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Taxes and Investment in Skills

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ABSTRACT

Taxes and Investment in Skills

This paper considers the influence of taxes on the financial incentive to invest in human capital and explores the tax treatment of private investment by individuals and employers in post-compulsory education and lifelong learning in 31 OECD countries, India and South Africa. The paper describes targeted personal, corporate and value added tax measures related to education and training and analyses them in terms of their impacts on the incentive to acquire skills and their distributional effects. The desirability of different forms of tax relief for skills formation is examined from the point of view of efficiency, equity and administrative simplicity within the broader context of fiscal policy and the role of government in skills formation beyond compulsory education.

JEL codes: H21, H24, H25, I22, J24

Keywords: tax policy, human capital, skills formation, tax incentives, education finance, OECD countries

FOREWORD

This paper was prepared for the OECD Skills Strategy (www.skills.oecd.org). It draws on information provided by Delegates to Working Party No. 2 on Tax Policy Analysis and Tax Statistics of the Committee on Fiscal Affairs of the OECD. The author thanks these Delegates as well as Delegates of the OECD Skills Strategy Advisory Group for their helpful comments on earlier drafts. The arguments employed and opinions expressed in this paper do not necessarily reflect the official views of the Organisation or of the governments of its member countries. The author is also grateful for comments provided by Bert Brys, Stephen Matthews, Alastair Thomas and Steve Clark, all from the OECD Centre for Tax Policy and Administration. The author is responsible for any remaining errors.

TAXATION AND INVESTMENT IN SKILLS

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EXECUTIVE SUMMARY

1. Introduction

Investments in skills, and their impact on the human capital stock of a country, are a key ingredient for economic growth and well-being. At the macro level, increases in formal educational attainment have contributed to economic growth and countered the trend towards earnings inequality across OECD countries (OECD, 2007; OECD, 2011f). Human capital also spurs innovation because skilled people create and use knowledge. At the micro level, higher levels of education are associated with lower rates of unemployment, higher lifetime earnings and non-economic benefits to society (e.g. higher levels of interpersonal trust) and the individual (e.g. better health) (OECD, 2011c).

Taxation affects individuals' decisions to invest in human capital and employers' decisions to train their workers. Taxes also affect labour market participation decisions, which determine the supply of skills in the economy, as well as the demand for skilled workers. Through these various impacts, the tax system can play an important role in enabling, complementing or hindering skills policies concerning the development, supply and use of human capital.

2. The Relevance of Taxes in Human Capital Investment Decisions

Economic returns are a key driver of individuals' decisions to invest time and money in education beyond compulsory schooling and of employers' decisions to finance employee training. Section 2 of this paper discusses the channels through which taxes directly or indirectly affect the net expected return to skills investments for both individuals and employers. Taxes have an immediate or direct impact on the incentive to invest in skills formation through seven channels: (1) the tax treatment of the direct costs (e.g. tuition fees), (2) the tax treatment of savings (or equity), debt, income and fringe benefits (e.g. employer-paid training) used to finance the investment, (3) the (notional) tax treatment of foregone earnings or profits, (4) the (notional) tax treatment of foregone capital income, (5) the tax treatment of gross financial benefits (higher earnings for individuals and higher profits for employers), (6) tax features that provide insurance against the uncertainty of investment returns, and (7) earmarked taxes on employers or tax-like mechanisms that ensure a minimum level of investment in training.

Taxes also affect the supply of skills through their impact on unemployment, work effort and labour market participation decisions, including those of secondary earners and older workers eligible for retirement. Moreover, inter-jurisdictional differences between tax systems can influence the migration of highly skilled workers (OECD, 2011e). Taxes also affect the demand of highly skilled workers either directly, through tax incentives, or indirectly, through the burden of employer social security contributions or through competing tax incentives that encourage alternative investments. The impact of taxes on the supply and demand of skills ultimately affects human capital investment decisions, albeit indirectly, by influencing the expectations of participating in the labour market, finding work that suitably matches the skills acquired, or working full-time.

3. Efficiency, Equity and Simplicity Considerations Regarding the Tax Treatment of Human Capital

Given the importance of skills for economic growth and social well-being, the tax system should support skills policy objectives while balancing the key tax policy principles of efficiency, equity and simplicity. If there are reasons to expect underinvestment in human capital from a social point of view, a *favourable tax treatment* of education and training (i.e. tax incentives) may be desirable, possibly to complement non-tax policy solutions rather than to replace them. However, if underinvestment in skills can be more efficiently or effectively addressed entirely outside the tax system, tax incentives may not be

advisable. In this case, it would be important for the tax system not to undermine other policy solutions, which requires *tax neutrality* with respect to human capital investments. Section 3.1 of this paper discusses the conditions for tax neutrality, possible efficiency arguments for the use of tax incentives and considerations in the design of effective tax incentives.

A neutral tax treatment of investments in skills does not distort the incentive to increase one's level of skills, for example, by completing an additional level of educational attainment. For individuals, tax neutrality with respect to marginal human capital investments implies indifference between acquiring additional skills on one hand and working and making an alternative capital investment (e.g. residential property) on the other. For employers, neutrality implies indifference between training an employee and making an alternative capital investment (e.g. in machinery) while the employee continues to work. Tax neutrality implies that the (risk-adjusted) normal return to investing in skills is not taxed (or subsidized) and therefore that the total amount of skills investment is not affected by the tax system. Lack of tax neutrality implies that some skills investments that may otherwise be worthwhile cease to be so. In particular, investments that are marginal (i.e. earning normal returns) and investments earning economic rents that are more than fully taxed may be discouraged by a non-neutral tax system.

In terms of personal and corporate income taxes, ignoring the impact of taxes on labour supply decisions, tax neutrality with respect to human capital investment levels could be achieved if the costs of investment are deductible in the year they are incurred and there is a (locally) flat tax rate. The cost of investing in human capital involves not only direct costs such as tuition and registration fees, but also foregone income during the study or training period. Foregone earnings (for individuals) and foregone profits (for employers) are in essence deductible by nature, since they are reduced by the amount of tax that would have been paid on them. On the other hand, the direct costs of education must be explicitly deductible to achieve neutrality. To reach low income taxpayers (both individuals and corporations), tax relief for the direct costs should be refundable (i.e. able to create a negative tax liability) or transferable to other tax years or, in the case of individuals, to another household member with sufficiently high income. Finally, neutrality requires a flat tax only over the relevant income ranges: foregone earnings and the earnings premium resulting from the skills investment must be subject to the same effective tax rate, as explained described in Box 1 (Section 3.1.1) of this paper. In terms of value added taxes (VAT), neutrality requires taxing education and training at a rate of 0%, to avoid increasing the costs of investing.

Once the impact of taxes on labour market supply decisions is also taken into account, the conditions for neutrality may be altered due to efficiency trade-offs. For example, to collect the same amount of revenue as a progressive tax system, a flat tax requires a relatively higher average tax rate on lower income levels than a progressive tax system, which can discourage low-income individuals from participating in the labour force altogether. By doing so, a flat tax system can create a disincentive for skills formation among those who anticipate not participating in the labour market. This may justify a moderately progressive rather than a flat tax system. Equity and revenue considerations also provide a rationale to maintain some level of progressivity.

Tax concessions over and above full deductibility of costs may also bolster neutrality if they offset indirect tax-induced disincentives to learn. For example, tax relief for older workers engaged in training might counter possible tax-induced incentives for early retirement. However, removing the tax incentives for early retirement would address the issue more directly. Moreover, if the drivers of early retirement lie outside the tax system (i.e. pension policy) it would be more efficient to tackle them directly than through tax measures.

Because human capital investment decisions involve not only investment levels, other dimensions of tax neutrality are also important. For example, tax neutrality with respect to training suppliers means that the tax system does not influence the choice of training provider. Regarding value added taxes (VAT),

neutrality with respect to the choice of training supplier requires zero-rating rather than exempting training services, so that there is no incentive for businesses to self-supply rather than to outsource training. VAT exemptions may encourage self-supply because the price of services purchased from an exempt supplier includes the VAT on inputs that the supplier cannot recover.

It may be argued that a favourable tax treatment of skills development is more appropriate than a neutral treatment due to a variety of reasons that may lead to underinvestment in human capital. For example, proponents of tax incentives may argue that human capital creates positive externalities, which implies that privately financed investments are below the socially optimal level. Positive externalities associated with human capital may include enhancements to the productivity of others (Lange and Topel, 2006) and better health, lower crime rates and more social cohesion (OECD, 2002). Underinvestment in human capital may also be caused by credit market imperfections, which arise because human capital cannot be used as collateral. Underinvestment may also occur due to missing insurance markets for the risks associated with human capital investment returns.

Labour market institutions and settings can also create disincentives that result in human capital investments below socially optimal levels. Among possible labour market disincentives to invest in skills are: high minimum wages that exceed workers' productivity, which raise the cost of foregone earnings and reduce the earnings premium from investing in skills (assuming that wages do reflect productivity after acquiring additional skills); low pension or retirement eligibility age, which reduces the number of years over which a worker can reap the benefits from investing in skills; wage increases based on seniority and age rather than productivity, which reduce the incentive to maintain or upgrade one's skills; strong labour protection mechanisms, which reduce the incentive to invest in skills whether one is employed or not; and pension and unemployment benefits that do not increase as a result of skills investments (e.g. if capped), which discourage employees from temporarily exiting the workforce to upgrade their skills, particularly if benefits are linked to length of duration or continuous attachment in the labour market.

Solutions that directly tackle market failures or distortive institutional labour market settings that result in human capital underinvestment are generally more efficient than fiscal solutions, such as tax incentives or public subsidies. However, direct solutions may not always be feasible, for example due to political considerations or due to the particular nature of human capital (e.g. it cannot be used as collateral). Under these circumstances, fiscal incentives may provide a second-best solution.

When opting for fiscal solutions, the desirability of tax incentives (i.e. a favourable rather than neutral tax treatment) depends largely on the extent of public spending on formal education and lifelong learning, given that the interaction between the two determines the net fiscal incentive to invest in human capital. In the case of tertiary education, more than two-thirds of direct expenditures are publicly funded on average across OECD countries (OECD, 2011c). Although this figure ignores privately funded indirect costs (e.g. foregone earnings), it raises doubts as to whether a favourable tax treatment of tertiary education (i.e. going beyond tax neutrality) is needed in most OECD countries. To address underinvestment due to risk aversion and lack of access to credit, government loans with an income-contingent repayment schedule may be more efficient (and equitable) than tax incentives. There may, however, be a role for tax incentives to stimulate participation in education and training programs provided by private institutions or directly by employers receiving little or no public subsidies. However, before introducing tax incentives, their advantages and disadvantages relative to public funding for institutions or grants and other spending subsidies for taxpayers should be carefully assessed. For example, tax incentives are generally not subject to the same public scrutiny as direct spending, although this could be addressed with the publication of tax expenditure estimates and economic impact evaluations.

If after assessing the extent of underinvestment in human capital it is determined that tax incentives are desirable – for example, if grants to households are costlier to administer or if social preferences

prevent labour market reforms – the effectiveness of tax incentives will depend on their design. For instance, personal and corporate tax incentives that aim to correct underinvestment arising from imperfect credit markets should take the form of refundable or transferable tax credits to reach the households or businesses that truly lack access to credit. This tax relief could also be income-tested to avoid providing benefits to those already investing and to limit its cost.

Equity considerations in the tax treatment of human capital are discussed in Section 3.2. Equity involves establishing a link between a taxpayer's tax liability and his or her ability to pay tax. Apart from redistributing incomes, tax progressivity, a strong form of vertical equity, requires that those who invest in skills and subsequently earn higher incomes pay proportionately higher taxes than less-skilled workers. Tax progressivity can also offset the potentially regressive nature of education subsidies (e.g. when access to education is not universal). Horizontal equity may support the deductibility of education costs for personal tax purposes by recognizing that these costs reduce one's ability to pay tax or that the lifetime earnings of those who invest in skills are unevenly distributed over time (resulting in higher lifetime tax liabilities for those who invest in skills due to the progressivity of the tax system). Horizontal equity also requires that taxpayers with similar incomes and incurring similar costs of education or training be taxed similarly, regardless of how they finance their learning. Finally, tax policy can support equal access to education and training. For example, well designed tax incentives could address training gaps that reduce access to employer-sponsored training among women and older workers.

While efficiency generally requires that tax policy should support socially desirable levels of investment in skills (through either tax neutrality or tax incentives), equity requires that ability to pay should determine tax liabilities but not access to education and training. This points to policy trade-offs between equity and efficiency, which are discussed in Section 3.4. For example, efficiency with respect to human capital investments is best promoted through individual-based taxation (to avoid "marriage penalties"), while horizontal equity may provide a rationale for family based-taxation. Efficiency with respect to human capital investments may call for low degrees of tax progressivity, while vertical equity and preferences regarding after-tax income inequality may call for higher degrees of progressivity. The optimal tax literature has been recently extended to consider the trade-offs between improving equity and reducing labour supply and human capital accumulation. Jacobs and Bovenberg (2011) argue that to the extent that education earns a return due to improved productivity rather than as a rent earned by those of higher ability, tax incentives (or subsidies) for education should be provided to offset tax distortions on labour supply.

There are also trade-offs between efficiency and equity on one hand and simplicity on the other. A simple tax system reduces compliance burdens, administrative costs, and opportunities for tax planning (which reduce tax revenues). A broad tax base enhances the simplicity of the tax system, while tax reliefs and depreciation provisions introduce complexity, as discussed in Sections 3.3 and 3.4. However, if expenditure taxation is the benchmark for efficiency, some degree of complexity is ultimately unavoidable to meet the objective of taxing consumption but not investment. Therefore, while personal tax and VAT relief for the costs of education and training may enhance efficiency (and horizontal equity), they create complexity.

4. Tax Treatment of Human Capital in OECD Countries

Section 4 of this paper describes and analyses targeted tax measures related to education and training in place as of 2011 in 31 OECD countries, India and South Africa. Targeted tax measures are important in three respects. First, they directly influence the expected returns to skills development, primarily through three channels: the tax treatment of the direct costs of learning; the tax treatment of savings, student debt and specific income sources used to finance skills investments; and taxes or tax-like measures that require employers to fund a minimum level of training. Second, targeted tax measures may influence the supply

and demand of skills in the labour market. Third, stakeholders and politicians tend to focus mainly on the availability and generosity of targeted tax measures related to education and training when discussing the tax treatment of human capital.

In summary, among the 31 OECD countries surveyed in this report:

- 11 countries provide personal income tax (PIT) relief for the direct costs of higher education.
- 16 countries provide PIT allowances for the direct costs of work-related adult training.
- All countries allow businesses to deduct the costs of employee training immediately in the year incurred, except Luxembourg, which provides a tax credit instead of a deduction.
- 8 countries provide tax relief to employers over and above the standard deductibility of training costs and wages paid to trainees.
- 26 countries implement standard value added tax (VAT/GST) exemptions for education-related goods and services. Australia, Canada and Turkey implement other forms of VAT/GST relief.
- 25 countries generally exempt income from scholarships, bursaries, academic awards or grants from PIT and SSC.
- All countries treat the value of employer-sponsored training generally as non-taxable income for PIT and social security contribution (SSC) purposes.
- 13 countries provide tax relief related to student debt, and 5 countries provide tax relief for savings used to finance the costs of education.
- 14 countries offer personal tax concessions broadly targeted at mobile highly-skilled workers.
- 5 countries levy SSCs or implement tax-like schemes that effectively impose a minimum level of employer-financed investment in training.
- 2 countries provide SSC incentives to employ skilled workers.

Finally, while not tax measures, Australia, New Zealand and the United Kingdom have income-contingent loans for post-secondary education that are largely administered through the tax system. Because loan repayments are based on a progressive schedule (and no payment is due until graduates earn a minimum level of income), these schemes reduce the riskiness of human capital investments by mitigating the uncertainty about the earnings premium.

Although targeted tax measures are important, they do not on their own determine the net impact of taxation nor the net fiscal incentive to acquire skills. The overall impact of the tax system on skills investments is the result of the interaction between general features of the tax structure and targeted measures for human capital investments. Because different aspects of the tax system may have opposing effects on the incentive to invest in skills, the analysis in this paper could thus be complemented in by quantifying the overall impact of taxes with estimates of effective tax rates on skills investments by individuals, which indicate the extent to which taxation increases the minimum return necessary for a skills investment to break even (Torres and Brys, forthcoming). The net impact of fiscal policy on human capital investment incentives depends not only on the impact of taxes but also on that of public funding for educational institutions and direct subsidies to households and employers.

Among the countries examined in this report, education and training seem to be treated as an investment for VAT purposes (though the VAT treatment is not entirely neutral) and as cost of doing business for CIT purposes. For PIT purposes, higher education is sometimes treated as consumption and sometimes as an investment. When deductible, costs of lifelong learning appear to be treated as an expense

incurred to generate current income rather than as an investment leading to a future stream of returns, given that the deduction is generally restricted to training related to the taxpayer's current employment and in some cases can only be claimed against employment income. This inconsistent view of human capital across the tax system can lead to distortions. For example, when the value of training paid directly by employers is exempt from PIT (i.e. treated as a non-taxable fringe benefit) but the costs of training are not deductible when financed directly by individuals, there is an incentive for training to be financed by employers rather than employees. While this may prevent training followed for leisure purposes from being treated as an investment, it limits the scope of tax relief to investments that are valuable to the current employer. For example, employers may prefer to invest in specific job-related skills than on generic skills and will be reluctant to invest in new skill sets that could be used to change career paths or occupations. This implicit PIT incentive for training to be financed by employers is reinforced by the CIT system, which tends to favour corporate investments in training by allowing businesses to immediately deduct the costs of training while requiring them to depreciate the cost of most other capital investments.

From an equity perspective, PIT relief for the costs of education and training may have negative distributional impacts because this tax relief tends to be wastable rather than refundable or transferable. PIT relief for the sources of finance, including scholarship income, debt and savings, tends to create horizontal inequities by leading to different tax liabilities for taxpayers with similar ability to pay tax. This type of tax relief may even increase after-tax income inequality if claimed more often by higher income taxpayers (which is particularly the case of tax relief for savings in designated accounts). A selected group of taxpayers may receive double tax relief when tax allowances or tax credits are provided for the costs of education that are financed with tax-favoured sources of income. From an efficiency perspective, PIT relief for particular income sources can create incentives to rely on particular sources to finance education investments and may also influence asset mix decisions.

For employers, VAT exemptions (rather than zero-rating) can distort economic behaviour by creating incentives to self-supply rather than outsource training. For corporate tax purposes, the costs of employee training can be immediately expensed and the returns from training are taxed at the standard corporate tax rate. Because the returns to training can span more than one year, this introduces a favourable tax treatment of training investments over investments in other depreciable assets. This incentive for employer-financed training may be justified on efficiency grounds if the risks associated with training an employee with generic skills (due the possibility that the employee will be poached by a competitor, or that the employee will have bargaining power to negotiate a higher than anticipated wage after having been trained) would otherwise result in suboptimal level of training investment. However, it is likely that the incentive is in place simply to avoid the complexity of administering tax depreciation provisions for training investments.

5. Evaluations of Tax Incentives for Human Capital

Section 5 summarizes the results of recent economic evaluations of targeted tax relief for skills formation. Very few targeted PIT measures related to human capital in OECD countries have been evaluated empirically in terms of their economic impacts to date. Evaluations of the various tax credits provided federally in the United States in respect of higher education costs have found that they increase the full time college enrolment of young adults (Turner, 2011a) and have a limited impact on the college enrolment of some mid-aged adults (Lalumia, 2011). An analysis of tax returns showed that, due to the complex interaction between different tax relief provisions, roughly one quarter of American taxpayers eligible for education-related tax relief do not tend to optimize their tax liability. Because lower income tax filers are disproportionately affected, this reduces the progressivity of the income tax system (Turner, 2011b). In terms of the impact of tax relief on institutional behaviour, separate evaluations found that tax relief in the United States led to faster tuition growth in certain educational institutions (Long, 2004) and led institutions to reduce their own sources of grant aid (Turner, 2012).

Most tax incentives for employer-sponsored training have not been evaluated either. The only known evaluation of economic impacts found that a former Dutch incentive aimed at stimulated training of workers over the age of 40 resulted in the postponement of training but did not increase total training investments (Leuven and Oosterbeek, 2004). This incentive was eliminated in 2004.

6. Policy Conclusions

Taxation is one among a range of influences on skills formation and utilisation. Tax policy is therefore only one component of the whole-of-government approach to developing successful skills policies. As such, the tax treatment of human capital should also be analysed within the broader context of fiscal policy and the role of government in steering skills formation. For example, public funding for education can partly or fully offset any possible tax disincentives to invest in education. At the same time, tax progressivity can help mitigate the possible regressivity of education subsidies and generate revenues to help finance these subsidies. Regarding the role of government, many sources of underinvestment in skills lie outside the tax system and, as such, tax solutions for them may be inefficient.

For investments in higher education and training by individuals, the tax system can create disincentives primarily through the progressivity of taxes on labour income and the non-deductibility of the direct costs of learning. OECD countries invariably rely on progressive taxes on labour income to achieve equity objectives and raise revenues. Reducing the overall progressivity of the personal tax system could improve the financial incentive to invest in skills, but is not a realistic option in most cases due to distributional impacts (higher income inequality), possible revenue losses, possible work-disincentives for lower-income workers and the fact that many high income taxpayers would benefit from windfall gains, particularly in the short-run. However, reducing local progressivity at the lower end of the income scale by implementing benefit reforms that address high marginal effective tax rates on low incomes could be desirable to improve incentives to work and to invest in skills for at least some lower-income taxpayers.

Countries wishing to rely on the tax system to improve the financial incentive for individuals to acquire further skills could consider introducing (or enhancing) personal tax relief for the direct costs of education and training (e.g. tuition and admission fees). To support equity and efficiency, tax relief for the costs of learning should be either refundable or transferable over time or to household members to ensure that lower income tax filers can truly benefit from it. This type of tax relief is particularly relevant when the direct costs are high or when they increase. In the case of lifelong learning, allowing employees to deduct the training costs they pay would make the tax system more neutral towards whether training is financed by employers or employees. It is, however, important to recognize that while tax relief for the costs of learning may promote efficiency by increasing the private return to skills formation, it does not substitute policies aimed at addressing underinvestment in skills due to barriers to credit and missing insurance markets.

The appropriate scope of tax relief for the costs of education and training depends on trade-offs between efficiency and complexity. From the point of view of efficiency, tax relief should encourage productive investments without stimulating consumption-motivated learning. However, discerning between training undertaken as an economic investment and training undertaken for recreational or personal development purposes is administratively challenging and introduces complexity for taxpayers. Overall, the scope of tax relief should aim to cover education and training that has broad (present or future) labour market applicability, subject to administrative constraints.

Few evaluations have been made of the economic impacts of tax relief for the costs of education. The available evidence highlights the importance of monitoring whether and to what extent educational institutions are able to capture some of the benefits of tax relief of individuals. Research also shows that the take-up of tax relief can be constrained by a highly complex design of the tax relief. However, there is

also evidence that tax relief can ultimately have a positive impact on enrolment. Given that the evidence presented here is limited and concerns only one country, more evaluations of existing tax incentives in OECD countries are desirable.

Tax relief for particular sources of income (or debt) used to finance the costs of education and training tends to benefit a small group of taxpayers, which may be poorly targeted. When this type of tax relief is provided over and above tax relief for the costs of education, human capital may be favoured, perhaps unintentionally, over alternative investments, though only for those whose education is financed with tax-favoured sources. Apart from treating students with similar education costs differently, this provides a tax advantage for certain forms of finance over others. Countries that provide these forms of tax relief are encouraged to examine their efficiency and equity implications and consider replacing them with tax relief for the direct costs of education and training and, where appropriate, with additional non-tax solutions to promote equal access to education.

The economic returns to human capital are also influenced by the tax treatment of alternative capital investments (e.g. in financial assets or real property). Tax policy makers are encouraged to evaluate empirically the impacts of taxes on alternative investments on human capital formation. If necessary, changes to capital income tax rates or the capital income tax base could be relied upon to level the playing field between human capital and alternative capital investments.

Through policies that affect the supply and demand for skilled labour, taxes on labour income may affect the utilisation of skills once they are acquired. Tax and benefits reforms that improve work incentives (e.g. by eliminating any tax-induced incentives to retire early) can yield positive labour supply responses in the short-term, favouring the utilisation of the stock of skills available in the economy, and also long-term gains by encouraging human capital accumulation. Reforms that stimulate work would increase the incentive to invest in skills because the returns to skills investments tend to take the form of higher wages (or self-employment earnings), which require participation in the labour market.

Most OECD countries exempt education-related goods and services from VAT, which probably reduces the disincentive to invest in skills. However, the cascading effect of VAT exemptions implies that some VAT may be embedded in the price of exempt goods and services. The neutrality of the VAT system could be enhanced by zero-rating educational goods and services to fully eliminate the VAT on them and by ensuring that comparable privately and publicly provided educational services are taxed equally. Educational services that can be clearly identified as more consumption-like (i.e. leisure-driven) could be taxed at the standard rate to avoid influencing consumption choices.

For employers, the immediate deductibility of training investment costs in most OECD countries provides a relative advantage for training investments over investments in certain other depreciable assets. Countries considering the introduction of explicit tax incentives for employer-funded training should first assess whether this relative advantage provides sufficient incentives in the first place. Depending on their design, tax incentives may lead employers to shift investments across workers or over time rather than to make new investments. Countries that currently provide tax incentives are encouraged to evaluate their economic impacts, as none of the business incentives described in this report appear to have been evaluated so far.

Finally, zero-rating educational services rather than exempting them would make employers indifferent between self-supplying and outsourcing training, which can benefit both businesses and employees by enlarging the scope of training programs that they can follow. When training services are VAT exempt, the non-recoverable VAT on inputs increases the price of training services purchased externally, providing an incentive for employers to self-supply training.

