Elsewhere in the Americas: How U.S. Tariffs on China Boosted Mexico's Manufacturing Employment and Output*

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Using administrative longitudinal firm-level data from Mexico that links manufacturing firms to their customs records and covers the period 2014–2023, I examine whether US tariffs targeting China have contributed to a manufacturing revival in the southern part of North America. Leveraging the abrupt shift in US trade policy as a natural experiment, I construct firm-level trade policy exposure measures based on firms' pre-shock trade portfolios at the six-digit product level. The results show that higher US tariffs on China significantly increased manufacturing production and boosted employment. Foreign-owned firms and domestic affiliates of foreign firms operating under Mexico's export platform, IMMEX, drive these gains in manufacturing output and jobs. These findings provide firm-level evidence that heightened import protection in the US has stimulated manufacturing activity elsewhere in North America—namely, in Mexico.

Keywords: Trade War, Mexico, US, China, Exporting Firms, Manufacturing Employment, Production

JEL classifications: F13; F14; F23; F61; F68

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1 Introduction

The imposition of tariffs by the United States on a broad range of Chinese imports under Section 301 of the Trade Act of 1974, in response to alleged unfair trade practices and violations of intellectual property rights, marked a sharp departure from decades of liberal trade policy. By 2019, the tariffs and subsequent retaliation had affected over $450 billion in bilateral trade flows (Fajgelbaum et al. 2021), creating widespread uncertainty in global markets. The resulting US–China trade war—sudden, far-reaching, and involving the world's largest consumer and producer economies—constituted a major shock to globally integrated production and services.[1] The tariffs—estimated to cost U.S. consumers and producers $4.6 billion per month (Amiti et al. 2019)—were promoted by the administration as a tool to bring back manufacturing jobs and revitalize U.S. industry (The White House 2025a, 2025b).

Recent studies suggest, however, that the protectionist turn in U.S. trade policy failed to deliver on its central promise of reviving domestic manufacturing, at least in the short run (Flaaen and Pierce 2024; Autor et al. 2024). As a potential catalyst for strategic decoupling, the conflict triggered a broader reconfiguration of supply chains and led to a sharp rise in multinational-driven export activity from Mexico (Utar et al. 2023). Given Mexico's deep integration with the US through North American production networks and its comparative labor cost advantage, the ongoing reorganization of global value chains (GVCs) in response to trade tensions has important consequences for the future of manufacturing in North America.

This paper examines whether the 2018–2019 U.S. trade policy actions against China contributed to a manufacturing resurgence in Mexico, and with it, a broader restructuring of North American production. To that end, I use firm-level data from Mexico's national statistics agency, INEGI, covering internationally active manufacturing firms from 2014 to 2023.

[1] Studies show that the 2018–2019 tariff changes were uncorrelated with prior price or import trends across products, making the event a suitable natural experiment for analyzing trade policy and global value chains (e.g., Cavallo et al. 2021; Fajgelbaum et al. 2020; Amiti et al. 2020). For a comprehensive overview, see Fajgelbaum and Khandelwal (2021). For details on product and sectoral coverage, see Bown (2021).

Since 2013, INEGI has developed a framework to track firms engaged in international merchandise trade in response to the growing fragmentation of global production. This effort integrates administrative trade records with firm-level data from the Maquiladora Manufacturing Industry and Export Services (IMMEX) Program—Mexico's export platform for globally integrated firms—as well as the Economic Censuses and the Annual and Monthly Manufacturing Industry Surveys. The resulting database—the *Perfil de Empresas Manufactureras de Exportación* (PEME)—covers over 84% of Mexico's merchandise trade and offers a uniquely detailed and representative view of export-oriented manufacturing.

Distinguishing firms in the country's export platform—IMMEX—within the PEME database reveals that 90% of total U.S. exports by PEME firms are accounted for by IMMEX participants. As shown in Utar et al. (2023), firms in the IMMEX program, most of which are either subsidiaries of foreign multinationals or domestically owned affiliates tied to foreign MNEs, were the main drivers of Mexico's export growth in response to the increased U.S. tariffs on Chinese imports. Throughout the paper, I refer to these firms as 'GVC firms', reflecting the program's explicit purpose of fostering participation in global production and service networks.

Using corporate linkages from Dun & Bradstreet, I trace the ultimate owners of GVC firms via their tax identifiers and link this information to the PEME database. Between 2017 and 2023, firms with ultimate owners headquartered outside Mexico created over half a million manufacturing jobs, of which U.S.-owned firms alone expanded employment by 31 percent, adding more than 300,000 jobs (Figure 1).

Between 2018 and 2024, a number of multinational firms—including Bosch, LEGO, Continental, Volkswagen, and Toyota—committed substantial investments to expand their manufacturing footprint in Mexico (Webwire 2022; InvestMonterrey 2023; Mexico News Daily 2023). In several cases, these expansions coincided with reductions in US operations, as seen with John Deere, Foxconn, and Stellantis (Reuters 2020; NYPost 2024; CNBC 2023), reflecting a broader reconfiguration of North American production strategies. Did a policy aimed at reviving US manufacturing instead fuel job creation in Mexico? In fact the share of employment accounted for by manufac-

turing firms in IMMEX relative to US manufacturing employment rose from roughly one-fifth in the pre–trade war period to one-fourth in the post–trade war period (see Figure 2).

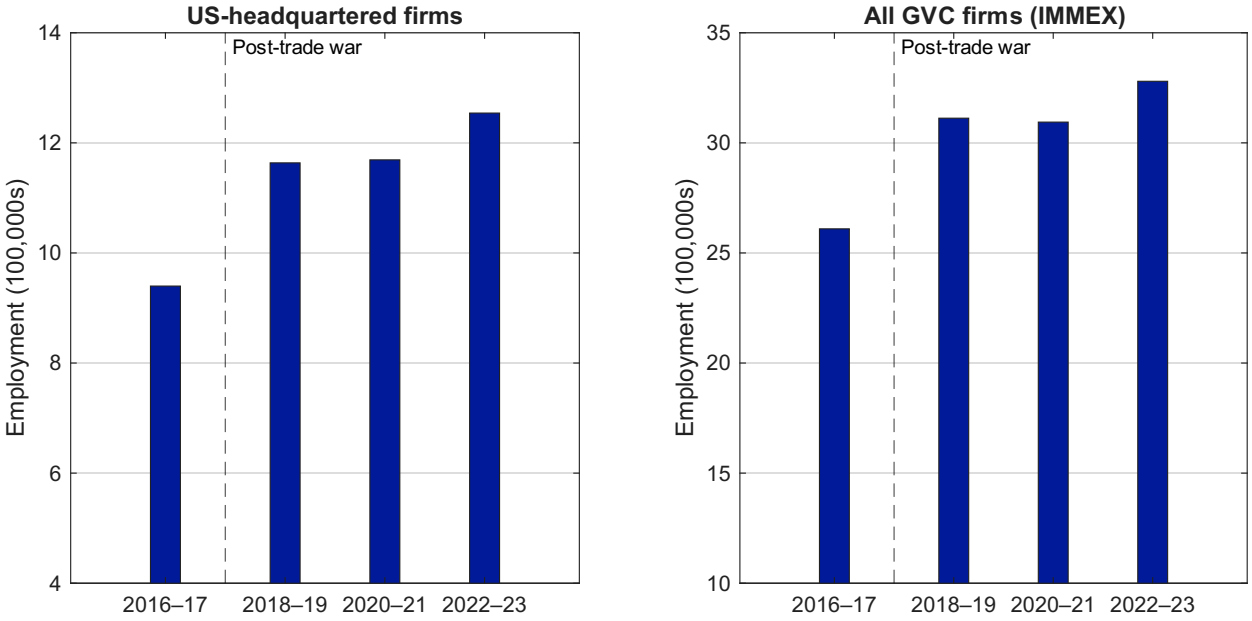


Figure 1: Manufacturing Employment accounted by U.S. Firms in Mexico

PEME database, INEGI. Within PEME, IMMEX firms and US-owned IMMEX firms are identified via their tax identifiers. The figure plots the total employment accounted by firms whose ultimate owner headquartered in the US (left) and the total employment accounted by all IMMEX firms.

I construct firm-level trade policy exposure measures based on pre-shock product-destination portfolios at the six-digit HS level. Exploiting the abrupt and large-scale nature of the US tariff shock, I analyze within-firm outcomes in an event study framework before and after the tariffs, controlling for aggregate, industry, and firm-specific shocks. The results confirm that the tariffs significantly increased Mexican firms' exports to the U.S., consistent with earlier findings (Utar et al. 2023).[2] While the year-by-year analysis shows an impressive and robust export growth, it leaves open the question of whether this expansion reflected a genuine increase in domestic production or was largely driven by imports with limited domestic value added.

Crucially, this paper shows that the US trade policy shift against China not only boosted Mexican firms's exports but also generated significant increases in domestic production and employment.

[2]Focusing on firms' trade, the positive effect of the US-China trade war on the third-country firms is also shown by Rotunno et al. 2023 and Chen et al. 2025 among others.

