

# Taxation and Skills

How tax systems  
impact skills  
development in  
OECD countries

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**“** It's crucial that our tax systems not only support investment in physical capital, but also in the human capital of our citizens.

*Investing in skills pays a sound return to both individuals and governments. For the average university student in the OECD, higher levels of education mean higher pay, while spending on education by governments today pays for itself in the long run through higher income tax revenues.*

*Failing to invest in skills today will not only hamper the economic participation of individuals and impede productivity growth, but will also have a negative impact on public finances in the future.* **”**

**Pascal Saint-Amans,**  
Director, Centre for Tax Policy and Administration



## KEY INSIGHTS

Investing in skills is crucial for fostering inclusive economic growth and boosting social cohesion (OECD, 2016). With growth increasingly driven by productivity improvements, the future economic and social well-being of OECD countries will depend upon providing people with the right skills to succeed in the 21<sup>st</sup> century economy.

Some proven benefits of better skills include:

- **Higher wages and better employment prospects for individuals;**
- **Higher productivity and profits for businesses;**
- **Higher growth rates and tax revenues for governments.**

The OECD Tax Policy Study on Taxation and Skills analyses how tax policy can encourage skills development in OECD countries and highlights the financial incentives for individuals and governments to invest in education to improve productivity levels.

The study concludes that policymakers must step up their efforts to increase levels of investment in education and skills development, and provides new insights on how the costs and returns of skills investments can be more equitably shared between governments, individuals, and the private sector.

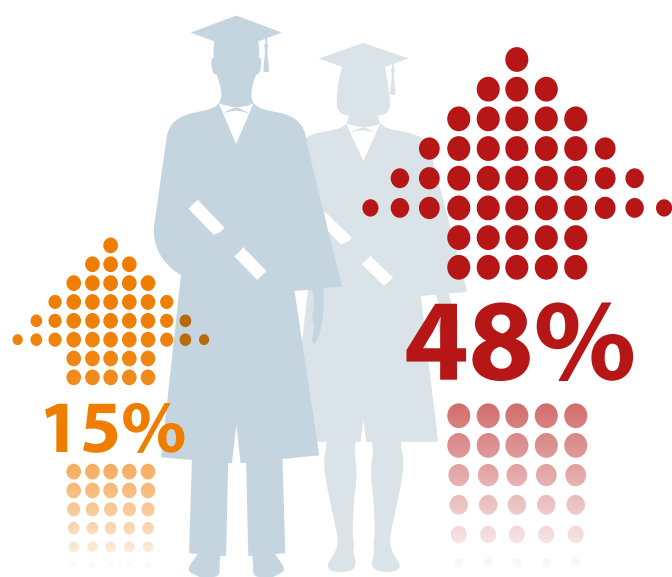




## MAIN FINDINGS

- **For a typical 17-year-old living in an OECD country, a tertiary-level education yields a significant return.**

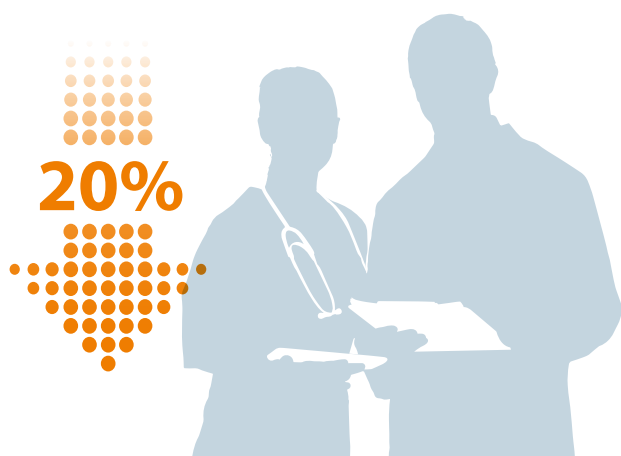
A tertiary degree more than pays for itself in terms of future expected after-tax income, even before accounting for additional employment, health, and well-being benefits. The study suggests that a student's earnings after education need to rise by 15% to cover the costs of a tertiary degree. However, labour force data suggests that earnings actually rise by 48% on average over a student's lifetime, delivering a significant return to students on their education investment.



