

EDUCATION AT A GLANCE

OECD INDICATORS 2006

**ANNEX 3: SOURCES, METHODS AND TECHNICAL NOTES**

**Chapter A: The output of educational institutions and the impact of learning**

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**CHAPTER A: THE OUTPUT OF EDUCATIONAL INSTITUTIONS  
AND THE IMPACT OF LEARNING**

**INDICATOR A1: Educational attainment of the adult population**

- **Table A1.1a, A1.1.b (web), A1.1.c (web), A1.2a, A1.2.b (web), A1.2.c (web), A1.3a A1.3.b (web), A1.3.c (web).**

*Methodology*

Data on population and educational attainment are taken from OECD and EUROSTAT databases, which are compiled from National Labour Force Surveys. Tables by gender (b for males and c for females) are available on the web.

The attainment profiles are based on the percentage of the population aged 25 to 64 years that has completed a specified level of education. The International Standard Classification of Education (ISCED-97) is used to define the levels of education.

Table 1: National Sources

	<b>Stastical agency</b>	<b>Source</b>	<b>Reference period</b>	<b>Coverage</b>	<b>Primary sampling unit</b>
Australia	Australian Bureau of Statistics	Australian Bureau of Statistics Labour Force Survey	May 2004	Data refer to persons aged 15 to 64	Respondents within households
Austria	Statistics Austria	Quarterly Microcensus	The data refer to annual averages of the quarterly Microcensus sample survey	Data refer to persons aged 15 and over	
Belgium	FPS Economy - DG Statistics and Economic Information	Labour Force Survey	Annual average	Data refer to persons aged 15 and over	Households

Canada	Statistics Canada	Monthly Labour Force Survey	The annual data are averages of monthly estimates	Data refer to persons aged 15 and over	Households
Czech Republic	Czech Statistical office (CSU)	Labour Force Sample Survey	Annual average of quarterly estimates	Data refer to persons aged 15 and over	Persons
Denmark	Eurostat	European Labour Force Survey	1st quarter	Data refer to persons aged 15 to 64	Households
Finland	Eurostat	European Labour Force Survey	1st quarter	Data refer to persons aged 15 to 64	Households
France	INSEE	Labour Force Survey	Annual average of quarterly estimates	Data refer to persons aged 15 and over	Households
Germany	Federal Statistical Office	Labour Force Survey (Microcensus)	5-11 May 2004	Data refer to persons aged 15 and over	Households
Greece	Eurostat	European Labour Force Survey	1st quarter	Data refer to persons aged 15 to 64	Households
Hungary	Hungarian Central Statistical Office	Labour Force Survey	2nd quarter	Data refer to persons aged 15 to 74	Households
Iceland	Eurostat	European Labour Force Survey	1st quarter	Data refer to persons aged 15 to 64	Households
Ireland	Eurostat	European Labour Force Survey	1st quarter	Data refer to persons aged 15 to 64	Households
Israel	Israel's Central Bureau of Statistics	Labour Force Survey	Annual average for 2004	Permanent residents aged 15+	Households
Italy	ISTAT	Household Labour Force Survey	The data refer to the second quarter of each year (second week of April)	Data refer to persons aged 15 and over	

Japan	Statistics Bureau, Ministry of Public Management, Home Affairs, Posts and Telecommunications	The Labour Force Survey detailed tabulation	Average of 2003	Data refer to persons aged 15 and over	Households
Korea	National Statistical Office	Monthly Economically Active Population Survey	Annual average of monthly estimates	Data refer to persons aged 15 and over	Households
Luxembourg	Eurostat	European Labour Force Survey	1st quarter	Data refer to persons aged 15 to 64	Households
Mexico	Secretaría del Trabajo y Previsión Social (STPS)	Encuesta Nacional de Empleo (ENE)	Biennial survey since 1991, yearly since 1995	The survey covers civilian resident population aged 12 years and over excluding armed forces when they are resident	Households
Netherlands	Eurostat	European Labour Force Survey	1st quarter	Data refer to persons aged 15 to 64	Households
New Zealand	Statistics New Zealand	Household Labour Force Survey	The annual data are averages of quarterly estimates	Data refer to civilian non- institutionalised persons aged 15 and over	Households
Norway	Statistik Sentralbyraa	Labour Force Survey	Annual average	Persons 16-74 years	Individuals
Poland	Statystyczny	Labour Force Survey	The data are averages of published quarterly figures	Data refer to persons aged 15 and over	Households
Portugal	Instituto Nacional de Estatística	Labour Force Survey	Annual average of quarterly estimates	Data refer to persons aged 15 and over	Households (dwellings)
Slovak Republic	Statistical Office of the Slovak Republic	Labour Force Sample Survey	Annual average of quarterly estimates	Data refer to persons aged 15 and over	Dwellings

Spain	Instituto Nacional de Estadística	Active Population Survey (quarterly)	Yearly average	Data refer to persons aged 16 and over	Enumeration area
Sweden	Statistiska Centralbyran	Labour Force Survey	The annual average	Data refer to persons aged 16-64	Individuals
Switzerland	OFS	Labour Force Survey	The annual data refer to the 2nd quarter (April-June)	Data refer to persons aged 15 and over	Persons with households
Turkey	State Institute of Statistics (SIS)	Household Labour Force Survey	Semi-annual survey since October 1988 Annual average of April and October	Data refer to persons aged 15 and over	Households
United Kingdom	ONS	Labour Force Survey	Spring Labour Force Survey	Data refer to Men aged 16-64 and women aged 16-59	Households
United States	Census Bureau and Bureau of Labour Statistics	March Current Population Survey	Annual data	Data refer to persons aged 15 and over	Households

Table 1: National Sources (continued)

	Size of the sample	Overall rate of non-response	Remarks
Australia	43500	3%	Households are selected and all non-visiting adults aged 15-64 are interviewed.
Austria			
Belgium	Around 92 500 individuals		
Canada	Approx 92 500 persons		

Czech Republic	Around 24 000 households, <i>i.e.</i> approx 60 000 persons, <i>i.e.</i> approx 53 000 persons aged 15 and over	30%	Classification according to LFS questionnaire until 1997 used.
Denmark			
Finland			
France	Around 35 000 households, <i>i.e.</i> approx 75 000 persons aged 15 and over		
Germany	0.45% of households	4% for questions on educational attainment.	
Greece			
Hungary	64 000 persons	20-21%	Armed forces are not included
Iceland			
Ireland			
Israel	Approx 22 500 households	12%	
Italy			The mapping has changed in 2001
Japan			The special survey of the labour Force Survey was integrated into the Labour Force Survey in January 2002
Korea	30 000 households		Annual report on the Economically Active population Survey

Luxembourg			
Mexico	In odds years the survey is representative for state, what increases the sample significantly	Around 15%	
Netherlands			
New Zealand	15 000 households per quarter		8.5%
Norway	24 000 / quarter		10.4%
Poland	24 700 households	About 19%	Since the 1st quarter of 2003, the results of the LFS have been generalized on the basis of the balance of the population compiled using the results of the National Census of the Population 2002. That is why the data are not fully comparable with previous year data
Portugal	Arounds 20 000 households / around 50 000 persons	Around 9%	
Slovak Republic	Around 10 250 dwellings per quarter, i.e. approx 28 900 persons, i.e. approx 24 500 persons aged 15+		7.5% Classification according to LFS questionnaire until 1999 and from 2000 used



Spain	64 072 households (average)	8.6% (average year 2003)	Part of the non-response is treated. Final rate of non-response: (5.0% average year 2003)
Sweden	Based on 212 700 interviews	16.3%	
Switzerland	57 000 (of which 15 000 oversampling of foreign nationals)	30%	The reference person within the household is selected randomly. All data refer only to the reference person (no proxy data)
Turkey	15 000 households in each survey	10% (1 500 households in each survey)	
United Kingdom	60 000	14%	
United States	78 000 households, 16 000 persons	7.2% based on households	

Description of ISCED-97 education programmes and attainment levels and their mappings for each country:

**Table 2: Standardised ISCED-97 presentation of national codes on attainment in LFS (2004)<sup>1</sup>**

	Pre-primary and primary education	Lower secondary education	Upper secondary education				Post-secondary non-tertiary education	Tertiary education			Advanced research programmes
	ISCED 0/1	ISCED 2	ISCED 3C Short	ISCED 3C Long	ISCED 3B	ISCED 3A	ISCED 4	ISCED 5B	ISCED 5A	ISCED 5A/6	ISCED 6
Australia		0/1/2, 2B/2C			3B	3A, 3A/4		5B	5A	5A/6	
Austria		0/1/2			3B	3A	4A, 4B	5B	5A		
Belgium	0/1	2		3C		3A	4	5B	5A		6
Canada	0/1	2				3	4	5B		5A/6	
Czech Republic	0/1	2		3CL		3AB/4				5AB/6	
Denmark (ELFS)	0,1	2		3CL		3A	4	5B	5A		6
Finland	0/1	0/1/2				3	4	5B	5A		6
France	0, 1	2A, 2B	3CS	3CL	3B	3A	4A, 4	5B, 5A1	5A	5A/6	
Germany	1	2A			3B	3A	4	5B	5A		6
Greece	0/1	2	3C	3CL	3B	3A	4C	5B	5A		6
Hungary	1	2		3C		3A	4A	5B	5A		6
Iceland	0/1	2A, 2C	3CS			3A	4C	5B	5A		6
Ireland	0, 1	2				3/3A/3C	4C	5B		5A/6	
Italy	0/1	2	3CS	3CL		3A/3B	4C		5A/5B		6
Japan		OECD estim. from 0/1/2/3				OECD estim. from 0/1/2/3		5B		5A/6	
Korea	0/1	2				3		5B		5A/6	
Luxembourg (ELFS)	0/1	2	3CS	3CL		3/3A,3B	4,4A/4B,4C	5B	5A		6
Mexico	0, 1	2, 2/3A		3CL		3A		5B		5A/6	
Netherlands	0, 1, 1A, 1B, 1C	2, 2A, 2B, 2C		3C		3A,3	4A,4B,4C	5B	5, 5A		6
New Zealand		0, 1		3CL		3A	4C	5B	5A	5A/6	
Norway	0, 1A	2A		3C		3A	4A, 4C	5B	5A		6
Poland		1/2	3CS			3A	4C			5B/5A/6	
Portugal	0/1	2				3		5B	5A		6
Slovak Republic	0, 1	2		3C		3A		5B	5A		6
Spain	0, 1	2A, 2C	3C		3B	3A	4C	5B	5A		6
Sweden	1	2				3A, 3		4/5B	5A	5A/6	
Switzerland	1	2	3CS	3CL	3B	3A	4	5B	5A		6
Turkey	0, 1	2			3B	3A				5A/6	
United Kingdom	0/1	2	3, 3CS	3C, 3CL		3A		5B	5A		6
United States	0/1	2				3		5B, 5A1	5A		6
Israël	0	1/2				3A/3C		5B	5A		6

1. The cells of this table indicate, for each country, the national programme categories that are included in the international levels of education indicated by the column headings. The national codes received do not reflect always perfectly all the national educational system possibilities.  
Note: ISCED 5A1 (tertiary-type A, intermediate degree).

