Private Enterprise Development in Low-Income Countries

Innovation in Nigeria

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Understanding the factors that drive or constrain firm-level innovation requires detailed micro-data. This project has collected and constructed an open-access dataset on innovation in Nigeria to support further research in this area.

Background

Firm-level innovation is widely accepted to be important for growth and development. However, it is not well understood in sub-Saharan Africa because detailed large-scale micro data on firm-level innovation is scarce. Agencies in many countries routinely gathere data but researchers often have difficulties accessing such data.

To date, two national innovation surveys have been carried out in Nigeria (in 2008 and 2011) using instruments and methods similar to the well-known Community Innovation Surveys (CIS) of Europe. This project takes data from the innovation surveys and harmonises them into a rich pooled cross-sectional dataset on Nigerian firms. Using available and newly collected data, I further enrich the survey data with information on firm registration (formalisation) status. The final dataset, including more than 1300 private sector enterprises, is made available open-access here and here.

As illustrated in the next section, the dataset gives interesting descriptive data on the Nigerian innovation landscape. The data tracks, among other things, innovative performance (product, process, marketing and organizational) as well as innovation sources, objectives and constraints. It is also useful for rigorous empirical analyses, to the extent that innovation survey data can be applied. Because the nature and challenges of the innovation process are similar across many emerging economies, these data are relevant domestically and to the broader community of policy makers in developing countries.

Patterns of Innovation in Nigeria

These data enable us to compare the rate of different types of innovation in Nigeria with several countries of the European Union (EU) in 2010. Figure 1 shows that the proportion of firms that introduced new goods in Nigeria is the same as the proportion that introduced new services (about 40%). This contrasts with most EU countries where new goods dominate the product innovation landscape, suggesting that the rise and relevance of services may be more pronounced in latecomer contexts. It could also be driven by a heavier presence in developing countries of bundled services, that is, services that accompany manufactured products.

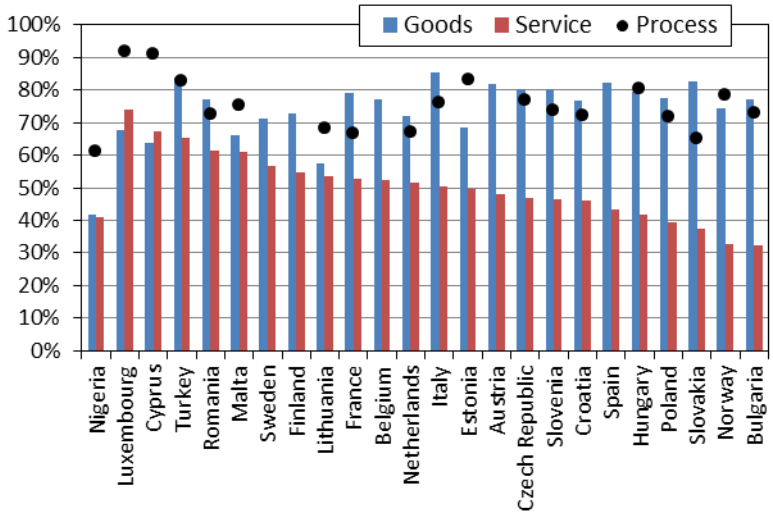

Figure 1: Rates of technical innovation in Nigeria and EU countries

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In Nigeria, non-technological innovation (such as marketing or organisational innovation) trumps technological innovation (goods, service and processes). This contrasts with the EU where the rate of technological innovation surpasses non-technological innovation. Interestingly, as illustrated in Figure 2, the rate of non-technological innovation in Nigeria far surpasses that in the EU countries even though the rate of technological innovation is lower (Figure 1). This supports the empirical notion that, on average, developing country firms lag behind in technological capability. However, it may also be a pointer to the effect of context on innovation. In the face of extensive incremental innovation and imported technologies, latecomer firms are required to re-organise their production activities and meet market demands rather than strive to develop advanced new products and processes.

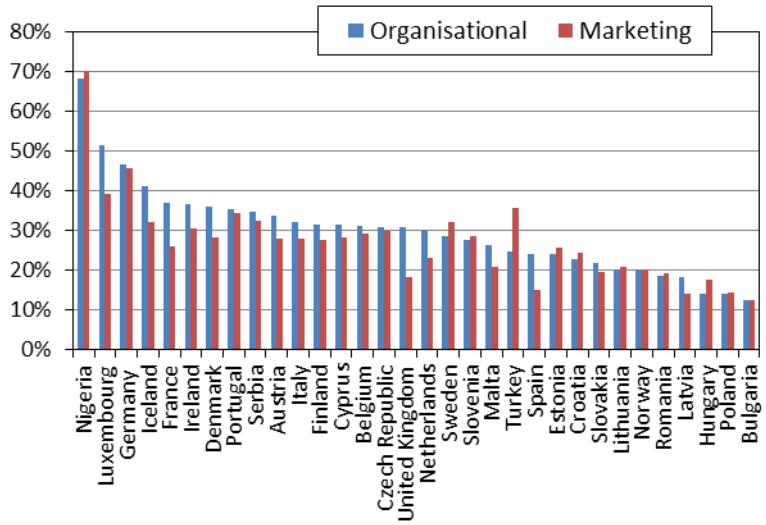

Figure 2: Rates of non-technical innovation in Nigeria and EU countries

The left panel of Figure 3 details the extent to which domestic factors constitute hindrances to firms' innovation efforts, and the right panel shows the most important sources of innovation information. Clearly, innovation obstacles became more prevalent between 2007 and 2010. Funding and infrastructure were the most important obstacles to firms' innovation efforts. In the face of these challenges, one would expect that firms would interact more closely with technology sources such as universities and research centres as well as funding sources such as government agencies. However, vertical linkages with customers and suppliers, and horizontal linkages with competitors turned out to be more important to the firms. These relationships became more important over time.