Earnings need to rise by **15%** to breakeven on an investment in tertiary education. They actually rise by **48%** over a student's lifetime.

- **Governments recover the costs of their investment in tertiary education on average through higher income tax revenue alone.** The estimates in the study suggest that, on average across the OECD, the extra personal income tax revenue gained from educating a typical student at the tertiary level amounts to 119% of government education costs. This is true even without accounting for the wide variety of other financial and non-financial benefits that flow from skills investments for governments. For example, from a financial perspective, these estimates do not take into account additional social security contributions, which are likely to be paid by individuals with higher levels of skills.
- **There is, however, significant variation in the returns to skills across countries.** In some OECD countries high earnings premiums, skills shortages, and low current skills spending suggest that there are significant benefits to further educational spending for governments. However, this is not the case in all of the countries covered in the study.
- **Tax deductions and credits for skills spending are not the best way to encourage skills investments; with loans, grants and direct spending likely to be more effective and more progressive.** Tax expenditures to encourage skills investments exist in different forms in most OECD countries. However, existing evidence suggests that they often come with significant efficiency costs and are generally regressive. Funding skills through direct government spending and student loans will generally be the most efficient and equitable approach.

## HOW TAXES IMPACT SKILLS



The tax system reduces the net returns to skills by **20%** for a typical university student.

Taxes impact the financial incentives of individuals to develop skills and to activate them in the labour market. Taxes are thus a key lever for policymakers seeking to foster inclusive growth, raise productivity, and reduce income inequality. The tax system impacts incentives to invest in skills in a variety of ways.

### How do taxes affect skills investments?

- **Reducing lost earnings:** A key cost of education is an individual's time and particularly the income foregone during periods of study. Lost earnings mean that even where no tuition fees are charged for education, the costs to individuals from skills investments can be significant. The tax system offsets these costs, because when income falls, tax liability usually falls as well.
- **Offsetting fees and other costs:** The tax system can also reduce the costs of skills investments through

tax expenditures which provide targeted tax relief to students, often based on education costs.

- **Taxing returns:** Progressive income taxation reduces the returns to skills investments for individuals by taxing away higher wages at higher rates as well as by reducing the incentives to work.
- **Financing government expenditures:** Tax revenues can be used to finance direct investments in education and to provide scholarship support for skills investments.

To measure the effect of taxes on skills, this study has calculated **effective tax rates** on skills investments. By focusing on a number of typical education scenarios, these effective tax rates take into account the impact of the tax system through increased taxation of higher wages after study, reduced taxation on lower earnings during periods of study, and the benefit of skills tax expenditures designed to support study (see Box 1 for details). For an average rate of return on a tertiary education in the OECD, the effective tax rate on skills is 20%, meaning that the tax system reduces the net returns to skills by this amount on average.

### Effective tax rates on skills investments vary with income

The effective tax rate on skills depends on how much an individual's wage rises after the skills investment (see Figure 1). High-return skills investments are taxed more heavily than low-return skills investments. While for a tertiary-level student earning an average return on their education, the effective tax rate on skills is estimated at 20%, for a tertiary-level student who just breaks even on the costs of their investment over their lifetime, the effective tax rate on skills is lower, at about 4%.

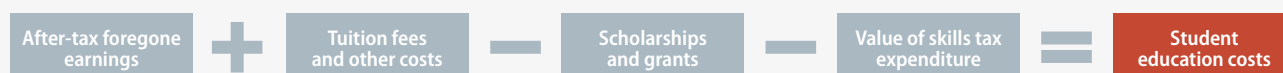


## BOX 1: HOW TAX AND SKILLS INDICATORS ARE CALCULATED

### INDICATORS

Building on earlier OECD work (Brys and Torres, 2013), the *Taxation and Skills* study constructs three types of indicators that measure the impact of public policies on individuals' incentives to invest in skills. They take into account the various financial costs of skills investments borne by students and governments.

