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# Investing in People: The Case for Human Capital Tax Credits

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# Investing in People: The Case for Human Capital Tax Credits

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## 1. Introduction

It is now widely recognised that human capital accumulation and research and development (R&D) are key drivers of economic growth, as is documented in most standard textbooks (e.g. Acemoglu, 2007; Romer, 1996). Estimates from the US suggest that increasing levels of human capital over the second half of the last century accounted for approximately one third of productivity growth (Griliches, 1997), while some estimates of the social rate of return to R&D in the manufacturing sector have exceeded one hundred percent (Jones and Williams, 1998).

Despite the contribution of both human capital and R&D to economic growth, the UK fiscal system does not treat the two equally when it comes to employer incentives to invest. Specifically, firms that invest in R&D are able to claim generous tax relief on their investments whereas there is no such across-the-board incentive to invest in the training of their workers. This is despite the fact that the rationale for government support to firm investment in human capital is similar to that for R&D and both are important for economic growth. Moreover, this unequal treatment of physical and human capital stands in contrast to practice in many other countries.

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In this briefing note, we explain the economic rationale for government support in the form of tax credits (Section 2). We discuss current practice in the UK in relation to R&D (Section 3) and evidence on effectiveness (Section 4). We then discuss how the policy might be adapted to provide similar incentives for investing in human capital (Section 5).

## 2. Rationale for Government Support

The main rationale for incentivising employers to invest in either R&D or human capital is that such incentives produce positive externalities to the wider economy through a number of mechanisms such as knowledge spillovers. In the absence of incentives, there would of course be some investment by firms. However, there would be underinvestment, because an individual employer has no incentive to take account of the wider benefit of the firm's incentive in R&D and skills. This problem is made worse by the riskiness of investment, as the process is inherently uncertain. This applies more to R&D than to human capital investment. However, firms investing in human capital also face the risk that employees may move employment before the firm has a chance to recoup its investment.

When government provides support to firms, this should do two things: (1) reduce the gap between the private and social returns to investment; (2) mitigate the risk taken on by firms when making an investment. When it comes to investment in human capital, an additional rationale is to overcome the credit constraints faced by individuals who might wish to invest in their own education and training.

The first rationale – the need to reduce the gap between the private and social returns to investment - is similar with regard to human capital investment as it is to R&D and innovation. Specifically, a highly skilled worker is more productive in their job irrespective of the employer (so long as the skills acquired are sufficiently general and appropriately

credentialed). As a result human capital investment creates a positive externality for the whole economy that the market fails to internalise.

Obvious differences separate the two kinds of externalities generated by investment in R&D and in human capital – for example, the broad contribution of patents versus a potentially narrow contribution of a single worker's training. At first glance, patents are an outcome that can benefit and be used by a wider set of agents (firms, governments etc.) whereas the training of a given individual directly benefits that worker and the firm she/he works for. Nonetheless, one might argue that the difference is not so large after taking account of the large share of labour in production and its potential spillovers as described in Lucas (1988). Furthermore, a point in favour of investing in human capital relates to lack of risk at a social level. The nature of R&D investment is inherently risky and not all investments will lead to a positive return for the firm or for the economy as a whole. On the other hand, human capital investments are only risky for the firm if the employee leaves to work for another firm. But this does not imply a risk to the economy. This is because the worker is, in principle, still going to be more productive in his/her new job than would be the case in the absence of investment. We later discuss how to deal with the risk at a firm level. We first discuss how the R&D tax credit works and evidence on its effectiveness.

## 3. R&D tax credits in the UK

The R&D tax credit system was originally introduced by the New Labour government in 2000, and initially only applied to small to medium sized enterprises (SMEs). In 2002 a similar though less generous system was introduced for larger companies, which has been replaced over the past few years by the new Research and Development Expenditure Credit (RDEC).

Upon meeting the eligibility criteria, SMEs have been eligible for a R&D tax relief of 230%, while losses can be claimed back at 14.5% as a payable tax credit (a cash sum paid by HMRC).[2] An example of what this means in practice is the following:

- A company that spent £20,000 on R&D could reduce their tax liability by an additional 130% (£26,000) on top of a normal 'at cost' claim of 100%. This means that the tax liability on their yearly profit would reduce by £46,000.
- For example, if the same company made a profit of £26,000 before accounting for the R&D cost, this deduction means that a trading loss would be recorded of £20,000.
- 14.5% of this trading loss (i.e. £2900) could then be claimed back as a payable cash sum.

