

WHAT ARE THE INCENTIVES TO INVEST IN EDUCATION?

This indicator examines incentives to invest in education by estimating the value of education across 21 OECD countries. The financial returns to education are calculated for investments undertaken as a part of initial education, and account for the main costs and benefits associated with this investment decision. The discounted values of private and public investments in education are given for upper secondary or post-secondary non-tertiary and tertiary education.

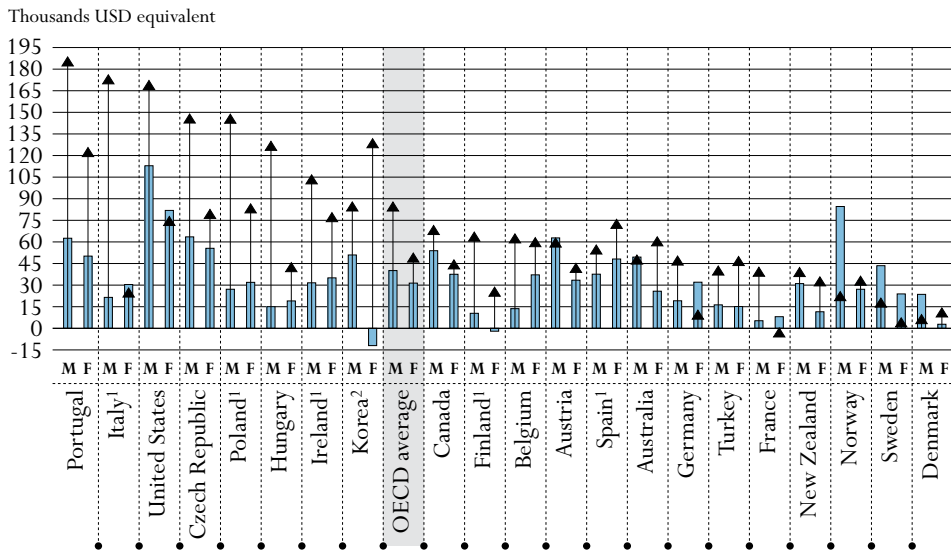
Key results

Chart A8.1. Economic returns for an individual obtaining upper secondary or post-secondary non-tertiary education, ISCED 3/4, and for an individual obtaining tertiary education, ISCED 5/6, as part of initial education (2005)

The chart shows the net present value of investments in education discounted at a 5% interest rate.

- Private net present value of investing in upper secondary or post-secondary non-tertiary education
- ▲ Private net present value of investing in tertiary education

Investments in tertiary education generate substantial financial rewards in most OECD countries. Male students in Portugal, Italy and the United States investing in tertiary education can expect to gain more than USD 150 000 over their working life. The returns for female tertiary students exceed USD 100 000 in Korea and Portugal. With few exceptions, the returns for investing in a tertiary education are higher than for upper secondary or post-secondary non-tertiary education. On average across OECD countries, tertiary education generates a net present value approximately twice that of upper secondary or post-secondary non-tertiary education. For males the returns are USD 82 000 compared with USD 40 000, and for females USD 52 000 compared with USD 28 000. Incentives to continue education at the tertiary level are thus strong for males and females in most countries.



M: Male; F: Female

1. Year of reference 2004.

2. Year of reference 2003.

Countries are ranked by descending order of the net present value for males immediately acquiring a tertiary level of education. Cash flows are discounted by 5% interest rate.

Source: OECD, Table A8.1 and Table A8.2. See Annex 3 for notes (www.oecd.org/edu/eag2009).

Other highlights of this indicator

- Both public and private returns are typically higher for tertiary education than upper secondary education or post-secondary non-tertiary education, reflecting the fact that an upper secondary level education has become the norm among OECD countries. However, the value of an upper secondary education or post-secondary non-tertiary education is still substantial in Norway for males and in the United States for both males and females where the net discounted gain exceeds USD 80 000.
- At the upper secondary level of education, the social safety net in some countries works against females investing in further education. Social transfers remove some of the income differences between those who have obtained an upper secondary education and those who have not. The negative effects of social transfers are particularly strong in Denmark and New Zealand where the returns for females are reduced by 25 000 USD or more.
- Tertiary education brings substantial rewards in most countries and the present value of the gross earnings premium for males exceeds USD 300 000 in Italy and the United States over the working life. The rewards for investing in tertiary education are typically lower for females, except in Australia, Denmark, Korea, Norway, Spain and Turkey where the returns on the overall investment are higher for females than for males.
- On average across OECD countries, the value invested in tertiary education for an individual male is USD 67 000, taking into account public and private spending, as well as indirect costs in the form of private and public foregone earnings and taxes. In Austria, Germany and the United States these investment costs exceed USD 100 000.
- The net public return from an investment in tertiary education for a male student exceeds, on average across OECD countries, USD 50 000. This is almost twice the amount of the investment made by the public side, and as such, provides a strong incentive to expand higher education in most countries through either public or private financing.

Policy context

Economic returns to education are a key driver for individuals' decisions to invest time and money in education beyond compulsory schooling. The monetary benefits of completing higher levels of education motivate individuals to postpone consumption today for future rewards. From a policy perspective, awareness of economic incentives is crucial to understanding the flow of individuals through the education system.

A problem facing policy makers is the fact that changes in education policies generally take some time to have an impact on the labour market. Large shifts in the demand for education can drive earnings and returns up considerably before the supply catches up. This provides a strong signal both to individuals and to the education system about the need for additional investment.

Apart from the earnings differentials, which are largely determined by the labour market, major components of the returns to education are directly linked to policy: access to education, taxes and the costs of education for the individual. Very high private returns suggest that education may need to be expanded by increasing access and by making loans more readily available to individuals, rather than by lowering the costs of education. On the other hand, low returns indicate that there are not enough incentives for the individual to invest in education, either because education is not rewarded in the labour market, or because costs, in terms of tuition fees, foregone earnings and taxation, are relatively high.

Economic benefits of education flow not only to the individual but also to society through lower social transfers and through the additional taxes individuals pay when they enter the labour market. The public returns to education, which take into account the costs and benefits of education for governments, provide additional information on the overall returns to education. In shaping policies, it is important to consider the balance between private and public returns. This indicator takes a closer look at individual and public incentives to invest in education, as well as incentives for males and females at different educational levels.

Evidence and explanations

Financial returns to investment in education

The relationship between education and earnings can be evaluated in an investment analysis framework. An individual incurs costs when investing in education (direct costs such as tuition fees and indirect costs such as foregone earnings while in school). The overall benefits of this investment can be assessed by estimating the economic value of the investment, which essentially measures the degree to which the costs of attaining higher levels of education translates into higher levels of earnings.

The approach used here is the Net Present Value (NPV) of the total investment, or the Present Value (PV) when referring to different components or cash flow streams. In this framework, costs and benefits in different periods are transferred back in time to the start of the investment. This is done by discounting all cash flows back to the beginning of the investment with a required rate of interest (discount rate). The choice of interest rate is generally a difficult issue as it should reflect not only the overall time horizon of the investment, but also the cost of borrowing, or the perceived risk of the investment. To keep things simple, and to make the interpretation of results easier, the same discount rate is applied across all OECD countries.

