ABSTRACT

Economic liberalisation enhances productivity of firms in a country through increased technology transfer and its diffusion. The most recognised and accepted channel for such transfer and diffusion of technological knowledge in recent years is the foreign direct investment (FDI) through multinational enterprises (MNEs). However, it is believed that the extent of technological knowledge transmitted by the MNEs is likely to be positively linked to the degree of control exercised. It is expected that foreign-owned firms have high technological capability and would perform better in technological competence compared to domestic-owned firms considering their technological advances and proprietary knowledge. The transfer of capital, technology and management skills through FDI is considered as an important element in improving the competitiveness of industries in developing countries. FDI also generates externalities in the form of spillovers.

Having realised the importance of FDI in productivity growth, India, which had been following an import substitution strategy, took a number of policy reforms in 1991 to attract more FDI along with other economic liberalisation policies. This study attempts to examine whether the presence of FDI helps in technology capability building and thus improving productivity among Indian manufacturing firms after liberalisation. The technological performance of domestic and foreign owned firms has been captured using four technological indicators, viz., research and development (R&D) intensity, export intensity, capital goods import intensity and technology import intensity. The results indicate that manufacturing firms in India are not very R&D intensive, though there has been substantial growth in the R&D intensity of these firms, irrespective of their ownership.
Three hypotheses are tested in this study. The first hypothesis is that increased foreign ownership in firms would increase their productivity. It is stated in the second hypothesis that since MNEs are producers and carriers of advanced and sophisticated technologies, the technological effects on the productivity of MNE affiliates (also called as foreign-owned firms) are higher than that of domestic-owned firms. The third hypothesis is that there exist spillovers from FDI on the productivity of domestic-owned firms and these spillovers are determined by the absorptive capacity of firms.

Econometric models are used to estimate the effect of FDI on firm-level productivity, technology capability building and spillover generation. To test its impact on the firm-level productivity, FDI is taken as an additional input variable in the production function. In order to understand the role of FDI in creating technological capability among firms in India, the impact of various technological (knowledge) variables on the output of domestic and foreign owned firms are analysed separately. For this purpose, part of the residual is allocated to certain pre-defined knowledge variables. The study uses a panel data of 1129 Indian manufacturing firms for the period 1992-2000.

The question of whether increased foreign equity participation increases the productivity of firms was tested using a cross section of sample firms for the year 2000. The study found that there is significant and positive impact of higher foreign ownership on the productivity of these firms. The study also shows that there are certain industry characteristics that influence this positive impact of foreign ownership, to a certain extent. This indicates that foreign firms have the tendency to invest in more productive or technology intensive industries in Indian manufacturing sector.
It was tested as to whether the productivity impacts of technological factors in foreign-owned firms are significantly higher than in domestic-owned firms and how these impacts vary according to industry type. For this purpose, the impacts of various technological factors such as learning, in-house R&D, and technology imports (in combination with basic input variables), to the productivity of foreign and domestic firms in different industry sectors are compared. It was also tested whether the presence of foreign firms make any impact on the productivity of domestic-owned firms through spillovers and how much the absorptive capacity of a firm determines the technology spillovers. The test was carried out with an extended Cobb-Douglas production function using panel data for the sample firms over the period 1992-2000.

The analysis shows that the technological performances of domestic and foreign firms vary according to the industry type in which they belong. That is, there is considerable heterogeneity in the impact of technological variables on the productivity of firms across industries. An estimation of spillovers from foreign owned firms to domestic owned firms supports the argument that the ‘competition effect’ due to the more efficient operations of foreign firms has a negative impact on the productivity of domestic firms. The negative spillovers also support the argument that the economy is still under transition period from a controlled regime to a more open economy, where increased competition from foreign firms has a crowding out effect on the output of domestic firms at least in the short-run (i.e., the transition period). Another important finding from the study is that the negative technology spillovers are due to lack of technology absorptive capacity (low R&D) among domestic firms.