
	Sweden	2005	72	76	71	72	71	77	66	68	72	74
	Switzerland	2006	56	50	53	53	63	59	68	57	55	48
	Turkey	2005	45	30	73	37	107	m	67	85	70	45
	United Kingdom	2006	52	45	53	54	56	63	64	55	58	52
	United States	2006	63	62	65	60	67	69	59	62	65	59
Partner countries	Israel	2006	59	47	61	61	61	55	59	52	64	56
	Slovenia	2004	83	84	86	108	m	m	m	m	89	106

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

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A9

Table A9.2a.

Trends in relative earnings: adult population (1997-2006)

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

			1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
OECD countries	**Australia**	Below upper secondary	79	m	80	m	77	m	m	m	81	m
		Tertiary	124	m	134	m	133	m	m	m	131	m
	Austria	Below upper secondary	m	m	m	m	m	m	m	m	71	66
		Tertiary	m	m	m	m	m	m	m	m	152	157
	Belgium	Below upper secondary	m	m	m	92	m	91	89	90	89	m
		Tertiary	m	m	m	128	m	132	130	134	133	m
	Canada	Below upper secondary	m	77	79	79	76	77	78	78	77	m
		Tertiary	m	141	141	145	146	139	140	139	138	m
	Czech Republic	Below upper secondary	68	68	68	m	m	m	m	73	72	74
		Tertiary	179	179	179	m	m	m	m	182	181	183
	Denmark	Below upper secondary	85	86	86	m	87	88	82	82	82	m
		Tertiary	123	124	124	m	124	124	127	126	125	m
	Finland	Below upper secondary	97	96	96	95	95	95	94	94	m	m
		Tertiary	148	148	153	153	150	150	148	149	m	m
	France	Below upper secondary	84	84	84	m	m	84	84	85	86	85
		Tertiary	149	150	150	m	m	150	146	147	144	149
	Germany	Below upper secondary	81	78	79	75	m	77	87	88	88	90
		Tertiary	133	130	135	143	m	143	153	153	156	164
	Hungary	Below upper secondary	68	68	70	71	71	74	74	73	73	73
		Tertiary	179	184	200	194	194	205	219	217	215	219
	Ireland	Below upper secondary	75	79	m	89	m	76	m	86	m	m
		Tertiary	146	142	m	153	m	144	m	166	m	m
	Italy	Below upper secondary	m	58	m	78	m	78	m	79	m	m
		Tertiary	m	127	m	138	m	153	m	165	m	m
	Korea	Below upper secondary	m	78	m	m	m	m	67	m	m	m
		Tertiary	m	135	m	m	m	m	141	m	m	m
	Luxembourg	Below upper secondary	m	m	m	m	m	78	m	m	m	m
		Tertiary	m	m	m	m	m	145	m	m	m	m
	Netherlands	Below upper secondary	83	m	m	m	m	84	m	m	m	m
		Tertiary	141	m	m	m	m	148	m	m	m	m
	New Zealand	Below upper secondary	77	76	76	74	74	m	76	75	78	78
		Tertiary	148	136	139	133	133	m	126	129	132	115
	Norway	Below upper secondary	85	84	84	m	79	82	78	81	78	m
		Tertiary	138	132	133	m	131	134	128	133	129	m
	Poland	Below upper secondary	m	m	m	m	m	m	m	78	m	84
		Tertiary	m	m	m	m	m	m	m	163	m	173
	Portugal	Below upper secondary	62	62	62	m	m	m	m	60	67	m
		Tertiary	176	177	178	m	m	m	m	179	177	m
	Spain	Below upper secondary	76	80	m	m	78	m	m	85	m	m
		Tertiary	149	144	m	m	129	m	m	132	m	m
	Sweden	Below upper secondary	90	89	89	m	86	87	88	87	86	m
		Tertiary	129	130	131	m	131	130	130	127	126	m
	Switzerland	Below upper secondary	74	75	76	78	m	77	75	75	76	74
		Tertiary	152	153	151	157	m	156	156	162	156	156
	Turkey	Below upper secondary	m	m	m	m	m	m	m	65	69	m
		Tertiary	m	m	m	m	m	m	m	141	149	m
	United Kingdom	Below upper secondary	64	65	65	67	67	m	69	67	69	70
		Tertiary	153	157	159	159	159	m	162	158	155	159
	United States	Below upper secondary	70	67	65	65	m	66	66	65	67	66
		Tertiary	168	173	166	172	m	172	172	172	175	176
Partner countries	**Israel**	Below upper secondary	m	m	m	m	m	m	m	m	79	78
		Tertiary	m	m	m	m	m	m	m	m	151	151
	Slovenia	Below upper secondary	m	m	m	m	m	m	m	73	m	m
		Tertiary	m	m	m	m	m	m	m	198	m	m

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

StatLink http://dx.doi.org/10.1787/401781614508

A9

Table A9.3.

Trends in differences in earnings between females and males (1997-2006)

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

OECD countries		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Australia	Below upper secondary	60	m	66	m	62	m	m	m	61	m
	Upper secondary and post-secondary non tertiary	62	m	64	m	62	m	m	m	60	m
	Tertiary	62	m	67	m	62	m	m	m	65	m
Austria	Below upper secondary	m	m	m	m	m	m	m	m	57	58
	Upper secondary and post-secondary non tertiary	m	m	m	m	m	m	m	m	60	59
	Tertiary	m	m	m	m	m	m	m	m	62	60
Belgium	Below upper secondary	m	m	m	64	m	65	66	66	67	m
	Upper secondary and post-secondary non tertiary	m	m	m	72	m	72	74	74	75	m
	Tertiary	m	m	m	74	m	76	74	74	73	m
Canada	Below upper secondary	m	52	51	52	51	50	52	52	53	m
	Upper secondary and post-secondary non tertiary	m	59	60	60	59	61	60	59	60	m
	Tertiary	m	61	60	58	58	60	61	61	62	m
Czech Republic	Below upper secondary	66	66	66	m	m	m	m	74	74	73
	Upper secondary and post-secondary non tertiary	69	69	69	m	m	m	m	80	80	80
	Tertiary	66	65	65	m	m	m	m	67	68	67
Denmark	Below upper secondary	73	73	73	m	74	75	73	74	73	m
	Upper secondary and post-secondary non tertiary	72	71	71	m	71	73	71	71	71	m
	Tertiary	68	66	66	m	67	68	67	67	67	m
Finland	Below upper secondary	78	77	77	76	76	76	76	76	m	m
	Upper secondary and post-secondary non tertiary	74	72	72	71	71	72	72	72	m	m
	Tertiary	66	65	62	61	63	64	66	65	m	m
France	Below upper secondary	68	68	68	m	m	70	68	68	68	68
	Upper secondary and post-secondary non tertiary	75	75	75	m	m	77	75	74	75	74
	Tertiary	69	69	69	m	m	70	72	70	70	69
Germany	Below upper secondary	63	74	70	56	m	53	54	54	52	56
	Upper secondary and post-secondary non tertiary	64	67	68	63	m	61	60	60	62	62
	Tertiary	63	68	60	61	m	60	58	60	62	58
Hungary	Below upper secondary	79	80	84	83	83	85	89	89	88	93
	Upper secondary and post-secondary non tertiary	88	86	89	88	88	93	95	96	93	96
	Tertiary	64	63	62	62	62	67	71	72	69	70
Ireland	Below upper secondary	46	48	m	46	m	48	m	49	m	m
	Upper secondary and post-secondary non tertiary	59	63	m	60	m	57	m	59	m	m
	Tertiary	70	70	m	71	m	62	m	61	m	m
Italy	Below upper secondary	m	70	m	76	m	70	m	67	m	m
	Upper secondary and post-secondary non tertiary	m	62	m	65	m	66	m	71	m	m
	Tertiary	m	52	m	62	m	60	m	52	m	m
Korea	Below upper secondary	m	56	m	m	m	m	48	m	m	m
	Upper secondary and post-secondary non tertiary	m	70	m	m	m	m	47	m	m	m
	Tertiary	m	75	m	m	m	m	65	m	m	m
Luxembourg	Below upper secondary	m	m	m	m	m	80	m	m	m	m
	Upper secondary and post-secondary non tertiary	m	m	m	m	m	86	m	m	m	m
	Tertiary	m	m	m	m	m	75	m	m	m	m
Netherlands	Below upper secondary	46	m	m	m	m	49	m	m	m	m
	Upper secondary and post-secondary non tertiary	56	m	m	m	m	58	m	m	m	m
	Tertiary	57	m	m	m	m	62	m	m	m	m
New Zealand	Below upper secondary	52	61	65	61	61	m	65	66	61	72
	Upper secondary and post-secondary non tertiary	62	63	67	64	64	m	63	63	62	63
	Tertiary	60	59	61	67	67	m	62	62	60	64

Note: Data on earnings for individuals in part-time work are excluded for the Czech Republic, Hungary, Luxembourg, Poland and Portugal, while data on part-year earnings are excluded for Belgium, Hungary, Luxembourg, Poland and Portugal.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

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A9

Table A9.3. *(continued)*

Trends in differences in earnings between females and males (1997-2006)