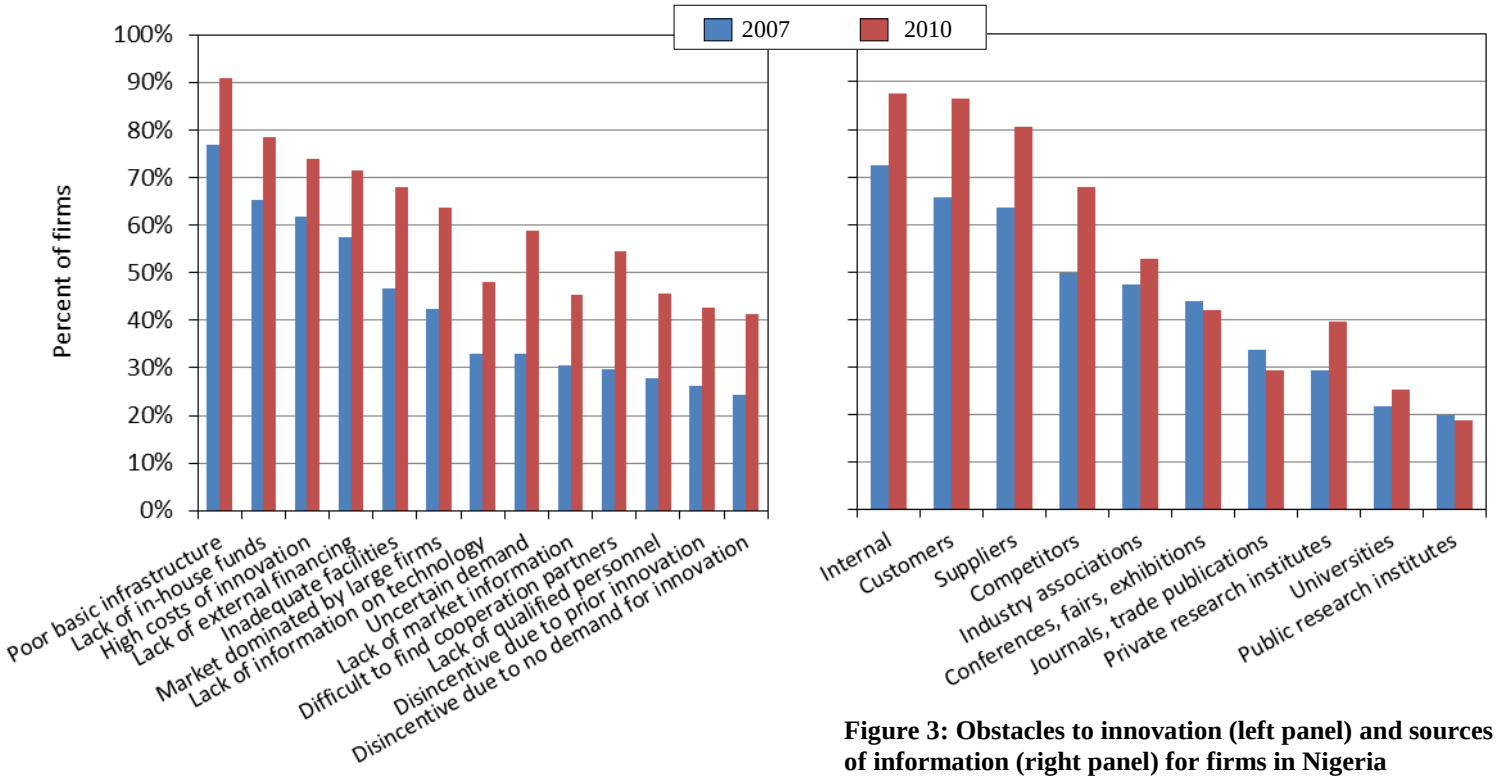

Figure 3: Obstacles to innovation (left panel) and sources of information (right panel) for firms in Nigeria

Policy Impact

Insight from the descriptive analysis suggests that funding and infrastructural constraints are economically important barriers to innovation in Nigeria, and that policies aimed at providing capital to firms for the purpose of innovation could be highly desirable. In doing all of these, policy makers should be wary of the 'one-size-fits-all' approach to innovation policy. Every context is unique and what works in one may not work in the other. The significance of non-technological innovation among Nigerian firms relative to their European counterparts is instructive in this regard. Firms in a latecomer context innovate differently and will require policies that take these differences into account. The dataset constructed in this project is a step forward in providing researchers and policymakers the means to rigorously explore specific questions related to innovation and growth in Nigeria.

Moving Forward…

The recent rise in data collection efforts particularly in Africa gives hope. However, improving data quality and access requires much more effort. The NEPAD African Science, Technology and Innovation Indicators Initiative (ASTII) and the African Observatory for Science, Technology and Innovation (AOSTI) are well positioned to initiate changes in this regard. To inform policy, there is nothing as good as causal evidence. To perform causal analysis, there is no substitute for longitudinal data, which are hardly available now. The data made available as part of this research is applicable to policy-relevant questions such as how innovation occurs among developing country firms, its determinants and performance effects. Examples of such analyses are here, here and here.