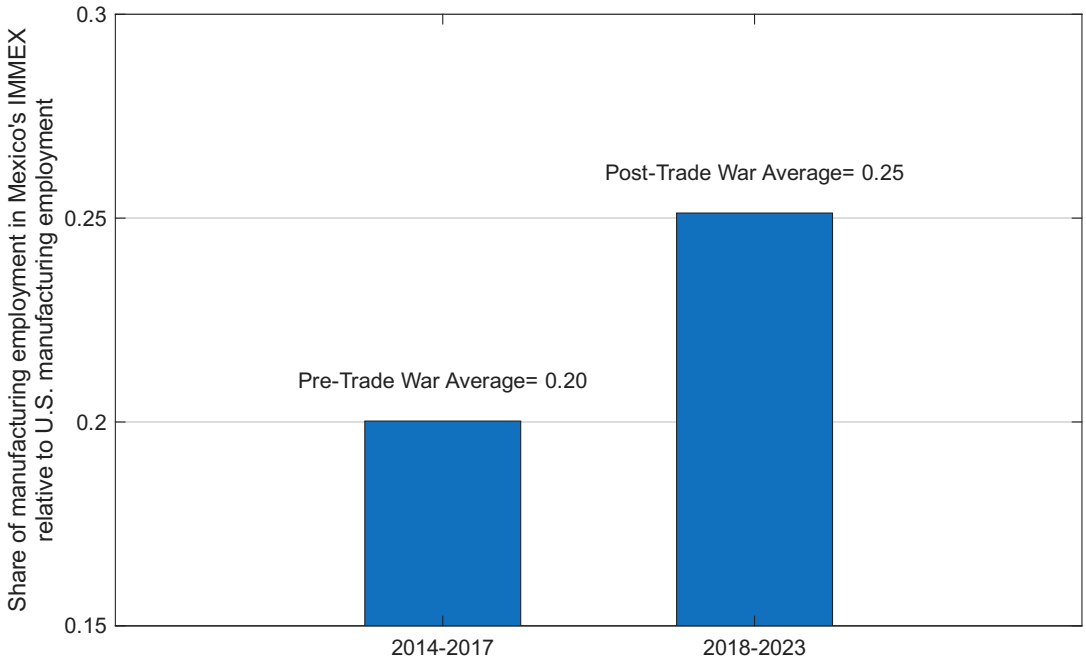


Figure 2: Mexico's Manufacturing GVC Employment Relative to U.S. Manufacturing

PEME database (trade-active manufacturing firms), INEGI. IMMEX firms within PEME are identified via their tax identifiers. Bars show the average share of employment accounted for by IMMEX firms in PEME relative to U.S. manufacturing employment. U.S. manufacturing data are from the Federal Reserve Economic Data (FRED), Federal Reserve Bank of St. Louis. Author's calculations.

Further, this manufacturing expansion was driven by subsidiaries and affiliates of firms headquartered in the United States and other major economies—suggesting that North American manufacturing, as a whole, responded in ways that may have partially offset the intended reshoring of production to the United States.

Recent studies highlight that U.S. dependence on Chinese supply chains often persisted through third-country trade flows, raising questions about whether tariff-induced trade diversion translated into domestic production gains (Alfaro and Chor 2023; Freund et al. 2024; Garred and Yuan 2025; Gopinath et al. 2025). This paper provides direct causal evidence that the 2018–19 U.S. tariffs on China significantly increased manufacturing output in Mexico, measured at factory prices, and is the first to show at the firm level that these tariffs boosted North American production.

Although US policymakers aimed to revitalize domestic manufacturing through its trade policy

shift against China, recent research finds no measurable impact on US output or employment (Flaaen and Pierce 2024; Autor et al. 2024). Instead, the same policy shift contributed to manufacturing employment and output gains just across the southern border, as multinational firms reallocated production within their supply chains. This emphasizes how the intended effects of trade policy can differ from its actual outcomes in an integrated global economy.

A central reason for this divergence is that trade is highly concentrated in the hands of large multinational enterprises. Handley et al. (2025) show that the 2018-19 tariffs disproportionately fell on the largest firms accounting for more than 80% of U.S. exports, while Huang et al. (2023) emphasize the role of complex global value chain linkages in transmitting trade shocks. Consistent with these findings, Utar et al. (2023) show that multinationals played a central role in channeling the spillovers of the U.S.–China trade war to Mexico, in line with Flaaen et al. (2020), who highlight tariff-jumping strategies among MNEs to circumvent import restrictions.

Building on this literature, this paper contributes new evidence by showing that subsidiaries of foreign-headquartered firms were at the center of the U.S. trade-policy-induced manufacturing growth in Mexico and highlights how MNEs' cross-country production networks shape the way trade policy shocks are transmitted across borders.

2 Institutional Background and Data

2.1 The Creation of Mexico's Export Platform–IMMEX

Participation in global value chains has been a longstanding and crucial economic development strategy pursued by Mexico. In line with this objective, the Maquiladora Industry was established in the US-Mexico border region as one of the world's first export processing zones under the Border Industrialization program in 1965. Over time, the maquiladora industry has transitioned from consisting of predominantly labor-intensive assembly plants owned by foreign MNEs to encompass more advanced manufacturing processes. China's accession to the World Trade Organization (WTO) and the subsequent rise in Chinese imports had a profound impact on the maquiladora in-

dustry, particularly in traditionally labor-intensive sectors such as apparel and toys. At the same time, however, the increased competition with China, spurred a shift within the maquiladora sector towards more advanced industries, like chemical manufacturing, machinery, and automotive products (Utar and Ruiz, 2013).The majority of establishments operating under the maquiladora program were owned by US-based multinationals (MNEs) and enjoyed the privilege of importing inputs, machinery, and equipment used in production without tariffs long before NAFTA took place. In 2005, 91% of capital equipment investment in maquiladoras originated from the US, with Canada, Switzerland, the Netherlands, and Japan each holding a 1% share (Utar and Ruiz, 2013).

Mexico had another export promotion program called the Program for Temporary Imports to Promote Exports (PITEX), which was established in 1990. This program aimed to provide domestic producers, who met certain criteria, with similar trade facilitating benefits as those enjoyed by maquiladoras. PITEX plants were typically located in the older industrial belt in central and southern Mexico, while maquiladoras were more prevalent in states along the US-Mexico border.[3] Recognizing the shared goal of facilitating Mexico's integration into global value chains, the Ministry of Economy merged the Maquiladora and PITEX programs in 2007, resulting in the creation of a new program called the Maquiladora Manufacturing Industry and Export Services, or simply, IMMEX.

As the IMMEX program is designed to support firms integrated into GVCs by reducing transaction costs on inputs not intended for domestic consumption, any establishment involved in GVCs has an incentive to officially register under the IMMEX directory to benefit from what the program offers. These include a waiver of the 16 percent value-added tax typically levied on all purchases, including imported inputs and capital equipment, substantially reduced custom processing fees, and the option to defer tariff payments on non-NAFTA inputs until the time of re-export.

To qualify for IMMEX, firms must either maintain an annual export value of at least 500,000 USD or derive at least 10 percent of their revenue from exports. In 2017, IMMEX firms accounted for

[3] By 2006, all auto assembly plants and the majority of auto part suppliers were registered under the PITEX program (De La Cruz et al., 2011).

84 percent of Mexico's total exports and 64 percent of its imports.

2.2 The US-China Trade War

In April 2017, the United States initiated an investigation under Section 232 of the Trade Act of 1962 to determine whether steel and aluminum imports constituted a national security threat. Turning specifically to China, in August 2017, the US launched another investigation under Section 301 of the Trade Act of 1974 to assess whether China's laws, policies, and trade practices were discriminatory and harmful to US intellectual property rights, innovation, or technology development. These investigations concluded in early 2018, finding that steel and aluminum imports posed a national security threat and that the Chinese government engaged in unfair trade practices that harmed US intellectual property and innovation.

In March 2018, the US imposed steel and aluminum tariffs under Section 232, prompting China to retaliate in April 2018. That April, both the US and China announced respective $50 billion lists of Chinese and American products under consideration for 25 percent tariffs. The actual implementation of tariff escalations between the US and China began in July 2018 and continued until September 2019, unfolding in five phases that included additional lists of goods along the way. In December 2019, the US and China canceled a planned sixth wave of tariffs in anticipation of an agreement. The two parties signed an agreement in January 2020 to halt further tariff escalations. Under this agreement, which entered into force on February 14, 2020, China committed to purchasing more US goods. However, most existing tariffs remained in place as of 2022, except for a few sets of US goods removed from China's retaliatory tariff list during 2020–21.[4]

Tariff Escalation between the US and Mexico

Initially, the US government granted an exemption to Mexico, along with Canada and the European Union, from the Section 232 tariffs imposed on steel and aluminum products. However, this exemption was lifted in June 2018. In response to these steel and aluminum tariffs, Mexico imposed

[4]Bown and Kolb (2021) provide a comprehensive timeline of the events. See also Fajgelbaum and Khandelwal (2021) for an excellent review of the literature on the economic impacts of the US-China trade war.

a series of tariffs on some US products, including a few steel and aluminum items, farm products, pork, cheese, apples, potatoes, and certain beverages like bourbon. The trade flow impacted by these retaliatory measures amounted to approximately $1.4 billion. Together with the Section 232 tariffs on Mexico, the total US-Mexico trade flow affected by the trade war was $3 billion, minor compared to the US-China trade flow impacted by the trade war, which was a staggering $450 billion. In May 2019, Mexico removed the retaliatory tariffs it had imposed on imports from the US following the US's removal of the Section 232 tariffs targeting Mexico.

While this study focuses specifically on the impact of the US tariffs on China on Mexican manufacturing output and employment, the empirical strategy will control for potentially confounding effects of China's retaliatory tariffs as well as tariff escalation between US and Mexico by distinguishing firms that are most susceptible to these concurrent tariff changes.

3 Data

PEME, which is a representative survey of manufacturing firms that are active in international trade, links transaction-level customs data detailing export and import activities of Mexican firms with firm-level information on their production and employment. As a representative survey of trading firms, PEME naturally includes large firms; the average firm employs about 230 workers, but it also captures small and micro firms. Each firm-level record includes product codes, destination or origin countries, and transaction values reported in USD. Products are classified under the Mexican Import and Export General Tariff Act (TIGIE), which closely aligns with the Harmonized System (HS) at the six-digit level.

Firms' customs data are linked with the six-digit products and country pairs subject to newly imposed tariffs as part of the 2018–19 trade war. I employ the datasets of tariff changes on US imports and exports over 2018-2019 as assembled by Fajgelbaum et al. 2020 and updated by Fajgelbaum et al. 2021. The tariffs are aggregated at the six-digit HS level, which is the level of

detail that can be matched smoothly with TIGIE.[5]

Table 1 summarizes the estimation sample which consists of exporting firms in the PEME sample as of 2017. About 6,100 exporting firms provided 3.5 million jobs in 2017.

Using firms' unique tax IDs from the Ministry of Economy's IMMEX directories, I identified the country of the global ultimate parent company for firms operating under the IMMEX export platform through D&B's Hierarchy and Connections data, and merged this information with the PEME database. Panel B of Table 1 presents firm characteristics separately for these GVC firms, which underlie the spillover effects of the US–China trade war as shown in Utar et al. (2023).

[5]To calculate the tariff changes in HS 6-digit goods, I use the share of each HS 10-digit good per source country in total US HS 6-digit import in the pre-trade war year, 2017, as a weight to collapse the US import tariffs data into the HS6 level. Similarly, I calculate the share of each HS 8-digit good per country in total US HS 6-digit export as a weight to collapse the retaliatory tariff data into the HS6 level. See Appendix E.