The current scheme for large companies, the RDEC, operates a tax relief rate of 112%, (i.e. 11% above the normal 'at cost' claim) and this scheme is also payable regardless of a firm's tax position.

There are three main guiding principles on what constitutes R&D. Investments must: (a) seek to achieve an advance in science or technology; (b) be subject to scientific or technological uncertainly; (c) be conducted in a systematic and thorough fashion. This might either include the creation of new products, processes or services, or the modification of an existing product or service. Costs that can be claimed for include staffing costs such as salaries, employer's national insurance and pension contributions, subcontractor costs, materials, consumable, utilities used by the R&D process and software costs.

[2] A company must have less than 500 employees and either annual turnover under £100 million or a balance sheet under £86 million.

In 2015-2016, the sectors Manufacturing, Professional, Scientific and Technical, and Information and Communication had the greatest volume of claims, and collectively accounted for 75% of the value of the claims in the given period. The volume of claims under the SME scheme is much larger than the RDEC (large company) scheme, although this is unsurprising given that most companies in England are classified as SMEs.[3] While the RDEC scheme is less generous, of the £2.8 billion claimed in 2015-2016, £1.5 billion was claimed through the large company scheme, while the remaining £1.3 billion was claimed by SMEs. The geographic spread of claims and the amount is shown in Figure 1. This shows that London and the South East has the largest share.[4] Despite these incentives, the proportion of R&D spending to GDP in the UK is still among the lowest in the G7 and relatively low compared to many countries in the OECD (see Figure 2).

[3] The 5.4 million SMEs in the UK make up over 99% of businesses.

[4] However, it should be noted that this relates to where the head office is registered, and thus companies with numerous offices may well be spending the claims elsewhere.

*Figure 1: Claims by Registered Office Region*
*(HMRC- Research and Development Tax Credits Statistics: September 2017)*

