RESEARCH BRIEF

Trade and Domestic Production Networks

Based on BFI Working Paper No. 2019-25, "Trade and Domestic Production Networks," by Emmanuel Dhyne, Head of the Structural Issues Unit, Economics and Research Department, National Bank of Belgium; Ayumu Ken Kikkawa, Assistant Professor, UBC Sauder School of Business; Magne Mogstad, Gary S. Becker Professor, UChicago's Kenneth C. Griffin Department of Economics; and Felix Tintelnot, Assistant Professor, UChicago's Kenneth C. Griffin Department of Economics

KEY TAKEAWAYS

- ✓ Foreign trade often accounts for a relatively small portion of a country's output; for example, that figure is about 12 percent for the United States
- ✓ However, the impact of trade extends beyond firms that directly engage in exports and imports
- ✓ This new research reveals the many ways that domestic firms are indirectly influenced by trade
- ✓ For policymakers, especially in the time of a global pandemic, the true reach of trade throughout a domestic economy is an important consideration

When most people think about international trade, they likely imagine large companies trading goods back and forth among many countries, and they likely picture rows and rows of colorful intermodal containers stacked on huge transport ships.

While true, that image does not capture the full reach of international trade into a domestic economy. Take, for example, an exporting company that grows in size due to international trade, and expands its workforce and physical space accordingly. Suddenly, firms that supply inputs to the exporting company—from equipment to chemicals to consulting and other services—find themselves getting more business. Another domestic manufacturer may supply replacement parts to the exporting company, andthose orders may increase. And so on.

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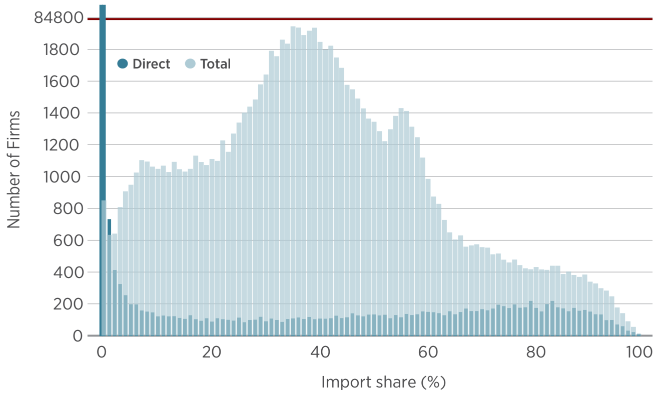
Figure 1 · Distributions of Direct and Total Trade Across Firms (Import Share)



Note: This figure shows the distributions of direct and total import shares across firms. Most firms rely a lot on foreign inputs, but only a small number of firms show that dependence through the direct imports observed in trade transaction data. While only 19 percent of firms import directly, nearly all firms use some foreign inputs in production.

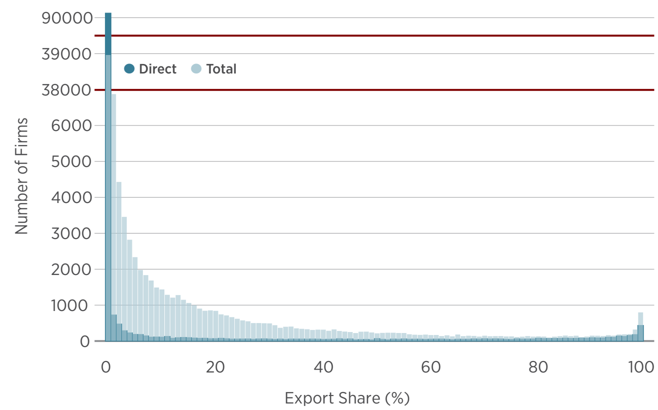
Intuitively, this may make sense, but how can we measure such trade effects? New research by Emmanuel Dhyne of the National Bank of Belgium, Ayumu Ken Kikkawa of UBC, and Magne Mogstad and Felix Tintelnot of UChicago's Kenneth C. Griffin Department of Economics, employs firm-level data from Belgium that offer revealing insights into the broader economic impact of trade. In "Trade and Domestic Production Networks," the authors show the importance of indirect trade, whereby firms buy or sell from other firms that directly import or export, and why policymakers from all open-market countries need to consider the broader ramifications of trade policy.