Table 1: Summary Statistics-Estimation Sample

	(1)	(2)	(3)	(4)	(5)
Variable	**Mean**	**SD**	**p25**	**p75**	**Obs**
Panel. A					
All 2017 Exporting Firms (PEME)					
Log Employment	5.44	1.46	4.51	6.39	52,198
Log Value of Production	16.65	1.86	15.49	17.92	51,865
Log Value of Exports	15.09	2.82	13.38	17.08	50,616
Log Value of Imports	15.27	2.59	13.69	17.08	49,806
Number of Plants	1.55	3.85	1.00	1.00	51,679
Panel. B					
IMMEX (GVC) Firms					
Log Employment	5.47	1.53	4.47	6.50	37,391
Log Value of Production	16.62	1.90	15.42	17.92	37,209
Log Value of Exports	15.62	2.60	14.06	17.45	36,872
Log Value of Imports	15.53	2.53	14.01	17.29	36,465
Number of Plants	1.46	1.82	1	1	36,874

Notes: Manufacturing exporters as of 2017 over 2014-2023. Values are expressed in 2019 constant USD. Employment is measured in number of workers; number of plants is reported in levels.

4 Empirical Strategy

To identify the causal impact of the U.S.–China trade war on Mexican manufacturing firms, I construct firm-level tariff exposure measures from firms' six-digit product level exports and imports in the pre-shock year 2017. I then estimate how firms' outcomes evolved differentially across years according to their susceptibility to the trade shock.

4.1 Firm-Level Exposures to the US-China Trade War

4.1.1 US Import Tariffs on China

The analysis centers on the 2018–19 US import tariffs imposed on China, which encompassed a total value of $350 billion worth of US imports from China and estimated to cost US consumers and producers $4.6 billion per month (Fajgelbaum and Khandelwal, 2021; Amiti et al., 2019). Let $USIT^{CN}$ represent the set of HS 6-digit products subject to the 2018–19 US import tariffs on China and let $\Delta\tau_j^{USIT^{CN}}$ denote the change in the US import tariff rate for HS 6-digit good j from China, measured in percentage points and expressed as a decimal.[6] Additionally, let X_{ij}^{2017} be the value of exports of Mexican firm i in good j in year 2017. Then, the level of exposure of firm i in Mexico to the increased US import tariffs on Chinese goods can be determined as follows:

$$T_i^{\text{US}\to\text{CN}} = \frac{\sum_{j\in\text{USIT}^{\text{CN}}} X_{ij}^{2017} \times \Delta\tau_j^{\text{USIT}^{\text{CN}}}}{\sum_j X_{ij}^{2017}} \tag{1}$$

Here, X_{ij}^{2017} denotes firm i's exports of good j in 2017, and T_i^{US-CN} measures the tariff-weighted share of targeted goods in the firm's overall exports. Equation 1 assumes that firms whose 2017 export portfolio was concentrated in targeted goods are treated regardless of export destinations. While most exports from a typical Mexican firm are destined for the United States (see Table 1), equation 2 does not distinguish export destinations. This is because the increased cost of Chinese goods entering the US market is expected to make the US more attractive to Mexican exporters relative to other markets. As a result, manufacturing firms that previously produced and exported affected goods to non-US markets are potentially treated by the increased appeal of the US market. Consider two manufacturing exporters with identical export product portfolios and the same level of $T^{\text{US}\to\text{CN}}$, say 0.20. Suppose one sells 50 % of its exports to the US while the other sells 100 %. The firm exporting entirely to the US is treated via its full customer base, whereas the other firm is treated via only half of its customer base. At the same time, the firm selling 50% of its export

[6] Since the tariff escalations occurred in multiple phases between 2018 and 2019, I use the increased tariff rates valid as of December 2019.

capacity to the US may have greater flexibility to expand its US exports without going through costly adjustment of its production capacity. Thus, when focusing on firms' trade outcomes, it is important to adopt a broader definition of treatment.

However, firms with an established customer base in the US are more likely to respond to the costlier entry of Chinese goods to the US in terms of expanding its capacity. To account for this in the analysis of firms' output and employment outcomes which is the focus of this paper, exposure to US tariffs targeting China is constructed specific for the US market, as follows:

$$T_{i,\text{US}}^{\text{US}\to\text{CN}} = \frac{\sum_{j\in\text{USIT}^{\text{CN}}} X_{ij}^{2017,US} \times \Delta\tau_j^{\text{USIT}^{\text{CN}}}}{\sum_j X_{ij}^{2017}} \tag{2}$$

where $X_{ij}^{2017,US}$ denotes firm i's US exports of good j in 2017.[7]

When Equation 2 is used as the treatment variable, the analysis is restricted to firms that were exporting to the US in 2017, defined as those for which at least 30% of export revenue was generated in the US market. Table D.1 in the Appendix shows that firms which had exported little or nothing to the US but otherwise maintained an export portfolio concentrated in the targeted goods began to redirect exports toward the US market. By restricting the sample to US exporters with a sufficiently large share of exports going to the US, the likelihood of including manufacturing firms that produce targeted goods but primarily export to non-US destinations in the control group is minimized.

To account for confounding effects of firms' exposure to concurrent trade policy changes, namely China's retaliatory tariffs and the US–Mexico tariff escalation under Section 232, I construct firm-specific measures as described in Appendix Section B.1. I additionally take into account the potential impact on firms via the input channel and construct exposure measures based on the importance of targeted goods in firms' imports from China and the US.

[7] One can also use the measure described in Equation 1 and scale it by the firm's pre-shock U.S. export share, thereby assigning greater weight to U.S.-oriented firms. This alternative approach yields similar results.

4.2 Empirical Model

To identify the causal effect of increased U.S. import tariffs targeting China on Mexican firms, I use the firm-level trade policy exposure measures described above, constructed for all firms with positive exports in 2017 and at least one employee. I examine the impact of the trade policy shift on firms' trade, production, and employment trajectories using an event study framework covering the period from 2014 to 2023. The analysis begins in 2014 to establish a counterfactual baseline four years prior to the onset of the trade war and extends through 2023 to capture the long-term effects.

Identifying the Impact of the US-China Trade War on Mexican Firms

Let Y_{ijt} be firm i's outcome variable in industry j at time t, for example, the log value of employment. To examine the effects of the US tariffs targeting China on manufacturing firms in Mexico, the following generalized difference in differences (DD) equation with two sided fixed effects is formed:

$$Y_{ijt} = \beta_0 + \sum_{\substack{h=2014 \\ \neq 2017}}^{2023} \alpha_h \mathbb{1}_{h=t} \times T_i^{\text{US}\to\text{CN}} + P_{it} + \eta_{jt} + \phi_i + \varepsilon_{it} \tag{3}$$

In equation 3, the continuous firm-level treatment variable, $T_i^{\text{US}\to\text{CN}}$ is interacted with year indicators to examine the yearly evolution of the impact of the recent US tariff hikes targeting China on firm outcomes in Mexico. Using 2017 as the baseline year, we track exporting manufacturing firms through 2023 to assess the effects of the trade war, while also looking backward until 2014 to identify any pre-existing trends.

The vector P_{it} includes controls for the concurrent trade policy changes and tariff exposures via their inputs. In the baseline specification, it includes interactions of the US-Mexico tariff escalation exposures, namely T_i^{US-MEX}, and T_i^{MEX-US} with year fixed effects. This allows for differential time trends for those firms susceptible to temporary US tariffs on Mexican goods and those firms whose imports are affected by Mexico's retaliatory tariffs on US goods. P_{it} further accounts

for differential trends among firms impacted by US tariffs on China through their input use and controls for firms' exposure to China's retaliatory tariffs.

The equation also includes η_{jt} which denotes three-digit industry by time fixed effects to control for potentially confounding time trends that may vary across narrow industries. This essentially means that the tariff effect is identified across firms within three digit industries as any industry variation of tariffs are contained by η_{jt}.

The time-invariant or relatively persistent firm characteristics such as management skills, production technology, and line of business are controlled with firm fixed effects, ϕ_i. This means that coefficients are estimated from within-firm variation over time as the influence of any observed or unobserved initial firm characteristic that may be correlated with firm i's future exposure to the change in the US trade policy is absorbed by firm fixed effects. The error term ε_{it} is assumed to have a zero mean, and we allow for correlation within firms by clustering standard errors at the level of the firm, which is the level at which our treatment variables vary (Abadie et al., 2023).

In Equation 3, the continuous firm-level tariff exposure variables are interacted with time indicators to analyze the yearly evolution of the trade war's impact on different components. Using 2017 as the baseline year, exporting manufacturing firms are tracked through 2023 to assess the effects of the US tariffs, while also looking backward until 2014 to identify any pre-existing trends.

To estimate the average treatment effect rather than the year-by-year evolution, Equation 3 is modified by interacting firm-specific trade exposures with a post-shock indicator, PostTW_t, which equals 1 for years 2018 and onward, and 0 otherwise.

5 Production and Employment Consequences of the US Trade Policy Shift Against China

This section examines the impact of the U.S.–China trade war on Mexican firms' exports. Complementing the evidence provided in Utar et al. (2023) based on customs data, it shows that U.S. tariffs imposed on Chinese goods during the trade war had a significant positive effect on Mexican

manufacturing firms' exports to the U.S. It then addresses the key question of whether this positive trade response also translated into real effects on firm-level manufacturing output and employment.

5.1 US Tariffs on China Boosted Mexican Manufacturing Firms' Exports

To show the positive effect of US tariffs targeting China on manufacturing firms' exports to the US, Equation 3 is estimated with the dependent variable being firms' US exports (in log).



Figure 3: Impact of US Tariffs Targeting China on Manufacturing Firms' Exports

Notes: Estimation of equation 3. The dependent variable, as indicated in the legend, is the natural logarithm of firms' value of exports. PEME firms exporting as of 2017, covering the period from 2014 to 2023, with N=46,453. The regression controls for firm fixed effects, three-digit-industry-by-year fixed effects and concurrent trade policy changes. The y-axis displays the yearly DD coefficient estimates corresponding to $\mathbf{T_i^{US \to CN}}$, along with 95% confidence intervals.