**Student education costs** are defined as:



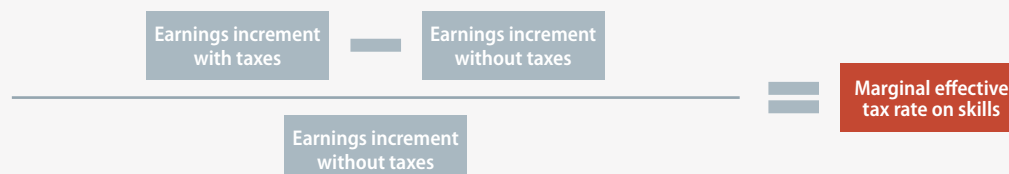
The indicators also incorporate the returns to skills investments for individuals and governments in the form of higher after-tax wages and higher tax revenues. The three indicators produced in this study are:

**(1) The Breakeven Earnings Increment (BEI):** The BEI measures how much an individual's earnings need to increase before they earn sufficient additional income to cover the costs of their skills investment over their remaining years in the workforce. These costs are:



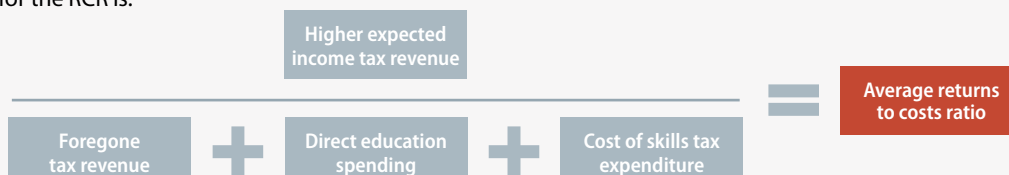
**(2) Effective Tax Rate on Skills (ETR):** The ETR on skills measures the amount by which the student's returns from their skills investment are higher or lower as a result of the impact of the tax system. These effective tax rates are developed for two groups: individuals who will exactly break even on a skills investment (i.e. the Marginal Effective Tax Rate - METR) and individuals who will earn a positive return on a skills investment (i.e. the Average Effective Tax Rate - AETR).

The formula for the METR is:



**(3) Returns to Costs Ratio (RCR):** The RCR measures the returns to skills investments for governments, comparing the costs to the government of educating an individual to the expected returns to government in the form of higher income tax revenues. As with the ETR, both marginal and average RCRs are modelled, with different returns to skills in each case.

The formula for the RCR is:

