

Education at a Glance

OECD Indicators 2010

Annex 3: Sources, methods and technical notes

Chapter B: Financial investment in education

Table: Specific notes by country in the different indicators

	B1			B2	B3	B4	B5	B6	B7
	coverage	method	interpretation	coverage	coverage	coverage	coverage	coverage	coverage
Australia	AUS			AUS	AUS	AUS	AUS	AUS	AUS
Austria	AUT	AUT AUT2	AUT						
Belgium				BEL	BEL				
Canada							CAN	CAN	
Czech Republic				CZE			CZE		
Denmark			DNK	DNK			DNK		
Finland				FIN					
France	FRA	FRA DEU		FRA			FRA		
Germany		DEU2		DEU			DEU		
Greece		GRC		GRC					
Hungary		HUN		HUN			HUN	HUN	
Iceland		ISL							
Ireland							IRL	IRL	
Italy		ITA						ITA	
Japan		JPN	JPN	JPN					
Korea	KOR	KOR							
Luxembourg	LUX								
Mexico	MEX			MEX					
Netherlands	NLD								
New Zealand	NZL				NZL				
Norway	NOR			NOR			NOR NOR2	NOR	
Poland	POL			POL			POL POL2		
Portugal	PRT			PRT					
Slovak Republic									
Spain	ESP								
Sweden	SWE						SWE SWE2	SWE	
Switzerland			CHE				CHE		
Turkey				TUR					
United Kingdom	UKM	UKM	UKM						
United States	USA								
Brazil									
Chile			CHL						
Estonia	EST								
Israel	ISR			ISR				ISR ISR2	
Russian Federation	RUS			RUS					
Slovenia	SVN	SVN							

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CHAPTER B: FINANCIAL INVESTMENT IN EDUCATION

■ Changes in the coverage of all indicators introduced in *Education at a Glance 2010*

Australia: The methodology used to calculate educational expenditure for Australia has been revised to improve comparability with national data, improve accuracy and reduce the number of data sources. In addition, expenditure data from private universities, which have previously been excluded from Australia data, have been included for the first time. Australian Bureau of Statistics Government Finance Statistics has been used wherever possible.

Revised data has been calculated using the updated methodology for years 2007, 2006, 2005, 2000 and 1995. In trend data indicators, all other years are marked as “m” to ensure consistency across years.

As this change represents a break in the series, finance indicators published in EAG2010 should therefore not be compared to indicators published in prior editions of EAG.

France: Compared to years 2006 and before, the finance indicators for 2007 include the following modifications:

The frame of the budget data which are collected by finances Ministry changed. This is due to the introduction of the LOLF (“*loi organique relative aux lois de finances*”). The comparability with the data transmitted last year for 2006 and before, has been impacted. This looks like as a new "basis" of account. The most important change related to the level of the social contributions (in particular the “imputed contributions”) which were underestimated before. This fact leads to a higher level of the total compensation which is the biggest part of education expenditure. One other important change deals with the higher education: some research expenditure can't be separated from the higher education expenditure. This also leads to a higher level of the education expenditure.

France: Compared to years before 2003, the finance indicators for 2007 include the following modifications:

Change in the geographic area covered with the inclusion of overseas departments (*départements d'outre-mer* – DOM). Indicators for 2006 refer to France as a whole and are therefore coherent with the area covered in national accounting aggregates (GDP, public spending, etc.). In trend data indicators, previous years are marked as “m” to ensure consistency across years.

Change in the R&D spending areas covered so as to match the coverage of R&D spending on higher education used in the DSTI/OCDE data collection (reference to the *Frascati Manual*).

Update of the treatment methods used for information sources and of the statistical tools employed: in particular, overhaul of assessment techniques for certain types of spending, such as spending on payroll taxes, spending by local authorities (towns and cities, departments, regions) or spending by households.

Israel: the comparison with previous years is made without taking into account that the data for years before 2007 include depreciation, so that the indices for the year 2007 on the basis of 1995 or 2000 are downward biased. It should be taken into account that in 2007 depreciation amounted to 7.7% of total current and capital expenditure in all educational institutions, excluding depreciation. In indicators B2 to B4, the depreciation effect would add 4.4% to expenditure in 2007 on the basis of 1995 or 2000.

INDICATOR B1: How much is spent per student?

See also notes on Indicator B2. [Back to table](#)

■ General notes

Expenditure reported in *Education at a Glance* are collected by source of funds, type of transaction, and level of education (Indicators B2, B3, B4 and B5) or by type of institutions (Indicators B1 and B6). The two sources are not the same therefore the totals can differ in some countries. Table 1 in Annex3_chapter B.xls illustrates the differences between the two Sources.

The number of students is adjusted to the financial year in the methodology to calculate expenditure per student. Table 2 in Annex3_chapter B.xls provides the row data used for the computation of the indicator.

Methodology

• Reference period

Adjustments were made for countries in which the financial year and the school year do not coincide. In order to match the enrolment data with the financial year 2007, a weighted average of the enrolment data for the academic years 2006/07 and 2007/08 was calculated. The data were weighted in accordance with the proportion of each school year that fell within the financial year 2007 (see Annex 2).