#### ■ Notes on specific countries

**France:** Concerning trend on educational attainment variables coded ISCED97, there is a break between 2002 and 2004. Data are unavailable for 2003 due to a modification in the data collection. Educational variables for 2004 arose from the continuing employment survey which officially replaced, since the first of January 2003, the annual employment survey. This is a new quarterly survey and the data collection takes place throughout the continuing year. Approximately 35 000 households, *i.e.* 75 000 people aged 15 years or more, participate in the survey each quarter. The annual results are obtained by taking the average of the quarterly results.

The methods used for coding the educational variables were improved. In the employment survey, the investigator coded directly the training whereas now he registers directly the heading of the diploma and the training level. Thereafter the automatic coding is carried out and the rejections are treated "manually". Information collected is more detailed that allow bringing the "national" variables closer to ISCED97 definition. These changes explain for some variables the breakdown between 2004 and previous data.

**Hungary:** From 2000 to 2003 data have been revised. Specification of ISCED 4 is used and data for 3A and 4 are separately provided. ISCED 5B concerns a new type of education that could be completed first since 2000.

**Israel:** Although pre-academic institutions in Israel are classified under ISCED4 in our national mapping of education, this level remains unaccounted for in this report, since the Labor Force Survey does not include a specific answer category for this level, and it is reported under "other" in the LFS questionnaire.

**Japan:** The Special Survey of the Labour Force Survey, which had been the source of the Questionnaire III, was abolished, and the Labour Force Survey is used as a source of the Questionnaire III from 2002 data.

The questionnaire of the Labour Force Survey asks the people about their education and select appropriate answer from the following.

- Primary school, junior high school or senior high school (ISCED 1/2/3)
- Junior college (ISCED 5B)
- College or university, including graduate school (ISCED 5A)

Therefore, the data are not distributed by ISCED 0/1/2 and 3.

The distribution between the 0/1/2 and 3/4 levels of education for 2003 and 2002 is based on 2001 one.

**Luxembourg:** The results apply to the population living in Luxembourg who has passed their education in Luxembourg as well as to them who has passed their education in another country than Luxembourg. This means the figures can not be used as a result for analyzing the national educational system.

**Mexico:** Revised data series.

Switzerland: In 2003, data were aligned to those data submissions sent to EUROSTAT for it's LFS database. This resulted in a classification change of programmes within ISCED 3C and it's subcategories 3CS and 3CL. At this time, in the EUROSTAT collection, 3CS programmes were defined as being less than 3 years long. Subsequently, EUROSTAT revised this definition and now programmes of less than 2 years in length are defined as 3CS.. This was inline with previous submissions sent to the OECD and those submitted for inclusion in EAG 2006 (year of reference 2004). The database has therefore been retrospectively updated and the data for 2003 revised. However, data presented in the print version of EAG 2004 is no longer correct.

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**United Kingdom:** Others qualifications which are currently assigned to ISCED3 are assigned as follows 10% to ISCED97 3A (V), 35% to ISCED97 3CL (V 3+), 55% to ISCED97 3CS (V <3 years).

#### ■ Table A1.4

##### *Methodology:*

The distribution of tertiary attainment among countries shown in table A1.4 is derived by summing the numbers of persons with tertiary type 5A/6 qualifications across all OECD countries for which there are data and calculating the percentage share of this number that each country represents. The projection to 2014 of these shares, also shown in table A1.4, are obtained by rolling forward the data for each age cohort by ten years, so that a figure applying to the share of 25-to-34-year-olds with tertiary attainment in 2004 would become the figure for 35-to-44-year-olds in 2014. In 2014, the figures for all age groups are therefore the same as those for the preceding cohort ten years earlier. In this way, tertiary education attainment for 35-to-64-year-olds is projected for the year 2014.

#### ■ Table A1.5

##### *Methodology*

The calculation of the average number of years in formal education is based upon the weighted theoretical duration of schooling to achieve a given level of education, according to the current duration of educational programmes as reported in the UOE data collection. Hence, it is more an estimate of the “replacement value” of the current supply of human capital than an estimate of the average duration of studies effectively attended by the population in the past.

### **INDICATOR A2: Current upper secondary graduation rates**

#### ■ Table A2.1. Upper secondary graduation rates

##### *Methodology*

In order to calculate gross graduation rates, countries identified the age at which graduation typically occurs. The graduates themselves, however, could be of any age. To estimate gross graduation rates, the number of graduates is divided by the population at the typical graduation age (Annex 1). In many countries, defining a typical age of graduation is difficult because ages of graduates vary. Typical ages of graduation are shown in Annex 1.

The *unduplicated count of all ISCED 3 graduates* gives the number of persons who graduate in the reference period from any ISCED 3 programme **for the first time**, *i.e.*, students who have not obtained an ISCED 3 (A, B or C) qualification in **previous** reference periods. For example, students

who graduated from ISCED 3A programmes in the period of reference but obtained a short ISCED 3C graduation in an earlier year should (correctly) be reported as ISCED 3A graduates, but must be excluded from the unduplicated count of graduates in column 2 of Table C2.2. Similar cases may occur in the reporting of vocational and general programmes.

Upper secondary graduation rates for general or for pre-vocational/ vocational programmes are based on all graduates, not first-time graduates.

#### ■ Notes on specific countries

**Australia:** The growth in the number of foreign students in Australia is definitely a contributing factor in the rise in this indicator over the past few years.

**Hungary:** The increase of upper secondary graduation rates for ISCED 3 general programmes and the decrease of graduation rates for ISCED 3 pre-vocational/vocational programmes compared to 2003 are due to the change of the ISCED classification of the vocational secondary school programmes. Formerly, they were classified 3A pre-vocational programmes, but the proportion of vocational subjects has dropped below 25% in recent years. Therefore, these programmes have been reclassified as 3A general programmes in the revised UOE questionnaire. At the same time, in Grades 9 and 10 of the vocational school, the proportion of vocational (or rather pre-vocational) subjects was raised somewhat above 25% of the total instruction time. Therefore, this programme (formerly classified as 3C general) was reclassified as 3C pre-vocational.

**Luxembourg:** A significant proportion of the youth cohort study in neighbouring countries at the ISCED 3 level.

**New Zealand:** The large increase from the previous year results from a change in 'methodology'. The numerator in the calculation includes those who:

\* Graduate from upper secondary school which is interpreted as 'leave secondary school having attained sixth form (year 12) certificate or better' (35895), or

\* Successfully complete an ISCED3 programme post secondary school (38520).

The very high ISCED3 graduation reflects a large increase recently in participation in post-secondary courses, many of which are ISCED3 level. This participation has been spread over a wide range of ages and has been particularly noticeable amongst mature age females. When graduates from these programmes are added to those who leave school after having attained sixth form certificate or better, and compare these with the population of a single age cohort, graduation rates well in excess of 100% result, particularly for females.

In the 2003 collection, the school leavers from ISECD3G graduation calculations were not included, almost half the total.

**Norway:** The 'Total (unduplicated)' figure shows a rather steep increase from last year. The proportion of students graduating from ISCED 3, outside the scope of typical graduation age (18–19) is quite large and influences the denominator whereas the numerator is more stable. Females are more likely to graduate from this level of education than men, and since female tend to graduate more frequently than men in ISCED 3A in particular – column (4) and (5) (also (12) and (13)) will also increase.

**Switzerland:** The number of graduations in ISCED 4 has decreased from 14958 (in 2003) to 9868 (in 2004) and the number of graduations in ISCED 3 has increased respectively from 50137 to 59961. The

changes in the graduations from ISCED level 4 are due to changes in the educational system: programmes in ISCED 4 are ended and replaced by either programmes in ISCED 3 or 5B. The increase in ISCED 3 is partly due to the aforementioned change in educational systems, but partly also due to a change in methodology.

**Spain:** Break series in 2003 school year due to the revision of the national population data.

**Turkey:** Open education is excluded.

#### ■ **Table A2.2. Post-secondary non-tertiary graduation rates**

##### *Methodology*

Please see notes of Table A2.1.

**Hungary:** The decrease in post-secondary graduation rates in 2004 compared to 2003 is due to the fact that 4A programmes (a general programme designed for students who have graduated with a 3C vocational qualification but wanted to pass a maturity examination) ceased to exist in 2003. Students can now enrol in secondary vocational programmes preparing for maturity examinations at Grade level 10 or 11, depending on their study achievements. Graduation rates in post-secondary non-tertiary education refer now only to students enrolled in 4C vocational programmes.