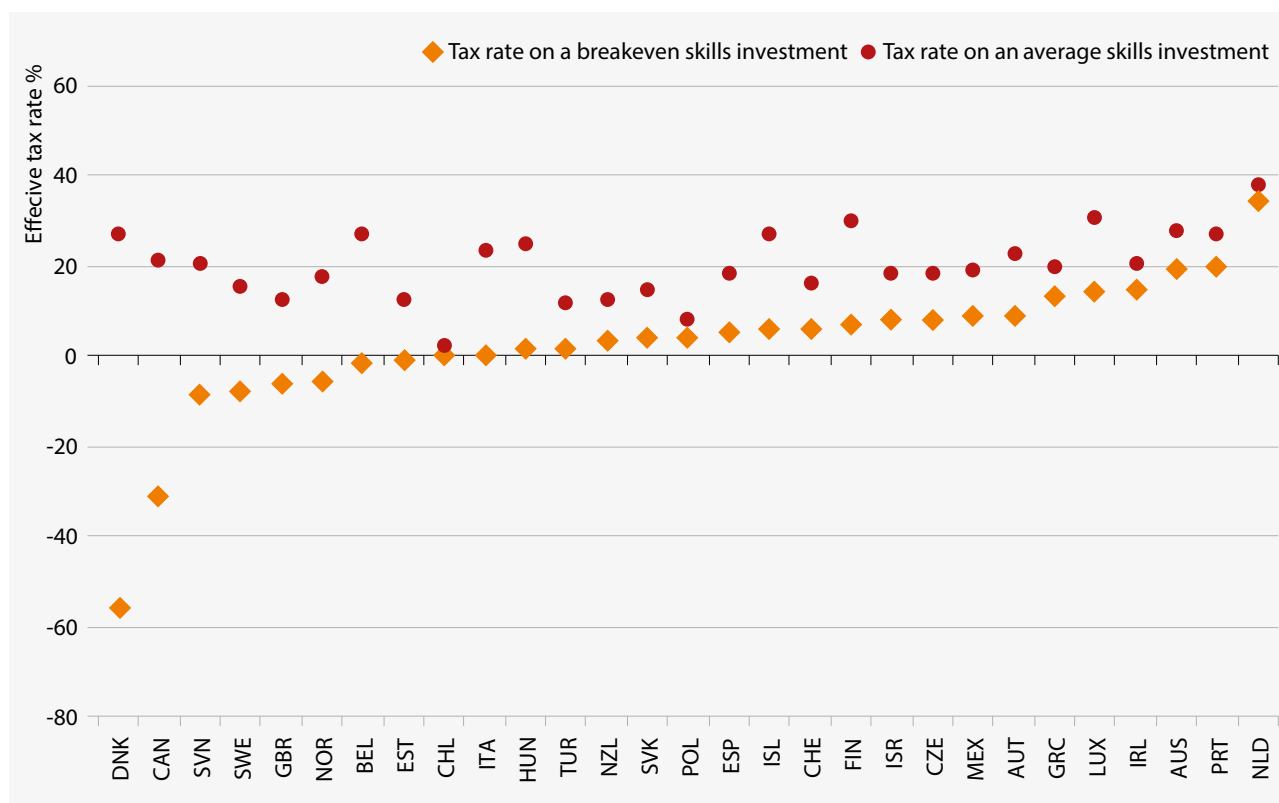


### SCENARIOS AND DATA

This study focuses on a typical tertiary education scenario, although other education scenarios such as in-work training are explored as well. The study incorporates income taxes but not social security contributions (these are discussed further in *Taxing Wages 2017*). Data for the study are based on the responses given by 29 countries to the Taxation and Skills Questionnaire issued in 2011.

In the typical tertiary scenario, the model considers a 17-year-old student undertaking a 4-year college degree. In the absence of a skills investment, the student is assumed to earn 70% of the average wage until retirement. With a skills investment, they earn a premium for their higher skills. Data on scholarship income levels, direct educational costs, and earnings premiums are taken from OECD *Education at a Glance* (2016). Tax models are taken from OECD *Taxing Wages* (2017).

FIGURE 1: EFFECTIVE TAX RATES ON A TERTIARY-LEVEL SKILLS INVESTMENT



### Skills tax expenditures are less effective than direct skills spending and support for student loans

Governments provide many tax expenditures to support investment in skills, such as tax deductions or credits for skills expenses, tax exemptions for scholarship income, and reduced tax rates on student income. These measures do increase incentives to invest in skills, but also have drawbacks:

- They often provide larger benefits to those with larger taxable incomes.
- They may provide less assistance to those who are credit constrained and to those from lower income households.
- They are often only available for training connected to a workers' current employment, and may be ineffective in assisting workers who need or want to change careers.
- The evidence of their impact on wages and employment outcomes is mixed.