Figure 3 presents the yearly DD coefficient estimates for the continuous firm-level treatment variable, $\mathbf{T_i^{US \to CN}}$ and demonstrates that increased US tariffs on Chinese imports significantly boost manufacturing firms' exports to the US. The DD coefficient estimates are statistically indistinguishable from zero at the 95% level prior to the onset of the trade war, suggesting no major

differential pre-trends among exposed firms. The estimates show gradual increase relative to the 2017 values until 2023 except for a temporary drop during the COVID shock in 2020. By 2023, the estimate is 1.71 and highly statistically significant. A manufacturing firm located at the 90th percentile exposure faced 25% increase in tariffs, and another one at the 10 percentile exposure faced 7.7% increase (see Table A.1). Comparing these two firms indicates a 34% increase in US exports ($e^{1.71\times0.17}$).

Figure C.1 in the Appendix presents the year-by-year impact on firms' total exports and imports. It shows that US tariffs targeting China had a significant positive effect on firms' total exports. In 2023, the estimated effect on total exports is 1.67, which is similar in magnitude to the effect on US exports. Similarly, firms' total imports also responded positively in response to the increase in US tariffs on China, with the estimated coefficient reaching 1.08 by 2023. The visibly stronger response in total exports in comparison to imports suggest higher Mexican value-added which I will directly address below.

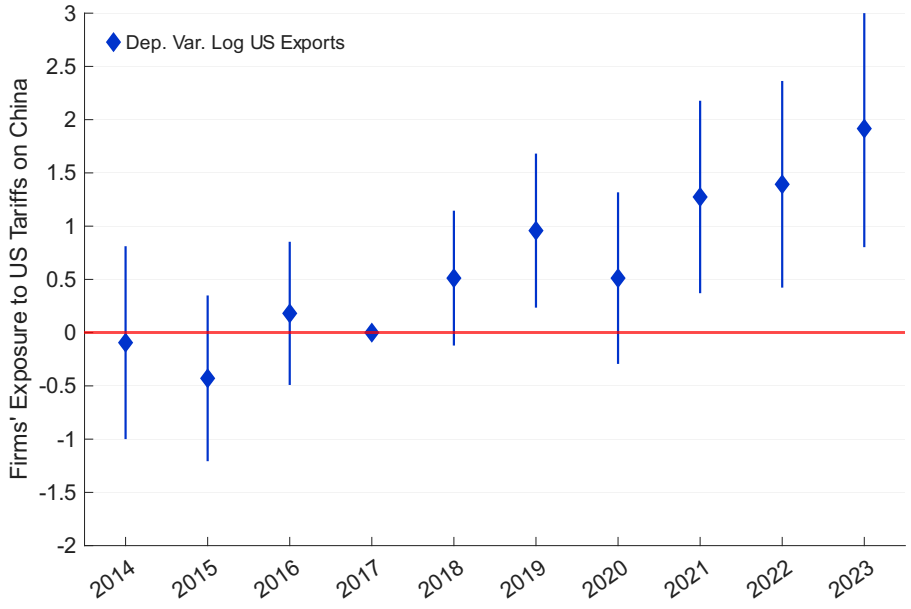
To take into account possible transshipment of Chinese goods, I also estimate the effect on US exports net of Chinese imports, defined as follows: $NetUSX_{it}^{MCN} = \sum_{j\in \mathtt{J}_{it}^{USX}}[X_{ijt}^{US} - M_{ijt}^{CN}]$ Here, $\mathtt{J}_{it}^{USX}$ denotes the set of six-digit HS products of firm i exported to the US at period t. $NetUSX_{it}^{MCN}$ is obtained by subtracting any imports in good j from China from firm i's exports of good j to the US at period t in values. Figure C.2 shows such transshipment does not explain the export growth.

These results show that a significant positive impact of US tariffs targeting China on Mexican firms' exports as documented with customs data (Utar, 2023) also holds in INEGI's representative PEME database.

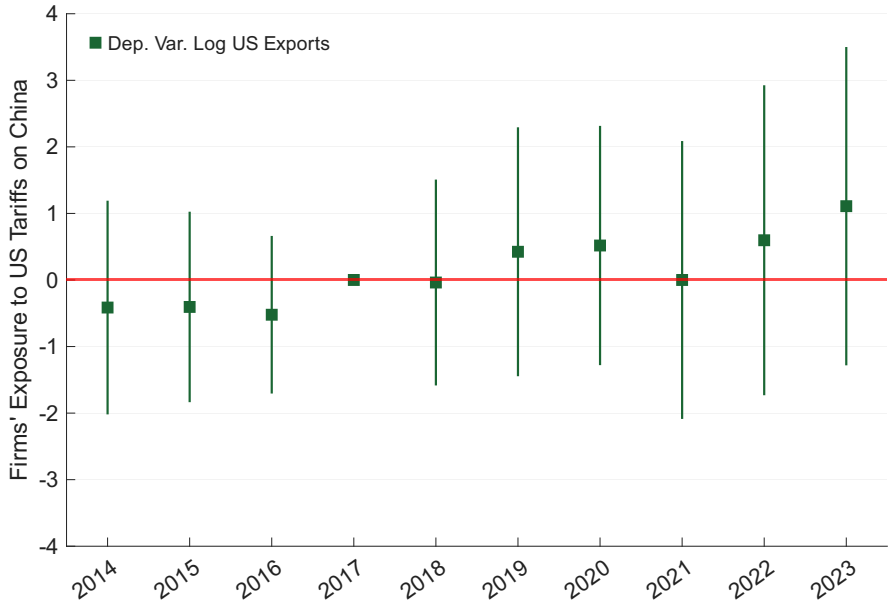
Based on customs data, Utar et al. 2023 show the positive impact of the US trade policy shift was primarily attributable to GVC firms operating under Mexico's export platform program, IMMEX. To distinguish IMMEX firms from others, I estimate Equation 3 separately among GVC firms and other firms. Figure 4 shows the impact on US exports separately for IMMEX firms in PEME and for other firms. The results show that the US trade policy shift has a significant positive effect on GVC firms with the estimated effect reaching 1.92 by 2023 while the impact on other manufac-

turing firms remains statistically insignificant throughout 2018-2023. The coefficient estimate of 1.92, together with the 17% exposure difference, indicate a 39% increase in firms' US exports. These findings show that a key driver of the positive export effect is Mexico's IMMEX program, which hosts export-oriented MNEs.

Table C.1 in the Appendix presents the average treatment effect across various firms' trade outcomes separately for firms in IMMEX which hosts the multinationals that cater the US market, and for other firms. These results again show that the benefits of the US-China trade war for Mexico's exports were channeled through foreign MNE-led GVC reallocation toward Mexico.



(a) GVC Firms (IMMEX) in PEME



(b) Other Manufacturing Firms

Figure 4: Impact of US Tariffs Targeting China on Manufacturing Firms' Exports

Notes: Estimation of equation 3. N=35,787 (IMMEX firms) N=10,666 (Others). The dependent variable in both figures is the natural logarithm of firms' value of US exports. All regressions control for firm fixed effects, three-digit-industry-by-year fixed effects and concurrent trade policy changes. The y-axis displays the yearly DD coefficient estimates corresponding to T_i^{US-CN}, along with 95% confidence intervals.

I now turn to the effects on manufacturing production.

5.2 How US Tariffs targeting China Stimulated Manufacturing Output in Mexico

Having shown that the trade war increased Mexican exports through foreign MNE-led reallocation, I now examine its effects on domestic manufacturing output which is measured as the value of production evaluated at the factory prices.

I estimate the effect of U.S. trade policy on manufacturing output both for all 2017 exporters and for the subset of 2017 U.S. exporters, since expansion is more likely among firms with established U.S. networks. Accordingly, the U.S.-market-specific exposure is used as the treatment variable when estimating effects among U.S. exporters. Figure 5 presents these results.

The results show no major pre-trends in manufacturing output before the trade war in either group. With the shift in U.S. trade policy against China, manufacturing output, valued at factory prices, increases, particularly among U.S. exporters. The production response strengthens notably after the onset of COVID-19. In 2021, the coefficient estimate for U.S. exporters is 0.8, significant at the 1% level. Given a 0.17 difference between the 90th and 10th percentiles of tariff exposure, this estimate implies that a firm at the 90th percentile experienced a 15% larger expansion in output relative to a firm at the 10th percentile, compared to their 2017 production levels. The response peaks in 2021, followed by a modest slowdown in 2022–23, but by 2023 the effect remains precisely estimated and corresponds to a 13% increase in output based on the same exposure difference.

Figure 6 presents the same analysis for the subset of IMMEX firms, many of which are owned by foreign MNEs or operate as domestic affiliates of MNEs. The magnitude of the effects indicates that GVC firms were the key drivers behind the full-sample results. Unlike in Figure 5, the distinction between exporters and U.S. exporters is less pronounced here. This is consistent with the fact that GVC firms, through their extensive MNE networks, face lower costs of connecting to U.S. customers. In 2021, the coefficient estimates are 0.7 for all exporters and 1.0 for U.S. exporters, both

