Testimony before the U.S.-China Economic and Security Commission
Hearing on "Consumer Products from China: Safety, Regulations, and Supply Chains"

Testimony by Edmund J. Malesky, Professor of Political Economy and Director of the Duke Center for International Development, Duke University

March 1, 2024

***

I sincerely thank Chair Robin Cleveland and Commissioner Kim Glas for the invitation to testify before this esteemed committee and share preliminary research on how international supply chains have adjusted to the US-China Trade War and the economic impact of these changes on Vietnam. This is an extremely complex and data-intensive topic and I have done my best to distill key findings that will be of interest to policy-makers. In preparing this testimony, I am indebted to the help of my co-authors Ebehi Iyoha, Jaya Wen, Sung-Jun Wu, and Bo Feng, who worked tirelessly to help me prepare the analysis and data visualizations that I am presenting here today.

Since the Trump Administration imposed tariffs on multiple Chinese export products in July 2018, there has been strong growth in Vietnamese bilateral exports to the United States. Noticing this trend, several analysts have raised the alarm that the export surge has resulted in the re-routing of Chinese manufactured products through Vietnam. Technically re-routing can be defined as trade flows designed to evade origin-specific tariffs by entering and exiting an intermediary country, essentially sticking a "Made in Vietnam" sticker on premade Chinese products (Storey 2023).

While some of the increase is certainly re-routing behavior by Chinese producers, the broader trend conflates this activity with three other patterns: 1) the continuation of pre-tariff shifts in production caused by increasing Chinese wages and growing Vietnamese productivity; 2) immediate post-tariff increases in production by existing manufacturers in Vietnam; and 3) post-tariff manufacturing investment and exporting by multinational companies of multiple origins.

The latter two activities are also in response to the tariffs and may also involve imports of Chinese raw materials, intermediate goods, and machinery, but rather than simply re-labeling the product, value is added before exporting to the United States. Several analysts have found evidence for these patterns in the form of increased investment as well as higher employment, wages, and social benefits in Vietnam in the goods targeted by tariffs (Dang and Tran 2023, Malesky and Mosely 2021, Pham 2023, Rotunno et al. 2023, Wu 2023).

In today's testimony, I will present evidence for all three of these potential patterns before describing an ongoing joint-research project to distinguish re-routing/re-labeling behavior

from the value-added re-routing that is also taking place and benefiting Vietnam (Iyoha et al. 2024).

In the first part of the testimony, I show that the 2018 trade war resulted in higher levels of Vietnamese exports to the United States, predominantly driven by the shifting of supply chains into Vietnam. Old investors expanded their investments and exporting activity while numerous new firms, especially from China, entered. These activities had visibly positive effects on Vietnamese wages, employment, and growth.

In the second part of the testimony, I draw on co-authored work to provide tentative evidence of re-routing: tariffs increased exports of tariffed products to the US and imports of tariffed products from China by firms based in Vietnam. Drilling deeper, we show that about 20% of Chinese firms and 8% of firms from other countries, who invested in Vietnam after the tariffs, are engaged in importing and exporting the same six-digit product. These shares have increased over time and are correlated with the size of tariffs. According to our calculations, approximately 97% of the export value of electronic integrated circuits and 95% of computers are contributed by firms tagged as importing and exporting the same products.

One remaining puzzle that we have continued to work on is that tagged firms appear to be doing much more in Vietnam than simply re-labeling Chinese imports and shipping them out. These results are robust to numerous specifications and modeling choices. Firms tagged as re-routers have much faster growth in employment and assets in Vietnam after the imposition of the tariffs than those importing and exporting different products. It may be that re-routing/re-labeling is a more expensive endeavor than it appears on paper, because value-added activity may be taking place at more fine-grained product levels than our data allow, or because re-routing is profitable allowing firms to finance other business activities.

Background

The US-China trade war commenced in February 2018 with the United States' imposition of tariffs on washing machines and solar panels. These products were chosen because the US International Trade Committee (ITC) determined that these imports had harmed US producers. The US then levied tariffs on steel and aluminum following conclusions from a US Department of Commerce investigation. Both sets of tariffs applied to multiple countries, however, then-President Donald Trump communicated that the ultimate target was China (Bown 2021).

The trade war grew more targeted, on June 15, 2018, when President Trump exerted his authority under Section 301 of the 1974 Trade Act to issue across-the-board retaliatory 10 percent tariffs on a wide range of Chinese products (Bown 2021). President Trump justified the tariff decision by arguing that China's sizable trade surplus with the United States was largely the result of unfair trade practices and currency manipulation. Throughout 2018 and 2019, the US levied five waves of tariffs on a variety of Chinese

products. In response to each wave, China raised tariffs on its imports from the United States. In total, the US tariffs affected an estimated $350 billion worth of imports, and China's retaliatory tariffs targeted around $100 billion worth of U.S. exports (Fajgelbaum and Khandelwal, 2022). In 2020, the two countries signed an agreement that paused further tariff increases in exchange for a variety of concessions. However, the existing tariffs remained in place and have not been repealed as of February 2024.

Figure 1 reproduces Chad Bown's timeline of the trade war. Dates of initiatives are depicted on the x-axis with the average tariff rate applied to Chinese and US products on the y-axis. US tariffs on Chinese products are shown with a blue line while Chinese retaliatory tariffs are shown with a blue line. The dashed line shows that tariff rates to the rest of the world hardly budged over this time period.

Figure 1: Timeline and Scale of the US-China Trade War

Source: Bown (2021), Figure 1a

In Vietnam, these tariffs were greeted with marked enthusiasm, as some expected them to boost Vietnamese exports to the United States and further integrate Vietnamese companies into global value chains (Pham and Yeo 2018, Shira 2019). In the wake of the U.S. tariffs, Vietnam also significantly increased its exports to the United States. Total Vietnamese exports to the United States in April 2018 were $3.8 billion. By April 2019, exports had risen $5.1 billion, an impressive 25% year-on-year change. In the category of advanced technology products (ATP) – targeted especially by the Trump tariffs – the rise in Vietnam's exports was even more striking, from $642 million in April 2018 (nearly 17 percent of

