

2. THE ECONOMIC BENEFITS OF EDUCATION

How much more do tertiary graduates earn?

How does education affect employment rates?

What are the incentives for people to invest in education?

What are the incentives for societies to invest in education?

2. THE ECONOMIC BENEFITS OF EDUCATION

How much more do tertiary graduates earn?

- Earnings increase with each level of education.
- Graduates of tertiary education earn more than people who completed only upper secondary education, with the gap ranging from 15% in New Zealand to 119% in Hungary.
- Older adults (55-64 year-olds) with tertiary education typically enjoy an even larger earnings premium than the general working-age population.

Significance

This indicator examines the relative earnings of workers with different levels of education. Although higher levels of education are strongly linked to raised incomes, evidence suggests that some individuals might be receiving relatively low returns on their investment in education – that is, they earn relatively low wages even though they have relatively high levels of education.

Findings

The difference in earnings between tertiary graduates and people who have completed only upper secondary education is generally greater than that between people who have completed upper secondary and people who have only completed lower secondary education. The earnings premium for adults (25-64 year-olds) with tertiary education, compared with upper-secondary education, ranges from 15% in New Zealand to 119% in Hungary.

Tertiary education boosts women's earnings more than men's in 10 of the 25 OECD countries examined in this indicator (Australia, Austria, Canada, Korea, the Netherlands, New Zealand, Norway, Spain, Switzerland and the United Kingdom). The reverse is true for the remaining countries, except for Turkey, where the benefits are about the same. However, in all countries, and at all levels of educational attainment, women generally earn less than their male counterparts.

Older people (55-64 year-olds) with tertiary education enjoy an even larger earnings premium than the general population as well as improved employment prospects. By contrast, older people with only lower secondary education see a widening in the earnings gap in every country bar Finland, Germany and

New Zealand. In most countries, tertiary education increases the prospect of being employed at an older age and keeps improving earnings and productivity differentials through to the end of working life (see Charts A9.1 and A9.3 in *Education at a Glance 2008*).

Although the better educated usually earn more, this is not always the case. In some countries, factors such as national wage agreements tie many workers to similar salaries regardless of education levels. At the individual level, educational attainment is only one factor in determining an individual's income – experience and personal characteristics also play a part. Indeed, research from the United States suggests that for women and ethnic minorities, more than half of the variance in earnings cannot be explained by quantifiable factors, such as length of time in education or the workforce.

Definitions

Data on earnings are before income tax, except for Belgium, Korea and Turkey. Data on earnings for individuals in part-time work are excluded for the Czech Republic, Hungary, Luxembourg and Poland, while data on part-year earnings are excluded for Hungary, Luxembourg and Poland.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator A9).

Areas covered include:

- Trends in relative earnings of the population.
- Differences in earnings by gender and by age.