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

			1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
OECD countries	**Norway**	Below upper secondary	60	60	61	m	63	62	65	65	65	m
		Upper secondary and post-secondary non tertiary	61	61	62	m	62	63	65	64	63	m
		Tertiary	63	62	62	m	63	64	66	65	63	m
	Poland	Below upper secondary	m	m	m	m	m	m	m	71	m	71
		Upper secondary and post-secondary non tertiary	m	m	m	m	m	m	m	81	m	81
		Tertiary	m	m	m	m	m	m	m	68	m	69
	Portugal	Below upper secondary	72	71	71	m	m	m	m	74	73	m
		Upper secondary and post-secondary non tertiary	69	69	69	m	m	m	m	69	71	m
		Tertiary	66	66	65	m	m	m	m	67	67	m
	Spain	Below upper secondary	60	61	m	m	58	m	m	63	m	m
		Upper secondary and post-secondary non tertiary	72	76	m	m	71	m	m	68	m	m
		Tertiary	68	69	m	m	64	m	m	73	m	m
	Sweden	Below upper secondary	73	74	74	m	74	74	75	75	74	m
		Upper secondary and post-secondary non tertiary	72	72	73	m	71	72	73	73	73	m
		Tertiary	67	66	67	m	65	67	68	69	68	m
	Switzerland	Below upper secondary	51	51	53	51	m	51	52	54	53	55
		Upper secondary and post-secondary non tertiary	55	57	58	57	m	53	54	53	56	56
		Tertiary	60	61	62	62	m	59	60	60	60	65
	Turkey	Below upper secondary	m	m	m	m	m	m	m	52	47	m
		Upper secondary and post-secondary non tertiary	m	m	m	m	m	m	m	75	78	m
		Tertiary	m	m	m	m	m	m	m	89	78	m
	United Kingdom	Below upper secondary	47	50	51	50	50	m	52	52	50	49
		Upper secondary and post-secondary non tertiary	53	53	53	52	52	m	54	53	52	53
		Tertiary	60	62	63	64	64	m	64	63	66	63
	United States	Below upper secondary	53	60	59	59	m	63	67	63	63	65
		Upper secondary and post-secondary non tertiary	59	62	61	60	m	63	64	63	65	65
		Tertiary	59	58	59	56	m	58	61	59	59	60
Partner countries	**Israel**	Below upper secondary	m	m	m	m	m	m	m	m	57	56
		Upper secondary and post-secondary non tertiary	m	m	m	m	m	m	m	m	59	64
		Tertiary	m	m	m	m	m	m	m	m	58	57
	Slovenia	Below upper secondary	m	m	m	m	m	m	m	84	m	m
		Upper secondary and post-secondary non tertiary	m	m	m	m	m	m	m	88	m	m
		Tertiary	m	m	m	m	m	m	m	77	m	m

Note: Data on earnings for individuals in part-time work are excluded for the Czech Republic, Hungary, Luxembourg, Poland and Portugal, while data on part-year earnings are excluded for Belgium, Hungary, Luxembourg, Poland and Portugal.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

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A9

Table A9.4a.

Distribution of the 25-to-64-year-old population by level of earnings and educational attainment (2006 or latest available year)

				Level of earnings					
				At or below half of the median	More than half the median but at or below the median	More than the median but at or below 1.5 times the median	More than 1.5 times the median but at or below 2.0 times the median	More than twice the median	All categories
				%	%	%	%	%	%
OECD countries	**Australia**	2005	Below upper secondary	24.3	46.3	21.1	5.6	2.8	100
			Upper secondary and post-secondary non-tertiary	14.5	39.2	29.9	10.0	6.4	100
			Tertiary-type B education	12.9	32.6	35.2	11.3	8.0	100
			Tertiary-type A and advanced research programmes	9.1	20.5	33.1	19.5	17.9	100
			All levels of education	15.5	35.1	28.9	11.6	8.9	100
	Austria	2006	Below upper secondary	35.7	40.9	16.9	4.6	1.8	100
			Upper secondary and post-secondary non-tertiary	21.2	29.0	29.1	11.9	8.9	100
			Tertiary-type B education	11.6	17.4	30.6	25.0	15.3	100
			Tertiary-type A and advanced research programmes	15.9	12.6	17.7	18.4	35.3	100
			All levels of education	22.0	28.1	26.1	12.5	11.2	100
	Belgium	2005	Below upper secondary	11.4	60.5	25.9	1.6	0.6	100
			Upper secondary and post-secondary non-tertiary	5.5	55.8	33.5	4.0	1.3	100
			Tertiary-type B education	1.7	39.4	49.9	6.7	2.2	100
			Tertiary-type A and advanced research programmes	1.5	18.5	44.5	19.0	16.5	100
			All levels of education	5.4	47.1	37.0	6.6	3.9	100
	Canada	2005	Below upper secondary	37.8	31.7	16.6	8.2	5.8	100
			Upper secondary and post-secondary non-tertiary	28.2	27.5	21.4	11.3	11.5	100
			Tertiary-type B education	23.3	23.7	23.8	14.8	14.4	100
			Tertiary-type A and advanced research programmes	18.3	16.2	17.3	17.1	31.2	100
			All levels of education	25.6	24.5	20.7	13.1	16.2	100
	Czech Republic	2006	Below upper secondary	17.5	65.3	14.1	1.9	1.2	100
			Upper secondary and post-secondary non-tertiary	5.0	50.0	33.5	7.8	3.6	100
			Tertiary-type B education	0.9	36.4	43.1	11.4	8.1	100
			Tertiary-type A and advanced research programmes	0.3	10.5	39.3	21.5	28.4	100
			All levels of education	5.2	44.8	33.0	9.5	7.4	100
	Denmark	2005	Below upper secondary	25.1	41.5	26.8	4.4	2.2	100
			Upper secondary and post-secondary non-tertiary	15.7	36.4	35.9	7.7	4.4	100
			Tertiary-type B education	12.2	23.8	43.7	13.8	6.5	100
			Tertiary-type A and advanced research programmes	13.2	21.1	38.8	15.0	12.0	100
			All levels of education	17.3	32.7	34.9	9.1	5.9	100
	Finland	2004	Below upper secondary	26.2	36.7	27.4	6.8	2.8	100
			Upper secondary and post-secondary non-tertiary	22.1	36.4	30.9	7.8	2.9	100
			Tertiary-type B education	13.8	27.2	39.6	12.3	7.1	100
			Tertiary-type A and advanced research programmes	11.3	16.4	27.4	22.1	22.8	100
			All levels of education	19.2	30.8	31.1	11.3	7.7	100
	France	2006	Below upper secondary	17.4	51.0	22.7	5.9	2.9	100
			Upper secondary and post-secondary non-tertiary	10.6	44.3	29.9	10.1	5.1	100
			Tertiary-type B education	6.3	27.4	35.6	17.8	12.9	100
			Tertiary-type A and advanced research programmes	7.0	18.9	26.8	20.6	26.6	100
			All levels of education	11.2	39.5	28.2	11.8	9.3	100
	Germany	2006	Below upper secondary	30.7	31.4	26.8	9.2	1.9	100
			Upper secondary and post-secondary non-tertiary	23.5	34.8	28.8	8.6	4.3	100
			Tertiary-type B education	14.1	27.2	32.8	15.2	10.8	100
			Tertiary-type A and advanced research programmes	11.1	17.7	24.3	19.9	27.1	100
			All levels of education	20.5	29.5	27.7	12.0	10.3	100

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

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Table A9.4a. *(continued-1)*

Distribution of the 25-to-64-year-old population by level of earnings and educational attainment (2006 or latest available year)

			Level of earnings					
			At or below half of the median	More than half the median but at or below the median	More than the median but at or below 1.5 times the median	More than 1.5 times the median but at or below 2.0 times the median	More than twice the median	All categories
			%	%	%	%	%	%
OECD countries								
Hungary	2006	Below upper secondary	15.7	65.2	14.8	2.8	1.4	100
		Upper secondary and post-secondary non-tertiary	11.8	45.4	25.4	9.8	7.6	100
		Tertiary-type B education	8.5	28.9	30.7	13.9	18.0	100
		Tertiary-type A and advanced research programmes	2.2	7.7	23.5	25.2	41.3	100
		All levels of education	10.2	39.8	23.2	12.3	14.6	100
Ireland	2004	Below upper secondary	32.5	31.2	23.3	8.1	4.9	100
		Upper secondary and post-secondary non-tertiary	19.3	36.5	24.9	11.6	7.7	100
		Tertiary-type B education	12.1	30.7	26.4	16.0	14.8	100
		Tertiary-type A and advanced research programmes	8.3	17.3	20.8	18.9	34.7	100
		All levels of education	20.3	29.7	23.5	12.6	13.9	100
Italy	2004	Below upper secondary	19.5	44.4	22.3	6.4	7.4	100
		Upper secondary and post-secondary non-tertiary	10.3	33.8	32.1	9.8	14.1	100
		Tertiary-type B education	m	m	m	m	m	m
		Tertiary-type A and advanced research programmes	7.8	17.9	28.7	13.7	31.9	100
		All levels of education	13.8	36.2	27.5	8.9	13.6	100
Korea	2003	Below upper secondary	31.5	42.8	19.0	2.5	4.2	100
		Upper secondary and post-secondary non-tertiary	15.7	34.9	29.6	8.6	11.2	100
		Tertiary-type B education	14.5	30.8	31.0	11.3	12.4	100
		Tertiary-type A and advanced research programmes	8.6	17.5	29.7	17.1	27.0	100
		All levels of education	17.8	32.1	27.1	9.5	13.5	100
Luxembourg	2002	Below upper secondary	12.1	60.1	21.6	4.9	1.3	100
		Upper secondary and post-secondary non-tertiary	2.3	52.2	28.0	11.7	5.8	100
		Tertiary-type B education	0.6	28.6	41.7	17.2	11.8	100
		Tertiary-type A and advanced research programmes	0.0	14.4	36.6	24.9	24.1	100
		All levels of education	3.5	45.4	30.0	13.0	8.2	100
Netherlands	2002	Below upper secondary	26.9	37.9	29.0	5.0	1.3	100
		Upper secondary and post-secondary non-tertiary	17.4	36.5	33.2	9.3	3.6	100
		All tertiary education	8.3	20.8	30.5	21.9	18.6	100
		All levels of education	17.4	32.6	31.3	11.6	7.1	100
New Zealand	2006	Below upper secondary	22.7	46.3	22.1	6.4	2.4	100
		Upper secondary and post-secondary non-tertiary	17.4	32.0	29.8	12.9	7.9	100
		Tertiary-type B education	18.5	33.7	28.2	12.0	7.6	100
		Tertiary-type A and advanced research programmes	10.6	23.6	27.9	19.0	18.8	100
		All levels of education	17.1	33.2	27.4	12.8	9.4	100
Norway	2005	Below upper secondary	30.3	38.6	24.2	4.7	2.2	100
		Upper secondary and post-secondary non-tertiary	17.6	35.1	33.6	8.9	4.8	100
		Tertiary-type B education	8.1	15.8	35.1	22.6	18.4	100
		Tertiary-type A and advanced research programmes	12.8	22.8	39.5	13.0	12.0	100
		All levels of education	18.8	31.4	33.3	9.6	6.9	100
Poland	2006	Below upper secondary	19.2	55.2	17.7	5.4	2.5	100
		Upper secondary and post-secondary non-tertiary	13.6	45.8	26.2	8.8	5.6	100
		Tertiary-type B education	5.0	26.9	27.9	15.2	25.1	100
		Tertiary-type A and advanced research programmes	1.5	20.7	34.5	18.9	24.5	100
		All levels of education	10.5	39.2	27.6	11.4	11.3	100