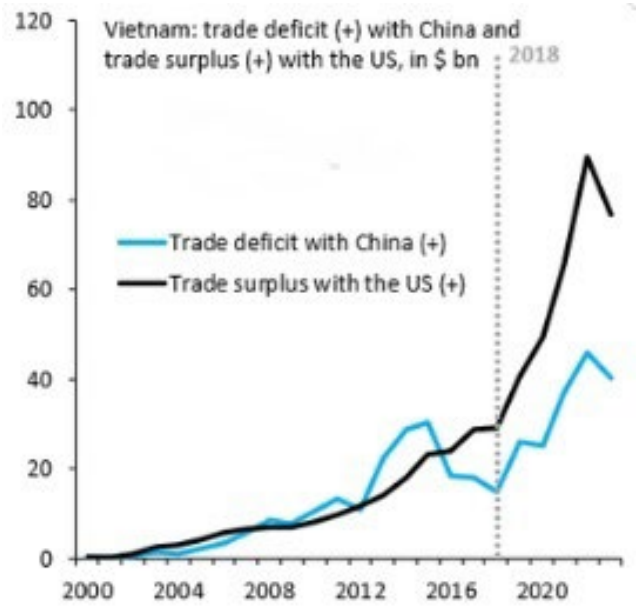
Vietnamese exports to the US) to $1.4 billion in April 2019, a 120% increase (and 27 percent of total exports to the US). Importantly for our analysis below, ATP products affected by the Trump tariffs accounted for nearly 60% of the one-year post-tariff export increase.

The increase in Vietnamese exports to the United States sparked concerns about re-routing (Kitazeme 2019). Multiple scholars have pointed to the simultaneous increase in Vietnamese exports to the United States and imports from China as evidence of tariff-jumping behavior by Chinese firms. Robin Brooks, Managing Director and Chief Economist of the Institute of International Finance, for instance, presented ***Figure 2*** in an online debate on the *X* platform, highlighting the sharp upward simultaneous trajectory changes in Vietnam's trade deficit with China (blue line) and trade surplus with the United States (black line) after 2018 (shown by a gray dashed line). In a post accompanying the graph, Brooks wrote, "China circumvents US tariffs by sending stuff on more circuitous routes, primarily via Mexico, Vietnam, Thailand, and South Korea. There is no decoupling" (Brooks 2023).

While the circumstantial evidence is striking, the evidence presented is far from a smoking gun. First, it is quite clear from the graph that VN exports to the US were already surging after the US Bilateral Trade Agreement (USBTA) in 2001 and Vietnam's entry into the World Trade Organization in 2007 (McCaig and Pavnic 2018). At the same time, increasing growth in the Vietnamese market was leading to imports from China both as consumption goods, but also for construction materials and intermediate components in manufactured goods (McCaig and Pavnic 2-22). Indeed, the graph clearly shows that imports from China peaked in 2014 and did not return to that level into 2021.

Brooks' graph, however, does show a clear change in trajectory in 2018, indicating that while the pre-trends existed, they significantly accelerated after the tariffs. This slope change, however, does not necessarily imply re-routing and could be driven by two other behaviors that were also propelled by the 2018 tariffs.

Figure 2: Potential Macroeconomic Evidence of Re-Routing



Source: Brooks (2023) , https://twitter.com/robin_j_brooks/status/1726979556727533616

First, the tariffs may have led to increased production by firms with pre-existing affiliates in Vietnam. Many foreign-owned firms in Vietnam (especially Japanese, Korean, and Taiwanese firms) employed a China-Plus-One strategy. These firms located most of their global value chains in China but, to address possible uncertainty associated with China located some operations in Vietnam (Shira 2019). For the most part, the Vietnamese affiliates were involved in the less skill-intensive portions of the supply chain, engaging in either final assembly or providing the least technologically intensive inputs (Lam 2019). U.S. tariffs against Chinese products, however, offered opportunities to shift this balance toward Vietnam, enabling industrial upgrading (Amiti et al. 2019). An immediate response including hiring additional workers for new shifts without increasing new capital investment and the changes in exporting activity were observed immediately.

Second, MNCs in China also began to increase new investment in Vietnam building new factories as well as hiring new workers in the country. As early as 2019, Japanese and Korean firms with operations in China began visiting Vietnam to consider investments there (Shira 2019). Some MNCs opened new factories and located higher value-added elements of their supply chains in Vietnam (Lam 2019). Anecdotal evidence includes Taiwanese companies migrated to Vietnam to increase the production of tablets and smartphones as part of Apple's supply chain. At the same time, existing foreign investors, such as Samsung and Intel, deepened and expanded their operations. Foreign Investment Agency under the Ministry of Planning and Investment of Vietnam shows that pledged and

disbursed foreign direct investment (FDI) in Vietnam achieved ten-year highs in 2019, immediately after the tariffs. The amount of FDI that was licensed to enter the country grew 7.2 percent (to $38 billion), including nearly 3,900 new projects. Of these approved FDI projects, new and existing investors disbursed $20.4 billion, which also represents a 7 percent increase. The ratio of disbursed to approved and pledged investments stood at 54 percent, one of the highest proportions during Vietnam's reform era. Notably, foreign investment in science and technology surged sharply, ranking among the fastest-growing sectors in the country's FDI attraction (VNA 2019). The surging foreign investment growth has continued after the tariffs with new highs reached in 2022 and 2023.

These two patterns are fundamentally different from re-routing, as they imply increased investment and labor market activity of the economic actors. With re-routing, a company simply imports the product into Vietnam and exports the same product out. No manufacturing labor or facilities are needed as this activity is simply a logistical exercise. Increasing investment in existing facilities and new investments, however, implies the hiring of new workers, the purchase or lease of business premises, and expenditures in manufacturing new products. Critically, these businesses are likely still connected to supply chains in China and may continue to import raw materials, intermediate goods, and potentially machinery from China for production, the imports and exports of the Vietnamese affiliates will be very different.

Differentiating these different patterns implies fine-grained microeconomic data on product-level imports and exports and customs offices and economic activity from tax authorities or investment surveys.

