

Chapter 5

Student Enrolments and Graduation Trends in the OECD Area: What Can we Learn from International Statistics?

by

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This chapter aims to disaggregate the recent expansion of tertiary education. It looks to what extent the increasing number of students in recent years reflects changes in the definition of the sector, its composition, entry rates, demographic developments and successful completion of study programmes. It also examines how this expansion affects graduation rates and the educational attainment of the population. As a conclusion, it discusses the richness and the limitations of the available statistical information for interpreting the future.

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5.1. Introduction

Over a period of about five decades, there has been a substantial increase in study beyond secondary education. It has been accompanied by a lively debate about the changing demands of the economy, about the needs of society and the general impact of an increasing number of highly educated citizens, about changes in access to higher education and in the composition of the study body and about the changing character of higher education as a consequence of the increase in enrolments.

The aim of this chapter is not to participate in the general debate on the changing function of tertiary education in the context of expansion, but to analyse in some depth various elements of the process. Expansion may be broadly measured by the rise in the absolute numbers of students, but more detailed and more disaggregated information is needed to understand the changes that have occurred.

First, the *definition of the sector* plays a role. Reports shortly after World War II indicating that only about 3-5% of the relevant age group were awarded a post-secondary degree in the highly developed countries generally referred only to *universities*. Even in the 1960s, little attention was paid to post-secondary institutions that were not considered on equal terms with universities, for example in the areas of engineering education and teacher education (see OECD, 1970/71). Around 1970, the term *higher education* seems to have become commonly accepted as a term signalling basic elements of university education and education at other types of higher education institutions; in highly developed countries at that time, about 20% of the relevant age group on average enrolled in higher education programmes. Increasing emphasis was placed on issues of institutional composition and thus on signs of increasing “diversification” (see, for example, OECD, 1983). In the 1980s and 1990s, international bodies, notably the OECD, but also to a certain extent UNESCO and the European Commission, took the lead in coining the term *tertiary education* in studies on recent developments in education beyond the secondary level. The term “tertiary” as opposed to “higher” suggests that there is more to education in the third stage than what is conveyed by the terms used for traditional, vertically stratified education systems which point to certain curricular characteristics and quality levels. Over this period, enrolment rates increased to more than 50%, and it was predicted that in the first decades of the 21st century more than three-quarters of an age group would receive some tertiary education in many highly developed countries (OECD, 1998).

Second, *institutional composition* is an important element in the analysis of the expansion process. There are *functional definitions* of institutional composition, and most attention has been paid by scholars and politicians to a developmental theory of the US higher education researcher Martin Trow (1974): up to an enrolment rate of about 15%, there is only “elite higher education”. Beyond that point, “mass higher education” emerges and, when enrolment surpasses 50%, there is “universal higher education”. Trow sees the coexistence of these segments as protecting the elite sector to preserve quality and serve the most talented students in the best possible way. In addition, *types of institutions and*

programmes were presented, often in terms of a dichotomy between universities and “non-university higher education”, “short-cycle higher education”, “the alternative sector”, “applied higher education”, etc. Further, *years of study* and *levels of study programmes* were often viewed as a gold standard for comparing systems and programmes as well as students’ attainment. As the underlying concepts were controversial and the institutional arrangements continued to vary substantially by country, UNESCO and the OECD developed in the 1990s a typology based primarily on years of study and levels of study programmes and also taking into account the type of study programmes – in OECD terms “*tertiary-type B*” and “*tertiary-type A*” education. In addition, data are available on *fields of study*, a topic not addressed in this analysis.

Third, the *socio-biographic composition* is important for identifying those benefiting from and those disadvantaged by the expansion process. *Parents’ educational attainment*, *parents’ socio-economic status* and *ethnicity* are often referred to as socially distributive background variables; however, these indicators are measured differently in different countries. International statistics most often give information based on uncontroversial definitions of students’ *age* and *gender*.

Fourth, information about *new entrants* is in various respects more interesting than information on overall student enrolments. While the total number of students is influenced by the varying duration of study programmes, the number of new entrants indicates how many persons participate in tertiary education. Changes in the number of students reflects, on the one hand, *demographic developments*: an increase in the number of births is likely to lead some years later to a rise in new entrants and a demographic downturn is likely to lead to a decline. On the other hand, an increase in the number of new entrants may be due to relatively higher participation in tertiary education: the *entry rate* is defined as the share of new entrants in all persons of the relevant age group.

Fifth, the number of *graduates* indicates how many persons are fully qualified in terms of tertiary education and are “delivered” to society. This number is also affected by demographic developments, and the *graduation rate* indicates the share of those who have successfully completed tertiary education programmes in their entire age group. The graduation rate is lower than the earlier new entry rate, because some students drop out: *success rates* establish a link between entry rates and graduation rates. Moreover, the annual number of graduates affects the educational composition of the population, usually measured as *educational attainment of the adult population*, or more specifically in OECD statistics as the rate of 25-64-years-olds having attained tertiary education.

Sixth, *international student mobility* plays a role in the expansion or contraction of tertiary education. Available statistics refer to national higher education, and in the past one could assume that most students were citizens of the country in which they studied. In recent years, however, the number of *foreign* students and students *studying abroad* and the number of students who are *inwardly mobile* or *outwardly mobile* for the purpose of study affect enrolment figures in some highly developed countries to such an extent that student mobility can no longer be viewed as marginal.

The aim of this chapter is to disaggregate the recent expansion of tertiary education on the basis of the kinds of sources of information described above. To what extent does expansion of the number of students in recent years reflect changes in the definition of the sector, its composition, entry rates, demographic developments and successful completion of study programmes, and how does it affect graduation rates and the educational attainment of

the population? The analysis focuses on OECD data on western European countries and on Japan, while at times referring to other OECD member countries and occasionally to other parts of the world. It addresses changes from the early 1990s to nowadays.

In addition, this chapter discusses the richness and the limitations of the available statistical information. Compilations such as the annual OECD publication, *Education at a Glance*, indicate the wealth of information available. A detailed analysis, however, also points to the limitations of such information, which may be due to controversial concepts, the variety of definitions, data collection practices in individual countries and the degree of willingness, on the part of individual countries and international bodies that collect statistics from individual countries, to include or exclude certain dimensions when collecting data.