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

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A9

Table A9.4a. *(continued-2)*

Distribution of the 25-to-64-year-old population by level of earnings and educational attainment (2006 or latest available year)

				Level of earnings					
				At or below half of the median	More than half the median but at or below the median	More than the median but at or below 1.5 times the median	More than 1.5 times the median but at or below 2.0 times the median	More than twice the median	All categories
				%	%	%	%	%	%
OECD countries	**Portugal**	2005	Below upper secondary	0.1	62.2	23.3	7.3	7.2	100
			Upper secondary and post-secondary non-tertiary	0.0	34.0	28.2	14.3	23.5	100
			Tertiary-type B education	m	m	m	m	m	m
			Tertiary-type A and advanced research programmes	0.0	7.7	17.5	19.0	55.9	100
			All levels of education	0.0	50.0	23.4	10.1	16.5	100
	Spain	2004	Below upper secondary	12.8	50.8	29.0	5.2	2.2	100
			Upper secondary and post-secondary non-tertiary	9.3	42.6	31.6	10.2	6.3	100
			Tertiary-type B education	7.8	43.8	30.6	10.6	7.1	100
			Tertiary-type A and advanced research programmes	3.3	22.8	33.2	19.9	20.7	100
			All levels of education	9.1	41.0	30.9	10.7	8.4	100
	Sweden	2005	Below upper secondary	19.3	43.4	30.7	4.8	1.8	100
			Upper secondary and post-secondary non-tertiary	11.2	41.7	34.6	8.1	4.3	100
			Tertiary-type B education	13.1	31.2	39.1	11.4	5.2	100
			Tertiary-type A and advanced research programmes	10.5	22.5	36.1	14.9	16.0	100
			All levels of education	12.9	37.1	34.5	9.2	6.3	100
	Switzerland	2006	Below upper secondary	30.8	50.4	16.6	1.5	0.7	100
			Upper secondary and post-secondary non-tertiary	21.5	35.1	32.4	7.6	3.4	100
			Tertiary-type B education	8.7	20.9	39.9	21.5	9.1	100
			Tertiary-type A and advanced research programmes	8.7	18.5	26.4	24.5	21.8	100
			All levels of education	18.2	31.5	30.1	12.3	7.9	100
	Turkey	2005	Below upper secondary	27.8	38.9	21.2	7.3	4.8	100
			Upper secondary and post-secondary non-tertiary	12.1	26.7	30.7	18.7	11.8	100
			Tertiary-type B education	8.5	13.3	31.1	29.3	17.8	100
			Tertiary-type A and advanced research programmes	5.7	4.5	29.9	32.3	27.6	100
			All levels of education	20.0	30.0	25.2	14.5	10.2	100
	United Kingdom	2006	Below upper secondary	38.6	41.3	14.0	4.2	1.9	100
			Upper secondary and post-secondary non-tertiary	25.7	32.7	24.3	10.5	6.8	100
			Tertiary-type B education	15.7	24.7	26.5	20.1	13.0	100
			Tertiary-type A and advanced research programmes	11.8	13.6	19.6	24.1	30.9	100
			All levels of education	22.2	28.4	22.3	14.1	12.9	100
	United States	2006	Below upper secondary	42.2	41.9	10.8	3.1	1.9	100
			Upper secondary and post-secondary non-tertiary	23.8	38.6	21.4	9.2	7.0	100
			Tertiary-type B education	17.0	34.5	24.4	14.5	9.6	100
			Tertiary-type A and advanced research programmes	11.6	20.6	23.2	16.5	28.0	100
			All levels of education	20.5	31.8	21.2	11.7	14.8	100
Partner countries	**Israel**	2006	Below upper secondary	21.8	55.5	14.9	4.5	3.3	100
			Upper secondary and post-secondary non-tertiary	15.7	44.2	22.1	8.6	9.5	100
			Tertiary-type B education	15.3	37.0	21.7	11.8	14.2	100
			Tertiary-type A and advanced research programmes	11.2	24.0	20.3	13.3	31.1	100
			All levels of education	14.4	35.6	20.8	10.7	18.4	100

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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

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INDICATOR A10

WHAT ARE THE INCENTIVES TO INVEST IN EDUCATION?

This indicator examines incentives to invest in education by estimating the rate of return to education. The financial returns to education are calculated for investments undertaken as a part of initial education, as well as for a hypothetical 40-year-old who decides to return to education in mid-career. Private and public returns to education are given for upper secondary and tertiary education.

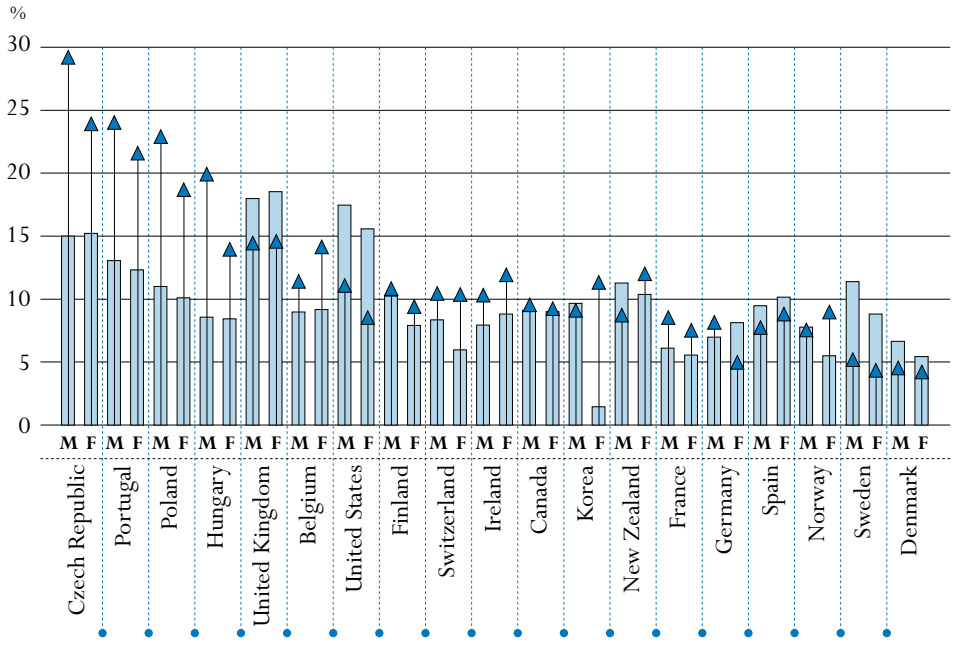
Key results

Chart A10.1. Private internal rates of return (IRR) for an individual obtaining upper secondary or post-secondary non-tertiary education, ISCED 3/4 and for an individual obtaining a university-level degree, ISCED 5/6 (2004)

Private IRR for an individual immediately acquiring the next level of education: upper secondary or post-secondary non-tertiary education, ISCED 3/4

Private IRR for an individual immediately acquiring the next level of education: tertiary level education, ISCED 5/6

In most countries, the rate of return to tertiary education is higher than for upper secondary or post-secondary non-tertiary education, except in Denmark, Spain, Sweden, the United Kingdom and the United States, where both males and females achieve returns below those for upper secondary or post-secondary non-tertiary education. Incentives to invest in tertiary education thus appear to be favourable in most countries. In all countries, the expected return to education exceeds 5% except for females investing in tertiary education in Germany and Sweden and for females investing in upper secondary or post-secondary non-tertiary education in Korea.



M: Male
F: Female
Countries are ranked by descending order of the private IRR for males immediately acquiring a tertiary level of education.
Source: OECD. Tables A10.1 and A10.2. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).
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Other highlights of this indicator

- Returns to education are largely driven by the earnings premium. That earnings differentials are the key drivers of returns to education suggest that it is important for educational policies to monitor and match supply to demand for education. At the tertiary level of education there is generally a trade-off between taxes and the direct costs of education, with low or no tuition fees associated with more progressive taxation when entering the labour market.

- The returns to upper secondary education or post-secondary non-tertiary education vary between 6.1% and 18% for males and 5.6% and 18.5% for females, with marginally lower returns for females. The Czech Republic, the United Kingdom and the United States are among the countries showing the highest returns for both males and females.

- On average across OECD countries, a tertiary education yields a 12 and 11% return for males and females, respectively, and returns are substantial in the Czech Republic, Hungary, Poland and Portugal. The rewards for tertiary education are relatively small in Germany, Norway, Spain, and Sweden where returns range from 5 to 8%. This suggests comparatively weaker incentives to continue education.

- At age 40, the return to an upper secondary education exceeds 13% for both males and females in the Czech Republic, Portugal and the United States. The expected rewards are large even though the individual foregoes earnings during the period of study. The rewards for investing in tertiary education are generally higher than for upper secondary education at age 40. In many countries, the returns to investment in education in mid-career are substantial enough to motivate the investment without government intervention.

- Public rates of return are higher for tertiary than for upper secondary education both for initial education and at age 40. On average across OECD countries, a tertiary education generates a return of 11% for males and 9% for females when part of initial education. At age 40, the public returns for males and females are 9.5 and 6.6%, respectively.

A10

Policy context

Economic returns to education are a key driver for individuals' decisions to invest time and money in education beyond compulsory schooling. The monetary benefits of completing higher levels of education motivate individuals to postpone consumption today for future rewards. From a policy perspective, it is crucial to be aware of the economic incentives in order to understand the flow of individuals through the education system.

