Preface and acknowledgements

This study on competitiveness, FDI and technological activity in East Asia is the outcome of a research project organized by the World Bank Institute under the Brain Trust Program which is financed by the government of Japan through its Policy and Human Resources Development Trust Fund. The principal objective of the Brain Trust Program is to conduct studies on the Japanese and East Asian development management experience and to disseminate the lessons of this experience to developing and transition countries. The current study is one of a series of such projects undertaken over the past decade.

The objective of this study is to examine the degree to which foreign direct investment (FDI) and technological activity have contributed to export competitiveness and economic growth in East Asia. The links between export competitiveness and its main contributory factors, namely FDI and domestic technological effort – which include R&D, learning-by-doing, adaptation and copying – have not yet been fully explored. The ways in which these links are forged differ among countries. Some countries have placed less emphasis on FDI and the presence of transnational companies (TNCs), relying instead on building domestic technological capacity through R&D efforts, adaptation and so on. Some others have depended largely on TNC presence for their technology development and upgrading.

These differences in the strategies adopted by countries in their technology development pose two important questions. They are: (i) what are the most effective ways in which technology transfer could take place through FDI? and (ii) how to adopt alternative ways of technology development in lieu of FDI?

The first alternative – where technology transfer and market information are imported through FDI – has several forms. These forms include inward FDI, or externalized methods such as licensing, subcontracting, original equipment manufacturing (OEM) arrangements and so on. Inward FDI transfers take place between TNCs and their overseas affiliates and are called intra-firm technology transfers. The externalized methods come under technology spillover where technology transfer takes place between TNCs’ overseas affiliates and local firms. In the case of Japanese multinational corporations (MNCs), intra-firm technology
transfer was quite common, while in the case of countries like Indonesia and Malaysia, spillover was the predominant form of technology transfer from TNCs.

The second alternative is to place more emphasis on domestic technological effort. This involves building R&D capabilities, adaptation of new technology, copying and so on. Korea, for instance, took the path of building domestic R&D capabilities instead of relying on FDI for its technological growth. Its total R&D budget as a percentage of GDP has been quite high. Some other countries have taken an informal approach to technology transfer by relying mostly on incremental improvements, learning-by-doing, adaptation and copying. There is, however, little correlation between successful technology development and the existence of a strong domestic technological base. A number of countries have been able to undertake highly sophisticated export activity – such as exporting electronic equipment – by specializing in the final assembly of products by foreign affiliates even when they lacked a strong domestic technological base. Some others have encouraged affiliates to undertake advanced processes and design the products locally and even launch advanced R&D. A third category of countries has embarked on the path of developing local capabilities and networks which allow them to keep up with fast-moving technologies without having to rely on FDI.

The alternatives chosen by each country depend on a number of factors. These include, inter alia, the prevailing policy environment, domestic technological capacity, development objectives and the institutional framework. While these factors are unique to each country, it is possible to distill some general lessons and policy guidelines by looking at some of the country experiences in East Asia. For this reason, a number of countries have been identified for case studies. They include Japan, Korea, Taiwan, Singapore, Malaysia, Thailand, the Philippines and China.

Technological progress is achieved through a continuous upgrading of technology, information and skills. The process becomes more complex in an environment where both export competition and technical change take place simultaneously and at very high levels. Depending on how this process of technological progress is managed, each economy develops a distinctive pattern of exports over time. These export patterns differ in terms of the product, market and technological specialization. The significant differences in the levels of technology transferred, upgrading of local content over time, and R&D undertaken by affiliates are influenced by the prevailing export patterns and vice versa. Similarly, the main agents responsible for technology transfer are also, to a large extent, influenced by these patterns. For instance, in Singapore, China, Malaysia, Thailand and Indonesia, TNCs have been the main agents of technology transfer.
whereas in Korea, Taiwan and Hong Kong, domestic firms have played the central role in this regard.

In spite of the different strategies used, there is a rapid convergence in policy objectives as a result of the intensifying competitive pressures and changing ‘rules of the game’ on trade and investment. Countries which have labour-intensive TNCs are beginning to find that it is difficult to sustain their export growth without deepening local content, skill upgrading and increasing local R&D activity. The others with strong indigenous technological bases are also realizing that as technological innovation becomes more expensive and specialized it is imperative to form alliances with technology leaders or rely more on FDI. The most common response by countries to these emerging trends is to encourage labour-intensive processes to relocate to cheaper areas and thereby to undertake outward FDI of their own.

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TSUTOMU SHIBATA (Program Manager and WBI Representative for Japan)
K. Migara O. De Silva (Team Leader)
Brain Trust Program
World Bank Institute (WBI)