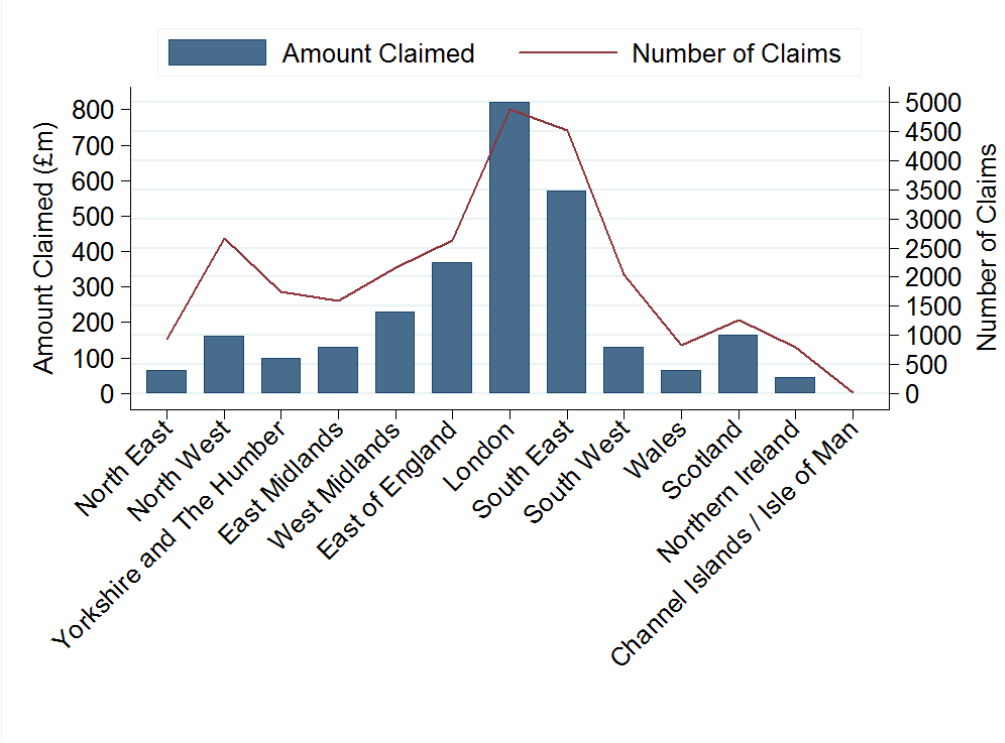
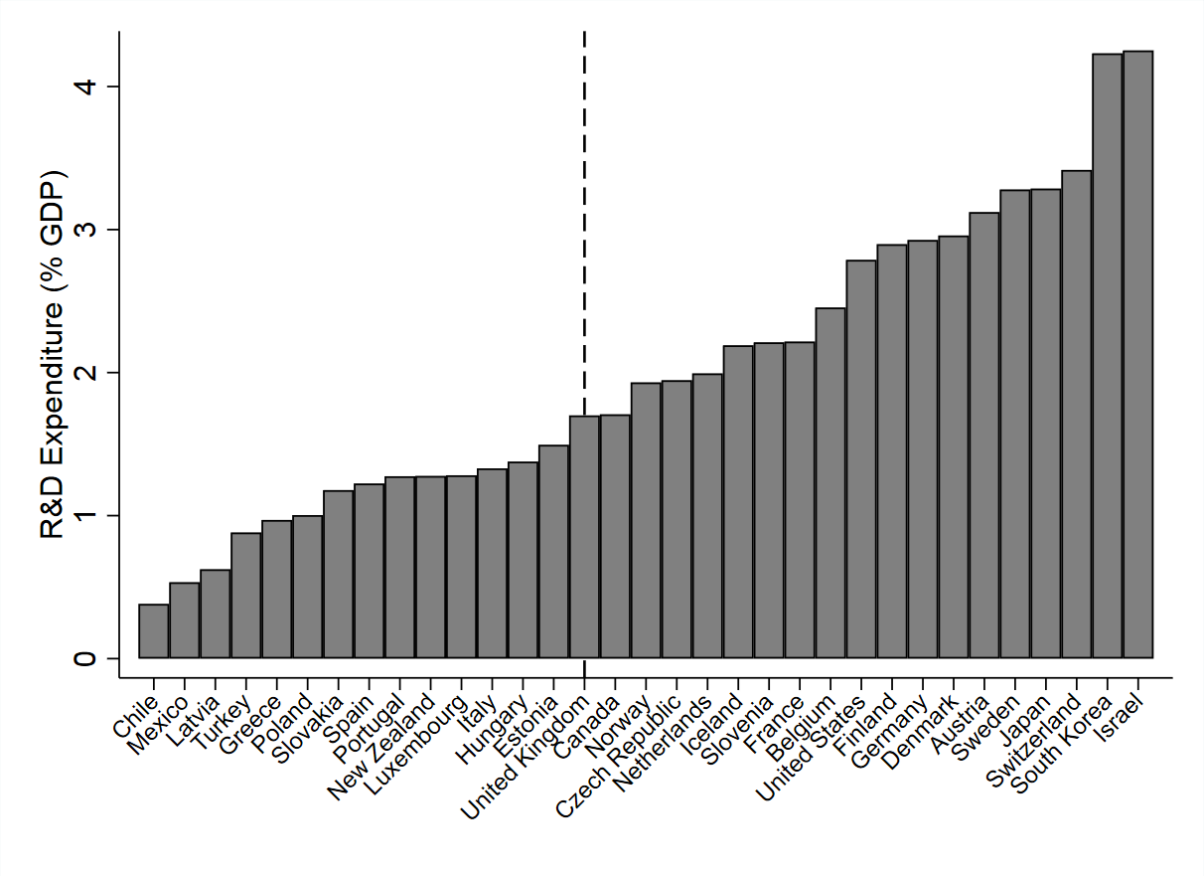


*Figure 2: Gross Domestic Spending on R&D for OECD Countries in 2015 (OECD)*




**4. Are tax credits effective?**

There is empirical evidence documenting the net positive impact of an R&D tax credit system on actual investment in both the UK and in other countries. For example, Fowkes et al. (2015) finds that in the case of the UK, for each pound of tax forgone, between £1.53 and £2.35 of R&D is generated. Dechezleprêtre et al. (2015) makes use of changes in the eligibility criteria for SMEs in 2008. They find that R&D doubled and patenting rose by about 60% in those firms affected by the change. Griffith et al. (2001) simulated the impact of the tax credit policy on GDP. Although costs are likely to outweigh the short-run impact on GDP, long-term positive impacts are predicted under a variety of assumptions which would be enough to outweigh the costs to the Exchequer.