5.2. Enrolment trends

As the foregoing indicates, the most noticeable trend in higher education in recent decades appears to be its expansion, often referred to as the “massification” of higher education. International statistics provide three measures of this expansion: enrolment numbers, enrolment rates and entry rates. This section suggests that the growth in enrolment rates in higher education has been less related to demographic factors than to the lengthening of courses of study and the availability of new short programmes of study, in some cases following the upgrading of vocational programmes to tertiary educational programmes. Demographic developments might however play a more important role in the future.

Overall student numbers

The quantitative expansion of tertiary education is often described in terms of the absolute number of students enrolled. Trends in *overall enrolment of students* can be clearly identified if the definition of the sector has not changed over time or if changes of definition are clearly indicated. Japan, for example, collects educational data according to fairly stable definitions and is thus a suitable case for analysis. The number of students at universities and junior colleges in Japan increased from about 240 000 in 1950 to about 3 million in 2000, i.e. by a factor of more than twelve in 50 years. In addition, more than half a million persons were enrolled in other tertiary education institutions in 2000, primarily the institutions of vocational training that were upgraded to tertiary education institutions in 1978.

Leaving aside all changes in definitions, the tertiary student population worldwide may be estimated to have grown over five decades from less than 10 million in the 1950s to about 183 million in 2006 according to the most recent UNESCO data (UNESCO, 2007).

Table 5.1 shows overall student enrolments in tertiary education throughout the world from 1980 to 1995 as presented in an analysis for the UNESCO World Conference on Education 1998. The number of students in the “more developed regions” only increased from 23 million in 1980 to 25 million in 1985, but then increased at a somewhat faster pace to 29 million in 1990 and 34 million in 1995. UNESCO has recently changed its political-geographic definitions, but recent data suggest that the overall number of students in the “more developed regions” reached 39 million in 2006. However, overall student enrolments in highly developed countries increased in the 1980s and in the 1990s at a slower rate than in other parts of the world.

Table 5.1. **Number of tertiary education students (in thousands) by world region, 1980-2006**

	1980	1985	1990	1995	2006 ¹
WORLD TOTAL	51 160	60 296	68 665	81 745	139 395
More developed regions :	23 321	25 053	29 050	34 346	38 963
North America	13 517	13 887	15 628	16 438	18 814
Asia/Oceania	2 910	2 929	3 512	5 318	5 363
Europe	6 895	8 237	9 910	12 589	14 786
Countries in transition	11 317	10 882	10 716	10 790	19 298
Less developed regions :	16 523	24 361	28 899	36 610	81 135
Sub-Saharan Africa	563	906	1 365	1 926	3 182
Arab States	1 487	2 017	2 449	3 143	6 060
Latin America/Caribbean	4 930	6 364	7 353	8 121	15 635
Eastern Asia/Oceania	5 266	9 120	10 600	14 333	36 735
Southern Asia	4 063	5 535	6 456	8 004	17 162
Least developed countries	664	1 033	1 181	1 712	2 089

1. In case of missing value for the year 2006, data for 2004 or 2005 are used when available.

Note: The grouping is based on the country groupings undertaken by UNESCO in the 1990s.

Source: UNESCO (1998, 2006 and 2007).

Available OECD data make it possible to estimate that total tertiary education enrolments in European member countries in 2000 (i.e. including some in Central and Eastern Europe) increased in the period under consideration here, i.e. from the early 1990s until 2006, from about 11 million to about 13 million. This is far below the world average for overall expansion of student numbers.

Growth in enrolments is best described on the basis of annual *growth rates*. During the 1950s the number of students in higher education grew at an annual rate of 5% on average in European OECD member countries; during the 1960s the average rate increased to almost 8% (Pellegrin, 1974). The pace was similar in the early 1970s. It should be borne in mind, however, that in some countries part of the growth took place through the upgrading of institutions that were formerly not considered higher education institutions and mostly not included in higher education statistics. From the mid-1970s to the mid-1980s, the average growth rate in European OECD member countries was below 2%; there were substantial differences among individual countries, with stagnation and moderate decline in some.

Between the mid-1980s and early 1990s, the OECD (1998) observed a new period of “massification” of “tertiary education” (including vocational tertiary education). However, average annual growth of somewhat more than 3% was well below that of the early post-war decades. Table 5.2 suggests that annual growth rates varied substantially among European OECD member countries: about one-third grew at less than 3%, one-third at between 3% and 4%, and one-third at more than 4%.

From 1996 to 2006, the period primarily examined here, average annual growth of students enrolled in tertiary education in western European countries levelled off to about 1.7%. Table 5.2 shows:

- A decline in two countries.
- Annual growth of less than 1% in four countries.
- An increase of between 1% and 3% in five countries.

Table 5.2. **Growth rates in absolute numbers of student full-time enrolment in tertiary education in selected OECD countries, 1985, 1996 and 2006**

1996 = 100

	1985	1996	2006
Western Europe			
Austria	77	100	107
Belgium	67	100	93
Denmark	72	100	116
Finland	60	100	83
France	64	100	105
Ireland	51	100	140
Italy	67	100	114
Netherlands	79	100	122
Norway	53	100	109
Spain	54	100	101
Sweden	94	100	114
Switzerland	79	100	142
Turkey	31	100	175
United Kingdom	50	100	121
Central and eastern Europe			
Czech Republic	m	100	181
Hungary	m	100	182
Poland	m	100	190
Other countries			
Australia	56	100	149
Canada	76	100	65
Japan	60	100	101
United States	87	100	132

m = missing.

Note: 1997 for Turkey and 1998 for Poland.

Source: OECD Education Database.

Similarly, enrolments declined in Canada, increased marginally in Japan and grew in Australia and the United States.

With the exceptions of Ireland and Switzerland, higher growth rates were observed only in those European countries with a lower enrolment rate among the respective age group in the early 1990s, i.e. Turkey and the new OECD members in Central and Eastern Europe.

In sum, expansion of higher education in terms of overall student numbers continued both in western Europe overall and all OECD members from the early 1990s until the most recent years for which data are available. However, the increase was smaller than that in all other parts of the world. Moreover, developments were quite heterogeneous in western Europe, with marginal growth in some cases and a decline in others. Overall expansion of higher education in terms of student numbers can no longer be viewed in terms of a more or less consistent pattern across the highly developed countries.

