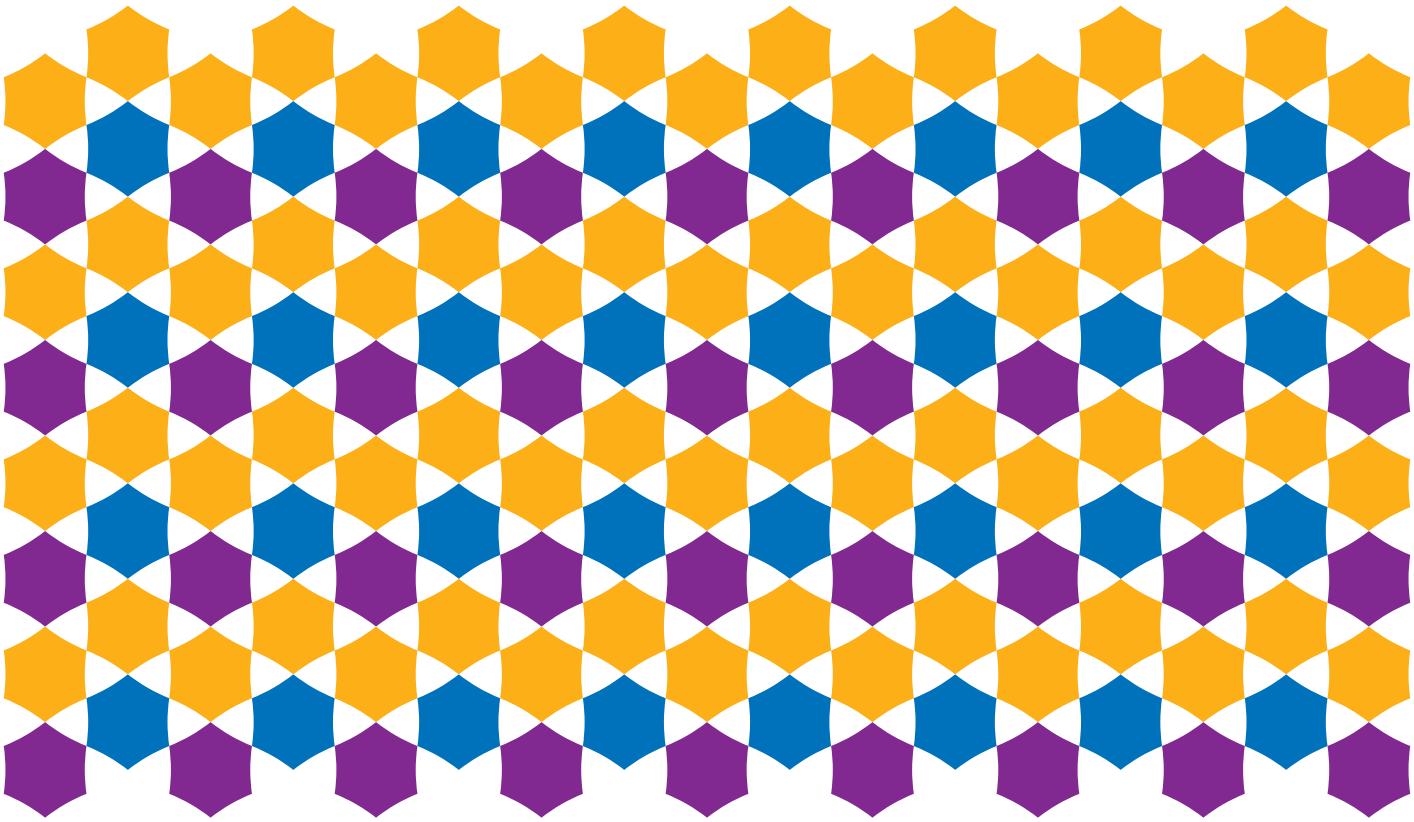
UKÄ SWEDISH HIGHER EDUCATION AUTHORITY

Educational attainment and economic investment in the OECD

Tertiary education from an international perspective – a comparison based on Education at a Glance



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Educational attainment and economic investment in the OECD
Tertiary education from an international perspective
– a comparison based on Education at a Glance

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Contents

Introduction

This report is based on data from the OECD's annual publication ***Education at a Glance****. EAG is very comprehensive and can be considered impenetrable by readers who are not used to it. For this reason the Swedish Higher Education Authority aims to make the data from EAG more accessible and also to focus on Sweden in the international comparisons.*

Because they are considered to stimulate growth and raise educational attainment, investments in education are considered by the EU and the OECD to be favourable for social development. Higher education is also associated with improved health and greater possibilities of establishment in the labour market, as well as higher incomes. The educational attainment of its population is often used as a measurement of a country's human capital and the knowledge level of individuals, and is therefore an interesting object of study.

This report is based on data from the OECD's annual publication *Education at a Glance* (EAG). EAG is very comprehensive and can be considered impenetrable for a reader who is not used to it. For this reason the Swedish Higher Education Authority aims to make the data from EAG more accessible and also to focus on Sweden in the international comparisons.

This is the first of a series of analyses in which the Swedish Higher Education Authority probes different dimensions and effects of investments in education in the OECD countries. Here we are focusing on economic investments but our starting point is how educational attainment has developed over the years. The next two analyses will deal with issues relating to social factors and to establishment in the labour market.

Countries invest in tertiary education for several different reasons, such as providing the skills needed in the labour market, stimulating economic growth and contributing to the personal development of their populations. One way of measuring the outcome of investment in tertiary education is to determine the educational attainment of the population. In this report we first study the development of the educational attainment of the populations of the OECD countries. The next section examines economic investments and the report finishes with an analysis of the impact of the economic investments on the educational attainment of the populations of different countries.

INTERNATIONAL CLASSIFICATION OF EDUCATION AND EDUCATIONAL ATTAINMENT

Since the mid-1970s the classification of education has been systematised through the International Standard Classification of Education (ISCED). This classification has recently been revised by UNESCO/UIS, but up to now no statistics have been published using the new ISCED classifications (ISCED 2011). This analysis is based, in other words, on ISCED 97.

ISCED 97 places education corresponding to first and second-cycle programmes and other tertiary education of at least two years in level 5. Level 5 is divided into 5A and 5B. Level 5A comprises higher education of at least three years or more and that can qualify for entry to doctoral programmes, while 5B normally comprises education of two to three years that has a more practical or vocational orientation. Whether educational programmes are classified as 5A or 5B varies from country to country. Education at doctoral level is placed in level 6.

In Sweden first and second-cycle programmes are classified as level 5A, while some short higher education programmes and those offered within the framework of higher vocational education that are longer than two years are classified as 5B. In this analysis levels 5A, 5B and 6 are referred to collectively as, "tertiary education", and are generally classified as ISCED 5/6. Note that this does not include any higher education programmes that are shorter than two years. When it comes to educational attainment, which is what this analysis deals with, 5A corresponds to at least three years of study in higher education (no qualification need be awarded), while 5B includes programmes within the framework of higher vocational education as well as study on free-standing courses corresponding to 2–3 years of study.