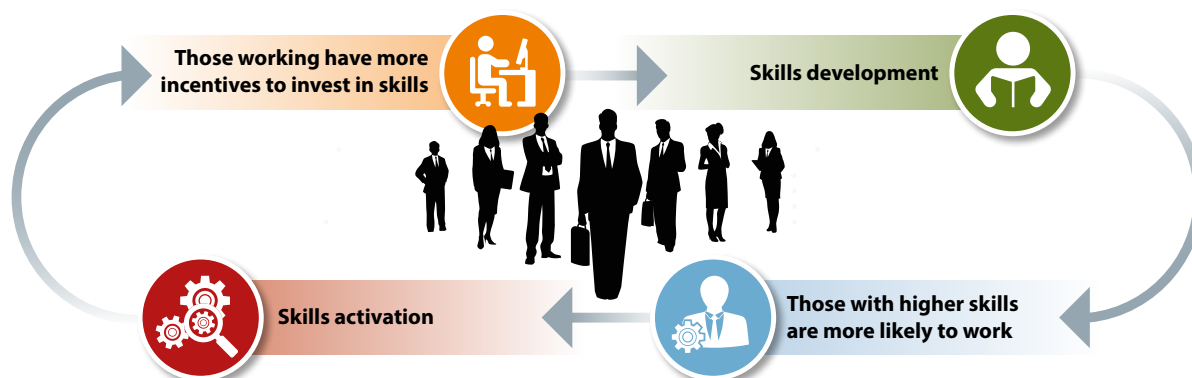
Alternative forms of support exist. For example, governments can invest directly in skills and can provide support to skills investments through income-contingent or subsidised loans. Income-contingent loans

can help address credit constraints, can target support to those who need it most and can mitigate some of the risk of skills investments by providing a form of insurance against such earnings risk.



**20** of 29 countries studied provide tax support to lifelong learning, in **13** of these countries, tax support is not available for new careers, only to support further training related to a workers' current job.





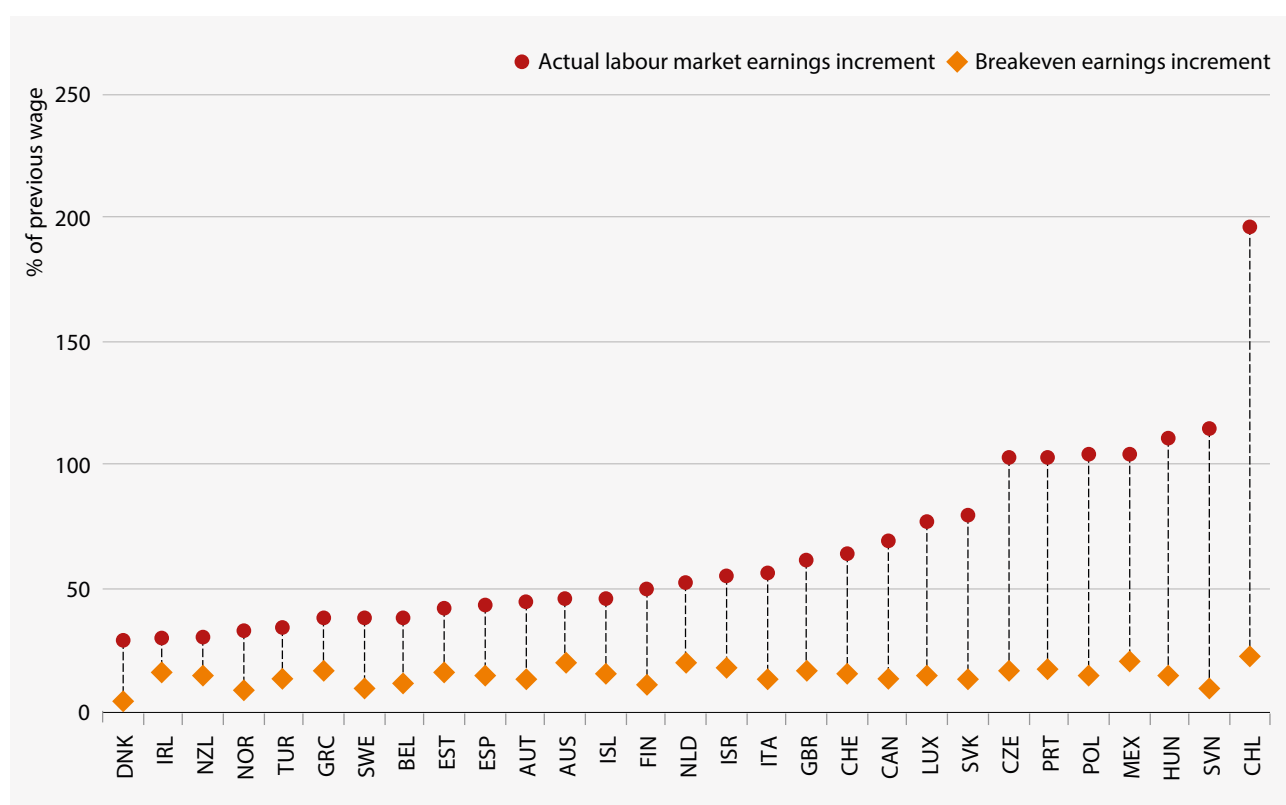
### Lower taxes on skills can mean better employment outcomes as well as more skills investment