The discount rate used here is set to 5%, which largely reflects the interest one can expect, under normal circumstances, to obtain by investing in long-term government bonds in most OECD countries. Discounting the cost and benefits to the present value with this interest rate makes the financial returns on the overall investment and values of the different components comparable across time and countries.

A positive net present value of an educational investment represents the additional value one can expect to gain over an investment in government bonds. A negative net present value suggests that one would be better off investing in bonds rather than enrolling in education. However, many governments have schemes which provide grants and loans to students with interest rates below those used in this exercise. These subsidies can, in many cases, turn the investment and value for the individual positive even if negative returns are sometimes documented in this indicator.

Net present value (NPV) calculations are based on the same method as internal rate of return (IRR) calculations used in previous editions of *Education at a Glance*; the main difference between these two methods is in how the interest rate is set. For calculations developed within the IRR framework, the interest rate is raised to the level at which the economic benefits equal the cost of the investment; for calculations developed with the NPV approach, the discount rate is fixed at the start of the analysis and the economic benefits and costs are then valued in line with the chosen interest rate. The net present value has a couple of advantages over IRR in that it is easier to communicate and better suited for long-term investments. IRR typically favours short-term investments with large cash flows close in time with the investment, and thus ranks investments differently from those evaluated by NPV. The net present value is thus more suited for educational investments that typically span several decades.

This indicator is analysed from two points of view: financial returns to the individual, which reflect only the individual's earnings and costs, and financial returns to government (public net present value). The returns to government include the collection of higher income taxes and social contributions, lower social transfers to individuals, as well as the costs borne by the government for educating the individual. These private and public returns are calculated for 21 OECD countries.

Incentives for the individual to invest in education

Upper secondary education or post-secondary non-tertiary education

The different costs and benefits make up the components of the value of education, and as such, describe the key drivers of the returns in different countries. In order to visualize the main factors influencing the returns to education, each cost and benefit is discounted back in time with a discount rate of 5%. Table A8.1 shows the value of each component and the net present value of the overall investment for an individual attaining upper secondary education or post-secondary non-tertiary education.

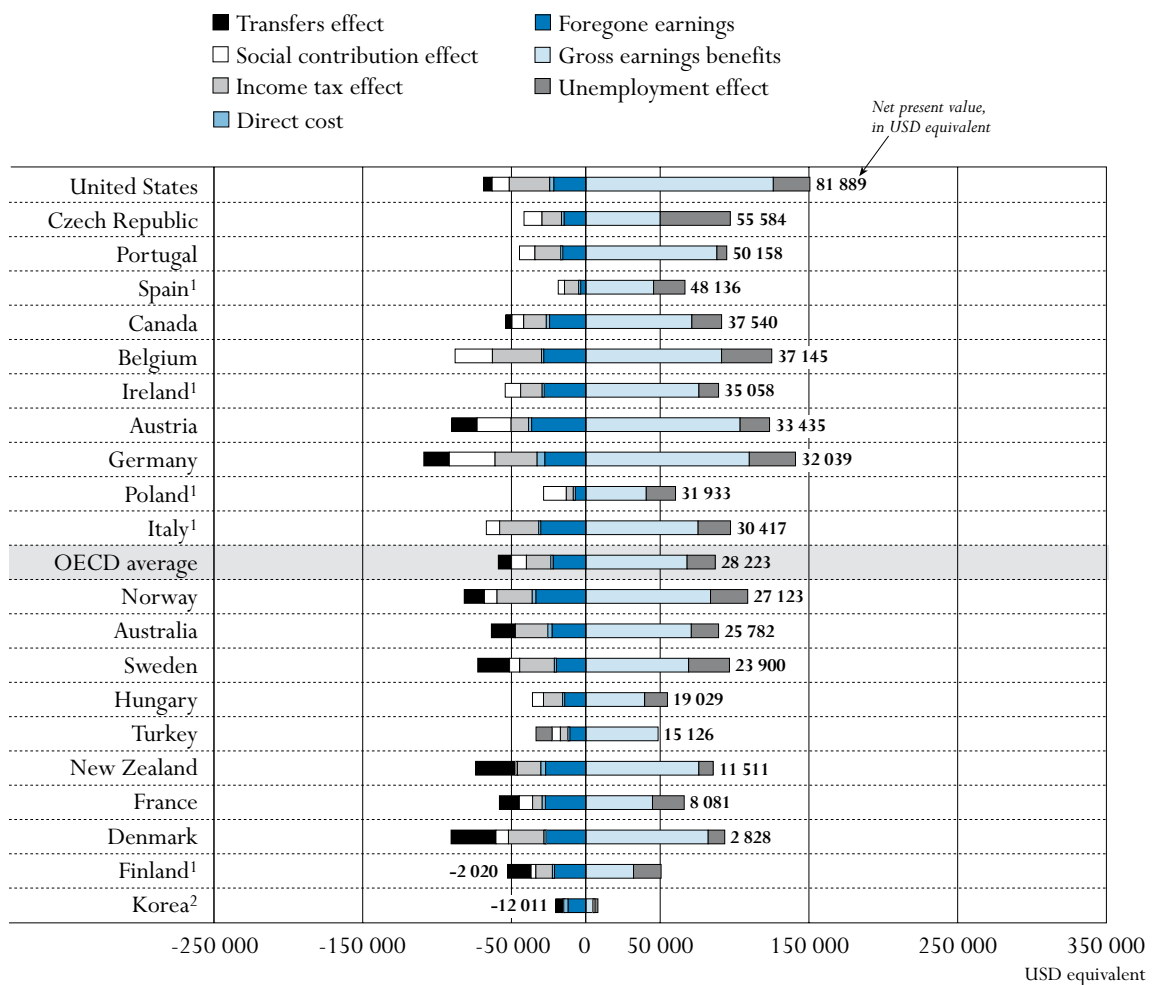
Chart A8.2 shows these components for a female investing in an upper secondary education or post-secondary non-tertiary education. At this level of education the direct cost for education are typically negligible (with the exception of Germany where the direct costs exceeds USD 5 000) and the main investment cost consists of foregone earnings. Depending on salary levels and the possibility of finding a job, foregone earnings vary substantially between countries. In Spain and

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Poland the earnings foregone are less than USD 10 000, while in Austria foregone earnings exceed USD 35 000. Good labour market prospects for young individuals without an upper secondary education thus have the consequence of reducing the incentives to invest in further education.

Gross earnings effects and unemployment effects make up the benefit side. In Austria, Germany and the United States the discounted gross earnings effect exceeds USD 100 000 over the working life of a female attaining an upper secondary education or post-secondary non-tertiary education. Unemployment effects play an important role in Belgium, the Czech Republic and Germany where the better employment prospects over working life are valued at USD 30 000 or more.

Chart A8.2. Components of the private net present value for a female obtaining upper secondary or post-secondary non-tertiary education, ISCED 3/4 (2005)



1. Year of reference 2004.

2. Year of reference 2003.

Cash flows (components) are discounted by 5% interest rate.

Countries are ranked by descending order of the net present value.

Source: OECD, Table A8.1. See Annex 3 for notes (www.oecd.org/edu/eag2009).