Further reading from OECD

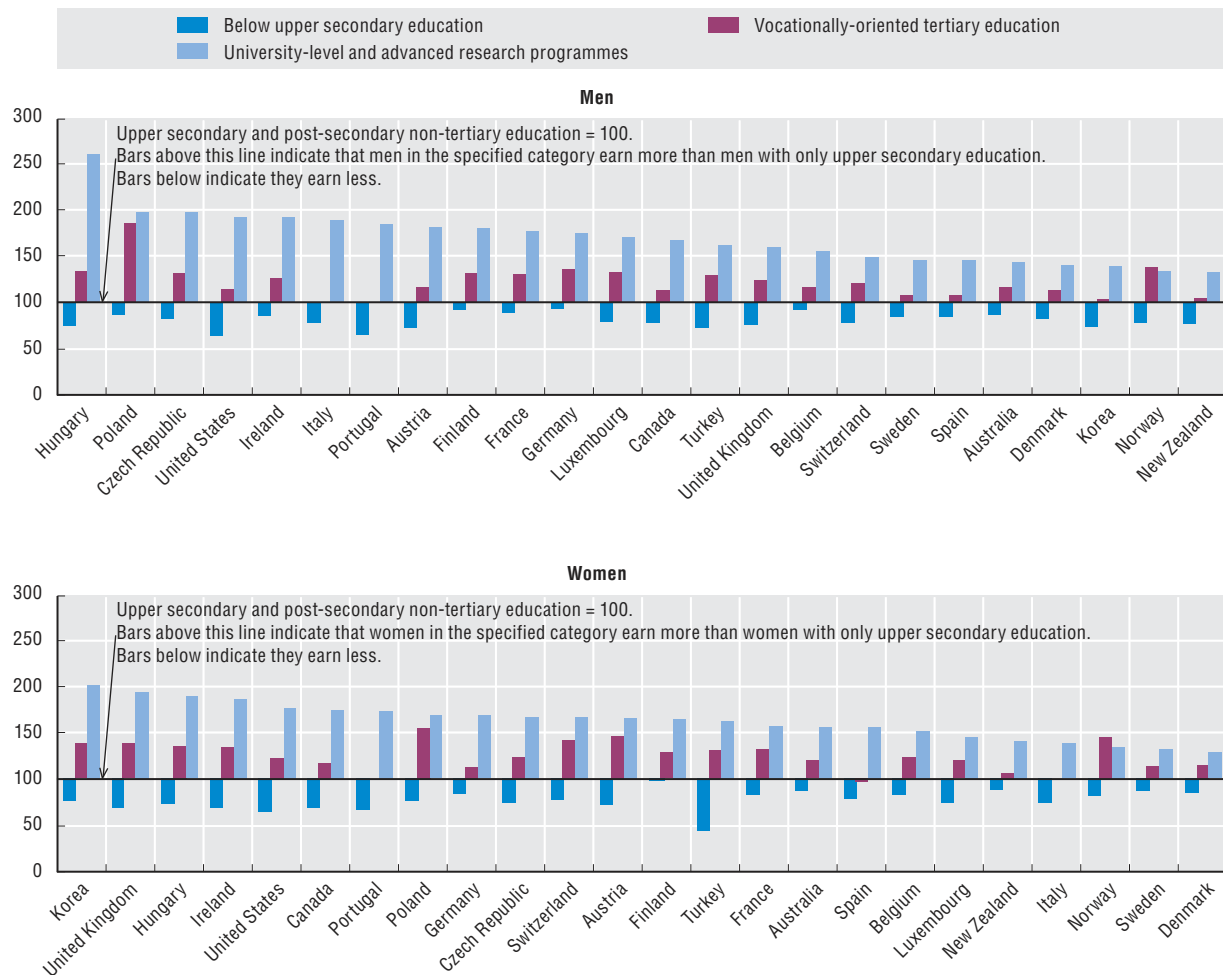
Understanding the Social Outcomes of Learning (2007).

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How much more do tertiary graduates earn?

Figure 2.1. **Relative earnings from employment, 2006**

These figures show the earnings of adult men and women (25-64 year-olds) by their level of educational attainment (relative to the earnings of graduates of upper secondary and post-secondary non-tertiary education).



Source: OECD (2008), *Education at a Glance 2008*, Table A9.1.a, available at <http://dx.doi.org/10.1787/401781614508>.

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How does education affect employment rates?

- In most countries, employment rates increase as people's levels of education rise – tertiary graduates are more likely to be employed than upper secondary graduates.
- Differences in employment rates between men and women are widest among low educated groups.
- Increasingly, people with upper secondary education and above are less likely to be unemployed than those with lower levels of education.

Significance

This indicator examines the relationship between education and employment. The better educated individuals are, the more likely they are to be employed. As populations in OECD countries age, higher levels of education and longer participation in employment can help to ensure more people are economically active and help to alleviate the burden of financing public pension schemes.

Findings

Employment rates for graduates of tertiary education are around 9% higher, on average, than for graduates of upper secondary education. In Greece, Poland, the Slovak Republic and Turkey, that difference is 12% or more.

The gap in employment rates among men aged 25 to 64 is particularly wide between those who have completed upper secondary school and those who have not. In the Czech Republic, Hungary and the Slovak Republic, the difference is extreme, with rates of employment among men with a higher level of education at least 30% higher than those with a lower level of education.

Where employment rates differ among OECD countries, it is largely the result of variations in the level of women's participation in the workforce in individual countries. That said, employment rates for women are generally lower than those for men. For those with very low levels of education, the gap is particularly wide. The gap between men and women's employment rates is 10 percentage points at tertiary level, widening to 23 percentage points at below upper-secondary level.