Entry and enrolment rates

Relative numbers of new entrants or of all students enrolled are often more useful than absolute numbers. When analysing and assessing the expansion of tertiary education, issues such as opportunities for study or the impact of expansion on the proportion of highly qualified persons among the adult population are of interest and can

be more readily observed in relative terms. Two ways of presenting the relative expansion of higher education are often used:

- *enrolment rates*: the number of students enrolled in tertiary education, compared, as a rule, to the overall population of the age group typically engaged in tertiary education;
- *entry rates*: the number of new entrants compared to the population of the typical age for entering tertiary education.

The UNESCO and the World Bank frequently publish enrolment rates. For example, the statistical background information for the UNESCO World Conference on Higher Education 1998 presented two indicators of this kind (UNESCO, 1998). First, the number of students per 100 000 inhabitants was calculated. From 1980 to 1995, it increased by almost 25% worldwide from 1 151 to 1 434. In rounded figures, it grew by 34% in “more developed countries” from 3 100 to 4 100; it declined by 12% in “countries in transition” from 3 000 to 2 600; it increased by 65% in “less developed countries” from 500 to more than 800, and by 77% in “least developed countries” from less than 200 to about 300.

Second, UNESCO calculated the “gross enrolment ratio” as the percentage of students among young people within five years of the country’s normal secondary education leaving age. From 1980 to 1995, the enrolment ratio increased in “more developed countries” from 37.2% to 59.6%; in “countries in transition” from 33.6% to 34.2%; in “less developed countries” from 5.1% to 8.8%; and in “least developed countries” from 1.8% to 3.2%.

Since then, these figures have increased further. For 2006, the gross enrolments rates were 70% in North America and western Europe, 57% in Japan, 73% in Australia and 31% worldwide (UNESCO, 2007).

A comparison of the various growth figures over the period of 15 years from 1980 to 1995 in the “more developed countries” shows an increase of 47% in the absolute number of students, i.e. about 3% annually, of 34% in the number per 100 000 inhabitants and of 60% among young people in the typical age for study. The comparison clearly indicates an increase in the average duration of study among students in more developed countries. The figures do not allow for disentangling the growth due to an increase in the entry rate and that due to the increasing length of study.

The OECD employs entry rates as indicators of initial participation in tertiary education. For international comparisons and analysis of trends, this is certainly superior to the growth in the enrolment ratio, because the average length of study varies among countries and changes over time. For example, the relatively low gross enrolment rate in Japan in 2006 shown above is clearly due to the fact that the average number of years spent in tertiary study is lower in Japan than in most other highly developed countries.

Entry rates in European OECD members can be estimated to have increased from a country mean of less than 5% of the corresponding age group around 1950 (university education) to more than 20% around 1970 (higher education) and to more than 40% in the mid-1990s (tertiary education). Average annual growth of more than 5% was due in part to upgrading.

For western European OECD members for which data are available, we find a mean entry rate of:

- 38% in 1991, with 24% beginning study programmes of tertiary-type A education and 14% entering other tertiary education programmes;

- 64% in 2005, with 49% entering tertiary-type A education and 17% tertiary-type B education. In the new Central and Eastern European OECD member countries, the net entry rate was 63%.

Thus, the mean tertiary education entry rate among western European OECD members has increased since the early 1990s at an annual average rate of almost 4%. It exceeded the increase in overall absolute enrolment rates, primarily owing to an increasing share of students studying for a relatively short period.

Table 5.3 shows that the rise in entry rates varied significantly. It was higher on average in Central and Eastern European OECD members and lower in the other member countries covered. In western Europe, the average annual growth of entry rates over the 14-year period was less than 2% in Finland and Germany, between 2 and 4% in Belgium and the Netherlands, and 4.5% or more in Austria, France, Denmark, Spain, Ireland, Sweden and the United Kingdom.

Table 5.3. Entry rates into tertiary education in selected OECD countries, 1991 and 2005

Percentage of corresponding age groups

	1991			2005		
	Non-university tertiary	University	Total	Tertiary-type B	Tertiary-type A	Total
Western Europe						
Austria	5	23	28	9	37	46
Belgium	22	28	50	34	33	67
Denmark	14	24	38	23	57	80
Finland	29	33	62	m	73	73
France ²	15	29	44	34	39	73
Germany	11	33	44	14	36	50
Ireland	16	17	34	14	45	59
Italy	m	36	36	m	56	56
Netherlands	25	13	38	m	59	59
Spain	m	40	40	22	43	65
Sweden	34	13	47	7	76	83
Turkey	2	12	15	19	27	46
United Kingdom	8	20	28	28	51	79
Central and eastern Europe						
Czech Republic ¹	1	15	16	8	41	49
Slovak Republic ¹	m	m	m	2	59	61
Hungary	9	7	16	11	68	79
Other countries						
Australia	16	36	52	m	82	m
Japan	29	24	53	30	41	71
United States	27	38	65	m	64	m

1. 1991: Czechoslovakia.

2. 2003 instead of 2005.

m = missing.

Source: OECD (1993, 2005 and 2007), *Education at a Glance: OECD Indicators*.

The differences in entry rates in some countries were clearly linked to upgrading; this upgrading also explains to some extent the increase in the proportion of students studying for a relatively short period. There was substantial upgrading from vocational training outside tertiary education to tertiary-type B education in Spain, Turkey and the United Kingdom.

Demographic developments

The impact of demographic changes on enrolment in education tends to become an issue at times of marked increases or decreases in the relevant age cohort. Since the 1990s, concerns have been voiced about the reduced size of the typical college-going age cohorts in most highly developed countries. According to OECD statistics (OECD, 2006, *Education at a Glance*, Table C.2.2), however, the mean number of students in European OECD member countries would have declined by 5% from 1995 to 2004, if changes in student enrolments were determined exclusively by demographic factors (an annual demographic decline of more than 0.5% on average). Demographic change affected overall absolute enrolment to a lesser extent than changes in entry rates or changes in the choice of long or short study programmes.

In contrast to western Europe, demographic changes played a major role in recent years in Japan. The 18-year-old population in Japan (Japan, Ministry of Education, Culture, Sports, Science and Technology, 2004) was about 2 million in 1960, declined to 1.4 million in 1964, increased dramatically to 2.5 million in 1966, declined to 1.6 million in 1975 and remained on that level until 1985. It then increased to more than 2 million in 1992, declined to 1.5 million in 2002, and is expected to decline moderately to 1.2 million in 2009 and to remain more or less constant until 2020.