A problem facing policy makers is the fact that changes in education policies generally take some time to have an impact on the labour market. Large shifts in the demand for education can drive earnings and returns up considerably before the supply catches up. This provides a strong signal both to individuals and to the education system about the need for additional investment.

Apart from the earnings differentials, which are largely determined by the labour market, major components of the returns to education are directly linked to policy: access to education, taxes and the costs of education for the individual. Very high private returns suggest that education may need to be expanded by increasing access and by making loans more readily available to individuals rather than by lowering the costs of education. Low returns indicate instead that incentives to invest in education are not in place, either because education is not rewarded in the labour market, or because costs, in terms of tuition fees, foregone earnings and taxation, are relatively high.

Economic benefits of education flow not only to the individual but also to society through additional taxes when the individual enters the labour market. The public returns to education, which take into account the costs and benefits of education for governments, provide additional information on the overall returns to education. In shaping policies it is important to consider the balance between private and public returns. This indicator takes a closer look at incentives to invest in education from the individual and the public perspective as well as incentives for males and females at different educational levels.

Evidence and explanations

Rates of return to investment in education

The relationship between education and earnings can be evaluated in an investment analysis framework. An individual incurs costs when investing in education (direct costs such as tuition fees and indirect costs such as foregone earnings while in school). The overall benefits of this investment can be assessed by estimating the economic rate of return to the investment, which measures the degree to which the costs of attaining higher levels of education translates into higher levels of earnings. The measure of return used here is the internal rate of return, basically the interest rate that an individual can expect to receive on the investment made by spending time and money to obtain an education. In this framework, the interest rate is raised to the level at which the economic benefits equal the cost of the investment. The interest rate at this point replicates the interest rate one would receive, for instance, by putting the same amount of money in the bank at the time of the investment decision.

Investments in education are not risk-free, and the interest rate applied should reflect this by means of additional percentage points. As shown in Indicator A9, variations in earnings outcomes are quite substantial within different educational groups; this uncertainty needs to be

compensated for by a higher yield for those investing in education compared, for instance, to government bonds, which are generally used as a benchmark for a risk-free interest rate. In most countries, this would translate into rates of return above 5% in order to motivate investment in further education.

This indicator is analysed from two points of view: rates of return to the individual, which reflect only the individual's earnings and costs, and rates of return to government (public rate of return). The return to government includes the collection of higher income taxes and social contributions, as well as the costs borne by the government for educating the individual. These private and public returns are calculated for 19 OECD countries. The methodology of calculating rates of returns to education has changed since last year's *Education at a Glance*. Therefore, the current rates should not be compared with previous editions of *Education at a Glance* (see the section on definitions and methodologies).

Incentives for the individual to invest in education

The different costs and benefits of education make up the components of the internal rate of return and as such describe the key drivers of the returns in different countries. In order to visualise the main factors influencing the returns to education, each cost and benefit is discounted back in time with the internal rate of return. The proportionate impact of each component and the internal rates of returns are shown in Table A10.1 for investing in upper secondary or post-secondary non-tertiary education, starting from an original lower secondary level of education, and in Table A10.2 for investing in tertiary education up to an advanced research qualification, starting from an upper secondary level of education.

The returns to attaining upper secondary education or post-secondary non-tertiary education vary between 6.1 and 18% for males and 5.6 and 18.5% for females, with marginally lower returns for females. The Czech Republic, the United Kingdom and the United States are among the countries showing the highest returns to upper secondary education or post-secondary non-tertiary education for both males and females. The benefits of the additional education are quite different, however. In the United Kingdom and the United States they are largely a greater earnings potential, whereas in the Czech Republic the main benefit is lower unemployment rates.

In Denmark, France and Germany, an upper secondary or post-secondary non-tertiary education is less rewarded by the labour market, with returns for males at or below 7%. Returns for females are 6% or less in Denmark, France, Korea, Norway and Switzerland. Private direct costs for education are generally negligible at the upper secondary or post-secondary non-tertiary level so that the returns largely hinge on labour market outcomes. Policies to enhance incentives to invest would therefore in most circumstances involve tax-related interventions or in cases where tertiary education shows higher rewards, increased access to higher education.

Chart A10.2 shows the components of the rate of return to tertiary education for males in different countries. Relative to upper secondary and post-secondary non-tertiary education, the impact of unemployment benefits is less pronounced than the earnings differential, and taxes and the direct costs of education play a substantially larger role.

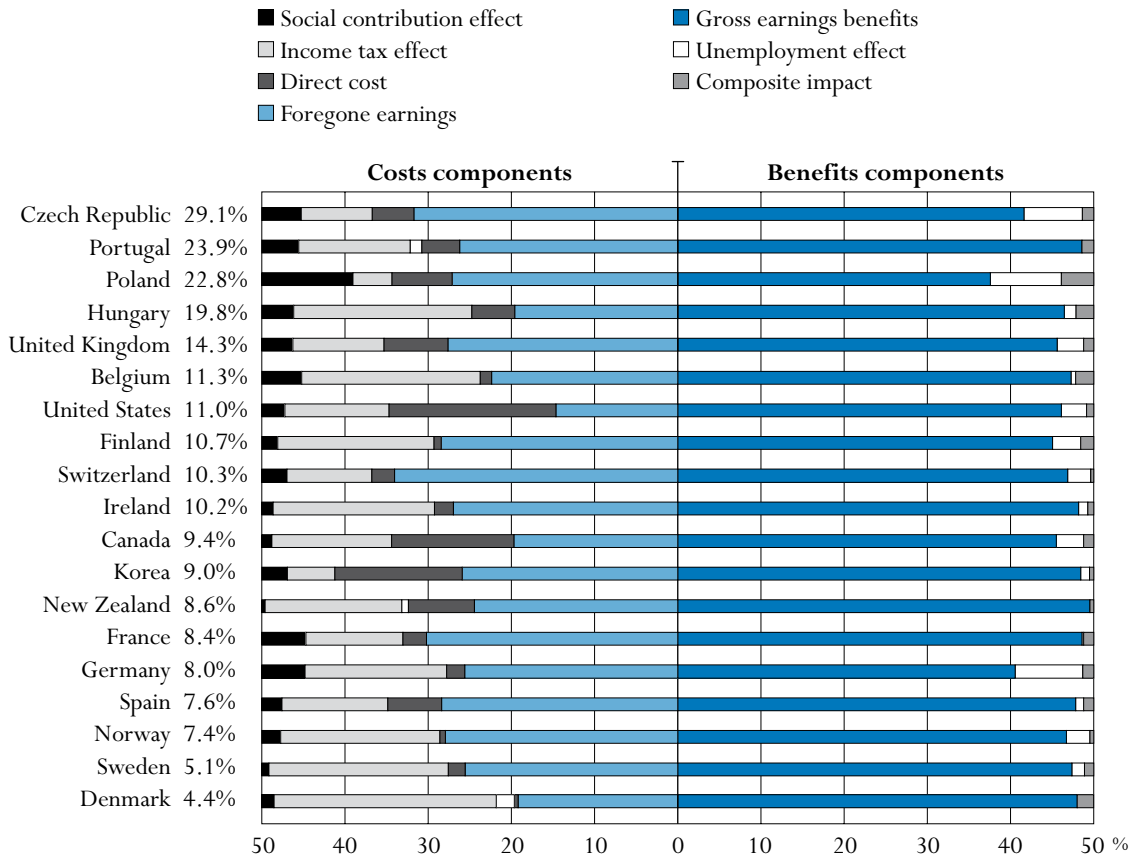
As with upper secondary and post-secondary non-tertiary education, the returns to tertiary education are largely driven by earnings premiums; other components are less important in

explaining differences among OECD countries. This suggests that education policy needs to monitor and match the supply of and demand for education. The components illustrated in Chart A10.2 show, however, the importance of specific factors in different countries and thus indicate areas in which policy could help to improve incentives.

Tertiary education brings substantial rewards in the Czech Republic, Hungary, Poland and Portugal, with returns ranging from close to 20 to almost 30%. With tertiary attainment levels in the 25-to-64-year-old population in these countries ranging from 13 to 18%, well below the OECD average of 27%, increasing access to tertiary education appears warranted to bring supply more in line with demand. The rewards for tertiary education are relatively low in Germany, Norway, Spain, and Sweden where returns range from 5 to 8%, an indication of weak incentives to continue education. Income taxes and social contributions help to drive down returns in all countries but Spain. The pattern is similar for females in most countries (Table A10.2).

Chart A10.2. Components of the internal rate of return for a male obtaining tertiary education, ISCED 5/6 (2004)

Cash flow components discounted by the internal rate of return, in order to provide a comparable picture of their impact when costs equal benefits.



Countries are ranked by descending order of the private IRR for males immediately acquiring tertiary level of education.
Source: OECD. Tables A10.1 and A10.2. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).
StatLink http://dx.doi.org/10.1787/401828118341

There is generally a trade-off between taxes and the direct costs of education (tuition fees). Countries with low or no tuition fees typically let individuals pay back public subsidies later in life through progressive tax schemes. In countries in which a larger portion of the investment falls on the individual (in the form of tuition fees) a larger portion of the earnings differential is also accrued by the individual. Therefore, the stakes are higher in Canada, Korea and the United States, where tuition fees represent a large proportion of the investment cost. There is no straightforward link between tuition fees and rates of returns to education, which indicates that supply of and demand for tertiary-educated individuals is the main determinant.

Box A10.1. Estimating returns to education

There are essentially two main approaches to estimating the financial returns to education, founded either on investment theory, from the finance literature, or on an econometric specification, from the labour economics literature.

The basis for an investment approach is the discount rate (the time-value of money) which makes it possible to compare costs or payments (cash flows) over time. The discount rate can be estimated either by raising it to the level at which financial benefits equal costs, which is then the internal rate of return, or by setting the discount rate at a required rate that takes into consideration the risk involved in the investment, which is then a net present value calculation with the gains expressed in monetary units.