StatLink <http://dx.doi.org/10.1787/664146203473>

Income taxes, social contributions, and transfer effects bring down the benefit side, and on average across countries, a female investing in upper secondary education or post-secondary non-tertiary education can expect to gain approximately USD 28 000 over her working life. However, this varies significantly between countries; in the United States attaining this level of education generates over USD 80 000 whereas in Finland and Korea the expected value is negative when discounting the cash flow streams at 5%.

Males generally have better financial returns on their upper secondary education or post-secondary non-tertiary education than females. The impact of the different components making up the investment is typically stronger, except for transfer effects where the safety net of countries works against females investing in further education. Social transfer removes some of the income differences between those who have obtained an upper secondary education and those who have not. Social transfers make the economic incentives for investing in further education particularly low in Denmark and New Zealand where the female returns are reduced by USD 25 000 or more. Strong social safety nets can in some countries thus have the consequence of lowering the incentives to invest in further education.

Tertiary education

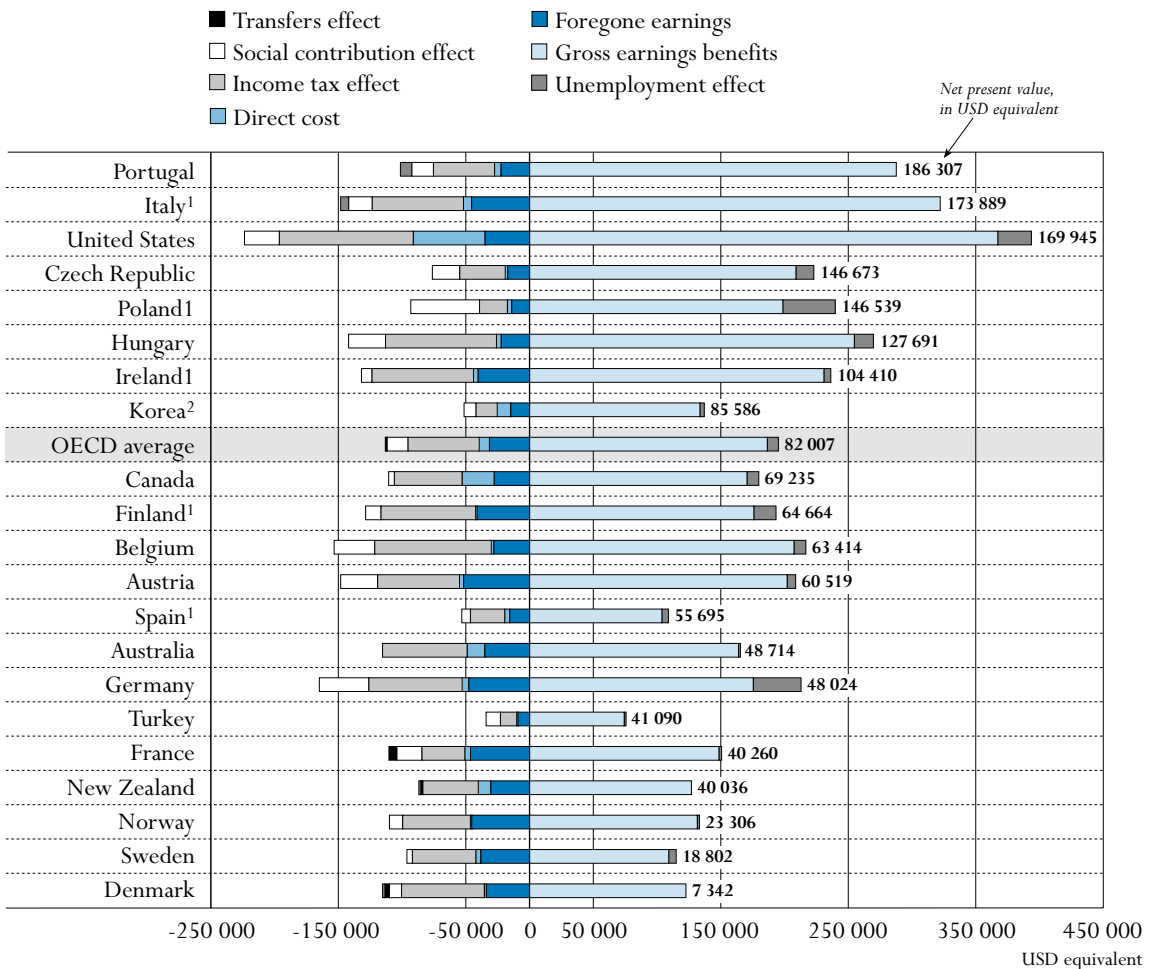
Chart A8.3 shows the components of the returns to tertiary education for males in different countries. Relative to upper secondary and post-secondary non-tertiary education, the impact of unemployment benefits is less pronounced than the earnings differential, and taxes and direct costs of education play a substantially larger role.

As with upper secondary and post-secondary non-tertiary education, the returns to tertiary education are largely driven by earnings premiums; other components are less important in explaining differences among OECD countries. This suggests that education policy needs to monitor and match the supply of and demand for education. The components illustrated in Chart A8.3 show, however, the importance of specific factors in different countries and thus indicate areas in which policy could help to improve incentives.

Tertiary education brings substantial rewards in the Czech Republic, Hungary, Ireland, Italy, Poland, Portugal and the United States where an investment generates over USD 100 000 indicating strong incentives to continue education. The present value of the gross earnings premium exceeds USD 300 000 in Italy and the United States. The rewards for tertiary education are substantially lower in Denmark, France, New Zealand, Norway and Sweden where returns are USD 40 000 or below. The rewards for investing in tertiary education are typically lower for females, except in Australia, Denmark, Korea, Norway, Spain and Turkey where the returns are higher for females than for males (Table A8.2).

There is some trade-off between taxes and the direct costs of education (tuition fees). Countries with low or no tuition fees typically let individuals pay back public subsidies later in life through progressive tax schemes. In countries in which a larger portion of the investment falls on the individual (in the form of tuition fees) a larger portion of the earnings differential is also accrued by the individual. In general there is a positive link, although weak, between the private direct costs for education and the overall value of the education (net present value of the investment).

Chart A8.3. Components of the private net present value for a male obtaining tertiary education, ISCED 5/6 (2005)



1. Year of reference 2004.

2. Year of reference 2003.

Cash flows (components) are discounted by 5% interest rate.

Countries are ranked by descending order of the net present value.

Source: OECD, Table A8.2. See Annex 3 for notes (www.oecd.org/edu/eag2009).

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Public rate of return to investments in education

Public returns are one way of examining the effect on public-sector accounts of individuals' decisions to invest in education and the effect of policies that affect these investments. Similarly, to warrant an intervention by governments to improve private rates of return to education, it is important to consider public returns in order to have a complete picture of overall returns to education.

For the public sector, the costs of education include direct expenditures on education (such as direct payments of teachers' salaries or for the construction of school buildings, purchase of textbooks, etc.) and public-private transfers (such as public subsidies to households for

scholarships and other grants and to other private entities for provision of training at the workplace, etc.). The public costs of education also include lost income tax revenues on students' foregone earnings. The benefits include increased revenue from income taxes on higher wages and social insurance payments as well as lower social transfers due to the higher income.