When making comparisons between different countries the data have to be interpreted cautiously, for instance OECD averages are affected by the increase in the number of OECD countries and also by the failure of some to provide complete statistics.

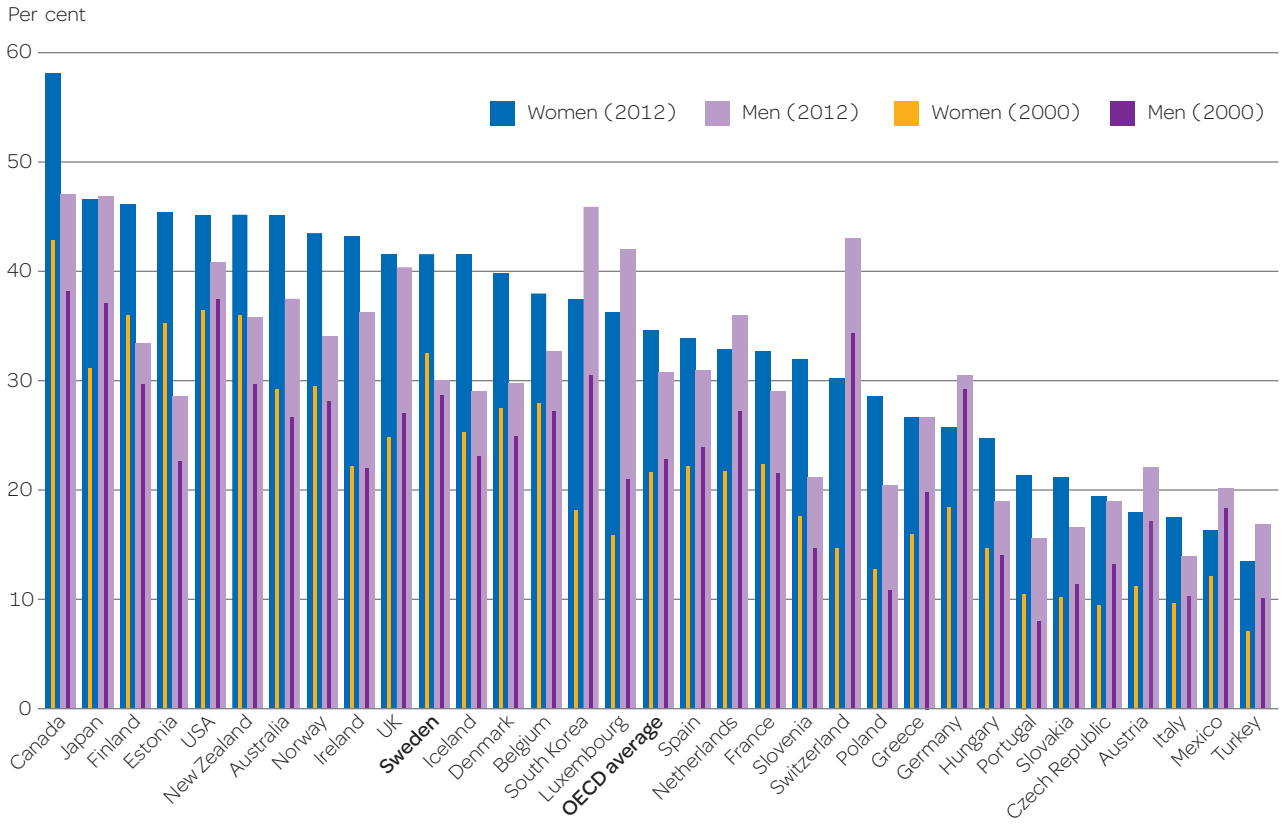
Education at a Glance is based to some extent on other definitions than those normally used in Sweden. For this reason there can be differences if comparisons are made with other data presented in other national contexts.

Educational attainment in different populations

In many OECD countries tertiary education has been expanded during recent decades and educational attainment has gradually been raised. In 2012 one third of the adult population (25–64 years old) in the OECD had at least two years of tertiary education compared to 22 per cent a decade earlier. As expansion of tertiary education has in most cases occurred fairly recently, there are relatively large differences in the educational attainment in different generations. Among the younger generations (25–34 years old) 40 per cent have at least two years of tertiary education, while the corresponding figure for the older population (55–64) is 25 per cent. It should be noted that the term tertiary education includes both higher education (ISCED 5A/6, see fact box on page 4) and other tertiary education of at least two years, often various vocational or professional programmes (ISCED 5B). In other words, the term tertiary education will be used in this analysis to include all tertiary education programmes of at least two years (ISCED 5/6), while ISCED 5B will be referred to as short tertiary education programmes and higher education will be used to denote ISCED 5A/6.

Educational attainment in Sweden is somewhat higher than the OECD average. 43 per cent of the younger population have tertiary education, whereas the corresponding figure for the older population is 29 per cent.

Figure 1. Proportion of women and men in the adult population (25–64) with at least two years of tertiary education in 2000 and 2012. The countries are ranked according to the highest educational attainment among women in 2012.
SOURCE: TABLE A1.4B EAG 2014 (WEB PUBLICATION)



The difference is therefore 14 percentage points – about the same as the OECD average. Differences in educational attainment reflect the periods in which tertiary education has been expanded. One extreme case in South Korea, where 66 per cent of the younger population have tertiary education, while the corresponding figure for the older population is 14 per cent. The difference reveals that during recent decades South Korea has undertaken a massive expansion of tertiary education.

There are also differences between the educational attainment of women and men. Previously the educational attainment of men in the OECD countries has been higher than for women. But women's educational attainment has risen more rapidly than men's, which means that women today have higher educational attainment levels than men in the majority of OECD countries. On average 35 per cent of adult women in the OECD countries had at least two years of tertiary education in 2012, while the corresponding figure for men was 31 per cent. In Sweden the gender difference is considerably larger – 41 per cent of the women and 30 per cent of the men had attained this educational attainment level. Gender differences are similar in the other Nordic countries. However, in some countries – for instance South Korea, Switzerland and Germany – educational attainment is still considerably higher for men than for women, although these differences are declining.