TAXATION AND INVESTMENT IN SKILLS

Carolina Torres *

1. Introduction

Ensuring an adequate supply of skills,[1] maximizing their use and optimising further development of skills in the workforce are key to boosting economic growth, employment and well-being. Skills contribute to economic growth by increasing the productivity of workers and spurring innovation (OECD, 2010c, 2011b). Skilled people create new knowledge (OECD, 2010c) and skills increase the capacity of workers to adopt and adapt to innovative technologies and processes (OECD, 2011b). They also contribute to individual well-being, as higher levels of educational attainment and training are associated with lower rates of unemployment and higher earnings, as well as higher levels of self-reported good health, interpersonal trust and active citizenship (OECD, 2011a). Furthermore, increases in the level of educational attainment of the population have countered the trend towards earnings inequality in OECD countries (OECD, 2011f).

The OECD Skills Strategy (OECD, 2012b) offers a framework to assist countries in designing and implementing appropriate and effective policies regarding the supply, development and use of skills. The Strategy presents a whole-of-government approach that recognizes the link between skills policy and other policy fields. The purpose of this paper is to provide an in-depth analysis of the link between taxation and skills that complements the Skills Strategy, with a particular focus on targeted tax measures for education and training in OECD countries.

Given that primary and secondary education are compulsory in OECD countries, this paper focuses on skills acquired through post-compulsory education, where skills investment and utilisation decisions are more likely to be influenced by taxation. Within post-compulsory education, a broad distinction is made here between higher education – which consists of formal, non-compulsory upper secondary, tertiary and other post-secondary education – and adult training – which consists of formal or informal training pursued later in life, after having acquired an initial set of qualifications and having entered the labour market.

Taxes affect households' decisions to invest in skills and supply them in the labour market, as well as firms' decisions to train their employees and hire skilled workers. As such, the tax system can play an important role in enabling or hindering skills policies from meeting their intended objectives, and may even serve as a direct skills policy tool in itself. The primary influence of taxation on skills development lies in the impact of taxes on the costs and gross financial benefits of skills investments, which together determine the net after-tax returns to human capital[2] investments. Taxes on alternative capital investments are also relevant as they affect the opportunity cost of investing in skills. Particular features of the tax

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1 In the context of this paper and the OECD Skills Strategy, a *skill* is defined as the bundle of knowledge, attributes and capacities that enables individuals to successfully and consistently perform an activity or task, whether broadly or narrowly conceived, and can be built upon and extended through learning.

2 In the context of this paper, *human capital* is defined as the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic wellbeing (OECD, 2001).

system may also address credit and insurance market imperfections, and force employers to provide a minimum level of training deemed socially desirable for efficiency or equity reasons.

The role of taxes in shaping the incentive to invest in human capital has important implications. It entails the possibility of using tax policy as a tool to influence individuals' decisions such as whether to acquire skills, whether to work, and whether to migrate, as well as firms' decisions including whether to invest in employees' skills and on what kinds of training to invest (e.g. generic or job-specific).

Taxes also affect labour market participation decisions (including labour mobility), which ultimately determine the supply of skills available for productive use in the economy and indirectly affect incentives for skills formation. On the demand side, tax incentives can influence the relative demand for skilled workers.

While the links between taxes and skills formation, supply and demand may suggest that there is great potential in relying on targeted tax measures (tax expenditures) to achieve skills policy objectives, there are reasons to be cautious. At the same time, incentives for human capital formation also depend on the general features of the tax system. Policy makers must therefore take into account any potential disincentives on learning that can be unintentionally created by the existing tax structure or by seemingly unrelated tax policy changes.

This paper is organized as follows: Section 2 describes the channels through which taxes affect the incentive to invest in skills, as well as to supply and demand skilled labour. It also cautions against focusing on taxes in isolation of education and lifelong learning (spending) policy. Section 3 discusses efficiency, equity and simplicity considerations in the design of the tax treatment of human capital investments. Particular attention is given to the rationale for and against the use of tax incentives for education and training. Section 4 describes and analyses targeted tax measures related to education and training in place in the 33 countries that provided information for this paper – 31 OECD countries and 2 enhanced engagement countries. The taxes considered in this report are personal income taxes, corporate income taxes, social security contributions and value added taxes. Section 5 summarizes the available evidence of the economic impacts of targeted tax relief for skills formation. Section 6 concludes and summarizes the main tax policy conclusions.

2. The Relevance of Taxes in Human Capital Investment Decisions

The economic returns to education are a key driver of individuals' decisions to invest time and money in education and training beyond compulsory schooling. Those who acquire skills beyond (compulsory) secondary education tend to earn higher lifetime earnings. In 2007, the private present value[3] of the *average before-tax earnings premium* from completing upper-secondary or non-tertiary post-secondary education was about USD 139 000 for men and about USD 120 000 for women, on average across OECD countries. For tertiary education, the corresponding premiums were about USD 339 000 for men and about USD 233 000 for women. Furthermore, those who complete programs of higher education are more likely to be employed. This translates into an *average before-tax employment premium* with present value of USD 31 000 for men and USD 24 000 for women completing upper-secondary education, and roughly USD 13 000 for men and USD 15 000 for women complementing tertiary education (indicator A9, OECD, 2011c).[4] In addition to these financial benefits, recent research suggests that there may be

[3] Present value estimates in this section assume a real discount rate of 3%.

[4] To simplify the analysis, higher pension income resulting from higher earnings during a person's working life are excluded. The methodology used to calculate the earnings and employment premiums is explained in Chapter 1 of Education at a Glance (OECD, 2011c) and its Appendix 3.

substantial private non-pecuniary returns to education, such as positive impacts on health and parenting (Ooreopulus and Salvanes, 2011).

The financial incentive to invest in additional education or training can be determined by looking at the net present value of human capital investment, which indicates the (net) investment return. The *after-tax return on a human capital investment* is calculated by netting out the costs of investment (direct costs, foregone government transfers and foregone earnings[5]) from the after-tax gross earnings and employment premiums. Human capital returns in OECD countries suggest that there is a strong incentive to acquire further education. On average across OECD countries, the average net present value of completing upper-secondary or non-tertiary post-secondary education was about USD 78 000 for men and about USD 63 000 for women in 2007. For tertiary education, the corresponding values were about USD 175 000 for men and about USD 110 000 for women (indicator A9, OECD 2011c). These estimates indicate the after-tax return to education for a representative individual with an *average* age-earnings profile for the given level of education, and are based on historical (rather than prospective) data. Thus, while the average return to formal higher education has been large, some individuals may have valid reasons to base their prospective educational decisions on more conservative estimates of human capital returns (e.g. reduced willingness to work full-time in the future, uncertainty about future labour market conditions, fiscal deficits that will likely increase taxes in the future). At the same time, some individuals may expect to earn higher than average returns (e.g. if they are willing to work overtime in the future, or to migrate to a country with higher earnings expectations).

Through their impact on the net after-tax returns to human capital, taxes influence the incentive to invest in human capital. In particular, the direct impact of taxation can be observed through seven channels:

1. Provisions that affect the after-tax value of the direct costs of education and adult training;

2. Measures that affect the costs of learning indirectly by influencing the after-tax value of savings (or equity), debt, income and other forms of remuneration (e.g. employer-paid training) used to finance education and adult training;

3. Taxes on foregone earnings or profits, which affect the opportunity cost of investing in skills;

4. Taxes on capital income, which also affect the opportunity cost of investing in skills;[6]

5. The taxation of the gross financial benefits of skills investments;

6. Features of the tax system that serve as an insurance mechanism against the uncertainty of human capital returns (e.g. tax progressivity, which reduces the spread between different possible after-tax returns); and

7. Taxes or tax-like instruments that are relied upon to enforce that a certain level of education and training takes place (e.g. "train or pay" schemes, where employers must either invest a certain share of payroll on training or pay a levy to a government-sponsored training fund).

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5 To simplify the analysis, the cost of foregone leisure and foregone investment income are excluded. The methodology used to calculate the net investment return is explained in Chapter 1 of Education at a Glance (OECD, 2011c) and its Appendix 3.

6 Income-shifting possibilities, particularly for self-employed individuals, also imply that taxes on capital income can also affect the after-tax financial benefits from human capital investments.

Note that the alternative to studying consists not only of working but also investing the costs of learning in an alternative capital investment. Therefore, the opportunity costs of skills formation involve not only foregone earnings for individuals or foregone profits (from reduced work effort) for employers, but also foregone income from an alternative capital investment. Therefore, the opportunity cost of investing in skills is affected not only by taxes on labour income for individuals or taxes on active business income for employers but also by taxes on capital investment income.

The relative importance of each of the seven channels in shaping the after-tax returns to human capital varies on a case-by-case basis depending not only on the type of education or training program but also on idiosyncratic characteristics such as risk-aversion. For example, in countries where the direct costs of tertiary education are negligible, the taxation of foregone earnings (channel 3) and taxes on the gross financial benefits of the investment (channel 5) are likely to play the most prominent role in shaping tertiary education participation decisions. In contrast, the tax treatment of the direct costs of education (channel 1) and taxes on capital income (channel 4) play a more important role than by taxes on foregone earnings (channel 3) when the direct costs of education are significantly larger than foregone earnings (e.g. for adults considering private training programs while working).

Apart from directly shaping after-tax human capital returns through the seven channels outlined above, taxation affects human capital investment decisions indirectly through its impact on skills utilisation. By influencing the expectations of participating in the labour market or finding work that suitably matches the skills that are being acquired, the impact of taxes on the supply and demand of skills ultimately affects the incentive to invest in human capital.

Taxes affect the supply of skills through their impact on labour market participation decisions (including labour mobility) and on unemployment. For example, the tax system may create incentives for early retirement. Tax systems can exacerbate unemployment, particularly among less-skilled workers, thereby reducing their skills utilisation, preventing them from upgrading their skills through on-the-job training and discourage them from investing in training. As lengthy periods of unemployment carry with them significant risks of skill atrophy, this can also result in a decline in the overall stock of skills in the workforce. On the demand side, taxes can influence the relative demand for skilled and unskilled labour, for example through social security contributions subject to floors or ceilings.

The particular elements of the tax system that affect the incentive to invest in skills vary depending on the financing agent and type of education or training. The table below shows some examples of measures relevant within each channel. A full list of targeted tax measures related to each channel in 31 OECD countries, India and South Africa is presented in Section 4.

Although this paper focuses primarily on targeted tax measures for education and training in OECD countries, it is clear from the examples above that targeted tax measures are only part of the picture. The general structure of the tax system, which determines the general tax burden on labour or corporate income as well as the level of tax progressivity, is at least equally important in determining the impact of taxes on the incentive to invest in skills. Because targeted measures and the general structure of the tax system may have opposing effects, the ultimate impact of the tax system on skills formation is an empirical question that is outside the scope of this paper. However, this question will be explored in the future by estimating effective tax rates (ETRs) on marginal human capital investments by individuals, which indicate the extent to which taxation increases the minimum return necessary for a skills investment to break even (Torres and Brys, forthcoming). The impact of capital income taxes on human capital investments is also outside the scope of this paper, but upcoming OECD work on the taxation of household savings could be used in the future to explore this subject.

Examples of Tax Provisions Affecting the Returns to Human Capital Investments

Channel	Type of Education and Financing Agent		
Determinant of the Return to Education/Training	**Upper secondary and post-secondary education financed by individuals**	**Adult training financed by individuals**	**Adult training financed by employers**
1. Direct costs	Personal tax allowances or credits for college and university tuition, textbooks, computers, etc., as well as their VAT treatment	Personal tax allowances or credits for the fees of adult literacy courses, as well as their VAT treatment	Corporate tax deductions or credits for the costs of in-house training or the costs of outsourced training
2. Sources of finance	Personal tax allowances or credits for interest on student loans; tax-preferred savings accounts; the tax treatment of income earned by students	Personal tax exemptions for the value of training costs reimbursed by employers	Corporate tax exemptions for training grants provided by the government to employers
3. Foregone earnings/profits	Tax burden on foregone labour income	Tax burden on foregone labour income (if any)	Tax burden of foregone corporate profits (if any)
4. Foregone capital investment income	Tax burden on foregone income from an alternative capital investment (e.g. bonds)	Tax burden on foregone income from an alternative capital investment (e.g. housing, pension savings)	Tax burden on foregone income from an alternative capital investment (e.g. machinery, portfolio investments)
5. Financial benefits	Tax burden on (higher) labour income	Tax burden on (higher) labour income	Tax burden on (higher) corporate profits and, possibly, on higher payroll costs.
6. Uncertainty	Personal tax progressivity, which reduces the gaps between after-tax incomes	Personal tax progressivity, which reduces the gaps between after-tax incomes	Tax incentives for training, which help offset the risk of employee poaching and hold-up.
7. Enforcement	N/A	N/A	Taxes and schemes that require employers to spend (directly or indirectly) a minimum amount on employee training.
N/A: Not applicable			

To determine the appropriateness of targeted tax measures, it is necessary not only to analyse their interaction with the general tax structure (as in the ETR analysis), but also to place them in the broader context of spending subsidies, spill-over effects, other market failures and institutional settings that affect the economic and societal impact of skills development, as well as distributional concerns.

The interaction between taxes and spending subsidies and the way it affects the net returns to skills investments determine the *net fiscal incentive* to invest in skills development. It is possible that generous public funding could more than offset tax disincentives, resulting in a net fiscal incentive to invest in skills. The net fiscal incentive is likely to vary significantly depending again on the type of learning and the financing agent. At one extreme, education tends to be fully subsidized in OECD countries at the compulsory education level (where direct costs are fully publicly funded and there are no foregone earnings due to legislation banning child labour). At the other extreme, some forms of training that tend to

be pursued later in life may not benefit from public spending or tax subsidies (e.g. lifelong learning courses provided by private institutions).

The appropriate net fiscal incentive for any given level of education depends partly on the extent to which investment in skills is below (or above) the socially optimal level in the absence of taxes or subsidies, and partly on equity concerns that may call for intervention. For example, positive spillover effects associated with education could justify a positive net fiscal incentive, which implies that the cost of public investment in education is not fully recovered through taxes on the private returns to human capital. Since the possible sources of underinvestment in skills are likely to be different for individuals (e.g. lack of access to credit) and employers (e.g. risk of employee poaching), the appropriate net fiscal incentive will vary accordingly.

3. Efficiency, Equity and Simplicity Considerations Regarding the Tax Treatment of Human Capital

3.1 Efficiency Considerations

Market failures and labour market policies and institutional settings can potentially result in sub-optimal levels of investment in skills from society's point of view. If there are reasons to expect underinvestment in the absence of government intervention, and if direct solutions to tackle this underinvestment are not feasible or direct spending incentives are less efficient or practical than tax incentives, there is an efficiency rationale to provide a *favourable* tax treatment of human capital investments. When tax incentives are deemed to be desirable, their design will determine their effectiveness. For example, tax relief that cannot be accessed by lower income households and businesses, such as personal income tax allowances or corporate income tax deductions without loss offset provisions will generally be less effective at encouraging skills investments by the individuals and employers that are more likely to underinvestment.

If on the other hand, underinvestment in skills is best addressed outside the tax system, it is important for tax policy not to discourage skills formation. To achieve this, the tax system should be *neutral* with respect to human capital investments.[7]

3.1.1 Tax Neutrality

A *neutral tax system with respect to human capital investments* does not influence *marginal* investment decisions by individuals and businesses in the sense that the return at the margin is effectively untaxed. As a result, the total amount of investment that is undertaken is unaffected by the tax system What characterizes an investment as marginal is not its cost but the fact that its after-tax return equals the

[7] To the extent that human capital investments yield returns larger than the risk-adjusted normal return (i.e. economic rents), it could be argued that a neutral taxation of human capital is unnecessary since economic rents can be taxed without influencing economic behaviour. However, although the average return to tertiary education is significant in OECD countries, it is unclear whether this implies an economic rent (and if so, whether this is a sign of aggregate underinvestment) or a transitory shortage of skilled labour (OECD, 2002). Furthermore, marginal returns to human capital (i.e. the returns earned by marginal students) are likely to be lower than estimated average returns and could indeed approximate normal returns. For example, Carneiro et al. (2003) estimate that the earnings premium from college education in the United States is higher for those who graduated from college than it would have been for those who graduated from high school. Short-term adult training programs may also lead to normal returns. Discouraging investment by marginal students through taxation would undermine policies aimed at increasing skills formation. Finally, for those who anticipate earning higher than normal returns that reflect economic rents, a non-neutral tax system may still discourage investment if the rents are more than fully taxed, implying that the component of the return that consists of the normal return is taxed.

minimum-required return on alternative investments. For *individuals*, a marginal investment is such that a prospective student is indifferent between an additional unit of human capital (e.g. a year of tertiary education) and the alternative, which is continuing to earn the wage associated with the initial (lower) skills level and investing the costs of one unit of skills in an alternative capital investment. The alternative capital investment may be a financial asset or real property. It is possible for a marginal skills investment decision to involve large costs. While incremental investments in human capital may thus resemble discrete choices, they can generate marginal (normal) returns for some individuals (e.g. students of lower ability, or those in certain types of education or training programs), and infra-marginal returns (which reflect economic rents) for others. For *employers*, a marginal investment is such that the business is indifferent between financing (or co-financing) a unit of training for an employee and investing the cost of training in an alternative capital investment. The alternative investment may be a tangible or intangible capital asset, or a financial asset.

Tax neutrality does not imply that skills investments will necessarily take place. For example, even if the tax system is neutral, individuals may choose not to invest in human capital if the present value of the earnings premium required for the investment to break even is so high that it cannot be attained. This may be the case, for example, among older workers considering whether to make costly training investments as they approach retirement because, unlike financial assets, the costs of investing in human capital cannot be recovered by selling the asset, so they must be recovered gradually (in the labour market) through an additional return. High non-pecuniary costs may also deter investments that are taxed neutrally. For example, this may occur when training is physically gruelling or perceived to be boring, or if the value of foregone leisure is high.

Tax neutrality with respect to human capital investments involves various dimensions. *Neutrality with respect to the work-study decision* means that the tax system neither encourages nor discourages education or training over work. *Neutrality with respect to asset mix* means that the tax system does not encourage nor discourage the investment in human capital over other productive investments. The combined impact of these two dimensions ultimately determines the overall impact of the tax system on the stock of skills through their influence (or lack thereof) on marginal human capital investments.

Human capital investments also encompass decisions about who finances the investment. These decisions are particularly relevant in the context of adult learning because training can benefit both employees and employers and may therefore be financed by either of them or jointly by both of them. *Neutrality with respect to financing agents* means that the tax system does not favour the financing of education or training by a particular agent. There are other dimensions of neutrality that will not be discussed here, such as the neutrality of taxes with respect to the choice between public and private education.

The desirability of a neutral tax system with respect to (the level of) human capital investment depends partly on spill-over effects or other market failures that call for intervention and partly on the extent to which higher education and training are publicly subsidized. But while neutrality is not necessarily optimal from an efficiency perspective or desirable from an equity perspective, it is a benchmark that can be used to assess the impact of taxes on human capital formation decisions. The following sub-sections describe the conditions required for tax neutrality.

Investments in higher education and adult training by individuals

For *individuals* considering whether to invest in their skills, the tax system is neutral if it reduces the cost of acquiring skills by the same rate at which it reduces the benefits, leaving the net return on a skills investment relative to the net return on the alternative unchanged. Focusing solely on the work-study

decision, and ignoring the impact of taxes on labour supply,[8] neutrality could be achieved if investment costs (foregone earnings and direct costs) were deductible from personal taxes on labour income (personal income taxes (PIT) and employee social security contributions (SSCs)) and labour income (gross of education deductions) were taxed at a flat rate (Davies and Whalley, 1991; Heckman and Jacobs, 2010). More precisely, the same effective tax rate (inclusive of taxes and benefits) would have to apply to foregone earnings as to the earnings premium (see Box 1) and the direct costs would have to be deductible at the same rate. The expectation that this tax rate would remain constant over time, so that it would apply to all costs and benefits during the life cycle of the investment, is also necessary. To ensure that tax allowances for the costs of acquiring skills reduce the cost of investment even for low income tax filers, full loss offset provisions would be required, by making tax allowances either refundable (possibly leading to a negative income tax) or deferrable so that they can be claimed (with interest) in future years when income increases.[9] If all these conditions were met, and assuming that the supply of labour is inelastic, the tax system would be neutral with respect to the work-study decision *regardless* of marginal and average personal tax rates on labour income. This would be the case because the tax system would reduce the costs and returns of skills investments proportionately (by the same rate).

Box 1. Effective tax rates on foregone earnings and the earnings premium

Assume the taxpayer would earn $income_s$ annually after making a skills investment and $income_d$ (presumably from part-time work) during the study period. The direct costs of education are deductible at the rate β. The taxpayer would otherwise earn $income_b$ annually in the absence of this investment. The effective tax rates on $income_s$, $income_d$ and $income_b$ are denoted by T_s, T_d and T_b respectively.

The foregone earnings during the study period are defined as $FE = income_b - income_d$

And the earnings premium as a result of the skills investment is defined as $EP = income_s - income_b$

The effective tax rate on foregone earnings is:

$$T_{FE} = \frac{T_b income_b - T_d income_d}{income_b - income_s}$$

The effective tax rate on the earnings premium is:

$$T_{EP} = \frac{T_s income_s - T_b income_b}{income_s - income_b}$$

The key condition for tax neutrality is $T_{FE} = T_{EP} = \beta$, assuming no impact of taxation on labour supply and a neutral taxation of alternative capital investments. On the other hand, if $T_{FE} < T_{EP}$, the tax system will create disincentives for skills investments unless taxes on capital income are high or very generous tax relief is provided for the costs of investing.

A flat statutory PIT rate is not sufficient for the condition $T_{FE} = T_{EP}$ to be met. For example, if there is a basic personal allowance, *BA*, it would be necessary for $income_d > BA$ and $income_b > BA$. Even in this case, if social security contributions are levied at a flat statutory rate but are capped, it may be possible for $T_{EP} < T_{FE}$. On the other hand, if income-tested benefits or tax credits are provided, it may be possible for $T_{FE} < T_{EP}$, depending on the precise income range where benefits are withdrawn. When the tax and benefit system is globally progressive, $T_{FE} < T_{EP}$ will hold in general as long as taxes are also locally progressive over any given income range.

Source: Torres and Brys (forthcoming).

8 The impact of taxes on labour supply on the conditions for neutrality is discussed later, in Section 3.4

9 If government loans are used directly to pay for the costs of acquiring skills, such that governments transfer the borrowed funds directly to educational institutions (as is the case with university tuition in the UK), loan repayments would have to be tax deductible. This would be roughly equivalent to providing an allowance for the costs of the investment that can be carried forward with interest. However, the tax allowance would have to be limited to the portion of the loan that covers the direct costs of education, and not provided for any portion that covers the costs of living, which are general costs incurred irrespective of acquiring an education.

Once the asset mix decision is also considered, the conditions for overall tax neutrality may vary. For individuals, human capital investment returns are generally observed in the form of higher labour income, whereas financial assets produce capital income and real property generates (imputed or actual) rental income. If the tax system is neutral with respect to the work-study decision but imposes a tax on capital or rental income (without deductibility of the investment costs), the overall impact will be to favour human capital over alternative investments. More generally, as long as the tax system treats labour income different from capital and rental income (included imputed rent from owner-occupied housing), taxes will most likely influence individuals' asset mix decisions. Unequal treatment of capital and labour income is not only the defining feature of dual income tax systems but may also arise in semi-comprehensive or semi-flat income tax systems. For example, many OECD countries tax residential housing more leniently than labour income. Asset mix choices are likely to vary over a person's lifecycle, and thus the impact of the tax system on asset mix decisions, including investments in skills, may vary accordingly.

Young adults considering upper or post-secondary education

For young prospective students, the opportunity investment would likely consist of bonds or shares that yield returns taxed at rates similar or lower than labour income. If labour income is taxed at the same rate as capital income but capital investment costs are not deductible, the tax system will favour human capital over other investments. The reason for this is that, regardless of the tax treatment of the direct costs of education, the fact that a major cost of post-secondary education consists of foregone earnings (OECD, 2011c) results in a more generous tax treatment of human capital than that of other investments. The pre-tax value of foregone earnings is reduced by the effective personal tax rate that would otherwise apply to those earnings, which is essentially equivalent to providing a tax allowance for the main indirect costs of education. To achieve neutrality with respect to asset mix, the returns to alternative capital investments would have to be either tax exempt, or taxable with a corresponding deduction for capital investment costs.

In summary, assuming that prospective students compare after-tax incomes with and without education, and ignoring the impacts of taxes on labour supply[10] (or assuming that labour supply is inelastic), the tax system is neutral with respect to upper and post-secondary education investments if:

- The effective tax rate on labour income is flat over the relevant income ranges and students anticipate that the tax rate will not vary over time;
- The direct costs of education are deductible from labour income, with full loss offset provisions; and
- Alternative investments are either not taxed or taxed neutrally with a cash-flow approach (e.g. interest income is taxed when accrued but contributions to a savings account are made with pre-tax income).

If, in addition to the deductibility of direct costs other tax relief is provided, the tax system will result in a favourable, rather than neutral treatment of higher education. Examples of additional reliefs are tax exemptions for scholarship and grant income, tax-preferred education savings accounts, tax credits for interest on student loans and tax exemptions for student debt forgiveness. When tax relief is provided for the sources of finance as well as for the costs of skills formation, tax relief is effectively doubled, which will tend to encourage human capital over alternative investments for those whose education is financed with tax-favoured sources.

[10] These impacts are discussed in Section 3.4.