In spite of the drop in the relevant population between 1992 and 2002, the number of new entrants to tertiary education in Japan only declined from 1.15 million to 1.05 million. As Table 5.3 shows, the entry rate increased over 14 years from 53% to 71%. Thus, potentially vacant places due to the demographic downturn were almost entirely filled by increased absorption of the relevant age group. However, this affected the various types of tertiary education institutions differently. The number of new entrants in colleges of technology and tertiary (type B) vocational programmes remained more or less constant. In contrast, the number of new entrants to junior colleges declined from about 250 000 to about 110 000. Experts estimate that more than half of the decline in enrolments in junior colleges is linked to the upgrading of many of these to universities. Altogether, the demographic downturn since 1992 led to a serious financial crisis in more than one-tenth of private universities, to more or less open access to more than one-third of universities, and to a less competitive mood among the larger proportion of young people potentially heading for universities (see Yonezawa and Kim, 2008).

In sum, the available data show that entry rates to tertiary education continued to increase in western Europe at different rates in recent years. The higher increase in mean entry rates than in overall enrolment figures is primarily due to increasing options for short study programmes, partly as a result of the upgrading of vocational training programmes to tertiary education programmes. In addition, a moderate demographic decline was not very relevant in recent years but is likely to play a more important role in the future.

5.3. The composition of the student body

Did the expansion of higher education come from or lead to a change in the composition of the student body? The question is difficult to answer on the basis of international statistics. While we know that the bulk of tertiary enrolments continue to be in general higher education and that female student enrolments have risen, there has been no systematic collection of data at the international level on students' age or socio-economic background. Although numbers of foreign students have increased significantly

in recent years, this has clearly not been a driver of massification of higher education in OECD countries.

Institutional composition

In statistics on student enrolment, the OECD distinguished between “university tertiary education” and “non-university tertiary education” around 1990 and between “tertiary-type A education” and “tertiary-type B” education following the last ISCED classification in 1997. The definitions of the two categories are quite similar, but one major distinction is worth noting. Students at various bachelor-level programmes at non-university institutions of higher education, *e.g.* HBO in the Netherlands, *ammittikorkeakoulu* in Finland and university colleges in Sweden, were classified as “non-university tertiary education” in the early 1990s, but as “tertiary-type A” in recent years.

In addition, the OECD provides various categories for dividing “university education” or “tertiary-type A” education according to years of study and programme level. In statistics of student enrolments, entry rates and graduation rates, these categories have varied over the years and often in the same year.

The available data on entry rates, student enrolments and graduation rates show that the university and tertiary-type A sector is generally the largest one in western European countries and that it has grown more in recent years than the other tertiary education sector. However, this is largely due to the redefinition of the categories, notably the reallocation of non-university bachelor programmes in various European programmes.

A time-series analysis of the institutional composition of the student body is hampered by the continual upgrading of programmes. Currently, efforts are under way in Europe to introduce a bachelor-master structure in the context of the so-called “Bologna process” and to increase the quality of vocational education and training and possibilities for moving to tertiary education in the context of the “Copenhagen process”. This calls for revision of the statistical classification of tertiary education and is likely to lead to further efforts to upgrade the vocational education and training currently registered as secondary education in available statistics to “tertiary-type B” or even to bachelor programmes.

Socio-biographic composition

Gender is the only information on the socio-biographic composition of the student body consistently published by international agencies that provide systematic information on education. Comparative data on educational background, socio-economic background, ethnic background, etc., are sometimes presented for a limited number of countries and are often taken from representative surveys. This reflects both the limits of general statistical datasets and the international diversity of data collection.

For many years, reference to gender meant information on the under-representation of women. This was generally true for the first few decades after World War II for OECD member countries and even longer worldwide. During the 1980s, however, entry of women to tertiary education surpassed that of men in western European OECD countries. In 1991, the mean entry rate was 36.0% for men and 39.1% for women and men accounted for 48% of all new entrants. Of the 15 western European countries for which information was available, the number of new female entrants was larger than that of new male entrants in nine countries. According to UNESCO statistics, in 2005 women accounted for 50% of all tertiary education students worldwide, although there were strong differences across countries.

In 2005, 56.9% of men and 71.2% of women in western Europe began tertiary education. Out of all new entrants, 46% – measured as the mean of all countries providing information – were men (47% for entry to tertiary-type A and 44% to tertiary-type B education). As Table 5.4 shows, more women than men began tertiary level study in 13 of the 15 western European countries for which data were available. The information provided in Table 5.4 suggests that other OECD countries also show a trend towards a higher percentage of women. Only in Switzerland and Turkey was the number of men still higher than that of women (Vincent-Lancrin, 2008).

Table 5.4. **Entry rates into tertiary education by gender in selected OECD countries, 1991 and 2005**

Percentage of corresponding age groups

	1991			2005		
	Men	Women	Total	Men	Women	Total
Western Europe						
Austria	27	28	28	41	51	46
Belgium	45	52	48	58	76	67
Denmark	33	43	38	68	92	80
Finland ²	54	71	62	63	84	73
France ²	40	49	44	56	90	73
Germany ¹	49	39	44	47	53	50
Ireland	34	33	34	54	64	58
Italy	35	36	36	49	64	56
Netherlands ²	38	34	36	54	63	59
Norway ²	32	42	37	64	89	76
Spain	39	43	41	57	74	65
Sweden	43	52	43	71	97	83
Switzerland	31	23	27	55	51	53
Turkey	19	11	15	51	40	46
United Kingdom	28	27	28	65	94	79
Central and Eastern Europe						
Hungary	16	16	16	65	91	78
Other countries						
Australia ²	42	62	52	74	91	82
Japan	52	54	53	70	72	71
United States ²	61	69	65	56	71	64

1. 1991 only Western Germany.

2. 2003 instead of 2005.

Source: OECD (1993, 2005 and 2007), *Education at a Glance: OECD Indicators*.

In recent years, the OECD has also provided information on the age of students at the time of entry to tertiary education. In 2005 in 18 European OECD members, the mean age at entry was 21.7 years for the 20th percentile, 23 years for the 50th percentile, and over 27.4 years for the 80th percentile. There are striking differences among countries. In Europe, the Nordic countries, Hungary and Switzerland reported 20% or more students aged over 25 years (see the data for the 80th percentile, OECD, 2007, *Education at a Glance*). Among members outside Europe, this is also true for Australia and New Zealand.

In sum, information provided in international statistics on the socio-biographic profile of tertiary education students is scarce. Improvement is unlikely because national data collection is likely to remain limited in this domain, and controversies about the most

valuable categories are likely to persist. Therefore, national or internationally comparative surveys remain the most valuable sources.

