

Knowledge to money: Assessing the business performance effects of publicly-funded research and innovation grants

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The UK Research Councils and Innovate UK spend around £3.0bn pa on supporting research and innovation in universities, firms and other organisations. This spending is set to increase sharply in future years as the Industrial Strategy Challenge Fund, part of the broader National Productivity Innovation Fund, develops. Here, we provide the first comprehensive assessment of the impact of participating in Research Council funded projects on the performance of UK firms.

Our assessment is based on administrative data on all projects supported by the UK Research Councils over the 2004 to 2016 period. This is matched with business performance data for c. 10,000 firms from the Business Structure Database. We use a difference-in-difference, propensity score matching technique to evaluate the performance of UK firms who participated in publicly-funded research.

Key findings

Firms participate in Research Council projects as partners, engaging with the research teams and providing cash or in-kind support. Innovate UK projects may work similarly, but may also involve directly supporting firms' research activity. The central finding from our analysis is that firms participating in projects funded by UK Research Councils and Innovate UK grew their turnover and employment 5.8-6.0 per cent faster in the three years after the project, and 22.5-28.0 per cent faster in the six years after the project, than other similar firms.

Other key findings relate to sub-sample analyses:

- First, the impact of participation is larger for firms in high-tech manufacturing and knowledge intensive services.
- Second, growth effects are also larger for small firms and those with lower pre-project productivity. Growth effects on firms in the top quartile of the productivity distribution are relatively small.
- Third, support relevant to businesses is provided largely by EPSRC and Innovate UK. Involvement by firms in projects funded by EPSRC or Innovate UK increases both employment and turnover growth in the short and medium terms with only marginal differences in their impact.

Profiling research grant impacts

Studies of the effectiveness of R&D and innovation grants are not new but these are often specific evaluations of particular initiatives or particular providers. Here, we are able both to adopt a more comprehensive approach and evaluate impacts robustly, and over a relatively long time period. Over the 2004 to 2016 period, the UK Research Councils provided support to research activities involving over 34,000 organisations, of which around 10,000 were outside the UK. Figure 1 below illustrates the research grants in which UK firms were participants. It emphasises the dominant role of Innovate UK and the EPSRC, with a prominent role played by Innovate UK especially since 2012, with an overall investment of almost £500 million in 2015.

Authors



Enrico Vanino

London School of Economics
and Political Science
e.vanino@lse.ac.uk



Bettina Becker

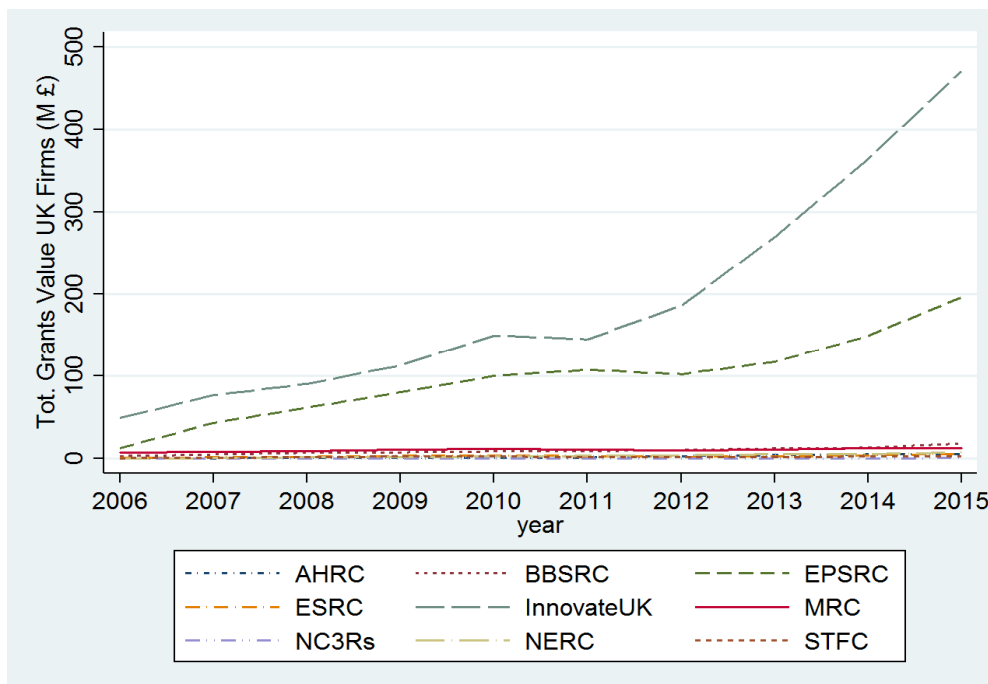
Enterprise Research Centre
and Aston University
b.becker@aston.ac.uk



Stephen Roper

Enterprise Research Centre
and Warwick University
stephen.roper@wbs.ac.uk

Figure 1: Indicative value of projects in which UK firms participated



Note: The value of collaborative projects are allocated equally between participants in the chart above. Contributions from project partners are not included.

It is worth noting two significant limitations in our analysis. First, we look here at only the direct effects of public support on participant companies. Much of the rationale for public support for research and innovation relies not on these direct effects but on related spillovers. These we plan to explore in a further study. Second, although the GtR data includes all public support provided by the Research Councils across the UK it does not include all public support for R&D and innovation. Other support is provided by agencies in the devolved territories and through R&D tax credits, and it would be good to include these in any future assessment.

Policy implications

Overall, our analysis shows that the public support by UK research councils and Innovate UK for R&D involving private sector organisations has a strong positive impact on the growth of participating firms and provides positive evidence for new investment in initiatives such as the Industrial Strategy Challenge Fund. Our analysis suggests that impacts are largest in high-tech and knowledge intensive sectors. Targeting firms in these sectors therefore seems sensible. Second, our analysis suggests that growth impacts are greatest in smaller firms and in those with lower productivity, and suggests that growth effects in high productivity firms are small. This result suggests some trade-offs. Maximising growth impacts would suggest targeting support on smaller less productive firms, while maximising the impact on knowledge creation and new-to-market innovation would suggest targeting leading-edge, higher productivity businesses. Here, however, additionality in terms of growth may be more limited.

Full paper link:

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