While tax neutrality could be achieved with proportional labour income taxation, deductible direct education costs and a zero tax rate on capital income, Nielsen and Sorensen (1997) argue that dual income taxation – where capital income is taxed at a proportional rate and labour income is taxed at progressive rates – improves the neutrality of the tax system with respect to asset mix as a second-best solution. Higher taxes on labour income than on capital income compensate for the fact that foregone earnings are reduced by labour income taxes while, traditionally, the costs of financial investments cannot be deducted. In practice, the impact of a dual tax system on asset mix decisions will vary depending not only on the PIT structure (including the difference between tax rates on labour and capital income and whether the costs of any alternative investments, such as pension savings, are deductible) but also on the magnitude of the costs and returns of skills investments, and thus remains an empirical question.

Finally, it is possible that students considering whether to enrol in higher education immediately after completing their compulsory education focus on the work-study decision and give little importance to foregone capital investment returns associated with human capital investments. Reasons for this may include lack of savings or access to credit to finance alternative investments, or a discount rate that is higher in the long-run than in the short-run (myopia). However, the taxation of alternative capital investment is an important determinant of the effective tax rate on marginal skills investments (Torres and Brys, forthcoming), and as such it can influence all types of skills investments that earn normal returns, including those by young adults.

Mid-career and older workers considering adult training

A wide range of alternative investments could be pursued over the life cycle. For example, workers who have participated in the labour market for a number of years may consider investing in real property as an alternative to investing in additional skills (e.g. an MBA degree) If the alternative investment under consideration is residential housing, the tax system may discourage adult training. For example, if mortgage interest is deductible (as is the case in many OECD countries) and imputed rental income from owner-occupied is exempt from tax, the tax system will favour residential property investments even if the costs of education are fully deductible and labour income is taxed at a flat rate because the effective tax rate on housing investments will be negative.

For older workers who are approaching retirement, it is likely that the alternative investment consists of retirement savings. If the alternative investment under consideration is pension savings, the impact of the tax system depends not only on the deductibility of investment costs and taxation of investment returns but also on the timing of taxation. For example, if there are tax-deferred retirement savings vehicles, investment returns would be taxed after retirement (after they are realized) but adult training returns would be taxed as soon as they are realized. This may favour pension savings over human capital investments, particularly if taxes are progressive on an annual basis and retirement incomes are expected to be lower than earnings during a person's career. The tax system would be neutral if there were a single tax rate on labour and pension income, and the costs of adult training and pension contributions were equally deductible.

Assuming that workers compare after-tax incomes with and without training, and ignoring the impacts of taxes on labour supply[11] (or assuming that labour supply is inelastic), the tax system is neutral with respect to adult training if:

- The effective tax rate on net labour income is flat over the relevant income ranges and workers anticipate that the tax rate will not vary over time,

[11] These impacts are discussed in Section 3.4.

- The direct costs of training are deductible from labour income, with full loss offset provisions; and

- Alternative investments are taxed neutrally with a cash-flow approach (e.g. imputed rental income from owner-occupied housing is taxed and the cost of the mortgage is fully deductible at the same rate) or a tax pre-payment approach (e.g. imputed rental income from owner-occupied housing is exempt from tax and mortgage costs are not deductible).

As with higher education, if tax relief for adult training is provided in addition to the deductibility of direct costs, the tax system will result in a favourable, rather than neutral treatment of higher education.

Indirect taxes

While the discussion so far has focused on labour and capital income taxes, indirect taxes can also influence marginal human capital investments by individuals. The scope of this paper is restricted to value added taxes (VAT), though other indirect taxes may have an impact too. Levying VAT on education-related goods and services reduces the return to human capital directly by raising the cost of education. VAT neutrality requires that no VAT be levied on the costs of investing in education or training, whether provided by public or private institutions.[12] To avoid distorting investment as well as consumption decisions, goods whose use is not exclusively education-related, such as books and IT equipment, could be taxed at the standard VAT rate while providing compensation to students and trainees for VAT paid on education-related costs through the personal income tax system.

If direct taxation is not neutral with respect to human capital investments, sales taxes can further distort marginal investment decisions by individuals. For example, if the direct costs of education are not deductible from the PIT base, the neutrality of the overall tax system is further reduced if these costs are subject to VAT.

Therefore, the overall neutrality of the tax system with respect to skills investments can be improved if:

- The direct costs of education and training investments are zero-rated under VAT, and

- Publicly provided services and comparable privately provided services are treated equally for VAT purposes.

Note that zero-rating the VAT on education and training services should not be viewed as a base-narrowing measure. Instead, it recognizes that educational costs are an intermediate input in the production of human capital. However, to maintain a broad tax base on consumption, educational services that can be clearly identified as more consumption-like (e.g. training undertaken for recreational purposes) could be taxed at the standard rate, like other forms of consumption.

Investments in adult training by employers

For *employers* considering whether to make a marginal investment in employee training, the tax system is neutral if they are indifferent, on an after-tax basis, between financing (or co-financing) a unit of

[12] Note that allowing taxpayers to deduct the direct costs of education or training for personal tax purposes is not enough to achieve neutrality in the tax system as a whole. As long as these costs are deducted at the taxpayer's marginal PIT rate and this is less than 100%, the after-tax cost of a skills investment is higher as a result of the VAT levied on it relative to a no-tax scenario.

training and the alternative, which is to keep the skills level of staff constant and invest the cost of training in a financial or depreciable capital investment.

Corporate income tax neutrality with respect to a particular (human or other capital) investment with normal returns could in principle be achieved with a (time-invariant) single-rate, cash-flow corporate tax system, where investment costs (excluding costs of finance) are fully deductible in the period they are incurred and full loss offset provisions are in place (i.e. deductions resulting in negative taxable income generate a negative tax, or transfer payment) (Boadway *et al*., 1983; Boadway and Bruce, 1984). These conditions are analogous to the conditions for personal income tax neutrality with respect to the work-study decision in marginal human capital investments. Note that if interest payments were also deductible, this would introduce a new distortion by favouring debt-financed training over equity-financed training.

In a cash-flow corporate tax system, the marginal cost of training is reduced proportionately to the tax on the marginal benefit from training. Thus, corporate income taxes have no direct impact on net marginal investment returns and are thus neutral towards marginal training decisions by employers. However, the *overall tax system* may not be neutral even under a corporate cash-flow approach if personal income or other taxes affect the cost of capital used to finance training (Gordon and Tchilinguirian, 1998). Moreover, as shown by Tremblay (2009), if the incidence of corporate income taxes is not fully borne by employers, a corporate cash-flow system may not be neutral towards training investments. For example, if wages are re-negotiated after training takes place (to reflect increased productivity) and employers are able to pass through some of the corporate tax burden onto employees, employers will have an incentive to train under a corporate cash-flow system. This is because employers obtain the full benefit of deducting the training costs but pay only a fraction of the corporate tax burden on the investment returns. Employees share some of this tax burden by accepting smaller wage increases than otherwise.

An alternative to the corporate cash-flow system is to exempt investment returns rather than to provide a full deduction for the costs of training (i.e. the "tax prepayment" approach) (Bradford, 2005). This tax structure would have no direct impact on net marginal investment decisions, nor an indirect impact on the profit premium, although it may still have an indirect impact through the taxation of the cost of capital.

Traditional corporate income tax systems do not implement a cash-flow approach. The cost of investing in depreciable assets, such as machinery, is claimed gradually over time in line with tax depreciation provisions. To the extent that training costs can be immediately deducted from corporate income, the tax system may favour investment in training over assets that must be depreciated (e.g. machinery), though not over alternative investments that can be immediately expensed (e.g. advertising). As an alternative to adopting a cash-flow approach for all investments, the neutrality of the tax system could be improved if the costs of training were depreciated over the life of the asset rather than expensed and the relative difference between tax and economic depreciation rates (if any) were the same for all depreciable assets. In the case of training, the asset life is the period of time during which employers benefit from having trained their employers.

To avoid asset mix distortions when the alternative investment under consideration is a financial asset, passive business income (e.g. dividends from financial assets) should be treated equally as active business income. The ultimate impact on asset mix depends also on whether tax incentives are provided for alternative investments (e.g. R&D credits) and on any additional tax relief that may be provided for training (e.g. tax credits in addition to full deductibility of training costs).

Social security contributions and other payroll taxes can also impact employers' incentives to train their employees. To the extent that training leads to higher wages and those wages are subject to employee and employer SSC, these contributions reduce the employer's return to training unless the cost can be fully

shifted to the employee (through smaller wage increases). On the other hand, if employees accept lower wages while being trained (as a cost-sharing mechanism), SSCs could reduce the employer's cost of training (just like PIT reduces the cost of foregone earnings for individuals). SSCs may have different repercussions if SSC schedules are characterized by floors and ceilings on contributions.[13] For example, if SSCs are capped at a certain level of income, employee wage increases correspond to productivity improvements, and employers bear the incidence of employer SSCs, then these contributions reduce the employer's return to training a low-skilled worker if his or her increased wage remains below the SSC ceiling, but they do not affect the return to training a high-skilled worker whose wage is already above the SSC ceiling. If there are floors on contributions, SSCs do not reduce the cost of training when employees accept lower wages if their wages were already exempt from SSC.

The sales tax treatment of training services and related inputs may also affect the neutrality of the tax system with respect to employer's training investments. For employers, training is an intermediate product used in the production of business income. Thus, if the costs of training are taxable under VAT or GST, most employers are unaffected by sales taxes, as they can claim back the sales taxes they pay on their inputs (unless the employer sells exempt supplies). On the other hand, if the costs of training are VAT or GST exempt, employers ultimately pay the embedded sales tax that the suppliers of training materials and services cannot recover. To the extent that the sales tax treatment of training services purchased from an external provider differs from the tax treatment of the inputs for in-house training, the sales tax system may favour one training provider over the other.

In summary, assuming that employers bear the incidence of the taxes levied on them, the overall tax system is considered to be neutral with respect to employer-financed adult training if:

- There is a flat effective tax rate on (net) corporate income that is anticipated to remain constant over time,
- The direct costs of training are deductible from corporate income, with full loss offset provisions,
- The costs of alternative investments are deductible from corporate income, with full loss offset provisions.

And, to prevent distortions regarding the supplier of training,

- The costs of training are taxable under VAT but can be claimed back by employers.
    - In practice, since employers that sell VAT-exempt goods and services cannot claim back the VAT they pay on their inputs, this condition can be met if training services are zero-rated.

SSC neutrality requires proportional SSC rates in principle. However, the impact of SSC on employer's training decisions largely depends on the incidence of SSCs, which is outside the scope of this paper.[14]

Financing agents

A tax system that is neutral with respect to financing agents does not influence who finances the skills investment. In the context of adult training, this involves neutrality towards the mix of household-financed and employer-financed training investments. This dimension of neutrality can be achieved if:

[13] For a summary of employee SSC floors and ceilings in OECD countries, please consult the Special Feature of the 2011 Taxing Wages publication.

[14] Readers interested in the incidence of SSCs may refer to Kesselman (1997) and Esteso (2009).

- The cost of employee training is deductible for CIT purposes when financed by employers (whether directly by paying for training, or indirectly by compensating employees who pay for their own training) and deductible for PIT purposes when paid for by individuals,

- The cost of training that is paid directly by the employer is not considered a taxable fringe benefit for the employee, and

- Any reimbursements, vouchers or training allowances received by employees to finance tax-deductible training costs are considered taxable income. (Alternatively, such payments could be excluded from taxable income if training costs financed with compensation provided by employers are not deductible by employees.)

If, as is often the case in OECD countries (see Section 4), training costs are deductible from taxable income for employers but not for employees and training paid directly by employers is not a taxable benefit, the tax system will create an incentive for training to be financed by employers. This is the case even if training does not directly benefit the employer, since training could be provided purely as non-taxable compensation to the employee. Since corporate training programs may differ from those available privately to employees, lack of neutrality with respect to financing agents can have further implications, such as the choice of particular training program to be followed. Moreover, in terms of work-related training, employers may be inclined to focus on job-specific skills, while employees may have otherwise chosen to invest in more generic and transferable skills or in entirely new skills sets for a change in occupation.

3.1.2 Possible Sources of Underinvestment in Human Capital

Market failures and labour market policies and institutional settings can potentially result in sub-optimal levels of investment in skills from society's point of view.

Investment in higher education and adult training by individuals

Market failures that may lead to underinvestment in higher education and lifelong learning by individuals include:

- ***Positive externalities*** - Human capital may create positive externalities, which are benefits to society over and above those accruing to the individuals who increase their skills (or to those who finance the skills development). For example, an individual's human capital may enhance the productivity of others (Lange and Topel, 2006) and result in a host of possible non-economic benefits, such as lower crime rates, better health, more social cohesion and more informed and politically active citizens (OECD, 2002). Measuring the social returns to education and training and the associated spillovers is challenging, and the results may vary across countries. There is weak and at best mixed evidence as to whether the marginal social returns of formal higher education or adult training exceed the private returns (OECD, 2002; OECD, 2005, Lange and Topel, 2006; Venniker, 2000; Bishop, 1994). But if positive externalities exist, human capital investment decisions based on the private returns and fully financed from private sources would result in a sub-optimal stock of skills in the economy.

- ***Credit market imperfections*** - An imperfect market for loans for educational investments arises because human capital cannot be used as collateral. Lack of credit is more likely to be a binding constraint for human capital development for individuals from lower income households. Lack of credit may result in investment below the private and/ or socially optimal level. Note that by reducing aggregate investment below the privately optimal level, the private return to education

may exceed the sum of the normal rate of return (e.g. the risk-free interest rate) and the necessary risk premium, resulting in economic rents for those who can afford to invest in human capital.

- ***Lack of insurance markets*** - Human capital investments are inherently risky due to the uncertainty about investment returns. Due to moral hazard and adverse selection problems, it is unlikely that a private market for human capital insurance could emerge. For individuals, uncertainty about future field of occupation, future labour market conditions, and even uncertainty about one's ability to successfully complete a program of education can make enrolment in educational programs risky. Uninsurable risk can create significant disincentives for individuals to invest in human capital because the stakes can be high (in terms of costs and benefits) and skills investments cannot be diversified by individuals. As wealth can act as a form of self-insurance (Saks and Shore, 2005), missing insurance markets are more likely to deter individuals from lower income backgrounds from upgrading their skills.

These and other market failures can affect investment in both *formal higher education* and *adult training*. However, since the cost of completing a formal qualification is usually higher than subsequent shorter term training, imperfect credit and insurance markets are most likely to deter investments in *upper secondary and post-secondary education* by low-income individuals than other human capital investments.

Labour market institutions and settings that may lead to underinvestment in skills by individuals include:

- ***A high minimum wage*** - If the minimum wage exceeds a worker's productivity, the earnings premium from a skills investment may be minimized (especially if earnings after acquiring additional skills do reflect true productivity) and the cost of investment (foregone earnings) may increase, reducing the incentive to invest in skills for individuals who would otherwise earn the minimum wage.

- ***Seniority-based wage increases*** - When wage increases are tied to seniority rather than productivity, the earnings premium associated with post-secondary education and especially adult training is minimized, undermining the benefits of acquiring additional skills and reducing the incentive to invest in human capital.

- ***Strong employment protection*** - By reducing the risk of unemployment for those who are employed and increasing the barriers to finding work among the unemployed (including recent graduates), strong employment protection mechanisms reduce the employment premium associated with human capital accumulation, reducing the incentive to invest in skills.

- ***Pension and unemployment benefit design*** – if the value of pension and unemployment benefits is linked to the duration of continuous attachment to the labour market, this can create a disincentive to take time off work to pursue adult training.

- ***Low retirement age*** - A low pension or retirement eligibility age reduces the time period over which skills can be used in the labour market, reducing the net present value of the investment return. The retirement age may be a particular barrier to training for older workers, who may not be able to cover the investment costs (including foregone investment returns) by the time they retire.

As these institutions and settings relate to the labour market, they are likely to be an important consideration for working adults deciding whether to pursue *adult training*. For young adults, while these institutions and settings also affect the net present value of human capital investments, they are not as

likely to be as important in shaping the decision of whether to enrol in *upper secondary or post-secondary education*. This may be due to lack of awareness about the functioning of labour markets or due to the uncertainty about how labour market settings will evolve over one's working life (e.g. changes to the retirement age). In particular, pension issues are less of an issue for young individuals due to a long anticipated work horizon (i.e. their net present value is low due to discounting over many years).

Investment in training by employers

Market failures similar to those that affect individuals can lead to underinvestment in staff training by employers:

- ***Positive externalities and benefits accruing to employees*** - From the perspective of an employer, some of the benefits that an employee gains from following employer-sponsored training (e.g. upward career mobility) are not part of the employer's private return to training (for instance because the worker may change employer after completion of the training). Thus, in addition to the wider benefits to society, benefits to employees are not necessarily captured by the employer. Unless employers have mechanisms to share the costs of training with employees (e.g. by requiring them to undertake training outside of normal work hours), employers are likely to under-invest not only relative to the socially optimal level but also relative to the jointly optimal level for employers and employees.

- ***Credit market imperfections*** - While employers may be able to use other assets as collateral to borrow funds to finance training investments, small businesses, particularly start-ups whose future profitability is uncertain, may face similar difficulties as low-income individuals in accessing credit to finance training.

- ***Lack of insurance markets*** - Although employers may be able to diversify their training investments (e.g. by training many employees), they have less control over the private return of a skills investment. For employers, investment in training differs from investment in other assets because trained employees have the option to leave the firm, engage in wage bargaining and, in other ways, influence the outcome of the investment decision. In a perfectly competitive labour market, employers would have no incentive to provide basic skills training because workers would reap the full return on investment by either demanding higher wages or leaving the firm to join a competitor – the so-called "poaching externality" (Becker, 1962). But even job-specific training can be risky for employers when incomplete contracts can result in employees demanding higher than expected wages after having been trained – the so called "hold-up problem" (Williamson, 1985). Nonetheless, there is evidence that employers pay for a substantial portion of adult training (Hansson, 2008), and that most of this training is generic in nature (Barron et al, 1997; Loewenstein and Spletzer, 1999; Booth and Bryan, 2002; Hansson et al, 2004; Evertsson, 2004). It thus appears that risks faced by employers are not as high as theoretically possible. It has been argued that these risks are reduced because of labour market frictions and imperfections.[15] Nevertheless, employers cannot entirely eliminate the risk in human capital investments. For example, even if an enforceable contract requires the trained employee to remain at the firm for a minimum number of years, there is no guarantee that the employee has the ability and experience necessary to make the most out of the training they receive.

[15] For example, employers may internalize some of the returns from general training due to compressed wage structures (Acemoglu and Pischke, 1999), information asymmetries that prevent employees from signalling their skills (Katz and Ziderman, 1990); or imperfect contracts that do not guarantee wages increases in line with productivity increases (Loewenstein and Splitzer, 1998).

Labour market settings may also lead to underinvestment in training by employers. For example:

- ***Low retirement age*** – A low or mandatory retirement age reduces or limits the time period over which a trained employee can apply his or her newly acquired skills at work. An employer may thus prefer to train a younger worker over an older one if the younger one can be expected to remain with the employer for a long time.

3.1.3 Tax Incentives

Tax incentives are defined here as measures that result in a favourable, rather than neutral, tax treatment of human capital. It may be argued that tax incentives are justified to offset socially undesirable underinvestment in skills. However, before concluding that a favourable tax treatment of human capital is appropriate, it is important to assess the extent of underinvestment, examine whether spending subsidies already provide or could provide incentives to raise investment to socially optimal levels, and determine whether non-fiscal solutions that directly tackle underinvestment are administratively and politically feasible.

It is generally more efficient to address the sources of underinvestment directly, if possible. For example, labour market policies that encourage early retirement can be reformed to prevent disincentives for skills formation among older workers. However, social preferences and public backlash concerns may prevent changes to labour market institutions and settings. Addressing underinvestment in skills through fiscal (tax or spending) incentives is generally less efficient than tackling the causes directly because fiscal incentives often entail windfall gains for many taxpayers and their cost must be recovered through higher tax revenues or reduced spending elsewhere. However, if direct solutions are not feasible due to political or administrative constraints, fiscal instruments should be considered.

To reach the socially optimal level of human capital investment by relying on fiscal instruments, a combination of direct spending subsidies and tax incentives can be introduced to raise the marginal risk-adjusted private return to the same level as the marginal social return. To the extent that tax incentives for human capital cannot be optimally targeted, (well-targeted) government spending may be a more effective tool for raising human capital investments to socially optimal levels. The efficiency implications of inappropriate targeting are two-fold. First, if tax incentives cannot be accessed by those who need the tax relief the most, they will fail to influence economic behaviours and improve economic welfare. Second, if tax incentives are provided to those who would engage in desirable economic behaviour regardless of the incentive, they will result in windfall gains for those individuals and deadweight losses for society. With these considerations in mind, the efficiency and effectiveness of tax incentives for skills formation is analysed below in the context of investments by individuals and by employers. The appropriateness of tax incentives is analysed separately with respect to each possible source of underinvestment.

Investment in higher education and adult training by individuals

- ***Positive externalities*** - Positive externalities are unlikely to be correlated with income. Addressing positive externalities through the tax system thus requires providing tax incentives that are broadly available (i.e. independent of income) in order to reach all intended recipients. This can nevertheless result in windfall gains, particularly if the pre-tax returns to human capital exceed the normal return, or if the tax incentives are excessively generous. More importantly, public funding for education and training institutions as well as universal grants for students already in place may already serve to raise investments in formal post-compulsory education to the socially optimal level.

Post-secondary education

On average across OECD countries, 69% of expenditure on tertiary institutions was publicly funded in 2008, the last year for which data is available (OECD, 2011c). Although most OECD countries publicly fund more than 80% of tertiary education expenditures, there are outliers, including Chile and Korea, where less than 25% is publicly funded, as well as Japan, the United Kingdom and the United States, where less than 40% is publicly funded (indicator B3, OECD, 2011c). In countries like Japan and Korea, this reflects a widespread provision of education by private institutions (OECD, 2011c). Although these estimates only refer to the direct costs of education and ignore the cost of foregone earnings, they indicate large amounts of public spending on formal higher education in many countries. It is therefore unclear whether tax incentives for higher education are necessary in most OECD countries. There may however be a role for tax incentives for education provided (in compliance with quality standards) by private institutions, or in countries where tuition fees for public post-secondary education are high or in the process of increasing.

Lifelong learning and adult training

Like with formal higher education, the desirability of tax incentives to promote adult training depends largely on the extent of public funding. In practice, in OECD countries, some types of training are more likely delivered by private entities (e.g. foreign language courses) while others are more likely be delivered at little or no cost by public entities (e.g. university courses leading to a degree, adult literacy courses, etc.). There may be a role for tax incentives to stimulate participation in training programs that receive little or no public funding. However, since skills are likely to generate more positive spillovers when applied in the labour market, tax incentives should ideally be restricted to adult training that will be applied in the work force.

Possible tax incentives

Possible tax incentives to address positive externalities include:

- Refundable personal income tax (PIT) credits or transferable tax allowances for more than 100% of the direct costs of education or training
- Flat refundable personal income tax credits for students in particular educational or training programs (in addition to the deductibility of direct costs through tax allowances or credits).
- SSC exemptions or personal income tax credits for recent student graduates or for workers enrolled in training programs

- ***Credit market imperfections and missing insurance markets*** – These market failures are more likely to pose a barrier to investment in higher education for lower income households. Higher income households may be able to finance this education with savings or by borrowing against other assets, and may be able to self-insure against investment risks with their wealth. As such, tax incentives to address these market failures should be targeted at lower-income households. For example, this could be done with income-tested refundable. To address imperfect credit markets, it would be less costly for the government to provide loans or loan guarantees to students than to provide full subsidies. However, to the extent that low-income households are risk adverse with regards to debt, some subsidisation (through grants or tax incentives) may be justified on efficiency grounds.

Possible tax incentives

Possible tax incentives to address credit market imperfections include:

- Income-tested refundable personal income tax credits for more than 100% of the direct costs of education or training, with the option of advance payment.
- Income-tested refundable personal income tax credits for a portion of the living costs incurred during an educational or training program, with the option of advance payment.

In addition, the personal income tax system may be relied upon to determine the eligibility for income-tested government-subsidized loans or loan guarantees, as in Canada and Spain.

Possible tax-related mechanisms to address missing insurance markets include:

- Graduate taxes
- Progressive income taxes
- Income-contingent loans administered through the tax system
- Predictable tax rates in the long term (to reduce variation in annual after-tax returns)

Under a graduate tax system, those who benefit from publicly funded higher education would pay an additional income tax after completing their studies. The tax would be based on a proportional or progressive payment schedule that hedges against the risk of low human capital returns. The key difference between a graduate tax and an income-contingent loan system is that the graduate tax would not be linked to the cost of education on an individual basis, although it would be on an aggregate basis.

Under an income-contingent loans system, loan repayments are generally based on a progressive payment schedule, where repayments are not due until graduates' incomes exceed a certain threshold. The tax system is used to determine income-based annual repayment amounts and to collect loan repayments.

Investment in training by employers

- ***Positive externalities*** – Like for individuals, tax incentives aimed at addressing underinvestment in training by employers due to positive externalities may result in windfall gains. These can be reduced if tax incentives are limited to marginal investments (i.e. incremental investments yielding normal returns). For example, corporate tax incentives could be provided to employers if the share of training costs as a percentage of total payroll increased compared to the previous year. However, due in part to the difficulty in measuring human capital spillovers, it is not technically possible to design a tax incentive that accurately prevents windfall gains by providing tax relief for precisely the socially desirable training investments that would not take place based on private returns.

  Possible tax incentives and other tax measures

  Possible tax incentives to address positive externalities may include:

  - Refundable tax credits in respect of training costs or salaries paid to trainees (in addition to full deductibility of training and salary costs).
  - Employer SSC rate reductions or exemptions in respect of salaries paid to trainees.

As an alternative (or complement) to tax incentives, taxes or tax-like mechanisms can be used to enforce that employers make a minimum investment on employee training. For example, with a "train or pay" scheme, employers must make a mandatory contribution to a training fund if they do not invest a minimum amount (e.g. a percentage of total payroll costs) on employee training.

