RESEARCH INSIGHTS

How Does Intra-firm Trade Affect Multinational Production and the Transfer of Knowledge?

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- **Multinational Corporations (MNCs) strategically position their production facilities near customers to counter the "trade gravity effect" where geographical distance reduces foreign sales through shipping costs and trade barriers. Despite this, the foreign sales of larger firms engaged in intra-firm trade remain influenced by the distance from headquarters.**
- **The transfer of intermediate inputs, technology, and processes from headquarters to affiliates is vital for enabling cross-border production and knowledge exchange. However, it reintroduces shipping costs, further diminishing affiliate sales.**
- **Reducing barriers to intra-firm trade can help enhance knowledge transfer across countries and narrow global productivity and income gaps.**

CONTEXT

MNCs play a pivotal role in global trade and knowledge transfer, contributing significantly to global trade and output despite comprising a small percentage of total firms. By establishing affiliates closer to their customers, MNCs aim to bypass the typical trade gravity effect—the negative relationship between geographical distance and foreign sales, driven by increased trade barriers and shipping costs. However, the practice of intra-firm trade—involving intermediate goods that require advanced technology from headquarters—reintroduces trade costs and the gravity effect. Although intra-firm trade is crucial for global trade, it is primarily concentrated among the largest and most productive firms.

PROJECT

This study examines whether intra-firm trade within MNCs is the key contributor to the gravity effect. To investigate this, the study follows the fact that most firms do not engage in intra-firm transactions, and even among those that do, intra-firm trade is highly concentrated in a small set of large multinational firms. Thus, using ORBIS firm-level data from 35 countries, this research examines how the gravity effect differs by firm size. Additionally, the study considers sector-specific differences and the implications for knowledge transfer, exploring how intra-firm trade serves as a conduit for transferring knowledge from headquarters to affiliate-hosting countries.

RESULTS

The reduction in sales with increasing distances between branches and headquarters is observed only in larger firms. While other underlying factors at play, such as logistics efficiency, cultural differences, common border, common language, or varying consumer preferences could also influence this trend, the analysis controls for these variables. Nonetheless, for smaller firms—not engaged in intra-firm trade—there is no significant link between distance and sales. This highlights the predominant role of intra-firm trade in how distance impacts multinational sales.

Figure 1 illustrates that firms in the upper tail of the size distribution, above the 80th percentile, experience a marked decrease in sales due to the increased distance between foreign affiliates and their parent companies. In contrast, firms below the median (50th percentile) are less affected. Those smaller and less productive firms, which do not import from their parent companies, do not face the sales gravity effect with distance. In contrast, the largest and most productive firms, which engage in substantial intra-firm trade, are more susceptible to distance-related declines in sales. This discrepancy arises from the significant investments required to establish and maintain comprehensive intra-firm production and trade networks for intermediate inputs—investments that smaller firms are typically unable to make.

Moreover, firms in more knowledge-intensive sectors are more affected by distance, as they must engage in the costly transfer of a comprehensive body of knowledge and processes essential for completing and installing intermediate inputs. This package includes cutting-edge technological knowledge, advanced manufacturing techniques, and stringent operational standards, all originating from the headquarters. More than just assembling, these tasks involve embedding technological capabilities within the host country's workforce, fostering a more profound understanding of the technology, which becomes increasingly costly and complex for more knowledge-intensive firms.

POLICY IMPLICATIONS

Policymakers should prioritize the reduction of trade barriers to boost intra-firm trade, thereby facilitating a more seamless flow of goods and knowledge. Specifically, by lowering tariffs, enhancing infrastructure, and streamlining customs procedures, governments can foster an environment that is conducive to the exchange of critical knowledge and products across countries.

This is particularly vital in knowledge-intensive industries, which are acutely more vulnerable to intra-firm trade barriers. This suggests that liberalizing trade policies can significantly ease the flow of goods and critical knowledge across borders.

Policies that facilitate multinational production not only escalate direct knowledge transfers from corporate headquarters to local branches but also encourage investments in host countries to optimize the transfer of intermediate inputs rather than merely final products. This is because intra-firm trade involves, in addition to transferring organizational knowledge and productivity enhancements from headquarters to affiliates, training local employees and establishing more complex operational processes in the host country. These actions may affect employment in both host and home countries, with sizable implications for the share of workers in each economy.

Reducing trade barriers thus not only promotes in the aggregate well-documented benefits—lower prices, comparative advantage, competitiveness, increase in employment, global integration—but it also boosts intra-firm trade and multinational operations, which helps increase technological transfer across countries and in the long term reduces productivity and income gaps. This issue is particularly relevant for Latin America and the Caribbean, which has struggled with low productivity and mediocre growth over the last decades. By fostering an environment conducive to trade that promotes intra-regional trade, with harmonization of trade agreements and liberalization to multinational production, Latin American policymakers can enhance the flow of goods and critical knowledge across borders, ultimately supporting the region's economic development and integration into the global economy.

