

Institution: University of Sussex
Unit of Assessment: UoA 19 Business and Management
Title of case study: How SPRU work on the benefits of publicly funded research helped to influence the outcome of the 2010 UK Spending Review
<p>1. Summary of the impact</p> <p>Since 1996, SPRU researchers, led by Professor Ben Martin, have been prominent in carrying out studies to assess the nature and extent of the benefits of publicly-funded research. While there were earlier instances of impact on the UK government, the most direct came in 2010, when Martin served as a member of a Royal Society working group, which produced <i>The Scientific Century</i>, an influential report on research investment. Membership of this group enabled Martin to feed the results of SPRU research directly into discussions on the long-term direction of UK research funding, and to influence the eventual outcome of the Spending Review.</p>
<p>2. Underpinning research</p> <p>In a series of studies, SPRU researchers critically reviewed the evidence for the economic and social benefits of publicly-funded research. They have shown that, while it is difficult, if not impossible, to put a precise numerical figure on the benefits, all the evidence confirms that those benefits are very substantial and considerably greater than the associated investments by government in research.</p> <p>In addition to providing a comprehensive and regularly updated ‘meta-review’ of the available evidence on the benefits of publicly funded research, SPRU researchers have made important conceptual contributions. In particular, SPRU was the first to draw up a taxonomy of the different mechanisms or ‘channels’ through which publicly-funded research can result in economic and social benefits. Besides increasing the stock of useful knowledge, these include skilled graduates and researchers, the creation of new scientific instrumentation and methodologies, providing access to global networks of knowledge and expertise, enhanced innovative problem-solving skills, the creation of new firms, and the provision of social knowledge.</p> <p>The research on this topic began in 1996 and has continued up to the present. It has been funded by a variety of research grants and contracts, the funding sources including HM Treasury (1996), the Committee of Vice-Chancellors and Principals (2000), the Office of Science and Technology (2002), the Gatsby Foundation (2006) and the Council for Industry and Higher Education (2012).</p> <p>Other SPRU researchers who have taken part in the work include Ammon Salter (responsible for much of the original literature review, and co-author of the highly-cited article, R1); Keith Pavitt (who contributed a large part of the conceptual framework for this work); Aldo Geuna, Diana Hicks and Ed Steinmueller (who all helped set the work in an international context); Nick von Tunzelmann (who provided the longer-term historical context); Margaret Sharp (who, with her political experience as a Liberal Democratic peer, ensured that the work was attuned to political needs), and Puay Tang (one of the UK’s leading experts on university–industry links). The funds from the Treasury, CVCP, OST, Gatsby and CIHE thus helped to build a unique body of expertise in SPRU on the benefits of publicly funded research.</p>
<p>3. References to the research</p> <p>Main research output</p> <p>R1 Salter, A.J. and Martin, B.R. (2001) ‘The economic benefits of publicly funded basic research: a critical review’, <i>Research Policy</i>, 30: 509–32 (cited 198 times as of July 2013, according to the Web of Science; also over 700 citations on Google Scholar).</p>

Reports

- R2** Martin, B.R., Salter, A., Hicks, D., Pavitt, K., Senker, J., Sharp, M. and von Tunzelmann, N. (1996) *The Relationship Between Publicly Funded Basic Research and Economic Performance: A SPRU Review*. London: HM Treasury (peer-reviewed prior to publication by Treasury; cited over 50 times on the Web of Science and 140 times on Google Scholar).
- R3** Salter, A., D'Este, P., Martin, B., Geuna, A., Scott, A., Pavitt, K., Patel, P. and Nightingale, P. (2000) *Talent, Not Technology: Publicly Funded Research and Innovation in the UK*. London: Committee of Vice-Chancellors and Principals (CVCP), (peer-reviewed prior to publication; cited over 30 times on Web of Science and over 50 times on Google Scholar).
- R4** Scott, A., Steyn, G., Geuna, A., Brusoni, S. and Steinmueller, E. (2001/02) *The Economic Returns to Basic Research and the Benefits of University-Industry Relationships: A Literature Review and Update of Findings*. London: Stationery Office, Report to the Office of Science and Technology (cited over 20 times on Web of Science and over 70 times on Google Scholar).
- R5** Martin, B.R. and Tang, P. (2006) *The Benefits from Publicly Funded Basic Research*. London: HMSO, Report to the Office of Science and Innovation, Department of Trade and Industry (also available as SPRU Electronic Working Paper No. 161, 2007) (cited over 40 times on Google Scholar).
- R6** Hughes, A. and Martin, B. (edited by D. Docherty) (2012) *Enhancing Impact: The Value of Public Sector R&D*. London: Council for Industry and Higher Education (CIHE), (ISBN 1 874223 99 8) (peer-reviewed prior to publication).