- ***Credit market imperfections and missing insurance markets*** – These market failures are more likely to pose a barrier to investment in training for small and new businesses. Tax incentives to address these sources of underinvestment should be targeted at these businesses. However, because tax incentives increase the return to training investments, they are an imperfect solution for lack of access to credit and uninsurable risks. More effective solutions may be sought outside the tax system.

  Possible tax incentives

  Possible tax incentives to address credit market imperfections and missing insurance markets may include:

  – Refundable tax credits in respect of training costs or salaries paid to trainees targeted at small employers (in addition to full deductibility of training and salary costs).

  – Employer SSC rate reductions or exemptions in respect of salaries paid to trainees, targeted at small employers.

Under revenue raising constraints, the need to finance tax incentives with relatively higher tax rates may undermine any efficiency gains from addressing market failures by generating deadweight losses (OECD, 2010b). Similar concerns apply to spending subsidies. But while both tax incentives and spending subsidies may lead to inefficiencies, practical considerations may favour relying on one or the other to when more efficient solutions are not feasible. For example, tax incentives may have the following advantages over spending subsidies:

- The take-up of grant-like tax reliefs (e.g. refundable tax credits) may be higher than that of application-based grants, particularly when taxpayers are required to file annual tax returns regardless of their income, and/or when it is difficult to generate public awareness of application-based grants.

- The administrative costs of delivering assistance through the tax system might be lower than the cost of running a spending program, particularly if duplication can be avoided (e.g. if subsidies are income-tested using a measure of income available on the tax return).

Spending subsidies may offer the following advantages over tax incentives:

- Public spending tends to be subject to more public scrutiny than tax expenditures, and as such is more transparent.

- Financial assistance provided through direct spending (e.g. student grants and public funding for institutions) may be more timely than that provided through tax incentives, because taxpayers must generally wait until after the end of the tax year to claim the tax incentives.

Policymakers must assess these practical considerations as well as the efficiency implications of different fiscal incentives when choosing the appropriate policy tool to address market failures. The distributional impact of fiscal incentives should also be taken into consideration to ensure that subsidies for human capital investment support equitable access to education and training.

3.2 Equity Considerations

While promoting efficiency is desirable, tax systems must balance this objective against equity considerations. From the point of view of tax policy, equity involves establishing a link between taxes and ability to pay. Vertical equity requires that higher taxes be paid by those with a higher ability to pay tax, which essentially reduces income inequality on an after-tax basis. Horizontal equity, on the other hand, requires that taxpayers in equal situations be taxed in an equal manner. This implies that similar taxes should be paid by those with similar ability to pay tax. From a broader perspective, and in the context of skills formation, equity also requires equal access to education and training, so that ability to pay does not pose a barrier to acquire skills. This section focuses on three aspects of equity in relation to human capital investments: vertical equity, horizontal equity, and equality of opportunity. Vertical and horizontal equity are discussed particularly in the context of the personal income tax system, which has traditionally been relied upon to achieve equity in the overall tax system. However, similar considerations apply to the design of SSC and CIT.

3.2.1 Vertical Equity

Investments in education and training by individuals

Vertical equity in taxation is often equated with tax progressivity. A progressive tax system is one where tax liabilities as a percentage of income rise with income; it implies a positive relation between average tax rates and income, so that those with a higher ability to pay tax pay *more than proportionately* higher taxes, such that the distribution of after-tax incomes is compressed relative to the pre-tax distribution. PIT systems in OECD countries typically involve a range of provisions that create progressivity, such as zero-rate bands, basic personal allowances and graduated tax rate schedules (OECD, 2012a). While graduated rate schedules are not necessary to institute progressivity in the PIT system, many OECD countries rely on multiple statutory tax brackets schedules to achieve a desired level of progressivity. But even flat tax systems with a single statutory tax rate involve more than one effective marginal and average tax rate on labour income if progressivity is introduced through basic personal allowances.

A key question in designing a tax system that enhances vertical equity is how to define ability to pay. In the context of personal income tax systems, the pragmatic response has been to proxy ability to pay with taxable income. From this point of view, since investments in skills generally translate into higher earnings, vertical equity calls for those with higher levels of education and training to pay higher taxes, which can be achieved through progressive taxation. Moreover, among taxpayers with similar educational attainment, tax progressivity implies those who benefit the most from skills formation ultimately pay higher taxes than those whose skills investment returns are small or negligible. The definition of ability to pay also determines the vertical equity implications of various forms of tax reliefs for education and training. For example, tax relief in the form of exemptions, allowances or tax credits is sometimes provided for the sources of finance of skills formation (e.g. scholarship income, student earnings, savings, debt). If income is used to proxy ability to pay tax, the extent to which tax relief for the sources of finance is unevenly distributed across taxpayers will have an impact on vertical equity and tax progressivity. For instance, tax-favoured savings accounts earmarked for education are more likely to be used by higher income households (OECD, 2007), and therefore reduce the progressivity of the tax system. On the other hand, student debt may be more common among middle-income households. In this case, the progressivity implications are an empirical matter.

Beyond progressive taxation, governments may seek to implement progressive fiscal policies by distributing the benefits of program spending in a progressive manner. Subsidies for higher education (in the form of direct funding for institutions or universal grants to students) are regressive to the extent that

members of higher income households are more likely to participate in post-compulsory education than those from lower income households. They are also regressive on a lifetime basis since those with higher educational attainment will tend to earn higher lifetime incomes. Progressive taxes and benefits can thus minimize the negative equity implications of education subsidies by reducing the gap in after-tax incomes between those who benefit from subsidized education and those who do not. Progressive taxes can also in principle help finance education subsidies through higher tax revenues. Compared to progressive personal income taxes, progressive graduate taxes would strengthen the link between taxes paid and education subsidies. To avoid creating undue disincentives to study, the introduction of a progressive graduate tax could be accompanied by a reduction in the general progressivity of the overall personal income tax system.

Investments in training by employers

The value of employer-financed training is commonly excluded from the PIT and SSC base. In cases where employees derive benefits from training, this amounts to the non-taxation of non-cash compensation. Evidence that employer-sponsored in vocational training is highly correlated with initial education levels [16] (OECD, 2003; OECD, 2005; Hansson, 2008) suggests that those with higher incomes may be more likely to benefit from employer-provided training, implying that SSC and PIT exemptions for employer-financed training reduce the progressivity of the tax system.

3.2.2 Horizontal Equity

Investments in education and training by individuals

Horizontal equity in taxation requires that those in equal circumstances be treated equally for tax purposes. However, the notion of an equal situation is a highly subjective concept. For example, it could be argued horizontal equity requires a similar treatment of imputed income (e.g. from home production) and cash income because both increase a person's well-being. Based on this reasoning, it is the sum of cash and imputed income that determines one's ability to pay. In the context of human capital, it could be argued that the costs of education and training legitimately reduce one's ability to pay tax, which provides a rational for granting PIT relief for the *direct costs* of education and training.[17]

If it is considered that horizontal equity requires granting tax relief for the costs of education and training, the next policy question is how to design it. For example, it could be a tax allowance (valued at the taxpayer's marginal tax rate), a non-refundable tax credit (valued at the same tax rate for all taxpayers), or a refundable tax credit (which may result in a negative income tax). Proponents of tax allowances would argue that providing a deduction from income accurately reflects how educational costs reduce disposable income and the ability to pay tax. Proponents of non-refundable tax credits would argue that the cost of a particular investment in skills reduces a person's ability to pay tax by a particular amount regardless of initial income levels, so the tax relief should reflect only the costs of education, and not be explicitly linked with income. Finally, proponents of refundable tax credits would argue that ability to pay should be taken into account not only when calculating tax liabilities but also to determine negative taxes (refunds).

But while some may argue that the costs of education reduce a person's ability to pay tax, others may argue that the costs of education represent an investment that increases wealth (in the form of human

[16] Both in terms of probability of participating in training and in terms of number of hours of training per year. The probability of receiving employer-sponsored training is estimated to be on average 9 percentage points smaller for workers with less than upper secondary education than for individuals with a tertiary qualification.

[17] Foregone earnings, which are *indirect costs* of education and training, are implicitly recognized as costs that reduce the ability to pay tax because they directly reduce pre-tax income.

capital) and generates returns (i.e. higher lifetime incomes). If it is argued that investments that increase net wealth do not reduce one's ability to pay tax, the horizontal equity argument for education tax relief is weakened.

One last view of horizontal equity is that individuals with equal lifetime incomes (in present value terms) should pay equal taxes over their lifetime. If the objective is to achieve horizontal equity over a person's lifetime (rather than annual) ability to pay, tax relief for the costs of education might support horizontal equity when the tax system is progressive on an annual basis. Such tax relief can potentially reduce the gap in lifetime taxes paid by individuals with different skills levels but equivalent lifetime incomes in net present value terms.[18] To ensure its effectiveness, it would be desirable to introduce carryover provisions to ensure that the tax relief can be claimed even by tax filers whose annual income is too low to benefit from deductions or non-refundable tax credits in the year the educational or training takes place.

Though the discussion has focused on whether horizontal equity provides a rational for tax relief for private expenditure on education and training, horizontal equity is also relevant to other aspects of the tax treatment of human capital. For example, a favourable tax treatment of the sources of finance of skills formation (e.g. scholarship income, student earnings, savings, debt) may be provided instead or in addition to tax relief for the direct costs of education and training. These measures reduce horizontal equity because taxpayers with equal incomes and in similar situations (i.e. students or trainees) are taxed differently depending on the composition of income sources used to fund their education. If it is the costs of education what reduces the ability to pay tax, providing tax relief for some but not all income sources that finance education is an imperfect substitute for expenditure-based tax relief.

Investments in training by employers

A horizontal equity issue that is relevant in the context of PIT as well as SSC is whether the value of employer-sponsored training paid directly by employers should be taxable. To the extent that employees benefit from employer-provided training, excluding the value of such training from the SSC and PIT base would violate horizontal equity. It would imply that those with equivalent remunerations have different tax liabilities depending on whether the remuneration is paid in cash (wages) or partly in-kind (a combination of wages and training benefits). On the other hand, if training is provided only to the benefit of the employer, it would be inequitable to include its value in the tax base of the trainee. The key issue is thus whether employer-sponsored training is provided to the employee solely for compensatory reasons, or whether it is provided solely for the benefit of the employer. In practice, it is difficult to determine the appropriate tax treatment of employer-sponsored training from the point of view of horizontal equity because training generally benefits both employers and employees, to different extents depending on the particular type of training.

[18] For example, assume person A, who does not invest in human capital, earns an annual income of $10,000 during his work life of 35 years. Person B earns $6,300 and pays $1,000 annually in tuition over five years while completing a postsecondary degree, and then earns $11,000 annually during her work life of 30 years. With a 3% discount rate, these individuals have roughly equivalent lifetime incomes, of about $221,300 in net present value terms. Assuming the first $10,000 of income are taxed at a rate of 10% and the remaining income at 12.7%, person B will pay roughly $465 more in taxes over her lifetime (in net present value terms) than person A in the absence of deductions for the cost of tuition. If tuition were deductible in the year it is paid, both individuals would pay roughly the same amount of tax (within $5) over their lifetime. In this example, a tax allowance for the cost of tuition improves horizontal equity over the life cycle. However, person B would be over (under) compensated with a tax allowance if the gap between the bottom and top statutory rates were smaller (larger), or if her tuition fees were larger (smaller).

3.2.3 Equality of Opportunity

Investments in education and training by individuals

Given that skills investments are expected to raise their lifetime earnings, it is important to ensure equal access to education and training so that investment in human capital can counter rather than increase income inequality. Capital market imperfections, risk aversion to debt, and misunderstanding the benefits of skills formation can create barriers to education and training for lower income households. Public funding and tax relief can be leveraged to ensure that financial considerations are not a barrier to skills development. On the spending side, a mixed system of loans and grants available to students in the public and private sector alike can be of help. In particular, income-contingent loans (whereby loan repayments are based on income) offer the advantage of not only providing credit but also mitigating the risk of earning low or negative returns to human capital. As such, they enhance access to education by individuals with low incomes (who cannot access credit) and little wealth (who cannot self-insure). On the tax side, income-tested grant-like refundable tax credits could help those with greater need. To determine the right mix of tax incentives and spending subsidies, practical considerations similar to those discussed in Section 3.1.2 should be assessed.

In the context of limited government resources and competing public priorities, efficiency considerations may require limiting access to education and training, since full public funding for everyone requires levying high tax rates, which may distort decisions about labour market participation and hours of work. In this case, when access is limited, the tax system may nonetheless serve to reduce income inequality through its progressivity. Tax progressivity is particularly important to offset the regressivity of education subsidies (given that, from a lifetime perspective, those who benefit from additional education have a higher ability to pay for it).

An alternative to a progressive tax system with public funding for skills formation is to implement income-contingent loans (or graduate taxes) along with less progressive personal income taxes. Income-contingent loans can be designed to be self-financing and to create the right mix of incentives so that access to credit does not pose a barrier to learning but the low private cost of education does not result in overinvestment. Nonetheless, because these loans raise marginal effective tax rates during the repayment period, they can potentially hinder investment in skills, particularly if combined with highly progressive income tax rates.

Investments in adult training by employers

Women, older workers and employees of small and medium enterprises (SMEs) are less likely to participate in employer-sponsored adult training than other workers (OECD, 2011a, 2012b). While in some cases these training gaps may not be inefficient in the sense that they may reflect lower perceived returns to training from the perspective of employers, they create inequities by hindering access to up-skilling and career mobility for certain workers. A mix of fiscal and non-fiscal tools could be used to address these training gaps. For example, policies that focus on the recognition of informal skills development with appropriate qualifications can encourage SMEs to provide more training, since they are much more likely to use informal rather than formal skills development; and they see better outcomes from informal activities than from formal ones (OECD, 2012c). On the tax side, tax incentives for employer-sponsored training could be targeted at older workers and other employees that are less likely to receive training.

3.3 Simplicity Considerations

A simple tax system is easy to comply with and easy to administer. Ease of compliance ensures that eligible tax filers make use of the tax relief available to them, and also avoids misreporting issues that can

lead to underpayment of tax. Ease of administration reduces the welfare losses associated with taxation by reducing the costs of administration. A simple tax system also reduces opportunities for tax planning, which may otherwise reduce tax revenues.

The main complexities in the tax system arise from the definition of the tax base. For example, in practice, personal tax allowances for the costs of skills acquisition complicate the calculation of taxable income because they are subject to an array of restrictions introduced for equity or administrative feasibility considerations (e.g. ceilings on the amounts that can be claimed, restrictions on the types of eligible education institutions, etc.). The design of targeted tax relief for education and training can thus significantly increase the complexity of the tax base. The interaction between different forms of tax relief (for example, whether claiming one form of relief precludes claiming another) can introduce further complexity.

3.4 Efficiency, Equity and Simplicity Trade-offs

Broader Aspects of Efficiency

The efficiency considerations for the tax treatment of human capital outlined in section 3.1 assume that other aspects of the tax system are neutral, for example, with respect to labour market participation. However, the tax system may create disincentives to work, including incentives for early retirement, which may in turn influence the net present value of the return to human capital investments.

Taking into account the impact of taxes on labour supply implies that there may be efficiency-efficiency trade-offs that alter the conditions for neutrality in the tax treatment of human capital. For example, assuming there are no taxes on capital income and that labour supply is inelastic, flat taxes on labour income are neutral towards marginal human capital investments. However, to collect the same amount of tax revenue as a progressive tax system, a flat tax system requires a relatively high tax rate on lower income levels, which in practice can discourage participation in the labour force altogether. By doing so, flat taxes create disincentives for skills formation for those who anticipate not participating in the labour market. Jacobs (2002) demonstrates that a flat tax reduces human capital investment if labour supply is upward sloping (i.e. if the substitution effect dominates the income effect). In this context, there is an efficiency trade-off between discouraging participation and distorting marginal investments in skills, which makes unclear whether a flat tax is always preferable to a progressive tax system in the absence of empirical evidence.

Another possible efficiency advantage of progressive tax systems is that, by reducing the spread of after-tax incomes (i.e. human capital returns), they may mitigate underinvestment in human capital resulting from missing insurance markets. However, progressive taxes also have a negative impact on the incentive to invest in skills by reducing human capital returns (relative to the alternative return). In this case, there is an efficiency trade-off between reducing underinvestment resulting from missing insurance markets and avoiding underinvestment as a result of reduced after-tax human capital returns. It is unclear which effect dominates the other. Solutions to the problem of missing insurance markets could also be sought outside the tax system to avoid creating tax disincentives to learn and work.

The impact of taxes on retirement decisions may also require deviating from the neutrality conditions outlined in Section 3.1. Pension tax concessions may encourage older workers to retire early or to delay retirement, depending on trade-offs between pension wealth and the gross replacement rate. Retirement incentives or disincentives introduced by the tax system thus affect the number of years over which skills investments yield financial returns, affecting their net present value. The impact of taxes on pensions on skills formation will vary along the life-cycle of an individual, and gain prominence as workers approach retirement. Therefore, the tax treatment of pensions could justify providing tax relief for older workers in

addition to the full deductibility of training costs to offset any disincentives created by the taxation of pensions. However, a more efficient solution would be to directly eliminate any tax incentives for early retirement.

Finally, the non-taxation of the non-pecuniary costs (e.g. stress) and benefits (e.g. prestige) of skills could potentially create tax distortions (incentives or disincentives) that affect skills investment decisions. This implies that if non-pecuniary aspects of investments are taken into account (e.g. if they could somehow be quantified), tax neutrality may require deviating from a flat tax system with allowances for the costs of education.

Efficiency-Equity Trade-offs

While social preferences regarding vertical equity and the extent of inequality in after-tax incomes may justify a progressive tax system, efficiency calls for lower degrees of tax progressivity to avoid creating disincentives to invest in skills. Horizontal equity may provide a rationale for family-based taxes (and benefits), while efficiency considerations call for individual-based taxes (and benefits). When joint family taxation is combined with tax progressivity, (married) second earners will tend to face disincentives to enter the labour market. By being less likely to supply their skills in the labour force, they may be deterred from investing in skills in the first place. Indeed, Booth and Coles (2010) found that, on average across 20 OECD countries,[19] average years of female education are negatively associated (at a statistically significant level) with the tax wedge on secondary earners - an indicator developed by the authors to measure the "marriage penalty" of family-based taxation.[20] The choice to support horizontal equity through joint family taxation must therefore be balanced against any negative efficiency implications in terms of labour supply and human capital accumulation. Finally, while equal access to training may provide a rationale for tax incentives that encourage employers to train older workers, these investments may generate low returns (as workers approach retirement), which raises questions about their efficiency.

The theory of optimal taxation seeks to formalize the trade-offs between equity and efficiency objectives. The optimal tax system is such that the social welfare function is maximized subject to a set of constraints, which may include meeting certain efficiency objectives and raising a certain amount of revenue (Mankiw *et al*., 2009). In the classic framework developed by Mirrlees (1971), the social planner would like to tax those with high ability and give transfers to those of low ability. Ability is not directly observable so the social planner needs to ensure that those with high ability are not induced by the tax system to imitate those with low ability. Traditionally, optimal tax models have explored trade-offs between improving equity and reducing labour supply. However, in the context of human capital investments, efficiency requires not only preventing disincentives to work (since labour supply has an indirect impact on skills formation) but also avoiding disincentives to study (through the direct impact on human capital returns).

The decision to work and the decision to invest in skills both increase income, which is used in the tax system as a proxy of ability to pay. Skills investments increase income when (a) education

19 Australia, Austria, Belgium, Canada, the Czech Republic, Germany, Denmark, Finland, France, Great Britain, Ireland, Italy, Korea, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United States

20 This tax wedge on secondary earners is defined as the ratio between the tax on a secondary earner with 67% of the APW and the tax on a single individual with 67% of the average production worker wage, where the secondary earner's spouse earns 100% of the APW and the couple has 2 children. The tax on the secondary earner is defined as the difference between the tax paid by a two-earner household with joint income of 167% of the APW and the tax paid by a one-earner household with 100% of the APW wage, both with 2 children. The tax wedge represents a marriage penalty if its value is greater than 1, which is indeed the case for the mean wedge (1.36) in the 20 countries in the study.

complements labour supply, so that the return on education purely reflects an increase in work productivity, or (b) education complements ability, so that those with high ability extract (higher) economic rents after completing an additional level of education or an additional qualification. Jacobs and Bovenberg (2011) argue that the optimal design of a progressive tax system, taking into account equity and efficiency considerations, depends on which complementarity is stronger. If education is complementary with ability, it should be taxed (e.g. through progressive taxes) in order to redistribute income. If it is complementary to labour effort, education should be subsidized (e.g. through tax incentives) to offset tax distortions on labour supply.

Efficiency-Simplicity Trade-offs

Attaining efficiency can greatly complicate tax compliance and administration. For example, if efficiency considerations required that training investments be depreciated to reduce asset mix distortions (as a second-best alternative to a cash-flow treatment of all capital investments), it would be difficult to determine the appropriate rate of tax depreciation. Unlike with physical assets, employers cannot generally control the length of time that employees will continue to work for them, creating uncertainty about the life of the asset and its rate of true economic depreciation. Allowing employers to claim terminal losses on training investments when employees quit would be highly impractical. Moreover, to reflect the diversity of training programs, various different depreciable asset categories would have to be introduced for different types of training, creating complexity that translates into high compliance costs.

There may be an efficiency rationale to provide either neutral tax relief or tax incentives in respect of investments in adult training programs that receive little or no public funding. However, since adult training may involve an element of consumption, tax relief should ideally be restricted to adult training that will be applied in the work force. Some degree of complexity is ultimately unavoidable to meet the efficiency objective of taxing consumption but not investment. The main administrative challenge lies in determining whether adult training is being pursued with the intention of applying the skills learned in the labour market, or for personal development or leisure purposes. The compromise is likely to lie in setting easy-to-follow but arbitrary rules for determining the criteria under which training costs are eligible for tax relief. The practical response in some countries has been to avoid providing personal tax relief for adult training altogether.

Equity-Simplicity Trade-offs

An equitable tax treatment of human capital can also introduce complexities. For example, when the costs of training financed by individuals are not deductible for PIT purposes, horizontal equity requires taxing the value of employer-provided training as a fringe benefit when it is provided for compensatory reasons. However, including such fringe benefits in the tax base can increase compliance and administrative burdens, particularly when the cash value of the benefit cannot be easily determined (e.g. because the training is provided internally by the employer).

From the perspective of vertical equity, restricting the availability of certain tax reliefs may reduce the potentially negative impact of these tax reliefs on vertical equity by limiting the benefits provided to higher income taxpayers. For example, evidence from Canada and the United States shows that higher income households are more likely to save in tax-favoured education savings accounts (OECD, 2007). Ceilings on tax-favoured contributions can mitigate the negative distributional impacts. If academic merit scholarships are provided more often to students in higher income households, scholarship income exemptions could be capped. The challenge is that design elements that improve vertical equity also increase the complexity of the tax base. In the worst case, excessive complexity can discourage taxpayers from claiming tax relief altogether.

Governments must ultimately decide how to balance the trade-off between keeping administrative and compliance costs low and achieving efficiency and equity objectives in the tax treatment of human capital.

4. Tax Treatment of Human Capital in OECD Countries

OECD countries implement a wide range of measures to support investments in human capital. This section lists and briefly describes targeted tax provisions related to education and training in place in OECD countries. The information presented here draws on responses to the 2011 OECD Skills and Taxation questionnaire from *31* OECD countries[21] and two enhanced engagement countries – India and South Africa. It reflects legislative provisions in place in November 2011.

The purpose of this section is to provide an international comparison of *explicit* tax policy approaches to education and training. When discussing the tax treatment of human capital investments, politicians and stakeholders tend to focus on the existence or generosity of targeted tax measures such as those described here. However, it is important to remember that the general structure of the tax system, including its progressivity, plays an equally important role in shaping the impact of taxes on human capital investment returns. While the treatment of human capital in a country may seem generous based on targeted provisions in place, favourable tax provisions for alternative investments and, in the context of individuals, the progressivity of the tax system can both dampen the incentive to invest in skills. Thus, the availability of targeted tax relief for education and training does not necessarily imply that the tax system encourages human capital investments. For example, as seen in section 3.1.1, the deductibility of the direct costs of education may lead to a neutral, rather than favourable, tax treatment of marginal skills investments. The impact of taxes on human capital investments can be formalized through indicators such as the effective tax rate on marginal skills investments (Torres and Brys, forthcoming).

Targeted tax measures for education and training returns must be also be analysed within the context of educational policy. For example, countries may not provide tax allowances for tuition fees when public post-secondary education is provided free of charge. Furthermore, an unfavourable tax treatment of human capital returns may be offset by generous funding of higher education and training, so the overall impact of government on net human capital returns may be positive in spite of the their tax treatment.

Terminology used to describe tax relief varies across countries. For individuals, amounts deducted from gross earnings to arrive at taxable income are referred to here as *tax allowances*. For corporations, amounts deducted from gross profits to arrive at taxable income are referred to as *tax deductions*. For both individuals and corporations, amounts deducted from tax payable are *tax credits*. Tax credits are refundable when they may generate a negative tax liability (a refund) or non-refundable otherwise. Tax relief is a generic term that covers all forms of tax provisions that can potentially reduce a taxpayer's net tax liability.

Sections 4.1 to 4.7 describe targeted tax measures related to each of the seven channels through which taxes influence skills formation through their impact on human capital returns. Sections 4.8 and 4.9 discuss targeted tax measures that influence the incentive to supply or demand skills. Finally, Section 4.10 summarizes trends across OECD countries and analyses their efficiency, equity and compliance/ administrative implications.

[21] Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Ireland, Israel, Italy, Japan, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

4.1 Measures Related to the Direct Costs of Skills Investments

Personal Income Tax Relief for Expenditures on Education and Training

Table 1 summarizes the PIT relief measures in respect of private expenditures on education and training currently in place

for a fixed amount that is unrelated to the actual expenses incurred by the taxpayer (e.g. Canada's education tax credit, the Czech Republic's tax credit for young students). This amount may notionally represent the costs of education, whether direct or indirect.

