Chapter 2
Foreign Direct Investment as a Development Strategy:
Knowledge Diffusion and Innovation Capability in Competing Emerging Economies

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ABSTRACT

This chapter investigates the spillover effects of Foreign Direct Investment (FDI) on innovation capability in four competing emerging economies in the district of Eastern Europe, the Czech Republic, Hungary, Poland, and Turkey, for the period 1995-2008. Panel data models are employed to test two competing hypotheses regarding the impact of FDI on innovation capability: it may improve the innovation capability of host countries via spillover channels, or may lead to the crowding-out effect through the importation of technologies via joint ventures. The empirical evidence corroborates that FDI inflows generate spillover effects on domestic innovation capability in competing emerging countries, supporting the hypothesis that inward FDI brings knowledge spillovers, new technologies, and products into the host country and promotes the innovation capability of domestic firms. In addition, the level of human capital stock and qualified researchers play a crucial role in stimulating innovative capability and technological progress.

1. INTRODUCTION

Technology has been regarded as a major driving force of economic development and output growth in the global economy. Technology requires efforts to absorb and adapt and it embraces strong "tacit" elements that cannot be embodied in equipment and codified in instructions. The World Investment Report (2005) also states that tacit knowledge can only be transferred effectively if the recipient develops capabilities to learn and incorporate the knowledge. Hence sustainable economic development requires active, continuous technological effort by enterprises, and government policies

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that help firms attract technologies, use them effectively and innovate (UNCTAD, 2005).

Innovation includes both technical and managerial aspects. According to the Oslo Manual, technological innovation means the introduction of new products, processes or services into the market (UNCTAD, 2005). According to the pyramid of technology development stages (Appendix 1), defined in the World Investment Report (2005), the first step is 'basic production" which is the capability of production to absorb and use existing technology. The second stage is called "significant adaptation" because absorption and adaptation of technology are particularly challenging if the existing conditions are significantly different from those at the origin of the technology, and if local support and supply structures are weak. At the third stage, "technology improvement and monitoring," domestic firms try to improve product and process performance by monitoring international technological trends and selecting those technologies that best suit them. The last step called "frontier innovation" is when firms design, develop, and test entirely new products and processes.

Continual spending on domestic Research and Development (R&D), the second step, is the most crucial factor for sustainable development and competitiveness in global markets. This is true for developed countries that are at the technology frontiers, as well as developing countries, which do not have the necessary funds and infrastructure to create new technologies. For these less fortunate countries, FDI has been considered by many development economists as an important channel through which new technologies and know-how are transferred across international borders (Javorcik, 2008). Consequently, one of the primary motivations for many emerging countries in attracting FDI is to enhance innovation capability based on knowledge spillovers. The inflow of FDI from multinational firms transfers knowledge of new technologies and materials, production methods, or organizational management skills to their affiliates in the host country who in turn may benefit through spillovers (Blomstorm & Kokko, 1998; Borensztein, et al., 1998; Kinoshita, 2001; Damijan, et al., 2001).

Spillover effects from FDI arise through horizontal (intra-industry) and vertical (inter-industry) linkages. Horizontal linkages are mostly related to improvement in the productivity levels of domestic firms, which operate in the same industry. Domestic firms may learn about new technologies, new marketing techniques, and products from their foreign competitors (Javorcik, 2008). Demonstration effects involve the imitation, or reverse-engineering by domestic firms of the products or practices of Multinational Companies (MNCs) (Blomstorm & Kokko, 1998; Smarznska, 2002; Cheung & Lin, 2004; Smeets, 2008). MNCs introduce new management strategies and on-job trainings to the local work force they employ. Domestic firms learn new organizational management strategies from their foreign competitors and benefit from skilled labor mobility. FDI may also break monopolies and stimulate competition in host countries. Competition provides incentives for domestic producers to improve their performances and increase the average productivity level in the industry, which in turn benefit consumers through lower prices (Javorcik, 2008). Vertical linkages involve the spillover of knowledge from MNCs to its suppliers (upstream linkage) and customers (downstream linkage) (Smeets, 2008). When multinational companies demand inputs from local suppliers, upstream industries may grow as a result of backward linkage. MNCs may provide expertise services and know-how to local suppliers in order to create an efficient operation environment in the host country. Improvement in quality and variety in inputs creates the forward linkage effect to producers of final goods. Consequently, domestic industries using these inputs may also benefit along with upstream industries. In contrast, negative spillover effects from FDI can also be observed in terms of horizontal and vertical linkages. Some studies reveal that FDI