House of Commons Science and Technology Select Committee

'Balance and Effectiveness of Research and Innovation Spending Inquiry'

Submission by Yorkshire Universities

September 2018

1. Science and Technology Committee

1.1. UK Research & Innovation (UKRI) is working with the Government to develop a plan for how best to meet the Government's target for the UK to increase investment in research and development (R&D) to 2.4% of GDP by 2027, and by 3% in the future. UKRI is also examining "what constitutes reasonable balance" of R&D funding.

1.2. Against this background, the Science and Technology Committee has launched an inquiry on the 'balance and effectiveness of research and innovation spending', and has invited written evidence that addresses the following issues:

- The effectiveness of public spending on R&D, including through mechanisms such as the Industrial Strategy Challenge Fund (ISCF);

- The rationale needed for deciding the balance of public R&D funding between:
  - individual research disciplines, research councils and cross-disciplinary schemes;
  - the two research funding streams of the 'dual support' system;
  - research and innovation;
  - pure and applied research;
  - block funding, responsive mode funding and directed funding for the Industrial Strategy;
  - the 'golden triangle' of London, Oxford and Cambridge, and the rest of the UK; and
  - global challenges and other strategic/national priorities.

- The effectiveness of, and balance between, the different available UKRI/Government levers for encouraging innovation, including: R&D tax credits, the Small Business Research Initiative (SBRI), Innovate UK loans and grants, measures proposed in the 'patient capital' review, and other initiatives.

- The most appropriate phasing of the increase in R&D spending by UKRI over the next few years, in order to meet the Government's 2.4%/3.0% of GDP targets, and what if any changes will be needed in the 2019 Spending Review to deliver these targets.

- Assumptions about the public/private mix in delivering the 2.4%/3.0% of GDP targets, the extent past patterns will be replicated in future and the levers that can be used to increase private sector spend on R&D.

1.3. Yorkshire Universities' (YU) submission presents some perspectives on the spatial dimensions to the initial questions posed by the Science and Technology Committee.

2. About Yorkshire Universities

2.1. Since 1987, Yorkshire Universities (YU) has been the regional voice for Higher Education in Yorkshire. YU is a partnership based on a shared interest in place and the contribution that universities and Higher Education Institutions (HEIs) make (both individually and collectively) to the prosperity and well-being of people and places in Yorkshire. YU members contribute £3.7 billion per annum to regional GVA, and the institutions employ over 34,000 members of staff and attract 192,000 students from more than 120 countries.

2.2. YU's members cover a diverse range of HEIs and provision. Our members are the universities of Bradford, Hull, Huddersfield, Leeds, Leeds Beckett, Leeds Trinity, Leeds Art, Sheffield, Sheffield Hallam, York, and York St John, as well as the Leeds College of Music.

2.3. The mission of YU is to widen and deepen the collective role of universities and HEIs in place-based development, including national and local industrial strategies. This paper synthesises evidence collated and prepared by YU's Industrial Strategy Group. We would be happy to engage further with the Committee as the inquiry progresses.

3. Yorkshire Universities and place-based research and innovation

3.1 We recognise that the inquiry will attract significant interest, and the Committee is likely to receive a large volume of testimony and evidence. We have written in summary terms to assist the Committee:

The economic context

3.2 Research and innovation can be both globally-excellent and locally-relevant/impactful: there is no necessary distinction between them. For many years, neither the public sector or the private sector in the UK have invested sufficient resources in R&D. Achieving the GDP target of 2.4% of GDP by 2027 will require levels of current expenditure to increase by £14bn and the private sector will need to contribute two-thirds of total extra investment. The Government itself will have to find around an extra £5bn.[1]

3.3 There is a spatial imbalance in R&D and innovation spending in the UK, with London, South East and East of England dominating investment, while Yorkshire and other north of England regions receive much lower-levels of funding.[2] This imbalance drives serious regional challenges for the economy.

3.4 In Yorkshire, specific interventions and investment are needed to stimulate more demand-led forms of innovation, and for institutions, including universities, to work closely with businesses at all levels, sectors and of different sizes.[3] To rebalance the UK economy, research and innovation should be more sensitive to local and regional context, conditions, capabilities and strategies. In Yorkshire, HEIs are pivotal to innovation and R&D in different ways, and could achieve greater impact with appropriate incentives and encouragement – and by greater collaboration around significant areas of economic distinctiveness and potential.

[1] See: https://www.tomforth.co.uk/boostingrd/

[2] ONS (2018) UK gross domestic expenditure on research and development, comparison by sector, country and region 2016, Office for National Statistics: London.

[3] According to the Office for National Statistics (ONS), in the UK, 67% of R&D investment is made by business, while in Yorkshire and The Humber the figure is 54%. The ONS also identifies that R&D investment through higher education in the UK represents 24% of total investment, while in Yorkshire and The Humber higher education contributes 40% of total R&D investment.