Tax relief for the costs of work-related professional training

Sixteen countries provide PIT relief for continuing education expenses – Australia, Austria, Belgium, Canada, Finland, Germany, Israel, Luxembourg, the Netherlands, Norway, Portugal, Sweden, Switzerland, Turkey, the United Kingdom and the United States. However, the scope of expenses that can be claimed varies among countries. Some countries restrict tax relief to expenses on training that is directly related to the taxpayer's current employment (e.g. Australia, Luxembourg, Sweden, United Kingdom, United States) or to the taxpayer's current occupation or profession (e.g. Belgium, Finland, Israel, Switzerland, United States). For example, this may include training that is mandated by an employer or required to maintain membership in a professional association. Other countries also provide relief for training that prepares the taxpayer for a change in occupation (e.g. Austria, Germany).

The common feature shared by all the countries that provide tax allowances for continuing education is that training must be work-related; courses taken for personal leisure or without the intention of applying the skills learned in an income-producing activity are specifically excluded. Like with initial education, the scope of expenses that can be claimed is broader in some countries than in others. For example, training-related travel costs may be claimed in Australia and Germany but generally not in Denmark. Given the difficulties in determining whether formal education is linked to a taxpayer's current employment or occupation, some countries specifically exclude formal education from eligibility for PIT relief for work-related training expenses. For example, Norway and Switzerland exclude formal tertiary education and Germany excludes academic secondary schooling, even if work-related.

Table 1: Personal Income Tax Provisions for Education and Training Expenditures

Country	Tax Measure	Eligibility Criteria	Minimum / Maximum amount that may be claimed (2011)
Australia (1)	Tax allowance for education expenses	The education must be connected with the production of taxable income, or highly likely to increase earnings, but not sought to obtain employment or start a new income-earning activity. Eligible expenses include: - Tuition fees - Textbooks - Travel and living expenses while attending conferences, seminars or educational institutions	MIN: AUD 250 AUD for certain expenses
Australia (2)	Tax allowance for the education expenses of a child	The child must be in primary or secondary school. The parent must be eligible for certain government benefits. 50% of eligible expenses may be claimed. Eligible expenses include: - textbooks and tools - computers - school uniforms [Unclaimed expenses may be carried forward to the next year]	MAX: AUD 397 per primary school child and AUD 794 per secondary school child
Austria	Tax allowance for education expenses	Education and training must be to prepare for a change in occupation or to improve one's skills for one's employment. All reasonable expenses may be claimed	-
Belgium	Tax allowance for education expenses	Training must be linked to the current professional activity, but not to seek new employment. The allowance is provided as part of the standard deduction for work-related expenses.	-
Canada (1)	Non-refundable tax credit for educational expenses (15%)	The tax credit is in respect of tuition costs for postsecondary education or recognized occupational training. Unused amounts may be carried forward to a future year, or a maximum of CAD 5 000 may be transferred to a relative. Provinces also offer tax credits in respect of these expenses	MIN: CAD 100
Canada (2)	Non-refundable education and textbook tax credits (15%)	Two flat tax credits are provided to students enrolled part-time or full-time in postsecondary education. Unused amounts may be carried forward to a future year, or a maximum of CAD 5 000 may be transferred to a parent, grandparent or spouse.	Fixed Amount per month / Education tax credit / Textbook tax credit Full-time / CAD 400 / CAD 65 Part-time / CAD 120 / CAD 20
Canada (3)	Tax allowance for taxable tuition assistance	Tuition assistance for adult basic education or programs that do not qualify for the tuition tax credit can generally be deducted if the amount has been included in taxable income.	-
Canada (4)	Tax allowance for apprentice tools	Apprentice vehicle mechanics may deduct part of the new tools they purchase in the first year of an apprenticeship.	MIN: CAD 1 565 or 5% of the apprentice's income

Table 1: Personal Income Tax Provisions for Education and Training Expenditures (cont'd)

Czech Republic (1)	Refundable child tax credit	Eligibility for the refundable child tax credit (intended for dependants under the age of 18) is extended to dependent children under the age of 26 who are full-time students and reside with the parent.	Fixed amount: CZK 11 604
Czech Republic (2)	Refundable tax credit for students	A flat credit is provided to taxpayers under the age of 26 who are pursuing an academic training program (extended until the age of 28 for PhD programs).	Fixed amount: CZK 4 020
Denmark	Tax allowance for education expenses [1]	Courses must maintain or update professional training. Eligible expenses include the cost of courses and related books.	MIN: DKK 5 500 for employees
Estonia	Tax allowance for education expenses	Documented expenses related to enrolment in a public educational establishment, public university, licensed private schools or a recognized foreign educational establishment. The expenses may be claimed by the student, or by the parent, grandparent or sibling of a student who is under 26 years of age.	MAX: EUR 1 920 or 50% of income net of business deductions
Finland	Tax allowance for education expenses	Training must be necessary for the maintenance or development of the taxpayer's professional skills as an employee. However, if it leads to a formal qualification it is not eligible.	
Germany (1)	Tax allowance for (continuing) education expenses [2]	Work-related training expenses related to: - initial vocational training or initial academic studies (excluding academic secondary schooling) if the expenses result from a (current or future) professional occupation; - further education in one's current profession; or - retraining for a change of profession. Eligible expenses include: travel costs, meals while travelling, overnight accommodation, incidental travel expenses, professional literature and study space	-
Germany (2)	Tax allowance for (initial) education expenses	Expenses related to initial vocational training or initial academic studies that do not result from employment	MAX: EUR 4 000
Germany (3)	Child and training tax allowances	a) Eligibility for the refundable child tax credit is extended to dependent children over 18 who enrolled in vocational training. b) Parents may also claim a training allowance for dependent children over 18 who are enrolled in vocational training and do not live with the parent.	Fixed amounts: a) Child allowance: EUR 2 208 or more per child (amount varies with family composition) b) Training allowance: EUR 924 per child
Greece	Tax credit for education expenses (20%)	10% tax credit for: a) Educational expenses in respect of the enrolment of a taxpayer or a dependent child b) Rental expenses of a dependent child enrolled in a recognized educational institution if the dwelling is in the same region as the institution.	MAX: 10% of EUR 1 000 for each (a) and (b)
India	Tax allowance for education expenses	Tuition fees paid to any educational institution in respect of the studies of the taxpayer, his/her spouse or dependent children	INR 100 000

Table 1: Personal Income Tax Provisions for Education and Training Expenditures (cont'd)

Ireland	Non-refundable tax credit for educational expenses	Tuition fees paid on behalf of him/herself or on behalf of others for approved third-level courses or approved foreign language or IT training courses. Scholarships, grants, employer contributions or other sources of funding for tuition fees must be deducted from the amount that can be claimed.	MAX: EUR 7 000 In addition, the first EUR 1 000 of fees for part-time students and the first EUR 2 000 of fees for full-time students are disregarded. For foreign language or IT training, the course fees must be greater than EUR 315 and less than EUR 1 270
Israel	Tax allowance for education expenses	Education expenses incurred to maintain one's current professional/knowledge level	-
Italy	Non-refundable tax credit for education expenses	19% tax credit for: a) Direct costs of attending courses at the secondary education level or higher. b) Rental expenses incurred by those studying away from their regular place of residence.	a) MAX: For private or foreign institutions fees claimed cannot exceed the level of university taxes and contributions paid to Italian public institutions. For public institutions there is no ceiling. b) MAX: EUR 2 633
Luxembourg	Tax allowance for education expenses	Expenses related to vocational training related to the taxpayer's employment Eligible expenses consist of registration fees and specialized books	
Mexico	Tax allowance for education expenses	Tuition expenses paid by the taxpayer for his/her education or that of a child, parent or spouse, for educational levels between pre-primary and upper secondary (high school/ technical professional).	Maximum claims apply and vary from MXN 12 900 to 24 500 depending on educational level
Netherlands	Tax allowance for education expenses	Direct costs of education. Eligible expenses include tuition, books, tools and materials. [Note housing and travel costs are excluded]	MIN: EUR 500 MAX: EUR 15 000
Norway	Tax allowance	Expenses related to adult training (e.g. knowledge upgrading) beyond basic formal education (e.g. university, vocational training)	-
Portugal (1)	Tax allowance for education expenses	Professional training expenses and fees paid to professional associations.	MAX: EUR 170 (in 2010) (training expense amounts exceeding this limit are eligible for the tax credit below)
Portugal (2)	Non-refundable tax credit for education or training expenses	30% tax credit for educational and training expenses in respect of all levels of education and professional training. Eligible expenses include the cost of early childhood learning, textbooks and related materials. Between the ages of 18 and 25, expenses may be claimed by the student or by the parents.	MAX: 160% of the Social Benefit Index for families with less than three dependants (EUR 760); and 30% of the SBI for each additional dependant (e.g. EUR 1 187 if 3 dependants)

Table 1: Personal Income Tax Provisions for Education and Training Expenditures (cont'd)

<table>
<tr><td rowspan="3">Spain</td><td rowspan="3">Regional/local non-refundable tax credits</td><td>Canary Islands: means-tested tax credit for expenses in higher education incurred on a behalf of dependant who resides outside the islands.</td><td>MAX: EUR 1 500</td></tr>
<tr><td>Madrid: tax credit for expenses related to the compulsory education of a dependant</td><td>MAX: EUR 900</td></tr>
<tr><td>Baleares: tax credit for the cost of textbooks related to the education of a dependant</td><td>-</td></tr>
<tr><td>Sweden</td><td>Tax allowance for education expenses</td><td>a) Private direct costs of education if necessary for the taxpayer's employment. The taxpayer must be receiving full or near full taxable compensation from the employer while acquiring the education.
b) Increased living expenses (e.g. travel costs) as a result of education that is comparable to work.</td><td>-</td></tr>
<tr><td>Switzerland</td><td>Tax allowance for education expenses</td><td>Direct costs of advanced training activities that are required to maintain the taxpayer's current occupation.</td><td></td></tr>
<tr><td>Turkey</td><td>Tax allowance for education expenses, including those of a child</td><td>Expenses in respect of education undertaken by the taxpayer, his/her spouse or dependent children.</td><td>MAX: 10% of income</td></tr>
<tr><td>United Kingdom</td><td>Tax allowance for education expenses [2]</td><td>Expenses wholly, exclusively and necessarily in the performance of the duties</td><td></td></tr>
<tr><td>United States (1)***</td><td>Tax allowance for education expenses [3] (non-Itemized Tuition and Fees deduction)</td><td>Tuition and enrolment fees and related course materials</td><td>
<table>
<tr><td colspan="2">Married filing jointly</td></tr>
<tr><td>Adjusted gross income (USD)</td><td>Max. Claim (USD)</td></tr>
<tr><td>< 130 000</td><td>4 000</td></tr>
<tr><td>130 000 - 160 000</td><td>2 000</td></tr>
<tr><td>> 160 000</td><td>0</td></tr>
<tr><td colspan="2">Other tax filers</td></tr>
<tr><td>Adjusted gross income (USD)</td><td>Max. Claim (USD)</td></tr>
<tr><td>< 65 000</td><td>4 000</td></tr>
<tr><td>65 000 - 80 000</td><td>2 000</td></tr>
<tr><td>> 80 000</td><td>0</td></tr>
</table>
</td></tr>
<tr><td>United States (2)</td><td>Tax allowance for work-related expenses (Itemized work-related expense deduction)</td><td>Educational costs incurred by taxpayers who are employed or self-employed if:
a) required by the employer or by law to maintain the present salary, status or job, or
b) related to education that maintains or improves skills in the present occupation.
Eligible expenses consist of tuition fees, books, supplies, certain transportation and travel costs and certain other educational costs [Education expenses necessary to meet the minimum qualifications for the present occupation or that prepares the taxpayer to exercise a new occupation cannot be deducted]</td><td></td></tr>
</table>

Table 1: Personal Income Tax Provisions for Education and Training Expenditures (cont'd)

United States (3)	Partially refundable tax credit (Lifetime Learning Tax Credit)	20% of the first USD 10 000 of eligible expenses, which consist of tuition and enrolment fees and related course materials	MAX: USD 2 000 In addition, the credit amount is reduced with income and is fully phased out at 120 000 USD for married couples filing jointly or 60 000 for other tax filers.
United States (4)	Non-Refundable tax credit (American Opportunity Tax Credit)[4]	Eligible expenses in respect of an undergraduate university degree. The credit can be claimed for up to 4 years. It is calculated as 100% of the first USD 2 000 of eligible expenses, 25% on the next USD 2 000 of expenses. 40% of the credit is refundable under certain conditions. Eligible expenses consist of tuition and enrolment fees and course related materials.	MAX: USD 2 500 In addition, the credit amount is reduced with income and is fully phased out at USD 160 000 for married couples filing jointly or at USD 90 000 for other tax filers.
United States (5)	Tax allowance for dependent students	Eligibility for the tax allowance for dependants (intended for dependants under the age of 19) is extended to dependent children under the age of 24 who are full-time students.	Fixed amount: USD 3 700
United States (6)	Earned Income Tax Credit in respect of dependent students	Eligibility for the child component of the Earned Income Tax Credit (intended for dependants under the age of 19) is extended to dependent children under the age of 24 who are full-time students.	Student is: / Max. Credit in respect of student* Only qualifying child: 3 094** 2nd qualifying child: 2 018 3rd qualifying child: 639 * Actual EITC depends on earned income and adjusted gross income ** Assuming the tax filer is otherwise not entitled to the no-child EITC

1 For employees, the allowance reduces the tax base of the health tax, local tax, and church tax. For the self-employed, it also reduces the tax base of the central income tax and labour market contributions.
2 The allowance for work-related training expenses can only be claimed against taxable *employment* income.
3 This allowance expired at the end of 2011.
4 This tax credit is scheduled to expire by the end of 2012.
*** In addition, direct transfers to educational institutions for undergraduate or graduate tuition are exempt from gift taxes.

Corporate Income Tax Relief for Expenditures on Education and Training

The CIT treatment of employee training expenses is more homogeneous across OECD countries than the PIT treatment. Table 2 summarizes the CIT treatment of employee training expenses paid directly by employers in the 33 countries surveyed in this study. In all of them except for Luxembourg, training expenditures (other than related depreciable capital assets) are generally deductible from business income in the year they are incurred. However, Italian firms may choose to either immediately expense or to depreciate the costs (on a straight-line basis) over the course of up to five years. In Luxembourg, corporations can claim a tax credit rather instead of an allowance for the costs of training. Some countries provide tax credits or enhanced tax deductions for the costs of employee training in addition to the standard deductibility of these costs, as shown also in Table 2. Other countries provide tax relief for employers in respect of wages paid to trainees and apprentices beyond the standard deductibility of wages. These

measures, which are summarized in Table 3, include additional CIT credits and deductions, SSC exemptions and reduced SSC rates.

Some countries impose restrictions regarding the CIT deductibility of employee training costs, whereby costs are only fully deductible if they are related to the business activities of the firm. This requirement, or slight variations of it, is in place in 22 OECD countries – Chile, the Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Ireland, Israel, Mexico, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States – as well as India. In Sweden, training involving a prominent recreational element can also be deducted but the amount may be reduced. In the United States the restriction only applies when training costs per employee exceed a specified threshold (USD 5 250). In the remaining 11 countries, while training costs unrelated to the business activities are not deductible as training expenses, they may ultimately be deductible as labour costs if deemed part of total employee compensation.

Unincorporated businesses and self-employed individuals generally benefit from provisions similar to those available to corporations regarding the deductibility of training costs. However, in Canada and the United Kingdom sole proprietors may deduct training costs from their business income in the year the costs are incurred only if the training is wholly and exclusively for the purposes of the trade and it updates or maintains the proprietor's expertise. If, on the other hand, training gives proprietors new expertise, knowledge or skills, the expenses must be capitalized rather than immediately deducted. In contrast, rules that distinguish the impact of training on an employee's skills or expertise do not apply in the context of CIT.

Countries that seek to stimulate employer-provided training may opt for providing tax relief for training costs or trainee remuneration beyond the standard CIT deductibility of these costs. While neutrality with respect to training requires CIT deductibility of training costs, further tax relief provides a tax incentive for training. In total, eight OECD countries have at least one training tax incentive in place. Five countries provide CIT incentives for direct training costs – Austria, Chile, Japan, Luxembourg and Spain (in 2011) (see Table 2). Two countries – Austria and Belgium – provide CIT incentives for hiring trainees, and four countries provide employer SSC incentives in respect of wages paid to trainees – Austria, Italy, the Netherlands and Spain (see Table 3). Some of the wage-related tax incentives in place are aimed exclusively at apprentices. This is the case with Austria's refundable CIT credit for apprentices and SSC exemptions for apprentice wages, and Belgium's additional CIT allowance for wages paid to apprentices. In contrast, in Slovenia the deductibility of apprentice wages is limited – the deduction cannot exceed 20% of the average national wage. In Hungary, the first HUF 232 500 paid to employees as reimbursement of work-related training costs are not subject to certain employer SSCs (reducing the employer's tax burden from 51.17% to 30.94%). This provision is not viewed here as tax incentive, since it simply avoids distorting an employer's choice of whether to pay for training directly or by reimbursing the employee.

Tax incentives for training are sometimes targeted at small and medium sized firms (SMEs), which are less likely to offer training, or at particular types of employees who are less likely to receive training. For example, in 2005, Japan introduced a tax credit for training costs, which complements the full deductibility of these costs for corporate tax purposes. While originally available to all firms, eligibility for the tax credit was restricted in 2008 to SMEs, when it was considered that training in large companies had grown adequately. This credit will be abolished upon its expiration in 2012 because it is considered that training has also grown sufficiently among SMEs. In Spain, SSC exemptions for wages paid to trainees are granted only in respect of young employees (aged 16 to 24).

Table 2: Corporate Income Tax Provisions for Expenditures in Education and Training

Country	Tax Measure	Eligibility criteria
Australia	Tax deduction– Full expensing	Employee training costs
Austria (1)	Tax deduction – Full expensing	Employee training costs
Austria (2)	Additional tax deduction (20%) ("Bildungsfreibetrag") OR:	Internal or external costs of employee training, if the 6% tax credit in respect of these costs is not claimed.
Austria (3)	Refundable tax credit (6%) ("Bildungsprämie")	External costs of employee training, if the 20% allowance in respect of these costs is not claimed.
Belgium	Tax deduction – Full expensing	Employee training costs
Canada	Tax deduction – Full expensing	Employee training costs provided that they are reasonable, regardless of whether the employee benefits.
Chile (1)	Tax deduction – Full expensing	Employee training costs if the expenses are necessary in the course of earning business income.
Chile (2)	Refundable Tax Credit	The credit is the lesser of the amount of employee training expenses and 1% of payroll (calculated on a monthly basis).
Czech Republic	Tax deduction – Full expensing	a) Costs of employee training that is related to the business activities of the employer. b) incentive bonus of up to 5 000 CZK paid to university students or up to 2 000 CZK paid to high school students
Denmark	Tax deduction – Full expensing	Employee training costs if training contributes to the income of the firm.
Estonia	Tax deduction – Full expensing	Direct costs of work-related employee training, including vocational, degree, and diploma education, as well as the cost of retraining employees that have been laid off.
Finland	Tax deduction – Full expensing	Costs of employee training that updates or maintains professional skills and that are incurred for the purpose of earning business income. Expenses related to basic education are specifically excluded.
Germany	Tax deduction – Full expensing	Employee training costs (if incurred for the purpose of running the business).
Greece	Tax deduction – Full expensing	Costs of employee training if related to the employer's business activities or the employee's work-related activities, including the use of computers or software as required by the employer.
Hungary	Tax deduction – Full expensing	Employee training costs, including compulsory payments made in connection to training.
India	Tax deduction – Full expensing	Employee training costs if incurred wholly and exclusively for the purpose of running the business.
Ireland	Tax deduction – Full expensing	Employee training costs if incurred wholly and exclusively for the purposes of the trade.
Israel	Tax deduction – Full expensing	Costs of employee training that maintains a worker's skills level and that is to the employer's advantage
Italy	Tax deduction– Full expensing OR Depreciation (20% to 100%)	Employee training costs may be fully deducted in the year they are incurred or depreciated in no more than 5 years on a straight-line basis.
Japan (1)	Tax deduction – Full expensing	Employee training costs can be fully expensed, except for assets acquired for the purpose of employee training, which must be depreciated.
Japan (2)	Tax Credit (8% – 12%) [1]	Employee training costs (compensation paid to those training the employees, rental of training facilities, etc.) paid by SMEs (i.e. with less than 100 YEN million in capital), provided that the SME incurs training costs of more than 0.15% of labour costs (defined as salaries, legal welfare expense and employee training costs).
Luxembourg	Non-refundable Tax Credit (10%)	Vocational training expenses. Unused credits can be carried forward for up to 10 years
Mexico	Tax deduction– Full expensing	Employee training costs if necessary for the ordinary course of business.

1 This tax credit expires in 2012.

Table 2: Corporate Income Tax Provisions for Expenditures in Education and Training (cont'd)

Country	Tax Measure	Eligibility criteria
Netherlands	Tax deduction– Full expensing	Employee training costs
New Zealand	Tax deduction – Full expensing	Employee (internal and external) training costs if there is a sufficient link between the firm's income and the training costs.
Norway	Tax deduction – Full expensing	Employee training costs if related to the income earned by the firm, unless the costs are with respect to basic education (e.g. university, vocational training).
Poland	Tax deduction Allowance – Full Expensing	a) Employee training expenses if related to the employer's business activities.
Poland	Tax deduction for employer contributions to Training Fund	Employers that have established a training fund designed to finance or co-finance employee's education costs may deduct from income their contributions (of at least 0.25% of paid remuneration) made to the fund. However, if these contributions are not used for their intended purpose within two years they must be added back to income.
Portugal	Tax deduction – Full expensing	Employee training expenses, including fees, enrolment costs, textbooks, other materials, transportation and accommodation.
Slovak Republic	Tax deduction – Full expensing	a) Expenses for employee training conducted in the employer's own facilities and which is connected with the employer's business or activities. b) Costs paid for employees to attend a vocational school or a technical secondary school
Slovenia	Tax deduction – Full expensing	Employee training expenses (e.g. language courses, seminar registration fees, cost of part-time school) if they are necessary for performing a business activity.
South Africa (1)	Tax deduction – Full expensing	Employee training costs
South Africa (2)	Learnership tax incentive	Employers who sponsor employees for vocational or apprenticeship training provided by the qualifying authority may deduct R 30 000 upon commencement and R 30 000 upon completion of the program. These amounts increase to R 50 000 in the case of learners with disabilities.
Spain (1)	Tax deduction – Full expensing	Employee training costs (claimed on an accrual basis)
Spain (2)	Non-refundable tax Credit for IT training[2]	5% tax credit in respect of the costs of employee training in new ICT
Sweden	Tax deduction – Full expensing	Employee training costs if the expenses are incurred to generate and retain income. If the training involves a prominent recreational element, the amount of the deduction may be reduced.
Switzerland	Tax deduction – Full expensing	Employee training costs incurred in the course of carrying on business.
Turkey	Tax deduction – Full expensing	Educational expenses incurred to obtain a commercial gain.
UK	Tax deduction – Full expensing (timing of deduction follows GAAP)	Employee training and development costs if incurred wholly and exclusively for the purpose of the trade. The timing of these deductions follows GAAP (accrual method).
US	Tax deduction – Limited Expensing	a) Employee training costs (books, equipment, fees, supplies, tuition) of up to USD 5 250 per employee if they are part of a qualified educational assistance program [a training program generally designed for the benefit of any employee (i.e. is not concentrated among highly compensated employees, or among shareholders or owners who own more than 5% of the business) and where employees are not offered to substitute training with other forms of compensation that are otherwise taxable for the employee]. b) training costs not part of a qualified educational assistance program, or exceeding USD 5 250, if the employee training serves a business purpose for the employer and if the expenses would otherwise be deductible for PIT purposes if they had been paid by the employee (see Tuition and Fees Deduction in Table 1).

2 This tax credit expired at the end of 2011.

Table 3. Corporate Income Tax* and SSC Incentives for Wages paid to Trainees

Country	Tax Measure	Eligibility criteria
Austria	CIT - Refundable apprenticeship tax credit [1]	A tax credit ("Lehrlingsausbildungsprämie") of EUR 1 000 per year and per apprentice is provided to employers of apprentices.
Austria	SSC - Exemption for apprentice wages	a) Accident insurance exemption for all apprentices; b) Sickness insurance exemption for apprentices in the first or second year of an apprenticeship. c) Unemployment insurance exemption for apprentices excluding those in the last year of an apprenticeship.
Belgium	CIT - Additional allowance for apprentice wages (20%)	Employers may claim an additional allowance of 20% of the remuneration paid to apprentices for whom the employer receives a taxable training bonus.
Canada	CIT – Non-refundable apprenticeship tax credit (10%)	A tax credit of 10% of eligible salaries and wages is paid to employers of eligible apprentices, of up to CAD 2 000 per apprentice. Unused tax credits may be carried back 3 years or forward 20 years. [The following tax credits also apply at the provincial level: the British Columbia Training Tax Credit, the Manitoba Co-op Education and Apprenticeship Tax Credits, the Ontario Apprenticeship Training and Co-op Education Tax Credits, Nunavut's business training tax credit, and Quebec's tax credits for training in manufacturing, forestry and mining sectors, for francization, and for on-the-job training.]
Italy	SSC – Rate reduction	Eligible employees must be engaged in a "placement contract" consisting of theoretical and practical training. In addition, they must meet age, gender, disability and/or prior employment history criteria. SSC reduction rates vary by geographical region and with the employer's legal structure.
Netherlands	SSC – tax credit	Eligible employees are post-doctoral students, vocational training students or workers applying for an acknowledgment of acquired competences. The credit amount varies depending on the educational status of the employee. It is provided to employers as a reduction in the value of remittances due from personal income tax withholdings of employees.
Spain	SSC - Exemption in respect of young trainees	Eligible employees must be 16 to 24 years of age and without formal qualifications. The exemption may last 6 to 24 month, or up to 48 months in the case of workers with disabilities.