• Estimation of expenditure per tertiary student over the duration of studies

Two alternative methods were employed to calculate the average duration of tertiary studies: the approximation formula and the chain method. For both methods, the result does not give the average duration needed for a student to graduate since all students participating in tertiary education are taken into account, including dropouts. Hence, the figure can be interpreted as the average length of time during which students stay in tertiary education until they either graduate or drop out. However, in the case of countries with low dropout rates (see Indicator A2), the result can serve as a good proxy for duration until graduation.

The estimates of cumulative expenditure on education over the average duration of tertiary studies were obtained by multiplying annual expenditure per student by an estimate of the average duration of tertiary studies.

Using the **approximation formula**, the latter estimate was approximated by the rate of turnover of the existing stock of enrolments, obtained from the ratio of flow data (entrants and leavers) to the corresponding numbers of students enrolled. The formula $D = (S_{t-1} + S_t)/(Z_t + A_t)$ was used for this

calculation, where S_t is the number of students enrolled at the end of year t , S_{t-1} is the number of students at the beginning of year t (approximated by the number of students enrolled at the end of the preceding school year), Z_t is the number of students in their first year of study in year t , and A_t is the number of leavers in school year t (approximated by $S_{t-1} + Z_t - S_t$). Full-time equivalents were used to estimate enrolments. The number of entrants to full-time programmes was used to estimate the inflow. All participants were included, even those who might not obtain a degree.

The estimate is based on a number of simplifying assumptions: first, it is assumed that transition rates are constant over time. Second, expenditure in the current reference year is assumed to be typical of the total duration of studies.

Using the **chain method**, the duration of study is defined as the sum of the probabilities, for each year of study, that a student who has entered tertiary education will still be enrolled in that year of study.

The duration is therefore defined as: $D = \sum_{i=1}^{10} q_i$, where q_i is the probability that a student will reach the i -

th year of study, *i.e.* the proportion of individuals in the i -th year of study relative to those studying in the first year $i-1$ years before. With the chain method all conditional probabilities are derived from data for two adjacent years, the reference year and the preceding year. Given the number of students s in year i of study in year t and the number of students in year $i-1$ of study in year $t-1$, the transition rates can be calculated for each year of study as $a_{i,t} = s_{i,t}/s_{i-1,t-1}$. The transition rates give, for each year of study, the probability that a student in year $i-1$ will continue studying in year i . The product of all transition rates 1 to i gives the probability, for year i of study that a student who started $i-1$ years before will still be enrolled in year i of study. Finally, the sum of all conditional probabilities gives an estimate of the average duration of tertiary education. Expenditure in the current reference year is assumed to be typical of the total duration of studies. [Back to table](#)

- **Trend data collection (financial years 1995, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007)**

The trend data on expenditure were obtained by a special survey updated in 2006. OECD countries were asked to revise trend data for the **financial years 1995, 2000, 2001, 2002, 2003, 2004, 2005, 2006** according to the definitions and the coverage of the UOE 2009 data collection and then consistently with 2007 data.

All expenditure data, as well as the GDP for 1995, 2000, 2001, 2002, 2003, 2004, 2005 and 2006 are adjusted to 2007 prices using the GDP price deflator. [Back to table](#)

- **Notes on specific countries**

Coverage

See also notes on Indicator B2.

Australia: The methodology for calculating all finance expenditure has been revised for *Education at a Glance 2010*. Comparisons with previous publications are inadvisable. For more information, see the notes on the coverage of all indicators.

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Austria: Expenditure on R&D in the tertiary sector is partially excluded. Some expenditure by public institutions other than the Ministry of Education is excluded (social insurance bodies, chambers of trade and crafts, and federal funds – *Sozialversicherungsträger, Kammern, Bundesfonds*).

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Estonia: Expenditure on R&D in the tertiary sector is excluded. The R&D expenditures (in higher education institutions) would increase the expenditure on higher education by about 25%.

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France: Since *Education at a Glance 2006*, research expenditure has been aligned with the DSTI data and now includes all R&D expenditure (higher education expenditure on R&D – HERD) without any exclusion. [Back to table](#)

Israel: Expenditure on R&D cannot be separated from total expenditure but is included in the UOE data collection.

Compared to data published in *Education at a Glance 2008* and previously, expenditure on ancillary services at upper secondary levels of education for 2007 reference year increased a lot because of a better estimation of this expenditure. Since *Education at a Glance 2009* all expenditure on ancillary services for upper secondary boarding schools are included.

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Korea: Expenditure on some educational programmes provided by ministries other than the Ministry of Education is excluded (Police College, Polytechnic College, Military Academy, etc.).

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Luxembourg: The small difference between general and vocational programmes (see also Indicator C1) is due to the fact that expenditure occurring during the time spent in class is included. All other expenditure (for example expenditure of private enterprises) is not included in the calculation so that the costs of vocational programmes (especially dual programmes) are underestimated.

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Mexico: Only public expenditure on separately funded or separately budgeted research. [Back to table](#)

Netherlands: Compared to data published in *Education at a Glance 2009*, there are large increases in student numbers and expenditure in private institutions at ISCED levels 2 and 5A/6. These variations result from the use of a new data source compared to previous years (labour force survey).