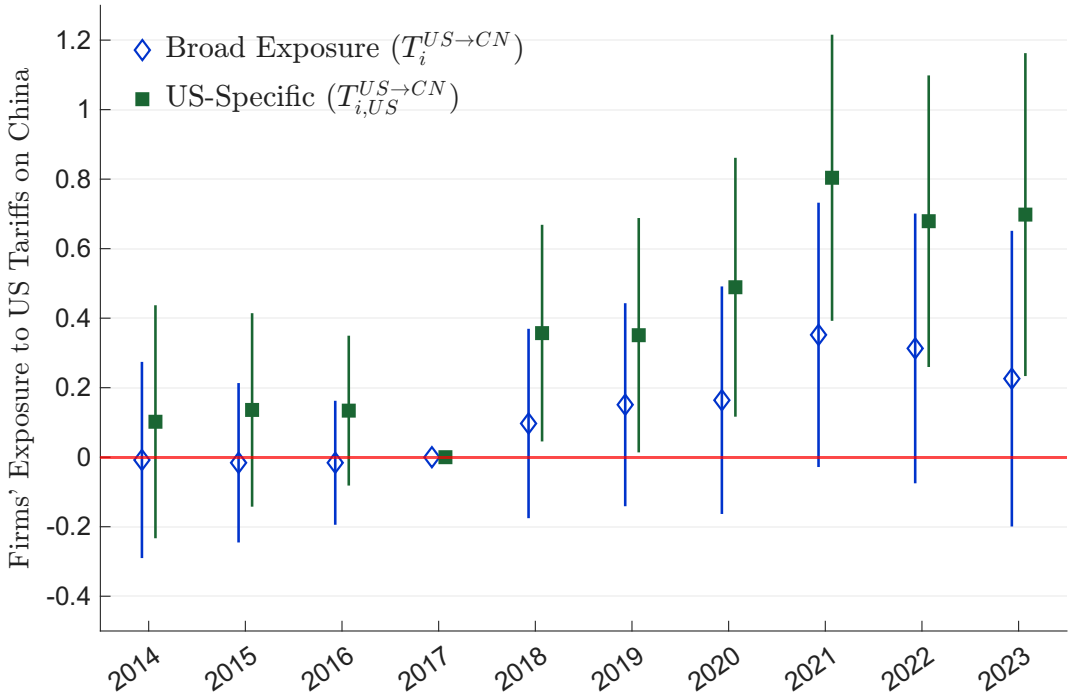


Figure 5: Impact of US Tariffs on Chinese Goods on Firms' Production

Notes: The dependent variable is the natural logarithm of firms' value of production. Equation 3 is estimated using the treatment variable $T_i^{\text{US}\to\text{CN}}$ among 2017 exporters ($N = 51{,}838$), and using the treatment variable $T_{i,\text{US}}^{\text{US}\to\text{CN}}$ among 2017 U.S. exporters ($N = 41{,}914$). All regressions include firm fixed effects, industry-by-year fixed effects, and controls for concurrent trade policy changes. The y-axis displays yearly difference-in-differences coefficient estimates with 95% confidence intervals.

significant at the 1% level. Given an exposure difference of 0.17, these estimates imply production increases of 12.6% and 18.5% among all exporters and U.S. exporters, respectively.

By linking firms in PEME to the IMMEX database, I also conduct a plant-level analysis using the same firm-level exposures to the trade shock. The plant-level database provides information on plant location and more detailed information on each establishment's main manufacturing activity. Leveraging this additional information, the plant-level regressions control for year-by-year shocks that may vary with plant location (at the state level as well as whether the plant is in a border municipality). They also include four-digit–by–year fixed effects and firms' exposure to contemporaneous trade shocks. Results on plant-level sales of own manufactured goods (total, foreign, and domestic) are presented in Figure 7.

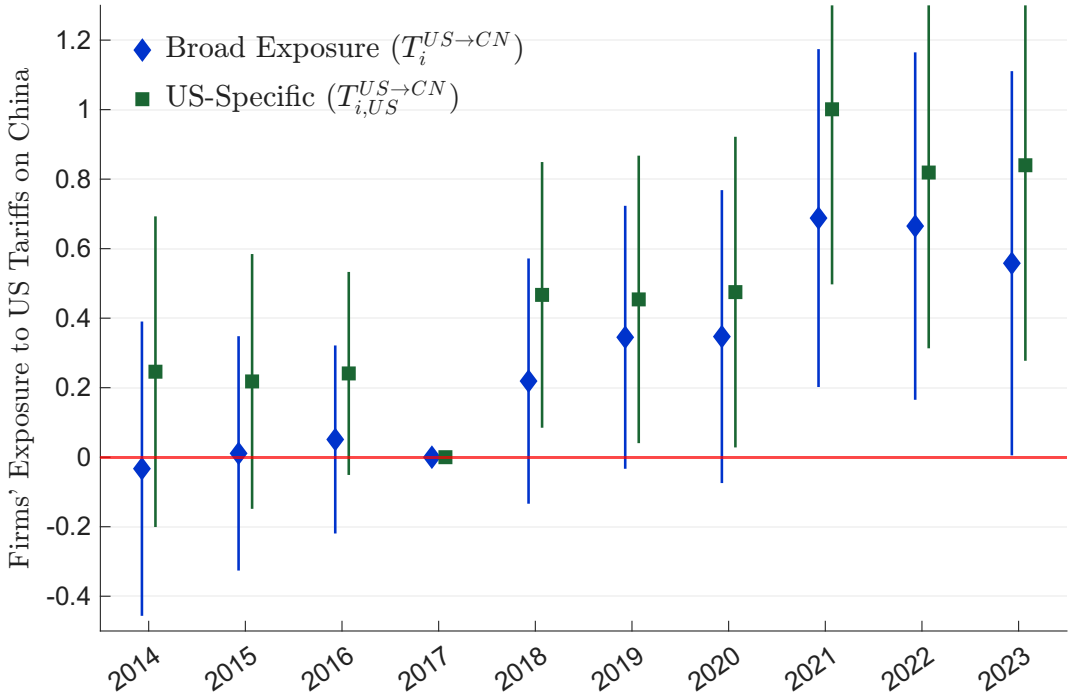
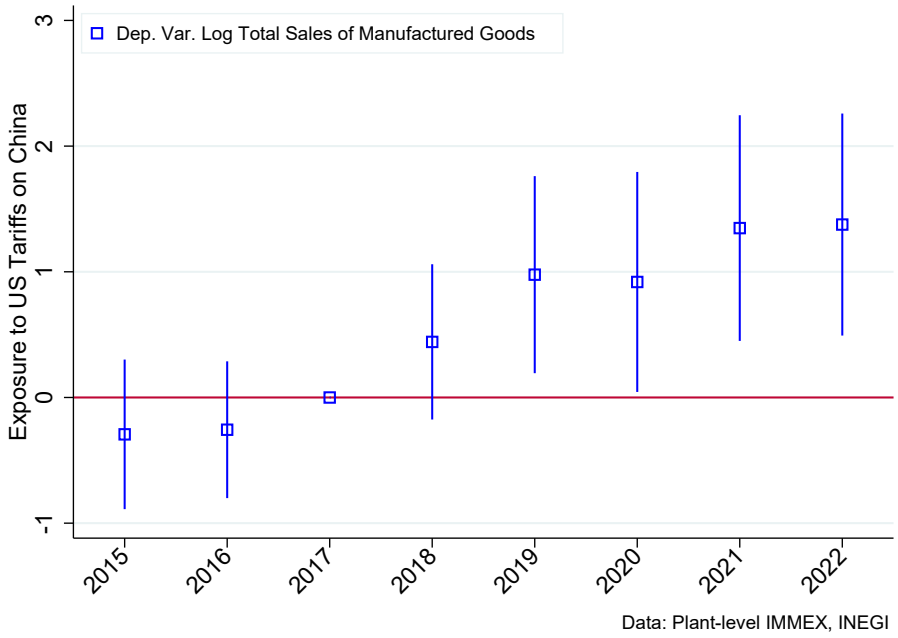


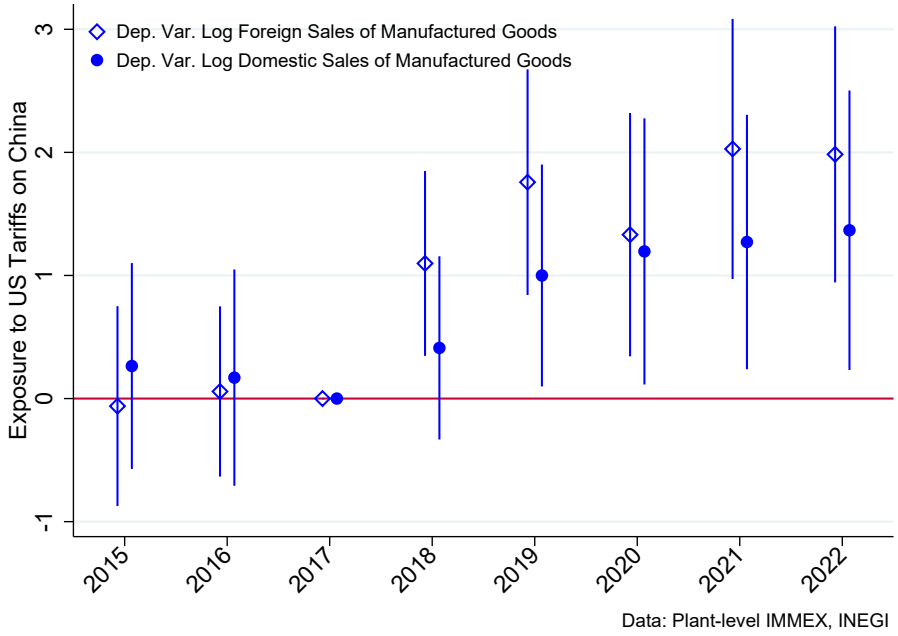
Figure 6: Impact of US Tariffs on Chinese Goods on GVC Firms' Production

Notes: The dependent variable is the natural logarithm of firms' value of production. Equation 3 is estimated using the treatment variable $T_i^{\text{US}\to\text{CN}}$ among 2017 exporters ($N = 37{,}202$), and using the treatment variable $T_{i,\text{US}}^{\text{US}\to\text{CN}}$ among 2017 U.S. exporters ($N = 33{,}418$). All regressions include firm fixed effects, industry-by-year fixed effects, and controls for concurrent trade policy changes. The y-axis displays yearly difference-in-differences coefficient estimates with 95% confidence intervals.

These findings show that GVC reallocation to Mexico not only boosted exports but also increased Mexican value-added.



(a) Plant-level Sales of Manufactured Goods



(b) Plant-level Foreign versus Domestic Sales of Manufactured Goods

Figure 7: Impact of US Tariffs on Chinese Goods on Sales of Manufactured Goods

Notes: All regressions control for plant fixed effects, four-digit industry-by-year fixed effects, state-by-year, border-by-year fixed effects and firm-level controls for concurrent trade policy changes. The y-axis displays the yearly DD coefficient estimates corresponding to $\mathbf{T_i^{US \to CN}}$, along with 95% confidence intervals. Standard errors are clustered at the firm level.

5.3 Firms opening up new plants

How are manufacturing firms able to ramp up their production so quickly? Since 2018, major multinational firms—including Bosch, LEGO, Continental, Volkswagen, and Toyota, all of which operate under Mexico's IMMEX program—have expanded their production capacity in Mexico through a series of new investments, as documented in business media reports. A substantial share of these investments involved the establishment of new manufacturing plants.