Foreign and mobile students

Over the years, public attention has increasingly been paid to another category of the student body: the internationally mobile student. Unlike gender, age or educational background, this is not a sub-group of a student body of a given size in each country; instead, mobility affects the size of the student body in each country. If, for example, inward mobility surpasses outward mobility, the overall number of students rises.

The international bodies that collect educational statistics did not until recently collect data on student mobility, strictly speaking, but on nationality. The number of foreign students and the number of persons studying abroad were used as a proxy for mobility. However, some foreign students live in the country of study before entering tertiary education and thus are not mobile for the purpose of study and some students return to their home country to study and thus are mobile but not foreigners.

The number of foreign students reported in student statistics has more than doubled in OECD member countries from the early 1990s to 2005, a period during which international student mobility became a major issue in higher education policy. According to the available UNESCO statistics, the number of foreign students worldwide increased from about half a million around 1970 to almost 1 million in 1980, more than 1.5 million in the mid-1990s and almost 2.7 million in 2005. The share of students studying abroad, however, remained at roughly about 2% of all students worldwide. As most students studying abroad go to highly developed countries and as both the population and the relative growth rates of students in these countries were below world average, the percentage of foreign students in all students in these countries has increased substantially over time.

The number of foreign students reported in the official statistics of western European OECD member countries nearly doubled between the early 1990s and 2005. The average ratio of foreign students to all students enrolled increased from about 4% to more than 6%. In Central and Eastern Europe, the rate of increase was higher but started from a much lower level and remained lower. Among OECD members outside of Europe, the ratio of foreign students varies so widely that any generalisation would be misplaced. Altogether one might be inclined to consider study abroad as a major factor in changes in enrolment rates in highly developed countries. In fact, however, the increase in foreign students appears to explain on average at most one-tenth of the overall rise in enrolments.

Table 5.5 gives information on foreign students in selected OECD member countries from 1998 to 2005. It shows the percentage of foreign students among all students. It increased by about 8% points in Australia (from 12.6% to 20.6%) and by at least 3% points in the Czech Republic, Denmark, France, Germany, Sweden and the United Kingdom. The pace was slower in most countries and in Turkey, the percentage slightly declined.

From 1998 to 2005, the number of foreign students increased by more than 50% in Canada, New Zealand, the Czech Republic, Hungary, Iceland, Sweden, the Netherlands as well as in Japan and Korea. In Japan, for example, the number of foreign students increased from about 40 000 in 1990 to about 60 000 in 2000 and then dramatically to more than 125 000 in 2005.

Table 5.5. **Proportion of foreign students in total tertiary enrolment in selected OECD countries, 1998 and 2005**

	Percentage	
	1998	2005
Western Europe		
Austria	11.5	14.1
Denmark	6.0	11.7
Finland	1.7	2.8
France ¹	7.3	10.8
Germany	8.2	11.5
Ireland ¹	4.8	6.9
Italy	1.2	2.2
Norway	3.2	4.8
Spain	1.7	2.5
Sweden	4.5	9.2
Switzerland	15.9	18.4
Turkey	1.3	0.9
United Kingdom	10.8	17.3
Central and Eastern Europe		
Czech Republic	1.9	5.5
Hungary	2.6	3.1
Poland	0.5	0.5
Other countries		
Australia	12.6	20.6
Japan	1.4	3.1
United States ¹	3.2	3.4

1. International students in 2005.

Source: OECD (2007), *Education at a Glance – OECD Indicators*, Paris.

Most national governments, as well as UNESCO, the OECD and Eurostat, have traditionally collected data on foreign students, although they have recently been looking for new ways to track the frequency and flows of mobile students (since *Education at a Glance 2006*). Until recently, the number of foreign students differed substantially from that of mobile students, notably in three respects (see Kelo, Teichler and Wächter, 2006):

- Many foreign students lived and learned in the country of study before they enrolled in tertiary education.
- Students studying abroad temporarily (e.g. “exchange students”, ERASMUS students), mostly for half a year or one year, are only partially included or not included at all in many countries’ statistics on foreign students.
- Students returning to their country of citizenship to study are treated in the statistics of most countries as home students, though they were in fact as “mobile” as the majority of foreign students.

A recent study of several European countries for which more refined data are available (Kelo, Teichler and Wächter, 2006) illustrates the differences resulting from these distinctions. Table 5.6 provides data on the United Kingdom, Germany and Switzerland. Depending on the definition used, figures on foreign and mobile students may vary by about one-third, and might be greater if all temporarily mobile students are taken into account.

Table 5.6. **Percentage of foreign and inward mobile students in Germany, Switzerland and the United Kingdom, 2003**

Citizenship and mobility status	Germany	Switzerland	United Kingdom
a. Foreign inward mobile	8.5	14.1	13.0
b. Home country citizens inward mobile	1.5	2.0	0.6
All mobile (a, b)	10.0	16.1	13.6
c. Foreign non-mobile	3.4	5.4	4.6
All foreign (a, c)	11.9	19.5	17.6

Source: Based on M. Kelo, U. Teichler and B. Wächter (2006).

Since 2005 the agencies that collect international statistics have encouraged all countries to collect mobility statistics in addition to statistics on foreign students (UNESCO-UIS, OECD and Eurostat, 2005). However, they exclude from the count all students enrolled in another country for the purpose of study for less than one semester.¹

As regards total entry, enrolment and graduation ratios, available information suggests that the effect of mobility on overall enrolment figures is somewhat smaller than statistics on foreign students suggest. Mobility varies substantially by country, however it is most pronounced in countries where many foreigners live and learn prior to tertiary education without becoming citizens of that country and where the amount of temporary inward mobility is not very high.

5.4. The output of tertiary education

Data on student enrolments are often misleadingly referred to as an indication of a move towards a highly educated society. Entry rates often figure almost as projections of the output of tertiary education. However, according to the “rules of the game”, students are usually viewed in Europe as having attained tertiary education only if they successfully complete a study programme and graduate from higher education. Western Europe has generally reached “universal tertiary education” according to Martin Trow’s terminology, but this does not mean that western Europe has achieved “universal” graduation rates.

Success rates

The OECD calculates success rates, or “survival rates”, by comparing the number of graduates in a given year with the number of new entries some years earlier. As these calculations have not been made regularly, it is not possible to carry out a trend analysis.