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New Zealand: Compared to data published in *Education at a Glance 2009*, there are large increases in expenditure per student at post-secondary non tertiary level of education. This results from the introduction of a new funding regime which sought to reduce expenditure on what were perceived to be low value courses. These were seen to occur at the lower end of our post-school sector and impact on post-secondary non tertiary level in particular. The increased expenditure per student at post-secondary non tertiary level essentially represents a change in the mix of courses with a significant movement away from lower cost courses. [Back to table](#)

Norway: Public spending on educational core services is included for all ISCED-levels as well as public spending on university research. Public spending on ancillary services is partly covered in tertiary education only. Public spending on private enterprises to cover the cost of apprenticeship training in ISCED3 is included (as public expenditures). Private spending covers tuition fees in ISCED 0 and ISCED 5 only [Back to table](#)

Poland: Expenditure, particularly private expenditure, is underestimated. [Back to table](#)

Portugal: Since data published in *Education at a Glance 2008*, at the tertiary level, data from private institutions are reported, namely: i) expenditure with the teachers and other pedagogical, administrative and professional personnel; ii) expenditure of households (private expenditure) – payments to independent private institutions. However data from some of them, such as *Universidade Católica*, and the institutions belonging to *Fundação Minerva* and *Fundação Fernando Pessoa* are not included. [Back to table](#)

Russian Federation: Expenditure per student at the tertiary level of education is underestimated owing to missing private expenditure and because tuition fees are paid exclusively from private funds for about one-third of tertiary type-A and tertiary type-B students (see footnote in table B1.5).

The low value of R&D expenditure per student is explained by specific organisational structure of the research sector in the Russian Federation. The substantial part of research, especially theoretical ones, is carried out by the institutes of Academy of Science rather than in the higher education sector. [Back to table](#)

Slovenia: Expenditure for basic education is not divided according to ISCED between primary and lower secondary education. All expenditure for basic education (primary and lower secondary together) is shown under lower secondary education. Expenditure per student in lower secondary education is thus expenditure per student in basic (primary and lower secondary) education.

Expenditure for basic education also includes expenditure for some units of pre-primary education organised in some basic education schools, so that expenditure per student for basic education is slightly overestimated and expenditure per student for pre-primary education is slightly underestimated.

Expenditure for upper secondary education also includes expenditure for units of post-secondary tertiary vocational education (first short 5B programmes) organised in some upper secondary schools. Consequently expenditure per student for upper secondary education is slightly overestimated and expenditure per student for tertiary education is slightly underestimated. [Back to table](#)

Spain: Expenditure for retirement of personnel other than teachers in public institutions is not included. [Back to table](#)

Sweden: From the reference year 2007 Sweden identifies all activities for children from 3 years of age in pre-primary education institutions as education. Earlier the expenditure per student only included the free pre-school part of three hours per day during term-time.

Some components of the cost estimates for post-secondary non tertiary education and tertiary-type B programmes are based on rough assumptions, which are likely to underestimate the total cost at these levels. [Back to table](#)

United Kingdom: Upper secondary vocational students are excluded from the calculation of expenditure per student, as they were counted on a “whole year” rather than on a “snapshot” basis. [Back to table](#)

United States: Funds for major federal R&D centres administered by universities are excluded. [Back to table](#)

- **Estimation of the duration of tertiary education calculated using the chain method**

Austria and Italy: No distinction is made between part-time and full-time studies at the university level. However, for expenditure over the duration of studies the effect balances out, since reporting part-time students as full-time students leads both to an underestimate of annual expenditure and to an overestimate of the duration of studies. [Back to table](#)

Austria: The estimation of the average duration is affected by methodological changes over time. Data underlying the estimated duration in Table B1.3b were collected separately on ISCED 5A and 6 for the first time in the UOE data collection 2005. The duration, however, was calculated for ISCED 5A/6 combined and explicitly took into account entrants to level 5A as well as to level 6. In previous years, in contrast, only total entrants to university education (*i.e.* to level 5A/6 combined) were reported; continuing students, who progressed to level 6 without having left university after completion of level 5A, were not counted as entrants. Therefore the current results are not directly comparable with those published in *Education at a Glance 2006*. [Back to table](#)

France: Panel data were used to estimate the average duration of tertiary studies. [Back to table](#)

Germany: The average duration of university studies calculated by the chain method does not include students in the 11th year of study or beyond in the denominator. As a consequence the calculated average duration and cost of university studies are about 7% too high. [Back to table](#)

Greece: The 5th year of tertiary-type B study includes the 6th year and beyond. The 7th year of tertiary-type A and advanced research programmes includes the 8th year and beyond. This leads to an underestimation of the duration. [Back to table](#)

Hungary: Distribution between ISCED levels 1, 2, and 3 is estimated. [Back to table](#)

Iceland: Panel data were used to estimate average duration of tertiary studies. [Back to table](#)

Japan: Expenditure on special training colleges (general course), miscellaneous schools and educational administration are not allocated by level. [Back to table](#)

Korea: The maximum duration of tertiary-type B education is four years. The 6th and 8th years and beyond of university education are included in the 7th year of study. [Back to table](#)

Slovenia: Compared to data published in *Education at a Glance 2009*, the methodology to distribute expenditure between pre-primary and basic (primary + lower secondary) education has been improved and this results in changes in expenditure per student. [Back to table](#)

United Kingdom: The chain method was amended slightly in order to use the available UK data. Average durations were calculated separately using the chain method for each of the main types of course at tertiary level. To take account of the fact that many students go on to take a further course after their initial course, these figures were then combined according to the numbers of students following each of the main paths at tertiary level. The total average durations shown for university and all tertiary levels are therefore weighted averages of the individual average durations of each type of course. Coverage excludes those studying in further education institutions; these account for less than 10% of all students at the tertiary level. [Back to table](#)

Interpretation

Changes in expenditure per student between *Education at a Glance* 2005, 2006, 2007, 2008, 2009 and 2010.