COUNTRIES ORGANISE THEIR EDUCATIONAL SYSTEMS DIFFERENTLY

Countries organise their educational systems differently and the same type of programme that in one country is classified as 5B can be classified in another as 5A. This means that higher education (ISCED5A/6) accounts for varying proportions of tertiary education as a whole (ISCED 5/6). On average higher education accounts for about three quarters of the total amount of tertiary education in OECD countries. In Canada, for example, higher education accounts for a considerably smaller share of tertiary education, just over half, while in Norway all tertiary education is in principle higher education. Another example is Germany, where much of the practically oriented tertiary education is provided in the form or apprenticeships, which are not classified as tertiary education at all in the international classification system and are therefore not included in the comparisons made in this analysis.
In Sweden most tertiary education is offered as higher education (c. 80 per cent). This is because virtually all tertiary education was incorporated into higher education in 1977, for instance programmes in nursing and teacher education. In recent years, however, higher vocational education programmes have been introduced (mainly ISCED 5B), but education of this kind still constitutes a minor share of tertiary education in Sweden. The fact that as many as nine per cent of 25–34-year-olds in the Swedish population have shorter tertiary education (ISCED 5B) is because this includes up to 2-3 years of studies in higher education without a qualification being awarded. There is free access to Sweden's higher education system and many students takes courses without aiming for a qualification.
Other countries have carried out reforms of the same type as the one implemented in Sweden in 1977, but in many cases later. One example is Finland, where the education system was reformed in the 1990s so that programmes in nursing and nautical science, which had previously been offered at what was called institutional level (ISCED 5B) became higher education programmes.

Proportion of young people with tertiary education

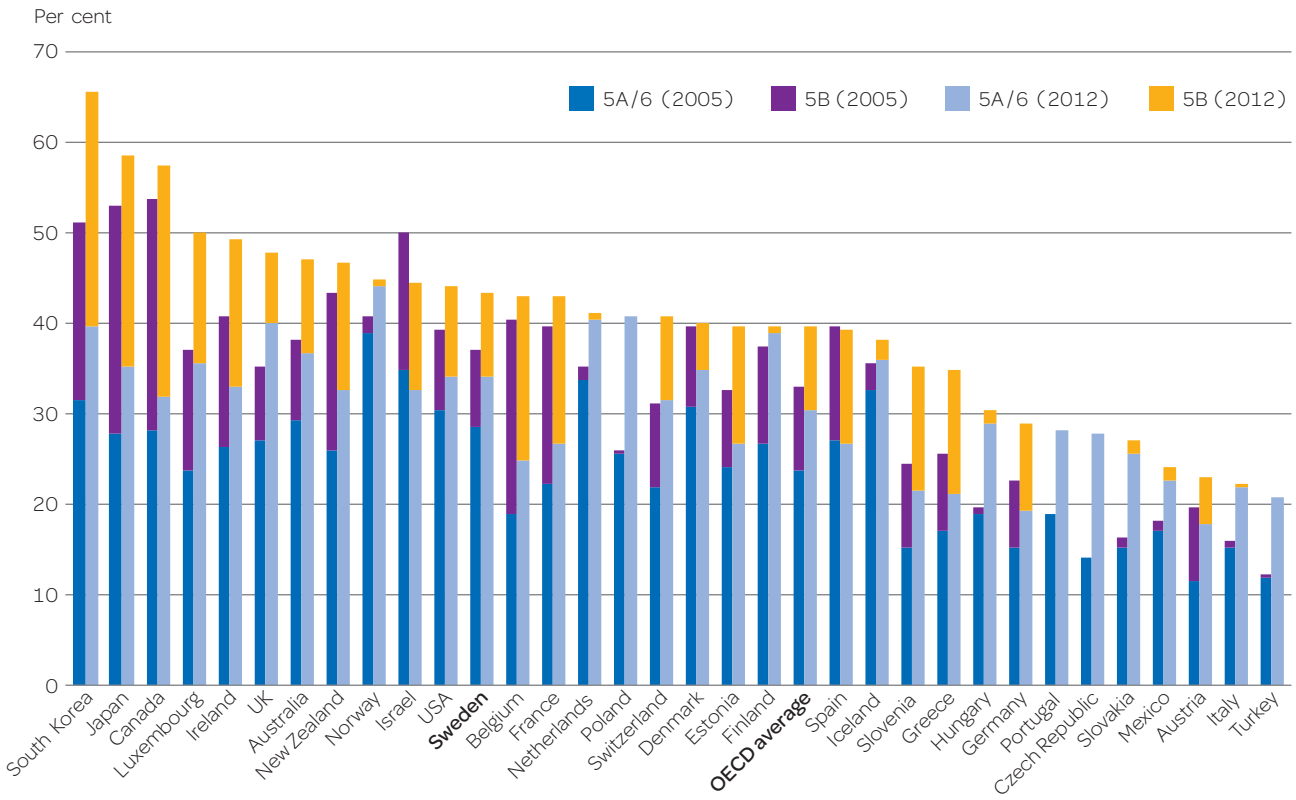
The results of the expansion of tertiary education are noticed first in the younger generations. In most of the countries that expanded tertiary education earlier the educational attainment the younger population has stabilised. Some countries are, however, continuing this expansion and in other countries expansion of higher education started more recently. The proportion of 25–34 year-olds with at least two years of tertiary education in the OECD countries rose on average by 10 percentage points between 2003 and 2012, from 29 to 39 per cent.

This analysis will mainly study the last decade. Many OECD countries had previously made major investments in tertiary education within higher education institutions and their educational attainment was already high 10 years ago. For this reason educational attainment has not risen to any particular extent in these countries during the period, particularly in recent years. Some examples are the Nordic countries, the USA, Canada and Switzerland. For many years South Korea has been expanding tertiary education substantially, and this has meant that the country has the largest proportion of young people with tertiary education in the OECD. In recent years, however, this rise has slackened off in South Korea as well.

There are also countries with relatively low educational attainment levels that have expanded tertiary education considerably in recent years, which has led to relatively substantial rises in the proportion of the younger population with tertiary education. This applies, for instance, to Poland, the Czech Republic, Slovakia, Italy and Turkey. Overall this means that the educational attainment in the OECD will presumably continue to rise.

Figure 2. Proportion of the population aged 25–34 with at least two years of tertiary education in 2005 and 2012. Educational attainment levels have been divided into higher education (ISCED 5A/6) or other forms of tertiary education (ISCED 5B). In order to include data for as many countries as possible the figures here are for 2005 and 2012. The countries have been ranked according to the highest educational attainment in 2012.

SOURCE: TABLE A1.3A EAG 2007 AND EAG 2014.



Proportion of young people with higher education

The previous section described how large a proportion of populations had at least two years of tertiary education (ISCED 5A, 5B and 6). We shall now move on to study the proportions of young people with higher education, in other words the proportion of 25–34 year-olds with at least three years of higher education (ISCED 5A and 6). Note that the proportion of the population with higher education will depend on how the different countries organise their educational systems (see fact box on page 6). Training to become a nurse in Sweden, for instance, requires programmes in the higher education system, while in Germany it is considered an apprenticeship that is not classified as tertiary education at all.