1 This tax credit was eliminated at the beginning of 2012.

* Tax relief measures in addition to the standard CIT deductibility of labour costs.

Sales Tax Relief for Expenditures on Education and Training

Table 4 summarizes the national VAT/GST treatment of educational services in 31 OECD countries (some of which are grouped under the European Union heading) and South Africa, as well as the Service Tax (ST) treatment of educational services in India. Most OECD countries with a VAT or GST system implement tax exemptions for educational services provided by recognized entities. Two notable exemptions are New Zealand and Turkey. In New Zealand, the standard GST rate applies on any supply of educational or training services. In Turkey, a reduced VAT rate of 8% applies to most educational services at universities, high schools and special training institutions, although education in particular fields (science, fine arts and agriculture) is generally exempt. In contrast, Australia zero-rates educational services, and Canada exempts them but provides partial GST rebates to educational service providers.

The European Union VAT Directive (2006/112/EC) exempts certain activities in the public interest from VAT. In compliance with the Directive, members of the European Union exempt from VAT education and vocational training and retraining services provided by recognized bodies, as well as closely related goods and services. Within the European Union, the definition of a recognized educational service provider eligible for VAT exemption may vary from one country to another, partly reflecting the significance of the private non-profit and for-profit sectors in the provision of education and training services. For example, VAT exemptions for privately provided education are available in Austria and Germany. In some countries, like Italy, private education is exempt from VAT only if supplied by non-profit providers or by entities recognized by public institutions.

Strict rules regarding the eligibility for a sales tax exemption also exist in countries outside the EU. For example, in India, vocational education services are exempt from the Service Tax if provided by recognized non-commercial entities, whereas tertiary education leading to a recognized degree is exempt whether it is provided by a public or a private institution.

Although adult training or retraining services provided by private suppliers are not always exempt from VAT/GST, employers who sell non-exempt supplies and pay for the costs of employee training may generally recover any sales tax paid on training services through input tax credits. From this perspective, VAT/GST provisions regarding education and training are more relevant in the context of services most often purchased by individuals – early child education and formal education up to the tertiary level. These are generally exempt from VAT in the OECD countries surveyed here.

In most countries, the VAT/GST exemption covers not only educational and training services but also related goods and/or services. The scope of related supplies that are exempt varies by country. For example, Australia exempts accommodation at boarding schools and Japan exempts examination and certification fees. On the other hand, accreditation or assessment services are taxable in the UK and study supplies for self-tutoring are taxable in Sweden.

Table 4: VAT/GST/ST Provisions for the Costs of Education and Training

Country	Tax Measure	Eligibility criteria
Australia	GST zero-rating	Accredited educational courses, and associated supplies including related administrative services (if provided by the same supplier), course materials, excursions and field trips, accommodation at boarding schools, curriculum-related goods, and supplies related to the recognition of prior learning. Accredited educational courses include accredited secondary, tertiary, special education, adult and community education, and professional or trade courses.
Canada	GST exemption (with partial sales tax rebates for inputs)	Tuition fees paid for courses provided to elementary and secondary school students; courses leading to credits towards a diploma or degree by a recognized school, university or college; and certain other types of vocational training. Although their services are exempt, non-profit public schools, universities and colleges are eligible for partial GST rebates of the taxes they pay on purchases relating to these services. A similar treatment applies in provinces whose sales tax is harmonized with the federal GST and in Quebec.
Chile	VAT exemption	Teaching activities of all educational and training establishments
European Union members[1]: Austria Belgium Czech Republic Denmark Estonia Finland Germany Greece Hungary Ireland Italy Luxembourg Netherlands Poland Portugal Slovak Republic Slovenia Spain Sweden United Kingdom	VAT exemption	As per the EU VAT directive (2006/112/EC): a) Children's or young people's education, school or university education, vocational training or retraining, including the supply of services and closely related goods, by recognized institutions. *Examples of closely related goods*: *Denmark:* laptop rentals for students, course reading materials *Portugal*: transport, meals, lodging *United Kingdom:* examination services b) Tuition given privately by teachers and covering school or university education.
Japan	VAT exemption ("non-taxable")	Tuition fees, admission fees, facility costs, examination fees and certification fees for eligible schools and vocational schools.
India	Service Tax exemption	a) Vocational training provided by centres or institutes affiliated to the National Council for Vocational Training. b) Courses leading to the award of a recognized degree c) Pre-school education d) Training in sports and recreational activities
Israel	VAT exemption	Education and training services provided by non-profit organizations.[1]
Mexico	VAT exemption	Educational services provided by the government, autonomous agencies or by recognized private institutions.
Norway	VAT exemption	a) Educational services provided by private and state institutions, including supplementary education and vocational training. b) instruction in recreational activities (e.g. music, dance)
South Africa	VAT exemption	Education and training services
Switzerland	VAT exemption	Education and training services, including certain associated services such as the provision of exams and tests.
Turkey (1)	Reduced VAT rate	A reduced VAT rate of 8% (compared to the 18% general rate) applies to: a) Educational services at universities, high schools, special training institutions. b) transportation services for students c) Dormitory services for students.
Turkey (2)	Vat exemption	Educational services provided by qualifying institutions regarding science, fine arts, expansion, generation and the encouragement of agriculture.

1 However, non-profit organizations are also subject to a 7.5% payroll tax from which private organizations are exempt.

4.2 Tax Relief for the Sources of Finance of Skills Investments

Tax Relief for Income used to Finance Education and Training

Table 5 summarizes the PIT and SSC provisions that reduce the costs of learning relative to a broad tax base in the 33 countries surveyed. These measures provide tax relief for specific forms of income that are reasonably expected to finance training and education expenses, such as scholarship income. Table 5 includes tax exemptions for the value of training or educational services paid for by an employer, although it could be debated whether or not this value should be included in taxable income in a broad-based benchmark tax system since training also can also benefit the employer (as discussed in Section 3.2). While in most cases income that is exempt from PIT is also exempt from SSC, exceptions apply in Japan and Spain, as indicated in the Table.

Of the 33 countries surveyed here, 26 have PIT and/or SSC exemptions in place for income from scholarships, bursaries, academic awards and/or grants. It must be noted, however, that the meaning of these terms varies across countries. Rules regarding the eligible use and source of exempt income tend to be quite country-specific. For example, some countries exempt from tax scholarships or other types of educational stipends provided by employers, as is the case in Chile, Israel, Italy, Mexico and the United Kingdom (except for scholarships in respect of tuition fees). In contrast, Australia, Austria and Norway explicitly restrict the exemption to amounts not received in connection with the taxpayer's employment. In most cases, scholarships, bursaries or grants awarded by the government are exempt from tax (e.g. Canada, the Czech Republic, Italy, Poland, the Slovak Republic, Slovenia, Spain), although some countries exempt only some types of government student assistance (e.g. Australia, New Zealand). In most countries the types of income that are exempt from PIT are also exempt from SSC. An exception is Canada, where post-doctoral fellowship income is exempt from SSC but generally not from PIT. Japan allows low-income students to defer their payments of social security contributions to the national pension plan.

While students whose sole income is from scholarships, bursaries, student grants and academic awards are generally exempt from PIT and SSC in most OECD countries, this is not usually the case for students earning employment income. Only Japan provides a general tax exemption for income earned by students, which covers income from business, employment, retirement or other employment-related sources. This exemption is subject to a limit and is only available to students whose total income does not exceed 14% of the average national wage. Slovenia provides a flat allowance to students under the age of 26 who earn income from temporary employment. This allowance is comparable to the tax credit provided to students under 26 in the Czech Republic (see Table 1), although Czech students are not required to earn employment income to be eligible for the tax credit. In addition, in Slovenia payments to apprentices and trainees for compulsory practical work as part of the educational process are exempt from PIT and SSC up to a certain limit. Turkey provides a similar exemption for apprentice wages, which is also subject to a limit (the minimum wage).

In all the OECD countries that were surveyed, as well as in India and South Africa, the value of employee training paid by an employer is generally not treated as taxable income in-kind of the employee for either PIT or SSC purposes. The scope of the exemption varies across countries. For example, expenses incurred in respect of general education are exempt in Poland but not in Norway, where only in-service (on-the-job) training and training beyond initial formal education are exempt. In Chile and Mexico, the value of training provided for the personal benefit of the employee (e.g. through employer-sponsored scholarships) is exempt from tax. In Hungary, the exemption is subject to a ceiling of 2.5 times the minimum wage. However, in many other countries employer-provided training must be work-related or otherwise connected with the employer's business activities to avoid being treated as a taxable income in-kind. This requirement applies in Estonia, Israel, New Zealand (except for health and safety training), Portugal (unless the employer does not deduct the training costs for CIT purposes), the Slovak Republic,

Slovenia, Spain, Sweden and the United Kingdom (except for re-training). If, in addition to benefiting the employer, training increases the educational qualifications of the employee, it is no longer exempt in Finland, Israel and the Slovak Republic. In the United States, work-related training is fully exempt, while tertiary education costs paid by an employer are only exempt up to a limit (USD 5 250 in 2011). In Australia, the value of employer-provided training is exempt only if it would otherwise be deductible by the taxpayer if he or she had incurred the training expenses personally.

Table 5: Personal Income Tax Provisions for Income Sources Related to Education and Training
(unless otherwise noted the same provisions apply for Social Security Contributions, where applicable)

Country	Tax Measure	Eligibility criteria
Australia (1)	Tax exemption for scholarships, bursaries and grants	a) Scholarships, bursaries or other educational allowances received by students enrolled full-time in a school, college or university, except where provided to the student conditional on becoming or continuing to be an employee of the payer, or where scholarships are not provided mainly for educational purposes. b) Supplementary government grants (to assist with living expenses) c) Commonwealth Trade Learning Scholarships or other payments to or in respect of students under a Commonwealth scheme which provides assistance for secondary education or the education of isolated children d) Scholarships, bursaries or other educational allowances provided by the Australian government to foreign students and trainees for the purpose of study/training. e) Grants from the Australian- American Educational Foundation f) Research fellowships from Endeavour Awards or Endeavour Executive Awards. g) the first 1 000 AUD of a bonus paid by a government for early completion of an apprenticeship. h) payments under the Skills for Sustainability, Australian Apprenticeship Incentive, Tools for your Trade. Note that education or training grants by the Australian government and scholarships provided by employers are generally taxable.
Australia (2)	Tax exemption for employer-paid training	Employee training costs if the employee would have been eligible to claim the costs as a PIT deduction if he or she had incurred the expense directly.
Austria (1)	Tax exemption for scholarships	- Scholarships received in the course of scholar or university education, excluding those granted by employers as employee compensation.
Austria (2)	Tax exemption for employer-paid training	Employee training expenses paid by an employer
Belgium (1)	PIT exemption for scholarships fellowships, prizes and subsidies	a) Income from doctoral fellowships in scientific research b) Prizes and subsidies received by scholars, authors or artists and provided by public authorities or non-profit public bodies. The first 3 460 EUR are exempt, and any remaining portion is taxed at a special rate of 16.5%.
Canada (1)	Tax exemption for scholarships	In general, scholarships, fellowships and bursaries in connection with a student's enrolment in a program eligible for the education tax credit (see Table 1)
Canada (2)	SSC exemption for post-doctoral fellowships	Fellowship income received in connection with programs of research and that do not lead to a degree are exempt from SSC but not from personal income tax.
Canada (3)	Tax exemption for employer-paid training	Employee training expenses paid by an employer if the training pertains to the employee's work for the employer
Chile (1)	Tax exemption for scholarships	Scholarships dedicated exclusively to the financing of education, including those paid by employers.
Chile (2)	Tax exemption for employer-paid training	Employee training expenses paid by an employer.
Czech Republic (1)	Tax exemption for scholarships	Scholarships awarded from the state budget
Czech Republic (2)	Tax exemption for incentive bonus	Incentive Bonus (paid by employers) of up to 2 000 CZK earned by high school students, or up to 5 000 CZK earned by university students.
Czech Republic (3)	Tax exemption for employer-paid training	Employee training costs associated with the professional development of employees and paid directly by the employer

Table 5: Personal Income Tax Provisions for Income Sources Related to Education and Training (cont'd)
(unless otherwise noted the same provisions apply for Social Security Contributions, where applicable)

Country	Tax Measure	Eligibility criteria
Denmark (1)	Tax Exemption for scholarships	Scholarships awarded for scientific work or studies abroad, provided that the grant is conditional on documented expenses including tuition fees and living costs.
Denmark (2)	Tax exemption for employer paid training	All expenses for training and education paid by an employer
Estonia (1)	Tax exemption for scholarships	Scholarship and grants paid from the state budget, in accordance to the law, or meeting the conditions established by the government; certain cultural, scientific and sports awards. Note that scholarships and grants provided by employers or are generally taxable.
Estonia (2)	Tax exemption for employer-paid training	Work-related expenses training paid by an employer
Finland (1)	Tax exemption for scholarships	Scholarships or other financial support received for studies, scientific research, artistic activities or sports. Limits apply when the source of funding is other than the state.
Finland (2)	Municipal tax allowance for grants	*At the municipal level only:* Student grants of up to EUR 2 600 per year.
Finland (3)	Tax exemption for employer-paid training	Employee training expenses if incurred to maintain or develop the employee's professional skills and if the training does not lead to a formal qualification.
Germany	Tax exemption for employer-paid training	Employee training costs. These may be paid by the employer or by the employee and subsequently refunded by the employer. Training may be provided by the employer or by a third party.
Greece (1)	Tax exemption for scholarships	Scholarships and grants issued by the state, a public entity or a private charity if granted to meet educational objectives, as well as those issued by a foreign state or organisation, and certain artistic and scientific awards;
Greece (2)	Tax exemption for employer-paid training	Employee training costs paid by employers.
Hungary (1)	Tax exemption for scholarships	In general, scholarships connected to international studies (e.g. provided to foreign students or to Hungarian students studying abroad) or within the framework on an international convention, and educational or research scholarships provided by foundations.
Hungary (2)	Tax exemption for employer-paid training	Up to 232 500 HUF paid by an employer to provide training in a formal education program to an employee are exempt (from Personal income tax, SSCs for pensions and unemployment, and the health care contribution) in the hands of the employee as long as the training is required by the employer and is work-related (i.e. related to the employee's job or the activities of the employer). Any amount exceeding 232 500 is a taxable benefit to the employee.
Hungary (3)	SSC exemption for employment income earned by students employed by school cooperatives	Income earned by secondary or post-secondary students under an employment contract with a school co-operative
India (1)	Tax exemption for scholarships	Scholarships granted to meet the costs of education
India (2)	Tax exemption for employer-paid training	Employee training expenses paid by an employer
Ireland (1)	Tax exemption for scholarships	Scholarships, bursaries and grants where the recipient of income is enrolled in full-time education.
Ireland (2)	Tax exemption for remuneration earned by apprentices and trainees	For trainees and apprentices in courses organized by the state training and employment agency, remuneration below the rate of social security benefits is exempt. Any additional remuneration paid by an employer is taxable.
Ireland (3)	Tax exemption for employer-provided training	Employee training expenses paid by an employer if the training is connected with the employee's job performance.
Ireland (4)	Tax exemption for employer-provided retraining for laid-off workers	Exemption of up to EUR 5 000 for the cost of employee retraining provided as part of a redundancy package.
Israel (1)	Tax exemption for scholarships	Scholarships given to a student or researcher in a higher education or research institution. An upper limit applies (LIS 92,000 in 2011)
Israel (2)	Tax exemption for employer-paid training	Employee training expenses paid by an employer if and only if incurred for the purpose of maintaining rather than upgrading the employee's skills level, to the benefit of the employer.

Table 5: Personal Income Tax Provisions for Income Sources Related to Education and Training (cont'd)
(unless otherwise noted the same provisions apply for Social Security Contributions, where applicable)

Country	Tax Measure	Eligibility criteria
Italy (1)	Tax exemption for bursaries	- Bursaries granted by universities and university education institutes for enrolment in specialization and post-graduate education programs or for post-graduate research activities. - Bursaries granted by the Italian State or by Italian Regions.
Italy (2)	Tax exemption for employer-paid training	- Employee training expenses paid by an employer - Bursaries paid by an employer for attendance in a post-secondary institution by an employee's dependant
Japan (1)	Tax exemption for income earned by students [1]	Income from business, employment, retirement or miscellaneous sources earned by the taxpayer as a result of work if the taxpayer is legally considered a student and his or her income from other sources does not exceed 100 000 yen and total income does not exceed 650 000 yen. The deduction is capped at 270 000 yen.
Japan (2)	Tax exemption for employer-paid training	Employee training expenses paid by an employer if training is directly required for the business activities of the employer
Luxembourg (1)	SSC exemption for scholarships	Scholarships, bursaries and grants are not submitted to any social security contributions.
Luxembourg (2)	SSC exemption for wages earned by students	Wages earned by full time students aged 15 to 27 are exempt from health care, pension, long term care, health at work, and crisis contributions.
Luxembourg (3)	Tax exemption for employer-paid training	Employee training expenses paid by an employer
Mexico	Tax exemption for employer-paid education and training	Scholarships paid by an employer for the employee or his or her children to attend any educational level, only if granted in a general manner through labour contracts (i.e. otherwise included in income). A formula-based limit applies which may reduce or effectively eliminate the exemption.
Netherlands (1)	Tax exemption for scholarships	- National scholarships (loan forgiveness) - Other scholarships, for values not exceeding national scholarships.
Netherlands (2)	Tax exemption for employer-paid training	Employee training expenses paid by an employer
New Zealand (1)	Tax exemption for scholarships and allowances	- Course Participation Allowance provided to social beneficiaries who incur extra costs participating in employment-related courses and programmes. - Scholarships or bursaries for attendance at an educational institution, except for certain grants.
New Zealand (2)	Tax exemption for employer-paid training	Employee training expenses paid by an employer if and only if the training directly relates to the worker's employment (e.g. training provided at the work premises or as a condition of employment) or if it is related to health and safety requirements.
New Zealand (3)	Limited tax exemption for young students [2]	People who are under 19, attended school at some time in the year, and had taxable income are entitled to a tax exemption on the first NZD 2 340 of self-employment income that is not subject to payroll withholding tax.
Norway (1)	Tax exemption for scholarships	Scholarships, grants, stipends that are not earned in connection to an employment.
Norway (2)	Tax exemption for employer-paid training	All in-service training and adult (post-qualifying) education expenses paid by an employer
Poland (1)	Tax exemption for scholarships, awards and financial assistance	- In general, scholarships, awards and government-provided financial assistance received by students of schools, higher vocational schools or universities or by candidates for a fine arts title. Limits to the exemption apply on certain kinds of income (academic school awards, scholarships provided by foundations and associations). - Reimbursement of the cost of long-distance commuting by primary or secondary school students. - Government-paid board and accommodation allowances received by teachers temporarily working abroad.
Poland (2)	Tax exemption for employer-paid training	Employee allowances received from employers and expenses directly paid by employers for the direct costs of professional upgrading and general education, in accordance with tax and labour code regulations.
Portugal (1)	Tax exemption for scholarships and grants	Scholarships and grants

Table 5: Personal Income Tax Provisions for Income Sources Related to Education and Training (cont'd)
(unless otherwise noted the same provisions apply for Social Security Contributions, where applicable)

Country	Tax Measure	Eligibility criteria
Portugal (2)	Tax exemption for employer-paid training	Employee training expenses paid by an employer.
Slovak Republic (1)	Tax exemption for scholarships and grants	a) Scholarships granted by the state or a university, or similar payments from abroad b) Scholarships provided to students under special legislation c) Subsidies and grants received from foundations, citizen associations, non-profit organizations, and non-investment funds d) Subsidies and contributions paid by the state, a municipality or region. e) Payments received directly by individuals as a result of international treaties f) Material support for students of technical secondary or vocational schools provided under special legislation. However, payments received as compensation for loss of income or in connection with income-generating activities are not exempt.
Slovak Republic (2)	Tax exemption for employer-paid training	Employee training expenses paid by an employer if the training is connected with the employer's business or activities. However, if training increases the level of education of the employee it is a taxable benefit for the employee.
Slovenia (1)	Tax exemption for scholarships and grants	Grants and scholarships earned by persons enrolled in primary or secondary school or students in full time education. The following exemption limits apply: a) if financed by the state, a foreign state or international organization : no limit b) if financed by other entities: exemption is limited up to the level of the minimum wage if studying in Slovenia, or up to 160% times the minimum wage if studying abroad.
Slovenia (2)	Tax allowance for wages earned by students	A special tax allowance (EUR 3 100.17 in 2010) is provided to students under 26 years of age (or initially enrolled in a program before their 26th birthday) earning income from temporary or occasional employment.
Slovenia (3)	Tax exemption for wages earned by trainees and apprentices	Remuneration earned by trainees and apprentices. Certain limits apply.
Slovenia (4)	Tax exemption for employer-paid training	Training and supplementary education expenses paid by the employer if the training is related to the employer's operations.
South Africa	Tax exemption for employer-paid training	Employee training expenses paid by an employer if the course is for the benefit of the employer and the course is completed.
Spain (1)	Tax exemption for scholarships and grants	Grants and scholarships (for all educational levels) granted by a public authority or a non-profit organization. The exemption is subject to an annual limit of 3 000 EUR if the amount is in respect of tuition fees, accident insurance and health insurance. If the amount is in respect of travel and lodging costs in relation to formal studies below the doctoral level, the annual limit is 15 000 EUR, or 18 000 EUR if the studies are conducted abroad. If the amount is in respect of PhD studies the limit is 18 000 EUR, or 21 600 EUR if the studies are conducted abroad.
Spain (2)	Tax exemption for employer-paid training	a) Employee upgrading, training or retraining costs paid directly by an employer if the training is required for the employee's performance of his or her work and it is related to the employer's business activities. b) Full or partial subsidies paid by an employer for the vocational training of an employee's child(ren), where payments are made directly by the employer to an authorized educational centre.
Sweden (1)	Tax exemption for scholarships	Scholarships and grants intended to finance education
Sweden (2)	Tax exemption for employer-paid training	Employee training costs if the training is relevant to the employee's work (whether or not it personally benefits the employee)
Switzerland (1)	Tax exemption for scholarships	Scholarships received by students who depend on this income to pay for their living costs. On the other hand, scholarships received in connection with an employment relationship are taxable.
Switzerland (2)	Tax exemption for employer-paid training	Employee training expenses paid by an employer
Turkey (1)	Tax exemption for wages earned by apprentices	Wages no exceeding the minimum wage earned by apprentices under the Law of Apprenticeship and Vocational Education.
Turkey (2)	Tax exemption for employer-paid training	Employee training expenses paid by an employer.

Table 5: Personal Income Tax Provisions for Income Sources Related to Education and Training (cont'd)
(unless otherwise noted the same provisions apply for Social Security Contributions, where applicable)

Country	Tax Measure	Eligibility criteria
UK (1)	Tax exemption for employer-funded scholarships	Payments received by students from an employer in respect of lodging, subsistence and travel allowances. Payments in respect of tuition fees are specifically excluded. To qualify, students must be enrolled full-time in a university, technical college or similar institution for at least one academic year and attend a course for least 20 weeks per year.
UK (2)	Tax exemption for employer-paid training	a) Work-related employee training expenses paid by an employer. b) Re-training expenses if the employee is leaving the employer.
US (1)	Tax exemption for scholarships and fellowship income	Scholarship or fellowship income received by candidates of a graduate or undergraduate degree if used to pay for tuition, non-academic fees, books, supplies and equipment.
US (2)	Tax exemption for employer-provided training or educational assistance	Tuition, fees and similar expenses, books, supplies and equipment in respect of undergraduate or graduate courses (which do not have to be work-related). The exemption applies to the first USD 5 250 in expenses per year. Expenses over USD 5 250 are exempt if they would be deductible as work-related expenses if paid for by the taxpayer.
1 In addition, while enrolled in a university, junior college, high school, specialised vocational high school or higher vocational school, students who are subject to making pension contributions may defer the payment for up to 10 years. 2 This measure is designed to reduce the compliance burden for individuals with small amounts of self-employment income.		

Tax Relief for Debt and Savings used to Finance of Education and Training

Tables 6 and 7 summarize PIT provisions that reduce the costs of learning by providing targeted relief for debt and savings used to finance education and training. Among the 31 OECD countries surveyed, 13 provide PIT relief for student debt. Australia, Norway, Poland and the United States provide tax exemptions for the value of student debt forgiveness (so does the Netherlands, but forgiven debt is considered a scholarship and included in Table 5). Belgium, Canada, Denmark, Finland, Germany, Norway, Sweden, the United States and the region of Catalonia in Spain provide PIT relief for interest on student debt. Hungary exempts from income the benefit that students may obtain from subsidized interest rates on loans issued by the student loan centre. India also provides tax relief for interest on loans taken to finance higher education. Italy provides tax relief for student debt, though not through the income tax system. Instead, student loans issued by financial institutions are subject to a reduced financial transaction tax rate.

Five countries – Canada, Germany, Israel, Mexico and the United States – provide a favourable personal income tax treatment of savings in designated accounts that are earmarked to finance the costs of education. In Canada, Mexico and the United States, contributions to designated education accounts are not deductible from income, but investment income earned in these accounts is exempt from tax. In Canada and the United States, taxpayers may under certain conditions tap into their tax-favoured retirement savings accounts to finance their education. In Germany, taxpayers may purchase educational endowment insurance to guarantee a minimum amount of savings for their children's education. Taxpayers can deduct these premiums in the calculation of taxable income. In Israel, employer contributions and investment income earned in designated accounts is exempt from tax. Although initially introduced to stimulate education savings, this favourable tax treatment is no longer contingent on earmarking the savings for education.

For CIT purposes, on the other hand, there are no particular tax provisions relating specifically to savings (retained earnings) or interest on debt used to finance employee training.