Tax policies that encourage skills development and skills activation in the labour market are closely linked. Those who have better skills are more likely to be active in the labour market. Those who work more have higher incentives to invest in skills. Tax policies aimed at both increasing skills investments and encouraging labour market participation can pay a “double dividend”. This is particularly true for groups with lower levels of labour market participation, such as migrants, women, and older workers.

### Skills investments are positive investments for students across the OECD

The study uses data on taxes, spending on education, and wages across education levels to calculate the returns to education for students and governments. The results suggest that tertiary education is a financially attractive investment for individuals. Based on current tax, scholarship, and spending policies, the wage premium earned by a university student is estimated to be above – often well above – what is required to break even on the costs of tertiary education. The typical student earns a good return on their education investment (see Figure 2).

FIGURE 2: COLLEGE LABOUR MARKET PREMIUM VERSUS BREAKEVEN EARNINGS PREMIUM



Even though skills investments are profitable on average, credit constraints can deter students from undertaking them. Ensuring access to skills for those who are credit constrained is crucial. Income-contingent loans can be an efficient and equitable policy instrument to address these issues.

### Skills investments offer healthy returns to governments

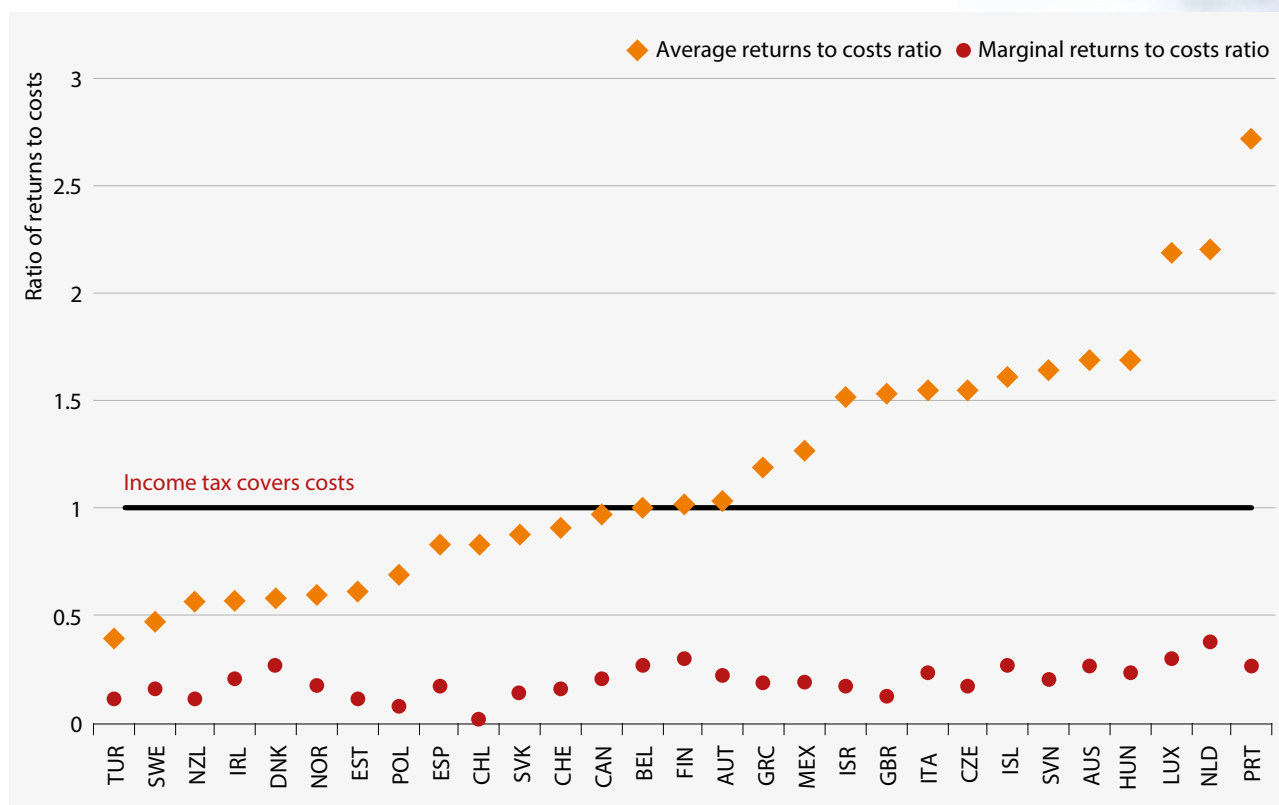
Governments generally recover the costs of their investment in tertiary education through higher tax revenues on higher wages from more highly-skilled workers. The study focuses only on income taxes, but nonetheless the results suggest that the current tertiary education spending mix pays for itself for the government for a typical student at current wage levels and tax rates in the OECD. On average, OECD governments earn 119% of the costs of supporting a typical student through a four-year degree as a result of the increased future income tax collected over the individual's lifetime (see Figure 3). This does not account for the wide variety of other benefits that accrue from having a better-educated population, such as lower unemployment levels, better health outcomes and other well-being improvements, so these results are probably a lower bound of the true returns to skills.



