

Productivity Plan Inquiry  
Business, Innovation and Skills Committee  
House of Commons  
London  
SW1A 0AA

**From the President, Sir Paul Nurse FRS and Physical Secretary and Vice-President,  
Professor Alexander Halliday FRS**

10 September 2015

Dear Committee Members,

The Royal Society welcomes the opportunity to respond to the House of Commons Business, Innovation and Skills Committee inquiry on the Government's Productivity Plan. The Society is the national Academy of science in the UK. It is a self-governing Fellowship of many of the world's most distinguished scientists working in academia, charities, industry and public service. It draws on the expertise of the Fellowship to provide independent and authoritative advice.

This response focuses on the contribution of research and innovation to productivity growth. Research creates new knowledge and technological innovations, which can improve productivity by supporting the development of new processes and approaches. Evidence shows that 51% of UK productivity growth between 2000 and 2008 was due to innovation, with 32% attributable to changes in technology resulting from science and innovation.<sup>i</sup> Moreover, economists have suggested that public R&D increases private sector productivity.<sup>ii</sup>

Since the financial crisis, the UK's productivity performance has stagnated and remains about 16% below the level that would have been expected given the pre-crisis trend.<sup>iii</sup> However, despite evidence about the important contribution of research to productivity, the UK underinvests in R&D relative to its economic competitors. For example, UK government investment in R&D as a percentage of GDP is only 0.49%,<sup>iv</sup> a considerable distance behind the OECD average of around 0.67%.<sup>v</sup>

Evidence also shows that the UK research and innovation system is both highly effective and remarkably efficient at turning investment into valuable outputs: new knowledge and technology, and highly skilled people. With 0.9% of the global population and 3.2% of global R&D expenditure it still has 4.1% of global researchers, and 15.9% of the world's most highly cited research articles.<sup>vi</sup> In other words, public investment in R&D can be a cost-effective way to help increase national productivity and growth.

The Society welcomes the Government's attention to productivity and the emphasis placed on long-term investment in its recent Productivity Plan.<sup>vii</sup> We particularly welcome the prominence of science, innovation and education in the Plan.



President Sir Paul Nurse  
Executive Director Dr Julie Maxton

Founded in 1660, the Royal Society is the independent scientific academy of the UK, dedicated to promoting excellence in science.

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However, as long as the UK continues to underinvest in R&D, it will struggle to fulfil the Productivity Plan's ambition of becoming 'the richest of all the major economies by 2030'. Bold leadership and decisive action are required now to make the UK the best place in the world for research and innovation. To secure prosperity and improve productivity, the Royal Society is calling on the UK Government to place research and innovation at the heart of its plans for long-term economic growth and increase its investment in R&D to at least match the OECD average of around 0.67% of GDP by 2020.

Please contact Becky Purvis ([rebecca.purvis@royalsociety.org](mailto:rebecca.purvis@royalsociety.org) or 020 7451 2261) if you have any queries.

Yours sincerely,

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<sup>i</sup> BIS (2014). *Our Plan for growth. Science and Innovation. Evidence paper.* [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/388015/14-1247-science-innovation-strategy-evidence.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/388015/14-1247-science-innovation-strategy-evidence.pdf)

<sup>ii</sup> See for example: Goodridge et.al (2015). *The contribution of public and private R&D to UK productivity growth.* Imperial College Business School, London.

<sup>iii</sup> Bank of England (2014). *The UK Productivity Puzzle* <http://www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2014/qb14q201.pdf>

<sup>iv</sup> CaSE (2015). *CaSE's briefing on UK gross domestic expenditure on R&D.* <http://blog.sciencecampaign.org.uk/wp-content/uploads/2015/04/CaSE-RD-investment-briefing-April-2015.pdf>

<sup>v</sup> OECD (2015). *Main science and technology indicators.* <http://www.oecd.org/sti/msti.htm>. For the purposes of this letter the term "OECD average" refers to the "OECD total". This is effectively a weighted average, with weighting for size of economy and government financed expenditure on research and development.

<sup>vi</sup> Elsevier (2013). *International comparative performance of the UK research base – 2013.* [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/263729/bis-13-1297-international-comparative-performance-of-the-UK-research-base-2013.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/263729/bis-13-1297-international-comparative-performance-of-the-UK-research-base-2013.pdf)

<sup>vii</sup> HM Treasury (2015). *Fixing the foundations: Creating a more prosperous nation* [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/443898/Productivity\\_Plan\\_web.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/443898/Productivity_Plan_web.pdf)