Table 6: Personal Income Tax Provisions for Debt used to Finance Education and Training

Country	Tax Measure	Eligibility criteria
Australia	Tax Exemption for Student Debt Forgiveness	The value of the debt forgiveness benefit received by graduates in the field of mathematics, science, education or nursing whose debt has been reduced by taking up employment in related occupations or in certain locations (i.e. beneficiaries of the Higher education Contribution Scheme – Higher Education Loan Program)
Belgium	Tax Allowance for Interest on Debt for Work-related Training	Interest payments on debt incurred to finance training expenses related to the current professional activity (i.e. expenses eligible for a PIT allowance). This is claimed as part of the deduction for work-related expenses.
Canada	Tax credit for Interest on student loans (15%)	Interest paid on student loans issued by governments may be claimed as a tax credit in the year the interest is paid or in the following 5 taxation years. All provinces offer similar tax credits.
Denmark	Tax Allowance for Interest on Student Loans (claimed against taxable income)	Interest payments on student loans are deductible from taxable income (at a rate of 33.7%), as are other interest payments.
Finland	Tax allowance for Interest on Student Loans (claimed against investment income) and tax credit for student loans	Interest payments on student loans issued by the Finnish government or other prescribed bodies are deductible from investment income. If, as a result, the value of all investment deductions exceeds investment income, a 28% credit is provided against earned income, within limits. In addition, taxpayers may under some conditions obtain a tax credit for student loans.
Germany	Tax Allowance for Interest on Debt for Work-related Training	Interest payments on debt incurred to finance training expenses that can be claimed as work-related expenses (i.e. educational expenses eligible for a PIT allowance).
Hungary	Tax exemption for Interest Rate Discounts for Student Loans	Interest rate discounts on loans obtained by students from the student loan centre (e.g. as a result of interest rate ceilings) are exempt from tax
India	Tax Allowance for interest on student loans	Interest payments on loans taken from a financial or charitable institution for the purpose of pursuing the higher education of the taxpayer, his/her spouse or a dependent child
Norway	Tax Allowance for Interest on Student Loans	Interest payments on student loans are deductible, as are other interest payments
Norway	Tax Exemption for Student Debt Forgiveness	Student debt issued by the Norwegian State Educational Fund that is pardoned for individuals in case of disability or settlement in certain regions of the country.
Poland	Tax Exemption for Student Debt Forgiveness	The amount of remitted student loans or credits granted pursuant to regulation.
Spain	Regional Tax Allowance for Interest on Student Loans	Catalonia provides a tax allowance for interest payments on student loans used to finance post-graduate (Masters and PhD) studies.
Sweden	Tax Credit for Interest of Private Student Loans	A 30% tax credit for loss of capital in respect of interest payments is provided in respect to loans with regular interest rates (i.e. excludes loans with a favourable interest rate provided by the national agency for student loans and contributions).
US	Tax Allowance for Interest on Student Loans (non-itemized deduction)	Interest on student loans that have been taken solely to pay for qualified educational expenses in respect of a graduate or undergraduate degree program in which the taxpayer, the spouse, or a dependant must have been enrolled at least half-time Limited to 2 500 USD per year, and reduced where income exceeds 120 000 for married couples filing jointly or 60 000 for other tax filers.
US	Tax Exemption for Student Debt Forgiveness	The portion of a student loan that is forgiven, if the loans was granted by an eligible lender to assist the borrower in attending an undergraduate or graduate program at an eligible institution, and the loan contained a debt forgiveness provision contingent on the borrower working for a period of time, in certain professions or for certain types of employers.

Table 7: Personal Income Tax Provisions for Savings used to Finance Education and Training

Country	Tax Measure	Eligibility criteria
Canada (1)	Tax exemption for investment income earned in education-related savings accounts (Registered Education Savings Plans)	A taxpayer may contribute to a Registered Education Savings Plan (RESP) on behalf of a designated beneficiary. The investment returns are not taxable under withdrawn for the education of the named beneficiary. They are then taxed in the hands of the student. Investment returns from Canada Education Savings Grants and Canada Learning Bonds deposited in an RESP benefit from the same treatment. The lifetime contribution limit is CAD 50 000 per beneficiary. The same tax treatment applies in all provinces. Alberta and Quebec provide additional incentives.
Canada (2)	Exemption from tax on retirement savings account withdrawals used for educational purposes	Under the Lifelong Learning Programs, Canadians may withdraw up to CAD 20 000 from a tax-favoured registered retirement savings plan to pursue full time post-secondary education. Withdrawals must be repaid to the individual's registered retirement plan. The same tax treatment applies in all provinces.
Germany	Tax Allowance for Educational Endowment Insurance Premiums	88% of educational endowment insurance premiums paid, if the term of the insurance began before January 1 2005 and the first premium was paid by December 31 2004. (Educational endowment insurance is a kind of endowment life insurance whereby parents can accumulate savings for the costs of a child's higher education and have a guaranteed a level of savings in case of death of a parent)
Israel	Tax Exemption for employer contributions and investment Income in education-related savings accounts	Voluntary employer contributions of 7.5% of a worker's salary, up to a ceiling, into an employee's savings fund, as well as related investment income. Originally intended as a savings vehicle for lifelong learning. Currently, the principal and investment income can be withdrawn without penalty for any purpose after 6 years.
Mexico	Tax Exemption for interest income on education-related savings accounts	Interest income earned by parents on investments made in special trusts for the purpose of financing their children's education up to the tertiary level.
US (1)	Tax Exemption for investment Income in education-related savings accounts: (a) Coverdell Savings Accounts (b) Qualified Tuition Plan	Investment income and withdrawals from designated savings accounts are tax exempt if they are less than qualifying expenses in respect of graduate or undergraduate university programs. Qualifying expenses consist of tuition fees, books, supplies, expenses for special needs services, room and board if at least half-time student, and, in the case of the Qualified Tuition Plan, computer technology. For the Coverdell Savings account, contributions are capped at up to USD 2 000 per beneficiary; this amount is reduced with income over USD 190 000 for couples filing jointly or USD 95 000 for other tax filers.
US (2)	Tax Exemption for interest on savings bonds used for educational purposes	Interest income earned on US savings bonds used to finance qualified education expenses. The value of the tax exemption is gradually reduced with income over USD 106 650 for couples filing jointly or USD 71 100 for other tax filers. Certain limits apply.
US (3)	Exemption from tax on Retirement Savings Account Withdrawals used for Educational Purposes	Early withdrawals (before age 69.5) from Individual Retirement Accounts are exempt from the additional 10% tax if used to finance tuition fees, books, supplies, expenses for special needs services, or room and board (if studying at least half-time) in respect of an undergraduate or graduate degree.

4.3 Measures Related to Foregone Earnings/Profits Resulting From Skills Investments

Because the indirect costs of skills investments consist of unrealized income (actual or imputed), there are no targeted tax measures explicitly linked to them in the countries included in this report. For individuals, the general tax treatment of employment income affects the value of foregone earnings. For employers the general tax treatment of corporate income affects the value of foregone profits (if any).

4.4 Measures Related to the Foregone Capital Income Resulting From Skills Investments

For individuals, the tax treatment of capital income, including interest income, dividend income and capital gains, affects the opportunity cost of investing in skills. For employers, the tax treatment of passive investment income, or the tax treatment of alternative depreciable capital investments affects the opportunity cost of training. The taxation of alternative capital investments is outside the scope of this paper, but is discussed in previous OECD work (OECD, 1994; Gordon and Tchilinguirian, 1998).

4.5 Measures Related to the Gross Financial Benefits of Skills Investments

Various Canadian provinces (Nova Scotia, New Brunswick, Saskatchewan) offer non-refundable tax credits that rebate tuition to recent tertiary education graduates. Israel provides a non-refundable tax credit for the completion of tertiary education degrees and certain professional certificates. A credit of LIS 2 508 is available for three years after the completion of an undergraduate degree or an eligible professional certificate and a credit of LIS 1 254 is available for two years after the completion of a master's degree. Since these tax reliefs are contingent on completion of a qualifying educational program, they provide an additional financial reward after the investment in education has been made, which can only be reaped if the taxpayer participates in the labour market (or otherwise has enough income) in order to benefit from a non-refundable tax credit.

In Denmark, foreign researchers benefit from reduced personal income taxes, increasing the financial reward of specialized education for those who relocate to Denmark. In total, 14 OECD countries included in this report (as well as France and Korea) have tax concessions broadly targeted at mobile highly-skilled workers, ranging from partial personal income tax exemptions on earned income for foreign researchers (Belgium, Italy and Sweden) to non-resident tax treatment for recent migrants (Spain). These measures are described in detail in *Taxation and Employment*, OECD Policy Study No. 21 (2011). Measures that create mobility incentives for highly skilled workers could also possibly after their human capital formation decisions, as the tax regimes (and employment and immigration opportunities) of foreign countries may be taken into consideration when assessing the costs and benefits of skills investments. These considerations may be particularly relevant for international students, who may have a choice between returning to their home country and staying in the host country after completing their studies.

4.6 Measures Related to the Uncertainty of Skills Investments

While not technically tax measures, Australia, New Zealand and the United Kingdom have income contingent loans for post-secondary education that are largely administered through the tax system. Annual repayment amounts are based on income reported in personal income tax returns, and the national tax administration generally collects loan repayments.[22]

Income contingent loans are more attractive to students than regular bank loans with government guarantees or mortgage-type loans for several reasons. Loan repayments are not required in periods of low income, so the cost of investing in education is paid only when the returns materialise. Graduates with low lifetime earnings may end up not repaying their loans in full. Loans whose repayments are tied to income reduce the riskiness of human capital investments by mitigating the uncertainty about whether the net investment returns will be significant or at least positive.

[22] Some exceptions apply. For example, in the UK, loans repayments from graduates living abroad are payable to the Student Loan Company (a government agency). Loan repayments from regular employees are withheld at source by employers, although they are subject to reconciliation on the tax form for cases when the annual amount withheld is too low or too high.

4.7 Measures that Mandate Employer-Provided Training

Five countries implement tax-like schemes that require employers to invest a minimum amount on employee training. This investment may be direct or indirect, taking the form of a compulsory contribution into a training fund that channels its revenues to training programs.

In Belgium, employers investing less than 0.1% of payroll costs on vocational training are subject to a social security contribution of 0.05% of gross wages. In addition, sectoral agreements in some industries require employers to make contributions to sectoral training institutions at a rate ranging between 1% and 10% of employees' gross earnings. These institutions are also financed by the European Social Fund and state funds.

Under the Spanish levy/grant scheme, revenues from the SSC in respect of professional/vocational training (corresponding to 0.7% of payroll) are directed into a training fund. An employer can then try to recover all or part of its SSC payment through applications for grants to finance its training plan. Spanish grants do not closely reflect company payments and therefore allow redistribution of funds towards jointly defined priorities (Ok and Tergeist, 2003). A similar system is in place in Greece, where employers can apply for non-taxable training subsidies from the fund to which they make compulsory contributions.

In Denmark, employers must contribute to a financial support scheme (Arbejdsgivernes Elevrefusion) that finances apprenticeships in vocational education and training. Employers, students, schools and committees may receive financial support from this scheme. Danish employers must also make contributions to the Skills Development Fund (Kompetenceudviklingsfond). The resulting revenue is partly channelled to employers through the Danish Employer's Confederation and partly used to finance training through the National Organization in Denmark.

In Hungary, the mandatory VET contribution (corresponding to 1.5% of labour costs) can be allocated by employers to (a) providing practical training for students in vocational education or higher education programs, (b) training their own employees (until 2011), (c) providing a subsidy to vocational or higher education institutions (until 2011), or (d) making a contribution to the labour market fund. Revenues raised by the labour market fund may be used to support vocational education and training, adult training purposes or for other purposes (e.g. training subsidies to enterprises subject to the VET contribution).

Table 8: Tax-Related Measures that Mandate Employer-Provided Training

Country	Measure	Description
Belgium	SSC for education leave	0.05% employer SSC
Denmark (1)	Financial support scheme for trainees	Employers must contribute approximately DKK 2 128 per worker per years towards a financial support scheme as
Denmark (2)	Skills Development Fund contribution	Employers must contribute DKK 0.31 per hour per worker and DKK 520 per worker per year towards a skills development fund.
Greece	Contribution for the Organization of Employment and Professional Training	All employers must contribute 0.45% of employees' gross pay to the OEPT.
Hungary	Vocational Education and Training (VET) Contribution	Employers must contribute 1.5% of total labour costs.
Spain	SSC for professional and vocational training	0.6% employer SSC and 0.1% employee SSC

4.8 Measures that Affect the Supply of Skills

Targeted tax measures that create an incentive or reduce the tax-induced disincentive to supply skills, or labour in general, include measures targeted at the participation of secondary earners, measures that affect the incentives to retire, and measures targeted at highly skilled mobile workers. These measures are discussed in detail in *Taxation and Employment*, OECD Tax Policy Study No. 21 (2011).

4.9 Measures that Stimulate the Demand for Trained Workers

While most tax relief explicitly related to human capital concerns the demand for education and training, tax relief measures can also be designed to stimulate the demand for skilled workers. For example, Spain offers an SSC rebate with respect to employees whose temporary training contract is converted into a permanent employment contract. Turkey extends the period during which employers benefit from a reduced SSC rate in respect of employees with higher qualifications. Both policies suggest that certain segments of the population who are skilled are unemployed or under-employed. In Spain, the SSC rebate complements the SSC exemption in respect of young trainees (see Table 3). Together, the two measures are intended to encourage employers to train and then retain young workers.

Table 9: Tax Measures that Stimulate the Demand for Trained Workers

Country	Tax Measure	Eligibility Criteria
Spain	SSC rebate for recent trainees	An SSC rebate of 500 EUR for men or 700 for women whose training employment contract is turned into a permanent employment contract
Turkey	SSC rate reduction	19.5% of the employer's [unemployment] contribution in respect of a qualifying employee is financed by the Unemployment Insurance Fund for a period of who 6 months to 48 months, depending on the employee's age, gender and level of qualification (e.g. 48 months for men age 18-29 and women older than 18 who possess a professional license; 36 months for those who have completed vocational and technical secondary or high school education; 6 months for students over 18 who have not obtained a license or qualification).

4.10 Summary and Analysis of OECD-wide Trends in the Tax Treatment of Human Capital

Tax treatment of investments in formal higher (upper secondary and post-secondary) education

Personal income tax relief for tuition fees, study materials and living expenses while studying tends to be the exception rather than the rule in OECD countries. Roughly one third of OECD countries[23] provide PIT allowances or tax credits for the direct costs of *higher education* (e.g. tuition fees, textbooks, tools, etc.). But though PIT relief for the costs of education leading to a formal qualification is only available in some countries, sales tax relief is quite common. In most OECD countries surveyed here, education and training services are exempt from value added taxes (VAT/GST), in line with the European Union VAT directives. With VAT exemptions, the final price of training and education services may embed the unrecoverable VAT paid on inputs by service providers. In Australia, education and training services are zero-rated, which is a more favourable regime than exemption since suppliers of education and training can reclaim any VAT paid on the inputs that they purchase.

[23] Canada, the Czech Republic, Estonia, Germany, Greece, Italy, the Netherlands, Portugal, Turkey, the United States and some regional governments in Spain.

There is thus an inconsistency between the VAT and the PIT treatment of human capital investments in many countries. The EU VAT directive states that the exemption is granted because education is an activity in the public interest. Thus, while higher education is generally viewed as a socially beneficial investment for VAT/GST purposes, it is viewed in many countries as a form of consumption for PIT purposes. Even when PIT relief is provided for the costs of education, it is often in the form of non-refundable tax credits subject to ceilings rather than in the form of tax allowances. This seems to imply that PIT relief is provided to enhance horizontal equity rather than to enhance efficiency by avoiding or reducing tax disincentives to invest in education. Governments wishing to improve the incentive to invest in higher education through tax policy changes could consider providing full tax deductibility of the direct costs of education. Zero-rating rather than exempting these costs from VAT/GST could also help. If equity goals are also important, tax credits for the costs of education, and in particularly refundable credits, may be more suitable than tax allowances.

Most countries provide personal tax relief for particular sources of income used to finance higher education. The most common type of relief, observed in 25 OECD countries included in this report, consists of a PIT and SSC exemption for income from scholarships and bursaries. A small number of countries provide other forms of personal income tax relief, such as tax allowances or credits for interest paid on student loans, and tax-favoured education-related savings accounts. In some countries, double personal tax relief is thus provided: first for the costs of education, and second for the income used to pay for (all or some of) these costs. However, some countries implement rules to prevent this "double-dipping." For example, in Ireland and the United States, expenses paid with tax-free scholarship income are not eligible for the tax credits provided for the direct costs of education.

The various forms of tax reliefs for income used to finance higher education tend to create horizontal inequities by introducing differences in the tax liability of taxpayers who have similar incomes and incur similar education costs. From an efficiency perspective, these tax expenditures are less effective at raising overall investment in higher education than expenditure-based tax relief since they do not reach all students and trainees. They may even disproportionately benefit higher income students, which not only creates windfall gains for them but also increases after-tax income inequality. These tax reliefs can also influence decisions about how to pay for education (e.g. with savings, debt or earnings). They may, however, serve other policy objectives. For example, a favourable tax treatment of merit-based scholarships might reinforce the incentive to improve academic performance. Exempting needs-based grants from taxation may help ensure that they effectively improve access to education among those from disadvantaged backgrounds. Finally, tax relief for interest on student loans may be a second-best solution to achieve tax neutrality with respect to asset mix when interest paid on other types of loans (e.g. home mortgage interest) is tax deductible.

Tax treatment of investments in adult training financed by employers or individuals

For corporate tax purposes, businesses can generally deduct the costs of training their employees as current (non-depreciable) expenses in all countries included in this report except Luxembourg, where a tax credit is provided instead of a deduction. This immediate expensing is a relatively favourable tax treatment, as most such training is an investment that is likely to add value for a business over a number of years (and depreciate only gradually). Such expensing is similar to business expenditure on intangibles (such as advertising, R&D) but more generous than investment in buildings and machinery where tax relief is spread over time, (possibly) in line with the assumed rate of depreciation of the assets. The immediate expensing of investment in skills is usually a pragmatic response on the part of the tax authorities to the difficulty of making objective judgements about the depreciation of skills over time. It also recognizes the risk that employers face of losing their employees shortly after receiving training or that employees will engage in wage bargaining and reduce the employer's anticipated return on the training investment.

Six countries – Austria, Belgium, Canada, Italy, the Netherlands and Spain – provide tax incentives for employers to train apprentices or other eligible employees. These take the form of additional CIT relief in respect of training expenses (beyond the standard deductibility) or SSC relief in respect of salaries and wages paid to trainees. However, it is difficult to conclude that these six countries offer more generous incentives for employer-provided training than others. Countries that do not provide tax incentives may nonetheless provide other forms of fiscal incentives. For example, Luxembourg directly pays for a share (14.5%) of a firm's investments in vocational training. Some countries use sticks rather than carrots: Belgium, Denmark, Greece and Spain implement "train-or-pay" systems or levy employer SSCs that specifically finance training funds. Their effectiveness may be limited because they encourage employers to increase their training investments only up to a minimum level. Again, non-tax policy measures outside the scope of this paper could achieve similar results. For example, regulations in the Slovak Republic require employers to provide health and safety training.

Roughly half of OECD countries[24] provide personal income tax allowances for the costs of eligible lifelong learning. Some of them restrict this tax relief to expenses directly related to one's current employment or occupation. In these cases, training costs are deductible by virtue of being an expense in the generation of current income rather than by being the cost of an investment expected to bear a stream of income in the future. This restriction is often implemented through strict administrative rules. For example, formal education leading to a qualification is specifically excluded in some countries. Restricting tax relief to training that is strictly related to one's current work creates complexity (since the meaning of "work-related" is ambiguous) and fails to recognize that non-work related training can be of economic value in the future. Training that is not strictly work-related may entail economic benefits not only to individuals, for example those seeking a change in career or occupation, but also to society, by enabling the work force to adjust to labour demand shocks and reducing skills mismatch. A more flexible definition of costs eligible for the tax deduction is therefore advisable. At the same time, it is desirable to restrict the tax relief to training that leads to the use of skills learned in the labour market so that training followed for leisure purposes is not treated as an investment. The main policy and administrative challenges lie in finding a balance between excluding leisure-related training and including non-work-related training with labour market application in the definition of eligible training. It appears that in the countries where training costs are not deductible for PIT purposes, the presumption is that training is an investment when paid by employers but a form of consumption when paid by individuals.

In contrast to the strict provisions regarding the PIT deductibility of training costs, the PIT treatment of employer-paid training is broadly generous. All OECD countries surveyed here treat the value of work-related training paid by an employer as exempt (non-taxable) income for both PIT and SSC purposes. Training paid by employers for compensatory reasons (i.e. not work-related) is only taxed in some countries, such as Canada and Ireland. In others, no specific distinction is made, which may imply that employer-paid training is always assumed to directly benefit the employer.

In the 15 OECD countries where workers cannot deduct the costs of training, there is a clear tax-induced incentive for employers to pay directly for training. This is because employer-financed training is paid with the pre-tax income of employers and value of this training is not subject to personal taxes, while employee-financed training is paid with the after-tax income of employees. To avoid this distortion, countries should consider allowing taxpayers to deduct the training costs they pay for both PIT and CIT purposes (in a consistent manner and subject to administrative constraints) and including in taxable income the value of vouchers, reimbursements or allowances received from employers for the purpose of financing tax-deductible training costs. Australia and the United States provide good examples of consistency in the tax treatment of adult training. In the United States, training costs that are not part of a qualified

[24] Australia, Austria, Belgium, Canada, Finland, Germany, Israel, Luxembourg, the Netherlands, Norway, Portugal, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

educational assistance program or that exceed USD 5 250 can only be deducted for CIT purposes when paid for by the employer only if they are deductible for PIT purposes when paid for by the employee. A similar rule applies in Australia.

Finally, adult training programs generally benefit from the same VAT exemptions in most OECD countries, like higher education services. However, the exemption does not tend to cover all forms of training, such as services offered by certain private providers in some countries. For employers, the cascading effect of VAT exemptions may create incentives for employers to self-supply training. For individuals, they may slightly reduce the incentive to acquire skills when training costs are not deductible for PIT purposes. Nonetheless, by nearly eliminating the tax paid on the costs of adult training, VAT exemptions effectively treat training as an investment rather than as consumption. While this is efficient with regards to human capital investments, it may favour leisure-driven learning over other forms of consumption.

Tax treatment of the supply and demand for skills

In general, taxes affect the supply and demand of skills through their impact on the labour market participation and labour demand, which are discussed elsewhere (OECD, 2011e). Few tax measures specifically target the demand and supply of *skilled* labour. Tax concessions for mobile highly-skilled workers are the most common form of targeted tax relief related to the supply of skilled labour. These measures may not be designed not only to attract skilled immigrants but also to lure back highly-skilled nationals living abroad. Fourteen OECD countries in this report (and two other OECD countries) implement tax reliefs for highly skilled workers, ranging from partial income tax exemptions to special capital gains rules. While less common, tax incentives may also stimulate the demand for skilled labour. Spain and Turkey provide SSC concessions in respect of recent graduates or recently trained workers.

5. Evaluations of Tax Incentives for Human Capital

The empirical evidence about the economic impacts of education-related tax relief measures is quite limited. This section summarizes the evidence about the economic impacts of the various forms of PIT relief for education expenditures available in the United States, and of a Dutch tax incentive for employer-provided training of older workers that is no longer in place.

Apart from its economic impacts, the effectiveness of a tax incentive also relies on administrative ease and taxpayer compliance. Evaluations of these aspects of tax incentives may provide arguments to eliminate or reform them, as shown by the Belgian example described below.

Tax Incentives for Individuals

United States

Turner (2011a) evaluated the impact of various education-related tax credits and allowances on college enrolment in the United States. The analysis covers the (non-itemized) Tuition Deduction, the Lifetime Learning Tax Credit and the Hope Tax Credit (a credit available for the first two years of undergraduate education which preceded the American Opportunity Tax Credit), which are described in table 1. Using data from 1996 to 2003, the author found that these tax measures increase full-time enrolment of 18 and 19 year olds in the first two years of college by 7%. It is estimated that college enrolment increases by 0.3 percentage points for every USD 100 of tax relief. In contrast, the tax relief measures do not appear to affect part-time enrolment in the first two years of college. Among adults aged 33 to 41, Lalumia (2010) found that eligibility for one of these three tax provisions increased the probability of college enrolment for people whose educational attainment expectations as teenagers had not been previously met.

An important aspect surrounding the effectiveness of tax relief is whether eligible taxpayers actually use the tax relief available to them to reduce their tax liability. In 2005, the United States Government Accountability Office estimated that the take-up rate of the Tuition Deduction, Lifetime Learning Tax Credit and the Hope Tax Credit among eligible tax filers was 73%. While not every eligible tax filer claims tax relief, those claiming it do no not necessarily minimize their tax liability. In any given year, students may claim either the Tuition Deduction or the Lifetime Learning Tax Credit, but not both. However, as from 2002 to 2008, roughly 25% of tax filers claiming either of these tax reliefs did not choose the relief that would have minimized their tax liability (Turner, 2011b). Furthermore, the foregone tax relief as a percentage of gross income is disproportionately larger for lower income tax filers. Based on these facts, Turner argues that the complexity that arises from a menu of overlapping tax-relief programs reduces the effectiveness of tax relief. Moreover, the complexity of these tax provisions reduces the progressivity of the tax system. Thus, while Turner's previous work shows that tax-based aid increases enrolment, the regressivity of complex tax provisions is likely to limit the enrolment effects.