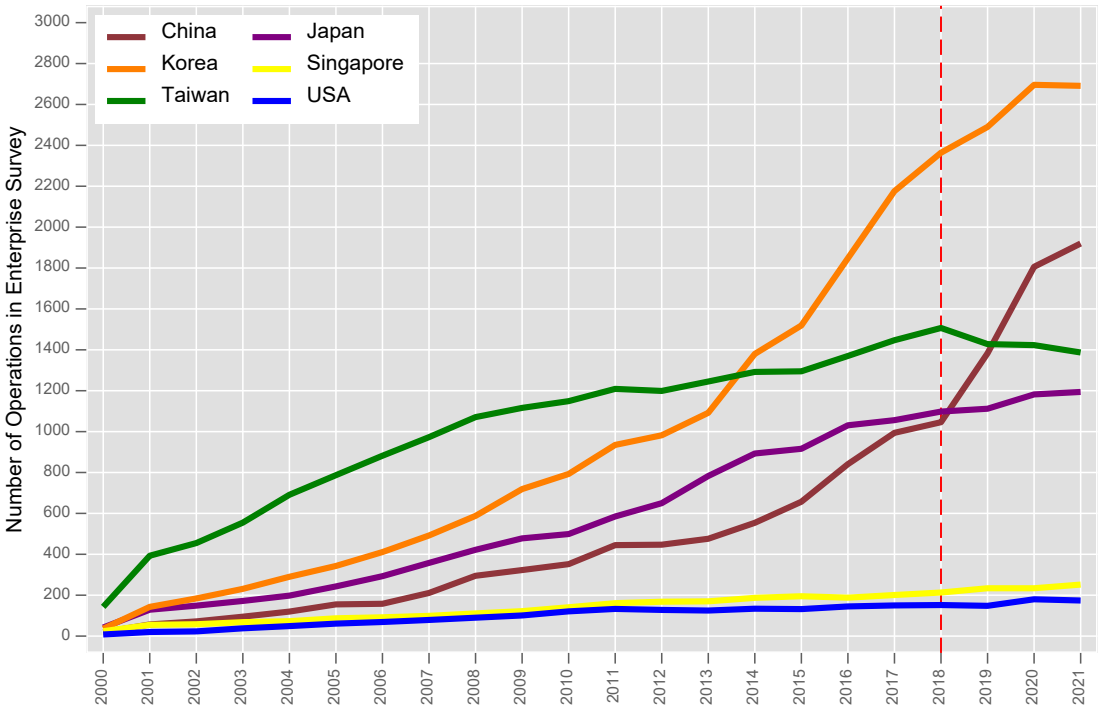
Shifting Foreign Investment: Expansion of Multinational Supply Chains

To illustrate the impact of shifting MNC supply chains, we use data from the Vietnam Enterprise Survey (VES), sometimes called the enterprise census due to its broad coverage of business activity in the country. The survey is conducted annually by the General Statistical Office (GSO), which sends surveys to all officially registered foreign and domestic businesses in the country and records data on firm ID, location, ISIC 4-digit industry classification, and balance sheet information. While the response rate is not perfect, especially for smaller firms, it offers the most comprehensive view of economic activity in the country. The 2021 dataset, for instance, includes over 800,000 domestic firms and over 14,000 foreign-invested businesses.

To conservatively measure MNC movements, we define a foreign firm by whether it sources 100% of its capital from abroad and assign the country of origin by the location of the company's dominant source of capital. Although it varies by year, over 60% of foreign manufacturing firms are engaged in exporting activity, compared to less than 5% of domestic manufacturers. In 2017, prior to the tariffs, mean employment in foreign firms was about 540 employees with $12.6 million in assets, however, there is a great deal of dispersion. The median employment (106 employees) and assets ($2 million) were much smaller, indicating a large number of small operations (Wu 2023). As others, have pointed

out, foreign manufacturers dominate the export landscape, accounting for more than 50% of total manufacturing employment and sales and 70% of all manufactured exports (Wu 2023).

Figure 3: Post-Tariff Entry of Chinese MNCs is Greater Than Other Investors



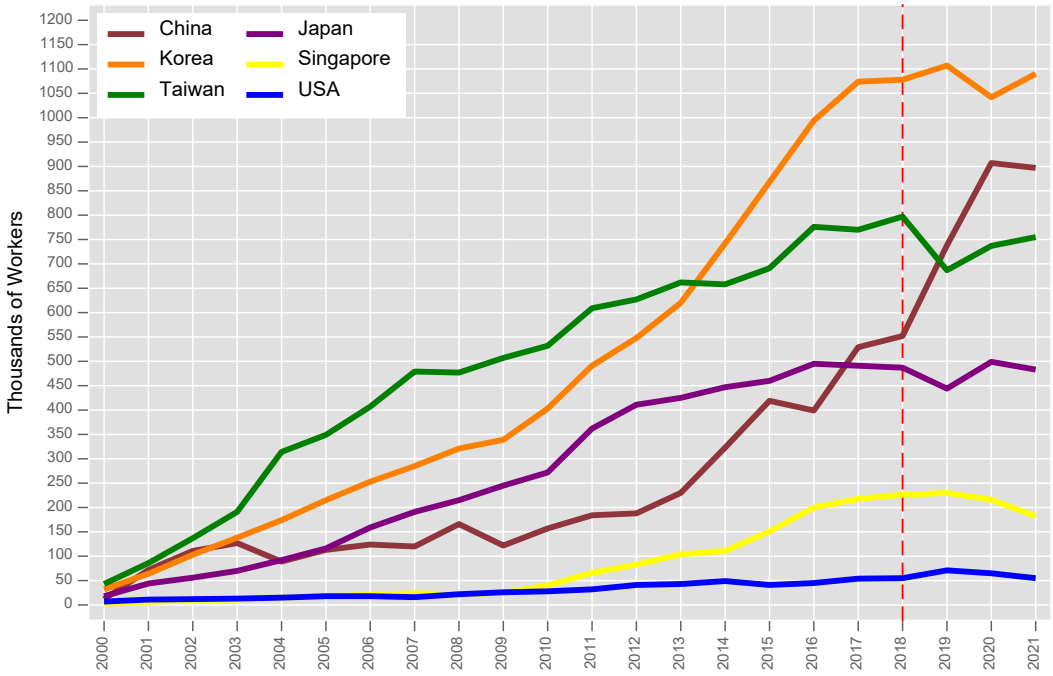
Source: Vietnam Economic Survey (2000-2021), General Statistical Office, Hanoi, Vietnam

Foreign Direct Investment (FDI) can be hard to measure due to challenges in whether the investment was simply licensed or actually disbursed and the share of foreign ownership necessary to count as an FDI. To avoid these definitional debates, ***Figure 3*** provides a simple count of the number of foreign firms in the VES operating in Vietnam at the time of the survey by country of origin. Again, we see a strong pre-tariff trend in investment activity in the country among companies from Korea, Taiwan, Japan, and China. In particular, Korean operations moved to Vietnam at a staggering rate, increasing their presence in the country nearly four-fold from 719 to 2691 operations, led by Samsung's dramatic investment in multiple products throughout the country. The rapid growth among most investor types declined after 2018, in part due to the difficulties of managing supply chains during COVID-19, with two exceptions. Korean MNCs continued to move into Vietnam, growing by 24% between 2017 and 2021. However, this activity was dwarfed by the number of Chinese businesses, which grew by 93% from 994 operations in 2017 to 1920 in 2021. This activity moved China from the fourth largest investor by number of operations (though not by capital size) in 2018 to the second largest investor in 2021.