In practice, raising levels of education will give rise to a complex set of fiscal effects on the benefit side, beyond the effects of revenue growth based on wages and payments to government.

Box A8.1. Estimating returns to education

There are essentially two main approaches to estimating the financial returns to education, founded either on investment theory, from the finance literature, or on an econometric specification, from the labour economics literature.

The basis for an investment approach is the discount rate (the time-value of money), which makes it possible to compare costs or payments (cash flows) over time. The discount rate can be estimated either by raising it to the level at which financial benefits equal costs, which is then the internal rate of return, or by setting the discount rate at a required rate that takes into consideration the risk involved in the investment, which is then a net present value calculation with the gains expressed in monetary units.

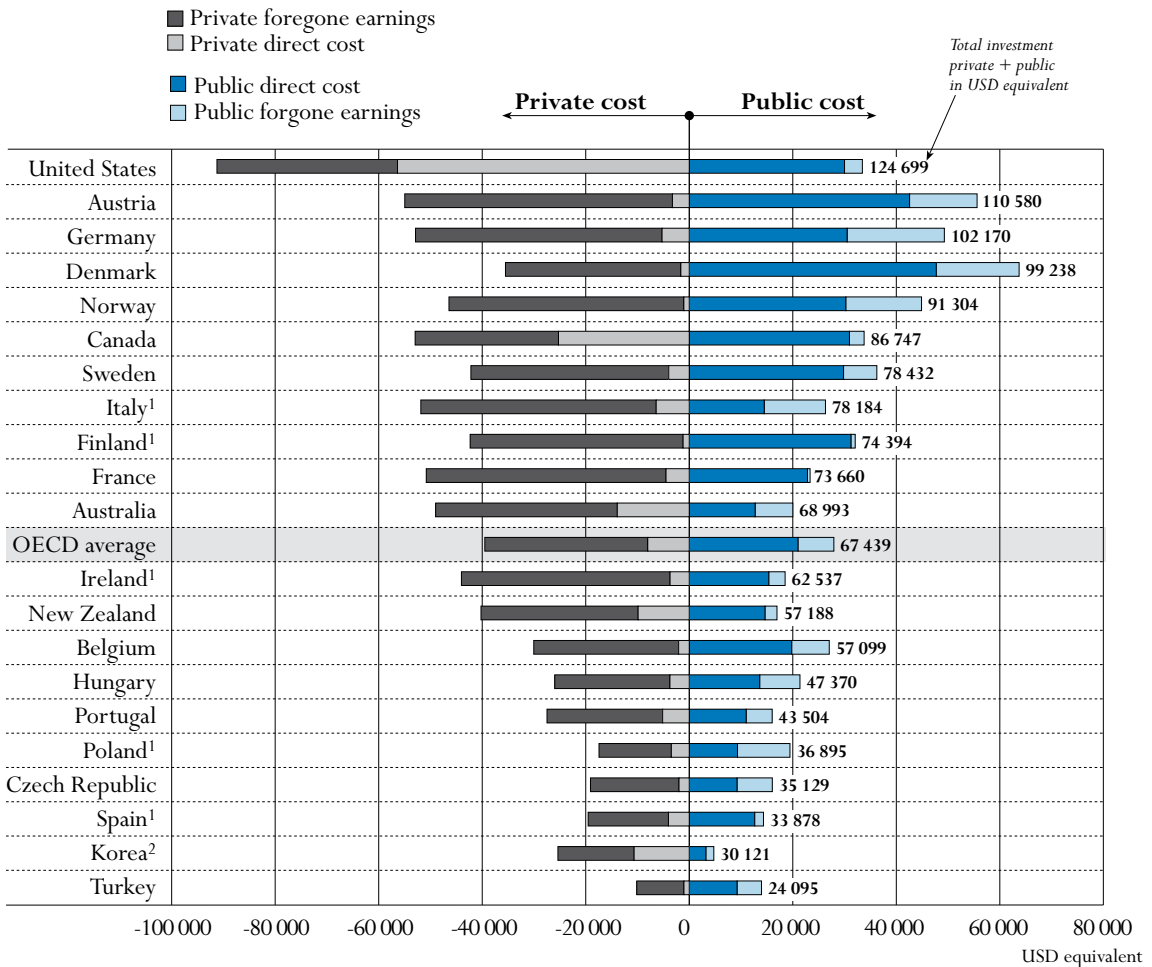
The econometric approach taken in labour economics originates from Mincer (1974) in which returns to education are estimated in a regression relating earnings to years of education, labour market experience and tenure. This basic model has been extended in subsequent work to include educational levels, employment effects and additional control variables such as gender, work characteristics (part-time, firm size, contracting arrangements, utilisation of skills, etc.) to arrive at a “net” effect of education on earnings.

The main difference between the two approaches is that the investment approach is forward-looking (although historical data are typically used) whereas an econometric approach tries to establish the actual contribution of education to earnings by controlling for other factors that can influence earnings and returns. This difference has implications for the assumptions and for interpretations of returns to education. As the investment approach focuses on the incentives at the time of the investment decision, it is prudent not to remove the effect of (controlling for) other factors as these are part of the returns that an individual can expect to receive when deciding to invest in education. In other words, it is difficult to foresee what one's labour market experience or tenure with a specific firm will be, whether one will work part-time, for a big firm, in the public sector, or in a job that does not draw upon one's skills. Gender is, of course, known at the time of the investment decision, and is an important component in investment analysis.

Depending on the impact of the control variables, how steep the earnings curves are, and how cash flows are distributed over time, the results of the two approaches can diverge quite substantially. Depending on other underlying assumptions, returns may differ between and within a class of models as well. For instance, cash flows can be calculated differently and, depending on the method chosen, returns will vary to some degree. It is therefore generally not advisable to compare rates of return from different studies. The use of data systematically extracted from comparable sources allows a reliable cross country comparison, even though the rates of return might differ slightly with another approach.

For instance, better educated individuals generally have better health, which lowers public expenditure on provision of health care and thus public expenditure. As earnings generally increase with educational attainment, those with higher levels of education consume more goods and services, and this leads to fiscal effects beyond income tax and social security contributions. However, tax and expenditure data on these indirect effects of education are not readily available for inclusion in rate-of-return calculations.

Chart A8.4. Public versus private investment for a male obtaining tertiary education (2005)



1. Year of reference 2004.

2. Year of reference 2003.

Cash flows (components) are discounted by 5% interest rate.

Countries are ranked by descending order of the total cost private + public.

Source: OECD, Table A8.2 and Table A8.4. See Annex 3 for notes (www.oecd.org/edu/eag2009).

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Table A8.3 and Table A8.4 show the public returns for individuals who obtain upper secondary or post-secondary non-tertiary education and tertiary education as part of initial education, respectively. Chart A8.4 shows the public and private costs for males investing in a tertiary education. On average across OECD countries, the value invested in a male obtaining a tertiary education is USD 67 000, taking into account public and private spending, as well as indirect

costs in the form of public and private foregone earnings and taxes. In Austria, Germany and the United States the present value of the investment costs exceeds USD 100 000.