Traded goods beget domestic business

The availability of firm-level data has allowed researchers to look beyond broader country-based data to investigate the impact of trade on a more micro level. One insight from these datasets is that relatively few firms actually import or export, in part due to the complexities and, thus, the corporate infrastructure necessary to navigate international commerce. However, this does not mean that only a few firms are affected by changes in trade policy, as many often-smaller firms buy from or sell to importers and exporters. Thus, trade policy's impacts can ripple throughout an economy and have larger-than-anticipated effects.

To expand our understanding of this phenomenon, the researchers combine data on domestic Belgian firm-to-firm sales with information on firms' foreign trade transactions. The Belgian data offer a unique view into the impact of trade, including information into input factors and output, intra-EU information on imports and exports, and a value-added tax registry that provides data on domestic firm-to-firm transactions. Putting these data to work, the authors construct measures of trade that go beyond direct business between firms to include the total share of a firm's indirect imports and exports, and they find the following results:

Figure 2 · Distributions of Direct and Total Trade Across Firms (Export Share)



Note: This figure displays the distributions of direct and total export shares of firms. While only 12 percent of firms are exporting directly, 88 percent of firms are indirectly exporting through sales to domestic buyers that subsequently trade internationally.

1. Most firms rely on many foreign inputs, but only a few reveal direct dependence on imports. Indeed, many firms with high total import shares do not directly import. For example, while only 15 percent of Belgian firms import directly, about 40 percent of all firm inputs are derived from imports. Somewhat surprisingly, service sector firms are also heavily dependent on imports, albeit indirectly so.

2. Direct exporters are rare, and total exports—even including those firms that indirectly export by selling domestically to exporters—are relatively small. Domestic sales account for roughly 95 percent of the typical firm's revenues. This finding reveals the importance of domestic sales, even in a small, open economy like Belgium.

3. Large firms typically engage in direct importing and exporting, suggesting that there are benefits to size. However, including indirect trade levels this playing field, with the key difference not whether a firm engages in exports or imports, but how they do so.

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4. The authors' fourth finding sheds light on relationships among domestic firms; specifically, though there is a lot of churn in buyer-supplier links in general, key links that explain the bulk of firms' indirect trade do not change much over time. This persistence holds for how firms trade, whether directly or indirectly. Applying this insight, the authors characterize the Belgian economy as a sparse network where most firms have a few key, and long-lasting, buyer-supplier links.

5. What happens in the event of a foreign demand shock? Importantly, the authors find that what matters is not the trading status of firms—whether they are involved directly or indirectly in foreign trade—but how much of firms' revenue ultimately gets exported. In the case of the example given above, where a caterer benefits from an increase in direct trade by a client firm, both the caterer and the trading firm see similar revenue boosts, for example, when exports increase.

Though based on a close examination of Belgian firm data, these results offer insights into the domestic economies of other open economies including the United States, according to the authors, especially on firms' dependence on trade, regardless of whether those firms are directly involved in importing or exporting.

Conclusion

By closely examining firm-level data in Belgium, this work offers new insights into the impact of trade on a domestic economy and holds lessons for all open-market economies, including the United States and EU countries. For policymakers, this research's findings—that many domestic firms benefit from trade—should give them pause when they consider trade restrictions, for example, or other policies that raise the cost of importing and exporting.

By the summer of 2020, the novel coronavirus had caused massive disruption in travel and also impacted cross-country supply chains. This timely research suggests that as policymakers consider the impact of COVID-19 on trade patterns and how trade policy may need to respond, they need to consider the broader impacts of export-import markets. Though the direct impact of foreign trade may be a relatively small part of most open economies, its true impact is much greater, as many firms indirectly benefit from the flow of goods and services across boundaries.

CLOSING TAKEAWAY

Large firms typically engage in direct importing and exporting, suggesting that there are benefits to size. However, including indirect trade levels this playing field, with the key difference not whether a firm engages in exports or imports, but how they do so.

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NO. 2019-25 · JUNE 2020

Trade and Domestic Production Networks

bfi.uchicago.edu/working-paper/2019-25

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