Trends

Although employment rates for 55-64 year-olds are generally lower than those of the working-age popula-

tion as a whole (by about 20 percentage points), they have been increasing in recent years, particularly among the more educated. In this age group, the average employment rate stands at 40.2% for those with below upper secondary education, 52.4% for those with upper secondary and post-secondary non-tertiary education, and 65.9% for those with tertiary education.

Between 1997 and 2006, the difference in unemployment rates between people with tertiary education and those with upper secondary and post-secondary non-tertiary education decreased; but the gap between people in this latter group and those with less than upper secondary education increased – from 3.4% to 4.2% (see Table A8.5a in *Education at a Glance 2008*). For those with only lower secondary education, it is becoming more difficult to find employment, which suggests that in most OECD countries, this skill level is not sufficient to obtain a suitable job.

Definitions

Employed persons are defined as those who, during the survey reference week, work for pay or profit for at least one hour, or have a job, but are temporarily not at work because of injury, illness, holiday, strike, education leave, maternity or paternity leave, etc. Unemployed persons are defined as those who are, during the survey reference week, without work, actively seeking employment and available to start work.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator A8).

Areas covered include:

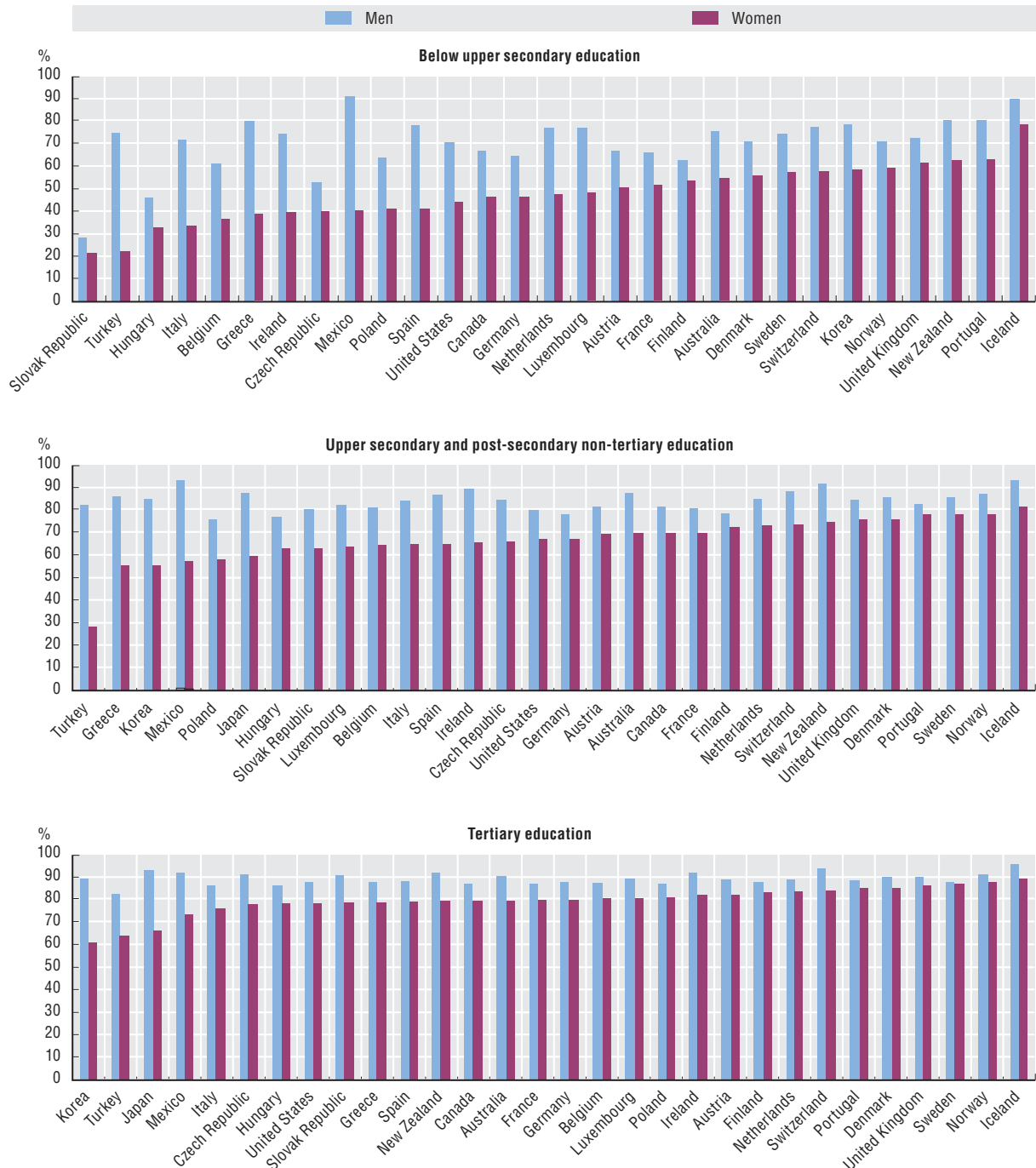
- Employment rates and educational attainment, by gender.
- Unemployment rates and educational attainment, by gender.
- Trends in employment and unemployment rates, by educational attainment.