### **INDICATOR A3: Current tertiary graduation rates**

#### ■ **Table A3.1. Tertiary graduation rates (2000, 2004)**

##### *Methodology*

- **Calculation of the country mean for medium and long tertiary-type A programmes**

Countries which included the graduates of medium tertiary-type A programmes among the graduates of long programmes (*x*-code for short programmes) are counted as zero in the calculation of the country mean for medium programmes. In a similar manner, the countries using an *x*-code for long programmes, caused by inclusion of long programmes in the category for short programmes, are counted as zero in the country average for long programmes. This is necessary in order to ensure that the country averages for short programmes and long programmes add up to the correct country average for all first-stage university programmes.

- **Duration categories**

Tertiary-type A programmes can be sub-classified by the theoretical cumulative duration of programmes. For initial programmes at tertiary level, the cumulative theoretical duration is simply the theoretical full-time equivalent duration of those programmes from the beginning of Level 5. For

second programmes, cumulative duration is calculated by adding the minimum entrance requirements of the programme (*i.e.* full-time equivalent years of prerequisite tertiary education) to the full-time equivalent duration of the programme. For degrees or qualifications where the full-time equivalent duration is unknown (*i.e.* courses of study designed explicitly for flexible or part-time study), cumulative duration is calculated on the basis of the duration of more traditional degree or qualification programmes with a similar level of educational content. The following duration categories are included in ISCED-97:

- Short: 2 to less than 3 years.
- Medium: 3 to less than 5 years.
- Long: 5 to 6 years.
- Very long: more than 6 years.

As “short” programmes would not meet the minimum duration requirement for classification at ISCED 5A, this category is only appropriate for intermediate programmes in the national qualification and degree structure (see below). That is, programmes of less than three years’ duration must be a component or a stage of a longer programme in order to be classified at level 5A. Individuals who complete these short programmes would not be counted as 5A graduates, however.

Typical ages of graduation are shown in Annex 1.

#### ■ Notes on specific countries

**Belgium (Flemish community):** The second degrees non-university education (ISCED 5A & ISCED 5B second qualification/degree) are not integrated in the data collection. These types of higher education only consider a very small percentage of the total population enrolled in tertiary education which leads to the conclusion that the exclusion of these degrees has only a small impact on this indicator.

**Czech Republic:** All Bachelor's programmes are now classified as ISCED5A instead of 5B (according to Czech law), hence the increase of ISCED 5A graduates.

**Denmark:** From the 2005 UOE data collection, some parts of Adult education (part time) have been included according to the revised tables and UOE manual. This explains the high increase in the tertiary-type B entry rates compared to last year and the changes in the distribution of fields of education.

**Finland:** Due to a structural change in tertiary educational system in Finland ISCED 5B programmes (vocational college) are being phased out. At the same time the volume of polytechnic education (ISCED 5A) has been increased, hence the increase of ISCED 5A graduates.

**Hungary:** The decrease in tertiary-type A graduation rate in 2004 compared to 2003 is due to the fact that double counts could be eliminated with improved methodology. Tertiary-type B programmes are

relatively new. There is also an increasing number of students who enrol in tertiary-type B programmes.

**Luxembourg:** A significant proportion of the youth cohort study in neighbouring countries at the ISCED 5 and 6 levels.

**Norway:** As the Bachelor–Master system has been introduced, some educational programmes have changed from ISCED 5B to ISCED 5A programmes. This cause a decrease in the number of graduates from ISCED 5B programmes and equally an increase of graduates in 5A programmes.

**Spain:** Break series in 2003 school year due to the revision of the national population data.

**Sweden:** There are few students and only five kinds of degrees defined as "second degree" in the Swedish tertiary-type A education system, four of which are dominated by female students.

#### ■ Classification of tertiary programmes

Tertiary graduates are those who obtain a tertiary qualification in the specified *reference year* (graduation at the end of the academic year 2002-2003). 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 degree of doctorate standard (ISCED 6). For some countries, data are not available for the categories requested. In such cases, the OECD has assigned graduates to the most appropriate category. Programmes included at the tertiary levels are listed below for each country.

#### Australia:

<b>ISCED5A</b>	
First	"Bachelor's" (Honours) (4 yrs); Bachelor of Dentistry (5 yrs); Bachelor of Veterinary Medicine and Surgery (5 yrs); Bachelor of Medicine and Surgery (7 yrs)
Second	Graduate Diplomas (1.5 yrs); Master's Degree (2 yrs); Doctorate (by course work) (2 yrs)
<b>ISCED 5B</b>	
First	Vocational Education and Training Institutions - Diplomas, Advanced Diplomas (2 yrs); Universities – Undergraduate Diplomas (2 yrs); Associate Degree (2 yrs)
Second	a
<b>ISCED 6</b>	Doctorates (3 yrs)



■ **Austria:**

<b>ISCED 5A</b>	
First	University “Bakkalaureat” (3 yrs); University “Fachhochschulstudium – Magister (FH)/ Diplomingenieur (FH)” (4 yrs); University “Magister/ Diplomingenieur/ Doktor (1 <sup>st</sup> )” (4-6 yrs)
Second	University “Magisterstudium – Magister/ Diplomingenieur” (2 yrs); Post-graduate studies “MBA, MAS” (2 yrs)
<b>ISCED 5B</b>	
First	Master craftsmen/ foremen courses “Meisterprüfung/ Werkmeisterprüfung” (2 yrs); Technical and vocational education colleges “Diplomprüfung” (2 yrs); Post-secondary colleges for teacher training / medical services/ social work “Lehramtsprüfung/ Diplom”(3 yrs)
Second	Post-secondary colleges for teacher training “Aufbaustudium – Lehramtsprüfung” (1 yr)
<b>ISCED 6</b>	Doctorate “Doktor”(2 yrs)

**Belgium (Flemish community)**

<b>ISCED 5A</b>	
First	2-cycle higher education provided by colleges of higher education : Hogescholenonderwijs van 2 cycli (4-5 yrs); Basic academic education, 2 cycles : Basisopleidingen aan de universiteiten (4-7 yrs); Basic academic education, Open University : Basisopleidingen, Open Universiteit; Basic academic education, Protestant Theological Faculty : Basisopleidingen aan de Universitaire Faculteit voor Protestantse Godsgeleerdheid (4 yrs); Royal Military Academy : Koninklijke Militaire School (4.5 yrs)
Second	Academic degree in the supplementary studies : Gediplomeerde in de aanvullende studies (1+ yrs); Academic degree in the specialist studies : Gediplomeerde in de gespecialiseerde studies (1+ yrs); Academic teacher training : Academische initiële lerarenopleiding (1 yrs); Advanced studies at the Institute for Tropical Science : Voortgezette opleidingen aan het Instituut voor Tropische Geneeskunde; Advanced studies after 2-cycle higher education provided by 'hogescholen' : Gediplomeerde in de voortgezette studie volgend op hogescholenonderwijs van 2 cycli (1+ yrs); Academic teacher training provided by 'hogescholen' : Initiële lerarenopleiding van academisch niveau (1 yrs); Doctoral training : Doctoraatsopleiding
<b>ISCED 5B</b>	
First	1-cycle higher education provided by colleges of higher education: Hogescholenonderwijs van 1 cyclus (3 yrs); Social advancement higher education: Hoger onderwijs voor sociale promotie
Second	Advanced studies after 1-cycle higher education provided by colleges of higher education : Gediplomeerde in de voortgezette studie volgend op hogescholenonderwijs van 1 cyclus (1+ yr); Specific teacher training : voortgezette lerarenopleiding (0.5-1 years)
<b>ISCED 6</b>	Doctorate, Universities: Doctoraat, universiteiten; Doctorate at the Institute for Tropical Science : Doctoraat aan het Instituut voor Tropische Geneeskunde; Doctoraat aan de Universitaire Faculteit voor Protestantse Godsgeleerdheid

■ **Belgium (French community):**

<b>ISCED 5A</b>	
First	Enseignement supérieur de promotion sociale de type long; Enseignement supérieur de type long (4-5 yrs); Enseignement universitaire (1er et 2e cycle) (4, 5, 6 or 7 yrs); Ecole Royale Militaire (4-5 yrs); Faculté de théologie protestante
Second	Agrégation de l'enseignement secondaire supérieur (2 yrs); Enseignement supérieur de type long : année complémentaire (1 yr); Enseignement universitaire : année complémentaire et 3e cycle (1+ yr)
<b>ISCED 5B</b>	
First	Enseignement supérieur de promotion sociale de type court; Enseignement supérieur de type court (3 yrs); Enseignement artistique supérieur (musique et arts plastiques) (3 yrs)
Second	Enseignement supérieur de type court complémentaire (1 yr)
<b>ISCED 6</b>	Doctorat et Agrégation de l'enseignement supérieur

■ **Canada:**

<b>ISCED 5A</b>	
First	Bachelor's degree (3-5 yrs); Post-graduate certificate programme (1 yr); Post-graduate certificate programme (2 yrs); First Professional degree (1-3 yrs); First Professional Degree (3-5 years)
Second	Academic certificate programme (1-2 yrs); University transfer (2 yrs); University Diploma Programme(2 yrs); University Certificate (1 yr) Master's (1-2 years); Master's (2-3 years)
<b>ISCED 5B</b>	
First	Vocational Diploma (1.5 yrs); College diploma programme (2-3 yrs); Occupational/technology programme(2 yrs); Vocational Diploma (2.25 yrs); College diploma programme (3-4 yrs)
Second	-
<b>ISCED 6</b>	Doctorate(5-7 yrs)

■ **The Czech Republic:**

<b>ISCED 5A</b>	
First	Bachelor University study “bakalář” (3 yrs & 3-4 yrs); Teacher training for primary education Master’s “Magistr” (4 yrs)  University Master “magistr umění/ inženýr (architekt)” (5-6 yrs); University Master in (Veterinary) Medicine “doktor (veterinární) medicíny” (6 yrs)
Second	Post-graduate Pedagogical Certificate “osvědčení” (1 yr); Post-graduate Certificate “osvědčení”(2 yrs); University Master “magistr umění/ inženýr” (2-3 yrs)
<b>ISCED 5B</b>	
First	Higher Technical School for technicians, hotel managers, bank clerks, nurses “Vyšší odborná škola” (2-2.5 yrs and 3-3.5 yrs);  Performing Arts and Dance Conservatoire Absolutorium (6 yrs & 8 yr)
Second	a
<b>ISCED 6</b>	University Doctoral Study “Doktor” (3 yrs)