Figure 8 presents the effect of the US trade policy shift on the number of manufacturing plants operated by firms. The results show a clear shift after 2018, consistent with a reallocation of production capacity toward Mexico in response to the U.S.–China trade conflict.

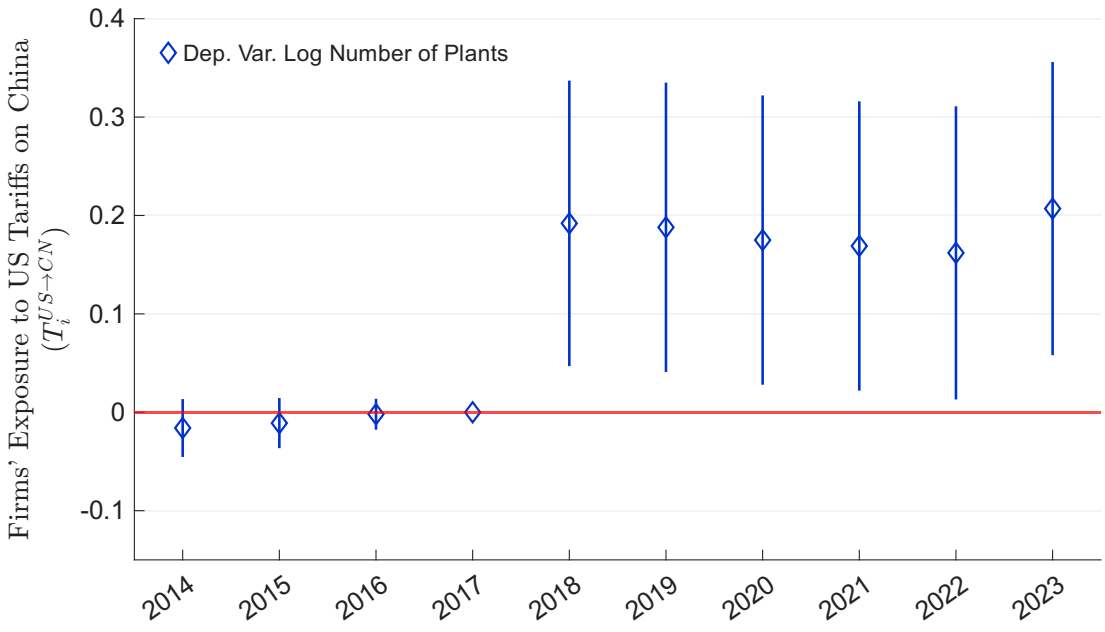


Figure 8: Rising US import tariffs on China spur plant openings in Mexico

Notes: Estimation of equation 3 with the dependent variable being the natural logarithm of number of plants a firm has. PEME sample firms exporting as of 2017, covering the period from 2014 to 2023, N=51,651. All regressions control for firm fixed effects, industry-by-year fixed effects and concurrent trade policy changes. The y-axis displays the yearly DD coefficient estimates corresponding to $\mathbf{T_i^{US \to CN}}$, along with 95% confidence intervals.

5.4 US Tariffs on China Create Manufacturing Jobs in Mexico

This section examines how the U.S.–China trade policy shift affected manufacturing employment in Mexico. While output expansion is often associated with job growth, the relationship is not mechanical, due to the potential of productivity gains or adoption of automation-intensive technology with limited labor absorption (Atkin et al. 2017; Diao, et al. 2025).

The year-by-year results on manufacturing employment are presented in Figure 9. The results show a significant and positive effect especially after the COVID-19 pandemic.

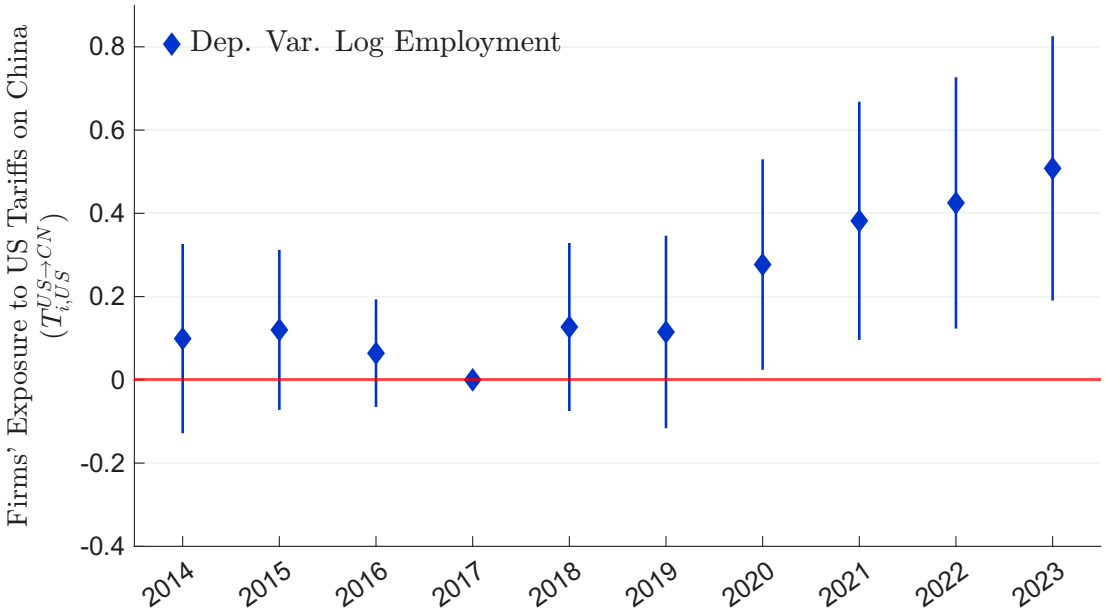


Figure 9: Impact of US Tariffs on Chinese Goods on Manufacturing Employment

Notes: Estimation of equation 3. The dependent variable is the natural logarithm of firms' employment. 2017 US Exporters, with N=42,171. All regressions control for firm fixed effects, three-digit industry-by-year fixed effects and concurrent trade policy changes. Robust SEs clustered at the firm level. The y-axis displays the yearly DD coefficient estimates corresponding to $\mathbf{T}_{\mathbf{i,US}}^{\mathbf{US\to CN}}$, along with 95% confidence intervals.

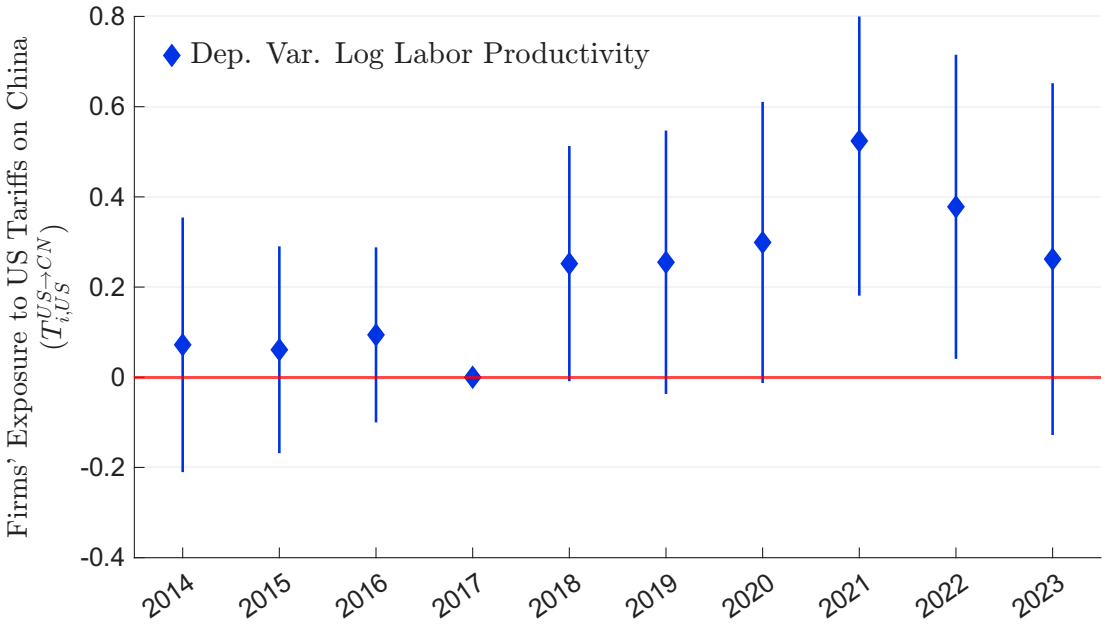


Figure 10: Impact of US Tariffs on Chinese Goods on Labor Productivity

Notes: Estimation of equation 3 among 2017 US exporters (N=41,902). The dependent variable is the natural logarithm of labor productivity. All regressions include for firm fixed effects, three-digit industry-by-year fixed effects and controls for concurrent trade policy changes. The y-axis displays the yearly DD coefficient estimates corresponding to $\mathbf{T}_{\mathbf{i,US}}^{\mathrm{US}\to\mathrm{CN}}$, along with 95% confidence intervals.

5.5 The Role of US-headquartered Firms in Creating Jobs in Mexico

Table 2 presents results from estimating Equation 3 among manufacturing firms whose ultimate headquarter located in the US. These results are obtained based on US-specific exposure (Equation 2) and conducted among US exporters as of 2017. The results show that the US MNEs significantly contributed to the overall manufacturing expansion due to the 2018–19 US trade policy shift.