Austria: Owing to different reporting standards between the UOE questionnaire and Austrian accounting systems, figures on expenditure per student as published in *Education at a Glance* differ considerably from expenditure per student as calculated and published in Austria. [Back to table](#)

Denmark: Compared to data published in *Education at a Glance 2008*, expenditure per student decreased at the upper secondary level and this results partly from large savings made locally by ISCED 3A institutions. [Back to table](#)

Chile: An estimation of the expenditure of public schools based on data provided by municipalities was included for the first time in *Education at a Glance 2007*. This information was not available in previous years. An adjustment is now made from primary to upper secondary education. Because of this, comparison of 2007 and 2004 data shows a very small increase in the indicator for “primary to tertiary level” and a decline in some levels (secondary education especially). In *Education at a Glance 2007* a change was made in the methodology to classify the programmes offered at tertiary level into the ISCED level classification. This led to important changes in enrolments between levels 5B and 5A/6 in the data for 2004 and for 2005. [Back to table](#)

Japan: Since data published in *Education at a Glance 2008*, calculation methods used for private expenditure were modified. Although trend indicators in *Education at a Glance 2010* are comparable since those are developed by modified data, indicators for private expenditure are not comparable with previous version of *Education at a Glance*.

Previously national universities were positioned as a part of the government organization and thus classified as “public institutions”. Since April 2004, national universities are incorporated, given corporation status and autonomous management is ensured. However, some authority relating to administrative important matters rest with the Minister of Education, Culture, Sports, Science and Technology, such as appointment of the president of each national university, approving medium-term plan, approving issues of university bond, and dismissal of university directors who have the rights on voting on important items of the administration of the university. Therefore national university corporations are still classified as “public institutions”. [Back to table](#)

Switzerland: Expenditure per student at the university level is very high. This is mainly due to the structure of the university system: a large number of universities in relation to the size of the country (partly due to the three language regions), the small size of some universities, a wide range of provision at each university, and relatively low student-to-teaching staff ratios. Furthermore, teachers’

salaries at the university level are comparatively high. Advanced research programmes are not included in tertiary education. In addition to this Switzerland has a high level of R&D spending. Spending on education per student would be considerably lower if the R&D component were excluded. [Back to table](#)

United Kingdom: compared to data published in *Education at a Glance 2009*, changes in the share of public and private funds at the pre-primary level reflect both improvements in the data capture/analysis and (more significant) the ongoing expansion of Government investment in pre-primary education/day care for young children.

For tertiary level of education, compared to data published in *Education at a Glance 2009*, at the tertiary level of education there is a significant shift in the way the HEI sector is funded with an increased emphasis on the use of tuition fees. There is a significant increase in household expenditure on tuition fees. From the 2006/07 academic year onwards the cap on annual tuition fees for domestic students was raised from £1,100 to £3,000. The significant increase in household expenditure reported is almost exactly offset by the reduction in direct public expenditure. The increase in expenditure from other private entities reflects the inclusion for 2006-07 of HEI income from health authorities (intended to cover the cost of teaching for medical students, £330m), a small increase in R&D funding from the business and private not-for-profit sectors (£60m) and an increase in funding from employers towards the cost of HE programmes provided in the FE (College) sector (£238m).

Since data published in *Education at a Glance 2008*, expenditure per student at the pre-primary level decreased significantly and expenditure per student at the tertiary level increased significantly as a result of a change in methodology and greater consistency in the data.

Compared to data published in *Education at a Glance 2008*, expenditure per student increased due to methodological changes and improvements in the reporting accuracy for enrolment and finance numbers. [Back to table](#)

INDICATOR B2: What proportion of national wealth is spent on education?

■ General notes

Methodology

The “domestic” approach (reference to GDP) is preferred to the “national” one (reference to GNP) in the calculation of Indicator B2 because it is consistent with other concepts used in education statistics and in the UOE data collection. Thus, educational programmes and providers and student mobility are considered in the UOE data collection from the domestic point of view. For example, funds from international agencies and other foreign sources are included in the educational expenditure requested (see the *OECD Handbook*, 4.6.2 and 4.6.3); the coverage of the statistics on enrolments or on the activities of education institutions is made on a domestic basis, *i.e.* the host country must report enrolments of foreign students and the educational activities of foreign institutions. However, by taking GNP instead of GDP as reference, expenditure as a percentage of GNP would be at least 5% higher than expenditure as a percentage of GDP in the Czech Republic, Hungary, Iceland and New Zealand and the partner country Estonia and would be more than 15% higher in Chile, Ireland and Luxembourg (see Table 1).