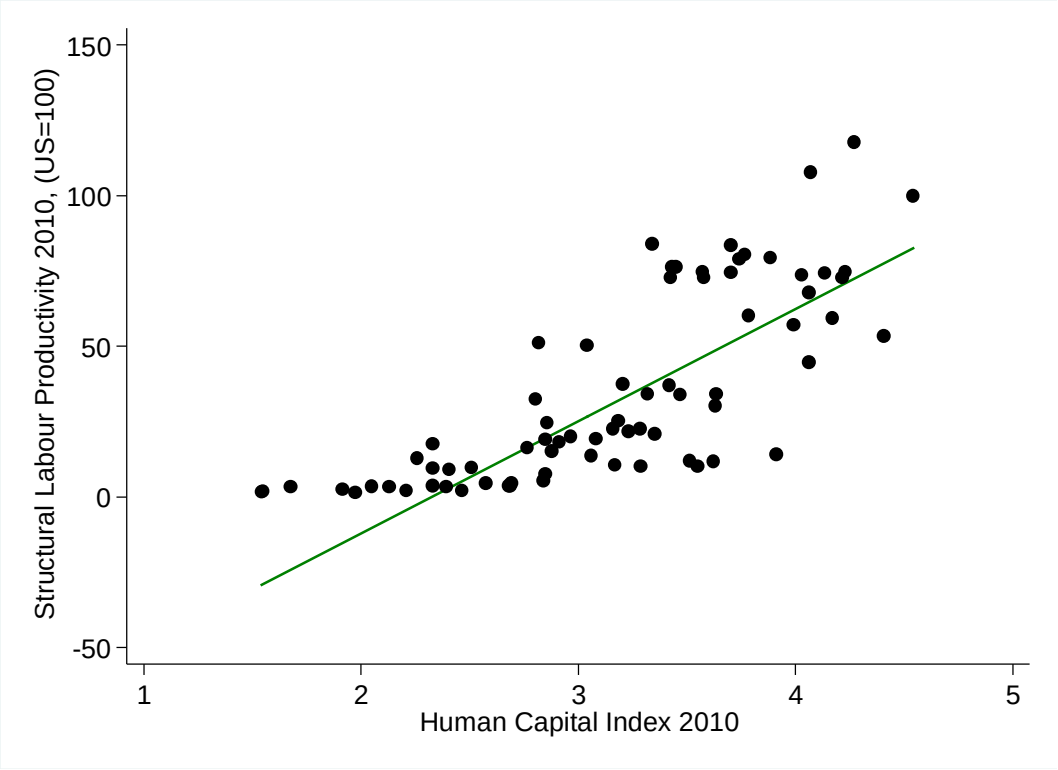
As staffing is a key component of R&D (and is a deductible cost), one would expect an increase in demand for R&D workers and for this to have a positive impact on their wages. Estimates for the Netherlands show evidence for such an effect. Lokshin and Mohnin (2013) find that for every Euro increase in R&D tax disbursement, there was an increase to wages of 19 to 24 cents, for R&D workers. These estimates control for business cycle fluctuations, heterogeneity and the endogeneity of tax R&D tax credits.

Finally, surveys of the literature and meta-analysis examining R&D tax credit systems in a variety of countries has found there to be a strong positive impact of R&D tax credits on corporate R&D investments (Castellacci and Lie, 2015). However, the effect varies across sectors. Larger benefits have been experienced in low-tech industries as well as in the services sector. As low-tech industries generally start with lower R&D intensity, there may be more scope for them to respond to tax credit incentives, in comparison to high-tech industries that have already made sizeable R&D investments.

## 5. Human capital tax credits?

The *prima facie* argument for human capital tax credits emerges from the well-established relationship between human capital and growth (e.g. as illustrated in Figure 3) and the externality problems that lead to underinvestment in R&D also apply to human capital (as argued in Section 2).

*Figure 3: The relationship between Human Capital (measured by years of schooling) and labour productivity.*




*Source: Data from Daude and Fernandez-Arias (2014) and Barro and Lee (2001)*

When considering tax incentives to human capital investments one should start by making the distinction between individual and firm targeted incentives. By individual tax incentives, we mean any form of tax deduction/exemption/credit applied to direct costs of training and education paid by the individual. On the other hand, firm tax incentives include any form of tax deduction/exemption/credit applied to costs incurred by the employer for the training and education of its employees.

