



UCL INSIGHTS: RESEARCH BRIEFING

Incentivising Investment in Research and Development in the UK

On 27 November 2017, UCL and HM Treasury co-convened a roundtable bringing together academic, industry, research and government experts to debate the challenges and opportunities in incentivising increased business investment in research and development activities in the UK.

The discussion focused in particular on the possible mechanisms for supporting R&D investment; making the UK an attractive destination for R&D; and opportunities to look beyond R&D to other areas of innovation not traditionally captured by the current definition.

Current trends

The UK has experienced **historical under-investment in R&D**, with UK public and private spend on R&D currently just 1.7 per cent of GDP, far short of international benchmarks¹.

All of the major UK political parties, however, have committed to **increasing R&D spending** over the coming decade. It is likely that a significant element of this will rely on incentivising business investment, with some additional support from the public purse. **Business investment in R&D accounts for about two-thirds of total R&D investment in the UK.** Of that, just over half comes

¹ CBI Innovation Survey 2016. http://www.cbi.org.uk/cbi-prod/assets/File/CBI%20Innovation%20Survey%202016_%20results.pdf

from firms headquartered overseas, a significantly higher proportion than that found in other major nations.

R&D activities within the UK tend to be highly clustered, focused on the South East, and the golden-triangle between London, Oxford and Cambridge, as well as close to universities. This shows a clear preference for co-location close to academic research and expertise, and important skill bases.

Incentivising investment

The UK research base is a major asset and acts as a significant pull for global business investment. **More could be made of the UK's research strengths in trade and investment discussions.**

Address structural barriers to co-location, including VAT requirements for any publicly-funded research institutes undertaking more than 5% commercial activity, restricting co-location with businesses. Reports from the CBI² and the Royal Academy of Engineering³ indicates that collaboration opportunities, are amongst the top incentives for business to invest in the UK.

Access to high-level skills is also repeatedly cited by business as a driver for investment. This may present a potential challenge in light of a slowing of the expansion of highly-educated personnel coming into the workforce. Investing in upskilling the UK workforce across a range of skills levels will help to attract further business investment. Research finds that workers in low-skilled occupations benefit more (in terms of higher wages) from working in an innovative firm (compared to working in a non-innovative firm) than similar low-occupation workers in non-R&D firms. There are a number of possible explanations including that the tasks performed by lower skilled workers in R&D intensive firms require more autonomy and

² CBI Innovation Survey 2016. http://www.cbi.org.uk/cbi-prod/assets/File/CBI%20Innovation%20Survey%202016_%20results.pdf

³ Engineering profession responds to government's industrial strategy proposals, <http://www.raeng.org.uk/news/news-releases/2017/april/systems-not-silos-new-industrial-strategy-must-del>

KEY MESSAGES

- UK has **historical under-investment in R&D**
- R&D tends to be **highly clustered close to research expertise and important skills bases.**
- Investment can be incentivised by:
 - **addressing structural barriers,**
 - **increasing access to high-level skills,**
 - **targeting SMEs**
 - **judicial deployment of fiscal incentives.**
- R&D should be considered as one of a number of inputs to a **mission-orientated approach to investment in innovation**, to capture emerging or growing sections of the UK economy such as cultural and creative industries and financial services

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reliability. There are therefore a possible set of “soft-skills” among lower educated workers that may enhance their employability in R&D firms.

Target SME investment: the UK has a strong track-record in attracting and supporting cutting edge R&D from big industry (eg Boeing, Land Rover and AstraZeneca). However, only 6% of SMEs are high-value innovators, with a long tail of SMEs and micro industry that is unable or is not incentivised to invest in R&D. This tail of low productivity should be the focus of targeted incentivising and enabling policies.

Deploy fiscal incentives carefully: Fiscal incentives, including R&D tax credits and other public funding, are a well-used means to increasing investment, and are another of the top priorities listed by businesses⁴.