Table 1: Differences between gross domestic product and gross national product (reference period: calendar year 2007, current prices)

	Gross Domestic Product	Gross National Product
Australia	1,136,539	1,133,169
Austria	270,782	265,352
Belgium	334,917	338,153
Canada	1,470,147	1,513,599
Chile	88,535,187	76,092,984
Czech Republic	3,535,460	3,288,163
Denmark	1,691,472	1,708,841
Finland	179,536	179,613
France	1,894,646	1,917,258
Germany	2,428,200	2,477,680
Greece	226,437	219,817
Hungary	25,408,080	23,600,934
Iceland	1,301,410	1,236,756
Ireland	189,751	162,458
Italy	1,546,177	1,536,510
Japan	509,474,800	533,043,200
Korea	975,013,000	976,813,900
Luxembourg	37,466	29,690
Mexico	11,175,985	10,976,596
Netherlands	568,664	576,875
New Zealand	177,472	167,916
Norway	2,271,607	2,264,336
Poland	1,176,737	1,134,554

Portugal	163,052	157,024
Slovak Republic	1,854,165	1,805,180
Spain	1,052,730	1,028,420
Sweden	3,063,145	3,197,274
Switzerland	521,068	527,777
Turkey	843,178	m
United Kingdom	1,341,116	1,417,878
United States	13,842,150	14,141,400
Brazil	2,597,611	m
Estonia	244,504	227,361
Israel	686,011	684,092
Russian Federation	33,111,382	32,213,177
Slovenia	34,568	33,854

Source: OECD Analytical Data Base, June 2010.

- **GDP data**

The theoretical framework underpinning the calculation of GDP has been provided for many years by the United Nations' publication, *A System of National Accounts*, which was released in 1968. An updated version was released in 1993 (commonly referred to as SNA93).

Statistics on educational expenditure relate to the financial year 2007. For countries in which GDP is not reported for the same reference period as data on educational funding, GDP is estimated as: $w_{t-1} (GDP_{t-1}) + w_t (GDP_t)$, where w_t and w_{t-1} are the weights for the respective portions of the two reference periods for GDP that fall within the educational financial year. Adjustments were made for **Australia**, **Japan**, the **United Kingdom** and the **United States** (see Annex 2).

- **Calculation of the index in Tables B2.5 and B3.1**

Tables B3.1 (columns 8 and 9), B3.2a (columns 13 and 14), and B3.2b (columns 8 and 9) show the changes in expenditure on educational services between 2000 and 2007. All expenditure reported for 2000 was expressed in 2007 constant USD, adjusted to the 2007 price level using the GDP deflator (see Annex 2). The data on expenditure for 2000 were obtained by a special survey in 2002 and updated in 2009.

Table B2.5 also shows the index of change between 1995 and 2007 in expenditure on educational institutions from public and private sources. Data for calendar years 2000, 2001, 2002, 2003, 2004, 2005 and 2006 were already collected in previous versions of *Education at a Glance* but were updated in 2009. [Back to table](#)

Interpretation

Norway: The measured decline in expenditure between 1995 and 2007 is due to a substantial change in the price deflator at the level of total GDP, caused primarily by an increase in oil prices. The table thus does not reflect the change in real expenditures. [Back to table](#)

■ Notes on specific countries

Coverage

Australia: The methodology for calculating all finance expenditure has been revised for *Education at a Glance 2010*. Comparisons with previous publications are inadvisable. For more information, see the notes on the coverage of all indicators.

At the tertiary level of education, the proportion of public expenditure on educational institutions decreased from 64.6% in 1995 to 44.3% in 2007. The main reason for the increase in the private share of spending on tertiary institutions for Australia was changes to the Higher Education Contribution Scheme (HECS) that took place in 1997. A further change – HECS increase – took effect in 2006 and will affect future indicator results. The changes in HECS were part of a reform process aimed at providing more funds overall for higher education, partly through increased contributions from students and former students.

Most of the HECS payments made to universities are funded in the first instance by the government. In 2005, of about AUD 2.3 billion in HECS charges paid to universities, only about AUD 396 million was paid up front by students. These students received a 20% subsidy (about AUD 99 million from the government), which was paid directly to universities on their behalf. Most of the balance represented HECS loans from the government paid directly to universities. In the indicator, the AUD 99 million in HECS subsidies for those who paid up front and the HECS loans are treated as transfers from the government. Subsequently, all of the AUD 2.3 billion in HECS is counted as private final expenditure on universities.

The contribution of households to funding educational institutions is also overstated by indicators B2 and B3 because the results are also affected by the inclusion of fees paid by a substantial numbers of foreign students (about AUD 2 billion), and the lack of recognition in the indicators of HECS interest subsidies and HECS debts that are never repaid. [Back to table](#)

Belgium: Data on the German-speaking Community are not integrated into the data for Belgium in the 2009 UOE data collection. [Back to table](#)

In Table B2.4 private expenditure is underestimated since payments to independent private institutions are not available/ not collected. [Back to table](#)

Czech Republic: Data from the Ministries of Justice, Defence and Internal Affairs are not included. [Back to table](#)

Denmark: The allocation of expenditure on early childhood, primary and lower secondary education is estimated on the basis of the corresponding enrolments. Expenditure on pre-primary education includes some expenditure on day care. Day-care activities are fully integrated into the school day and not costed separately. It is debatable whether this expenditure should be classified as educational or not but **Denmark, Finland** and **Sweden** exclude expenditure on similar programmes.