**For every dollar invested** by governments in educating a typical student, **more than one dollar is likely to be returned** to government in the form of **extra personal income tax revenue alone** (not including returns through other taxes, better employment levels, and growth)

For individuals whose returns to skills are lower, future expected income tax revenue may not cover governments' costs of tertiary education. This is especially true where government spending on tertiary education is currently high. Figure 3 also shows the ratio of returns to costs for students whose returns are lower: for students that just break even on a skills investment. In this case the expected future personal income tax revenue stream may not cover the costs of governments' education spending. Therefore, government policies should help ensure that students make skills investments that will yield strong returns in the future.

FIGURE 3: RATIOS OF GOVERNMENT INCOME TAX RETURNS TO COSTS







### Concluding insights

Creating incentives to invest in skills across society is a key component in lifting wage and productivity levels across OECD countries. At the same time, increased levels of skills investment will be necessary to ensure that future economic growth will be inclusive and sustainable. This study demonstrates that tax and spending policies need to be designed in a coherent manner in order to encourage efficient and equitable skills investments.

This study produces the following key insights:

- Investments in skills produce a sound return for students through the higher wages and salaries that can be earned with improved skills.
- Investments in skills are a good investment for government, with every dollar invested being more than fully repaid in additional tax revenues on average.
- Government investments in skills and education should attempt to ensure an efficient and equitable sharing of the costs and returns between governments and individuals. In particular, it is important for policymakers to constantly re-evaluate the means and extent of support provided by governments to ensure that the incentives for further skills investments remain sufficient for both governments and individuals.
- The most efficient and equitable ways that governments can support skills investments are through direct government spending and by subsidising student loans.

The costs of failing to invest in skills will have consequences in the years ahead. A failure to invest in skills today will not only impede the economic participation of individuals and restrain productivity growth, but will also reduce future expected tax revenues, increase future expected levels of social expenditure, and jeopardise future inclusive economic growth prospects.



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## FURTHER READING

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