■ **Denmark:**

<b>ISCED 5A</b>	
First	Tertiary education medium cycle “Diplomingeniør, maskin- mester, sygeplejerske, folke- skolelærer m.fl.” (3-5 yrs); Bachelor’s Degree (3 yrs); Tertiary education long cycle, museum conservator, e.g. from Music Academy “Konservator, konservatorieuddannelserne” (5-7yr)
Second	Tertiary education long cycle “Cand. Mag., cand. Scient., cand. Polyt., etc.” (2 yrs)
<b>ISCED 5B</b>	
First	Tertiary education short cycle, including technician qualification “Datamatiker/ byggetekniker/ Maskintekniker” (2-3 yrs)
Second	a
<b>ISCED 6</b>	Doctoral Programmes “Ph.D.” (3 yrs); Doctorate “Doktorgrad” (5-10yr)

■ Finland:

<b>ISCED 5A</b>	
First	Lower University Programmes (3 yrs); Polytechnic Programmes (3.5-4.5 yrs); "Polytechnic Postgraduate Programmes (1-1.5 yrs after graduation from Polytechnic Programme)"; Higher University Programmes (5-6 yrs)
Second	Specialists in Medicine/Dentistry/Veterinary Science (5-6 yrs)
<b>ISCED 5B</b>	
First	Vocational College Programmes (2-3 yrs)
Second	a
<b>ISCED 6</b>	
	Doctorate Programmes – "Licentiate" (2 yrs); "Doctor" (4 yrs)

■ France:

<b>ISCED 5A</b>	
First	First University Diploma (First cycle 2 years "DEUG" + Second cycle 1 year "Licence") (3 yrs); Higher engineering school diploma "Diplôme d'ingénieur" (3-4 yrs) and Higher business school diploma "Diplôme d'ingénieur commercial" (3 yrs) including ' les Classes Préparatoires aux Grandes écoles (CPGE)" (2 yrs); Specialised Higher Schools diverse professional diplomas including in architecture, veterinary surgery, art etc "Diplômes professionnels divers (notaire, architecte, vétérinaire, journaliste,...)" (3-4 yrs); University pharmacy diploma "Diplôme de pharmacien" (5 yrs); University Diploma in Medicine/ Dentistry "Docteur en médecine/ Diplôme de dentiste" (7 yrs)
Second	University education 2 <sup>nd</sup> cycle 2 year "Maîtrise" (1 yr); Teaching in university institute of training Master (IUFM) "CAPES, Professeur des écoles, etc" (2 yrs); Special diploma in Health "Diplôme d'études spécialisées" (3 yrs)
Third	University education 3 <sup>rd</sup> cycle "Diplôme d'études supérieures spécialisées (DESS) » (1 yr)
<b>ISCED 5B</b>	
First	Specific vocational training diploma "Diplôme universitaire de technologie (DUT) » (2 yrs); Specialised higher school short professional diploma <i>e.g.</i> in special education, laboratory technician, social worker "Diplômes professionnels divers (éducateur spécialisé, laborantin, assistante sociale, infirmier-infirmière, etc.) » (2-3 yrs); High-level technician award (school or school and work-based) "Brevet de technicien supérieur (BTS)" (2 yrs)
Second	
<b>ISCED 6</b>	
	University education 3 <sup>rd</sup> cycle 1st year "Diplôme d'études approfondies (DEA)" (1 yr); Doctorate Programmes "Diplôme de docteur" (3 yrs)

■ Germany:

<b>ISCED 5A</b>	
First	Bachelor's degrees (3 yrs) University "Fachhochschulen" degree "Diplom (FH)" (4 yrs); University „Universitäten" degree "Diplom oder Staatsprüfung" (5 yrs)
Second	Master's degrees (2 yrs, cumulative duration of 5 yrs)
<b>ISCED 5B</b>	
First	Specialised academies (Bavaria) "Abschluss der Fachakademie/ Fachhochschulreife" (2 yrs); Health sector schools for medical assistants/ nurses "Abschlusszeugnis für medizinische Assistenten, Krankenschwestern/ -pfleger" (3 yrs); Trade and technical schools "Fachschulabschluss, Meister/Techniker, Erzieher" (2 yrs & 3-4 yrs); Colleges of public administration diploma "Diplom (FH)" (3 yrs);
Second	a
<b>ISCED 6</b>	
	Doctoral studies "Promotion" (2-5 yrs)

■ Greece:

<b>ISCED 5A</b>	
<b>First</b>	<p>University (University Sector): Panepistimio;</p> <ol style="list-style-type: none"> <li>University (Panepistimio) (8, 10 or 12 semesters)</li> <li>Technical University (Polytechnio) (10 semesters)</li> <li>School of Fine Arts (Scholi Kalon Technon) (10 semesters)</li> <li>Greek Open University (Elliniko Anoikto Panepistimio-E.A.P.) (12 subject units-4yrs)</li> </ol>
<b>Second</b>	<p>University Sector: Post-graduate studies (Master);</p> <ol style="list-style-type: none"> <li>University (Panepistimio) (1-2 calendar yrs)</li> <li>Technical University (Polytechnio) (1-2 calendar yrs)</li> <li>School of Fine Arts (Scholi Kalon Technon) (1-2 calendar yrs)</li> <li>Greek Open University (Elliniko Anoikto Panepistimio-E.A.P.) (3 yrs)</li> </ol>
<b>ISCED 5B</b>	
<b>First</b>	<p>Technological Educational Institution (Technological Sector): Technologiko Ekpaideftiko Idryma (T.E.I.); (4 yrs of which 3.5 yrs school-based elements, plus 1 semester work-based elements)</p>
<b>Second</b>	<p>Technological Sector: Post-graduate studies (Master);</p> <ol style="list-style-type: none"> <li>Technological Educational Institutions (offering programmes in cooperation with University Sector Institutions in Greece, subcategory a: Panepistimio) (1-2 calendar yrs)</li> <li>Technological Educational Institutions (offering programmes in cooperation with overseas University Sector Institutions) (1-2 calendar yrs)</li> </ol> <p>Note: The data concerning these programmes are reported under ISCED 5A, second qualification.</p>
<b>ISCED 6</b>	
	<p>University Sector (Post-graduate studies): Doctorate programme (Didaktoriko diploma);</p> <ol style="list-style-type: none"> <li>University (Panepistimio) (6 semesters)</li> <li>Technical University (Polytechnio) (6 semesters)</li> <li>School of Fine Arts (Scholi Kalon Technon) (6 semesters)</li> <li>Greek Open University (Elliniko Anoikto Panepistimio-E.A.P.) (6 semesters)</li> </ol>
	<p>Post-graduate studies: Post-Doctorate programme (Metadidaktoriko diploma);</p> <ol style="list-style-type: none"> <li>University Sector (Panepistimio)</li> <li>Research Institutions</li> </ol> <p>Note: The Greek legislation does not designate information concerning Post-doc programmes such as theoretical duration of the programme under study. Also, Institutions offering Post-doc programmes are not classified into a specific category of Institutions and thus exhaustive list cannot be composed.</p>

■ **Hungary:**

<b>ISCED 5A</b>	
First	College first programmes (3-4 yrs); University first programmes (4-5 yrs) : university medicine programme–(6 yrs)
Second	University supplementary programmes for college graduates (2 yrs); postgraduate specialization programs (1-2 yrs)
<b>ISCED 5B</b>	
First	Tertiary vocational programmes (1 - 2 yrs)
Second	a
<b>ISCED 6</b>	
Doctoral programmes (Ph.D., DLA) (3 yrs)	

The information on length refers to theoretical duration of the programme.

■ **Iceland:**

<b>ISCED 5A</b>	
First	First University Degree “Háskólanám 3ja/ 4ra/ 5/ 6 ára til fyrstu gráðu” (3, 4, 5 or 6 yrs); Tertiary Technical Programmes - First University Degree “Háskólanám í tæknifræði til fyrstu gráðu” (3.5-4 yrs);
Second	Master’s degree after 3-4 yrs 1 <sup>st</sup> degree “Háskólanám, 1,5-2 viðbótarár ofan á 3-4 ár, tekin viðbótargráða” (1.5-2 yrs); Master’s degree after 5-6 yrs 1 <sup>st</sup> degree “Háskólanám, 2 viðbótarár ofan á 5-6 ár, tekin viðbótargráða” (2 yrs)
<b>ISCED 5B</b>	
First	Tertiary Diploma “Æðra nám í 2 ár án háskólagráðu” (2 or 3 yrs); Fine and Applied Arts at Tertiary Level “Listnám í æðri skóla, 3ja/ 4ra ára” (3 or 4 yrs); Teacher’s Qualification (No degree) “Nám til kennsluréttinda án háskólagráðu” (1 yr)
Second	a
<b>ISCED 6</b>	
Doctoral Programme (Ph.D.) “Doktorsnám” (4 yrs)	



■ **Ireland:**

<b>ISCED 5A</b>	
First	Honours Bachelors Degree (3-4 yrs); Honours Bachelors Degree in (Veterinary) Medicine/ Dental Science/ Architecture (5-6 yrs)
Second	Post-graduate Diploma (1 yr); Masters Degree (taught) (1 yr); Masters Degree (by research) (2 yrs)
<b>ISCED 5B</b>	
First	Higher Certificate (2 yrs); Ordinary Bachelor Degree (3 yrs)
Second	Ordinary Bachelor Degree (3 yrs)
<b>ISCED 6</b>	Doctoral Degree (Ph.D.) (3 yrs)

