Innovation Indicators: Metrics of Progress

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As part of our celebration of five years of IERI, I will discuss innovation indicators, and metrics of progress.

Introduction

Innovation and innovation policies are important, as they have been linked to growth, and growth is needed to pay for social services and to pay back the bailouts resulting from the recent financial crisis. In fact, the financial crisis was a direct result of innovation in financial services. Monetized debt instruments were brought to the market as new, or significantly improved, products, a classic case of innovation. The products diffused widely and then lost value. The rest, as they say, is history, and truly, innovation is linked to growth, but be sure to get the minus sign right.

Innovation is a big and complex subject, it involves people, markets, institutions and the framework conditions established by governments, the boundaries of the box in which innovation happens, and the constraints which prevent, or enable, a financial crisis. In a global world, innovation does not take place in isolation, the walls of the box are porous, and there are interactions of the players, domestic and global. The players are businesses, governments, institutions of education and research, and people. Their interactions ensure that you never quite know what a policy intervention will do. That is referred to by some as the non-linearity of the system.

So, we are trying to understand a global, complex, non-linear system of innovation and to develop indicators of progress. Let us look just at two examples: innovation that takes place without R&D; and, user innovation. Both are important in Africa.

Innovation is more than R&D

The 2005 South African innovation survey tells us that 52% of firms are innovative (Blankley and Moses 2009: Table 4.1) and 52% of those innovative firms do R&D (Blankley and Moses 2009: Table 4.16). 48% do no intramural R&D. That is a significant indicator and it raises a question for policy. How do firms bring new products to market, or find new ways of producing them or new ways of organizing the firm and using new management processes to bring things to market, or, develop new markets, without doing R&D? The answer is that they solve problems as they go along. They may not be able to afford the investment needed to do R&D. But, they still need help.

In some countries, firms can apply for vouchers which allow them to go to a technical college, or to a public institution, and to buy the time needed to solve their production, design or organizational problem. Innovation through problem solving matters, especially in small firms, and not just in Africa.

R&D is still important

This does not mean that we should abandon support for R&D, such as the tax programme introduced in South Africa, and one of the reasons for supporting problem solving is that it helps the firm to grow. A very robust indicator of progress is the size dependence of R&D performance. Large firms have a higher propensity to do R&D than small firms. Help a firm to grow, and it is more likely that it will do R&D. If it does R&D it is more likely to produce new to the market innovations than small firms that concentrate on new to the firm innovations.

So, measuring the characteristics of firms that innovate without doing R&D and measuring the impacts of policy provide indicators of progress, properly interpreted.

User innovation

Now, measuring what goes on in firms provides more indicators of progress. In the South African Innovation Survey, innovative firms are asked if they did it themselves, in collaboration, or was it done almost entirely by a separate organization. These are important questions.

For product innovation 6% was done by someone else (Blankley and Moses 2009: Table 4.10). If you look at sources of information for innovation you find the client very high on the list and in extreme cases, but not that extreme, the client will appear with a prototype and suggest to the manufacturer or service provider that 'this' is really what they should be producing. That is user innovation, for products.

If you look at process innovation, the same three questions follow, but in this case the interesting one is whether the firm is doing the innovation themselves, which is 20% (Blankley and Moses 2009: Table 4.12). They are not in the business of selling process technology, but they are users of process technology and they want it to work well, so they change it. In extreme cases, they will develop it if it does not exist. This, again, is user innovation and it could be advanced by policies that that help user innovators solve problems.

Sharing IP

There is another reason why user innovation is important. User innovators create knowledge, or intellectual property, but they have a higher propensity to give it away and this has implications for intellectual property law (Gault and von Hippel 2009).

So, innovation without R&D and user innovation are important modes of innovation and especially so for small firms in a developing economy. The statistical indicators are there (Gault 2008) but there is a need for analysis and policy recommendations based on that analysis, a function for IERI over the next five years, and perhaps for the Business School.

Measurement in Africa

There is another indicator of progress, and that is the number of countries in the AU that have adopted the South African Innovation survey as part of the NEPAD S&T initiative to promote the measurement of innovation and the development of indicators of progress.

I could go on, but I will stop, after my examples, so that we can hear from Bengt-Åke Lundvall on Globelics and about how connected the innovation research community really is.

Thank you

References

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