Table 2: Protectionist U.S. Trade Policy Shift and Expansion of U.S. MNEs in Mexico

	(1) Log Production	(2) Log Employment	(3) Log Labor Productivity
$T_{i,US}^{US\to CN} \times 2014$	0.049	0.348	0.001
	(0.332)	(0.310)	(0.245)
$T_{i,US}^{US\to CN} \times 2015$	-0.156	0.194	-0.103
	(0.278)	(0.257)	(0.202)
$T_{i,US}^{US\to CN} \times 2016$	-0.078	0.084	-0.080
	(0.182)	(0.134)	(0.151)
$T_{i,US}^{US\to CN} \times 2018$	0.714**	0.296	0.466*
	(0.338)	(0.237)	(0.269)
$T_{i,US}^{US\to CN} \times 2019$	0.419	0.127	0.370
	(0.364)	(0.249)	(0.291)
$T_{i,US}^{US\to CN} \times 2020$	0.517	0.267	0.323
	(0.382)	(0.264)	(0.302)
$T_{i,US}^{US\to CN} \times 2021$	1.302***	0.551*	0.945**
	(0.449)	(0.293)	(0.395)
$T_{i,US}^{US\to CN} \times 2022$	1.134***	0.510*	0.725**
	(0.411)	(0.306)	(0.307)
$T_{i,US}^{US\to CN} \times 2023$	0.772	0.602*	0.293
	(0.473)	(0.349)	(0.414)
N	10,522	10,553	10,521
Firm FE	✓	✓	✓
3-digit Industry × Year FE	✓	✓	✓
Additional Trade Policy Controls	✓	✓	✓

Notes: Sample: US firms (global ultimate headquarter based in the US) that were exporting to the US as of 2017. Additional Trade Policy Controls include firms' exposures to the US-Mexico tariff escalation, retaliatory tariffs of China and the input channels as described in equations B.1-B.6. Robust standard errors are clustered at the firm level. [a], [b] and [c] indicate significance at the 1%, 5% and 10% levels, respectively.

6 Concluding Remarks

Evidence presented in this paper suggests that the sudden and sharp turn in U.S. trade policy against China—intended to boost U.S. manufacturing output and employment—did, in fact, boost manufacturing output and employment across the southern border.

TO BE CONCLUDED

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Appendix:

"Elsewhere in the Americas"

September 15, 2025

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Appendix Figures

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Figure C.2: Impact of US Tariffs Targeting China on US Exports Net of Chinese Imports

A Descriptive Statistics

Table A.1: Firm-Level Measures of Exposures to the Trade War

	(1) Mean	(2) SD	(3) P10	(4) P25	(5) P75	(6) P90	(7) N
All Exporters							
$T_i^{US \to CN}$	0.201	0.074	0.077	0.152	0.250	0.250	52,260
$T_{i,US}^{US \to CN}$	0.150	0.095	0.000	0.056	0.242	0.250	52,260
$T_i^{US \to MEX}$	0.003	0.022	0.000	0.000	0.000	0.000	52,260
$T_i^{MEX \to US}$	0.004	0.019	0.000	0.000	0.000	0.004	52,260
$T_i^{CN \to US}$	0.167	0.072	0.058	0.110	0.225	0.250	52,260
$IMUS_i^{US \to CN}$	0.103	0.084	0.000	0.019	0.175	0.224	52,260
$IMCN_i^{US \to CN}$	0.026	0.046	0.000	0.000	0.030	0.081	52,260
$IMUS_i^{CN \to US}$	0.081	0.071	0.000	0.015	0.132	0.183	52,260
GVC Firms							
$T_i^{US \to CN}$	0.203	0.072	0.087	0.157	0.250	0.250	37,440
$T_{i,US}^{US \to CN}$	0.169	0.086	0.014	0.117	0.245	0.250	37,440
$T_i^{US \to MEX}$	0.003	0.025	0.000	0.000	0.000	0.000	37,440
$T_i^{MEX \to US}$	0.005	0.021	0.000	0.000	0.000	0.006	37,440
$T_i^{CN \to US}$	0.166	0.072	0.059	0.108	0.225	0.249	37,440
$IMUS_i^{US \to CN}$	0.113	0.082	0.002	0.036	0.182	0.226	37,440
$IMCN_i^{US \to CN}$	0.026	0.043	0.000	0.000	0.032	0.078	37,440
$IMUS_i^{CN \to US}$	0.089	0.070	0.002	0.027	0.140	0.188	37,440

Notes: See Section 4.1 and Appendix Section B.1 for the definitions of these variables.

B Variable Construction

B.1 Firm-Level Controls for Concurrent Trade Policy Changes

Section 232 and Mexico's retaliation Before the US government targeted China specifically, Section 232 tariffs led to retaliation from Mexico, among other countries. To control for the potentially confounding effects of the brief US-Mexico tariff escalation, we separately construct firm-specific exposures to the US tariffs on Mexican products ($T_i^{\text{US}\to\text{MEX}}$) and Mexico's retaliatory tariffs on US products ($T_i^{\text{MEX}\to\text{US}}$).

To construct firm-level exposure to the increased US tariffs on Mexico, we focus on firms that, before the shock, were exporting goods to the US that will be subject to Section 232 tariffs:

$$T_i^{\text{US}\to\text{MEX}} = \frac{\sum_{j\in\text{USIT}^{\text{MEX}}} X_{ij}^{2017,US} \times \Delta\tau_j^{\text{USIT}^{\text{MEX}}}}{\sum_j X_{ij}^{2017}} \tag{B.1}$$

Since the Section 232 tariffs included other third countries, $T_i^{\text{US}\to\text{MEX}}$ does not cleanly identify the specific effects of US tariffs on Mexico but essentially functions as a robust control for the possible confounding effects of the Section 232 tariffs.

To measure the effect of the Mexico's retaliatory tariffs, we focus on firms that, before the shock, were importing goods from the US, which will later be subject to Mexico's retaliatory tariffs. Let $USRT^{MEX}$ be the set of HS-6 products subject to the retaliatory tariffs of Mexico, and $\Delta\tau_j^{USRT^{MEX}}$ measures the change in the Mexican import tariff rate for good j from the US in decimal points and let M_{ij}^{2017} be the value of firm i's imports of good j in 2017, and let $M_{ij}^{2017,US}$ denote firm i's imports of good j from the US. The firm-level exposure to the Mexican government's retaliatory tariffs is then given by the following:

$$T_i^{\text{MEX}\to\text{US}} = \frac{\sum_{j\in\text{USRT}^{\text{MEX}}} M_{ij}^{2017,US} \times \Delta\tau_j^{\text{USRT}^{\text{MEX}}}}{\sum_j M_{ij}^{2017}} \tag{B.2}$$

As the empirical analysis focuses on exporters as of 2017, not all firms are importing in the sample.

For non-importing firms, $T_i^{\text{MEX}\to\text{US}}$ is defined as zero.

Tariff Exposures via Input Channels I additionally construct firm-level exposure measures for firms that import inputs from the US exposed to the US tariffs on China, as well as for firms whose inputs concentrate on Chinese imports that would have been subject to US tariffs if imported into the US as follows:

$$IMUS_i^{\text{US}\to\text{CN}} = \frac{\sum_{j\in\text{USIT}^{\text{CN}}} M_{ij}^{2017,\text{US}} \times \Delta\tau_j^{\text{USIT}^{\text{CN}}}}{\sum_j M_{ij}^{2017}} \tag{B.3}$$

$$IMCN_i^{\text{US}\to\text{CN}} = \frac{\sum_{j\in\text{USIT}^{\text{CN}}} M_{ij}^{2017,\text{CN}} \times \Delta\tau_j^{\text{USIT}^{\text{CN}}}}{\sum_j M_{ij}^{2017}} \tag{B.4}$$

China's retaliatory tariffs By offering manufacturing and export services like polishing, packaging, and warehousing to US businesses, some exporting firms likely complement US operations without altering the nature of the goods traded, and hence their exports may be dampened due to costlier entry of US goods to China. However, particularly in the agricultural sector, Mexico's exports may also compete with US products in global markets.

Let $USRT^{CN}$ represent the set of HS 6-digit products targeted by China's retaliatory tariffs, and $\Delta\tau_j^{USRT^{CN}}$ denote the increase in the retaliatory tariff rate for good j as of December 2019.

$$T_i^{\text{CN}\to\text{US}} = \frac{\sum_{j\in\text{USRT}^{\text{CN}}} X_{ij}^{2017} \times \Delta\tau_j^{\text{USRT}^{\text{CN}}}}{\sum_i X_{ij}^{2017}} \tag{B.5}$$

$T_i^{\text{CN}\to\text{US}}$ measures the weighted value of exports in goods that are targeted by China's retaliatory tariffs relative to the total exports of firm i as of 2017. As before, we weight exported goods based on their respective retaliatory tariff rates, ensuring that Mexican firms with a greater concentration of exports in goods subject to higher export tariffs are regarded as more exposed, all else being equal.

I additionally account for firms whose imports from the US concentrated in goods that will be subject to retaliatory tariffs from China.

$$IMUS_i^{\text{CN}\to\text{US}} = \frac{\sum_{j\in\text{USRT}^{\text{CN}}} M_{ij}^{2017,US} \times \Delta\tau_j^{\text{USRT}^{\text{CN}}}}{\sum_j M_{ij}^{2017}} \tag{B.6}$$

Table A.1 presents summary statistics for these measures.

C Additional Analysis

C.1 Additional Results for Section 5.1

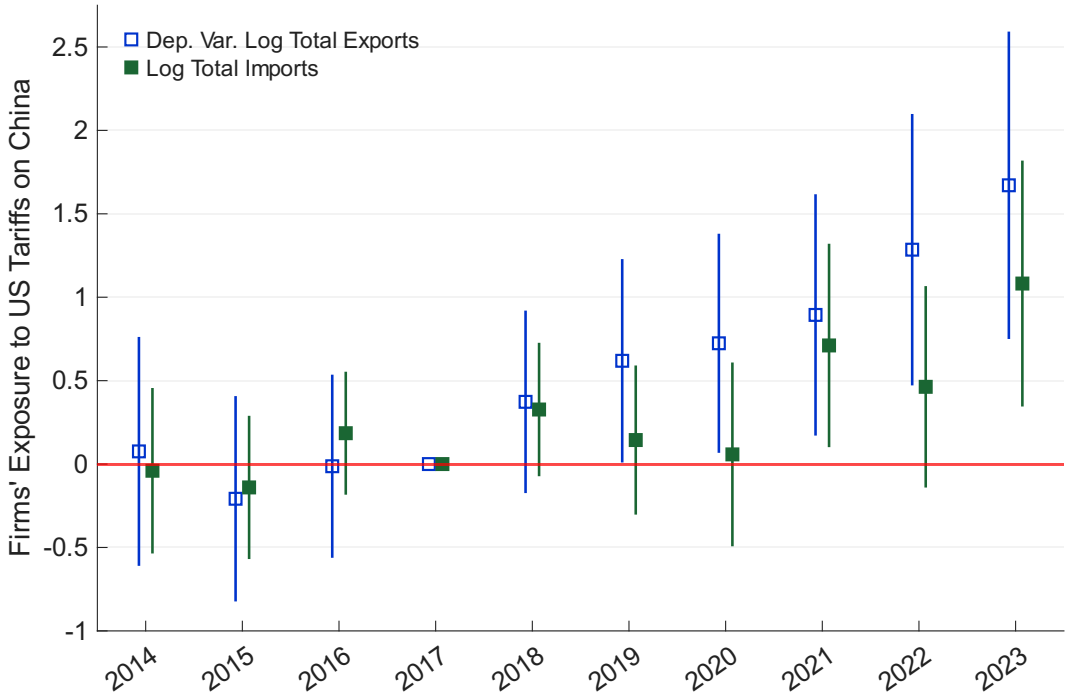


Figure C.1: Impact of US Tariffs Targeting China on Manufacturing Firms' Total Exports and Imports

Notes: Estimation of equation 3. The dependent variables are the natural logarithm of firms' value of exports (N=50,550) and imports (49,706). All regressions control for firm fixed effects, three-digit-industry-by-year fixed effects and concurrent trade policy changes. The y-axis displays the yearly DD coefficient estimates corresponding to $\mathbf{T_i^{US\to CN}}$, along with 95% confidence intervals.