■ **Israel:**

<b>ISCED 5A</b>	
First	Bachelor's Degree from universities (3 yrs); Bachelor's Degree from the Open University (6 yrs); Teacher training colleges – academic track (2-4 yrs)
Second	University's Second Degree (2 yrs); University's Post-Graduate Diploma (2 yrs); Second Degree from academic colleges (2 yrs); Second Degree from the Open University
<b>ISCED 5B</b>	
First	Post-secondary education (2 yrs); Teacher training colleges – non-academic track (2 yrs)
Second	a
<b>ISCED 6</b>	Third Degree (5-6 yrs)

■ Italy:

<b>ISCED 5A</b>	
First	University Degree "Diploma di Laurea" (4-6 yrs); University Degree "Diploma Universitario" (3 yrs); Diploma di laurea di 1° livello (3 yrs); Diploma di laurea specialistica a ciclo unico (5-6 yrs)
Second	Professional Post-graduate Diploma "Diploma di specializzazione" (2-5 yrs); Post-graduate Certificate "Attestato di partecipazione al Corso di perfezionamento" (1 yr); Master of first and second level "master di 1°/2° livello"; Specialisation course "Specializzazione post-laurea"
<b>ISCED 5B</b>	
First	Diploma from Fine-arts Academy "Diploma di Accademia di Belle Arti" (4 yrs); Dramatic Art Studies Diploma "Accademia di arte drammatica – Diploma di attore o diploma di regista" (3 yrs); Higher Artistic Studies Diploma "Diploma di Istituto Superiore Industrie Artistiche" (4 yrs); Music Conservatory Diploma "Conservatorio musicale (specializzazione di 2 anni)" (2 yrs); Dance Studies Diploma "Accademia di Danza – Diploma di avviamento e/o perfezionamento" (3 yrs)
Second	a
<b>ISCED 6</b>	Doctorate "Titolo di Dottore di ricerca" (3 yrs)

■ Japan:

<b>ISCED 5A</b>	
First	Bachelor's Degree "Gakushi" (4 yrs); Bachelor's Degree in Medicine/Dentistry/Veterinary Medicine "Gakushi" (6 yrs);
Second	Master's Degree "Shushi" (2 yrs); University Advanced Course Certificate of Completion "Daigaku Senkoka" (1 yr+)
<b>ISCED 5B</b>	
First	Specialised Training College Postsecondary Course Technical Associate Qualification "Senmonshi" (1 yr+); Junior College Associate Qualification "Jun-gakushi" (2-3 yrs); College of Technology Associate Qualification "Jun-gakushi" (2 yrs)
Second	Junior College Advanced Qualification "Tanki-daigaku Senkoka" (1+yr); College of Technology Advanced Qualification "Koto-senmon-gakko Senkoka" (1 yr+)
<b>ISCED 6</b>	Doctor's Degree "Hakushi" (5 yrs); Doctor's Degree in Medicine/Dentistry/Veterinary Medicine "Hakushi" (4 yrs)

■ **Korea:**

<b>ISCED 5A</b>	
First	Bangsongtongsin daehak [air and correspondence university (open university)] (2-4 yrs); Daehak(gyo) (university) (4 yrs); Hankuk kwahak kisulwon (Korea advanced institute of science and technology) (4 yrs); Hankuk yeosuljonghap hakgyo (yeosulsa kwajong) (the Korean National University of Arts) (4 yrs); Woikwa deahak,chikwa daehak (university, medical-dentistry) (6 yrs)
Second	Hankuk jeongsin munwha yeonku won (seoksa kwajong) (the Academy of Korean Studies, MA course) (2-3 yrs); Ilbandaehakwon(seoksa kwajong) (graduate school, Master's degree programme, short) (2 yrs); Hankuk kwahak kisulwon (seoksa kwajong) (Korea Advanced Institute of Science and Technology, MA course) (2 yrs); Daehakwon daehak (seoksa kwajong) (university of graduate school) (2 yrs); Hankuk yeosuljonghap hakgyo (jeonmun yeosulsa kwajong) (the Korean National University of Arts, MA course) (2 yrs)
<b>ISCED 5B</b>	
First	Yukkun samsakwan hakgyo (third military academy) (2 yrs); Kakjong-hakgyo (daehak kwajong) (miscellaneous school, undergraduate course) (4 yrs); Sanup daehak (gaebang daehak) (open university, polytechnic university) (4 yrs); Yukkun sakwan hakgyo (military academy) (4 yrs); Geongchal daehak (national college of police ) (4 yrs); Gyoyuk daehak (university of education) (4 yrs); Kukkunganho sakwan hakgyo (nursing academy) (4 yrs); Haekun sakwan hakgyo (naval academy) (4 yrs); Kongkun sakwan hakgyo (air force academy) (4 yrs)  Jeonmun daehak (junior college) (2-3 yrs); Kinung daehak (polytechnic college) (2 yrs); Kakjong-hakgyo (jeonmun daehak kwajong) (miscellaneous school, junior college course) (2 yrs); Kisul daehak (technical college) (2-4 yrs)
Second	Kukbang daehakwon (school of national securities) (2 yrs); Teuksu daehakwon (graduate school, special) (2-3 yrs); Jeonmun daehakwon (graduate school, professional) (2.5 yrs)
<b>ISCED 6</b>	
	Hankuk kwahak kisulwon(baksa kwajong) (Korea Advanced Institute of Science and Technology) (3 yrs); Hankuk jeongsin munwha yeonku won (baksa kwajong) (Academy of Korean Studies, Ph.D.) (3 yrs); Ilban daehakwon (baksa kwajong) (graduate school, Doctorate programme) (3 yrs); Daehakwon daehak(baksa kwajong) (university of graduate school) (3 yrs)

■ **Luxembourg:**

<b>ISCED 5A</b>	
First	University courses: Cours universitaires 1er cycle :DPCU (2 yrs); Stage pédagogique ; formation obligatoire pour l'accès à une profession de professeur pour l'enseignement secondaire (2 yrs); Stage pédagogique : formation obligatoire pour l'accès à une profession d'avocat avoué (2 yrs)
Second	-
<b>ISCED 5B</b>	
First	Higher technician certificate: Brevet de technicien supérieur (bts) (2 yrs); Short-term course in higher studies of administration or studies of informatics: Cycle court d'études supérieures en gestion ou en informatique (2 yrs)
Second	Training of industrial engineers: Formation à l'ingénieur-industriel (4 yrs); Initial training of primary and pre-primary teachers: Formation des instituteurs (3 yrs); Training of graduated educators, full-time: Formation d'éducateurs gradués (plein temps) (3 yrs); Training of graduated educators, while working: Formation d'éducateurs gradués (en cours d'emploi) (6 yrs)
<b>ISCED 6</b>	Etudes supérieures spécialisées en contentieux communautaires

■ **Mexico:**

<b>ISCED 5A</b>	
First	Educación normal licenciatura [teacher training school programmes (Bachelor's degree programme)] (4 yrs); Licenciatura universitaria [university degree programmes (Bachelor's degree programme)] (4-5 yrs); Licenciatura tecnológica [technological institutes programmes (Bachelor's degree programme)] (4-5 yrs)
Second	Programa de especialización [specialisation degree programme (Master's degree programme) (short)] (0.5-1 yrs); Programa de maestría [Master's degree programme (long)] (2 yrs)
<b>ISCED 5B</b>	
First	Técnico superior [technological universities programmes (vocational associate's degree programmes)] (2 yrs)
Second	-
<b>ISCED 6</b>	Programa de doctorado [Doctoral programme – Doctorate (Ph.D. Research)] (3 yrs)

■ **The Netherlands:**

<b>ISCED 5A</b>	
First and second	higher professional education (long programmes) and university education, fulltime programmes; (Lang) HBO en WO, voltijd (4-6 yrs); higher professional education (long programmes) and university education, parttime programmes, excl. the Open University; (Lang) HBO en WO, deeltijd, excl. the Open University; Open University qualification programmes; Open University, diploma programma's; Education programmes on private institutions on tertiary 5A level; Particulier onderwijs op hbo/wo-niveau
<b>ISCED 5B</b>	
First	Higher professional education, short programmes, fulltime; Kort HBO, voltijd (2 yrs); Higher professional education, short programmes, parttime; Kort HBO, deeltijd; Vocational education on private institutions on tertiary 5B level; Particulier onderwijs op kort-hbo-niveau
Second	-
<b>ISCED 6</b>	research assistants; AIO's (4 yrs)

■ **New Zealand:**

<b>ISCED 5A</b>	
First	Bachelor's Degree "Bachelor, National Diploma (Level 7)" (3 yrs)
Second	Post-graduate qualification "Master's Degree/ Post-graduate Certificate/ Post-graduate Diploma/ Bachelor's Honours" (1-2 yrs)
<b>ISCED 5B</b>	
First	Vocational Diploma "National Diplomas (Levels 5 or 6)" (3 yrs)
Second	a
<b>ISCED 6</b>	Doctorate/ Higher Doctorate (3-5 yrs)

■ **Norway:**

<b>ISCED 5A</b>	
First	First/lower degree (lavere grad), bachelor's degree, short professional education, (3-4 yrs),
Second	Second/higher degree (høyere grad: hovedfag/mag.art (2-3 yrs), master's degree (2 yrs), Long, professional programmes (lange profesjonsutdanninger), integrated master's degrees (integreerte mastergrader): (5 yrs); Very long professional programmes (6 yrs)
<b>ISCED 5B</b>	
First	Tertiary education, < 3 years, 1st degree: Høyere utd., < 3 år, lavere grad (2-2,5 yrs)
Second	-
<b>ISCED 6</b>	Doctorate, ph.d.: Doktorgrad (3 yrs)/ unspecified

■ **Poland:**

<b>ISCED 5A</b>	
First	Professional degree (Licentiate) "Licencjat" (3 yrs); Professional Degree (Engineer) "Inzynier" (3.5-4 yrs); Master's Degree (Art/ Education/ Engineering/ Veterinary Medicine, etc) "Magister" (5-5.5 yrs); Degree in Medicine or Dental Science "Lekarz (Stomatolog)" (6 yrs)
Second	Post-licentiate Master's Degree "Magister" (1.5-2 yrs); Post-graduate Certificate "Studia Podyplomowe" (0.5-2 yrs)
<b>ISCED 5B</b>	
First	Teacher Training Diploma for pre-school, primary and other educational institutions "Kolegium nauczycielskie" (3 yrs); Foreign Language Teacher Training Diploma/ Qualification to teach foreign European languages "Nauczycielskie kolegium języków obcych" (3 yrs)
Second	a
<b>ISCED 6</b>	Scientific Doctorate "Studia Doktoranckie"(4 yrs)

