

# **Impact of Foreign Direct Investment in R&D on Indian Production and R&D system<sup>1</sup>**

A study was undertaken to investigate the impact of the presence of foreign R&D centres on corporate R&D and the production system by assessing and evaluating the nature, type and mode of linkages that these R&D centres have with the Indian R&D and Production system. The study had two components-The first part was to identify and prepare a list of the firms bringing in FDI in India, and look at their R&D expenditure and activities. The second part of the study was to understand the impact of the FDI in R&D in the Indian production and R&D systems. The most important spin-off of the report is extensive enumeration of flow of FDI which was to be undertaken to arrive at the estimation of FDI in R&D.

In available literature on FDI in R&D, impact has been measured in quantitative terms in three stages: a) direct effect on employment generation; b) tracing the types and nature of linkages; c) gains from MNCs' R&D in terms of R&D output, assessed through patenting activities. We have followed the same strategy to arrive at certain important insights that can help identification of variables and hypotheses of their relationships which are likely to be non-linear. The system approach adopted for the study focuses on the impact or benefits from MNCs' R&D in India, and not the firms' gains from such investment. The linkages study reveals that MNCs adopts various modes for accessing the resources – essentially human resources. As such linkages that could create gains for the host are rare.

Most of the MNCs are working in isolation, as far as their R&D activities are concerned. The scope of skill development and knowledge flow is negligible. The patent data also supports the absence of meaningful linkages. The IT sector has produced a few spin-offs by the employees of the R&D centres. A few such firms engaged in chip designing suggested that they cannot grow beyond a point because in the absence of the domestic market their survival and growth depends on the innovations in other countries. The impact can be understood as default or as strategic. The default impact is the trickled down positive impact – as has been observed in cases of a few educational institutes and firms becoming more technology conscious. Strategic impact requires close monitoring of FDI and FDI in R&D. The negative impact is through creating resource crunch. Resource crunch is mainly felt when the prices of resources (like qualified skilled manpower for R&D for domestic innovation system) increase because of higher demand conditions created through the presence of MNCs.

## **The key findings of the study are as follows:**

- 706 firms have been identified as having brought in FDI for R&D activities in India during 2003-2009
- During this period, FDI in R&D is 8.25% of the total FDI inflow

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<sup>1</sup> A study in 2011 by CSIR-NISTADS Team N.Mrinalini G.D.Sandhya Project Advisor for the study Pradosh Nath CSIR-NISTADS

- There are large number of small investments for R&D activities in comparison to few large investments
- Of the total 706 firms bringing in FDI for R&D only 74 firms have patents and of these, 63 firms have less than 5% share of Indian patents vis-à-vis their global patents.
- FDI in R&D is basically for the IT sector followed by Auto and pharma sectors.
- A cluster-wise classification shows that about 88% of R&D investments were made in 5 clusters – Bangalore, Hyderabad, Chennai, Delhi-NCR, and Pune-Mumbai.
- Of the total 706 firms only 117 firms have formal linkages with the Indian institutions, indicating that most of the firms operate in isolation
- Linkages with educational institutions is the most prominent one and it is basically for recruitment of manpower and also for training and skill development
- Linkages with national research institutions are rare and with Indian firms it is for contract research