Figure 4 shows that hiring by Chinese firms also increased after 2018 with total employment, expanding to 897,000 workers in 2021, a 69.6% increase over 2017. All other countries decreased or stagnated in total employment during this timeframe. There is very little change in the number of employees per operation for all countries, which ranges between 400 and 600 firms per operation. The employment growth appears to be entirely driven by new entrants. Increases in employment are consistent with other studies, which have demonstrated that the sectors exposed to the tariffs experienced increases in employment, wages, and social benefits for their Vietnamese workers, especially in products exposed to the tariffs (Wu 2023)

These findings are consistent with statistical evidence and public reports in Vietnam. Data from the Ministry of Planning and Investment's Foreign Investment Agency (FIA) showed China to be the top-ranked investor by number of projects in 2023 and the third-largest investor by capital size for every year between 2020 and 2023 with company's licensing between $2 and $3 billion in new investment capital each year. Included in these numbers are projects by Xiamen Lithium Energy Storage Technology ($900 million), Growatt New Energy ($300 million), and Shandong Metal Technology ($165 million), which are investing in batteries, energy storage, and precision tools in northern Vietnam. *Reuters* also reported that Chinese electronics, robotics, and home appliance firms were the top spenders on industrial leases in Vietnam in 2022 (Guarascio 2023).

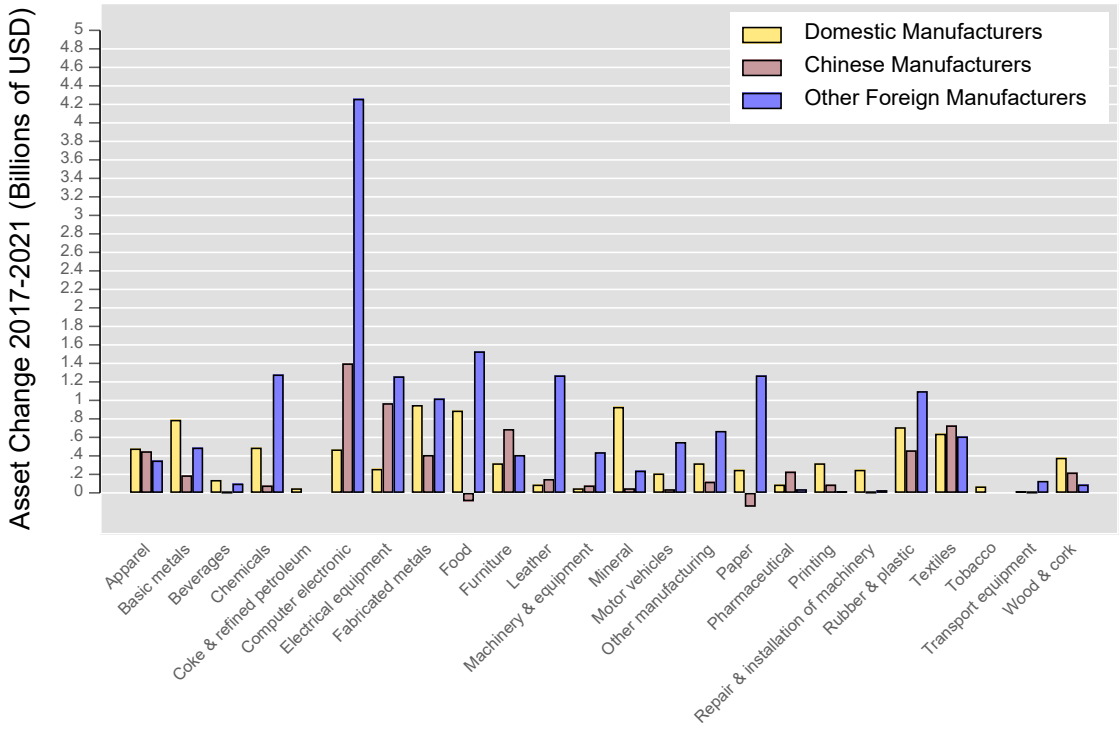
Figure 4: Post-Tariff Hiring of Chinese MNCs is Larger Than Other Investors



Source: Vietnam Economic Survey (2000-2021), General Statistical Office, Hanoi, Vietnam

Figure 5 highlights the impact of the tariffs by showing the industries where asset growth (as a proxy for investment size) was highest for Chinese, other foreign, and domestic investors was highest between 2017 and 2021. Although I don't show it here, we see similar patterns in terms of number of operations and employment size. Chinese operations were particularly active in entering and expanding the computer electronics, electrical equipment, garment, and furniture sectors. Other foreign investors expanded into computers and electronics as well, but were also active in food processing, rubber and plastics, paper, and chemicals production.

Figure 5: Computers and Electronic Equipment Are Most Impacted Products



Source: Vietnam Economic Survey (2017-2021), General Statistical Office, Hanoi, Vietnam

Tariff Jumping: Tentative Evidence on Re-Routing Behavior by Chinese and other MNCs

The above analysis has demonstrated that the 2018 trade war resulted in higher levels of Vietnamese exports to the United States, predominantly driven by the shifting of supply chains into Vietnam. Old investors expanded their investments and exporting activity while numerous new entrants entered. These activities had visibly positive effects on Vietnamese wages, employment, and growth. However, how much of this activity represents changing investment patterns and how much is the simple act of re-routing investment flows?