As a result of the revision of financial data, the data from 2002 and before are not directly comparable with the data from 2003, 2004, 2005, 2006 and 2007.

Compared to data published in *Education at a Glance 2009*, expenditures on ‘Total all levels of education’ and ‘Primary, secondary and post-secondary non-tertiary education’ decreased between 2006 and 2007. This is partly due to large savings made locally by ISCED 3A institutions in 2007; and a drop in Adult Learning activity in 2007 because of high rate of employment. [Back to table](#)

Finland: Government transfers and payments to private entities, except financial aid to students, are excluded. [Back to table](#)

France: Since data published in *Education at a Glance 2006*, all expenditures included overseas departments (*départements d’outre mer*, DOM) in. Gross domestic product and total public expenditure were adjusted accordingly. [Back to table](#)

Germany: Expenditure for instruction by enterprises in the “so-called dual system” (*i.e.* programme that combines school- and work-based instruction) is included in this indicator and in B1.

Public expenditure on education as a percentage of total public expenditure (Indicator B4) seems to rise between 1995 and 2007 (from 8.5% to 10.3%). However the low value in reference year 1995 is due solely to the liquidation of the *Treuhand*. [Back to table](#)

Greece: Expenditure on early childhood education is included in expenditure on primary education. [Back to table](#)

Hungary: Data do not include the private expenditure of private educational institutions. [Back to table](#)

Israel: Scholarships and other grants to students include the gross amount of student loans owing to the lack of data on repayment of such loans.

Expenditure by non-profit institutions of own sources is not included.

Since 2007, data on depreciation is excluded from expenditure, in order to be in accordance with the OECD methodology. [Back to table](#)

Japan: Expenditure on special training colleges, “miscellaneous schools” and educational administration are not allocated by level. [Back to table](#)

Mexico: Since data published in *Education at a Glance 2008*, there has been a change of the basis year for the calculation of GDP in Mexico so it reflects a remarkable increase in this value for the year 2006. [Back to table](#)

Poland: 1995 data cover public expenditure only. At the pre-primary level of education expenditures on care are included. [Back to table](#)

Portugal: Regional and local transfers to the private sector are not included. Local direct expenditure on educational institutions is not included. [Back to table](#)

Russian Federation: Since data published in *Education at a Glance 2008*, expenditure on education increased significantly. The reason is the increase in the rate of inflation (about 10%) and in

purchasing power parities (about 15%). However, public expenditure on education as well as all public expenditure (46%) increased, and expenditure on educational institutions as a percentage of GDP remains at the same level. The increase in expenditure at ISCED levels 5/6 may be partially explained by the substantial increase in expenditure for R&D. [Back to table](#)

Turkey: Regional and local (except Special Provincial Administration) direct expenditure on educational institutions is not included. Transfers are also not included. [Back to table](#)

Sources

See Indicator B1.

INDICATOR B3: How much public and private investment is there in education?

■ Notes on specific countries

See notes on Indicators B1 and B2.

Coverage

Australia: The methodology for calculating all finance expenditure has been revised for *Education at a Glance 2010*. Comparisons with previous publications are inadvisable. For more information, see the notes on the coverage of all indicators. [Back to table](#)

Belgium: Tables B3.2b and B3.3 only include expenditure charged by institutions. As of 2004 data, the survey on private expenditure on educational institutions does not allow for a breakdown of private expenditure between that imposed by institutions and that not imposed by institutions. Therefore a large part of expenditure imposed by institutions is included in total private expenditure. The private expenditure taken into account in Tables B3.2b and B3.3 is therefore underestimated. [Back to table](#)

Private expenditure is underestimated since payments to independent private institutions not collected/not available. [Back to table](#)

New Zealand: Compared to data published in *Education at a Glance 2009*, there is a marked shift towards public funding at the pre-primary level of education. 2007/08 was the year of the introduction of a major change to the funding regime for pre-primary education. The introduction of the policy to provide three and four year olds at qualifying institutions (most of them) receiving up to 20 hours per week free led to an increase in public funding and corresponding cutback in private funding. This has the greatest impact in that part of the sector that is relatively dependent from "other private entities". [Back to table](#)

INDICATOR B4: What is the total public spending on education?

- **Data on total public expenditure**

The theoretical framework underpinning the calculation of total public expenditure has been provided for many years by the United Nations' publication *A System of National Accounts*, which was released in 1968. An updated version was released in 1993 (commonly referred to as SNA93).

- **Notes on specific countries**

Total public expenditure on all services, excluding education, includes the expenditure on debt servicing (*i.e.* interest payments) that is not included in public expenditure on education. The reason for this exclusion is that some countries cannot separate interest payment outlays for education from those for other services. This means that public expenditure on education as a percentage of total public expenditure may be underestimated in countries in which interest payments represent a large proportion of total public expenditure on all services.

See notes on Indicator B2. [Back to table](#)

Australia: The methodology for calculating all finance expenditure has been revised for *Education at a Glance 2010*. Comparisons with previous publications are inadvisable. For more information, see the notes on the coverage of all indicators. [Back to table](#)

Denmark: Compared to data published in *Education at a Glance 2009*, expenditures on 'Total all levels of education' and 'primary, secondary and post-secondary non-tertiary education' have decreased. This is partly due to large savings made locally by ISCED 3A institutions in 2007 and a drop in Adult Learning activity in 2007 because of high levels of employment.