The econometric approach taken in labour economics originates from Mincer (1974) in which returns to education are estimated in a regression relating earnings to years of education, labour market experience and tenure. This basic model has been extended in subsequent work to include educational levels, employment effects and additional control variables such as gender, work characteristics (part-time, firm size, contracting arrangements, utilisation of skills, etc.) to arrive at a "net" effect of education on earnings.

The main difference between the two approaches is that the investment approach is forward-looking (although historical data are typically used) whereas an econometric approach tries to establish the actual contribution of education to earnings by controlling for other factors that can influence earnings and returns. This difference has implications for the assumptions and for interpretations of returns to education. As the investment approach focuses on the incentives at the time of the investment decision, it is prudent not to remove the effect of (controlling for) other factors as these are part of the returns that an individual can expect to receive when deciding to invest in education. In other words, it is difficult to foresee one's labour market experience, tenure with a specific firm, whether one will work part-time, for a big firm, in the public sector, or in a job which does not call for one's skills. Gender will of course be known at the time of the investment decision and is an important component in investment analysis.

Depending on the impact of the control variables, how steep the earnings curves are, and how cash flows are distributed over time, the results of the two approaches can diverge quite substantially. Depending on other underlying assumptions, returns may differ between and within a class of models as well. For instance, cash flows can be calculated differently and, depending on the method chosen, returns will vary to some degree. It is therefore generally not advisable to compare rates of return from different studies. The use of data systematically extracted from comparable sources allows a reliable cross-country comparison, even though the rates of return might differ slightly with another approach.

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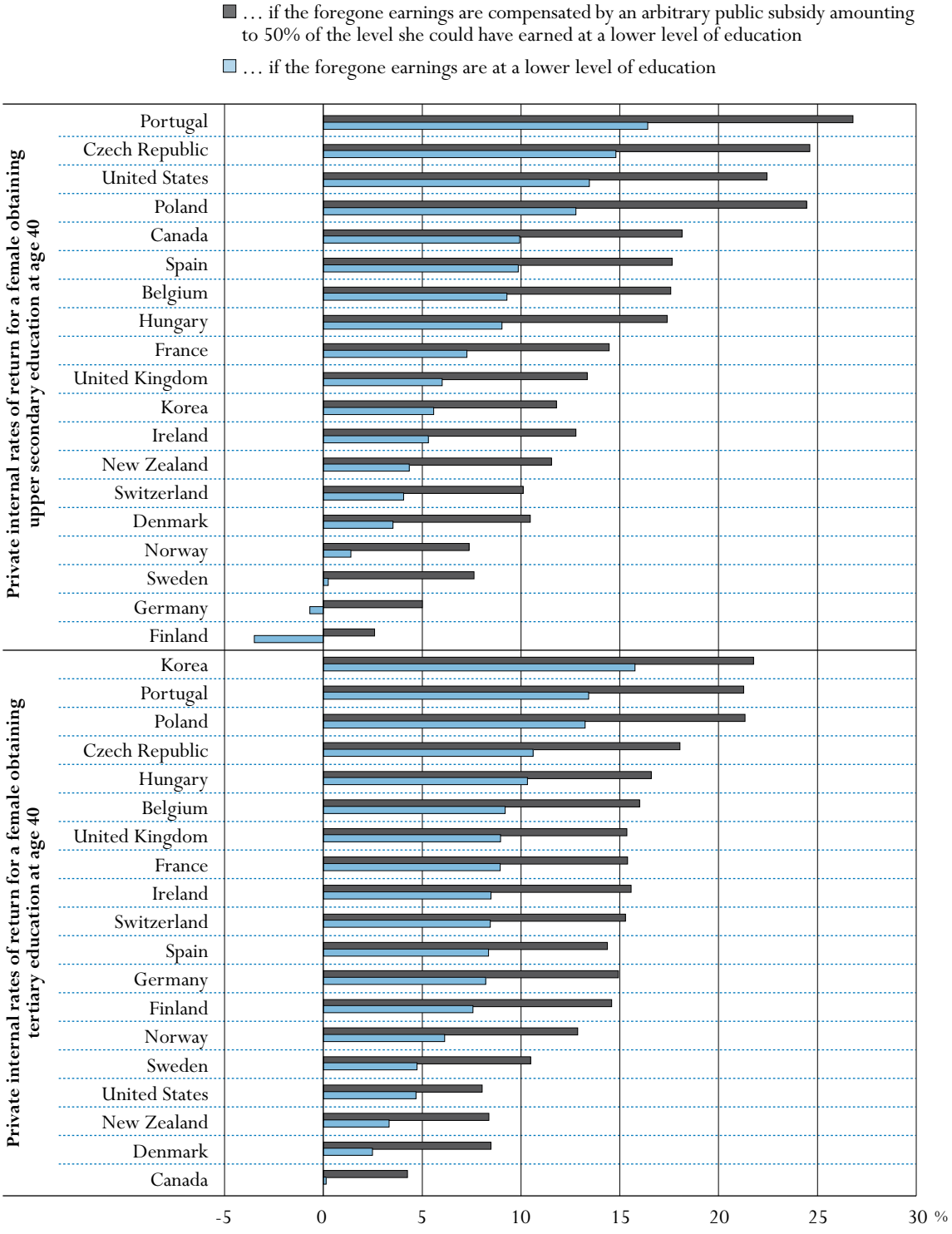
Chart A10.3. Private internal rate of return for a female obtaining higher education at age 40 (2004)



Countries are ranked in descending order of the private IRR for females acquiring a higher level of education at age 40, if the foregone earnings are at a lower level of education.

Source: OECD. Tables A10.3 and A10.4. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

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Investing in education at age 40

It is becoming increasingly important to upgrade skills and knowledge throughout working life to remain attractive in the labour market. Investment in education is not only a matter of initial education at a young age but is equally important for older workers. Tables A10.3 and A10.4 provide the returns to education undertaken at age 40 on a full-time basis for three years at the upper secondary or post-secondary non-tertiary level of education and for four years at the tertiary level. For those employed, foregone earnings constitute a major component of the costs associated with returning to education on a full-time basis. For a broad view of potential outcomes, three cases are examined: *i)* the individual bears the direct costs of tuition and foregoes earnings (net of taxes) while studying; *ii)* foregone earnings are compensated by an arbitrary public subsidy amounting to 50% of the level the individual could have earned at his/her current level of education; and *iii)* foregone earnings are compensated by a public subsidy equal to unemployment benefits.

Table A10.3 shows the returns an individual can expect to receive from upper secondary education at age 40. Most countries have incentives for returning to education at age 40 even if the individual works and entirely foregoes his/her earnings. The rate of return for both males and females exceeds 13% in the Czech Republic, Portugal and the United States; therefore, expected rewards are large even if the individual sacrifices earnings during the period of study. Returns are substantially lower, below 4% for both males and females, in Denmark, Finland, Norway and Sweden, largely because of high employment rates and earnings among those with below upper secondary education. The incentives improve considerably in most countries if foregone earnings are compensated by a public subsidy of 50% or if the government steps in and pay a subsidy amounting to unemployment benefits during the period of study.

The rewards for investing in tertiary education at age 40 are generally higher than for upper secondary education (Table A10.4). Only in Canada, Denmark and New Zealand are the returns for males and females below 4.5%. If foregone earnings are compensated by a public subsidy of 50%, returns improve everywhere to above 8%, except for females in Canada. Females are typically disadvantaged in the labour market in terms of employment owing, among other things, to cultural differences and child-rearing responsibilities. In some cases, this leaves females with an outdated stock of human capital because of labour market interruptions.

Chart A10.3 provides the financial incentives for females to return to upper secondary and to tertiary education for three and four years, respectively. As for males, the returns to a tertiary degree are generally higher in most countries. With few exceptions, they exceed 5% even if the individual foregoes all earnings. In Canada, Denmark, New Zealand, Sweden and the United States, the returns are less attractive, but in most countries they are substantial enough to motivate an investment in the absence of any government intervention.

For upper secondary education the financial returns are below 5% in Denmark, New Zealand, Norway, Sweden and Switzerland; and negative in Finland and Germany. Even if foregone earnings are compensated by 50%, the returns for a female in Finland are below 5%; this suggests that additional efforts are needed to encourage females at age 40 to invest in upper secondary education. For the majority of countries, however, the rewards are sizeable. In the Czech Republic, Poland, Portugal and the United States, the rate of return is well above 10%.

In most countries there appears to be relatively little need to improve incentives to invest in education at an older age (for both males and females). In a few countries, government subsidies in one form or another might be needed to encourage older workers to invest in education.

For an individual outside the labour market (non-employed), the foregone earnings are essentially zero. In this case, the rate of return to returning to education is generally extremely favourable in all countries. As skills requirements are constantly increasing and as staying attractive to the labour market becomes increasingly important for employment, the main message for older workers and particularly those outside the labour market is that it is not too late to invest in education at mid-career and that there are generally substantial rewards for doing so. Providing older workers with opportunities to return to education and providing information about the benefits of such a decision seem to be important areas for policy.

Public rate of return to investments in education

The public internal rate of return is one way of examining the effect on public-sector accounts of individuals' decisions to invest in education and the effect of policies that affect these investments. Similarly, to warrant an intervention by governments to improve private rates of return to education, it is important to consider public returns in order to have a complete picture of overall returns to education.

For the public sector, the costs of education include direct expenditures on education (such as direct payment of teachers' salaries, direct payments for the construction of school buildings, buying textbooks, etc.) and public-private transfers (such as public subsidies to households for scholarships and other grants and to other private entities for provision of training at the workplace, etc.). The public costs of education also include income tax revenues on students' foregone earnings. The benefits include increased revenue from income taxes on higher wages and social insurance payments.

In practice, raising levels of education will give rise to a complex set of fiscal effects on the benefit side, beyond the effects of revenue growth based on wages and payments to government. For instance, better educated individuals generally have better health, which lowers public expenditure on provision of health care and thus public expenditure. As earnings generally rise with educational attainment, there is more consumption of goods and services among the more educated, and this gives rise to fiscal effects beyond income tax and social security contributions. However, tax and expenditure data on these indirect effects of education are not readily available for inclusion in rate-of-return calculations.