To answer this question, my co-authors and I turned to a more fine-grained analysis of transaction-level bill of lading trade data from S&P Global Panjiva. Bills of lading are legal documents that confirm when shipments reach their destinations. In Vietnam, they are regulated and collected by Vietnamese Customs. In addition, the dataset includes the unique shipment ID, the arrival date, the shipment value, the seller ID, the buyer ID, the shipper's country, the destination country, and the 6-digit harmonized system (HS) code, which indicates an extremely high level of precision on the specific products entering and exiting Vietnamese shores. Using the tax code, we match each of these products to the specific producer from the VES, allowing us to estimate the amount of economic activity in Vietnam that accompanies each transaction. We combine this with data from Bown (2021), which also records product-level exposure and average tariff rates to US tariffs at HS six-digit level.[1]

Figure 6 plots the results of our econometric exercise at the product level. The horizontal axis shows the number of quarters since the announcement of the tariffs in 2018 and 2019 (excluding the earlier general tariffs on steel and solar panels). The vertical axis can be interpreted as the difference in growth of exports to the US (or imports from China) relative to other trading partners, accounting for pre-period trends.[2] The green line represents estimated changes in US exports and the orange the estimated changes in Chinese imports with shaded bands depicting 95% confidence intervals around the estimates. Intervals that do not intersect zero on the y-axis are statistically significant estimates.

[1] One caveat is that we are limited to using six-digit codes to compare across countries. However, many of the tariffs were specified at an even more fine-grained HTS ten-digit level, targeting, for example, highly specific chemical compounds. In some cases, this meant that not every ten-digit product within a six-digit category was targeted by tariffs. To address, this we create two alternative measures that capture: 1) whether any product within a six-digit category was tariffed; and 2) the share of ten-digit products within a six-digit code that were tariffed.

[2] Because almost all goods in the "bills of lading" dataset are targeted for tariffs, we cannot compare targeted to non-targeted goods. Rather, the counterfactual in our analysis is the exporting and importing behavior in the targeted products to other trading partners. Our findings are substantively similar when we use the share of targeted products in each six-digit code, however, the counterfactual changes slightly as we are now capturing differences between targeted and untargeted products as well as trading partner.

We find clear evidence that tariffs (both measured discretely and continuously) strongly encouraged imports from China and exports to the United States compared to other countries. Before the tariff announcements, we see no differences in the exporting or importing of tariffed products. Exports and imports are as likely to go to the United States and from China respectively as other trading partners. Significant differences in the growth rates of exports of tariffed products to the United States and imports of tariffed products from China appear relatively quickly after the announcement of the tariffs and increase over time.

The execution of the China-Plus-One strategies can be observed in the time frame immediately after the tariff announcements. Firms that already had some presence in Vietnam, took advantage of existing facilities to increase production, likely by hiring additional workers and running additional shifts.[3] They did not have time to either import components from China or re-route tariffed goods from China. Within one quarter, we observe an immediate response in exports to the US. Growth in the exports of targeted products from Vietnam to the United States grew 0.3 log points or 30% faster than exports of those same products to other countries. Notice that in this initial period, there is not a corresponding response in imports from China, which does not appear until the third quarter.

Beginning one year after the tariff, we observe escalating differences in growth rates for both US exports and Chinese imports, interrupted by a sharp escalation during the 2020 COVID-19 shutdowns in China. By quarter 14, 3.5 years after the tariff announcement, we find that the tariffed exports to the United States grew 120% faster than to other countries, and imports of tariffed products from China grew 50% faster than other importing partners.

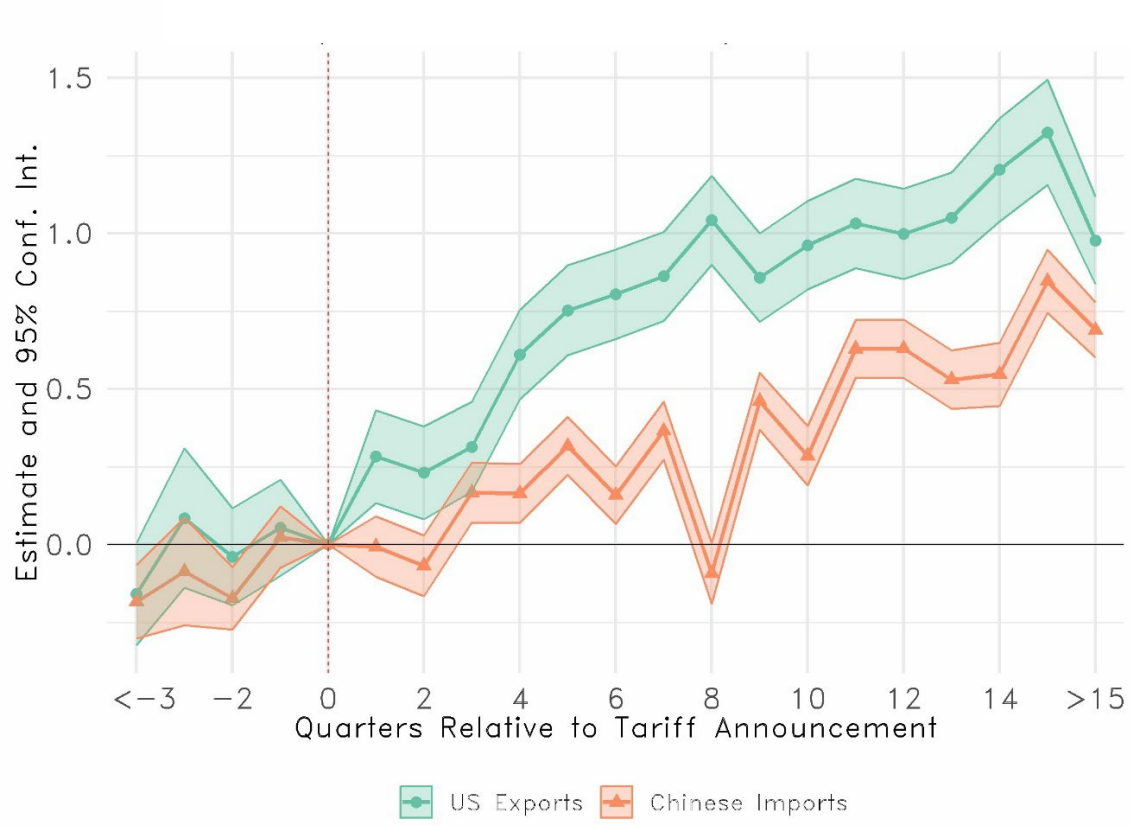
Figure 6 is not concrete evidence of rerouting, because it does not account for firm-level behaviors. Re-routing requires that the same firm is importing and exporting tariffed products without upgrading, but in Figure 6 different economic actors could be importing and exporting. Moreover, there is some level of imprecision because we matched data at the six-digit level. It is possible that upgrading could be taking place at the ten-digit level that is obscured by the aggregate data.

