

Global Sourcing and Multinational Activity: A Unified Approach

Based on BFI Working Paper 2022-127, “[Global Sourcing and Multinational Activity: A Unified Approach](#),” by Pol Antràs, Harvard; Evgenii Fadeev, Harvard; Teresa C. Fort, Dartmouth; and Felix Tintelnot, University of Chicago

US multinational firms are more likely to import not only from the countries in which they have affiliates, but also from other countries within their affiliates’ region.

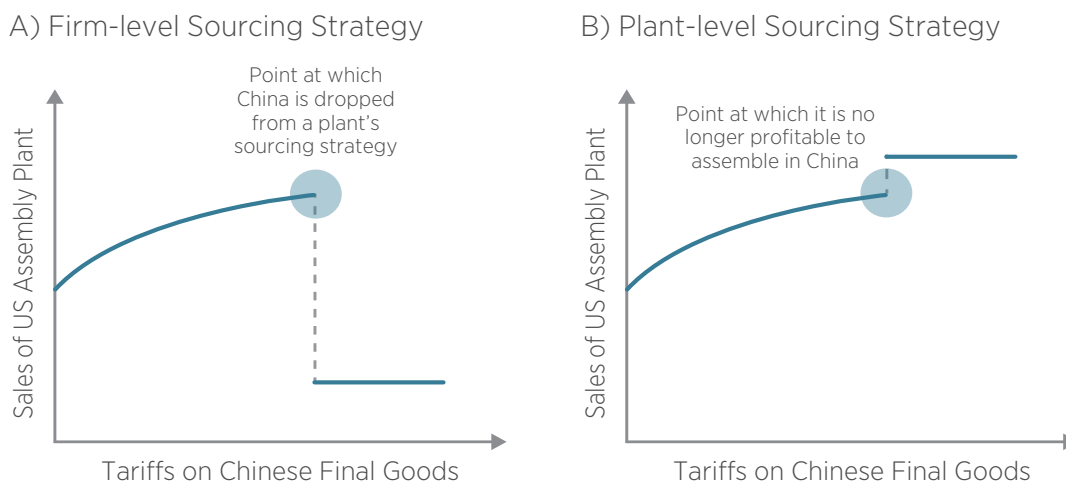
Before COVID, most people probably spent little time thinking about how many inputs were part of the products that they bought, or from where those inputs originated. However, with the onset of the pandemic and the sudden closure of manufacturing plants around the world, the term “supply chain” suddenly became part of our daily lexicon. Empty shelves in retail stores? Must be supply chain issues. Can’t order a new microwave for months? Supply chain. Depleted auto sales lots? You guessed it.

As COVID illustrated, with production organized around global value chains and with different production stages located in different countries, existing trade models and domestic policy have become increasingly complicated. Researchers have long understood firms’ incentives to import inputs and locate assembly plants around the world;

however, that understanding comes from studying each activity in isolation. Most work on horizontal or export platform foreign direct investment (FDI), for example, assumes that assembly only uses local factors of production, while most work on global sourcing or vertical FDI often has final goods that are either non-tradable or perfectly tradable. In part, these choices were made due to theoretical considerations and, importantly, to data limitations.

In this paper, the authors develop a unified framework to study how changes in trade costs, productivity, or demand affect firms’ global production and trade decisions in other countries, and they overcome prior data limitations by combining US data on firms’ detailed trade transactions with country-level information on multinationals’ affiliates and ownership. These new