Tables A10.5 and A10.6 show the public returns for individuals who obtain upper secondary education and tertiary education as part of initial education and at age 40, respectively. Chart A10.4 summarises the public returns to investment in tertiary education for both females and males. The results show that, for tertiary education during initial education, the public rate of return is generally higher than for upper secondary education. There are some exceptions. In Denmark, the return to upper secondary education is close to 10 percentage points higher than the return to tertiary education among males and in Denmark, Germany, Sweden and the United States, upper secondary education yields higher returns for females (Table A10.5).

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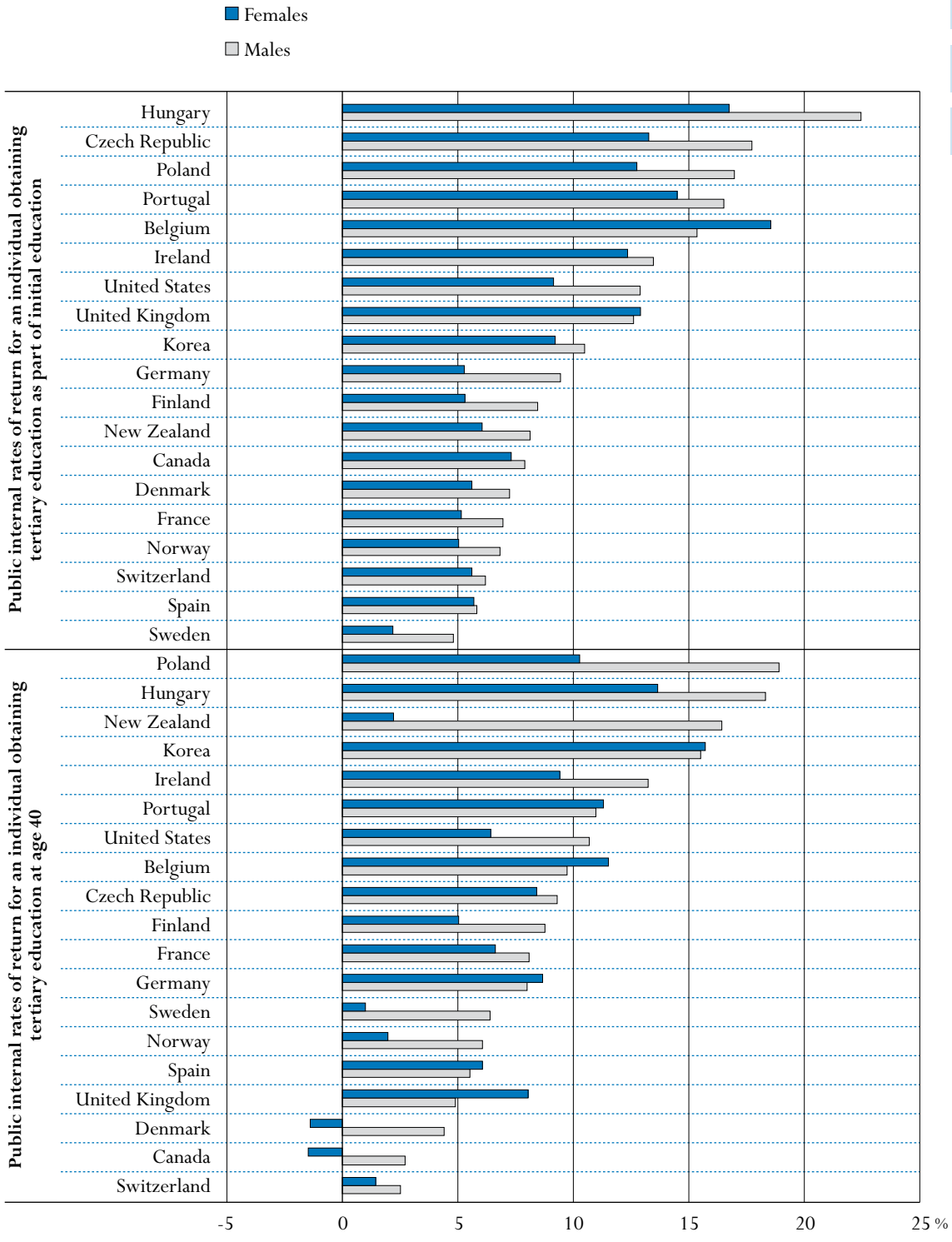
Chart A10.4. Public internal rates of return for an individual obtaining higher education (2004)



Countries are ranked in descending order of public internal rates of return for males obtaining higher education.
Source: OECD. Tables A10.5 and A10.6. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

StatLink http://dx.doi.org/10.1787/401828118341

The public returns to an upper secondary education are lower when the individual returns to full-time education in mid-career, with negative returns in some countries. On average for males, the returns to upper secondary education at age 40 in OECD countries is 4%, whereas the returns to upper secondary attainment as part of initial education are close to 6.5%.

Public rates of return are substantially higher for tertiary education both as part of initial education and at age 40. On average, tertiary education generates a return of 11% for males and 9% for females as part of initial education; at age 40 the public returns are 9.5% for males and 6.6% for females. 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.

Part of these returns is typically redistributed 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 more than 15% for males.

Thus there seems to be room for additional expansion of higher education through either public or private financing. As upper secondary education has become the norm in many OECD countries, returns are generally lower than for tertiary education. Public as well as private rates of return to tertiary education will eventually drop in many countries with high returns as supply meets demand, but from the viewpoint of equity this may be a desirable outcome.

The interpretation of internal rates of return

For those who acquire upper secondary or tertiary education, high private internal rates of return in most countries (though not in all) indicate that investment in human capital is an attractive way for the average person to build wealth. Furthermore, and with some exceptions, policies that reduce or eliminate the direct costs of education have only a modest impact on individuals' decisions to invest in mid-career learning, because foregone earnings typically are the main cost when going back to education.

In many cases, the reported private internal rates of return are above – and in a number of countries significantly above – the risk-free real interest rate, which is typically measured with reference to rates on long-term government bonds. However, returns to human capital accumulation are not risk-free, as indicated by the wide distribution of earnings among the better educated (see Indicator A9). Moreover, not everyone who invests in a course of education actually completes the course. Rates of return will be low, and possibly negative, for individuals who drop out. Therefore, individuals contemplating an investment in education are likely to require a compensating risk premium. However, in a number of countries, the size of the premium over the real interest rate is higher than would seem warranted by considerations of risk alone. If returns to this form of investment are high, relative to investments of similar risk, it would appear that individuals perceive obstacles to making the investment. High risk-adjusted private rates of return provide initial grounds for policy intervention to alleviate the relevant constraints.

High rates of return indicate a shortage of better-educated workers which drives up earnings for these workers. The situation may be temporary; high returns to education would eventually generate enough supply response to push the rates into line with returns to other productive assets. However, the speed of adjustment would depend largely on the capacity of the education

system to respond to the derived increase in demand and the capacity of the labour market to absorb the changing relative supplies of labour. The rebalancing mechanism could be accelerated by making better information about the returns to different courses of study available, as this would help individuals to make more informed choices.

Part of the high returns may also be compatible with market stability as high internal rates of return would partly reflect economic rents on scarce resources, namely ability and motivation. If the returns to education at the margin are lower, the case for public intervention to stimulate human capital accumulation is lessened if the quality of the marginal student cannot be improved. However, to the extent that the education system can improve young adults' cognitive and non-cognitive skills, education policy can make a significant contribution to efficiency and equity in the long run. The results from the OECD Programme for International Student Assessment (PISA) suggest that some countries succeed much better than others in securing high and equitable educational performances at the age of 15.

Internal rates of return to investment in education can also be viewed from a societal perspective. This perspective combines both private and public costs and benefits of additional education. For instance, the social cost of education would include foregone production of output during periods of study as well as the full cost of providing education. A social rate of return should also include a range of possible indirect benefits, which also have economic repercussions, such as better health, more social cohesion and more informed and effective citizens. While data on social costs are available for most OECD countries, information on the full range of social benefits is less readily available. Indeed, for a number of external factors possibly associated with education, current understanding of their nature and size of their effects is imperfect.

It is important to consider some of the broad conceptual limitations on the estimation of internal rates of return performed here:

- The data reported are accounting rates of return only. The results no doubt differ from econometric estimates that would rely, for example, on an earnings function approach, rather than on a lifetime stream of earnings derived from average empirical earnings.
- Estimates relate to levels of formal educational attainment only. They do not reflect the effects of learning outside of formal education.
- The approach used here estimates future earnings for individuals with different levels of educational attainment based on knowledge of how average present gross earnings vary by level of attainment and age. However, the relationship between different levels of educational attainment and earnings may differ in the future from what it is today. Technological, economic and social changes may all alter how wage levels relate to levels of educational attainment.
- As in the discussion of the interpretation of earnings dispersion data (see Indicator A9), differences in internal rates of return across countries partly reflect different institutional and non-market conditions that bear on earnings, such as institutional conditions that limit flexibility in relative earnings.
- Estimates are based on average pre-tax earnings for persons at different levels of educational attainment. However, at a given level of educational attainment, individuals who have chosen different courses of study or who come from different social groups may register different rates of return.

- In estimating benefits, the effect of education on increasing the likelihood of employment when wanting to work is taken into account. However, this also makes the estimate sensitive to the stage in the economic cycle at which the data were collected.

Definitions and methodologies

The economic returns to education are measured by the internal rate of return (IRR), which is the discount rate that makes the present value of the income stream equal to zero, or in other words, the interest rate that makes the net present value of costs of investing in education equal to the benefits.

These results are not comparable with the estimates in *Education at a Glance* 2007. Although the approach is the same, some assumptions have changed. Use of the productivity rate as a scaling factor has been abandoned because of a presumption of double counting. Foregone earnings have been standardised at the level of the legal minimum wage or the equivalent (for the calculations of upper secondary education and tertiary education as part of initial education). To facilitate comparisons, the length of time for obtaining upper secondary education and tertiary education at age 40 has been fixed at three years and four years, respectively. In order to broaden the country coverage, when information from Tables B1.3a and B1.3b were not available, the starting age of education and the duration of studies have been estimated on the basis of school expectancy (see Indicator C2) or the best estimate from the litterature.

