Empirical Studies of Overseas Activities and Productivity of Multinational Corporations: Japan's Outbound and Inbound Direct Investment

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Abstract

Foreign direct investment (FDI) has grown immensely in importance over the past couple of decades. In this study, we attempt to provide empirical evidence for a better understanding of the patterns and effects of FDI, focusing on the outward investment of Japanese manufacturing MNCs (multinational corporations) and on inward FDI in Japan. Although a large number of empirical studies has contributed to elucidate patterns and effects of FDI and MNC activities, appraisals of the firm-specific advantages of MNCs have been severely limited by the lack of data. Our main purpose is to analyze the behavior of Japanese MNCs and the market conditions in Japan as a host country for FDI, in order to provide a clarification of the widely accepted determinants underlying FDI and the firm-specific or country-specific characteristics of FDI.

To this end, we evaluate the performance of foreign affiliates of MNCs and investigate the determinants of MNCs' productivity, taking the automobile industry as a case. Moreover, we examine the location decisions of Japanese manufacturing MNCs and show that the FDI decision is made with a long-term view and is not affected by temporary economic shocks. Finally, paying attention to the growing importance of inbound FDI in Japan, we will analyze the characteristics of FDI in Japan at a detailed industry-level. The prominent characteristics of this study are as follows: 1) using firm or establishment-level data, this study sheds light on the

difference in characteristics of the firm or the establishment; 2) in the analysis of location decision by MNCs, this study uses the recent data on location of affiliates of Japanese manufacturing MNCs and investigates the effect of currency crises on FDI; and 3) this study provides thorough analyses of the inward FDI in Japan at detailed industry-level for the first time.

In the traditional MNC theories, locational (L)-advantages and internalization incentive (I)-advantages provide a good explanation for the choice between international production and exports as well as the choice between international production and licensing agreements, while ownership-specific (O)-advantages explain MNCs' competitive advantages that enable them to operate in foreign countries. Although it is important for understanding MNC behavior to analyze the choice of international production as against exports or licensing agreements, this study mainly focuses on the analysis of MNCs' competitive advantages and locational factors required for augmenting competitive advantages. A summary of major findings achieved in this study is as follows:

In Chapter 2, we investigate the productivity differentials between foreign and local plants in the Thai automobile industry, using the plant-level data underlying the 1997 and 1999 Industrial Censuses collected by the National Statistical Office of Thailand. According to Dunning's O-advantage theory, we expect that foreign-affiliated plants should display higher productivity than local ones because of MNCs' ownership-specific competitive advantages. Our results suggest that the labor productivity of foreign plants is higher than that of local plants, as we expected. However, we find that the higher labor productivity mostly comes from the higher capital intensity of foreign firms, not from the O-advantages. Comparing the total factor productivity (TFP) level between foreign and local plants, our results again suggest there is no evidence that foreign plants have relatively higher TFP because of their advantages in

managerial resources. In particular, foreign plants in the motor vehicle bodies and trailers and the motor vehicle parts and accessories industries tend to have lower capital productivity than local plants in these industries, though foreign plants in the motor vehicle assembly industry show the relatively higher labor productivity, capital productivity, and TFP. The empirical results suggest that scale economies play an important role for the productivity of auto plants, and that the small size of the Thai automobile market is a major obstacle for plants to improve productivity. Although the Japanese automobile MNCs are seeking to create an efficient production network in Thailand and in neighboring countries, we could not find strong evidence that MNC plants are either more efficient or more profitable than local ones.

In order to consider why the Japanese automobile MNCs could not exploit their O-advantages in some foreign countries, Chapter 3 investigates the nature of O-advantages of the Japanese auto firms. We examine the productivity of auto plants in Japan and the determinants of productivity growth in the period from 1981 to 1996. We calculate various productivity measures for auto plants using the plant-level data underlying the Industrial Statistics Survey conducted by the Ministry of Economy, Trade and Industry of Japan. In this period, most Japanese automakers started full-scale overseas production in North America, Europe and Asia. Meanwhile, production, exports, and capital utilization in the auto plants in Japan were stagnant, and the productivity growth of the Japanese automobile industry was far less than that before the 1980s. According to the measurement in Chapter 3, the annual TFP growth rate from 1981 to 1996 was at a low level, i.e., about 0.6 percent in the automobile manufacturing industry and about 1.3 percent in the auto parts manufacturing industry. Given that the annual TFP growth rate for the Japanese automobile industry until the early 1980s was estimated at approximately around 4 percent in previous studies, our estimates were very low. Next, we compare the TFP and various other performance measures among the automobile

assembly plants and among auto parts manufacturing plants. Our empirical results demonstrate significant R&D spillover effects and agglomeration effects on parts suppliers' TFP growth. In other words, the results suggest that in better-performing *keiretsu*, the automaker and its parts suppliers would realize higher productivity growth through the joint-use of technological knowledge with each other. Furthermore, geographical proximity promotes the technology spillover from the automaker to the suppliers. This reveals that distance related factor is also important for efficient production for the Japanese auto plants.