According to the OECD, the mean survival rate for all OECD member countries in 2004 was 71% in tertiary-type A education and 67% in tertiary-type B education. The rate varied substantially by country. In tertiary-type A education, the highest survival rates in Europe was reported for Ireland (83%); the survival rate was highest in Japan (91%).

Graduation rates

According to OECD statistics, the tertiary graduation rate increased from 35% in 1994 to 41% in 2005 in 13 western European member countries for which data are available. The annual rate of increase was almost 3% and corresponded to about 1% of the age group annually.

The decline from a mean non-university graduation rate of 17% in 1994 to an 11% tertiary-type B graduation rate is due to the upgrading of major areas of non-university

higher education and thus to changes in category. While bachelor-equivalent programmes at non-university higher education institutions were classified by the OECD in 1994 as non-university tertiary education, they have recently been reported as tertiary-type A programmes.

According to Table 5.7, graduation rates in western European OECD members in 1994 ranged from 14% to 70%. They ranged from 28% to 62% in 2005. While the substantial decline in Norway is obviously due to changes in definitions and data collection, the data suggest that the gap between countries has in fact narrowed as a consequence of “catching up” by countries with previously low graduation rates.

Table 5.7. **Tertiary graduation rates in selected OECD countries, 1994 and 2005**

Percentage of corresponding age groups

	1994			2005		
	Non-university tertiary	University	Total	Tertiary-type B	Tertiary-type A	Total
Western Europe						
Austria	5	9	14	8	20	28
Denmark	9	26	35	10	46	56
Finland	25	21	46	0	47	48
France ¹	25	14	39	19	27	45
Germany	11	13	24	11	20	31
Ireland	14	23	37	24	38	62
Italy	9	11	20	m	41	m
Norway	47	23	70	2	41	42
Spain	1	21	22	17	33	50
Sweden	12	13	25	5	38	42
Switzerland	25	9	33	9	27	35
Turkey	2	7	9	m	11	m
United Kingdom	25	27	52	17	39	57
Central and Eastern Europe						
Czech Republic	5	14	19	6	25	31
Hungary	m	14	m	4	36	40
Other countries						
Japan	28	23	52	27	36	63
United States	22	32	54	10	34	44

1. 2003 instead of 2005.

m = missing.

Source: OECD (1996, 2005 and 2007), *Education at a Glance – OECD Indicators*.

Table 5.7 shows in addition that the graduation rate increased moderately in Japan during the period studied. The decline in the United States is primarily due to changes in calculation.

The average annual increase in the graduation rate obviously varied substantially among European countries, with almost no growth in some, in others annual growth of 2% or 3%, while in Austria, Denmark, Ireland, Sweden and Spain it was more than 5%.

In sum, it is no surprise that western European graduation rates have increased in parallel to the entry rates of a few years earlier. It is safe to predict that they will continue to increase in the near future. Again, there are noteworthy variations. Altogether, the

available data on trends in graduation rates have to be viewed with more caution than data on entry rates, because substantial changes in graduation rates in some countries must be explained as changes in definitions and data collection rather than as valid information on trends.

Attainment of tertiary education

Annual graduation rates affect the educational attainment of the working age population over a period of about 40 years. At the beginning of the period under observation, *i.e.* in the early 1990s, persons who graduated from tertiary education during or shortly after World War II reached the typical retirement age. As tertiary education has grown substantially over the intervening years, the percentage of the adult population, defined in most overviews on educational attainment as the population aged 25-64 years old, graduating from tertiary education was substantially smaller than the percentage of recent graduates in that age group.

In 1992, an average of 16% of the adult population in western European OECD member countries for which information was available had graduated from tertiary education. In 2005 the share had increased to more than 24%. Thus, the annual growth rate was roughly 3.4% and the percentage of tertiary education graduates increased by more than 0.6% points annually.

Table 5.8 contains no trend data for Central and Eastern European OECD member countries but enrolment statistics suggest some growth and a likely increase in the near future. In contrast, some OECD members outside Europe have moved towards a flattening of the curve for the share of the adult population with tertiary education training.

In 2005, the percentage of tertiary education graduates in OECD countries was 19% in the age group 55-64 and 32% in the age group 25-34. The available data therefore suggest that the share of tertiary education graduates in the adult population will grow by about 0.4% in the next few decades, *i.e.* only moderately less than in previous decades. Canada, Japan and Korea are the first countries in which the percentage of tertiary education graduates in the age group 25-34 surpassed 50% (54%, 53% and 51% in 2005, respectively). If recent trends continue, 50% of age group 25-64 in OECD countries may have a tertiary education degree before 2020.

Table 5.8 shows enormous differences among countries. In western European OECD members, the percentage of tertiary education graduates in 1992 ranged between 5% and 25%. In 2005, it ranged between 10% and 34%. In the future, the differences are likely to be further reduced.

The moderate levelling-off in the attainment rates is due to the fact that graduation rates generally increase to a greater extent in countries that start off from relatively low levels. To a certain extent, this is a “catching-up” process. Overall, however, the differences in the share of tertiary education graduates in the population in western Europe have remained so striking that one wonders why the debate on the impact of expansion on graduate employment and work is so similar in these countries.

Table 5.8. **Rate of 25-64-years-old having attained tertiary education in selected OECD countries, 1992 and 2005**

	Percentage					
	1992			2005		
	Non-university tertiary	University	Total	Tertiary-type B	Tertiary-type A	Total
Western Europe						
Austria	7	7	7	9	9	18
Belgium	11	9	20	17	13	31
Denmark	6	13	19	8	26	33
Finland	8	10	18	17	17	34
France	6	10	16	10	14	24
Germany	10	12	22	10	14	23
Greece ¹	3	10	13	7	14	21
Ireland	9	8	17	11	18	29
Italy	m	6	6	1	12	12
Netherlands	m	21	21	2	28	29
Norway	13	12	25	2	30	32
Portugal ¹	2	5	7	x	12	12
Spain	3	10	13	8	19	28
Sweden	12	12	24	9	21	30
Switzerland	13	8	21	10	17	26
Turkey	m	5	5	x	10	10
United Kingdom	8	11	19	9	15	23
Central and Eastern Europe						
Czech Republic	m	m	m	x	13	13
Hungary	m	m	m	m	17	m
Poland	m	m	m	x	17	17
Slovak Republic	m	m	m	1	13	13
Other countries						
Australia	11	12	23	9	23	32
Canada	26	15	41	23	23	46
Japan	m	m	m	18	22	40
United States	7	24	31	9	28	38

1. 1991 instead of 1992.

m = missing.

x = included elsewhere.