In the OECD countries in 2003 an average of 20 per cent of the younger population (25–34) had higher education but in 2012 this figure had risen to 30 per cent. The substantial rise is the result of expansion of higher education in many countries. In some cases, however, the rise was the effect of reforms in which programmes that had not previously been part of higher education had been modified, which affected their categorisation as ISCED 5A or ISCED 5B (as in the example of Finland in the fact box on 6). In Sweden the increase in the proportion of young people with higher education took place at the beginning of the period and the level has not risen since 2009. In most other countries educational attainment has continued to rise since 2009.

In Sweden the proportion of 25–34-year-olds with higher education has risen from 24 to 34 per cent since 2003. This rise took place up until 2009, since when the proportion has not changed. This is because higher education was expanded in Sweden during the 1990s and the first few years of the following decade, while in the later years of the decade no expansion took place. Educational attainment is not only affected by the intentions of countries to expand the number of places available but also by the interest in studying. During the economic upswing of 2006–2008 student demand for higher education in Sweden declined, which has also meant that educational attainment has not risen. Since 2009, however, there has been a continual rise in the interest in higher education, and on several occasions there have been temporary increases in the number of places on offer. In addition from 2015 and onwards there will be another permanent expansion of higher education in Sweden.

Norway is the country with the largest proportion of young people with higher education, 44 per cent. It is followed by Poland, where there has been a substantial expansion of higher education so that the proportion of young people with higher education has doubled during the last decade. The Netherlands, UK, South Korea and Finland also have a large proportion of young people with higher education – about 40 per cent.

SOURCES OF DATA, REFERENCE YEARS AND SELECTION OF COUNTRIES

The focus in this study is on the last decade for which data are available, i.e. mainly the period 2003–2012. Data has been taken from various publications of *Education at a Glance*, the latest of which was issued in 2014. The most recent economic data published refers to 2011 and therefore economic comparisons are for the period 2002–2011. The figures and tables usually present information for the first and last years because of lack of space.

The Swedish definition of what ISCED 5B comprises was changed in 2005. Before 2005 higher education programmes of less than two years were included in ISCED 5B. For this reason in some cases the information for Sweden in 2005 refers instead to 2003.

Where data are available we account for information on all the current OECD countries (34 countries). The OECD average is an unweighted median value for all the OECD countries for which data are available. As Chile became a member of the OECD in 2008 and Estonia, Israel and Slovenia in 2009, this means that the OECD average for earlier years does not include values from these countries.

Chile is not included in data on educational attainment as figures from Chile are to some extent unreliable or lacking. The economic comparisons do not include Greece, Luxembourg and Turkey as information is lacking.

Table 1. Proportion of the population aged 25–34 in each country with at least three years of higher education 2003–2012 (ISCED 5A and 6), and changes in percentage points between 2003 and 2012 (*This information is for 2005–2012 for Estonia and Slovenia).

SOURCE: VARIOUS ISSUES OF EDUCATION AT A GLANCE.

Country	2003	2005	2007	2009	2011	2012	Change 2003*–2012
Sweden	**24**	**28**	**31**	**34**	**34**	**34**	**10**
OECD average	**20**	**24**	**26**	**28**	**30**	**30**	**10**
Australia	25	29	31	35	35	37	12
Belgium	18	19	18	24	23	25	7
Chile	16	14	14	24	27	16	1
Denmark	27	31	32	36	33	35	8
Estonia*		24	25	22	27	27	3
Finland	23	27	32	36	38	39	16
France	22	22	24	26	27	27	5
Greece	17	17	19	19	21	21	5
Ireland	23	26	30	29	31	33	10
Iceland	23	33	28	33	37	36	13
Israel	27	35	28	30	32	33	6
Italy	12	15	18	20	21	22	10
Japan	26	28	29	32	35	35	9
Canada	28	28	29	30	31	32	4
Luxembourg	7	24	24	24	32	36	29
Mexico	16	17	18	20	21	23	7
Netherlands	25	34	35	38	38	40	15
Norway	37	39	41	45	46	44	7
Nya Zealand	21	26	33	31	31	33	12
Poland	20	26	30	35	39	41	20
Portugal	13	19	21	23	27	28	15
Switzerland	20	22	26	31	30	32	12
Slovakia	13	15	17	20	24	26	13
Slovenia*		15	18	19	21	22	6
Spain	26	27	26	25	27	27	1
United Kingdom	24	27	29	36	39	40	16
South Korea	30	32	34	38	39	40	10
Czech Republic	12	14	15	20	25	28	16
Turkey	11	12	14	17	19	21	10
Germany	14	15	16	19	18	19	5
Hungary	17	19	21	24	27	29	12
USA	30	30	31	32	33	34	4
Austria	8	12	13	15	16	18	9