The calculations also involve a number of restrictive assumptions needed for international comparability. In particular, it was not possible to include the effects on public accounts of changes in social transfer payments resulting from changes in wages. This is largely because the rules governing eligibility for a broad range of social entitlements vary greatly across countries as well as by marital or civil status (and sometimes other criteria). Consequently, to ensure comparability, the rates of return have been calculated on the assumption that the individual in question is single and childless.

The private internal rate of return for the individual is estimated on the basis of the additions to after-tax earnings that result from a higher level of educational attainment, net of the additional private costs (private expenditures and foregone earnings) required to attain the higher level of education. In general, living expenses of students (housing, meals, clothing, recreation, etc.) are excluded from these private expenditures.

For the individual who decides to attain upper secondary education as part of his/her initial education, the assumption concerning the estimated level of foregone earnings was the minimum wage (when no national minimum wage was available, the wage was selected from wages set in collective agreements). This assumption seeks to counterbalance the very low recorded earnings for 15-to-24-year-olds with lower secondary education that led to excessively high estimates in earlier editions of *Education at a Glance*.

For the individual who decides to return to education in mid-career, the assumptions concerned the immediate increase in earnings (10% relative to the level of earnings at the previous level of educational attainment) and the time required for convergence with the average wage of individuals already holding the next highest level of educational qualification (two years). These assumptions are somewhat *ad hoc*. Empirical evidence on the earnings of adults who return to

work following part-time or full-time studies is scarce, especially for individuals attaining upper secondary qualification. However, Canadian data indicate a convergence period of just two years for 30-to-49-year-olds who obtain a university degree. It should be noted, nevertheless, that the Canadian data are derived from a small sample of individuals and do not control for the fact that those who invested in education may differ in important ways – such as motivation and inherent ability – by comparison with those who did not.

The analysis could be extended in a number of ways, subject to data availability. In particular, more differentiated and comparable data relative to costs per student and a range of social transfer payments would be useful. Estimating changes in value added tax receipts resulting from the increased earnings acquired through obtaining higher levels of education would also contribute to a more complete assessment of the impact on public accounts. The calculations do not consider the fact that those with high earnings often generate higher levels of income after age 64 owing to their superior pension arrangements.

For the methods employed for the calculation of the rates of return see Annex 3 at *www.oecd.org/edu/eag2008*.

Further references

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Table A10.1.

Private internal rates of return (IRR) for an individual obtaining upper secondary or post-secondary non-tertiary education, ISCED 3/4 (2004)

	IRR		Direct cost		Foregone earnings		Gross earnings benefits		Unemployment effect		Income tax effect		Social contribution effect		Composite Impact	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
OECD countries																
Belgium	9.0	9.2	-1.1	-1.1	-29.1	-29.9	30.8	30.2	18.7	14.1	-12.9	-12.6	-6.9	-6.4	0.5	5.7
Canada	9.1	9.0	-2.0	-2.1	-35.8	-36.5	35.1	38.9	13.8	7.4	-10.1	-8.2	-2.0	-3.2	1.1	3.7
Czech Republic	15.0	15.2	-3.8	-3.8	-39.2	-39.2	15.4	14.8	33.9	31.7	-4.3	-4.0	-2.6	-2.9	0.7	3.5
Denmark	6.7	5.4	-0.3	-0.4	-23.6	-27.8	42.7	42.6	6.2	6.3	-21.0	-16.8	-5.1	-5.1	1.1	1.0
Finland	10.2	7.9	-0.2	-0.2	-35.3	-38.1	35.4	31.1	11.4	15.0	-12.4	-9.6	-2.1	-2.1	3.2	3.8
France	6.1	5.6	-2.1	-2.1	-37.0	-37.7	31.0	31.7	18.5	16.7	-6.4	-4.6	-4.5	-5.6	0.5	1.6
Germany	7.0	8.1	-4.2	-4.3	-27.4	-28.0	26.4	36.7	23.6	11.1	-7.0	-9.6	-6.0	-8.1	-5.4	2.3
Hungary	8.6	8.4	-1.6	-1.5	-33.0	-32.5	32.0	35.9	17.0	12.3	-11.9	-11.9	-3.6	-4.1	1.0	1.8
Ireland	7.9	8.8	-0.6	-0.6	-35.9	-37.4	32.6	39.3	17.0	7.9	-11.8	-7.2	-1.8	-4.7	0.4	2.8
Korea[1]	9.7	1.5	-7.2	-7.5	-37.9	-39.3	44.6	43.3	4.7	5.1	-1.6	1.6	-3.2	-3.2	0.7	0.0
New Zealand	11.3	10.4	-3.3	-3.4	-35.2	-36.8	40.8	38.6	8.5	9.1	-11.1	-9.3	-0.4	-0.4	0.7	2.3
Norway	7.8	5.5	-1.9	-2.0	-33.7	-34.2	38.5	44.1	8.8	3.6	-11.7	-10.7	-2.6	-3.1	2.7	2.3
Poland	11.0	10.1	-0.6	-0.6	-35.8	-34.2	27.7	29.1	19.9	15.4	-3.9	-4.3	-9.7	-10.9	2.5	5.4
Portugal	13.1	12.3	0.0	0.0	-33.8	-37.3	48.7	43.2	-0.1	5.1	-11.4	-8.3	-4.5	-4.5	1.3	1.7
Spain	9.5	10.2	-2.4	-2.7	-34.9	-38.6	42.5	29.4	6.2	19.0	-10.3	-6.9	-2.4	-1.9	1.3	1.5
Sweden	11.4	8.8	0.0	0.0	-35.1	-35.8	39.6	39.1	6.4	7.2	-12.4	-11.5	-2.6	-2.7	4.0	3.7
Switzerland	8.4	6.0	-4.6	-3.7	-34.6	-27.8	34.5	36.1	15.5	10.4	-6.5	-4.8	-3.4	-13.7	-0.9	3.5
United Kingdom	18.0	18.5	-3.4	-3.6	-34.5	-36.1	31.0	34.6	15.1	8.2	-8.6	-6.6	-3.6	-3.8	3.9	7.1
United States	17.5	15.6	-3.3	-3.4	-33.6	-35.3	42.5	40.9	3.9	5.0	-9.8	-7.9	-3.3	-3.5	3.6	4.2

Note: Assuming that all individuals with a lower secondary level of education will receive the minimum wage.
1. Year of reference 2003.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).
StatLink http://dx.doi.org/10.1787/401828118341

Table A10.2.

Private internal rates of return (IRR) for an individual obtaining tertiary education, ISCED 5/6 (2004)

	IRR		Direct cost		Foregone earnings		Gross earnings benefits		Unemployment effect		Income tax effect		Social contribution effect		Composite Impact	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
OECD countries																
Belgium	11.3	14.0	-1.4	-1.5	-22.4	-24.1	47.3	40.5	0.5	5.1	-21.5	-16.1	-4.8	-8.3	2.2	4.3
Canada	9.4	9.1	-14.7	-14.7	-19.7	-19.7	45.5	46.3	3.3	2.1	-14.4	-12.3	-1.2	-3.4	1.2	1.6
Czech Republic	29.1	23.8	-5.0	-5.0	-31.7	-32.3	41.6	39.3	7.1	8.7	-8.6	-8.0	-4.7	-4.6	1.3	2.0
Denmark	4.4	4.1	-0.5	-0.6	-19.2	-26.5	48.0	47.3	-2.2	1.7	-26.7	-19.2	-1.5	-3.7	2.0	1.1
Finland	10.7	9.3	-0.9	-1.0	-28.4	-31.4	45.0	43.7	3.4	4.3	-18.8	-15.5	-1.9	-2.1	1.6	2.0
France	8.4	7.4	-2.8	-3.0	-30.2	-32.3	48.6	42.2	0.2	5.6	-11.7	-9.4	-5.3	-5.2	1.2	2.2
Germany	8.0	4.8	-2.2	-2.2	-25.6	-26.4	40.5	42.1	8.1	6.1	-17.0	-14.6	-5.2	-6.8	1.3	1.9
Hungary	19.8	13.8	-5.2	-5.0	-19.6	-18.8	46.5	45.8	1.4	2.0	-21.4	-22.6	-3.8	-3.6	2.1	2.2
Ireland	10.2	11.8	-2.3	-2.7	-27.0	-31.7	48.2	48.6	1.1	0.6	-19.4	-12.3	-1.4	-3.3	0.7	0.8
Korea[1]	9.0	11.2	-15.3	-15.1	-25.9	-29.9	48.4	49.0	1.1	0.7	-5.7	-1.6	-3.1	-3.4	0.5	0.3
New Zealand	8.6	11.9	-7.9	-9.5	-24.4	-29.2	49.5	47.7	-0.8	1.4	-16.4	-10.9	-0.4	-0.5	0.5	0.9
Norway	7.4	8.8	-0.6	-0.7	-27.9	-33.5	46.7	46.3	2.8	2.8	-19.1	-13.0	-2.3	-2.8	0.5	0.9
Poland	22.8	18.6	-7.2	-7.5	-27.1	-28.1	37.6	32.8	8.5	13.1	-4.7	-4.1	-10.9	-10.3	3.9	4.1
Portugal	23.9	21.5	-4.5	-4.3	-26.2	-24.8	48.6	49.3	-1.4	-3.5	-13.4	-12.8	-4.4	-4.6	1.4	0.7
Spain	7.6	8.7	-6.4	-6.7	-28.4	-29.5	47.8	43.3	1.0	3.9	-12.7	-11.3	-2.4	-2.5	1.2	2.9
Sweden	5.1	4.2	-2.0	-2.6	-25.5	-31.4	47.4	45.2	1.5	4.6	-21.6	-13.7	-0.8	-2.4	1.1	0.2
Switzerland	10.3	10.2	-2.7	-2.7	-34.0	-33.7	46.9	48.2	2.8	1.2	-10.2	-7.7	-3.0	-6.0	0.3	0.6
United Kingdom	14.3	14.5	-7.7	-7.6	-27.6	-27.3	45.6	45.7	3.2	2.5	-10.9	-10.8	-3.7	-4.3	1.2	1.8
United States	11.0	8.4	-20.0	-20.7	-14.7	-15.2	46.1	46.6	3.0	2.3	-12.5	-11.1	-2.8	-2.9	0.8	1.1

1. Year of reference 2003.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).
StatLink http://dx.doi.org/10.1787/401828118341

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Table A10.3.