Direct costs for education are generally borne by the public side with the exceptions of Australia, Canada, Korea and the United States, where tuition fees constitute a significant share of the overall private investment costs for tertiary education. Together with foregone public earnings in the form of taxes and social contributions, direct and indirect public investment costs exceeds USD 40 000 in Austria, Denmark, Germany and Norway for a male with tertiary education. In Korea, Spain and Turkey the total public investment cost does not exceed USD 15 000. On average among OECD countries, the total present value of public investment for a male obtaining a tertiary qualification is USD 28 000.

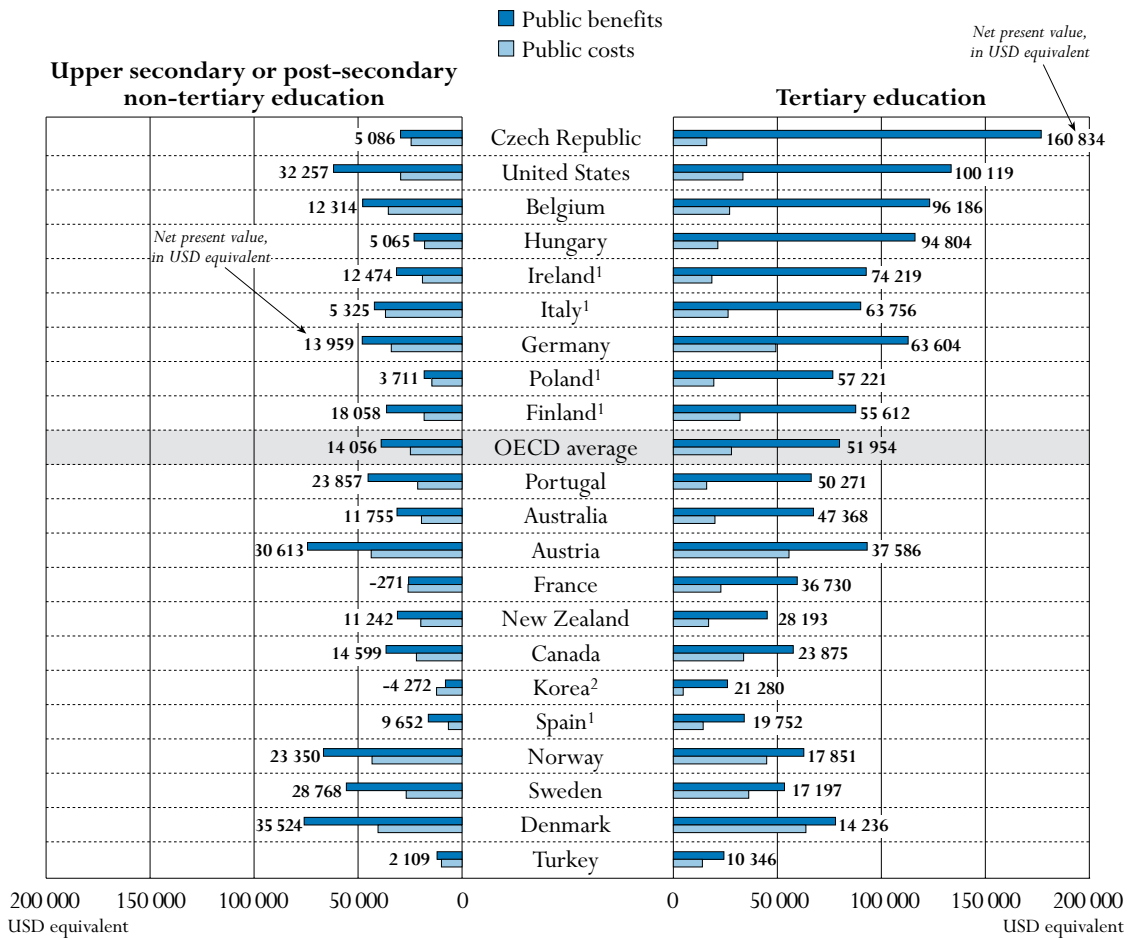
Although public investments in tertiary education are large in many countries, private investment costs exceed those of governments in most countries. In Austria, Canada, France, Germany, Italy and the United States an individual invests over USD 50 000 to acquire a tertiary qualification, taking into account direct and indirect costs. In the United States this figure is above USD 90 000 with direct costs such as tuition fees making up a significant part of the investment. In all other countries, foregone earnings are the main component. The decision to continue education at a tertiary level is thus challenging, as much is at stake, particularly for young individuals from less affluent backgrounds.

For an individual, foregone earnings make up a substantial part of overall investment costs and particularly in countries with long tertiary educations such as in Austria and Germany (see Indicator B1). Earnings foregone also depend on the wage levels one can expect to receive and most notably the probability to find a job. As the labour market for young adults is likely to deteriorate in the coming years (Indicator C3), investment costs will fall and thereby also increase the returns for tertiary education. The incentives to invest in education both from the private and public perspective will thus be further advanced across most OECD countries.

Investments in education also generate public returns in the form of income taxes, increased social insurance payments and lower social transfers as a consequence of higher income levels. Chart A8.5 compares the costs and economic benefits for a male investing in upper secondary or post-secondary non-tertiary education and tertiary education from a public point of view. The public returns for investments in upper secondary or post-secondary non-tertiary education are positive in all countries except in France and Korea, where the net present value is marginally negative. On average across OECD countries, upper secondary or post-secondary non-tertiary education generates a net return of USD 14 000 USD and in Austria, Denmark, Sweden and the United States this figure is close to or above USD 30 000. The public returns for a female investing in upper secondary or post-secondary non-tertiary education are marginally lower, USD 10 000 on average across OECD countries (Table A8.3).

The public returns to tertiary education are substantially higher than for upper secondary or post-secondary non-tertiary education, in part because a larger share of the investment costs are borne by the individuals themselves. The main factors are, however, higher taxes and social contributions, and lower social transfers that flow from the higher income levels of those with tertiary qualifications. In Belgium, the Czech Republic, Germany, Hungary and the United States these benefits exceeds USD 100 000 over an individual's working life (Chart A8.5).

Chart A8.5. Public cost and benefits for a male obtaining upper secondary or post-secondary non-tertiary education and tertiary education (2005)



1. Year of reference 2004.
 2. Year of reference 2003.
 Cash flows (components) are discounted by 5% interest rate.
 Countries are ranked by descending order of the public net present value obtaining tertiary education.
 Source: OECD, Table A8.3 and Table A8.4. See Annex 3 for notes (www.oecd.org/edu/eqg2009).
 StatLink <http://dx.doi.org/10.1787/664146203473>

On average across countries, the net public return from an investment in tertiary education exceeds USD 50 000 for a male student, accounting for the main costs and benefits at this level of education. This is almost twice the amount of public investments made in tertiary education across OECD countries, and as such, provides a strong incentive for governments to expand higher education.

