Measuring China's innovative capacity. A stochastic frontier exercise

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The high growth rates of emerging countries have been under close scrutiny since several years, with a particular focus on China, which was able to manage significantly high rates of growth for a sustained period of time. These results have been confirmed by many growth accounting exercises, in which total factor productivity has been used to determine the relative contribution of the different factors to growth.
However, as these exercises do not explicitly focus on technological change and do not distinguish between the lack of inputs and the efficiency in their use, we revert to a Stochastic Frontier Analysis (SFA) of innovative activity. Indeed, SFA splits innovative activity into two elements: the potential for innovative activity with respect to the best practice (the frontier), and the differences in efficiency with respect to the frontier.
We show that China's innovative capacity (as measured by its patenting activity) is growing faster than commonly held, in comparison to the most innovative countries (the OECD countries) for the period 1992-2007. Our results highlight China's capacity to enhance both its innovative capacity and efficiency with a stronger effect in the last years. In particular, and differently from other countries, we find a clear positive effect of the openness of the economy, contradicting the usual market exploitation thesis: both imports and exports and FDI exerts positive effects, but while the former impacts patenting capacity, the latter impacts its efficiency.

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