3.5 Additional public investment in R&D can leverage further private investment. However, to achieve the most effective and sustainable outcomes for all investment, a place-based approach is required. Traditionally, UK science and research policy has been determined by a system where place-based interests have been overlooked in favour of excellence. The historic uneven pattern of innovation in the UK is not based on rational market decisions but instead is a consequence of a succession of deliberate public policy and investment decisions.[4]

Universities and innovation

3.6 The next stage of the Smart Specialisation Hub (based in the National Centre for Universities and Business) activity should help to further strengthen the place-based approach to research, science and innovation, which connects to 'real-world' economic, social and environmental opportunities and challenges. Linking science and innovation with regional policy/industrial strategy speaks to the multi-faceted role of universities as anchor institutions serving the public good in the communities where they are located. Crucially, we have to find new ways of mobilising the innovative capacity of local communities, business and partners.[5]

3.7 Entrepreneurial discovery processes can best identify the opportunities in specific research and innovation domains where places can develop distinctive advantage. This requires collaborative governance between institutions that are able to combine their diverse knowledge of local science/technology capabilities and market opportunities.[6]

3.8 Local and regional institutions, including universities, Local Enterprise Partnerships, Combined Authorities, Metro Mayors, business and local authorities, are the best actors to identify what a place should specialise in and how to build new paths of development. Collaboration between business and the local 'knowledge base' can realise the benefits of SME innovation and support innovation that is 'closer to the market'.[7]

Policy issues

3.9 Different forms of R&D and innovation, and associated investment, should be integrated more closely with other interventions, especially those supporting skills development, and under-pinned by effective governance and local institutional partnerships.

3.10 It is important to make a distinction between R&D and innovation. Not all innovation is driven by R&D. We should adopt a broader definition of innovation. R&D is often expensive and long-term, and much of the innovation/productivity gap can be met by businesses adopting already-established technology and business systems and techniques. Universities and other HEIs can play a significant role in helping to achieve this, especially if more reliable and timely data/evidence can be secured and utilised in different places. This would involve embracing a rich diversity of universities, such as the spectrum of YU members. A more cost-effective approach to improving innovation and productivity would also involve universities working closely with business and with Growth Hubs and Scale-Up specialists.

[4] Charles, D. and Benneworth, P. (2001) 'Are we realizing our potential? Joining up science and technology policy in the English regions', Regional Studies, 35: 73-79.
[5] Goddard, J. (2018) 'Towards a place based science and innovation strategy for England: a role for universities? A paper for the BEIS Advisory Group on Smart Specialisation and Innovation Audits', Centre for Urban and Regional Development Studies, Newcastle University: Newcastle upon Tyne.
[6] Vallance, P., Blazek, J., Edwards, J. and Kveton, V. (2018) 'Smart specialisation in regions with less-developed research and innovation systems: A changing role for universities?, Environment and Planning C; Politics and Space, 36(2): 219-238.
[7] Ibid.

3.11 As YU outlined in its evidence to the 'Patient Capital Review'[8] we need to find more long-term finance to enable more innovative, high-growth firms to realise their long-term potential. Too few business ventures emerging out of UK universities are able to secure finance within domestic markets despite the size, scale and maturity of the UK's financial sector.

3.12 Looking forward, important questions remain as to how innovation will feature within the post-Brexit (European Strategic Investment Fund (ESIF)) mechanism that is the UK Shared Prosperity Fund. ESIF has encouraged and enabled place-based investment in innovation, which has been important for regions such as Yorkshire.

3.13 The case for greater priority to be given to strategic R&D and innovation investments in places outside London and the South East also requires UKRI, when considering the balance of funding and priorities across the research and innovation system, to ensure diverse public and stakeholder engagement. Science should not be seen as an elite exercise.[9] Here, there are valuable lessons to be drawn from the 'Leading Places' programme[10], Urban Living Partnerships and Foresight projects, which at the outset hard-wired business, civic and local community partnerships with the scientific community into action-orientated research seeking to address economic and social opportunities and challenges.[11]

3.14 Using public engagement to co-produce and co-deliver research with the local knowledge base is essential if the extra public investment that is planned is to secure long-term, broad support, and if the public value of universities is to be strengthened and recognised outside the HE sector.

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[8] See: https://yorkshireuniversities.ac.uk/wp-content/uploads/sites/15/2017/11/finalyusubmissiononfinancinggrowthininnovativefirms003.pdf
[9] Jones, R. and Wilsden, J. (2018) The biomedical bubble: Why UK research and innovation needs a great diversity of priorities, politics, places and people, Nesta: London.
[10] See: https://www.local.gov.uk/topics/devolution/leading-places
[11] One useful example is the Newcastle Urban Living Partnership – Newcastle City Futures: http://www.newcastlecityfutures.org/