Improving the innovation policy mix for SMEs in traditional industries

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Innovation support measures in the EU are mostly designed to support product innovation in R&D intensive sectors. To increase the still considerable contribution to regional employment and competitiveness from SMEs in traditional manufacturing industries a broader innovation (policy) mix is more appropriate. This paper draws data from a survey of over 300 SMEs from seven regions within the European Union, to address the question: How can innovation policy interventions be improved to support SMEs in traditional manufacturing industries more effectively. We claim that innovation support should be sensitive to the way SMEs in traditional manufacturing sectors innovate and grow. We find that product innovation (and support used for product innovation) is less likely to generate growth, than (support used for) process innovation. Also (support used for) marketing innovations and organisational innovations are of particular importance – together with internationalisation, design and cooperation.

1. Introduction

This paper focuses on the impact of innovation support measures for SMEs in traditional manufacturing industries across 7 regions in different European countries.

Traditional industries include *inter alia* the manufacture of food products and beverages, textiles and textile products, leather and leather products, ceramics or other non-metallic mineral products, mechanical/metallurgy or basic metals and fabricated metal products, and automotive or motor vehicles, trailers and semi-trailers. Our definition of a traditional manufacturing sector is slightly different from the OECD classification of "high", "medium" and "low-tech" industries, which is based on the R&D intensity of the industries. Instead we defined as "traditional" those manufacturing industries with the following characteristics: long established; once a main source of employment at the (sub-)regional level; recent decline; still a major source of wealth creation, employment and exports; and retention of capacity for innovation.

The regional economic importance of innovative SMEs in traditional manufacturing sectors is often neglected (Robertson 2009). Most attention goes to SMEs in research intensive sectors and innovation policy support is focused on supporting the most innovative and R&D intensive firms. Maskell (1998) stated that *"The prevailing ethos of high-tech production makes it easy to forget that low-tech industries are not synonymous with low growth or low profitability"(p.99)*. Hirsch-Kreinsen (2008) refers to low-tech industries as a forgotten sector in innovation policy.

2. Literature

According to Soete (2009) the focus on R&D and high-tech SMEs in EU policy (e.g. in the Lisbon agenda and the Barcelona target to spend 3% of GDP on R&D) was rooted in the idea that the lagging EU productivity was caused by a failure in structural change towards R&D intensive high-tech sectors. According to Mason & Brown (2013) policy makers also favour high-tech sectors because they would generate more high-growth firms then low-tech sectors, but several studies show that high-growth firms are not overrepresented in high-tech sectors (Henrekson & Johansson 2010; Bleda et al. 2013). For instance in the UK high-growth firms are almost equally present in high-tech and low-tech sectors (Nesta 2009). High-growth firms are not necessarily R&D intensive (Brown et al. 2014).

Studies of innovating firms have revealed that the multiple sources of knowledge creation, learning and innovation have become broader and more complex, regardless of the R&D intensiveness of their industry. Innovation surveys show that R&D is indeed not the sole source of innovation for firms (Arundel et al. 2008; Mairesse and Mohnen 2010). Potters (2009, p.13) shows that this is especially the case for companies in 'low-tech' sectors, for which: "Important inputs to innovation output – other than R&D – are technology acquisition, organisational and managerial innovation, design and marketing". Therefore, R&D policy needs to be complemented with specific measures targeting business innovation according to the needs of the existing industries and firms (Nauwelaers & Wintjes 2002).

Rejecting the notion of a single best practice instrument for every type of ambition or need, we rather aim to explain the difference between interventions: which kind of support is good for which kind of innovation and which kind of impact?

3. Methodology

Most of the scientific literature on the impact of innovation policy support focus on a single attribution question: does 'treatment' in the form of R&D subsidies make a difference. Since the literature questions the relevance of product R&D for SMEs in traditional manufacturing industries, and suggests that many other innovative activities matter, we evaluate the various contributions from different interventions. In counterfactual evaluations, many questions concerning why, how and for whom the different interventions work or do not work, are often ignored. For the sake of accountability it might be sufficient when an econometric evaluation can assess to a high level of certainty if policy intervention worked or not, however for improving policy more insights are needed.

