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Imported Intermediate Inputs and Firm Productivity Across Developing Economies: An Analysis Based on Input-Output Technique

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Imported intermediate inputs indeed play an important role in affecting an economy's trade pattern. Moreover, such imported inputs imbibe advanced technologies within themselves, using which the firms are able to get access of those new technologies, that, in turn, make them productive in the long run. As studies (viz., Sharma, 2014; Goldberg, et. al. (2010), Grossman and Helpman, 1991; and many others) also argue that in an economy like India with limited availability of advanced technologies, the use of imported intermediate inputs by the sectors often help them to obtain advanced and new technologies, using which the productivity as well as income of that sector increases. Therefore, use of imported intermediate inputs can be considered as an important determinant to improve firm productivity.

Given this context, the current paper aims at to examine the impact of the use of imported intermediate inputs by the sectors on their total factor productivity growth. In other words, the paper attempts to test the hypothesis that whether the sectors those use the imported intermediate inputs in order to meet their production, are productive or not. This hypothesis has also been tested for other developed nations as well, like China, Japan, and others.

In order to accomplish this objective, we have used the traditional Input-Output (I-O) technique, formulated by Wassily Leontief (1936) and the corresponding I-O tables. Using I-O tables is indeed important here because these tables provide the inter-industry transactions across sectors in terms of their consumption and production relations. Therefore, using these tables, one can get a glimpse regarding one sectors' dependence on domestic intermediate inputs versus imported intermediate inputs, that were used in order to meet their production process.

Our main data source in this regard is the World Input-Output Database (WIOD), which provides Input-Output (I-O) tables in value terms (in millions of US\$ at current prices) for 43 different countries of the world including India across 56 economic sectors for continuous years from 2000 to 2014. Although for Indian economy, the official data source for I-O tables is the Central Statistics Office (CSO), but the CSO published I-O tables report the total input use, which is the summation of domestically produced inputs and imported inputs, thus they do not distinguish between domestic and imported inputs. Therefore, if we use the CSO published I-O tables without subtracting the imported input use from the total input use, we are overestimating the

output and income generation happens within the domestic economy. However, the World I-O tables provide information on domestic input use and imported input use separately across sectors, using which we have determined which are the sectors that are mostly dependent on domestic inputs, and which are those depending on imported inputs.

In the next step, we have measured the total factor productivity growth of the sectors in order to examine whether the sectors that use the imported intermediate inputs are highly productive or not as compared to the sectors those using domestic inputs. In order to measure the total factor productivity growth of the sectors, we are using the I-O technique as well, since it provides information on not only the value-added inputs, but also on intermediate inputs. Thus, using this I-O methodology of measuring productivity, one can identify the source of Total Factor Productivity Growth (TFPG) for a given sector, i.e., whether TFPG of a given sector is due to the productivity of value-added inputs or that of intermediate inputs.

Results portray that imported inputs help the sectors to be more productive as compared to the sectors using domestic inputs. This conclusion is true for Indian economy in particular and also developing economies across the globe. Thus, imported inputs continue to play a major role in affecting a sectors' productivity, thereby, appears to be the major push factor in the present globalized competitive world.