To address these issues, we combined the "bill of lading" data with the VES firm-level data. In a more rigorous test, we adapt our analysis to compare targeted and untargeted goods produced by the same firm, allowing us to perform a within-firm analysis that holds constant features of the firm, such as their country of origin, size, and location in Vietnam, which might have confounded previous estimates. We find similar results, though they are

[3] Only a small portion of the adjustment can be attributed to domestic firms. Most of the increase in exporting was performed by foreign MNCs.

understandably less pronounced.[4] Individual firms in Vietnam appeared to focus activities on targeted products rather than non-targeted products within the same operation.

Figure 6: Vietnamese Exports to the US and Imports to China of Targeted Products Grew Faster than with Other Trade Partners



Source: S&P Panjiva (2023). Estimated changes in targeted exports and imports to the US and China compared to the rest of the world.

Identification of Re-Routing Firms

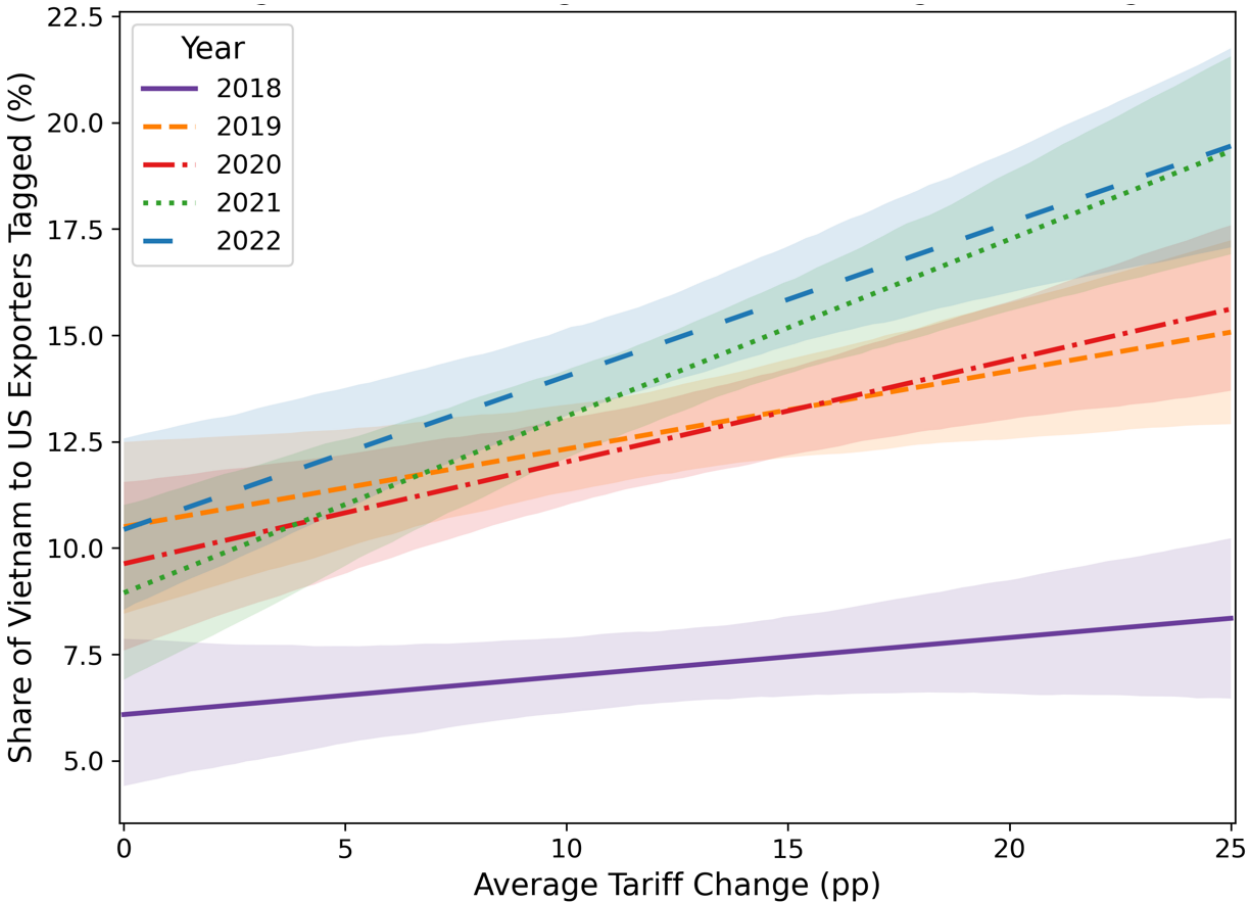
Even the firm analysis does not preclude the fact that entirely different businesses could be doing the importing and exporting of targeted products. Consequently, in our next analysis, we concentrate on the set of firms that are importing the exact same six-digit HS product from China that they are exporting to the United States, which we classify as tagged re-routers.

Figure 7 depicts the share of tagged re-routers among Vietnamese exporters over time in accordance with the tariff rate increase. As we might expect, the share of re-routers

[4] See Appendix A.

increases as the size of the tariff increases and this relationship increases over time, becoming steeper with each year. Re-routing behavior was relatively low and flat (about 6% of exporters) in 2018, but increased dramatically. By 2022, 12% of exporters at the 10% tariff rate increase level and 20% of exporters at the highest tariff rate hike of 25% are engaging in some re-routing.

Figure 7: Re-Routing Increasing over Time and with Average Tariff



Source: Vietnam Economic Survey (2017-2021) and Panjiva (2023). Re-routing coded at six-digit Harmonized Statistic level.

The bottom panel of ***Table 1*** presents the share of foreign exporters, who entered before or after the 2018 tariffs, potentially engaging in re-routing behavior before or after the 2018 tariffs. Re-routing behavior is highest among Chinese manufacturers. 20.2% of the sample that entered Vietnam after 2018 are tagged as re-routers, compared to 7.7% of firms from other foreign countries. This is likely an underestimate as not all shipped products can be matched to specific firms.

Table 1: Chinese Manufacturers Increase Re-Routing after 2018

All MNCs			
	Entered Before 2018	**Entered in/after 2018**	**Total**
Chinese Manufacturer	1,570	1,085	2,655
Other Foreign	8,028	2,451	10,479
Total	9,598	3,536	13,134
Number of Potentially Rerouting MNCs			
	Entered Before 2018	**Entered in/after 2018**	**Total**
Chinese Manufacturer	279	219	498
Other Foreign	1,043	188	1,231
Total	1,322	407	1,729
Share of Potentially Rerouting MNCs			
	Entered Before 2018	**Entered in/after 2018**	**Total**
Chinese Manufacturer	17.8%	20.2%	18.8%
Other Foreign	13.0%	7.7%	11.7%
Total	13.8%	11.5%	13.2%

Source: Vietnam Economic Survey (2017-2021) and S&P Panjiva (2023). Re-routing coded at six-digit HS level.