- **R&D tax credits** have been shown to be successful in stimulating additional investment amongst SMEs (particularly among firms that were also likely to be credit constrained) although their value in stimulating investment from larger businesses is less clear-cut.

- There are other aspects of the system that need reform however, particularly at the SME end of the business spectrum. Policies that give large tax breaks to the self-employed and company owner-managers have not been shown to correlate to enhance growth, proving expensive for Government.

- Fiscal incentives should also seek to **boost entrepreneurship**, including through exploring how gains from innovation within firms can be distributed among workers, to better incentivise innovation and productivity.

A research, development and innovation ecosystem

Traditional measures of R&D fail to capture many emerging areas of research that can be seen throughout the UK economy such as training, marketing, design services, and software development - all parts of the growing UK services sector. They also overlook the UK's large cultural and creative industries sector, one of the most dynamic industry sectors in Europe⁵. If such rapidly growing areas of research and development and productivity are not recognised, the policy to stimulate investment will fail to address growth areas within the UK economy and policy may not deliver appropriate or sufficiently targeted fiscal and other incentives.

Focusing on **innovation** more broadly, with traditional R&D seen as one of a number of inputs, would capture a wider sectoral base. Whilst this may create new challenges over concepts and definitions, it would allow policies to take a wider, more **holistic approach to increasing business investment in the UK economy and in R&D**. Whilst measurement is important, policy should not be constrained by a narrow focus only on what can currently be easily measured.

This would also allow a **mission-oriented approach to investment in R&D and innovation** which is focused less on specific sectors and more on addressing defined challenges.

This requires a longer-term approach which values productivity as the product of strategic investment in missions which cross sectors. Similar approaches to this have been successful elsewhere in Europe including the cases of de-carbonising the German steel sector and Denmark becoming the global primary source of green technology to China.

The clustering of R&D presents a wider challenge to government wishing to pursue policies that **promote better distribution of R&D investment across the UK**, in particular in regions that need significant investment to lift both the local economy and wellbeing. There are good case studies of regional development programmes which have enhanced R&D investment, such as the development of Innovation Centres in Scotland⁶. Regionally directed investment should draw from examples of best practice to design programmes and structures that best suit the needs of individual regions, whilst ensuring that public investment is focused on high-quality research.

Conclusions

- **Redefine parameters in terms of innovation:** Focusing on the concept of innovation, rather than the measure of R&D could be the catalyst to driving the economy in a new direction, transforming the entire economy, inclusive of ‘soft’ sectors such as the creative industries, not captured in traditional measures of R&D

- **Invest in people:** developing the local skill base can be a major, long-term output from public investment, and is consistently an area prioritised by businesses, as indicated by business clustering close to established skill labour markets.

- **Consider the role and type of fiscal incentives:** Fiscal incentives, such as tax credits, can play a positive role in increasing R&D investment, but should be used selectively. Consider tax policies that incentivise long-term investment.

- **Recognise the value of clustering:** Business, universities and communities can all benefit from clustering or co-location of R&D activity, both financially and in terms of generating and utilising available skills and talents.

- **Be prepared to take risks:** Use public funding to crowd-in investment in innovative R&D, but also accept trade-offs to achieve the optimum investment profile across the UK.

- **Learn from best practice:** Learn from the examples of regionally successful models of public-private partnerships, but be willing to be experimental and try new, context-specific approaches

⁴ Industrial dynamics of the CCI: Challenges for mapping and measuring the CCIs and their innovation activities. Mickael BENAÏM and Bruce TETHER University of Manchester. <https://www.mickael-benaim.com/productions/reports/cre8tv-eu-reports/>

⁵ Mazzucato, Mission-Oriented Innovation Policy, with the RSA <https://www.thersa.org/globalassets/pdfs/reports/mission-oriented-policy-innovation-report.pdf>

⁶ Independent Review of the Innovation Centres Programme, chaired by Prof Graeme Reid http://www.sfc.ac.uk/web/FILES/InnovationCentresReview/Independent_Review_of_Innovation_Centres_Programme_-_29_September_2016.pdf

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