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An inquiry into the long-term process of technology transfer from MNCs to domestic enterprises: A comparative study of the motorcycle and automobile industries in India and Thailand

Project Leader

OTSUKA, Keijiro

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Background

It is widely recognized that technology transfer from advanced to developing countries or from multinational companies (MNCs) operating in developing countries to domestic enterprises is the engine of economic development in developing countries. However, most of the previous studies on the impact of foreign direct investment on developing economies have shown how the existence of MNCs affect neighboring firms' productivity by using cross-sectional data. Thus, little is known about the actual channel of technology transfer. Also, few studies have analyzed long term data, though it is natural to assume that technology transfer takes long time.

This project aims to explore the long-term process of technology transfer and industrial development based on the case studies of the motorcycle and automobile industries in India and Thailand. For this purpose, we interviewed many firms in the automotive industry in both countries. Based on the findings from these interviews, we formulated several hypotheses on the development of the industry and tested them using long-term data. The following two papers are the final output of the research project.

How Much Do We Know about Impacts of FDI on Industrial Development in Developing Countries? The Case of the Motorcycle Industry in Thailand

It is widely believed that foreign direct investment (FDI) facilitates the development of local industries by transferring not only capital but also advanced technologies and managerial knowledge. Based on such belief, many governments in developing countries compete with one another in the attraction of foreign enterprises by offering tax holidays, space in export processing zones, and other means (e.g., World Bank 2012). While there are many empirical studies which inquire into the impact of FDI on productivity of local enterprises, however, empirical evidence on the impact of FDI on industrial development is deplorably scant.

Most statistical studies of FDI focus on the impacts of the presence of FDI on the productivity of local enterprises in the same industry as well as across related industries. The estimation function is methodologically flawed essentially because a stock variable (i.e., productivity level) is assumed to be affected by a flow variable (i.e., information spillover). Thus, it is highly likely that the estimation results of the impact of FDI are seriously biased. According to the most recent review of the literature by Murakami and Otsuka (2017), the

common findings are that horizontal spillover within the same industry is nil or negative, whereas backward spillover from downstream industry (e.g., assembler) to upstream industry (e.g., part-suppliers) is positive and statistically and economically significant. Because of the misspecification of estimated function, however, it is doubtful whether we can trust such findings. Furthermore, since the existing studies seldom analyze the channel by which information spillover takes place, the implications for industrial development policy are unclear.

To the best of our knowledge, there has been no econometrical study that has directly explored the impact of FDI on the development of local industries in developing countries. If the horizontal spillover is nil and backward spillover is positive and significant, we ought to observe the dominance of foreign enterprises in the downstream industries and the development of local enterprises in the upstream industries in the longer run. Fundamental problem of the existing studies lies in the fact that they commonly analyze the impact of FDI in a short span of five to ten years, presumably because of the lack of consistent long-term statistical data. Thus, we really do not know the extent to which the FDI promotes the industrial development in developing countries.

The purpose of this study is to inquire into possible analytical approaches to the assessment of the contribution of FDI to the development of local industries based partly on a critical review of the existing studies and partly on our research project on a comparative study of FDI and the development of the motorcycle and automobile industries in Thailand and India.

Determinants of Success in the Automobile Industry in India: An Analysis of Foreign and Local Enterprise Data for 2000-2008.

There are distinctly different types of automobile enterprises in India. The most successful is Maruti-Suzuki, whose market share is as high as 50%. The second most successful may be Hyundai, whose production accounts for less than 20% of market. Local assemblers, i.e., Tata Motors and Mahindra, follow these joint venture and foreign enterprise, whereas the performance of other foreign enterprises is less impressive. The question is why such differences in enterprise performance are generated. The purpose of this study is to inquire into the reasons for success and failure of automobile production by different enterprises.

The basic hypothesis is that in order to reduce production cost, Maruti-Suzuki reduced the quality of automobile, invest in the capacity of small local part-suppliers, and

use primarily locally produced inexpensive parts. In this way, Maruti-Suzuki sold low-priced cars, which matched with the demand for cars by relatively low-income consumers in India. Being a latecomer, Hyundai did not nurture local part-suppliers and instead relied on Koran part-suppliers located in nearby industrial parks and imported parts and materials from Koreas. Thus, Hyundai sold expensive cars. Similarly, local assemblers did not invest, or did not have capacity to invest, in local part-suppliers and relied importantly internally produced parts and produced relatively high priced cars.

We confirmed from descriptive analysis that average price of automobiles produced by Marti-Suzuki is much lower than that of others. It is also found that the proportion of value added in gross value of production is highest in local assemblers, which indicates high proportion of internally produced automobile parts.

Taking advantage of the facts that each assembler operated only one factory by 2008 and that part-suppliers were geographically concentrated around the factory of assembler, this study used district-level data of part production and regressed them on the number of cars produced by each assembler. A major finding is that coefficient of Maruti-Suzuki's production is significant and large, implying that its production is closely associated with the large amount of part production in the same and nearby districts. Furthermore, size of part-suppliers serving Maruti-Suzuki tends to be small, which suggests that Marti-Suzuki invested in the capacity of small and medium enterprises. In contrast, Hyundai's production is associated with the production of large-part suppliers located in adjacent districts, which are most likely to be Korean part-suppliers located in industrial parks, and relied on imports of part and materials from Korea. Interestingly, coefficient of local assemblers is small, which indicates that local assemblers were either not interested in investing in the capacity of local-part-suppliers or incapable of improving their capacity. These results clearly support our hypothesis.

It is worth emphasizing that Maruti-Suzuki succeeded in the automobile production in India by reducing the quality of products and by relying on local part-suppliers. Since the major advantage of local production by foreign enterprises in developing countries is the use of cheap labor, Maruti-Suzuki's strategy to rely on local-part-suppliers, which employ cheap labor, makes sense. These results suggest that the performance of foreign enterprises may be greatly different, even though they are often treated as "homogeneous" group in the literature on FDI.

Reference

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