Another important consideration regarding the effectiveness of tax credits or allowances that recognize the costs of education and training is their incidence, i.e. whether the full benefit of tax subsidies is captured by those who claim them. In particular, educational institutions may be able to capture part of the tax relief provided to students. For example, Long (2003) found that the introduction of the Hope Tax Credit and the Lifetime Learning Tax Credit in the United States in 1998 led to faster tuition growth in public two-year colleges that faced the highest incentives to increase tuition (i.e. where tuition increases were significantly offset by the tax credits and a large share of the student population qualified for the credits). The potential impact of cost-based tax relief for education on tuition inflation may be avoided or mitigated if tuition fee increases are regulated or set by the government. Institutions may however, try to capture the benefits by reducing grant aid to students rather than increasing tuition fees. Based on a sample of 4-year colleges, Turner (2012) found that educational institutions captured roughly 80% of the tax-relief provided to students with the introduction or enhancement of the Hope Tax Credit, the Lifetime Learning Tax Credit and the Tuition Deduction by reducing institutional grant aid to students who claim these tax reliefs. The ultimate impacts are unclear; institutions could potentially devote the captured resources to increasing education quality or redistribute financial aid to students who are ineligible for tax relief. Nevertheless, these dramatic results suggest that countries should carefully monitor institutional responses to tax relief provided for students and consider how the design and administration of tax relief provisions could be improved to ensure that the incidence of tax relief remains with students. At the same time, these findings suggest that education and tax policy co-ordination are desirable to ensure that possible increases in the demand for education generated by tax relief provisions can be met with an adequate supply, which may entail the need for additional public funding for education (or enrolment-based funding formulas). Finally, it is important to note that incidence issues may also arise when governments increase public spending on education and training, and are thus common to all forms of fiscal support for skills formation.

Tax Incentives for Employers

Netherlands

Leuven and Oosterbeek (2004) evaluated the impact of a Dutch tax incentive for employer-provided training. In 1998, the Netherlands had introduced three tax deductions for expenses on work-related training: a general deduction of expenses from taxable profits, an additional deduction for small/non-profit firms, and an additional deduction for training of workers over 40 years of age. The authors evaluated the effectiveness of the third measure and found that it did not stimulate additional training, but merely resulted in the postponement of training until after workers turned 40 years old. In 2004, the Netherlands abolished this tax incentive as well as the additional deduction for small/non-profit firms.

Belgium

Between 1999 and 2001, the Flemish government in Belgium implemented a tax incentive for employer-provided training that consisted of a reduction in the real estate tax by the amount spent on training. When evaluated, it was found that many companies that claimed the benefits did not meet the criteria and where asked to return the funds, resulting in complaints about complexity and high compliance burdens (Cedefop, 2009).

6. Policy Conclusions

The conclusions and recommendations of this report are based primarily on the analysis of three overarching tax policy principles – efficiency, equity and simplicity – and how they relate to the tax treatment of human capital. The limited empirical evidence on the economic impacts of personal and corporate tax incentives for education and training has also been examined. The analysis here could be complemented in the future with a more elaborate analysis of how the different channels through which taxes affect the return to human capital investments interact with each other to create a net tax incentive or disincentive to invest in skills at different stages of the life cycle (e.g. by calculating effective tax rates on skills formation) and with further empirical evidence of the impacts of taxes on skills formation decisions by both individuals and employers. The desirable tax treatment of human capital ultimately depends on trade-offs between efficiency, equity and simplicity within the specific context of each country, which involves not only the extent to which higher education and lifelong learning are publicly funded but also societal attitudes towards income redistribution, tax compliance behaviour, the extent to which market failures lead to underinvestment in skills, and the functioning of labour market institutions and policies.

Tax policy in the broader context of fiscal policy

Although this paper focuses on taxation, tax policy should not be viewed in isolation from public spending policy, and vice versa. Public funding for education can help offset the negative efficiency implications of a progressive tax system, and progressive taxes and benefits can mitigate or offset the potentially negative equity impact of (universal) subsidies for higher education.

With regards to efficiency, even if the tax system creates disincentives for skills formation (e.g. due to income tax progressivity), public funding for formal higher education increases the net private return to skills formation by decreasing the private cost relative to a scenario with no government involvement. Thus, the net impact of government may be to encourage skills formation if education subsidies more than offset any disincentives caused by taxation (implying that public funding for education is less than fully covered through taxes on the private returns to education). Nonetheless, the impact of taxes on the return to skills investments remains important, particularly when there is limited direct public funding for skills formation, as is usually the case with adult training provided by private educational institutions or on-site by employers.

With regards to equity, subsidies for higher education (in the form of direct funding for institutions or universal grants to students) are regressive to the extent that members of higher income households are more likely to participate in post-compulsory education than those from lower income households. They are also regressive on a lifetime basis since those with higher educational attainment will tend to earn higher lifetime incomes. Progressive taxes and benefits can thus minimize the negative equity implications of education subsidies by reducing the gap in after-tax incomes between those who benefit from subsidized education and those who do not. Progressive taxes can also in principle help finance education subsidies through higher tax revenues, so that the government recovers its investment in education. Clarifying the extent to which tax progressivity raises additional revenues to fund public investments in education could boost taxpayer morale by indicating the use of tax revenues and could thus potentially improve tax

compliance. This does not imply that public funding for education should necessarily be fully covered with progressive taxes on the returns to human capital. To the extent that government funding is meant to address positive spill-over effects, efficiency would require that the cost of public investment in skills should not be fully recovered through taxes on the private returns to human capital.

Tax policy in the broader context of the role of government

Underinvestment in skills formation relative to the socially desirable level is sometimes viewed as a rationale to provide tax incentives for education and training. However, this tends to be inefficient because the sources of underinvestment often lie outside the tax system. For example, underinvestment in human capital may stem from social returns that exceed private returns, credit market imperfections and missing insurance markets. It may also arise from institutional labour market settings such as high minimum wages and unemployment benefit rules that reduce the returns to human capital. Although tax incentives (or spending subsidies) may encourage skills investments, they do not directly address the sources of underinvestment, and may subsidize investment that would have been undertaken anyways. Directly tackling the market failures and institutional labour market settings that lead to underinvestment in skills may therefore be more effective and less costly than tax incentives (or program spending). For example, labour market reforms that improve the link between wages and productivity could have beneficial impacts on human capital formation.

If solutions that directly tackle the sources of underinvestment in skills are not feasible due to practical considerations or political concerns, fiscal incentives may be a second-best alternative. In such cases the choice between tax incentives and additional program spending will partly depend on the initial mix of subsidies for skills formation and taxes on skills investments and the extent to which private agents would under-invest in human capital in the absence of government intervention (e.g. the gap between the private and social returns, etc.). These considerations may differ between tertiary education and adult training. Efficient administration, simplicity in the tax system and fiscal transparency regarding tax expenditures and government spending are also important considerations when making the choice between tax and spending incentives.

The tax treatment of human capital

Investments in higher education and training by individuals

The tax system may influence individuals' skills formation decisions through various channels that affect the returns to human capital investments. For example, progressive tax rates on earnings, the non-deductibility of direct costs, a generous tax treatment of alternative investments, and taxes or benefits that discourage labour supply may all reduce the financial incentive to invest in skills. Taxation is, of course, not the only factor that determines whether a skills investment will be made. For example, taxpayers may choose not to invest in skills in spite of a neutral tax treatment of human capital if the return required for the investment to break even is unattainable even in the absence of taxes (e.g. for those retiring soon after making the investment) or due to high non-pecuniary costs (e.g. reduced leisure). Others may choose to participate in educational programs even despite an unfavourable tax treatment if the labour market return they expect to realize reflects an economic rent (which can be efficiently taxed), or if the motivation to learn is not only financial but also non-pecuniary (e.g. the desire for self-improvement). Indeed, as will be discussed later, the fact that education and training can generate private benefits beyond economic returns poses difficulties for policy makers in deciding whether skills formation should be treated as an investment or as consumption for tax purposes.

Deductibility of education and training costs

Having noted the limitations of the tax system in influencing skills formation decisions, countries wishing to improve the incentive for individuals to invest in skills through fiscal tools could, where the direct costs are not fully subsidized, consider providing full and non-wastable tax deductions for the direct costs of education and training (e.g. tuition, admission and ancillary fees). This would reduce the effective tax rate on marginal skills investments, which indicates the extent to which taxation increases the minimum return necessary for a skills investment to break even. Tax deductions would need to be non-wastable to be able to influence tax filers whose incomes are too low to benefit from standard tax allowances. This could be achieved with refundable tax credits or with tax allowances that are transferable to higher income household members or to future tax years. However, while tax relief for the direct costs of education increases the private return to skills formation, which may be desirable from the point of view of efficiency, it does not substitute policies aimed at addressing underinvestment in skills due to barriers to credit and missing insurance markets. For example, given the generally long lag between the time when costs eligible for tax relief are incurred and the time when taxpayers file a tax return and benefit from this tax relief, the effectiveness of personal tax relief for the direct costs of education will be hindered if taxpayers do not have access to credit.

The deductibility of costs is especially important in the case of adult training that is financed by individuals (rather than employers) insofar as it is more likely to be provided by private institutions receiving limited or no public funding. By removing or reducing the disincentive to engage in lifelong learning, personal tax deductions for training costs could not only stimulate the demand for adult training, but also increase the diversity and quality of training services provided in response to this increase in demand. With respect to higher education, tax relief for the direct costs gains significance when the direct costs are high, for example, due to high tuition fees or when a large share of education is provided by unsubsidized private institutions.

When the costs of skills acquisition are not fully deductible for personal tax purposes, the tax system reduces the returns to skills proportionately more than it reduces its costs. This asymmetric treatment of costs and returns implies that an increase in the costs of skills formation requires a disproportionately higher increase in the return for a given (marginal) skills investment to remain worthwhile. In other words, any increase in the cost of education and training automatically increases the effective tax rate on skills investments. This implies that the negative impact of a tuition fee increase or a VAT increase on education-related goods and services is magnified by the tax system. Countries considering increasing the *share* of private funding for higher education (e.g. through tuition fee increases) should thus consider providing personal tax relief for the costs of education or limiting the increase in pre-tax costs by taking into account how this increase magnifies the tax disincentive to invest in skills.[25] Tax policy and education policy co-ordination is thus advisable. (Another rationale for policy co-ordination is to ensure that the demand for education generated by tax relief provisions can be met with an adequate supply, which may entail the need for additional public funding for education or enrolment-based funding formulas).

Given the arguments for personal tax relief for the costs of education and training to avoid disincentives to invest in skills formation, it is perhaps surprising that so few countries surveyed in this report provide such tax relief. When countries do provide this tax relief, it tends to be restricted to particular forms of learning, subject to caps and wastable. Apart from cost considerations, there appear to be two main lines of reasoning against providing tax relief for the costs of investing in skills acquisition.

[25] To ensure that cost increases are not magnified by the tax system, a tax deduction for 100% of the direct costs of education is sufficient. However, if the objective is to approach tax neutrality in a progressive tax system, providing tax relief for more than 100% of the direct costs of education may be justified.

The first one argues that after-tax returns to human capital are already high enough to provide an incentive to invest in skills, implying that the return includes an economic rent that can be efficiently taxed without affecting behaviour. Internationally comparable evidence on the return to lifelong training across OECD countries is not available, but *average* returns to tertiary education based on OECD indicators (OECD, 2011c) do appear to be substantial. However, since human capital returns are heterogeneous (e.g. varying by field of study, age, ability, etc.), they will be lower than average for some individuals (for example, see Carneiro et al., 2003). For individuals who anticipate earning a normal (marginal, lower than average) return, the non-deductibility of costs can discourage skills investments, since the returns are effectively taxed when investment costs are not deductible. The non-deductibility of costs may also reduce investments yielding higher than normal (marginal) returns if the economic rents are more than fully taxed, which implies that the portion of the return that consists of the risk-adjusted normal return is also taxed. In sum, since not all prospective skills investments will generate economic rents (or sufficiently high rents), the lack of tax relief for the direct costs of education and training can discourage some skills investments that would have been worthwhile on a pre-tax basis.

The second argument against personal tax relief for the costs of skills formation is that tax administrators cannot observe taxpayers' intentions underlying education and training decisions, so it is prudent to assume that the consumption element of education and training prevails over the investment element. The challenge of accurately distinguishing between consumption and investment in the realm of personal educational choices (and the associated additional compliance and administrative costs) is a valid concern. To balance the trade-off between avoiding administrative complexity and promoting efficiency, the scope of tax relief for the costs of human capital formation could aim to cover education and training that has broad (present or future) labour market applicability, even if not strictly work-related, subject to administrative constraints (including the co-operation of education and training providers). This extends to all forms of learning, ranging from formal post-secondary education to informal lifelong learning.

The empirical evidence from the United States suggests that the design of tax relief can influence its effective incidence and behavioural effects. For example, when this tax relief is broadly available to all students, institutions may respond by raising tuition fees (Long, 2004) or reducing financial aid to students (Turner, 2012). These issues, which may also arise with direct subsidies for education, may be reduced through regulation of tuition fees and other aspects of post-secondary institutional funding. It is also possible that the longer-term effects could be an improvement in education quality. Nevertheless, these findings provide a lesson to other countries about the importance of assessing the economic incidence of tax relief to students. When eligibility rules are complex, tax filers may not always optimize their tax credit claims (Turner, 2011b). This points to the importance of public awareness and ease of compliance to ensure effective take-up of tax relief for the costs of education. In spite of these issues, there is also evidence that tax relief can ultimately have a positive impact on enrolment (Lalumia, 2010; Turner, 2011a). Overall, more research is needed in OECD countries to empirically evaluate the impact of personal tax relief on human capital investments, particularly regarding lifelong learning financed by individuals where no evidence is available.

Tax relief for the sources of finance of education and training

Even though many OECD countries are reluctant to provide tax relief for the costs of education and training, most countries surveyed in this report generally exempt scholarship income from personal income taxes and social security contributions. Many countries also provide personal tax relief for investment income in designated savings accounts, for wages earned by students or apprentices or for interest on student loans. These tax reliefs that relate to the source of finance of education and training are a less effective way of raising human capital investment levels. First, tax relief for the sources of finance generate horizontal inequities because students with similar ability to pay and incurring similar costs of education are subject to different tax liabilities. In the case of tax-favoured savings vehicles for education,

vertical inequities are also created because higher income households tend to save more in tax-advantaged savings accounts. Second, tax relief for the sources of finance do not address disincentives for ineligible students. For example, tax relief for interest on student loans may benefit students with debt but does not address lack of access to credit, which can be a major barrier to skills formation for lower income households. In contrast, income-contingent loans not only provide access to credit but also relieve the uncertainty associated with human capital returns because student graduates are generally not required to make repayments until their income exceeds a minimum threshold, though this might itself discourage individuals from seeking better remunerated employment. Third, when tax relief is provided for both for the sources of finance and the costs of education, the tax relief for education is effectively doubled. This may unintentionally (or intentionally) favour human capital over alternative investments, but only for those whose education is financed with tax-favoured sources. Countries that provide personal tax relief in respect of the sources of finance for education and adult training are thus encouraged to evaluate its efficiency and equity implications and consider replacing it with tax relief for the direct costs of education to avoid tax disincentives for skills formation and, where appropriate, with complementary non-tax policies to promote equal access to education and training.

Like scholarship income, the value of training paid directly by employers is commonly exempt from personal taxes in OECD countries (i.e. it is treated like a non-taxable benefit in-kind). While some countries limit the exemption to training that is work-related and thus presumed to benefit the employer, others extend it to all types of training funded by employers, including training provided as non-cash compensation. This latter treatment creates inequities when the costs of comparable training are *not* deductible for personal tax purposes, since employees with similar remunerations are taxed differently depending on the composition of their remuneration (between cash and training benefits). More importantly, in countries where employees are *not* allowed to deduct the costs of training incurred by them, the tax exemption for employer-paid training creates an incentive for adult training to be financed by employers rather than by employees, given that training costs are generally deductible for employers for CIT purposes. This means that training can be financed at a lower after-tax cost when paid by employers. By creating incentives for employers to pay for adult training rather than employees, this may impact the kind of training programs followed by them. In particular, job-specific skills mostly valuable to employers may be favoured over generic skills that are more broadly applicable. These distortions provide a further reason for allowing individuals to deduct their costs of self-financed training for personal tax purposes.

Tax Progressivity

The progressivity of the tax system also has a significant impact on the financial incentive to invest in skills. Insofar as skills translate into higher earnings, tax progressivity means that the salaries resulting from skills investments are taxed at higher rates than foregone earnings during the period of skills acquisition and subsequent earnings in the absence of up-skilling. Therefore, progressive taxes inevitably create some disincentive to make marginal skills investments resulting in higher salaries. Tax progressivity is particularly important when the bulk of the cost of investing in human capital consists of foregone earnings (rather than direct costs), as is the case with post-secondary education in most European OECD countries (OECD, 2011c). Reducing the progressivity of taxes on labour income could thus improve the incentive for individuals to invest in skills at the margin, influencing the total stock of skills available in the economy. However, the efficiency gains from doing so should be carefully weighed against distributional impacts (i.e. higher after-tax income inequality) and possible revenue losses. Moreover, reducing tax progressivity by lowering tax rates on high income earners would result in windfall gains not only for individuals whose high labour incomes are derived from sources other than skills investments (e.g. innate ability or luck) but also, in the short-term, for those enjoying the returns from previous human capital investments. Reducing progressivity by increasing tax rates on lower income earners could create work disincentives for them, although this could at the same time motivate them to upgrade their skills by reducing the after-tax value of the foregone earnings associated with the investment.

In the light of the recent trend towards higher top statutory personal income rates and/or lower income thresholds at which the top statutory rate applies, it is important for policymakers to recognize that the possible implications of increased tax progressivity extend beyond short-term income-shifting and labour market responses, as it may also affect skills investment decisions that shape the long-term stock of human capital. As progressivity increases, pre-tax pay differentials are compressed on an after-tax basis, blunting the incentive to invest in skills. To the extent that revenue needs and distributional preferences call for increased effective tax rates on high incomes and there is no perceived overinvestment in human capital, options to mitigate the negative impact on the returns to skills investments could be considered. For example, tax relief for the costs of skills acquisition could be introduced or enhanced, or some of the tax revenue gains could be channelled to provide more public funding for education.

Through their impact on marginal and average effective tax rates on labour income, income-tested benefits (and tax credits) can also influence the incentive to invest in skills by altering the costs (foregone earnings) and/or returns (earnings premium) of skills investments. If the withdrawal of income-tested benefits results in high effective tax rates on earnings in the absence of up-skilling, this could encourage skills formation by reducing the value of foregone earnings. However, if the earnings premium resulting from a skills investment is undermined by the loss of benefits as income increases, this reduces the return to investing in skills, particularly when the resulting effective tax rate on earnings is so high that it discourages labour participation altogether. Therefore, to the extent that benefits raise effective tax rates on the earnings premium from skills investments, benefit reforms that reduce high marginal effective tax rates could create incentives not only to work but also to acquire skills, helping benefit recipients to break away from low-income and low-skills traps that may be created by the benefit systems.

Taxes on alternative investments

While the progressivity of labour income taxes and the tax treatment of the costs of education and training are key determinants of the impact of taxes on the incentive to invest in skills, other aspects of taxation also matter. To the extent that human capital investment choices are motivated by financial returns, alternative investment opportunities are also relevant in the decision-making process. This implies that the tax system may discourage skills formation if the taxation of alternative capital investments (e.g. owner-occupied housing, financial assets, etc.) is relatively more favourable than that of human capital investments (e.g. if the imputed rental income of owner-occupied housing is not taxed, if capital gains are taxed at lower rates than labour income, etc.). Whether taxes on capital income at the personal level have a material effect on skills formation is ultimately an empirical question. If so, a wider tax reform to achieve greater neutrality between asset types may be desirable. For example, if the tax treatment of alternative capital investments creates significant disincentives to invest in skills, governments could increase tax rates on income from alternative capital investments and/or broaden the capital income tax base at the personal level. Rather than promoting investment in skills through targeted tax provisions for education and training, skills formation would then be promoted by levelling the playing field across assets types. On the other hand, in countries with comprehensive-income tax systems, under which capital investment returns are taxed but the costs of investments are not deductible, the tax system may currently provide an advantage for human capital formation relative to other capital investments, since taxes on foregone earnings are akin to a tax deduction for some of the cost of human capital investments. In this case, if possible underinvestment in human capital is tackled outside the tax system, consideration could be given to taxing capital income at lower and less progressive rates than labour income (as in dual income tax systems) or eliminating personal tax incentives for education and training to reduce personal asset mix distortions.

Taxes and labour supply

Finally, through policies that affect the supply and demand for skilled labour, taxes on labour income may affect the utilisation of skills once they are acquired. Taxes affect the supply of skills through their impact on labour market participation, work effort and possibly also on migration decisions, and can hinder skills utilisation by exacerbating unemployment. Taxes may also influence the relative demand for skilled and unskilled labour, for example through floors or ceilings on social security contributions. By influencing the expectations of participating in the labour market or finding work that suitably matches the skills that are being acquired, the impact of taxes on the supply and demand of skills ultimately affects the incentive to invest in human capital.

Tax-induced disincentives to work can hinder skills investments since the returns to education and training are generally realized in the labour market. For example, tax incentives to retire early not only reduce the stock of skills available in the labour market but also reduce the return to training investments by older workers. However, rather than providing education-related tax incentives to older workers, it is advisable to directly tackle the source of underinvestment, which is in this case the tax treatment of pensions and incomes earned by older workers. Though tax incentives for older workers could potentially influence their decisions to undertake marginal training investments, they would provide windfall gains for some taxpayers and would not address the real deterrence to participate in training, which is approaching retirement. Overall, tax and benefit reforms that improve work incentives (see OECD, 2011e) could yield not only short-term benefits in terms of skills utilisation but also long-term benefits in terms of human capital accumulation.

Value Added Taxes

A large majority of countries surveyed in this report provide VAT exemptions for the costs of education and training. In general, VAT exemptions on consumer goods and services narrow the tax base and have cascading effects, thus distorting consumption decisions. However, if expenditure taxation is the benchmark, tax relief for the cost of investing is necessary for neutrality and should not be viewed as a form of base-narrowing. In the case of education and training, VAT exemptions probably reduce the disincentive to invest in skills. However, zero-rating educational goods and services would improve the neutrality of the VAT system by enabling education providers to recover the tax they pay on their inputs, thereby fully eliminating VAT on education by avoiding the cascading effect of VAT exemptions. Applying the same VAT treatment to comparable privately and publicly provided services would also improve the neutrality of the tax system by avoiding favouring public over private provision. On the other hand, educational services that can be clearly identified as more consumption-like (i.e. leisure-driven) should be taxed at the standard rate, like other forms of consumption. In the case of goods whose use is not exclusively education-related, such as books and IT equipment, consideration could be given to providing compensation to students for VAT paid through the personal income tax system while continuing to tax them at the standard VAT rate.

Investments in adult training by employers

Deductibility of training costs

In contrast to personal income tax systems, the general design of taxes on businesses does not tend to create disincentives for employers to invest in training. In most countries surveyed in this report, employers may fully deduct the costs of staff training for corporate income tax purposes in the year the costs are incurred. This is a relatively favourable tax treatment, as most such training is likely to add value for a business over a number of years, and depreciate only gradually to the extent that employers are able to retain trained employees. Such immediate expensing is similar to business expenditure on intangibles,

such as advertising and R&D, but more generous that investment in buildings and other depreciable assets, where tax relief is spread over time in line with assumed rates of depreciation. This incentive for employer-financed training may be justified on efficiency grounds if employers under-invest in skills given the risk that their employees might leave shortly after being trained. A more pragmatic rationale for immediate expensing may be to avoid the complexity of administering tax depreciation provisions for training investments.

Tax incentives for training

Since business investments in training are treated more favourably than some other capital investments, countries considering whether to introduce or retain (explicit) tax incentives for employer-financed training should first assess whether immediate expensing of the costs provides sufficient incentives in the first place. Empirical evidence about the effectiveness of tax incentives could also help to inform these policy decisions. The two evaluations of tax incentives for employer-sponsored training that have been reviewed in this paper (which examine incentives that are no longer in place) indicate that their effectiveness depends to a large extent on the details of their design. For example, abuse can take place when rules are complex and eligibility criteria are difficult to trace (Cedefop, 2009). Also, the design of tax incentives targeted at particular investments may encourage employers to simply reallocate investments (e.g. across workers or over time) rather than to make incremental investments (Leuven and Oosterbeek, 2004). Unfortunately, to the best of our knowledge, none of the tax incentives for training currently in place in OECD countries have been evaluated empirically. Countries that provide tax relief beyond the standard deductibility of training costs and trainee wages are thus encouraged to evaluate the economic impacts of these tax incentives and to compare their cost-effectiveness with that of alternative measures. These evaluations would not only help policy makers assess whether the incentives should remain in place in their countries but would also provide valuable evidence for other countries considering similar initiatives.

Tax-like schemes

Rather than providing tax incentives for employer-sponsored training, a small group of countries surveyed in this report has followed the opposite approach, of levying taxes or mandatory contributions on employers to ensure that a minimum level of training is provided to employees either directly (by employers) or indirectly (via training organisations funded with the revenues of the levies or taxes). Given the variety in designs of levy schemes, it is difficult to evaluate levies in general. Their success is likely to depend to a great extent on each country's particular sectoral and labour market context. More work is required to evaluate the effectiveness of these schemes.

Value Added Taxes

Finally, while the VAT treatment of training services may appear to be irrelevant in terms of influencing training investments because businesses that sell taxable goods and services can claim back the VAT they pay on their inputs. However, the most neutral tax treatment would be zero-rating training services, whether publicly or privately provided. Unlike VAT exemptions, zero-rating would make employers indifferent between in-house and outsourced training. In contrast, when training services are VAT-exempt, the price of training services purchased externally may include an embedded VAT because training suppliers cannot recover the VAT on their inputs, creating an incentive for employers to self-supply training. A 0% VAT rate is also more optimal than the standard VAT rate by ensuring that business that sell VAT-exempt products pay no VAT on the costs of training, like businesses selling taxable products.

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