Outputs can be supplied by the University on request.

4. Details of the impact

Professor Martin served on the Royal Society 'Scientific Century' working group in 2009–10. Chaired by Sir Martin Taylor FRS, Vice-President of the Royal Society, this comprised over a dozen leading scientists, including two Nobel Laureates (one being Sir Paul Nurse, the future President of the Royal Society), and two former Ministers of Science (Lords Waldegrave and Sainsbury). Martin was the only science-policy researcher on the committee, which provided an ideal opportunity to feed directly into the discussions the results of over ten years of SPRU research on the nature and extent of the benefits from publicly-funded research.

From the start, the group saw their report as having two aims:

- raising the visibility of science in the 2010 election campaign; and
- persuading the incoming government that research funding should be protected in the Spending Review that was to be held after the Election, despite the severe financial constraints imposed following the 2008 financial crisis. The focus here is on the latter impact.

While the eminent scientists on the group could provide cogent arguments as to why science should be generously funded, and the two politicians offered advice on what would be politically feasible, Professor Martin, working with the group's secretariat (drawn from the Royal Society's Science Policy Centre) was able to provide systematic empirical support for the group's analysis and recommendations, by drawing on the results of the extensive research at SPRU. This helped to ensure that the resulting report was soundly evidence-based and could not be dismissed by HM Treasury and others as 'special pleading' by the scientific establishment.

After the coalition government was formed in May 2010, the Spending Review got under way, and was completed in October 2010. Initially, the proposed settlement for science was not particularly generous, with envisaged cuts of 15–20 per cent over four years. However, during the final week before the results were to be announced, the latest Treasury calculations revealed that the government had available several hundred million pounds more than previously thought. At this

point, Vince Cable (the new Secretary of State for BIS) and David Willetts (the Minister for Universities and Science), both of whom had read and been impressed by the Royal Society report, decided to use this and related evidence to propose that the extra funds now available should be added to maintain the 'ring-fence' around the £4.6 billion research budget and ensure it was not cut. Ministers and senior officials (such as Sir Adrian Smith FRS, then Director of Research and Innovation at BIS) drew repeatedly on the Royal Society report to argue that this investment made good economic sense for the UK, despite the wider pressures on public spending. Besides benefiting scientists substantially, this also represented a political benefit to the new government, who were able to argue that the ring-fence commitment to science had been maintained.

5. Sources to corroborate the impact

C1 Taylor, Sir M., *et al.* (2010) *The Scientific Century: Securing our Future Prosperity*. London: The Royal Society (Ben Martin was a co-author).

C2 Sir Martin Taylor has provided personal evidence of the extent and importance of Professor Martin's contribution (and the wider SPRU contribution) to the report. In his view:

The Scientific Century provided the standard text book for discussion for the 2010 CSR, and as such had a major impact on the science settlement. Without the input from SPRU the TSC would have had a distinctly weaker evidence base. It is worth noting that the TSC continues to have major impact and played an important role, as an on-going authoritative reference source, in this year's settlement for science.

C3 Head of Research Funding in the Department for Business, Innovation and Skills (BIS). As a senior civil servant responsible for science funding, the Head of Research Funding has provided this statement as evidence of impact during the preparations for the 2010 Spending Review:

SPRU were one of the more authoritative sources of evidence that enabled Government to make an informed decision on the level of public spending on science at a time of exceptional pressure on public spending. Drawing on advice from SPRU and others, Government recognised the vital importance of a strong research base and funding for science was protected.

C4 The Rt Hon. David Willetts MP, Minister for Universities and Science, who said on Radio 4 shortly after the Spending Review that: 'The scientific community has assembled very powerful evidence, such as in that Royal Society report, *The Scientific Century*, about what the benefits are of scientific research... that's really strong evidence and we deployed it.' See http://royalsociety.org/uploadedFiles/Royal_Society_Content/policy/publications/2011/4294977681.pdf

C5 Professor Brian Cox, the well-known physicist and BBC presenter, cited SPRU's work in a recent prize lecture speech at the Royal Society (see <http://royalsociety.org/events/2013/brian-cox/> – at 25 mins 15 secs):

Any attempt to assess and quantify the economic and social benefits from publicly-funded research is beset by problems...Nevertheless, as SPRU's previous reviews have documented, and as this study [Martin and Tang, *The Benefits from Publicly Funded Research*, 2006] further illustrates, a growing body of empirical work demonstrates that those benefits are substantial. Moreover, the benefits seem to be increasingly important as we move into a more knowledge intensive and competitive era.'