

How to evaluate case study: Innovation

Statistical approach (SMS level 3)

What was the programme and what did it aim to do?

This study looks at the impact on firm performance of collaboration with public research centres. Specifically, the impact of the Danish Innovation Consortia (DIC) programme that was established in 1995 and sought to promote technology transfer between public research entities and the private sector. The programme involved the creation of groups that included a public research institution and two to five private sector firms. Coordination of the group was delegated to government research and technology centres (known as Approved Technological Service Institutes). The Danish government reimbursed the research institutions for the costs of their research as part of the consortium. The main objective of these consortia was to catalyse cooperation between firms and public research centres, in order to promote business-relevant research and innovations. In turn, it was hoped this would help firms become more productive, increase output and hire more workers. Consistent with this, the study analyses the impact of DIC membership on both patenting and various measures of firm performance.

What's the evaluation challenge?

The evaluation of the impact of these consortia is not straightforward as only certain types of firms take part. For example, it could be that firms that are interested in enrolling in the programme are innovative and forward-looking irrespective of programme participation. As a result of this selection, better outcomes for firms in a consortia may simply reflect these differences rather than the impact of the programme. Alternatively, it might be that only smaller firms participate in the programme, as larger, more successful, firms could afford to do their own research and development. In this case, the danger is that worse performance is inadvertently attributed to the programme when they simply reflect differences in the types of firms who participate in the programme.

What did the evaluation do?

The study created a control group of firms who were not in the programme, but who were similar to consortia firms based on observable characteristics (e.g. patents, region, employees) that affect the likelihood of being in the programme. The technique used to do this is called 'propensity score matching'. The study then compared the change in firm outcomes (such as patents, employment, and profits) for programme participants to the change seen for the matched control group who did not receive support. Since this type of comparison involves two changes (or differences) it is known as a 'difference-in-difference'.

How good was the evaluation?

According to our [scoring guide](#), matching combined with difference-in-differences receives a maximum of 3 (out of 5) on the Maryland Scientific Methods Scale (Maryland SMS). This is because it does well to control for observable differences (e.g. sales) between supported and non-supported firms, but is unable to control for unobservable differences (e.g. motivation). Since this paper uses a wide range of variables in its matching and since the difference-in-difference is based on a clear treatment date (1995) we score this study 3 on the SMS.

What did the evaluation find?

The findings suggest that firms that were already innovative before the DIC (i.e. had previously filed patents) were more likely to take part, and significantly increased patenting after the programme. However, there was no significant effect for firms that were not innovative before the programme, as well as for larger firms. Similarly, firms that were innovative before the programme experienced large and significant growth in employment (15.6% gains four years after joining), while less innovative and larger firms did not (even though the latter were most likely to participate). In contrast, the programme had no effect on participants' output.

What can we learn from this?

Taken at face value the results suggest that these DIC public-private partnerships were only fruitful for smaller firms that are already innovative. If the objective of such programmes is to increase the capacity of high performing firms, then the programme could be counted a success. However, it is also evident that larger (and presumably more established businesses) did not see any treatment effects – despite the fact that such firms were more likely to be involved in the programme. DIC membership also did not induce non-innovators to start innovating. This implies that other interventions could be more effective for these types of businesses. For non-innovators, for instance, more intensive outreach / collaboration or direct R&D support might be considered (see our [evidence review](#) for more discussion). The study also suggests that the results might support the restriction of the programme to SMEs. Given the structural differences between the Danish and UK economies, we should be careful in translating these findings. Similar research in the UK would be valuable.

Reference

Kaiser, U., & Kuhn, J. M. (2011). Long-Run Effects of Public-Private Research Joint Ventures: The Case of the Danish Innovation Consortia Support Scheme. [Study 421 from our R&D Tax Credit review, available here: <http://www.whatworksgrowth.org/policy-reviews/innovation/>]