

Inputs and Outputs of Innovation Processes in the Colombian Services Sector

Authors : Álvaro Turriago-Hoyos

Abstract : Most research tends to see innovation as an explanatory factor in achieving high levels of competitiveness and productivity. More recent studies have begun to analyze the determinants of innovation in the services sector as opposed to the much-discussed industrial sector of a country's economy. This research paper focuses on the services sector in Colombia, one of Latin America's fastest growing and biggest economies. Over the past decade, much of Colombia's economic expansion has relied on commodity exports (mainly oil and coffee) whilst the industrial sector has performed relatively poorly. Such developments highlight the potential of the innovative role played by the services sector of the Colombian economy and its future growth prospects. This research paper analyzes the relationship between inputs, which at the same time are internal sources of innovation (such as R&D activities), and external sources that are improved by technology acquisition. The outputs are basically the four kinds of innovation that the OECD Oslo Manual recognizes: product, process, marketing and organizational innovations. The instrument used to measure this input-output relationship is based on Knowledge Production Function approaches. We run Probit models in order to identify the existing relationships between the above inputs and outputs, but also to identify spill-overs derived from interactions of the components of the value chain of the services firms analyzed: customers, suppliers, competitors, and complementary firms. Data are obtained from the Colombian National Administrative Department of Statistics for the period 2008 to 2013 published in the II and III Colombian National Innovation Survey. A short summary of the results obtained lead to conclude that firm size and a firm's level of technological development turn out to be important discriminating factors for the description of the innovative process at the firm level. The model's outcomes show a positive impact on the probability of introducing any kind of innovation both on R&D and Technology Acquisition investment. Also, cooperation agreements with customers, research institutes, competitors, and the suppliers are significant. Belonging to a particular industrial group is an important determinant but only to product and organizational innovation. It is possible to establish that Health Services, Education, Computer, Wholesale trade, and Financial Intermediation are the ISIC sectors, which report the highest number of frequencies of the considered set of firms. Those five sectors of the sixteen considered, in all cases, explained more than half of the total of all kinds of innovations. Product Innovation, which is followed by Marketing Innovation, gets the highest results. Displaying the same set of firms distinguishing by size, and belonging to high and low tech services sector shows that the larger the firms the larger a number of innovations, but also that always high-tech firms show a better innovation performance.

Keywords : Colombia, determinants of innovation, innovation, services sector

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