Note: Category A includes tertiary-type B education for Portugal, Turkey, the Czech Republic and the Slovak Republic.

Source: OECD (1994, 2005 and 2007), *Education at a Glance – OECD Indicators*.

5.5. Beyond tertiary education: outcomes

The expansion of tertiary education is expected to have a substantial impact in many areas. It is indispensable for advancing knowledge in society, it plays a role in culture, it is hoped to help reduce inequality of opportunity. Moreover, policies in favour of expansion of higher education in the 1950s would certainly not have been enacted if there had not been the expectation that higher levels of education would, as a rule, be beneficial for individual graduates' employment and work and overall for economic growth.

From its foundation in the 1950s, the OECD underscored the links between educational expansion, graduate careers and economic growth. Consequently, in compiling data on education the OECD did not confine itself to educational statistics, but added employment and economic statistics to demonstrate the outcomes of education. Two indicators on the relationship between education and employment are often used: differences in unemployment and earnings according to level of educational attainment.

Unemployment rates

The mean unemployment rate in western European OECD member countries for non-university/tertiary-type B graduates was 4.7% in 1992 and 6.1% in 2005. For university/tertiary-type A graduates it was 4.1% in 1992 and 3.9% in 2005.

As Table 5.9 shows, across all member countries included, unemployment rates for university graduates (1992) and tertiary-type A graduates (2005) were lower in most countries than those for non-university tertiary education graduates or tertiary education type B graduates.

Table 5.9. **Unemployment rates of tertiary education graduates in selected OECD countries, 1992 and 2005**

	1992			2005 ¹		
	Non-university tertiary	University	Total	Tertiary-type B	Tertiary-type A	Total
Western Europe						
Austria	m	1.3	3.6	m	3.3	4.3
Belgium	2.3	2.2	7.8	3.5	4	7.1
Denmark	5.8	4.8	10.6	3.9	3.6	4.3
Finland	5.7	3.4	11.4	4.9	4	6.8
France	4.6	4.4	8.8	5.3	6.4	8.4
Germany	4.5	3.7	6.2	5.9	5.3	10.8
Ireland	5.8	3.3	13.5	2.2	1.8	3.6
Italy	m	6.0	7.4	8.5	5.6	6.3
Netherlands	m	3.9	5.6	2.2	2.9	4.1
Norway	2.8	1.8	4.6	0.7	2.3	3.5
Spain	12.5	9.9	14.7	6.5	6.1	7.8
Sweden	2.3	2.0	3.8	4.5	4.5	5.9
Switzerland	2.3	3.0	2.5	1.9	3.1	3.8
Turkey	m	4.1	5.2	x	6.9	8.5
United Kingdom	3.3	3.6	8.4	1.9	2.1	3.4
Central and Eastern Europe						
Czech Republic	m	m	m	x	2.0	6.9
Hungary	m	m	m	1.8	2.3	6.2
Poland	m	m	m	x	6.2	15.6
Slovak Republic	m	m	m	7.8	4.2	14.3
Other countries						
Australia	5.7	4.4	8.8	2.9	2.4	4.0
Canada	9.0	5.2	10.0	4.8	4.4	5.7
Japan	m	m	m	3.8	2.7	4.2
United States	4.6	2.9	6.6	3.6	2.3	4.4

1. Average of men and women.

m = missing.

x = included elsewhere.

Note: Category A includes tertiary-type B education for Turkey, the Czech Republic and Poland.

Source: OECD (2004, 2005 and 2007), *Education at a Glance – OECD Indicators*.

Also, the overall unemployment rate in western European countries was 7.6% in 1992 and 5.9% in 2005. Thus, on average, tertiary education graduates had an advantage in terms of the risk of unemployment, but this advantage has generally diminished. In 2005, the advantage was most pronounced in Central and Eastern Europe, but it was marginal for tertiary education graduates in Denmark and Switzerland.

Relative earnings

On average, the relative earnings of graduates of tertiary education (100 = upper secondary education) have not changed from the early 1990s until recently in the western European OECD members for which information is available:

- Men with non-university/tertiary-type B education earned 123% in 1992 and 122% in 2005 of the earnings of men whose highest level of education was upper secondary education; the earnings of women with non-university/tertiary-type B educational attainment were 129% in 1992 and 125% in 2005.
- Both men (157% in 1992 and 155% in 2005) and women (156% in 1992 and 153% in 2005) with university/tertiary-type A educational attainment earned on average about 50% more than persons with upper secondary education.

Table 5.10 shows that tertiary-type A graduates, compared both to non-tertiary graduates and tertiary-type B graduates, have substantially higher income advantages especially in Hungary and also in the United States where the advantage has markedly increased recently.

Table 5.10. **Relative earnings of graduates by gender in selected OECD countries, 1992 and 2005**

100 = upper secondary education and post-secondary non-tertiary education – 25-64-year-olds

	Men				Women			
	Non-university tertiary	Tertiary-type B	University	Tertiary-type A	Non-university tertiary	Tertiary-type B	University	Tertiary-type A
	1992	2005	1992	2005	1992	2005	1992	2005
Western Europe								
Belgium	115	117	149	153	137	127	164	155
Denmark	110	113	146	141	111	115	135	128
Finland	132	131	192	180	132	129	176	165
France	127	129	174	167	131	130	142	152
Germany	116	128	170	159	114	117	175	161
Italy	–	–	134	183	–	–	116	134
Netherlands ¹	–	–	132	143	–	–	147	155
Norway	131	143	165	139	131	148	157	141
Spain	–	107	138	144	–	97	149	156
Sweden	118	107	160	145	119	114	156	133
Switzerland	127	123	152	149	126	131	152	158
United Kingdom	121	117	171	152	156	141	206	200
Central and Eastern Europe								
Hungary	m	138	m	253	m	131	m	188
Other countries								
Australia	121	115	158	143	124	120	175	156
Canada	107	111	162	169	116	120	174	176
United States	120	117	164	194	130	122	170	173

1. Year 2003 used instead of 2005.

m = missing.

Source: OECD (1994, 2005 and 2007), *Education at a Glance – OECD Indicators*.