In conclusion, there seems to be room for additional expansion of higher education in most countries through either public or private financing. As shown in this indicator, at a discount rate of 5%, most educational investments yield substantial private and public returns in most countries. Financing these investments at 5% thus makes sense both from a public and private perspective. Public investments in education and particularly at tertiary level would be rational

even in the face of running a deficit in public finances. As indicated here, issuing government bonds to finance these investments will yield significant returns and improve public finances in the longer term. Public as well as private returns to tertiary education will eventually drop in many countries with high returns as supply meet demand, but from the viewpoint of equity this may be a desirable outcome.

Definitions and methodologies

In the calculation of the private Net Present Value (NPV), private investment costs include after tax foregone earnings adjusted for the probability of finding a job (unemployment rate) and direct private expenditures on education. Both of these investment streams take into account the duration of studies. On the benefit side, the age-earning profiles are used in calculating the earnings differential between different educational groups (below upper secondary education; upper secondary or post-secondary non-tertiary education; and tertiary education). These gross earnings differentials are adjusted for differences in income taxes and social contributions as well as social transfers (transfers including housing benefits and social assistance related to earnings level) to arrive at net earnings differentials. The cash flows are further adjusted for probability of finding a job (unemployment rates). These calculations are done separately for male and females to account for differences in earnings differentials and unemployment rates.

In the calculation of public NPV, public costs include lost tax receipts during the schooling years (income tax and social contribution), and public expenditures (taking into account duration of studies). The benefits for the public sector are additional tax and social contribution receipts associated with higher earnings and savings from transfers, *i.e.* housing benefits and social assistance that the public sector doesn't have to pay above a certain level of earnings.

It is important to consider some of the broad conceptual limitations on the estimates of financial returns performed here:

- The data reported are accounting based values only. The results no doubt differ from econometric estimates that would rely, for example, on an earnings function approach, rather than on a lifetime stream of earnings derived from average earnings. Estimates relate to levels of formal educational attainment only. They do not reflect the effects of learning outside of formal education.
- The approach used here estimates future earnings for individuals with different levels of educational attainment, based on knowledge of how average present gross earnings vary by level of attainment and age. However, the relationship between different levels of educational attainment and earnings may differ in the future from what it is today. Technological, economic and social changes may all alter how wage levels relate to levels of educational attainment.
- Differences in returns across countries partly reflect different institutional and non-market conditions that bear on earnings, such as institutional conditions that limit flexibility in relative earnings. In estimating benefits, the effect of education on increasing the likelihood of employment when wanting to work is taken into account. However, this also makes the estimate sensitive to the stage in the economic cycle at which the data were collected. As higher educated individuals typically have a stronger attachment to the labour market, the value of education generally increases in time of poor economic growth.

The calculations also involve a number of restrictive assumptions needed for international comparability. For calculations of the investments in education, foregone earnings have been standardised at the level of the legal minimum wage or the equivalent in countries where the earnings data include part-time work (when no national minimum wage was available, the wage was selected from wages set in collective agreements). This assumption seeks to counterbalance the very low recorded earnings for 15-24 year-olds that led to excessively high estimates in earlier editions of *Education at a Glance*. In the Czech Republic, Hungary, Poland and Portugal actual earnings are used in the calculations of foregone earnings as part-time work is excluded in these earnings data collections.

To ensure comparability, calculations of taxes, social contributions and social transfers are based on the assumption that the individual in question is single and childless. This restriction is largely necessary because the rules governing eligibility for a broad range of social entitlements vary greatly by marital or civil status (and sometimes other criteria). In order to broaden the country coverage, when information from Table B1.3a and Table B1.3b were not available, the starting age of education and the duration of studies have been estimated on the basis of school expectancy (see Indicator C1) or the best estimate from the literature.

The analysis could be extended in a number of ways, subject to data availability. In particular, more differentiated and comparable data relative to costs per student and the availability of student loans and interest charges on these loans would be useful. Estimates of changes in value added tax receipts resulting from the increased earnings acquired through obtaining higher levels of education would also contribute to a more complete assessment of the impact on public accounts. The calculations do not consider the fact that those with high earnings often generate higher levels of income after age 64, owing to their superior pension arrangements.

For the methods employed for the calculation of the rates of return, please see Annex 3 at www.oecd.org/edu/eag2009.

Further references

Mincer, J. (1974), "Schooling, experience, and earnings", National Bureau of Economic Research (NBER), New York.

Table A8.1.
Private net present value for an individual obtaining upper secondary or post-secondary non-tertiary education as part of initial education, ISCED 3/4 (2005)

	Direct cost		Foregone earnings		Gross earnings benefits		Income tax effect		Social contribution effect		Transfers effect		Unemployment effect		Net present value	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Australia	-2 810	-2 810	-22 021	-22 719	73 492	70 932	-29 991	-21 803	0	0	-1 282	-16 141	32 094	18 324	49 482	25 782
Austria	-2 032	-2 032	-38 001	-36 463	146 283	103 739	-35 039	-11 710	-31 945	-22 855	-7 317	-17 035	30 856	19 791	62 805	33 435
Belgium	-1 441	-1 441	-32 999	-28 338	63 700	91 261	-30 534	-33 010	-17 237	-25 074	0	0	32 171	33 748	13 659	37 145
Canada	-2 161	-2 161	-23 450	-24 386	91 065	71 299	-27 634	-15 208	-7 546	-7 870	-1 368	-4 123	25 011	19 989	53 918	37 540
Czech Republic	-1 722	-1 722	-15 426	-14 635	44 843	50 019	-15 791	-13 086	-13 795	-12 108	0	0	65 414	47 116	63 524	55 584
Denmark	-578	-578	-27 078	-27 534	111 279	82 278	-43 456	-23 892	-11 003	-8 422	-21 465	-30 149	15 888	11 126	23 587	2 828
Finland¹	-138	-138	-22 955	-22 309	50 777	32 073	-19 850	-11 118	-4 436	-3 206	-12 018	-15 866	19 051	18 542	10 432	-2 020
France	-2 119	-2 119	-30 492	-27 181	41 450	44 826	-9 575	-6 471	-8 688	-8 892	-7 433	-13 413	22 141	21 332	5 284	8 081
Germany	-5 085	-5 085	-27 421	-27 631	51 356	109 920	-21 356	-28 291	-20 773	-30 735	-5 861	-17 182	48 275	31 043	19 134	32 039
Hungary	-577	-577	-15 805	-15 024	38 406	39 545	-15 715	-12 844	-7 380	-7 415	0	0	16 116	15 343	15 046	19 029
Ireland¹	-599	-599	-29 199	-28 740	66 937	76 038	-25 960	-14 476	-5 552	-10 369	0	0	25 992	13 203	31 618	35 058
Italy¹	-1 114	-1 114	-35 954	-30 570	89 302	75 509	-32 910	-26 257	-9 243	-8 934	0	0	11 406	21 783	21 487	30 417
Korea²	-2 865	-2 865	-11 898	-11 980	68 412	4 787	-2 892	555	-5 088	-515	0	-4 777	5 282	2 783	50 950	-12 011
New Zealand	-3 113	-3 113	-28 129	-27 056	83 873	75 997	-26 409	-15 778	-1 130	-1 026	-3 537	-27 132	9 496	9 620	31 051	11 511
Norway	-2 372	-2 372	-33 342	-33 625	133 548	83 842	-46 232	-23 682	-14 535	-8 476	-5 868	-13 572	53 406	25 008	84 606	27 123
Poland¹	-194	-194	-9 622	-8 202	31 601	40 648	-4 240	-4 697	-13 975	-15 287	0	0	23 567	19 665	27 137	31 933
Portugal	-11	-11	-20 562	-16 867	123 842	88 143	-31 103	-17 324	-14 081	-10 389	0	0	4 485	6 606	62 570	50 158
Spain¹	-481	-481	-5 925	-4 348	52 086	45 557	-12 389	-9 490	-3 833	-4 210	0	0	8 146	21 107	37 604	48 136
Sweden	-19	-19	-19 592	-21 107	93 464	69 113	-30 240	-23 335	-8 283	-6 800	-17 103	-21 409	25 278	27 458	43 505	23 900
Turkey	-324	-324	-10 837	-11 750	37 719	48 598	-6 185	-5 005	-5 950	-5 624	0	0	1 886	-10 770	16 308	15 126
United States	-2 689	-2 689	-21 168	-21 572	180 543	126 069	-42 737	-27 179	-15 178	-11 526	-3 874	-5 803	18 033	24 588	112 929	81 889
Countries average	-1 545	-1 545	-22 946	-22 002	79 713	68 104	-24 297	-16 386	-10 460	-9 987	-4 149	-8 886	23 524	18 924	39 840	28 223