■ Portugal:

<b>ISCED 5A</b>	
First	<p><i>Licenciatura</i> programmes (4 or 5 yrs, 6 yrs in special cases) provided by universities and polytechnics, leading to the <i>licenciado</i> degree</p> <p>The <i>licenciatura</i> programmes provided by polytechnic education in most fields are two cycles/programmes called <i>cursos bietápicos de licenciatura</i>: the first cycle (3 yrs) leads to the <i>bacharel</i> degree (5B first), and the second cycle (1-2 yrs) leads to the <i>licenciado</i> degree (5A first).</p> <p>Universities and polytechnics also offer to <i>bacharéis</i> (5B first), in the fields of teacher training and nursing, 1-2 year programmes leading to the <i>licenciado</i> degree, called <i>cursos complementares de licenciatura</i></p>
Second	<p><i>Especialização de pós-licenciatura</i> (also identified frequently as <i>Pós-Graduação</i>) (1-2 yrs) – Specialised studies taken after <i>licenciatura</i>, leading to a certificate.</p>
<b>ISCED 5B</b>	
First	<p><i>Bacharelato</i> (3 yrs) programmes provided by universities (rarely) and polytechnics, leading to the <i>bacharel</i> degree</p>
Second	–
<b>ISCED 6</b>	
	<p><i>Mestrado</i> programmes (2 yrs after <i>licenciatura</i>) provided by university education, leading to the <i>mestre</i> degree.</p> <p><i>Doutoramento</i> programmes (variable, usually 3 yrs, sometimes 4 or 5 yrs after <i>mestrado</i> or, in certain conditions, after <i>licenciatura</i>), provided by universities, leading to the <i>doutor</i> degree</p>

■ **The Slovak Republic:**

<b>ISCED 5A</b>	
First	"Bachelor's" Degree 3-4 yrs; "Master's" Degree (4 yrs); "Master's" Degree in Engineering (5-5.5 yrs); Degree in Engineering/Architecture/Medicine/Veterinary Medicine (6 yrs)
Second	Supplementary Educational Study - "Certificate" (2 yrs); Teaching an Additional Subject - "Diploma" (2-4 yrs)
<b>ISCED 5B</b>	
First	Post-secondary Specialisation Study - "Graduate's Diploma" (2-3 yrs); Higher Professional Studies - "Graduate's Diploma" (3 yrs); Dance Conservatory - "Graduate's Diploma" and "Certificate on Maturita Examination" (8 yrs); Conservatory and Secondary Schools Specialising in Arts - "Graduate's Diploma" and "Certificate on Maturita Examination" (6 yrs)
Second	
<b>ISCED 6</b>	Examina Rigorosa - "Academic Degree (JUDr., PaedDr., RNDr., PhDr., etc)" usually (1 yr); Doctorate Study (Ph.D., ArtD.) (3 yrs)



■ Spain:

<b>ISCED 5A</b>	
<b>First</b>	Bachelor's Degree "Diplomado Universitario, Arquitecto Técnico e Ingeniero Técnico" (3 yrs); Conservation and Restoration of Cultural Assets "Conservación y Restauración de Bienes Culturales" (3 yrs); Military Programme - Medium Grade "Militar de carrera de la escala media (Diplomado Universitario)" (3 yrs);  University Degree - First and Second Cycle "Licenciado, Arquitecto e Ingeniero" (4-6 yrs); Higher Dramatic Art Studies Degree "Título Superior de Arte Dramático" (4 yrs); Music Studies Advanced Degree "Titulación Superior por especialidad musical" (4 yrs); Military Programme - Medium Grade "Militar de carrera de la escala media (Diplomado Universitario)" (3 yrs); Military Programme - Higher Grade "Militar de carrera de la escala superior (Licenciado universitario)" (5 yrs)
<b>Second</b>	Master's Degree "Licenciado e Ingeniero" (2 yrs)
<b>ISCED 5B</b>	
<b>First</b>	Specific Vocational Training of Plastic Arts and Design - Advanced Level Qualification "Técnico Superior - Ciclos Formativos de Artes Plásticas y Diseño de Grado Superior" (2 yrs); Specific Vocational Training - Advanced Level Qualification "Técnico Superior - Ciclos Formativos de Formación Profesional de Grado Superior" (2 yrs); Specific Vocational Training - Advanced Level (Distance Learning) "Técnico Superior - Ciclos Formativos de Formación Profesional de Grado Superior (Distancia)" (2 yrs); Military Programme Basic Grade "Militar de carrera de la escala básica" (2 yrs);
<b>Second</b>	a
<b>ISCED 6</b>	Doctorate "Doctor" (4-6 yrs)

■ Sweden:

<b>ISCED 5A</b>	
<b>First</b>	Diploma (3-4 yrs); Bachelor's Degree (3 yrs); Master's Degree (4-4.5 yrs); Master's Degree in Pharmacy/ Horticulture/ Forestry/ Landscape Architecture/ Psychology (5 yrs); University Degree in Medicine / Dental Surgery/Veterinary Medicine (5-5.5 yrs)
<b>Second</b>	Nursing Specialisation Qualification (1-1.25 yrs); Midwifery/ Psychotherapy/ Special Education (1.5 yrs)
<b>ISCED 5B</b>	
<b>First</b>	Diploma (2 yrs); Degree Certificate in Advanced Vocational Education (2-3 yrs)
<b>Second</b>	
<b>ISCED 6</b>	"Licentiate" (2 yrs); "Doctorate" (4 yrs)

■ **Switzerland:**

<b>ISCED 5A</b>	
First	Pedagogical University Certificate « Pädagogische Hochschule/ Haute École Pédagogique » (3 yrs); University of Applied Science Diploma “Fachhochschul diplom/ diplome” (3 yrs); University Diploma and Bachelor's Degree “Hochschulen - Lizentiat, Diplom, Staatsexamen” (4 yrs)
Second	Postgraduate Degree “Fachhochschul Nachdiplom” (1 yr); University Postgraduate Diploma “Nachdiplom/ Diplôme du troisième cycle/ Postgrade” (1 yr)
<b>ISCED 5B</b>	
First	Diploma of Higher Vocational Education - Stage I "Berufsprüfung/ Examen professionnel" (1-2 yrs); Diploma of Technical School "Höhere Fach- und Berufsschule/ École technique" (2 yrs); Teacher's Certificate - Teacher Training II "Primarlehrerpatent/ Fachlehrerpatent" (3 yrs); Polytechnic School Diploma from a Higher Vocational College “Höhere Fachschule/ École Professionnelle Supérieure/ Scuola Professionale Superiore” (3 yrs)
Second	Trade Master's Diploma or equivalent in Higher Vocational Education - Stage II “Höhere Fachprüfung/ Examen Professionnel Supérieur” (1-2 yrs)
<b>ISCED 6</b>	University Doctorate “Doktorat/ Ph.D.” (2 yrs)

■ **Turkey:**

<b>ISCED 5A</b>	
First	University : Üniversite (4 yrs); Integrated higher school for hearing impaired : İşitme Engelliler Entegre Yüksek Okulu; Open training Faculty : Açık Öğretim Fakültesi (4 yrs); Conservatory: : Konservatuar (4 yrs); Medical science, veterinary, dentistry : Eczacılık Veterinerlik ve Tıp Fakültesi (5-6 yrs)
Second	Enstitüler: Mastır (2 yrs); Specialisation in medical science : Tıpta Uzmanlık (4 yrs)
<b>ISCED 5B</b>	
First	Vocational higher Schools : Meslek Yüksek Okulu (2 yrs); Open training Faculty : Açık Öğretim Fakültesi (2 yrs); Integrated higher school for hearing impaired : İşitme Engelliler Entegre Yüksek Okulu (2 yrs)
Second	
<b>ISCED 6</b>	Enstitüler: Doktora (4 yrs)

■ **The United Kingdom:**

<b>ISCED 5A</b>	
First	Bachelor's Degree "BA, BSc, etc" (3-4 yrs); Bachelor of Education "BEd" (4 yrs); Bachelor of Medicine "MB" (5 yrs+)
Second	Master's Degree taught "MA, MSc, MBA, etc" (1 yr); "Postgraduate Diploma/Certificate "PG Dip/PG Cert" (9m); Teaching Qualification - Postgraduate Certificate in Education "PGCE" (1 yr); Master's Degree by Research "Mphil, etc" (2 yrs+)
<b>ISCED 5B</b>	
First	Higher National Certificate "HNC" (1 yr); Diploma of Higher Education "DipHE" (2 yrs); Higher National Diploma "HND" (2 yrs)
Second	a
<b>ISCED 6</b>	Doctor of Philosophy "Ph.D." (3 yrs+)

■ **The United States:**

<b>ISCED 5A</b>	
First	Bachelor's Degree Programme (4 yrs)
Second	Master's degree programme (short) (1-2 yrs); Master's degree programme (long) (2-3 yrs); First Professional Degree Programme (3 yrs); 1st Professional Degree Programme – Medical (4 yrs)
<b>ISCED 5B</b>	
First	Vocational Associate's Degree Programme (2 yrs)
Second	a
<b>ISCED 6</b>	Doctorate (Ph.D. – Research) (5 yrs)

*Note: Academic associate's degree programmes (2 yrs) are not included as for international comparisons these degrees are regarded as "intermediate degrees". Post-graduate certificate programmes (e.g. teaching) (1 yr) are not included.*

■ **Table A3.2. Survival rates in tertiary education (2004)**

■ **Notes on specific countries**

**Belgium (Flemish community):** The figures for social advancement education were left out, as well as the students in the Royal Military School, the Open University, the Protestant Theological Faculty, ... Due to these differences in coverage these data can not be compared with the other tables of the UOE data collection (for example ENRL, GRAD and ENTR).