The existence of positive externalities from human capital investment has led to an array of individual level interventions designed to increase human capital investment. Examples of this include free or subsidised post-compulsory schooling, income contingent student loans for higher education, means tested cash transfers (e.g. UK's now defunct Educational Maintenance

Allowance) and means tested training vouchers (e.g. for the unemployed). Here we focus on firm-level incentives to invest in human capital.

Torres (2012) offers an extensive review of the tax incentives to skill investment across OECD countries separately by the individual and firm/corporate dimension.[5] The Austrian tax system is a good example of one which incentivises firms to invest in human capital. Specifically, there is a full tax allowance for training expenses and a further 20% of actual expenses is deducted from taxable income. This implies a 120% tax allowance in real terms. Firms that do not make enough profit to benefit from this tax allowance can instead claim a tax credit of 6% of the actual training expenses. Additionally, individuals can claim a tax allowance on all reasonable expenses for education and training if this is aimed at improving skills in their job or to prepare them for a change in occupation.

Fitzpayne and Pollack (2017) propose a tax credit that "mirrors the policy design of the popular R&D Tax Credit" directed at encouraging employee training for low and middle skilled workers with a differential tax credit margins according to the firm size and employee composition.[6] They discuss systems already in place within several states of the US. Those States that implement tax credits for training include: Connecticut, Georgia, Kentucky, Mississippi, Rhode Island and Virginia. The tax margins vary between 5 and 50% with different annual caps per employee across states. These are complemented by several federal tax credits and allowances aimed at individual expenses with training and education of the individuals and/or their dependent children/students.

[5] There is no human capital tax credit in the UK. However, firms may claim training expenses as tax deductible. The legal basis is set out in the Appendix.
[6] https://www.aspeninstitute.org/publications/worker-training-tax-credit-promoting-greater-employer-investments-in-the-workforce/

Although the Austrian and US examples show that human capital tax credits can be implemented in practice, neither fully addresses the riskiness of human capital investments from the firm's perspective. Specifically, employees may move before the employer has the opportunity to recoup the firm's investment. Two possible ways of diminishing the risk faced by firms when investing in human capital are as follows: (a) temporarily restrict the mobility of workers for whom the firm invests in training; (b) compensate the firm for the potential loss of their investment in cases where the worker decides to move.

The first of these options is already common practice in some firms employing high skilled labour (such as some large consultancy firms, investment banks, and some public sector bodies). The employee is offered a contract that restricts job movement for a certain time horizon in exchange for the firm's sponsorship of specific training or education programs such as MBAs, masters, diplomas, and so on. This enables the firm to recoup its investment through the worker's productivity gain subsequent to training. Although this is a pragmatic solution to the riskiness of human capital investment, this option goes against free movement of labour within the economy, potentially creating inefficiency. Furthermore, such initiatives tend to be concentrated among larger firms in sectors that already employ high skilled workers. Firms operating in sectors that employ low and medium skilled workers may not have the same financial capacity to sponsor improvements to the skills of their employees (though one would imagine that a generous human capital tax credit policy would address this).

The second alternative (not used to our knowledge) would be to provide a tax credit/allowance for "unsuccessful/unrealised" investment. This would diminish the loss to firms in the case of worker movement while not restricting the free movement of labour within the economy.

## 6. Concluding comments

The litany of problems currently faced by the UK economy includes the chronic shortage of intermediate skills, recent productivity stagnation and falling real wages. Promoting human capital investment by firms bypasses the liquidity constraints faced by individuals, while enhancing productivity and pay in the medium to long term. While the apprenticeship levy (and associated incentives) only covers large firms and only for a very specific type of human capital investment, a human capital tax credit would cover the full distribution of firms and not be limited to types of training that can be classified as 'apprenticeships'. This could help to redress the current imbalance between investment in physical and human capital.

## Appendix

*UK Tax Allowance Law – Training Expenses*

There is no human capital tax credit in the UK. However, training expenses are tax deductible for employers.

More specifically, in the case of the UK, Section 250 of the ITEPA 2003 law "removes any possible tax charge where an employer, or a third party, incurs expenditure on work-related training for employees". The exemption:

- applies to both internal and external courses
- covers the costs of the employer or those of a third party providing training
- has no territorial limitation on training location
- extends to a broader range of training materials
- extends to other related costs such as the cost of additional child care and the travelling and subsistence costs of the trainee
- extends to training which is linked to charitable and voluntary activities
- is mirrored in a NIC exemption.

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