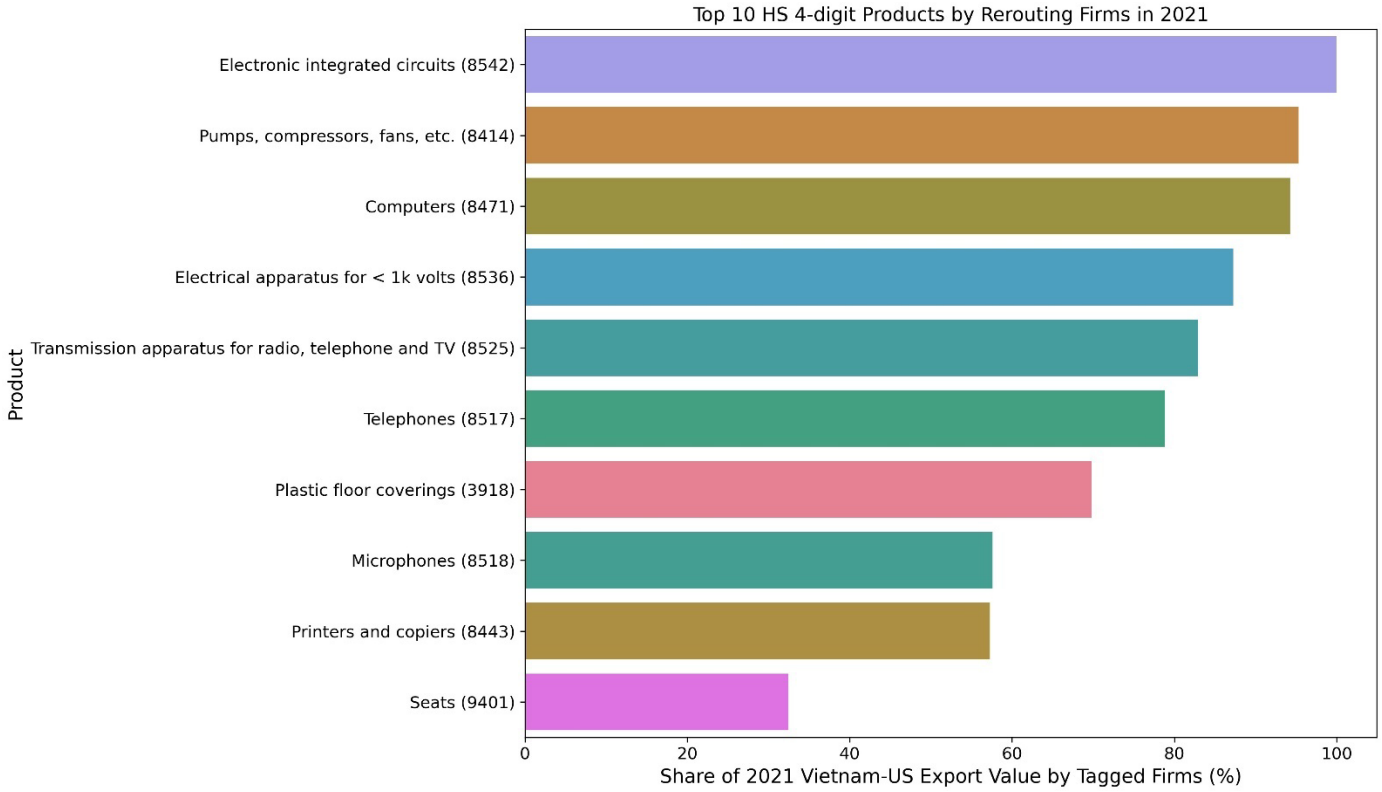
Figure 8 reports the top ten four-digit products for re-routing measured by the share of export value accounted for by tagged firms.[5] Electronics and computer products dominate the list. According to our calculations, approximately 97% of the export value of electronic integrated circuits was performed by firms tagged as importing and exporting the same four-digit products. 95% of the value of computer exporters also appeared to be accounted for by firms tagged as re-routing.

In a final econometric exercise, we find that tagged firms appear to be far more active investors in Vietnam than one would expect from simply re-labeling. In a differences-in-differences design that accounts for firm-level and industry-level confounders, we find that tagged firms increased their employment and assets by nearly 25% and 20% respectively

[5] For ease of presentation, we aggregate to the four-digit rather than six-digit level.

over firms importing and exporting different products.[6] This presents a final puzzle that deserves deeper exploration. It could be that re-routing requires additional employment and infrastructure or that value-added is taking place at a higher level of precision than our data allows us to identify. We continue to work on this question, though these preliminary results suggest that even re-routing behavior might yield positive dividends for the Vietnamese economy.

Figure 8: Top 10 Potential Re-Routing Sectors by Export Value



Source: Vietnam Economic Survey (2017-2021) and Panjiva (2023). Re-routing coded at four-digit Harmonized Statistic level for presentation.

Recommendations

First, exploration of re-routing behavior requires a much more precise and sophisticated analysis than is currently taking place in some policy circles. We recommend a more penetrating analysis into the shifting of investment into Vietnam based on high-quality product and firm-level data. Mischaracterizing legitimate investment and exporting behavior as re-routing could have negative consequences for the Vietnamese economy, undermining the strengthening economic relationship between Vietnam and the United

[6] See Appendices B and C

States. New investment caused by the US-China trade war has benefitted the country's economy and workers. Our analysis also shows that even re-routing investors may be benefitting the Vietnamese economy.

Second, our analysis points to some tentative evidence of re-routing, particularly by Chinese firms that newly invested in Vietnam after 2018 and among export goods with the highest tariff rates. If this can be definitively shown at the ten-digit product level, countervailing measures against those particular exporters may be warranted.

Third, private domestic Vietnamese firms have not benefited from the shifting investment landscape at all. Most are too small and unconnected to global supply chains. International assistance that can help domestic investors improve their productivity and provide intermediate goods and services to foreign investors would have a strong influence on economic growth and human development in the country.

Works Cited

Alfaro, Laura, and Davin Chor. 2023. "Global Supply Chains: The Looming "Great Reallocation" *National Bureau of Economic Research* 31661, Cambridge MA.