Data refer only to the main enrolments in basic courses and initial teacher training courses ('hogescholen') and to the main enrolments in basic courses (universities)

Since individual records for the students in the Flemish Community are not available, we took into account the theoretical duration of the qualifications.

Entrants = students who are for the first time enrolled in higher education in the Flemish Community.

**France:** The survival rates presented in *Education at a Glance 2006* do not reflect overall successful completion rates in tertiary education or student re-orientation between ISCED levels 5A and 5B.

The cohort monitoring carried out in France takes into account both the entry programme and the graduation programme of students, therefore providing a precise estimate of students' successful completion in tertiary education. In the currently available calculation, the actual curriculum of graduates is not specified. In particular, as the graduates' entry programme is unknown, classification is based exclusively on their graduation programme, which might create a significant bias.

Consequently, as indicated by the table below (based on the French data collected from the panel sample), 79% of students entering ISCED 5A programmes will obtain a tertiary education degree, whereas 21% of them will merely complete the programme without graduating. The graduation rates for students entering tertiary-type B programmes are equivalent to a share of 79 % of students that will graduate. The data gathered from the panel sample also highlight the usual trend towards student re-orientation between tertiary-type A and tertiary-type B levels, with a 14.5% share starting tertiary-type A programmes and then graduating from tertiary-type B programmes.

	Entry	ISCED 5A Graduates	ISCED 5B Graduates	Total Graduates
Entry				
ISCED 5A	100.0	64.3	14.5	78.8
ISCED 5B	100.0	1.6	77.5	79.2
Total	100.0	38.5	40.5	79.0

Source: Panel sample.

**Greece:** As for ISCED 5A programme enrolments, the student status is lost only at the event of graduation and award of the respective diploma. Alternatively, by own assertion of the student (negligible). As a result, a significant number of non active students accumulate on the range of 8+ years of study and artificially increase the duration of tertiary studies. A new law is currently under study, which might reduce the duration of study at a predefined number of years.

As for ISCED 5B programme enrolments, the student status is lost either at the event of graduation and award of the respective diploma, or past 2 consecutive/3 random semesters without renewal of enrolment. Alternatively, by own assertion of the student (negligible).

**Iceland:** With changes that have taken place in the tertiary education system in Iceland, many students and programmes have been transferred from ISCED 5B to 5A.

The number of tertiary students has also increased considerably, so the cross section cohort method proposed to survey university survival rates in the UOE 2005 data collection is not the best method to use. Instead the true cohort method with data from the Statistics Iceland Student Register and Register of Examination has been used.

A rate of 69% has been calculated for tertiary education as a whole. Each graduate is counted once even if he graduates both from 5A and 5B. It is not possible to give a separate survival rate for ISCED 6 because in 1994 there was only one student at ISCED 6 in Iceland.

**Table 1: University survival rate in Iceland using the true cohort method**

	Entrants in 1994	All graduations 1995-2004			Not graduated
		5A	5B	Total	
5A	1610	1062	20	1082	528
<i>% of total</i>	100	66.0	1.2	67.2	32.8
5B	546	68	345	413	133
<i>% of total</i>	100	12.5	63.2	75.6	24.4
All ISCED 5	1959			1351	608
<i>% of total</i>	100			69.0	31.0

Source : Statistics Iceland.

The total for ISCED 5 for entrants, graduates and not graduated is not the sum of ISCED 5A and 5B. Some new entrants into tertiary-type A had previously entered into tertiary-type B programmes and are therefore not new entrants into tertiary education. Some new entrants into tertiary-type B had previously entered into tertiary-type A programmes and are therefore not new entrants into tertiary education.

Some graduates have graduated from both tertiary-type A and B programmes but they are only counted once in the graduate data. Graduates for 5A and 5B in for ISCED 5 could not be filled in, otherwise there would have been double- counting of graduates.

**Italy:** The table takes into account the number of graduates divided by the number of new entrants in the typical year of entrance by the duration of the programme. With regard to ISCED 5 level, due to the instability and to the recent reform of the Italian tertiary system the typical year of entrance by the duration of the programme is very difficult to assess. For example, in the last years a lot of students entered in programmes with duration 5 and graduated in programmes with duration 3. Hence, this indicator can not be calculated for Italy.

**Switzerland:** The calculation of the OECD survival rate depends on a relative stable student population. This means that the entrant cohort and the graduate cohort are composed by the same population. "The methodology is therefore sensitive to the validity of data. In a system which is expanding or diminishing heavily and where the students do not follow the typical pathways and durations and where there are many changes between the programme categories from entrance to graduation the results may be less reliable" (Doc. ESTAT/F4/2006-ETS-06-EN).

In 1998 the transformation of selected Higher Vocational Schools and Colleges, especially Colleges of Engineering and Colleges of Economics and Administration (formerly ISCED 5B) into Universities of Applied Sciences (newly ISCED 5A) took place. Due to this reform process, entrance and graduate population changed in Switzerland from 1998 to 2003.

Nevertheless, national survival and drop out rates in the higher education system for ISCED 5A (3 to 5 years) and ISCED 5A (5 to 6 years) can be calculated from a longitudinal analysis of an individual student cohort (with a personal identification number for each student). The calculation is carried out according to the national classification of the different

types of higher educational institutions. It does not exist data for ISCED 6 and ISCED 5B actually.

ISCED 5A					
First degree					1st and 2nd degree
	Total	3 to less than 5 years*	5 to 6 years**	More than 6 years	First-time 5A, (unduplicated)
Survival rates	m	72%	68%	m	m
Drop out	m	24%	28%	m	m
Remaining in the system	m	4%	4%	m	m

\* Student cohort 1999: only students in universities of applied science and most pedagogical universities;

\*\* Student cohort 1994: only students in universities and colleges of advanced technology.

The criterion is the successful completion of the study programmes by obtaining a first degree.

**Survived:** students of the entrance cohort which have successfully obtained a first degree in higher education after 5 or 10 year respectively.

**Drop out:** students which are not longer enrolled in the specific type of higher education without obtaining a degree after 5 or 10 years respectively.

**Remaining in the system:** students of the entrance cohort, which are after 5 or 10 years respectively, still enrolled in the study programmes and haven't so far completed their studies. In this group, it is still possible that the students are obtaining a degree, but it might be also possible that some student will drop out without the successful completion.

#### **Data and calculation methods:**

The entrance cohort is composed of students who enrolled for the first time at a specific type of higher education at the ISCED 5A level, independently whether they had been already enrolled in another type of higher education institution:

- For the universities of applied science and most pedagogical universities (ISCED 5A programmes with 3 to 5 years duration), the survival rate is calculated five years after the student entrance (most recent entrance cohort 1999);
- For the universities and colleges of advanced technology (ISCED 5A programmes with 5 to 6 years), the rate is calculated 10 years after the entrance (most recent entrance cohort 1994).

The criteria for the 5 and 10 year period respectively is the proportion of students which still remaining in the system after a certain time period. This proportion has to be less than 5% of the entrance cohort. For the ISCED 5A 3 to 5 year programmes this is the case after 5 years and for the ISCED 5A 5 to 6 year programmes this is the case after 10 years.

The definition and the different cohorts do not allow the calculation of a total of the two programmes types («3 to less than 5 years» and «5 to 6 years»). Foreign students with prior education outside Switzerland are excluded from the student cohort according to data restrictions.

ISCED 5A (3 to 5 years) Entrance cohort 1999		Cohort	Graduates of the cohort (survival rate)	Drop outs of the cohort	Students remaining in the system of the cohort	Total
Total	percent		71.76	24.14	4.11	100
	number	6401	4593	1545	263	6401
ISCED 5A (5 to 6 years) Entrance cohort 1994						
Total	percent		67.9	27.81	4.3	100
	number	11440	7767	3181	492	11440

**Tables A3.3. Tertiary graduates by field of education, and A3.4. Percentage of tertiary qualifications awarded to females**

Please see notes of table A3.1.

#### *Classification*

Tertiary graduates who receive their qualification in the reference year are classified by fields of education based on their subject of specialisation. These figures cover graduates from all tertiary degrees reported in Table A3.1. The 25 fields of education used in the UOE data collection instruments follow the revised ISCED classification by field of education. The same classification by field of education is used for all levels of education. For definitions and instructions refer to the ISCED Classification (UNESCO, 1997). The classification is in accordance with the fields of training defined in the *Fields of Training – Manual* (EUROSTAT, 1999).

#### ■ Notes on specific countries:

**Hungary:** This table is based on graduations rather than graduates. In Education, students often graduate in two subjects, which means that the double counting causes the increase. Before, these students were weighted 0.5 in each subject. Increase in the field of Health and Welfare is due to a tertiary-type 5B programme which attracts primarily women.

**Sweden:** There are few students and only five kinds of degrees defined as "second degree" in the Swedish tertiary-type A education system, four of which are dominated by female students.

■ **Table A3.5. Sciences graduates, by gender**

Please see notes of tables A3.1, A3.3 and A3.4.

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

**INDICATORS A4-A7: PISA and TIMSS**

For any needed information, please refer to the website from PISA ([www.pisa.oecd.org](http://www.pisa.oecd.org)) and TIMSS ([www.timss.org](http://www.timss.org)).

**INDICATOR A8: Labour force participation by level of educational attainment**

■ **Table A8.1a, A8.1b (web), A8.2a, A8.2b (web), A.8.3a, A8.3.b (web), A8.3.c (web), A8.4a A8.4.b (web), A8.4.c (web).**

*Methodology*

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

For sources and classification programmes, please see notes of table A1.1a.

*Definitions*

The labour force participation rate for a particular age group is equal to the percentage of individuals in the population of the same age group who are either employed or unemployed, as defined according to the guidelines of the International Labour Office (ILO). The employment rates used for this indicator are calculated in the same way but for the employed only.