Private internal rates of return for an individual obtaining upper secondary education at age 40 (2004)

	Private rate at age 40 if …					
	… if the foregone earnings are at the level he/she could have earned with a lower secondary education		… if the foregone earnings are compensated by an arbitrary public subsidy amounting to 50% of the level he/she could have earned with a lower secondary education		… if the foregone earnings are compensated by a public subsidy amounting to unemployment benefits	
	Male	Female	Male	Female	Male	Female
OECD countries						
Belgium	4.8	9.3	11.2	17.6	16.8	66.2
Canada	5.7	9.9	12.4	18.2	16.7	26.7
Czech Republic	13.6	14.8	24.8	24.6	29.7	29.3
Denmark	3.3	3.5	10.1	10.5	15.6	66.9
Finland	-0.8	-3.5	4.5	2.6	8.3	8.6
France	4.8	7.3	11.3	14.5	17.8	33.4
Germany	5.1	-0.7	11.1	5.0	12.6	8.5
Hungary	8.3	9.0	15.9	17.4	17.5	21.3
Ireland	2.8	5.3	9.1	12.8	5.8	13.1
Korea[1]	7.5	5.6	14.8	11.8	15.2	13.9
New Zealand	6.6	4.4	14.4	11.5	10.6	10.6
Norway	2.3	1.4	8.0	7.4	12.4	11.5
Poland	7.0	12.8	17.7	24.5	12.9	25.9
Portugal	16.8	16.4	26.8	26.8	36.1	38.3
Spain	7.3	9.9	15.1	17.6	28.1	36.0
Sweden	2.5	0.2	8.9	7.6	25.3	32.4
Switzerland	7.3	4.1	14.4	10.1	22.6	43.1
United Kingdom	9.5	6.0	18.3	13.3	12.7	11.4
United States	13.5	13.5	22.7	22.5	26.8	28.6

1. Year of reference 2003.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

StatLink http://dx.doi.org/10.1787/401828118341

Table A10.4.

Private internal rates of return for an individual obtaining tertiary education at age 40 (2004)

	Private rate at age 40 if …					
	… if the foregone earnings are at the level he/she could have earned with an upper secondary education		… if the foregone earnings are compensated by an arbitrary public subsidy amounting to 50% of the level he/she could have earned with an upper secondary education		… if the foregone earnings are compensated by a public subsidy amounting to unemployment benefits	
	Male	Female	Male	Female	Male	Female
OECD countries						
Belgium	7.1	9.2	14.3	16.0	16.2	24.4
Canada	4.4	0.1	9.9	4.3	10.9	5.9
Czech Republic	13.3	10.6	21.6	18.0	19.7	16.9
Denmark	2.3	2.5	8.4	8.5	9.3	16.1
Finland	9.0	7.6	16.8	14.6	20.4	19.1
France	10.5	8.9	17.6	15.4	21.1	21.5
Germany	6.5	8.2	13.6	14.9	13.1	16.4
Hungary	16.1	10.3	23.9	16.6	22.1	15.6
Ireland	9.5	8.5	16.9	15.6	12.6	14.1
Korea[1]	7.1	15.8	13.0	21.8	12.8	22.2
New Zealand	4.1	3.3	10.2	8.4	8.5	8.6
Norway	4.9	6.1	11.7	12.9	16.8	17.2
Poland	15.5	13.2	24.3	21.3	19.7	19.2
Portugal	14.6	13.4	22.9	21.3	28.7	27.7
Spain	5.4	8.4	10.8	14.4	14.0	24.6
Sweden	5.1	4.7	11.5	10.5	17.8	21.1
Switzerland	6.6	8.4	13.6	15.3	20.2	38.6
United Kingdom	6.3	9.0	12.7	15.4	7.8	12.1
United States	8.3	4.7	13.1	8.0	13.2	8.7

1. Year of reference 2003.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

StatLink http://dx.doi.org/10.1787/401828118341

Table A10.5.

Public internal rates of return for an individual obtaining higher education as part of initial education (2004)

	Upper secondary education		Tertiary education	
	Male	Female	Male	Female
OECD countries				
Belgium	9.7	7.9	15.4	18.5
Canada	6.5	5.1	7.9	7.3
Czech Republic	5.4	4.7	17.7	13.3
Denmark	16.7	8.9	7.2	5.6
Finland	4.1	1.0	8.4	5.3
France	1.8	0.7	6.9	5.1
Germany	5.6	5.6	9.4	5.3
Hungary	5.7	7.9	22.5	16.7
Ireland	7.0	5.1	13.5	12.4
Korea[1]	1.7	4.2	10.5	9.2
New Zealand	5.8	-3.5	8.1	6.1
Norway	3.0	1.0	6.8	5.0
Poland	6.1	5.7	17.0	12.8
Portugal	8.5	2.9	16.5	14.5
Spain	5.4	2.5	5.8	5.7
Sweden	4.4	6.3	4.8	2.2
Switzerland	3.5	4.7	6.2	5.6
United Kingdom	12.2	5.7	12.6	12.9
United States	8.1	9.2	12.9	9.1

1. Year of reference 2003.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

StatLink http://dx.doi.org/10.1787/401828118341

Table A10.6.

Public internal rates of return for an individual obtaining higher education at age 40 (2004)

	Upper secondary education		Tertiary education	
	Male	Female	Male	Female
OECD countries				
Belgium	5.6	11.5	9.7	11.5
Canada	4.8	5.8	2.7	-1.5
Czech Republic	4.3	4.2	9.3	8.4
Denmark	0.7	-1.0	4.4	-1.4
Finland	-1.9	-8.3	8.8	5.0
France	0.5	0.0	8.1	6.6
Germany	3.9	-2.4	8.0	8.7
Hungary	7.5	7.8	18.3	13.7
Ireland	5.6	4.9	13.2	9.4
Korea[1]	-0.2	-10.0	15.5	15.7
New Zealand	6.0	-1.8	16.4	2.2
Norway	-0.9	-4.6	6.1	2.0
Poland	6.3	9.7	18.9	10.3
Portugal	14.2	10.0	11.0	11.3
Spain	3.7	3.6	5.5	6.1
Sweden	-1.2	-5.5	6.4	1.0
Switzerland	1.1	-0.4	2.5	1.4
United Kingdom	7.1	3.4	4.9	8.0
United States	7.8	3.4	10.7	6.4

1. Year of reference 2003.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

StatLink http://dx.doi.org/10.1787/401828118341

Reader's Guide

Coverage of the statistics

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

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

Calculation of international means

For many indicators an OECD average is presented and for some an OECD total.

The OECD average 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.

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

Note that both the 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 a category is not applicable (code "a") in a country or where the data value is negligible (code "n") for the corresponding calculation, the value zero is imputed for the purpose of calculating OECD averages. In cases where both the numerator and the denominator of a ratio are not applicable (code "a") for a certain country, this country is not included in the OECD average.

For financial tables using 1995 and 2000 data, both the OECD average and OECD total are calculated for countries providing 1995, 2000 and 2005 data. This allows comparison of the OECD average and OECD total over time with no distortion due to the exclusion of certain countries in the different years.

For many indicators an EU19 average is also presented. It is calculated as the unweighted mean of the data values of the 19 OECD countries that are members of the European Union for which data are available or can be estimated. These 19 countries are Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Ireland, Luxembourg, the Netherlands, Poland, Portugal, the Slovak Republic, Spain, Sweden and the United Kingdom.

Classification of levels of education

The classification of the levels of education is based on the revised International Standard Classification of Education (ISCED-97). The biggest change between the revised ISCED and the former ISCED (ISCED-76) is the introduction of a multi-dimensional classification framework, allowing for the alignment of the educational content of programmes using multiple classification criteria. ISCED is an instrument for compiling statistics on education internationally and distinguishes among six levels of education. The glossary available at *www.oecd.org/edu/eag2008* describes in detail the ISCED levels of education, and Annex 1 shows corresponding typical graduation ages of the main educational programmes by ISCED level.

Symbols for missing data

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

a Data is not applicable because the category does not apply.

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 is not available.

n Magnitude is either negligible or zero.

w Data has been withdrawn at the request of the country concerned.

x Data included in another category or column of the table (*e.g.* x(2) means that data are included in column 2 of the table).

~ Average is not comparable with other levels of education

Further resources

The website *www.oecd.org/edu/eag2008* provides a rich source of information on the methods employed for the calculation of the indicators, the interpretation of the indicators in the respective national contexts and the data sources involved. The website also provides access to the data underlying the indicators as well as to a comprehensive glossary for technical terms used in this publication.

Any post-production changes to this publication are listed at *www.oecd.org/edu/eag2008*.

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

Education at a Glance uses the OECD's StatLinks service. Below each table and chart in *Education at Glance 2008* is a url which leads to a corresponding Excel workbook containing the underlying data for the indicator. These urls are stable and will remain unchanged over time. In addition, readers of the *Education at a Glance* e-book will be able to click directly on these links and the workbook will open in a separate window.

Codes used for territorial entities

These codes are used in certain charts. Country or territorial entity names are used in the text. Note that in the text the Flemish Community of Belgium is referred to as "Belgium (Fl.)" and the French Community of Belgium as "Belgium (Fr.)".

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

Table of Contents

Name of the indicator in the 2007 edition

Name of the indicator in the 2007 edition

Name of the indicator in the 2007 edition

Name of the indicator in the 2007 edition

Name of the indicator in the 2007 edition

Name of the indicator in the 2007 edition