The survey sample includes 312 SMEs, comprising 145 firms that have participated in an innovation policy support measure and 167 firms which did not participate in any innovation support measure. The first part of the survey largely followed the questions and definitions as used in the Community Innovation Survey, e.g. concerning innovation input, output and concerning product innovation, process innovation, organisational innovation and marketing innovation. The second part of the survey addressed public support for innovation. Those who had received support were asked a few questions for a maximum of two support measures: e.g., for which kind of innovation they had used the support, and to rate themselves the importance of 20 predefined, possible impacts from the concerning support.

4. Survey analysis: comparing types of innovation support measures on impact

Based on the survey data we can indicate the extent of impact from participation in various types of schemes. The responding participants gave a score on a wide range of possible impacts for one or two of the most important programmes they participated in. The impact

from Collaborative programmes and especially the support measures concerning Internationalisation seem to be the ones generating relatively high impacts in certain fields of impact. For the largest group of measures: 'internal innovation' the impact-scores are often close to average, with less outstanding fields of impact. The high impact-fields are often not very surprising. For example, collaborative schemes generate specifically high impacts on 'Formation of new partnerships and networks', and Internationalisation measures specifically score well on 'Internationalisation of activities'.

The information captured by the answers on the 20 impact questions have been reduced into four impact factors, with the use of principal component analysis. The main factor (which explains the largest share of the explained variance) consists amongst others of the impacts on 'access to markets', increased profitability, increased turnover, commercial linkages and internationalisation. This impact factor has been labeled 'access to markets'. The second factor includes, amongst others 'R&D linkages and improved research competence and is labeled 'R&D links'. The third factor includes the impact on: business and innovation strategy, improved internal organization, skills and design & marketing capabilities, and has been labeled 'Strategy, organization & skills'. The fourth factor has been labeled 'Certification'.

The first three self-claimed impact factor scores are significantly different for the various types of support measures. Firms that participated in an internationalisation scheme have on average the highest impact factor score on 'access to markets'. The participants in collaborative programmes have a high score on the impact factor 'R&D links', which is much higher than for participants in 'Internal innovation' schemes, which to a large extent consists of R&D subsidies. This suggests that collaborative measures are more effective in generating impact in terms of R&D.

The support is mostly used for product innovations, but impact in terms of innovation input, realized innovations, increased innovation capacities, and economic output seems less than could have been achieved when the support was used for process innovation, organizational innovation or marketing innovation.

5. Conclusions

For SMEs in traditional industries we can conclude that for all four types of innovations, improved capabilities matter for innovation output, but that realizing a product innovation is less likely to generate growth.
A second conclusion is that firms which are supported more frequently are most likely to take the innovative step anyhow, irrespective of programme support.
A third conclusion is that the support is mostly used for product innovations, but impact in terms of innovation input, realized innovations, increased innovation capacities, and economic output seems less than could have been achieved when the support was used for process innovation, organizational innovation or marketing innovation.

The innovation measures have a limited, or not optimal, impact in terms of additionality, which is due to: lack of marketing for innovation support measures to recruit a wide range of potential beneficiaries; restricted programme access and "cherry picking" selection procedures, which means that support goes (and goes more frequently) to firms that are most likely to innovate in any case; too narrow focus within support measures on product innovation.

There is potential for improving the overall innovation outcomes of innovation support programmes for SMEs in traditional manufacturing industry by selecting firms with the most to gain from support rather than selecting those with the greatest propensity to innovate but the least to gain from support.

Policymakers should rather support a broadened discovery and experimentation processes than a narrow, one-size-fits-all subsidized prescription focussing on R&D for product innovation, which merely steers the outcome of a cost-benefit analysis, incident by incident, towards only this specific type of innovation. In this respect both the SME and the policy maker should engage in a discovery process which goes beyond the 'dominant logic' of product innovation.