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

■ **Table A.8.3a, A8.3.b (web), A8.3.c (web)**

■ **General notes**

Historical data on educational attainment are only available for the three major levels of education:

Less than upper secondary education -- 0/1/2 (ISCED97 equivalent levels)



Upper secondary and Post-secondary education -- 3/4 (ISCED97 equivalent levels)

Tertiary non-university and university -- 5/6 (5A/5B/6 ISCED97 equivalent levels)

Before 1997, educational attainment levels were coded according to international mapping ISCED 76. The ISCED 76 levels have been allocated to ISCED97 levels.

*Sources*

National Labour Force Surveys except for Belgium (1997-1999), Denmark (1998-2001); Luxembourg (1998-2001) and the Netherlands (1998-1999) for which data come from European Labour Force Survey.

■ **Notes on specific countries:**

**Austria:** Break in time series between 2003 and 2004 due to changes in methodology.

**Czech Republic:** from 1994 to 1996, distributions are adjusted considering the 1997 distribution.

**Denmark:** There is a break in the time series between 1994 and 1995. There has been a revision of the Danish ISCED97 implementation. The revision is due to reforms of the education system. As a result of these reforms most medium-cycle higher education programmes (with a duration of at least 3 years) have been moved from ISCED 5B to ISCED 5A. Furthermore, the majority of short-cycle higher education programmes are now classified as ISCED 5B. The ISCED mapping has been revised.

**Ireland:** Data provided for the period 1999-2002 are revised figures.

**Portugal:** From 1991 to 1996, the distribution of the “unknown” category has been adjusted on the basis of the known distribution.

**Sweden:** There is a break in the time series between 2000 and 2001. This is a result of new data sources and improved information about immigrants.

**Switzerland:** Please refer to the note in A1 regarding changes in methodology relating to the 2003 data submission. New mapping was introduced in 2001.

Deleted: in

**United States:** For 1991, the distribution is adjusted on the basis of the 1992 distribution.

**INDICATOR A9: The returns to education: Education and earnings**■ **Tables A9.1a, A9.1b, A9.2a (web), A9.2b (web), A9.2c (web), A9.3 (web), A9.4a, A9.4b, A9.4c***Methods and definitions*

The total (M+F) average is NOT the simple average of the Male and Female figures, but rather the average based on earnings of the total population. This overall average weights the average figure separately calculated for men and for women by the share of men and women at different levels of attainments ((and therefore of earnings).

■ **Notes on specific countries**

Earnings data for the Czech Republic, Hungary, Luxembourg and Poland exclude part time work. Moreover earnings data for Hungary, Luxembourg and Poland exclude part year or seasonal employment.

Earnings are considered before income tax except for Belgium and Korea where data are after income tax.

The length of the reference period is one week for Australia, New Zealand and United Kingdom; one month for Belgium, France, Hungary, Ireland, Germany, and Portugal; the calendar year for Canada, Czech Republic, Denmark, Finland, Italy, Luxembourg, Netherlands, Norway, Spain and Sweden; and other 12-month period for Korea, Switzerland and United States.

Original earnings data are expressed in national currencies.

**United Kingdom:** Previously the earnings for women over the pension age (60+) were derived from women aged 55 to 59, however earnings are collected for women over 60 who are in employment so these figures have been input here. Moreover, previously the category “unknowns” were apportioned to education levels and this change in the methodology caused a significant change over a two year period comparison for table A9.1.

*Sources*

Australia	: Survey of Education and Training.
Belgium	: Labour Force Survey.
Canada	: Survey of Labour and Income Dynamics (SLID).
Czech Republic	: Microcensus.
Denmark	: a) Income register (end of 2001); b) Register of educational attainment (October 2001).
Finland	: The Register-based Employment Statistics.
France	: French life force survey.
Germany	: German socioeconomic panel study (GSOEP).
Hungary	: Individual Salary and Earnings of Employees.
Ireland	: Living in Ireland Survey.
Italy	: Bank of Italy Survey on Household Incomes and Wealth.
Korea	: Survey on wage structure.
Luxembourg	: Structure of earnings survey (every four years).

Netherlands	: Structure of Earnings Survey.
New Zealand	: Labour Market Statistics.
Norway	: Income Statistics for Persons and Families.
Portugal	: List of Personnel.
Spain	: European Household Panel, Eight wave.
Sweden	: National income register.
Switzerland	: Labour Force Survey.
United Kingdom	: Labour Force Survey.
United States	: 2003 March Current Population Survey.

■ **Tables A9.5 to A9.8**

*Methodology*

**I. Introduction**

The rate of return represents a measure of the economic benefits obtained, over an individual's working life, relative to the cost of obtaining higher levels of education. Rates of return can be measured from either the individual's or society's point of view. Private rates of return measure the future net economic payoff to an individual investing in obtaining a higher level of education. Public rates of return measure the net fiscal benefits to society of an individual obtaining a higher level of education. The formulae for calculating both types of return are the same, although the costs and benefits included differ between the two.

**II. Technical definition of the Internal Rate of Return (IRR)**

The internal rate of return (IRR) calculation is based on the actuarial method of calculating *net present value* (NPV) over time of making an investment relative to the benefits that the investment produces. NPV is a traditional criterion for making investment choices, in that provides an estimate of the future value of investments in terms of their economic benefits, after accounting for the costs of the investments. NPV is calculated as follows:

NPV is calculated as follows:

$$NPV = -\sum_{t=0}^{d-1} C_t / (1+i)^t + \sum_{t=d}^{64-a-d} B_t / (1+i)^t$$

where:

C<sub>t</sub> = costs at period t (t ∈ 0, d-1)

B<sub>t</sub> = benefits at period t (t ∈ d, 64-a-d)

i = the discount rate at which future costs and benefits are valued in the present

d = the duration of studies (in years)

- a = age at the beginning of education/training  
 64 = age at the last year of activity in the labour market.

The IRR is the discount rate at which  $NPV=0$ . Given a stream of assumed costs and benefits over time, the IRR represents the rate of return on investment expressed as an interest rate ( $i$ ) that a given investment produces in terms of assumed benefits. In project evaluation, a key criterion for project approval is to accept the project if the IRR is greater than the (opportunity) cost of capital that could be used in alternative investments (*e.g.* building facilities).

### III. The composition of costs and benefits

The cost elements are the following:

1. Forgone earnings

Foregone earnings are the value of earnings that would have been obtained if the individual had worked, at the lower level of education, instead of making the investment in education.

2. Training costs

Three forms of educational expenditure are taken into account in the analysis:

- Public expenditures on education (for infrastructure, teachers' wages, as well as subsidies, etc.).
- Private expenditures (tuition, other fees, etc.).

3. Additional tax payments resulting from an education-induced increase in taxable income.

These costs can be grouped as follows:

Private costs:

Foregone earnings + direct private expenditures + increased future taxes
---

Public costs:

Lost tax receipts during the training + public expenditures
---

In the calculation of private rates of return, private costs are included; and in the calculation of public rates of return, public costs are included.

The benefits associated with the individual's decision to invest in training are the following:

1. Increased earnings levels arising from a higher level of education

2. A higher probability of being employed associated with higher education.
3. For the public sector, additional tax receipts.

These can be grouped as follows:

Private benefits:

Increases in earnings+ higher probability of being employed

Public benefits:

Additional tax receipts

In calculating the private rates of return, private benefits are included. In calculating the public rates of return, public benefits are included.

#### IV. Data and model assumptions

This model calculates IRR from the point of view of the individual and society.

*Data:*

1. Earnings correspond to an annual reference period in Canada, the Czech Republic, Denmark, Finland, Ireland, Italy, Korea, Luxembourg, Norway, Spain, Sweden and the United States. Earnings have a weekly reference period in Australia, New Zealand and the United Kingdom, and a monthly reference period in Belgium, France, Germany, Hungary, Poland and Switzerland. Data on earnings are before income tax, while earnings for Belgium and Korea 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 source of these data is Statistics Sweden.

2. Lifetime earnings streams are estimated from cross-section data. The average annual earnings for each age group were assigned to the midpoint of the interval. Between 2 midpoints, earnings have been adjusted to fit a straight line using the method of least squares, along a linear trend. In cross-section data, earnings differentials between age cohorts reflect accumulated work experience, additional training investments made on the job and technological change. Earnings are likely to increase over time, so labour productivity in the business sector is used as the basis for making earnings projections. This approach is in line with the acknowledged link between earnings increases and productivity increases in the economy as a whole (as shown by a relatively stable functional distribution of income, i.e. between the capital and labour shares)

over long periods. Hence, the average annual earnings of today's population cohorts adjusted by the productivity growth rate are taken to represent a reasonable estimate of future average annual earnings (using cross-sectional data further assumes that changes of participation rates in higher education will not affect the earnings patterns over time).

3. Tax rates on earnings are taken from the OECD database on Benefits and Wages, provided by the Directorate for Employment, Labour and Social Affairs.

*The assumptions of the model*

- The typical starting and ending age by level of education (up to upper secondary level of education) are based on indicator B1 EAG2006.
- The average duration of tertiary studies are taken from B1.3 EAG 2005.
- The growth rate of productivity (to reflect the impact of technological progress on average real annual earnings) is fixed at the country-specific growth of labour productivity in the business sector. It is assumed that the growth rate is the same for all levels of education.
- Employment probabilities (1 minus the unemployment rate) are applied to average annual earnings for each education, sex and age group cohort.
- The earnings of the individual during the training period are assumed to be zero in the scenario when, following initial education, the individual has continued directly to the next highest level of education before entering the labour market. In the second scenario, when attaining the next highest level of education has been postponed until the age of 40, the earnings of the individual during the training period are assumed to be equal to unemployment benefits over a duration stipulated by national norms. After this period they are taken as being equal in magnitude to social assistance benefits, up to the end of the training period.
- The earnings of the individual after the training period are assumed to be 10 % more than at the previous level of education. Earnings increase in a linear fashion over 2 years until reaching parity with those of individuals who had already attained the higher level of education.