Table C.1: The US-China Trade War and Manufacturing Firms' Trade Outcomes

	(1) Log US Exports	(2) Log Total Exports	(3) Log Non-US Exports	(4) Log Total Imports	(5) Log US Imports	(6) Log Non-US Imports	(7) Share of Imports from China
Panel A. IMMEX-GVC Firms							
US Tariffs on China	1.157***	1.088***	-0.615	0.585**	0.604*	0.736**	0.019
$(T_i^{US \to CN} \times PostTW_t)$	(0.331)	(0.302)	(0.503)	(0.256)	(0.317)	(0.300)	(0.037)
N	35,787	36,859	22,381	36,430	35,217	35,219	36,430
Panel B. Other firms							
US Tariffs on China	0.730	0.556	1.012	0.407	0.521	0.038	0.052
$(T_i^{US \to CN} \times PostTW_t)$	(0.757)	(0.547)	(0.633)	(0.411)	(0.526)	(0.493)	(0.050)
N	10,666	13,691	10,779	13,276	11,716	12,729	13,276
For both panels:							
Firm FEs	✓	✓	✓	✓	✓	✓	✓
3-digit Industry × Year FEs	✓	✓	✓	✓	✓	✓	✓
Additional Trade Policy Controls	✓	✓	✓	✓	✓	✓	✓

Notes: $PostTW_t$ is a dummy variable equal to 1 for years 2018 and later, and 0 otherwise. Additional Trade Policy Controls include firms' exposures to the US-Mexico tariff escalation, retaliatory tariffs of China and the input channels as described in equations B.1-B.6.

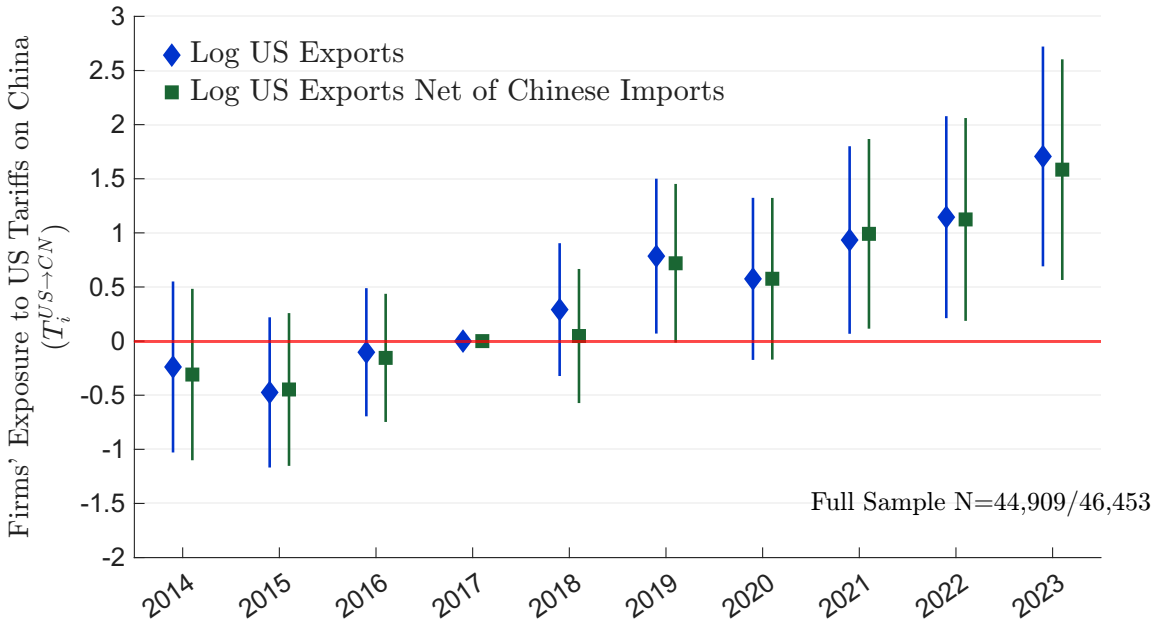


Figure C.2: Impact of US Tariffs Targeting China on US Exports Net of Chinese Imports

Notes: Estimation of equation 3. The dependent variables are the natural logarithm of US exports (N=46,453) and US exports net of Chinese imports, $\sum_{j\in J_{it}^{USX}}[X_{ijt}^{US} - M_{ijt}^{CN}]$, (44,909). All regressions control for firm fixed effects, three-digit-industry-by-year fixed effects and concurrent trade policy changes. The y-axis displays the yearly DD coefficient estimates corresponding to $\mathbf{T_i^{US\to CN}}$, along with 95% confidence intervals.

D Robustness Analysis

E Data Construction

Firm-level data The Profile of Export-Oriented Manufacturing Firms (PEME) is a statistical product developed by Mexico's National Institute of Statistics and Geography (INEGI) to generate detailed information on the foreign trade activities of manufacturing firms. By focusing on key economic variables, the PEME supports the measurement of international trade and helps assess its impact on employment and production in the country.

This analysis is made possible by linking data from several sources: administrative foreign trade records, manufacturing surveys, and statistics from the IMMEX program. These datasets are integrated using Mexico's Statistical Business Register (RENEM), which serves as the backbone for identifying and tracking firms across data sources.

The Profile of Export-Oriented Manufacturing Firms (PEME) aims to provide detailed information on the characteristics of manufacturing firms engaged in exports and imports. Its purpose is to support the analysis of how international merchandise trade affects production and employment in Mexico.

INEGI has, since 2013, undertaken efforts to measure the characteristics of firms engaged in international merchandise trade. This is achieved by linking foreign trade administrative records with data from Economic Censuses, the Annual and Monthly Manufacturing Industry Surveys, and the IMMEX Program Statistics. These sources are integrated through the Statistical Business Register of Mexico (RENEM), which serves as the central framework for data linkage.

One of the key advantages of linking administrative trade records with manufacturing surveys is the high coverage it provides: on average, between 2010 and 2021, the linked data accounted for 84.2% of the total value of Mexico's manufactured goods trade.

The unit of observation is the firm, defined as an organization owned by a single legal entity that engages in one or more economic activities. A firm is considered autonomous in its decisions

Table D.1: US Export Share Gains Concentrated Among Firms with Low Baseline US Export Shares

	(1)	(2)	(3)	(4)	(5)	(6)
Sample based on 2017 share of US exports	All (>= 0)	> 0	>= 0.1	>= 0.2	>= 0.3	>= 0.4
Dep var. for all columns			US Export Share			
Firm Exposure to US Tariffs on China	0.120***	0.085**	0.071*	0.062	0.053	0.027
($T_i^{US \to CN} \times PostTW_t$)	(0.039)	(0.039)	(0.041)	(0.041)	(0.040)	(0.039)
N	50,550	46,596	43,614	42,335	41,265	40,054
Firm FE	✓	✓	✓	✓	✓	✓
3-digit Industry × Year FEs	✓	✓	✓	✓	✓	✓
Additional Trade Policy Controls	✓	✓	✓	✓	✓	✓

Notes: $PostTW_t$ is a dummy variable equal to 1 for years 2018 and later, and 0 otherwise. Additional Trade Policy Controls include firms' exposures to the US-Mexico tariff escalation, retaliatory tariffs of China and the input channels as described in equations B.1-B.6.

related to marketing, finance, and investment, and has the authority and responsibility to allocate resources in line with a defined plan or strategy for producing goods and services. It may operate in one or multiple locations under the same legal name.

The units included in the PEME are those engaged in the manufacturing of goods, specifically firms in which at least one establishment reports data through the Manufacturing Surveys or the IMMEX Program Statistics.

The PEME draws on the following data sources:

- RENEM (Statistical Business Register of Mexico): Maintained by INEGI, this database contains current and historical data on all economic units in the country and serves as the foundation for economic statistics.
- Economic Censuses: Provide detailed statistics on establishments involved in manufacturing, commerce, and services, with broad geographic and sectoral coverage.
- Merchandise Trade Balance (BCMM): Offers data on Mexico's trade in goods with the rest of the world and feeds into the National Accounts and Balance of Payments.
- Monthly and Annual Manufacturing Surveys: Capture trends and structural changes in the manufacturing sector through data from key establishments.
- IMMEX Statistics: Provide monthly data on establishments authorized to conduct foreign trade under the IMMEX Program.

Plant-level data

I also employ the plant-level dataset that is collected specifically for IMMEX firms. Information is collected for all plants that belong to IMMEX firms, making the IMMEX statistics a monthly census that reflects the total activities identified under the IMMEX Program.

E.1 Overview of Categories, Variables, and Classifications

In the PEME, firms' economic activity is classified according to the North American Industry Classification System (NAICS, 2018), based on both the goods and services produced at the estab-

lishment level and the production processes involved. Each firm is assigned to a primary production function, represented by a three-digit NAICS industry, yielding 21 manufacturing industries in total. Importantly, the PEME also covers microenterprises (1–10 employees), providing a more complete picture of firms' role in employment generation and Mexico's international trade flows.

INEGI provides a crosswalk between establishment and firm identifiers for the period 2013–2023. This key makes it possible to track the number of establishments belonging to a firm over time. It also enables the merge of firm-level PEME data with the plant-level IMMEX database.