Note: Cash flows (components) are discounted by 5% interest rate.

Assuming that foregone earnings for all individual refer to the minimum wage, except those countries reporting full time earnings: the Czech Republic, Hungary, Poland and Portugal.

1. Year of reference 2004.

2. Year of reference 2003.

Source: OECD. See Annex 3 for notes (www.oecd.org/edu/eag2009).


StatLink  <http://dx.doi.org/10.1787/664146203473>

Table A8.2.

Private net present value for an individual obtaining tertiary education as part of initial education, ISCED 5/6 (2005)

	Direct cost		Foregone earnings		Gross earnings benefits		Income tax effect		Social contribution effect		Transfers effect		Unemployment effect		Net present value	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Australia	-13 901	-13 901	-35 094	-35 046	163 861	148 634	-66 312	-49 491	-	-	0	0	159	11 177	48 714	61 374
Austria	-3 249	-3 249	-51 723	-52 581	201 993	173 711	-64 185	-48 959	-29 009	-32 560	0	0	6 692	6 554	60 519	42 915
Belgium	-2 054	-2 054	-27 996	-26 929	207 374	172 292	-91 380	-68 762	-31 855	-40 146	0	0	9 325	26 390	63 414	60 792
Canada	-25 266	-25 266	-27 697	-29 045	170 510	137 899	-53 072	-34 480	-4 496	-12 012	0	0	9 256	8 267	69 235	45 365
Czech Republic	-1 979	-1 979	-17 106	-15 333	208 896	121 571	-35 660	-25 627	-21 519	-17 640	0	0	14 043	19 426	146 673	80 418
Denmark	-1 626	-1 626	-33 883	-33 186	122 635	84 122	-64 918	-31 670	-9 562	-7 298	-3 485	-2 059	-1 819	3 700	7 342	11 983
Finland ¹	-1 187	-1 187	-41 149	-42 711	175 858	110 290	-74 179	-40 040	-12 108	-7 728	0	-5 327	17 428	13 095	64 664	26 392
France	-4 488	-4 488	-46 325	-43 953	148 491	99 338	-33 569	-21 435	-19 792	-14 998	-6 155	-27 301	2 097	10 928	40 260	-1 908
Germany	-5 256	-5 256	-47 631	-50 100	175 411	110 150	-73 155	-36 203	-38 857	-26 756	0	0	37 512	18 616	48 024	10 450
Hungary	-3 734	-3 734	-22 248	-20 924	254 678	139 576	-87 002	-64 061	-28 976	-20 605	0	0	14 972	13 180	127 691	43 432
Ireland ¹	-3 708	-3 708	-40 309	-40 226	230 823	178 118	-79 558	-47 702	-8 278	-12 219	0	0	5 441	3 896	104 410	78 158
Italy ¹	-6 385	-6 385	-45 482	-42 922	322 079	136 591	-71 534	-46 797	-18 529	-12 391	0	0	-6 260	-2 290	173 889	25 806
Korea ²	-10 651	-10 651	-14 726	-15 135	133 568	172 827	-16 574	-6 372	-9 451	-12 071	0	0	3 420	917	85 586	129 516
New Zealand	-9 877	-9 877	-30 361	-30 106	126 923	102 431	-43 436	-23 223	-1 500	-1 248	-160	-6 059	-1 553	1 654	40 036	33 571
Norway	-1 044	-1 044	-45 383	-45 330	131 511	118 313	-53 094	-33 806	-10 404	-9 714	0	0	1 721	5 613	23 306	34 032
Poland ¹	-3 459	-3 459	-13 980	-10 974	198 632	112 422	-21 810	-12 976	-53 933	-38 026	0	0	41 089	37 279	146 539	84 266
Portugal	-5 145	-5 145	-22 341	-17 563	287 624	219 720	-47 917	-57 449	-17 015	-23 085	0	0	-8 900	6 878	186 307	123 357
Spain ¹	-4 016	-4 016	-15 522	-14 145	103 748	108 691	-26 848	-26 843	-6 805	-8 051	0	0	5 139	17 859	55 695	73 495
Sweden	-3 969	-3 969	-38 222	-38 463	109 112	66 853	-49 721	-20 212	-4 297	-5 104	0	0	5 899	5 993	18 802	5 097
Turkey	-1 024	-1 024	-9 112	-7 930	74 185	72 423	-12 727	-13 409	-11 259	-12 398	0	0	1 026	10 033	41 090	47 695
United States	-56 365	-56 365	-34 886	-36 137	367 211	229 096	-104 997	-56 829	-27 382	-18 614	0	0	26 363	14 341	169 945	75 492
Countries average	-8 018	-8 018	-31 484	-30 892	186 434	134 051	-55 793	-36 493	-17 382	-15 841	-467	-1 940	8 717	11 119	82 007	51 986

Note: Cash flows (components) are discounted by 5% interest rate.

Assuming that foregone earnings for all individual refer to the minimum wage, except those countries reporting full time earnings: the Czech Republic, Hungary, Poland and Portugal.

1. Year of reference 2004.

2. Year of reference 2003.

Source: OECD. See Annex 3 for notes (www.oecd.org/edu/eag2009).


