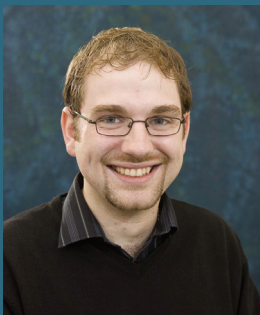


Cross Sectoral Differences in the Drivers of Innovation: Evidence from the Irish Community Innovation Survey

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Summary:

The study investigates whether innovation output varies across sectors and also whether the way in which firms within these sectors generate innovations differ. Firms are classified into four broad sectors; (i) high-technology manufacturing (ii) all other manufacturing (iii) wholesale, transport, storage and communication and (iv) financial intermediaries. The results indicate that the likelihood of product innovation varies substantially depending across sectors but that there is no difference in the mechanisms through which businesses in these sectors innovate. The converse of this is true for process and organisational innovation, with little difference in the likelihood of innovation across sectors but sizeable differences in the drivers of innovation.

Data

The study uses data from the Irish Community Innovation Survey (CIS) 2004-2006. This survey was conducted jointly by Forfás (Ireland's national policy advisory body) and the Central Statistics Office in Ireland. There were 1,974 responses, a response rate of 48%. The survey is directed to companies employing more than 10 persons engaged in a range of sectors.

Four sectoral classifications are derived (i) *High-Tech Manufacturing*, (ii) *All Other Manufacturing*, (iii) *Wholesale, Transport, Storage and Communication* and (iv) *Financial Intermediation*.

The CIS collects information about knowledge sourcing and innovation output in the reference period 2004 to 2006. Three forms of innovation output are considered; product, process and organisational innovation and key innovation input variables are external knowledge sources and research and development.

Key Findings

Firms in high-tech manufacturing sector are more likely than those in other sectors to introduce product innovations, though there is no evidence of a difference across sectors in the likelihood of process or organisational innovation. It is important to recognise that businesses in all sectors are innovative, not just those in high-tech sectors.

For product innovation, firms in all sectors tend to source knowledge for innovation in similar ways. External knowledge sources play an important role in explaining the innovation performance of Irish firms. Firms are more likely to product innovate if they interact within their group or with their suppliers or customers. A positive relationship is not observable for all external linkages. For example, firms which interact with consultants are less likely to engage in product innovation. This result suggests the need for targeted interaction by firms. As would be expected, R&D has a strong positive effect on the probability of firms product innovating. Irish owned firms are found to be less innovative than foreign-owned firms.

There are observable differences across sectors in the importance of variables for process and organisational innovation. Only interaction with public research institutes has a positive effect on the likelihood of firms in high-technology manufacturing engaging in process or organisational innovation. This interaction agent has no significant effect on the likelihood of firms in any other sector introducing new process innovations. This may point to the overwhelming emphasis on research and development in technologically advanced areas in public universities and research institutes in Ireland. This emphasis may promote a close cultural proximity between these agents and firms within the high-technology sector; promoting the transfer of knowledge between them.

In sectors apart from high-technology manufacturing it appears that market based agents are most important.

The performance of R&D is found to be a common driver of process and organisational innovation across all sectors.

Interestingly, only Irish firms in high-technology manufacturing are less likely to introduce process innovation relative foreign firms. Given the emphasis placed on innovation in business in this sector by policy makers this raises some concerns about the effectiveness of these policies.

Regarding organisational innovation there is also distinct differences across sectors in the innovation process of firms. Again, firms in the high-technology sector are more likely to introduce new organisational innovations if they have interacted with public research institutes while interaction with this agent has no significant effect on firms in any other sector. Firms in the all other manufacturing sector are more likely to engage in organisational innovation if they interact within their own group or with their suppliers. Firms in the wholesale, transport, storage and communication sector are also more likely to introduce organisational innovations if they interact with their suppliers. No external interact agents have a significant effect on the probability of a firm in the financial intermediation sector engaging in organisational innovation.

Irish firms in high-technology manufacturing and wholesale, transport, storage and communication sectors are less likely to introduce organisational innovations relative to foreign-owned firms in these sectors. As noted previously, this is a worrying trend in the high-technology sector.

The results suggest that, since different sectors source knowledge differently for process and organisational innovation, policy interventions to support these should be cognisant of sectoral requirements.

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