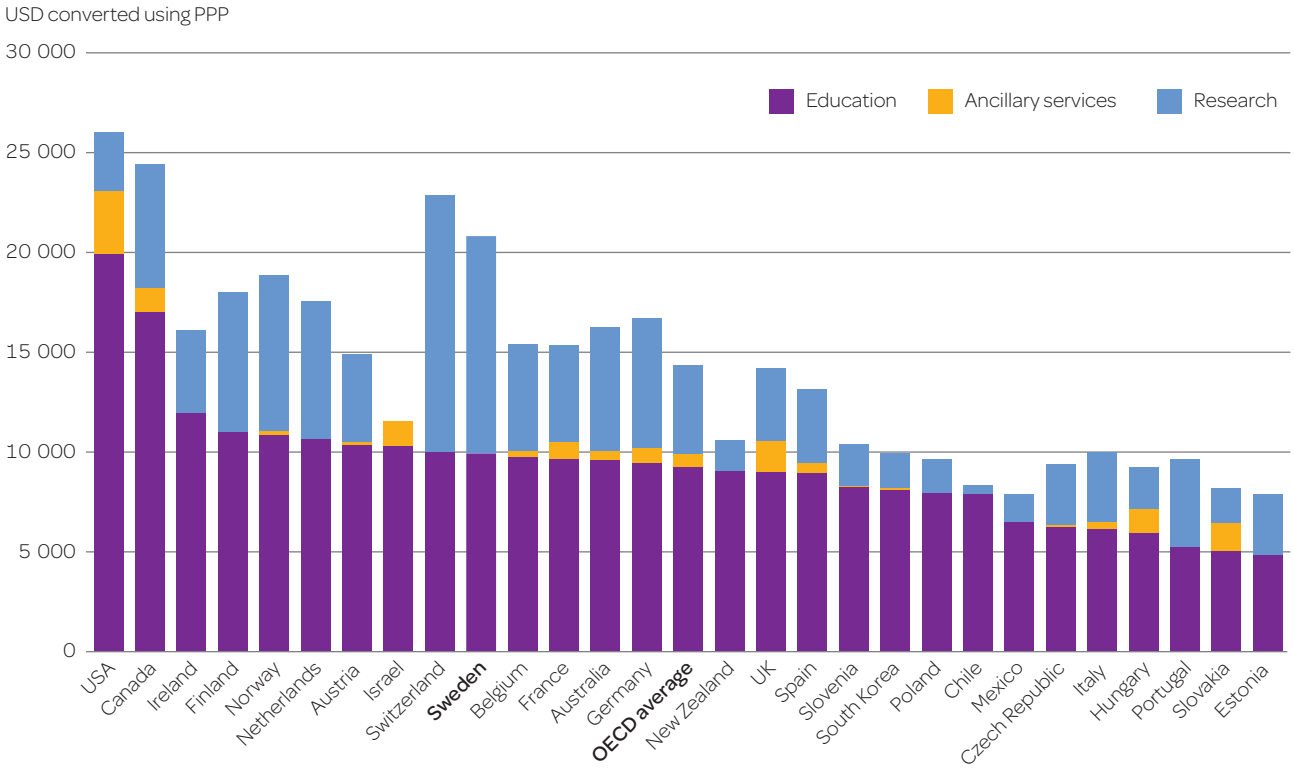
The cost of tertiary education

In 2011 the OECD countries devoted an average of 1.6 per cent of GDP to tertiary education and research undertaken in higher education

We now go on to examine economic investment in tertiary education in the OECD countries. These investments are measured both in terms of expenditure per student and as proportions of the gross domestic product (GDP). Irrespective of which measure is used, the USA and Canada invest by far the largest amounts, although the Nordic countries also belong to those who invest most. Generally speaking, there is a link between large investments in terms of the proportion of the GDP and high educational attainment, of which more below. Even though educational investment as a share of the GDP is a relatively sound measure of investment in education, it is worth noting that there are differences in the size of a country's GDP in proportion to its population. For instance Estonia and Sweden invest about the same proportion of their GDP but Sweden's GDP per capita is more than twice as large as Estonia's.

In this context it should also be pointed out that the costs also include expenditure on research undertaken in higher education, as well as expenditure, in most cases to no great extent, on ancillary services (student accommodation, canteens, etc.). In the OECD countries for which data are available, about two thirds of the expenditure is for education and about one third for research in higher education, measured in terms of cost per student. In Sweden, as in Switzerland, the proportion spent on research in higher education is unusually high – over half of the expenditure per student. As most of the economic indicators in *Education at a Glance* are based on total expenditure, it is important to know how this expenditure is allocated to different activities in the OECD countries.

Figure 3. Educational institutions' expenditure per student for tertiary education and research in higher education in 2011 in the countries for which information is available allocated to different activities, expressed in USD converted using PPP. The countries are ranked according to the size of expenditure on education
SOURCE: TABLE B1.2 EAG 2014.



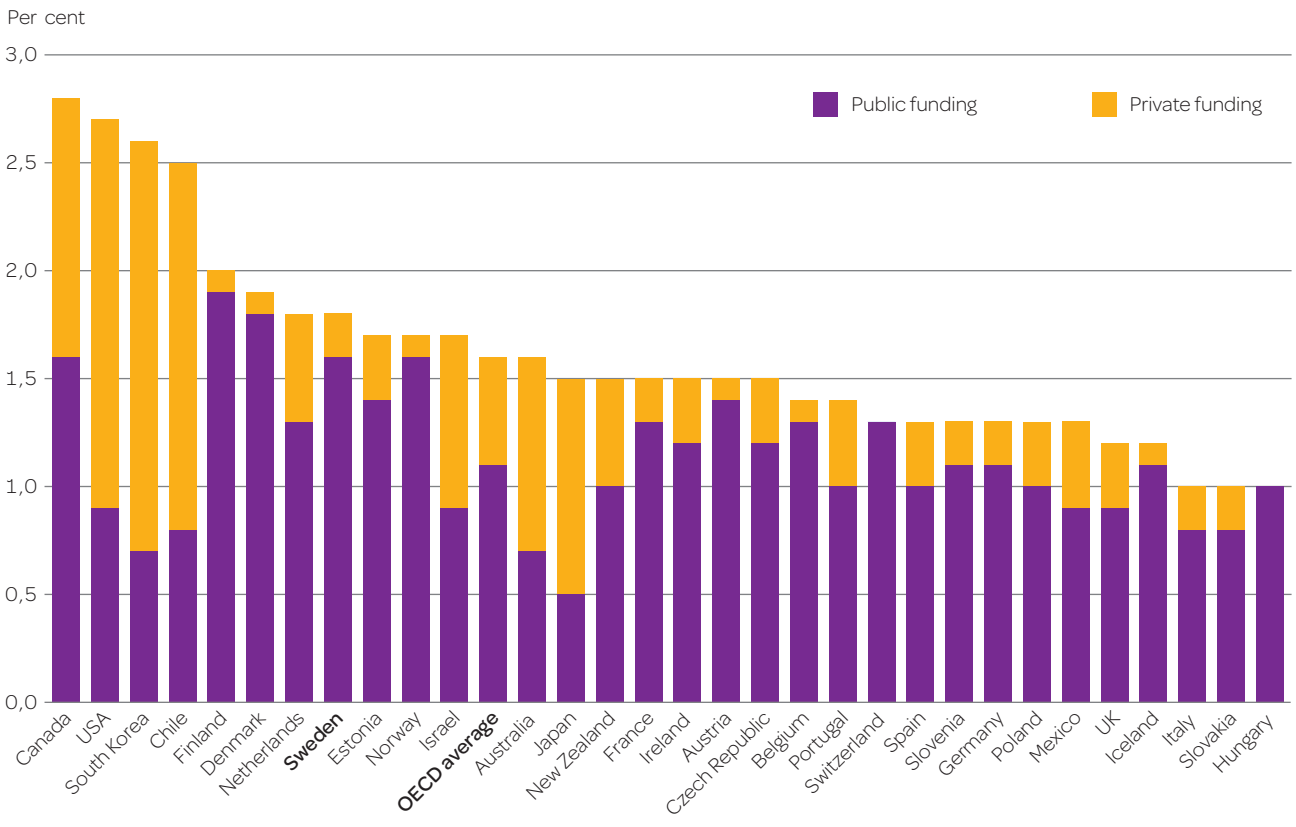
Countries' expenditure as share of GDP

In 2011 the OECD countries devoted an average of 1.6 per cent of their GDP on tertiary education and research in higher education, of which 1.1 per cent came from the public purse. Sweden allocated 1.7 per cent of its GDP, most of it from the public purse. Private funding (just under 0.2 per cent of Sweden's GDP) comprised mainly grants for the research in higher education .