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How does education affect employment rates?

Figure 2.2. **Employment rates by level of educational attainment, 2006**

These figures show the employment rates for men and women depending on their levels of education. Graduates of tertiary education are more likely to have a job than people whose education ended before upper secondary level.



Source: OECD (2008), *Education at a Glance 2008*, Tables A8.3b and A8.3c, available at <http://dx.doi.org/10.1787/401775543762>.

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What are the incentives for people to invest in education?

- The rate of return to upper secondary and post-secondary non-tertiary education ranges from 6.1% to 18% for men and 5.4% to 18.5% for women.
- For a tertiary education, on average across 19 OECD countries, the rate of return is 12% for men and 11% for women.
- In most countries, the financial rewards for returning to education at age 40 are sizeable.

Significance

The efforts people make to continue education after compulsory schooling can be thought of as an investment with the potential to bring rewards in the form of future financial returns. People invest in education in several ways: directly, through the payment of tuition fees, for example, and indirectly, by sacrificing potential income when they are in college and not in work. As with any investment, a rate of return can be calculated. In this case, the rate of return is driven mainly by the reality that people with higher levels of education earn more (see Figure 2.1) and are more likely to be in work (see Figure 2.2). Where the rate of return is high, it implies a real financial incentive for people to continue their education. In terms of public policy, it may also indicate a scarcity of highly educated people in the labour force. Policy responses may include widening access to education and making greater use of loans, rather than direct subsidies, to fund higher education.

Findings

Across the 19 OECD countries for which relevant data are available, the rate of return from attaining upper secondary education or post-secondary non-tertiary education varies between 6.1 and 18% for men and 5.4 and 18.5% for women. The returns are highest in the Czech Republic, the United Kingdom and the United States, but the benefits are experienced in very different ways. In the United Kingdom and the United States they come largely in the form of greater earnings potential; in the Czech Republic the main benefit flows from higher rates of employment. In Denmark, France and Germany, returns at these levels of education tend to be lower, with rates at or below 7% for men.

For tertiary education, the rate of return is especially high in the Czech Republic, Hungary, Poland and Portugal, and ranges from roughly 20% to 30%. It is much lower – between 5% and 8% – in Denmark, Germany, Norway, Spain and Sweden; with the exception of Spain, this is largely due to levels of income tax and social contributions in these countries.

Increasingly, people are not just investing in education in their teens and 20s. Indeed, it is becoming ever more important for people to upgrade their skills and knowledge throughout their working lives. But do the financial rewards justify returning to study? Generally, yes, even for a 40-year-old who foregoes income while studying full-time. The internal rate of return at age 40 is higher for people pursuing tertiary rather than upper secondary education, but even for the latter there are clear rewards in most countries, although they are not substantial in most of the Nordic countries, New Zealand and Switzerland, and even negative in Finland and Germany.

Definitions

The economic returns to education are measured by the internal rate of return (IRR), which is basically the interest rate that an individual can expect to receive on the investment made by spending time and money to obtain an education. Because of changes in some assumptions, results presented here and in *Education at a Glance 2008* are not comparable with estimates in *Education at a Glance 2007*.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, and a technical explanation of how the IRR is derived, see *Education at a Glance 2008* (Indicator A10).