INDICATOR B5: How much do tertiary students pay and what public subsidies do they receive?

Methodology

Data on tuition fees charged by educational institutions were collected through a special survey undertaken in 2007 and refer to the academic year 2006/07. Some data have been updated in 2009 and then refer to the academic year 2007/08. The figures represent the weighted average of the main tertiary-type A programmes and do not cover all educational institutions. The figures reported can be considered as good proxies and show the difference among countries in terms of tuition fees charged by the main educational institutions and for the majority of students. [Back to table](#)

■ **Notes on specific countries**

See notes on Indicator B2.

Australia: The methodology for calculating all finance expenditure has been revised for *Education at a Glance 2010*. Comparisons with previous publications are inadvisable. For more information, see the notes on the coverage of all indicators. [Back to table](#)

Canada, Denmark and Germany, Norway, Poland and Sweden: Subsidies in kind, such as free or reduced-price travel on public transport systems, are excluded. [Back to table](#)

Czech Republic: Scholarships are included in direct expenditure for educational institutions. [Back to table](#)

France: The amount of financial aid to students is underestimated. The indicator does not take into account family allowances (the share that goes to student cannot be estimated), housing allowances (*allocations de logement social* and *allocations personnalisées au logement*, which represent about 70% of the total amount of scholarships/grants and concern one-third of students), and tax reductions (which represent about 75% of the amount of scholarships/grants and benefit families that pay income taxes and generally do not benefit from scholarships/grants). Taking these financial aids (except family allowances) into account would multiply by about 2.5 the amount of financial aid to students. [Back to table](#)

Hungary: Data in table B5.2 come from the Student Loan Centre database, 2007. Methodology: Figures are based on a sample survey completed by TÁRKI Social Research Institute (www.tarki.hu) on behalf of the Student Loan Centre in November 2007.

In Hungary, the student loan scheme is considered to be private because the funds are raised on the money market and there are no direct subsidies, although it has characteristics of a public scheme as well (universal access, state regulation, state-owned company, relatively preferential rate). [Back to table](#)

Ireland: Students in tertiary education benefit from subsidised bus and rail travel (systems owned and funded by the state). The expenditure involved in this subsidy is currently unknown. Students in tertiary colleges and universities can make use of limited on-campus medical facilities funded both

from central (exchequer) grants and from the registration fees paid by students. The level of government funding in this area is not known. [Back to table](#)

Norway: Students who do not benefit from either loans or grants include both students that do not apply for support and those who no longer are entitled to student support due to academic delay etc. Students who just benefit from grants are those who choose to apply for grants only. [Back to table](#)

Poland: Family allowances that are contingent on student status are not included. [Back to table](#)

Sweden: All students are entitled to government grants and loans to finance their studies. The continued entitlement is conditional upon their pass in their previous studies. There is also an income threshold. [Back to table](#)

Switzerland: Fees for health insurance are publicly subsidised for students from low-income backgrounds. These subsidies amount to several tens of millions of CHF but are excluded. [Back to table](#)

INDICATOR B6: On what services and resources is education funding spent?

See also notes on Indicators B1 and B2.

■ **Notes on specific countries**

Coverage of ancillary services

Expenditure by educational institutions on ancillary services, such as student meals, room and board on campus and student transport, should include fees paid by students and families for those services. However, countries' coverage of private spending on ancillary services is uneven. While a number of countries exclude private spending on ancillary services, Australia, France, Hungary, Norway, Spain, Turkey and the United States provide information on private spending on ancillary services. [Back to table](#)

Australia: The methodology for calculating all finance expenditure has been revised for *Education at a Glance 2010*. Comparisons with previous publications are inadvisable. For more information, see the notes on the coverage of all indicators. [Back to table](#)

Hungary: The expenditure on ISCED levels 1 to 3 is estimated on the basis of the number of students at each level. [Back to table](#)

Ireland: Ancillary services at the primary to post-secondary non-tertiary level include only school transport. [Back to table](#)

Israel: Ancillary services are included in total expenditure on educational institutions. [Back to table](#)

Norway: Expenditure on ancillary services includes welfare services, preparation of studies abroad and contributions to housing on campus in tertiary education. No ancillary services are estimated for ISCED 1-4. [Back to table](#)

R&D coverage (see Indicator B1)

Notes on distribution of current and capital expenditure

Canada: In comparison with previous years, the calculation of capital expenditures has been modified to reflect actual expenditures reported by institutions. [Back to table](#)

Israel: Total personnel compensation includes taxes on employment. Current expenditure other than compensation of personnel includes consumption of fixed capital.

Expenditure of non-profit institutions from own sources is included in the UOE data collection. [Back to table](#)

Italy: Since the financial year 1998, at ISCED levels 0-3 IRAP, other than compensation of personnel, is reported in current expenditure. [Back to table](#)

Sweden: School and university buildings are rented. Rent payments are included in current expenditure. [Back to table](#)

Sources

See Indicator B1.

INDICATOR B7: How efficient is public spending on education?