In sum, the two indicators do not suggest any recent major changes in the labour market outcomes of tertiary education. In the past, some observers predicted that they would decline as the natural result of the massification of tertiary education. However, two arguments as to why the labour market should continue to reward tertiary education

gained popularity. First, the more tertiary education expands, the larger the share of those without tertiary education who risk being socially excluded and have “employability” deficits. Second, it is widely assumed that tertiary education has diversified substantially in the process of expansion and that the employment system rewards tertiary education attainment more unevenly than before so that students choose the most rewarded fields, programmes, institutions and sectors.

5.6. Concluding observations

Throughout the world, expansion has been a more or less regular feature of tertiary education in the last few decades. In western Europe and other highly developed countries, this trend was widely viewed as beneficial for economic growth in general, for labour market rewards of those participating, for reducing inequality of opportunity and for general cultural enrichment, but there were always voices indicating tensions and unfulfilled promises as well. There were concerns about “over-education” and, last but not least, there were expectations that expansion might cease. The OECD, however, pointed out in *Redefining Tertiary Education* (1998) that expansion of tertiary education had revived from the mid-1980s to the early 1990s and cited predictions that almost everyone might participate in tertiary education in the 21st century.

The aim of this chapter has been to shed some light on trends in student enrolments from the early 1990s to the beginning of the 21st century in western Europe and some other highly developed countries. It has drawn on statistical data compiled by the OECD and some other sources. As such data are often far from ideal, the sources of the data are commented on as well.

The increase in entry rates to tertiary education was generally high in western European and other OECD member countries from the end of World War II until about the mid-1970s. From then until the mid-1980s, the increase was small; it picked up somewhat after the mid-1980s but at a slower pace than before the mid-1970s. The analysis presented here shows that the trend of the late 1980s has continued up to the time of the most recent data. In fact, the mean entry rate in western European countries for which data are available increased from 38% to 62%. Altogether, the mean entry rate in OECD member countries surpassed 50% in the late 1990s and thus, according to Trow’s well-known definition, moved towards “universal” tertiary education.

In recent years, the entry rate rose most sharply in countries that are “latecomers” to educational expansion. By and large, there has been a narrowing of differences in participation in tertiary education across OECD countries but they remain strong. In a substantial number of OECD countries, more than 70% of the traditionally relevant age group embark on some type of tertiary education, but the rate has remained below 50% in a substantial number of others.

A detailed analysis of various patterns and underlying factors shows that the increase in the mean entry rates to tertiary education in some western European countries is primarily the result of the upgrading of vocational education and training institutions to tertiary education institutions, while in others it is due to growth of established tertiary education institutions and programmes. Entry rates grew faster than enrolment figures, largely owing to a relative increase in students in short study programmes. In addition, the typical entry age cohorts declined only marginally in Western Europe – as the contrasting example of Japan underscores – and this marginal decline was clearly offset by increasing

entry rates. Finally, the rise in student mobility explains only to a limited extent the recent expansion of tertiary education in western Europe.

Available statistical data on the institutional composition of student enrolments underscore the continuous trend towards upgrading. However, the percentage of students enrolled in relatively short programmes seems to have increased recently in western Europe. The definitions of institutional composition used in the statistics presented have often changed over time. Upgrading has often occurred: for example, enrolment in tertiary-type B in some countries declines as a consequence of upgrading to tertiary-type A or increases in other countries as a consequence of upgrading from vocational training to tertiary-type B. Unfortunately, the available statistics are not suitable to cast light on the impact of the Bologna process, i.e. changes in the number of students in Bachelor programmes and Master programmes.

As regards the socio-biographic composition of students, the available statistics give relatively limited information. They are most useful as regards gender, and increasing public interest in student mobility seems to be leading to a gradual methodological improvement in that domain.

Since the early 1990s, the proportion of foreign students rose from 4% to 7% on average in European OECD member countries. Yet, in most OECD countries, the net increase in foreign enrolments (i.e. foreign students outnumber those who study abroad) has remained a relatively small factor in the overall expansion. Ironically, the more mobility increases, the more statistics on foreign students become less valid as indicators of mobility. Available information suggests that valid statistics on student mobility, i.e. crossing borders for the purpose of study, would differ from statistics on foreign students in western Europe by one-third or more.

Data on output of tertiary education do not differ markedly from data on entry only because of a time lag in the process of expansion. Drop-out plays a far more prominent role. The mean “success rate” or “survival rate” in western Europe is around 70%.

In fact, graduation rates increased in western European OECD countries from somewhat more than 30% on average in the early 1990s to 45% in 2005, and the share of tertiary education graduates in the population rose from 16% in 1992 to more than 24% in 2005. These rates were lower in Central and Eastern European countries and higher on average in OECD members outside Europe. If current trends persist, it will take several decades to reach a level of 50% of tertiary education graduates in the adult population.

Data on the development of the labour market since the early 1990s suggest that tertiary education graduates have lost some of their advantages as far as low unemployment risk is concerned, but their earnings advantage has remained unchanged on average in western Europe. It is difficult to draw any conclusions about the future from these observations.

Data on enrolment trends, the institutional and socio-biographic composition of students, the output of tertiary education and labour market outcomes will certainly continue to provide an interesting basis of information for scholars analysing tertiary education and practitioners involved in tertiary education. The OECD’s statistical overview *Education at a Glance* would certainly gain in quality if it included more systematically time-series data and if the international organisations that collect education data continue to work to persuade national agencies in charge to increase the range of data collection, the quality and validity of the data and their international compatibility.

While it is difficult to draw conclusions about the future development of tertiary education on the basis of information on the recent past, current tertiary education policies and trends in Europe suggest a further increase in entry rates and further upgrading and most likely a more or less common structure of study programmes and degrees which also call for new statistical categories.

More attention will certainly be paid to demographic developments as well as to the overall effects of student mobility. At the same time, increasing attention is paid in public debate to issues that are not covered well in public statistics. These include differences in the quality and reputation of individual institutions, departments and programmes and in institutional composition; and the relation between the expansion of tertiary education and social exclusion of the increasing share of persons who lack tertiary education. Nonetheless, official statistics will certainly continue to provide valuable information for understanding the dynamics of tertiary education.

Note

1. This definition has changed several times in recent years, and used to exclude from the count students enrolled in another country for the purpose of study for up to one year.

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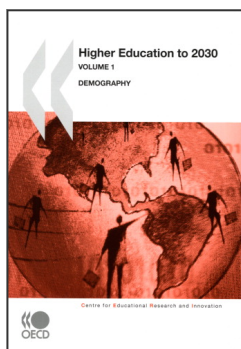
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