Amiti, Mary, Stephen Redding, David Weinstein. 2019. "The Impact of the 2018 Trade War on US Prices and Welfare," *CentrePiece* (Summer): 7-9. <http://cep.lse.ac.uk/pubs/download/cp553.pdf>

Bown, Chad P. 2021, "The US-China Trade War and Phase One Agreement," *Journal of Policy Modeling*, 43 (4), 805–843.

Dang, Duc Anh and Ngoc Anh Tran.2023. "The Effects of the United States–China Trade War During the COVID-19 Pandemic on Global Supply Chains: Evidence from Viet Nam," *Economic Research Institute for ASEAN and East Asia (ERIA) Discussion Paper Series* 483, Monash University

Fajgelbaum, Pablo, Pinelopi Goldberg, Patrick Kennedy, Amit Khandelwal, and Daria Taglioni. 2021a. "The US-China Trade War and Global Reallocations," *National Bureau of Economic Research* 29562, Cambridge MA.

Fajgelbaum, Pablo D., and Amit K. Khandelwal. 2022. "The Economic Impacts of the US–China Trade War." *Annual Review of Economics* 14, 205-228.

General Statistical Office. MY. "Vietnamese Enterprise Survey Dataset," Hanoi, Vietnam. < https://www.gso.gov.vn/en/events/2022/04/enterprise-survey-in-2022/>

Guarascio, Francesco. 2023. "Chinese Suppliers Race to Vietnam as COVID Let-Up Opens Escape from Sino-US Trade War," *Reuters*, March 16.

Iyoha, Ebehi, Edmund J. Malesky, Jaya Wen, Sung-Jun Wu, and Bo Feng. 2024. "Exports in Disguise: Trade Re-Routing During the US-China Trade War," Working Paper.

Kitazume, Tomoya Onishi Kyo, and Yusho Cho. 2019. "Chinese Goods Navigate Alternate Trade Routes to US Shores," *Nikkei Asia*, Datawatch.

Lam Thanh Ha. 2019. "Chinese FDI in Vietnam: Trends, Status and Challenges," *ISEAS Yusof Ishak Institute Perspectives* 2019 (34): 1-10. <https://www.iseas.edu.sg/images/pdf/ISEAS_Perspective_2019_34.pdf>

Malesky, Edmund J., and Layna Mosley. 2021. "Labor Upgrading and Export Market Opportunities: Evidence from Vietnam." *Economics & Politics* 33(3): 483–513.

McCaig, Brian, and Nina Pavcnik. 2018. "Export Markets and Labor Allocation in a Low-Income Country." *American Economic Review 108* (7), 1899-1941.

McCaig, Brian, Nina Pavcnik, and Woan Foong Wong. 2022. "FDI Inflows and Domestic Firms: Adjustments to New Export Opportunities." *National Bureau of Economic Research* 30729, Cambridge MA.

Pham Ngoc Phuong. 2023. "Fishing in Troubled Water: The Impact of the US-China Trade War on Vietnam's Export, Firms, and Labor Market," *Doctoral Dissertation* at National Graduate Institute for Policy Studies (GRIPS)

Rotunno, Lorenzo, Sanchari Roy, Anri Sakakibara, and Pierre-Louis Vézina. 2023. "Trade Policy and Jobs in Vietnam: The Unintended Consequences of Trump's Trade War." *Quantitative Political Economy Research Group Working Paper* 2023-56, King's College, London UK

Shira, Dezan. 2019. "US-China Trade War Likely to Tip Some China-Based American Manufacturers to Vietnam," *China Briefing*, May 15, 2019. <https://www.china-briefing.com/news/trade-war-tip-china-based-american-manufacturers-vietnam/>

Shi, Huimin and Xuepeng Liu. 2019. "Still Made in China? How Tariff Hikes May Trigger Re-routing and Circumvention," CEPR VoxEU Columns.

S&P Panjiva Dataset on Bills of Lading. 2023. < https://www.spglobal.com/marketintelligence/en/solutions/panjiva-supply-chain-intelligence>

Storey, Henry. 2023. "Mexico and Vietnam's Role in Global Supply Chain Reshuffle," *Hinrich Foundation*, September 26. https://www.hinrichfoundation.com/research/article/sustainable/global-supply-chain-reshuffle/#:~:text=Rather%20than%20undergoing%20a%20wholesale,it%20is%20assembled%20and%20reexported

Wu, Sung-Jun. 2023." Foreign Profit Shifting and The Welfare Responses to The US–China Trade War: Evidence from Manufacturers in Vietnam," Doctoral Dissertation, Duke University.

Appendix A: Within-Firm Adjustments of Exports to the US and Imports to China of Targeted Products Grew Faster than with Other Trade Partners

Source: S&P Panjiva (2023) and VES (2024). Estimated changes in targeted exports and imports to the US and China compared to the rest of the world by individual firms.

Appendix B: Employment Growth is Faster among Firms Tagged as Re-Routers after Tariff Imposition

	(1) logql	(2) logql	(3) logql	(4) logql
Treatment*Post	0.319	0.371	1.782***	1.960***
	(1.087)	(1.087)	(0.312)	(0.339)
Year FE	No	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes
Year*Industry FE	No	No	No	Yes
_cons	Yes	No	No	No
Observations	383026	383026	379201	378970
R^2	0.025	0.028	0.882	0.886

Sample is all firms who appeared in Panjiva and VES from 2015-2021.

Treatment is the average share of products rerouted in 2018-2021.

One standard deviation of the treatment is 0.016.

Post indicates whether the year is after 2017.

Standard errors are clustered at the 4-digit industry level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix C: Asset Growth is Faster among Firms Tagged as Re-Routers after Tariff Imposition

	(1) logasset	(2) logasset	(3) logasset	(4) logasset
Treatment*Post	10.576***	0.402	1.658***	1.588***
	(1.640)	(0.912)	(0.388)	(0.299)
Year FE	No	Yes	Yes	Yes
Firm FE	No	No	Yes	Yes
Year*Industry FE	No	No	No	Yes
_cons	Yes	No	No	No
Observations	338527	338527	333391	333143
R^2	0.037	0.756	0.965	0.968

Sample is all firms who appeared in Panjiva and VES from 2015-2021.

Treatment is the average share of products rerouted in 2018-2021.

One standard deviation of the treatment is 0.016.

Post indicates whether the year is after 2017.

Standard errors are clustered at the 4-digit industry level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$