Among the other Nordic countries Finland and Denmark each devoted 1.9 per cent of the GDP and Norway 1.7 per cent. Here it should be remembered that changes in expenditure on education measured in terms of the share of the GDP are affected by both developments in costs and in the GDP. Norway and Sweden have, for example, experienced more positive development of the GDP since 2008 than Denmark and Finland, while costs have risen more in the two latter countries. For this reason it is inappropriate to compare the share of the GDP in different years and this measurement needs to be supplemented by others.

Studying, for instance, expenditure per student makes it possible to determine differences between the educational systems in different countries. The two measurements used by the OECD in *Education at a Glance* and in this analysis to measure countries' investment in education complement each other. If a country devotes a relatively large share of its GDP to tertiary education this usually, but not always, coincides with relatively high expenditure per student. One example of countries that are similar but nevertheless very dissimilar are the USA and South Korea. These are two of the countries that invest the largest share of the GDP in tertiary education and research in higher education and most of this funding is private. But the USA has the highest expenditure per student in the OECD while South

Figure 4. Educational institutions' expenditure for tertiary education (ISCED 5A, 5B and 6) and research in higher education as proportion of GDP in 2011 with funding from public (including funding from abroad) or private sources. The countries have been ranked according to the total amount invested as a proportion of the GDP. Data for Switzerland and Hungary only cover public funding.
SOURCE: TABLE B2.3 IN EAG 2014.



Korea's expenditure per student is low. Moreover, we have already noted that South Korea has the largest proportion of those with tertiary education in the OECD, which implies that South Korea invests in mass education with relatively small expenditure per student.

In the countries that invest most in terms of the share of the GDP, the bulk of this expenditure comprises private funding. If only the amount invested from the public purse is taken into account, it is the Nordic countries that invest most in tertiary education and research in higher education .

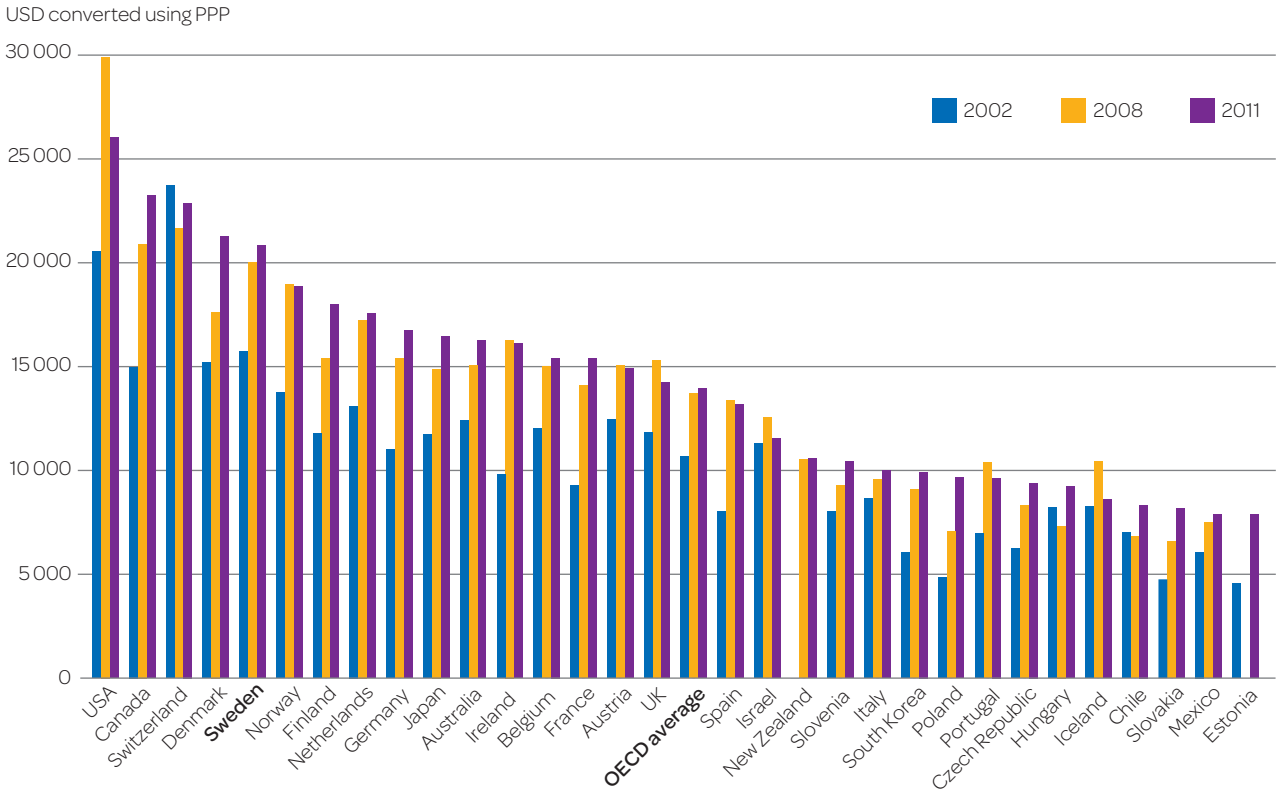
Expenditure per student

The data about expenditure per student are in equivalent USD converted using PPP and in current prices and have been compiled from different annual editions of *Education at a Glance*. This means that there has been no adjustment for inflation but even so they can give some idea of development trends in each country.

Between 2002 and 2011 expenditure per student in tertiary education including the research in higher education has risen by just over 30 per cent on average in current prices among the OECD countries. The bulk of this increase occurred between 2002 and 2008, and since then expenditure per student has declined in most of the countries for which data are available.

Changes in expenditure per student are affected by both how the costs for educational institutions have developed during the year and by any changes that may take place in the size of student populations. Sometimes expenditure may remain more or less the same compared to previous years but the number of students can decline. In this case expenditure per student will rise

Figure 5. Educational institutions' expenditure on tertiary education and research in higher education per student 2002, 2008, and 2011 in each country in terms of USD converted using PPP and in current prices. The countries have been ranked according to highest expenditure per student in 2011. The information for Canada is for 2000, 2007 and 2010 while information for Chile is for 2003, 2009 and 2012. Information for New Zealand, Estonia and Slovenia refers to 2004 and 2011. Information for Canada, Hungary, Ireland, Poland Portugal and Switzerland comprises only state higher education institutions. All the data has been compiled from different issues of *Education at a Glance*.