Further reading from OECD

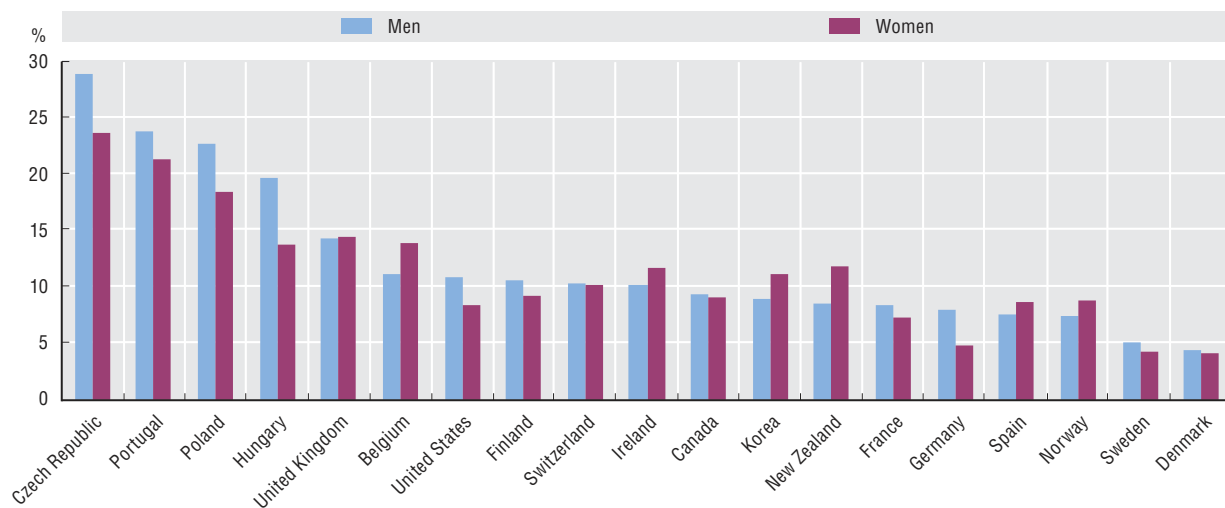
Promoting Adult Learning (2005).

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What are the incentives for people to invest in education?

Figure 2.3. **Private internal rates of return (IRR) for a young person attaining tertiary education, 2004**

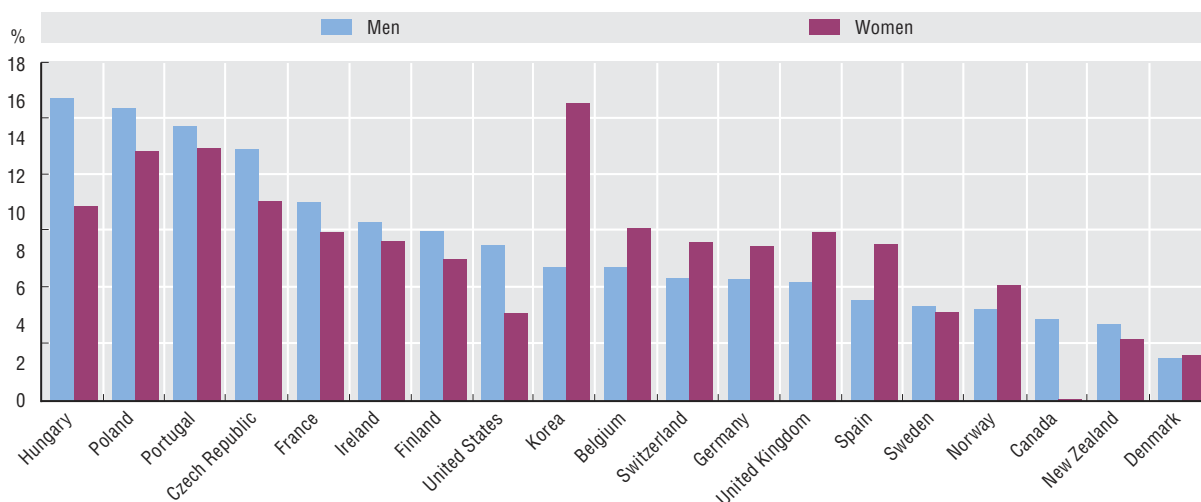
This figure shows the rates of return for a young man or woman who attains tertiary education at the typical age (i.e. in the teens and early 20s). The calculation is based on assumption that foregone earnings are at the level the student could have earned with an upper secondary education.



