FRAGMENTATION AND TRADE COSTS IN FRONTIER COUNTRIES[1]

The early industrialization process in East Asian countries was characterized by the export of labor-intensive light manufacturing industries (e.g., textiles) to advanced economies. The accumulation of foreign direct investment (FDI) from more advanced neighboring countries such as Japan also spurred industrialization. This strategy, focusing on light industries, was praised as exploiting the comparative advantage of developing countries (i.e., wage competitiveness).

However, a recent development observed in East Asia is the emergence of export-led industrialization in capital- and technology-intensive sectors, e.g., automobiles and electrical machinery. Intraregional trade in these sectors increased remarkably, too, especially in parts and components, rather than final goods. This phenomenon does not necessarily mean that the East Asian emerging countries have already acquired a comparative advantage in technology sectors. This kind of industrialization was made possible by the relocation of assembly production lines based on wage competitiveness.

Factors behind this new phenomenon are the changing industrial production technologies and the reduction of various trade costs (or "service link costs."). Transportation cost is a significant, but only one of the elements to determine the trade cost, and other monetary as well as non-monetary costs as discussed below form the overall trade costs relevant to the recent industrialization process. Recent advances in industrial technology allow firms to separate their production processes into various segments, ranging from knowledge-intensive R&D, skill-intensive precision parts manufacturing, capital-intensive heavy equipment, to labor-intensive assembly lines. With the reduction of trade costs, firms can minimize production costs by reallocating each process to different locations based on the comparative advantage of each location **("fragmentation")**. East Asia may have been suited for this process, for example, by the co-location of countries with widely different income levels in the region.

In addition to the fragmentation in the manufacturing sector, some countries (India, the Philippines, Costa Rica, and others) are benefiting from the fragmentation in service trade, including through business process outsourcing such as call centers, electronic input of hand-written prescriptions, preparation of accounting reports, and examination of letter of credit documents. This service-sector-led development strategy may work to overcome the natural disadvantage of remoteness.

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These modern service industries do not require the same significant hard infrastructure that manufacturing industries do, except for telecommunications. The electricity requirement is generally low and can be met by captive power generation; customs clearance is not required, whereas landlocked countries are faced with many border crossings. The development strategy based on service sector outsourcing may be characterized as an extreme form of fragmentation. However, this strategy also requires higher human capital than is necessary for simple assembly lines. Public policy plays a greater role and is required to put forth more effort when human capital demands are higher.

In the context of fragmentation, trade costs include a wide variety of elements: (1) *physical transportation costs* of intermediate goods, (2) *telecommunication costs* to coordinate the various production process, and (3) *other costs* such as those caused by legal or institutional problems. For Frontier countries to engage in this industrialization strategy, various efforts to lower these trade costs must be pursued. Policy efforts will not be limited to infrastructure development; various public policy reforms are essential:

- *Reduction of transaction costs at the border:* reduction of customs tariff; simplification and efficiency of customs clearance procedures.
- *Reduction of domestic production and distribution costs:* domestic transportation and service delivery efficiency; reduction of infrastructure service costs (electricity, water, telecommunications, and others); efficient domestic financial system.
- *Reduction of coordination costs between firms:* telecommunications system between physically remote partners; information costs on the potential partners (including accurate financial data); strengthening of supporting industries.
- *Reduction of institutional costs:* legal system including contract enforcement and dispute resolution; investment rules; intellectual property rights.
- *Reduction of human resource costs*: education and vocational training to generate diversified human capital; stable labor regulation.

In addition to the reduction of these trade costs, the development of host-country capacity is essential. Accumulation of FDI may expose countries to advanced knowledge and technologies, but the knowledge will not automatically *spill over* to the local partners. The active development of local capacity, for both the public sector and the private sector, is essential. Public policy in this regard should address various elements of policy, resources, and knowledge, and the sequence and timing should be programmed in a coordinated manner.

Key issues for discussion:

- **Does the recent East Asian experience of fragmentation offer an alternative view for an industrialization strategy?** In this process, the role of direct investment by firms from advanced countries has become more important, and Frontier country firms may not be able to start this process by themselves. Emerging and Frontier country governments and firms continually face pressure from potential competitors.

- **What trade costs (or service link costs) are relevant to an industrialization strategy based on fragmentation?** How can Frontier country government identify the most relevant costs for the process? How can it minimize the costs necessary for improvement, including prioritizing the different costs?

- **What lessons can Frontier countries learn from the early success of East Asia?** From the view of Frontier countries, what are the issues for which improvement is most acutely needed, and what are the areas better suited for South-South cooperation?

- **Does the success of this new industrialization strategy have any policy implications, especially for land-locked countries?** Does service outsourcing offer any new opportunity to overcome the natural disadvantages? Is the level of human capital sufficient, or can it be rapidly improved, to meet the requirements of partner firms?