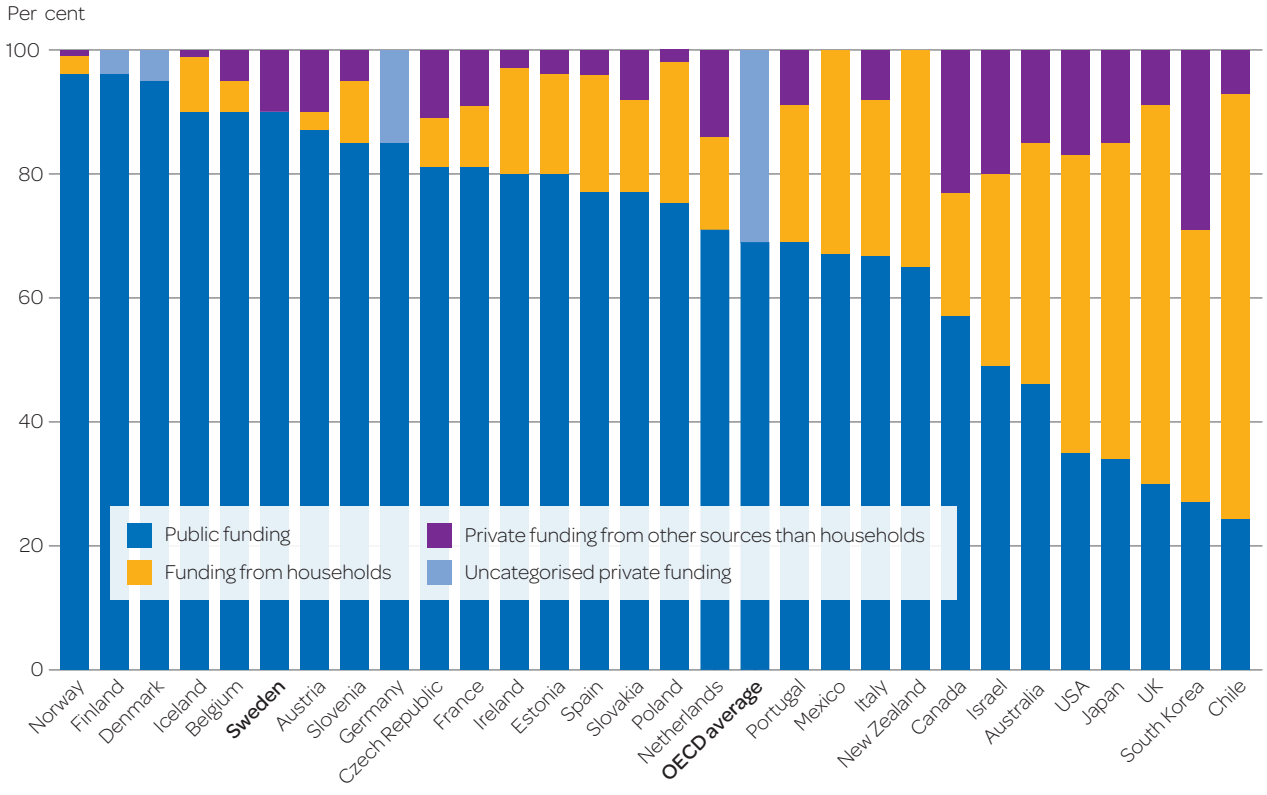
without any particular increase in investment during the year. This explains some of the variations over the years. For instance the substantial drop in expenditure per student in the USA between 2008 and 2011 was due to a large increase in the number of students rather than in costs. In Poland expenditure per student has risen between 2008 and 2011 and the explanation can be found in a considerable drop in the number of full-time equivalents in the same period.

Sweden is one of the countries that has the highest expenditure per student and relatively high educational attainment. In addition the bulk of the funding comes from public sources and no students are charged tuition fees except for those who come from countries outside the EU/EEA and Switzerland. In other words Sweden's investment in tertiary education and research in higher education is large in international comparison.

Many countries have tuition fees

Figure 4 above showed that there are major differences between countries in the proportions of funding for tertiary education and research in higher education that come from private or public sources. Figure 6 below shows that most of the private funding consists of tuition fees from households, particularly in Chile, the UK, Japan, the USA and South Korea. Revenue from companies and other private funding sources also exists, presumably for both education and research. In Sweden the higher education institutions' revenues from private sources comprise mainly research grants from foundations and other non-profit making organisations.

Figure 6. Distribution of funding for educational institutions' expenditure on tertiary education and research in higher education in 2011 ranked according to the highest proportion of public funding (public funding also includes funding from abroad).



Analysis of the relationship between investment in tertiary education and educational attainment

This section will analyse the relationship between economic investment in tertiary education and research in higher education and the educational attainment of the population. Comparing countries that sometimes have very different educational systems is a major challenge and the analysis should therefore be viewed as indicating what this relationship looks like and not interpreted in detail.

As described above the educational attainment of a population is a measurement of the outcomes from investments in tertiary education. What does the relationship between a country's investment in education and the population's educational attainment look like? We used regression analysis to analyse this relationship. Figure 7 shows the relationship between the proportion of the GDP invested by each country in tertiary education and research in higher education and the educational attainment of their populations. Here the mean value of the proportion of the GDP for the period 2005–2011 has been measured to determine each country's investment over