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Table A8.3.
Public net present value for an individual obtaining upper secondary or post-secondary non-tertiary education as part of initial education (2005)

	Public direct cost		Public foregone revenues		Income tax revenues		Social contribution revenues		Transfers revenues		Unemployment effect		Net present value	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Australia	-14 340	-14 340	-5 178	-5 178	23 083	18 624	0	0	1 282	16 141	6 907	3 179	11 755	18 426
Austria	-33 528	-33 528	-10 161	-10 161	31 643	11 505	26 410	19 320	7 317	17 035	8 931	3 740	30 613	7 911
Belgium	-25 972	-25 972	-9 486	-9 486	23 483	27 501	12 939	22 639	0	0	11 349	7 945	12 314	22 626
Canada	-19 181	-19 181	-2 768	-2 768	24 435	13 920	5 845	6 597	1 368	4 123	4 900	2 561	14 599	5 252
Czech Republic	-15 405	-15 405	-9 096	-7 577	7 915	7 984	5 655	6 256	0	0	16 017	10 954	5 086	2 212
Denmark	-27 190	-27 190	-13 210	-13 210	38 946	21 038	9 132	6 986	21 465	30 149	6 381	4 290	35 524	22 063
Finland¹	-17 712	-17 712	-533	-533	15 714	7 815	3 257	2 069	12 018	15 866	5 315	4 440	18 058	11 944
France	-25 960	-25 960	-6	-6	7 399	4 800	5 695	6 028	7 433	13 413	5 168	4 536	-271	2 811
Germany	-22 915	-22 915	-11 117	-11 117	13 292	24 935	10 793	24 331	5 861	17 182	18 045	9 760	13 959	42 176
Hungary	-12 235	-12 235	-5 795	-5 541	13 561	11 304	5 213	5 359	0	0	4 322	3 597	5 065	2 483
Ireland¹	-16 149	-16 149	-2 900	-2 900	22 914	13 901	4 337	10 022	0	0	4 272	922	12 474	5 796
Italy¹	-27 152	-27 152	-9 675	-9 675	30 740	23 536	8 200	6 946	0	0	3 214	4 709	5 325	-1 637
Korea²	-10 973	-10 973	-1 279	-1 279	2 843	-556	4 725	325	0	4 777	412	190	-4 272	-7 516
New Zealand	-17 546	-17 546	-2 288	-2 288	24 463	13 971	1 016	911	3 537	27 132	2 060	1 921	11 242	24 102
Norway	-30 570	-30 570	-12 714	-12 714	36 018	20 057	10 398	6 548	5 868	13 572	14 350	5 553	23 350	2 446
Poland¹	-7 837	-7 837	-6 667	-5 802	2 886	3 714	8 022	10 322	0	0	7 307	5 948	3 711	6 345
Portugal	-17 367	-17 367	-3 961	-3 418	30 472	16 776	13 590	9 667	0	0	1 122	1 270	23 857	6 928
Spain¹	-5 901	-5 901	-669	-669	11 560	8 883	3 319	2 884	0	0	1 342	1 933	9 652	7 130
Sweden	-22 563	-22 563	-4 296	-4 296	24 864	17 821	6 530	4 891	17 103	21 409	7 129	7 423	28 768	24 685
Turkey	-4 599	-4 599	-5 308	-5 308	5 905	6 417	5 667	7 210	0	0	444	-2 998	2 109	722
United States	-27 182	-27 182	-2 350	-2 350	40 075	24 174	13 809	9 664	3 874	5 803	4 031	4 867	32 257	14 976
Countries average	-19 156	-19 156	-5 688	-5 537	20 582	14 196	7 836	8 046	4 149	8 886	6 334	4 130	14 056	10 566

Note: Cash flows (components) are discounted by 5% interest rate.

1. Year of reference 2004.

2. Source of reference 2003.

Source: OECD. See Annex 3 for notes (www.oecd.org/edu/eag2009).


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Table A8.4.

Public net present value for an individual obtaining tertiary education as part of initial education (2005)


	Public direct cost		Public foregone revenues		Income tax revenues		Social contribution revenues		Transfers revenues		Unemployment effect		Net present value	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Australia	-12 728	-12 728	-7 271	-7 271	67 246	48 855	0	0	0	0	120	2 501	47 368	31 357
Austria	-42 561	-42 561	-13 047	-13 047	62 721	48 018	27 964	31 383	0	0	2 509	2 119	37 586	25 911
Belgium	-19 787	-19 787	-7 262	-7 262	88 530	62 569	30 552	36 565	0	0	4 154	9 774	96 186	81 858
Canada	-30 950	-30 950	-2 834	-2 834	51 408	33 442	3 981	11 444	0	0	2 271	1 738	23 875	12 839
Czech Republic	-9 224	-8 547	-6 820	-5 557	105 460	22 936	61 528	15 252	0	0	9 890	5 155	160 834	29 239
Denmark	-47 726	-47 726	-16 003	-16 003	65 470	30 576	9 769	6 887	3 485	2 059	-759	1 506	14 236	-22 702
Finland¹	-31 234	-31 234	-825	-825	70 330	38 061	11 252	7 186	0	6 932	6 088	3 883	55 612	24 003
France	-22 840	-22 840	-8	-8	33 346	20 177	19 513	13 530	6 199	27 305	521	2 739	36 730	40 903
Germany	-30 501	-30 501	-18 783	-18 783	65 039	33 048	31 770	22 852	0	0	16 079	6 938	63 604	13 554
Hungary	-13 606	-13 606	-7 782	-7 285	83 331	60 670	27 254	18 865	0	0	5 607	5 277	94 804	63 921
Ireland¹	-15 358	-15 358	-3 162	-3 162	82 740	50 459	8 544	13 286	0	0	1 454	802	74 219	46 027
Italy¹	-14 483	-14 483	-11 834	-11 834	72 942	46 791	19 255	12 602	0	0	-2 125	-189	63 756	32 887
Korea²	-3 210	-3 210	-1 535	-1 535	16 412	6 388	9 216	12 058	0	0	398	51	21 280	13 752
New Zealand	-14 627	-14 627	-2 322	-2 322	43 843	22 973	1 520	1 232	168	6 130	-389	346	28 193	13 732
Norway	-30 242	-30 242	-14 635	-14 635	52 085	32 960	10 079	9 348	0	0	565	1 453	17 851	-1 116
Poland¹	-9 321	-9 321	-10 134	-8 435	18 900	10 616	44 864	29 085	0	0	12 912	11 980	57 221	33 925
Portugal	-10 988	-10 988	-5 030	-3 925	49 943	56 682	18 771	22 900	0	0	-2 425	2 306	50 271	66 975
Spain¹	-12 633	-12 633	-1 707	-1 707	26 253	25 049	6 571	7 045	0	0	1 268	3 258	19 752	21 012
Sweden	-29 806	-29 806	-6 434	-6 434	47 562	18 852	3 830	4 687	0	0	2 045	1 777	17 197	-10 923
Turkey	-9 233	-9 233	-4 726	-4 726	12 674	12 126	11 273	11 117	0	0	358	2 971	10 346	12 255
United States	-29 995	-29 995	-3 452	-3 452	100 352	55 429	25 741	17 914	0	0	7 472	3 574	100 119	43 469
Countries average	-21 003	-20 970	-6 934	-6 716	57 933	35 080	18 250	14 535	469	2 020	3 239	3 331	51 954	27 280

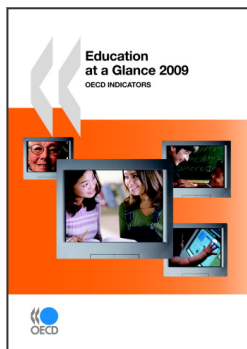
Note: Cash flows (components) are discounted by 5% interest rate.

1. Year of reference 2004.

2. Year of reference 2003.

Source: OECD. See Annex 3 for notes (www.oecd.org/edu/eag2009).

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