Chapter 4 examines the FDI location choice by Japanese manufacturing MNCs. Given the choice of international production by MNCs, we investigate the required locational attractions for augmenting MNC's O-advantages. We mainly focus on whether the FDI location choice is affected by temporary shocks such as currency and banking crises. Although it has been argued that FDI inflows are relatively more stable than other forms of international capital flows such as portfolio investments and bank loans, many cases of suspensions of Japanese FDI were reported in the phase of the 1997 East Asian currency crisis. We compile data on year of establishment and location of Japanese-affiliated firms in 57 foreign countries from 1979 to 1998, and investigate whether the FDI location decision of the Japanese manufacturing MNCs is affected by temporary shocks such as currency or banking crises. The results of our conditional logit model estimation show that currency or banking crises do not have significant effects on the location decision, though market size and growth rate, labor costs, the agglomeration of Japanese-affiliated manufacturing firms etc. have strong significant effects on the location choice. Even when we control for the export share in total sales by affiliates and the import share in total purchases by affiliates, the effect of the currency crisis is not significant in most cases. However, we find that currency depreciation tends to attract export-oriented MNCs and discourage FDI by MNCs who import larger amounts of intermediate inputs. Our findings

suggest that Japanese FDI was not very sensitive to the currency or banking crisis probably because the FDI is usually undertaken with a long-term view. Our results also suggest that an initial Japanese investment would spur subsequent investors to select the same country and that the agglomeration benefits would play an important role in location decisions.

Chapter 5 deals with inward FDI in Japan. In spite of the growing presence of foreign MNCs in Japan and of the importance of inward FDI, Japan's official statistics on inward FDI have many drawbacks in comparison with comparable U.S. statistics. Using micro-data of the Establishment and Enterprise Census of Japan, we compile new statistics on the employment of Japanese affiliates of foreign firms (JAFF) at the 3-digit industry level for the year 1996. According to our newly compiled statistics on inward FDI, JAFF with 33.4 percent or more foreign ownership in service sector employed 308,000 workers in 1996, which is nearly five times greater than the number in MITI's (Ministry of International Trade and Industry, present METI) report. In the case of manufacturing sector, JAFF with 33.4 percent or more foreign ownership employed 176,000 workers in 1996, which is 10 percent greater than the number in MITI's report. The underestimation of MITI's survey is substantial in the case of the service sector. Using our new statistics, we review the characteristics of inward FDI in Japan, comparing them with those in the United States. Moreover, we compare cross-border trade in Japan with that in the United States. We find that the share of employment by majority-owned JAFF in the service sector reaches 0.59 percent, which is about one fifth of that of the United States. On the other hand, ratios of imports to total domestic output in the both countries were almost same at about 2 percent for the service sector. In the case of manufacturing sector, both the share of employment by majority-owned JAFF and the ratio of imports in total domestic output in Japan are far less than those in the United States. However, the low level of FDI in Japan may reflect Japan's locational disadvantages for manufacturing such as high wage rates

and land prices. In order to examine whether Japan's inward FDI is at a significantly lower level compared with other countries, we estimate a gravity model using the data on sales by U.S. firms' foreign affiliates. The results of gravity model estimation reveal that sales by affiliates of U.S. firms in Japan tend to be less than the predicted value in both the manufacturing and the service sectors. But we cannot conclude that Japan's market was statistically significantly more closed to sales by U.S. firms than other countries' markets. In the service sector, Japan's purchase of services from Japanese affiliates of U.S. firms was only about 10 percent lower than the predicted value after controlling for the difference of the language. Furthermore, using our newly compiled cross-industry statistics, we examine the determinants of Japan's inward FDI penetration. We find that advantages in managerial resources and factor intensity are important determinants of inward FDI in the manufacturing sector, as Dunning's O-advantage theory and L-advantage theory predict. On the other hand, in the service sector, O-advantages are not significant determinants, but policy variables are important, suggesting that Dunning's L-advantage theory better explains the determinants of inward FDI in services in Japan. This implies that by eliminating its restrictions on inward FDI and reducing the role of government-owned establishments, Japan can increase inward FDI in the service sector.

Taken together, the findings of this study suggest that: 1) for the successful efficiency-seeking FDI, locational attraction such as industrial clustering or agglomeration, sufficient size of the market, and human capital accumulation, is a significant factor; and 2) FDI host countries including Japan are required to enhance the locational advantages and to absorb the spillover benefits from MNC activities. Most of Japanese manufacturing FDI since the 1980s, particularly towards the Asian countries, aimed to create an efficient production network in the region. Our findings for the automobile industry indicate that the important factors for efficient production and exploitation of O-advantages are the scale economies, R&D spillovers,

and agglomeration in the assembler-supplier relationships. The empirical results of location choice analysis also imply the importance of industrial agglomeration and other locational attractions. Furthermore, our findings also indicate that in the Japanese service sector, inbound FDI has been rapidly growing but tends to be prevented by government restrictions and the presence of government-owned establishments. In other words, by reducing the government presence, Japan can increase the inbound FDI. Consequently, competition between firms will be promoted and also some advanced technologies will be introduced by foreign MNCs. Therefore, entries of active foreign MNCs should contribute to efficiency improvement and knowledge accumulation in the Japanese domestic economy.

A major policy conclusion from this study is that host countries need to prepare attractive locational conditions for promoting links between and among foreign affiliates and domestic firms, so that both host countries and the MNCs can benefit from either the inter-firm spillover effects or efficient production networks. Particularly for the policy implication for Japan, embedding foreign-affiliated firms in the domestic economy would be urgently required for reinforcing the domestic knowledge accumulation or management and production know-how. Moreover, we can expect that an increase in inbound FDI will not only introduce new or advanced technology but will also promote structural change in the domestic economy. An immense benefit from receiving and providing FDI will be expected if we fully utilize our accumulated knowledge and try to acquire and create technological knowledge through the interactions with foreign firms.