Figure 1 • The Effect of US Final-Good Tariffs on US Plants’ Sales



Notes: Panel A shows the response of US final-good sales under firm-level sourcing strategies. Sales initially increase because tariffs make the Chinese assembly plant less competitive, and the US plant gains additional market share due to substitutability. However, after increasing tariffs beyond a certain threshold, it is no longer profitable to incur the fixed cost to source inputs from China. Dropping China from its sourcing strategy increases the marginal cost of the US plant, leading to a discontinuous drop in its sales, profitability, and wage bill. The assembly-sourcing complementarity thus results in the unexpected outcome that US final-good sales fall in response to higher final-good tariffs on Chinese imports. Panel B shows how US plant sales respond to increases in final-good tariffs on Chinese imports under plant-level sourcing strategies. The increasingly costly Chinese final-good imports lead US sales to rise initially due to substitution. After a certain threshold, however, it is no longer profitable to assemble in China, so that US sales rise discontinuously as the US plant continues importing inputs from China, but no longer faces competition from a Chinese assembly plant.

data show that multinational firms (MNEs) account for most manufacturers' imports and exports, and that their import and export decisions are oriented not only toward countries in which they have foreign affiliates, but also toward other countries in their affiliates' region. In particular, the authors' data reveal the following:

- MNEs comprise only 0.23 percent of all firms in the United States, yet employ one quarter of the workforce, account for 44 percent of aggregate sales, 69 percent of US imports, and 72 percent of US exports.
- MNEs constitute only 1.5 percent of all manufacturing firms in the United States, yet account for 87 percent of their imports and 84 percent of their exports.
- MNEs' contribution to trade flows is due not only to their large size, but also to their higher trade intensities. US MNEs' ratio of imports to sales is 0.11, almost double the 0.06 ratio for domestic importers.
- Similarly, US MNEs' ratio of export to sales is 0.10, while domestic importers' ratio is only 0.05. US MNEs import from an average of 21 countries and export to an average of 40. By contrast, multi-country domestic importers source from an average of 4, while multi-country domestic exports sell to 8 markets.
- Foreign affiliate sales by US MNEs with foreign manufacturing are 74 percent of their total US establishments' sales, and four times larger than their US merchandise exports.

Bottom line: Understanding MNEs' trade motives is crucial for explaining aggregate trade flows, with their foreign assembly decisions playing a key role in their global involvement.

What, then, is the relationship between MNE's trade and FDI decisions? How are these decisions affected by foreign affiliate or foreign headquarter locations? Focusing first on imports, the authors find:

- US MNEs are 53.6 percentage points more likely to import from countries in which they have foreign affiliates, and 7.4 points more likely to import from other countries in the same region as their affiliates.
- Foreign MNEs are 67.8 percentage points more likely to import from their headquarter country, and 9

points more likely to import from countries in their headquarter's region.

- Foreign firms' intensive margin of imports is also larger, both for their headquarter country and for other countries in the same region.

These results thus provide new evidence that firms' global sourcing strategies are oriented towards those regions in which they have multinational activity, and that for US MNEs, this reorientation is driven solely by variation in their extensive-margin import decisions. Regarding exports, the authors find:

- US MNEs' exports are also oriented toward their foreign affiliate locations: they are 46.3 percentage points more likely to export to a country in which they have an affiliate, and 8.7 points more likely to export to another country in their affiliate's region.
- Their intensive margin of exports is also higher, both to countries with affiliates, and to other countries in their affiliate's region. These and other findings regarding MNE exports are at odds with existing economic models.

Addressing this theoretical gap, the authors then develop a multi-country model in which firms jointly decide on their assembly and global sourcing strategies. Please see the full working paper for description of the model and how it improves upon existing frameworks, but we note here that the authors' model delivers novel predictions on the effects of trade cost changes from, say, tariff increases on MNEs' imports and foreign affiliate sales. Just as in the real world, the authors' model reveals the interdependence of firms' extensive margin sourcing and assembly decisions; in other words, they are not limited to plant-level fixed costs as in existing models.

For researchers and policymakers, this work highlights the importance of incorporating the authors' new source of firm-level scale economies when studying the effects of trade cost changes in a globalized world with complex supply chains. One important example: This new framework can better describe how tariff changes ripple through economies as they influence the distribution and scale of firms' global operations.

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