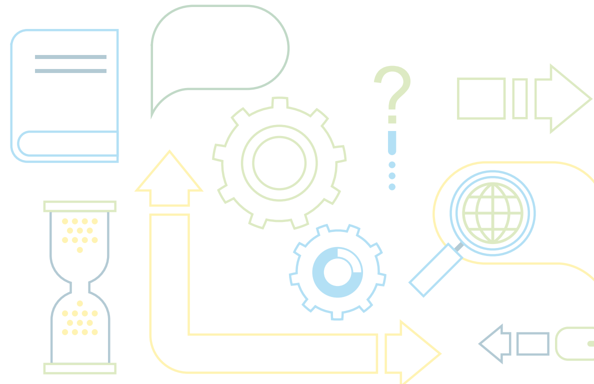
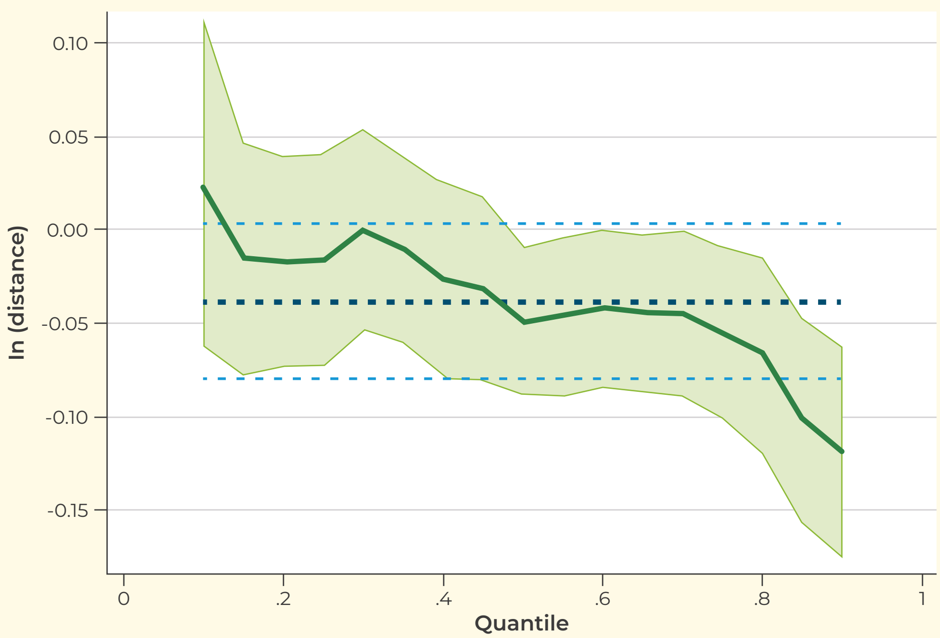


FIGURE 1. **Effect of the Distance between the Foreign Affiliate and Its Parent on Foreign Affiliate Sales across Firm-size Quantiles**



Notes: This figure illustrates how the effects of distance between the foreign affiliate and its parent located in the source country vary over quantiles. Confidence intervals at the 95% level are defined by the gray area.

FULL STUDY

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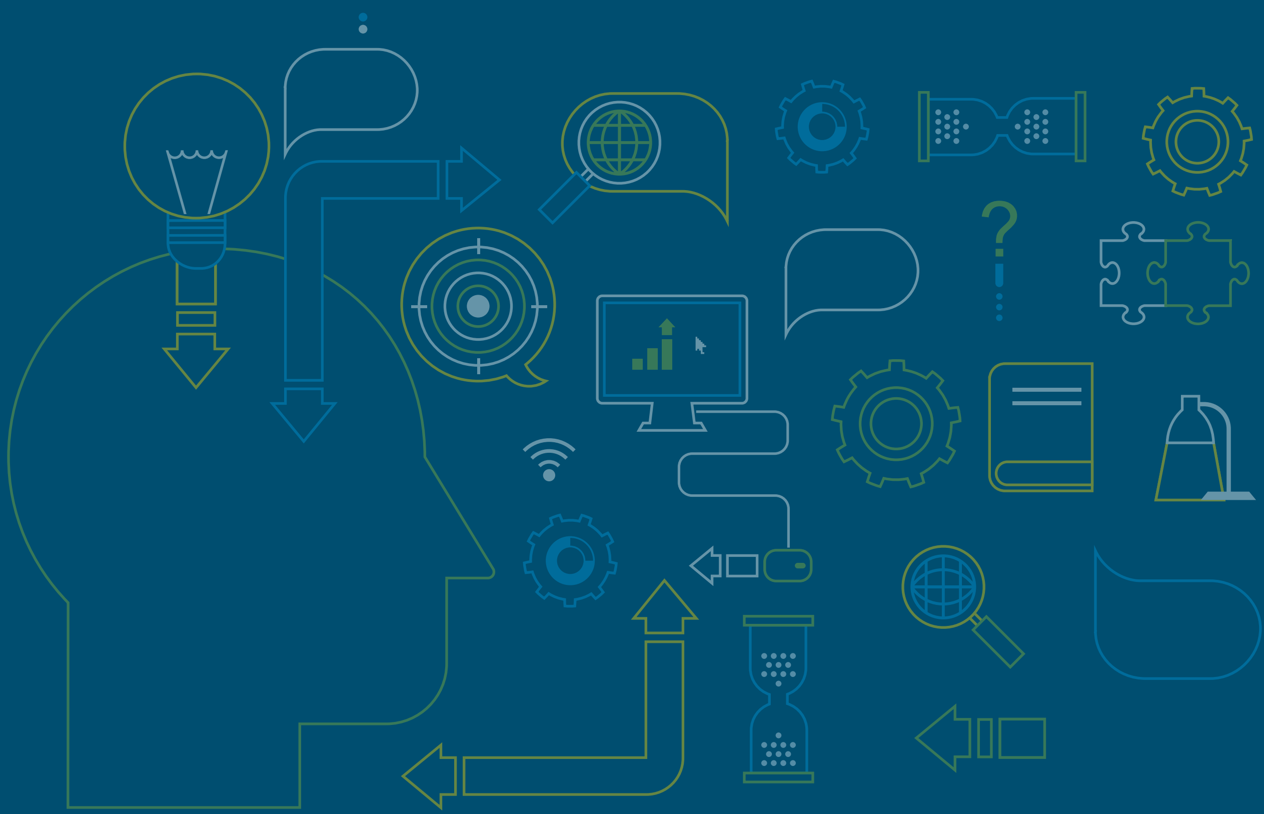

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