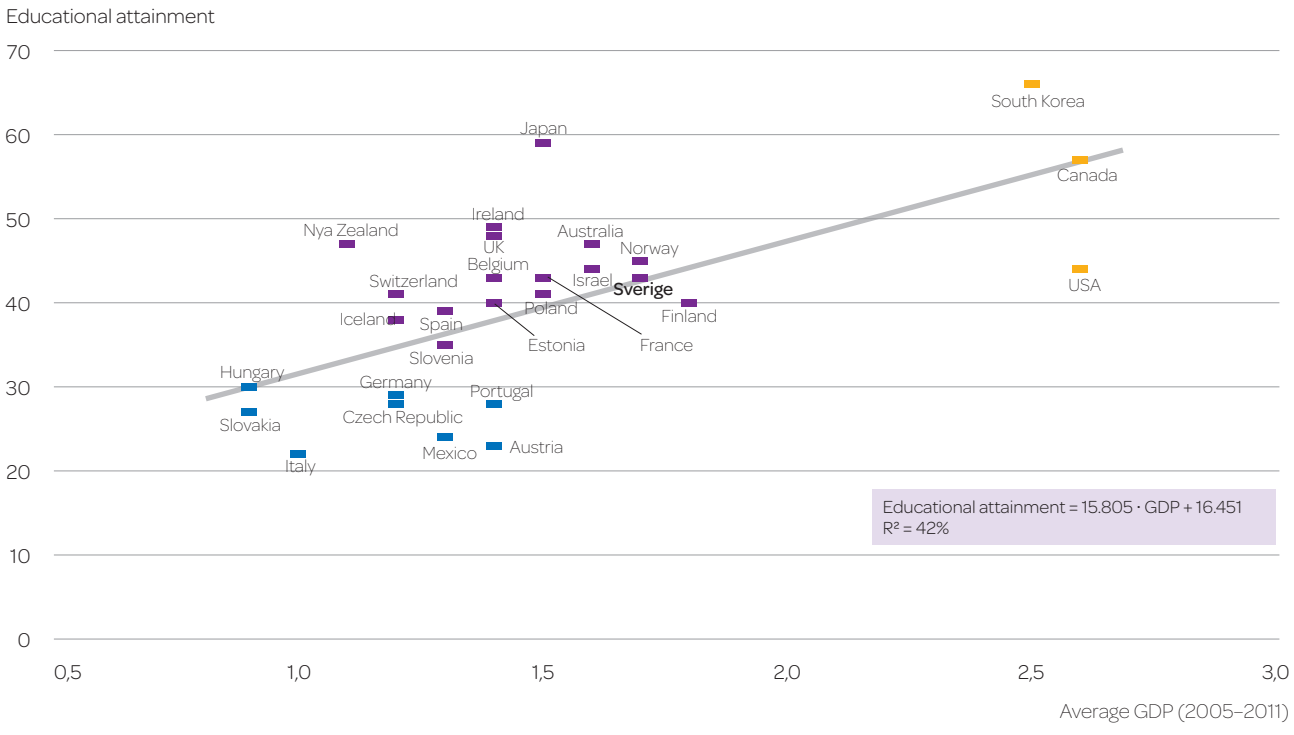


Figure 7. Relationship between average investment in tertiary education (2005–2011) per country and educational attainment of populations aged 25 – 34. The regression line shows the linear relationship between the variables. The regression equation is presented in the shaded square. R2 represents the resulting declared variance. The figure includes all the countries for which data are available.

Comparing countries that sometimes have very different educational systems is a major challenge and the analysis should therefore be viewed as an indication of what the relationship looks like and not interpreted in detail.

time. During the period the countries invested 1.5 per cent of the GDP on average in tertiary education. The educational attainment of a population is measure as the proportion of the population with tertiary education aged 25–34, as it is above all these individuals who were in the education system during the period in question, The average value for the entire group was about 40 per cent.

The figure shows that the proportion of the GDP invested by the countries explains 42 per cent of the difference (variation) between educational attainment in the different countries. More than half of the differences between countries are therefore explained by other factors. The regression analysis also shows that the higher the proportion of the GDP a country invests in tertiary education, the higher the educational attainment of its population is likely to be. Countries that are close to the regression line, among them Sweden, have populations with the educational attainment that can be expected on the basis of their investment. Countries that lie above or below the line have either higher or lower educational attainment levels than could be expected given their investment. One example is the USA, which has lower educational attainment among its population than could be expected in view of its investment in tertiary education. The regression equation makes it possible to determine that a rise of 0.1 percentage point in the proportion of the GDP invested in tertiary education and research in higher education corresponds to a rise in the educational attainment of the population of about 1.6 percentage points (15,81·0,1 = 1,58).

On closer study of the relationships in figure 7 it appears, however, that the countries can be divided into three sub-groups. These are coloured blue, cyan or yellow in the figure. In each of these sub-groups the correlation between the two variables seems to be weaker, above all in the blue and cyan group. In order to test this assumption a cluster analysis
was made. Cluster analysis involves grouping objects (the countries for instance) on the basis of a number of variables (in this case investment in tertiary education expressed as a proportion of the GDP and the population's educational attainment) so that the objects placed in the same sub-group resemble each other more than objects in the other sub-groups. This analysis confirmed the hypothesis that the countries could be divided into the three main sub-groups indicated by the different colours.

One measurement of whether it is membership of the sub-group that provides the main explanation for the correlation between the variables is for the relationship within each sub-group to be markedly weaker than the relationship for the group as a whole. As the yellow sub-group contained only three countries and the variations between them in investment in tertiary education were very small, there was little point in calculating the relationship (correlation). The yellow sub-group differs from the other two in that the countries in it invest about the same proportion of their GDP in tertiary education and research in higher education but there are major differences in the educational attainment of their populations. Another factor that distinguishes this sub-group is that the countries clearly invest more in higher education than the others.

This can be summed up by saying that the countries in the OECD can mainly be grouped around two educational attainment levels. The countries

in one group have an educational attainment level of about 26 per cent of the population with tertiary education and their investment in tertiary education is below average. The other group, which includes Sweden, has an average educational attainment of just over 43 per cent with an average investment in tertiary education and research in higher education of around 1.5 per cent of GDP (spread 1.12 – 1.48 per cent). In these groups it is largely factors other than the size of their investment that affects the differences between the proportions of their populations with tertiary education . This study does not include, however, any more detailed analysis of what characterises these countries.

In terms of the population's educational attainment Sweden is slightly above the OECD average. As in most of the OECD countries, women have higher educational attainment levels than men.

Summary: Sweden in relation to other countries

Sweden makes a relatively large investment in tertiary education and research in higher education. In 2011 there were only seven OECD countries that invested more than Sweden in terms of proportion of the GDP. There are, however, major differences between countries in the forms that funding takes. Sweden and the other Nordic countries are among those where, on the whole, all funding comes from the public purse, while in countries like Canada, South Korea, the USA and Australia funding comes largely from private sources, mainly through tuition fees. Sweden, together with Switzerland, is characterised, however, by the fact that more than half of the total expenditure on tertiary education consists of expenditure for research in higher education. In most other countries expenditure on education accounts for the bulk of the expenditure. If expenditure for education alone is taken into account, Sweden does not do as well in comparison with other countries.

In terms of the population's educational attainment Sweden is slightly above the OECD average. As in most of the OECD countries, women have higher educational attainment than men. If we consider higher education, 34 per cent of Sweden's younger population had qualifications of this kind in 2012, but there has been no change in this proportion since 2009. In most other countries the proportion has continued to grow.

STUDENT COMPLETION RATES IN HIGHER EDUCATION

Student completion rates in higher education in terms of the numbers of beginners who go on to receive a qualification are relatively low in Sweden. This indicator is not included in the report because of its low quality and that the OECD considers that it needs to be developed.

The information in *Education at a Glance* that deals with student completion rates is based on special data collections and the most recent results were published in EAG 2013, see for instance table A4.1. Only about 10 countries, one of them Sweden, could submit actual figures, although there are estimated figures for another 12 countries. The indicator shows that Sweden's student completion rate was about 50 per cent, which can be compared with the OECD average of 70 per cent for all the countries for which information was available. It is worth noting that student completion rates are high for most of the professional programmes in Sweden. The main explanation for the low student completion rates in Sweden is that the Swedish higher education system is flexible and offers students a large number of possibilities to take one or more courses as part of lifelong learning and with no intention of applying for the award of a qualification. In recent years the places offered have been increasingly linked to degree programmes, but there are still a large number of 'freestanding' courses in higher education in Sweden.

The Swedish Higher Education Authority is a government agency that deals with questions concerning universities and university colleges. We are responsible for statistics, follow-up and analysis about higher education in Sweden, the educational quality of courses and programmes, student rights and legal supervision.

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