Source: OECD (2008), *Education at a Glance 2008*, Table A10.2, available at <http://dx.doi.org/10.1787/401828118341>.

Figure 2.4. **Private internal rates of return (IRR) for a person aged 40 attaining tertiary education, 2004**

This figure shows the rates of return for a man or woman who attains tertiary education at age 40. The calculation is based on assumption that foregone earnings are at the level the student could have earned with an upper secondary education.



Source: OECD (2008), *Education at a Glance 2008*, Table A10.4, available at <http://dx.doi.org/10.1787/401828118341>.

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What are the incentives for societies to invest in education?

- The benefits to the public purse are higher when people complete tertiary rather than upper secondary education.
- On average among the 19 OECD countries considered, obtaining tertiary education at the typical age – late teens or early 20s – generates a return of 11% for men and 9% for women.
- For people who obtain tertiary education at age 40, the public rates of return for men fall to 9.5% and for women to 6.6%.

Significance

The economic benefits of education flow not just to individuals but also to governments through additional tax receipts when people enter the labour market. These public returns, which take into account the fact that providing education is also a cost to governments, offer an additional perspective on the overall returns to education. Of course, they must also be understood in the much wider context of the benefits that societies gain from raising levels of education.

Findings

Across the 19 OECD countries for which relevant data are available, public rates of return are substantially higher for tertiary education than for upper secondary education, both when it is undertaken at the usual age (late teens and early 20s) and at age 40. On average, tertiary education generates a return of 11% for men and 9% for women as part of initial education; at age 40 the public returns are 9.5% for men and 6.6% for women. Tertiary education as part of initial education yields returns of close to 10% or more in Belgium, the Czech Republic, Hungary, Ireland, Korea, Poland, Portugal, the United Kingdom and the United States.

Some of these benefits will typically be shared among lower income groups, but depending on the will to redistribute wealth, it would make sense in most countries for the government to step in and improve access and incentives to invest in education in mid-career. This is particularly true for Hungary, Korea, New Zealand and Poland where rates of return reach 15% for males. There thus seems to be room for addi-

tional expansion of higher education through either public or private financing.

It should be noted also that the social benefits of education extend beyond providing additional income to the government in the form of taxes. For instance, better educated individuals are generally healthier, which lowers public expenditure on provision of health care. As earnings generally rise with educational attainment, there is also more consumption of goods and services, and this gives rise to fiscal effects beyond income tax and social security contributions. However, because of their complex nature, it is all but impossible to include these indirect effects in calculations on rates of return from education.

Definitions

The economic returns to education are measured by the internal rate of return (see Figure 2.2). Because of changes in some assumptions, results presented here and in *Education at a Glance 2008* are not comparable with those in previous editions of *Education at a Glance*.

Going further

For additional material, notes and a full explanation of sourcing and methodologies, see *Education at a Glance 2008* (Indicator A10).

Areas covered include:

- Public internal rates of return for an individual obtaining higher education, as part of initial education and returning to education at age 40.