Methodology

Contribution of various factors to salary cost per student

Method: This table shows the salary cost per student at the upper secondary level of education, as a percentage of GDP per capita, the difference from the OECD average and the contribution of various factors to the difference from the OECD average. The salary cost per student is calculated as the teacher's salary multiplied by annual instruction time for the student, divided by the annual amount of teaching time of teachers and the average class size.

$$CCS = SAL \times instT \times \frac{1}{teachT} \times \frac{1}{ClassSize} = \frac{SAL}{Ratiostud/teacher}$$

Data used refer to *Education at a Glance 2009* (see table below): salaries (SAL) refer to statutory salaries of teachers with 15 years of experience and minimum training (Indicator D3); instruction time (instT) refers intended instruction time for 15-year-olds (Indicator D1); teaching time (teachT) refers

to net teaching time (Indicator D4); and class size (ClassSize) has been estimated based on the ratio of students to teaching staff, teaching time and instruction time (see Box D2.1 in Indicator D2). Some estimations have been made for missing data.

For explanation of the method used, see www.mels.gouv.qc.ca/stat/Bulletin/bulletin_31an.pdf.

Contribution of various factors to explain the difference between two variables.

The analysis of the contribution of various factors to a difference between two variables is assessed, based on an assumption relating to the mathematical relationship between these variables and the explanatory factors (based on method shown in Education Statistics Bulletin (n°29 and 31 and further explanations from Marius Demers (Ministère de l'Éducation, du Loisir et du Sport, Québec, Canada).

For example, for two countries (Country 1 and Country 2):

$$\begin{aligned} X_1 &\equiv Q_1 \times R_1 \times S_1 \times T_1 \\ X_2 &\equiv Q_2 \times R_2 \times S_2 \times T_2 \end{aligned}$$

then :

$$\frac{X_2}{X_1} = \frac{Q_2 \times R_2 \times S_2 \times T_2}{Q_1 \times R_1 \times S_1 \times T_1}$$

and,

$$1 + \frac{X_2 - X_1}{X_1} = \left(1 + \frac{Q_2 - Q_1}{Q_1}\right) \times \left(1 + \frac{R_2 - R_1}{R_1}\right) \times \left(1 + \frac{S_2 - S_1}{S_1}\right) \times \left(1 + \frac{T_2 - T_1}{T_1}\right)$$

Which can also be written as:

$$1 + V = (1 + U) \times (1 + W) \times (1 + Y) \times (1 + Z)$$

where :

$$V = \frac{X_2 - X_1}{X_1}, \quad U = \frac{Q_2 - Q_1}{Q_1}, \quad W = \frac{R_2 - R_1}{R_1}, \quad Y = \frac{S_2 - S_1}{S_1}, \quad Z = \frac{T_2 - T_1}{T_1}$$

The right part of the equation can also be written as:

$V = U + W + Y + Z + UW + UY + UZ + WY + WZ + YZ + UWY + UWZ + UYZ + WYZ + UWYZ$
where, « V » is the relative variation between X_2 and X_1 ($V = (X_2 - X_1)/X_1$).

Then, the contribution of the different explanatory factors to the relative variation between X_2 and X_1 is:

i) for factor « Q »:

$$U + \frac{UW}{2} + \frac{UY}{2} + \frac{UZ}{2} + \frac{UWY}{3} + \frac{UWZ}{3} + \frac{UYZ}{3} + \frac{UWYZ}{4} = A$$

ii) for factor « R »:

$$W + \frac{UW}{2} + \frac{WY}{2} + \frac{WZ}{2} + \frac{UWY}{3} + \frac{UWZ}{3} + \frac{WYZ}{3} + \frac{UWYZ}{4} = B$$

iii) for factor « S »:

$$Y + \frac{UY}{2} + \frac{WY}{2} + \frac{YZ}{2} + \frac{UWY}{3} + \frac{UYZ}{3} + \frac{WYZ}{3} + \frac{UWYZ}{4} = C$$

iv) for factor « T » :

$$Z + \frac{UZ}{2} + \frac{WZ}{2} + \frac{YZ}{2} + \frac{UWZ}{3} + \frac{UYZ}{3} + \frac{WYZ}{3} + \frac{UWYZ}{4} = D$$

where: $A + B + C + D = V$

With this method, we measure the direct and indirect contribution of each factor to the variation of the variable between the two countries. For example, if a worker receives a 10% increase of the hourly wage and increases the number of hours of work from 20%, his earnings will increase from 32%, resulting from the direct contribution of each of these variations (0.1 +0.2) and the indirect contribution of these variations due to the combination for these two factors (0.1*0.2).

The contribution of explanatory factors to the absolute difference between the two variables ($X_2 - X_1$) is:

i) factor « U »:

$$\frac{A}{V} \times (X_2 - X_1) = AX_1 = a$$

ii) factor « R »:

$$\frac{B}{V} \times (X_2 - X_1) = BX_1 = b$$

iii) factor « S »:

$$\frac{C}{V} \times (X_2 - X_1) = CX_1 = c$$

iv) factor « T »:

$$\frac{D}{V} \times (X_2 - X_1) = DX_1 = d$$

with

$$a + b + c + d = X_2 - X_1$$

. [Back to table](#)

■ Notes on specific countries

Australia: The methodology for calculating all finance expenditure has been revised for *Education at a Glance 2010*. Comparisons with previous publications are inadvisable. For more information, see the notes on the coverage of all indicators. [Back to table](#)