Further reading from OECD

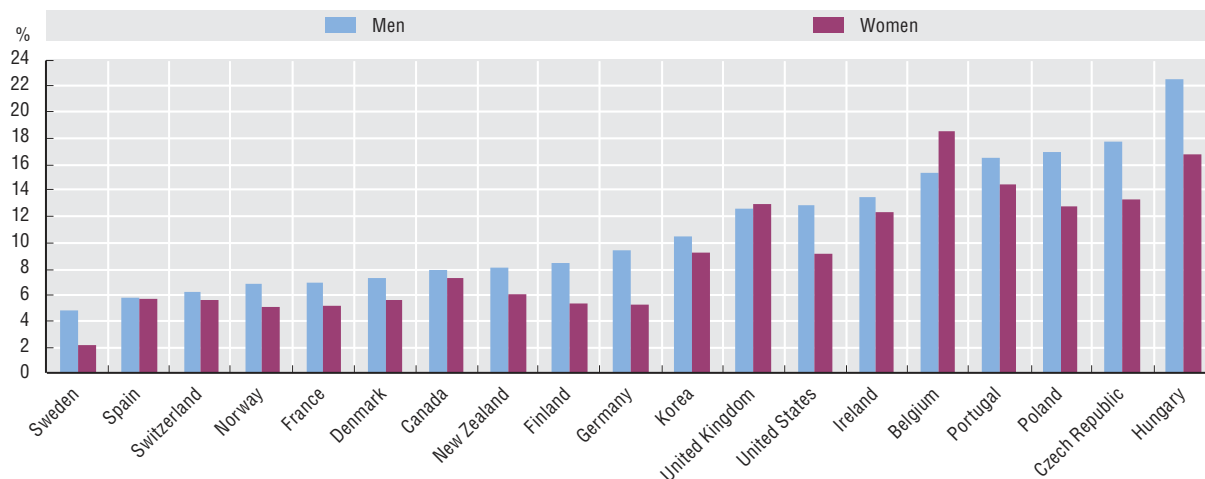
Understanding the Social Outcomes of Learning (2007).

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What are the incentives for societies to invest in education?

Figure 2.5. **Public internal rates of return (IRR) for a young person attaining tertiary education, 2004**

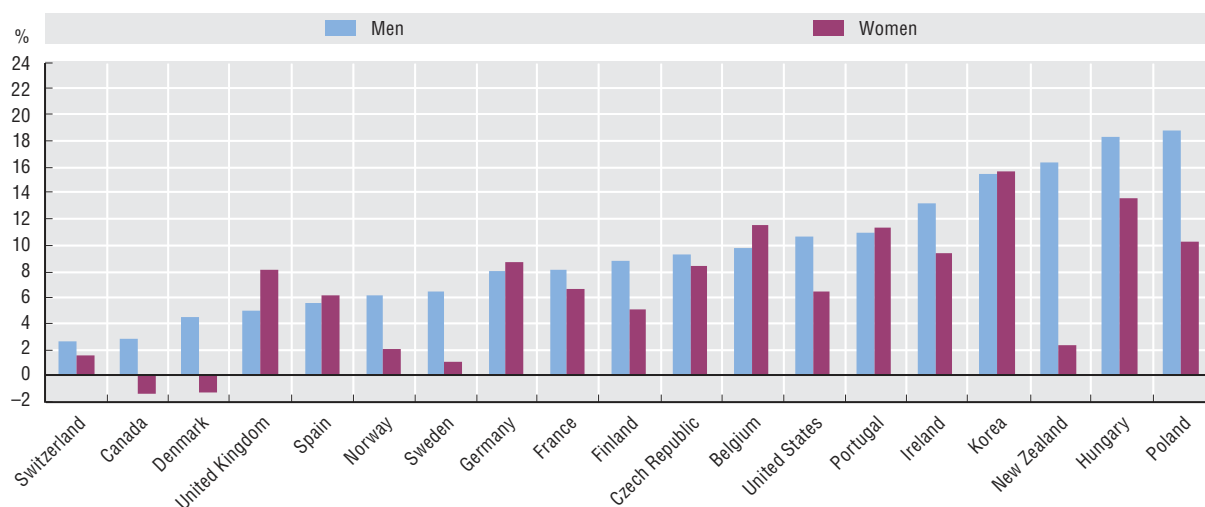
This figure shows the benefit to the public purse (calculated on the basis of the public IRR) from men and women attaining tertiary education at the typical age (teens and early 20s).



Source: OECD (2008), *Education at a Glance 2008*, Chart A10.4, available at <http://dx.doi.org/10.1787/401828118341>.

Figure 2.6. **Public internal rates of return (IRR) for a person aged 40 attaining tertiary education, 2004**

This figure shows the benefit to the public purse (calculated on the basis of the public IRR) from men and women attaining tertiary education at age 40.



Source: OECD (2008), *Education at a Glance 2008*, Chart A10.4, available at <http://dx.doi.org/10.1787/401828118341>.