

U.S. Firms' Exposure to Tariffs: A Comparison of the 2018 and 2025 Episodes*

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Abstract: We study the effects of the 2018 and 2025 US import tariffs on public companies. We construct firm-level measures of tariff exposure by merging financial data from regulatory filings with bill-of-lading data capturing US imports. Our approach enables us to evaluate the contribution of four major channels: direct import costs, exposure to importing suppliers of intermediate goods, sector-level import protection, and retaliatory foreign tariffs on US exports. We find that each tariff episode markedly raised direct import costs and exposure to importing suppliers, but in 2025, both exposures are broader and 10 times greater. We find less relative retaliation exposure in 2025 than in 2018, but the magnitude of the exposure is similar in both episodes. These effects are concentrated mainly in manufacturing and trade, with some spillovers into services. In addition, we provide new evidence that in 2018, US firms squeezed their profit margins and investment. We find little detectable impact on employment.

JEL Classification: F13, F14, F23, F41, F62, G38

Keywords: import tariffs, export tariffs, trade, supply chains, firm-level evidence

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1 Introduction

After decades of low barriers to international trade, the United States raised import tariffs in 2018, followed by another episode in 2025. While there are some studies focusing on the tariff effects on border prices (e.g., [Cavallo et al. 2021](#)), global production networks (e.g., [Huo, Levchenko, and Pandalai-Nayar 2025](#)), or the domestic aggregate implications of recent tariffs (e.g., [Amiti, Kong, and Weinstein 2020](#)), the tariff effects on US companies' financial performance are still relatively unexplored.

This paper studies the effects of the 2018 and 2025 US tariffs—together with the retaliatory tariffs imposed on US exports by foreign governments—on the financial performance, employment, and investment decisions of US public firms. We construct a firm-level measure of import tariff exposure by leveraging the granularity of bill-of-lading data. These data enable us to measure firms' import intensity vis-à-vis country-product trade flows. We focus on public companies because they contribute substantially to domestic aggregate production and employment and tend to be more exposed to international trade relative to private firms. In addition, the legal requirement of public companies to file quarterly financial statements facilitates our analyses.

We examine the channels through which trade barriers affect firms' employment, production costs, sales, profits, and investment. Domestic firms can be exposed to tariff shocks in several ways. First, import tariffs raise the direct cost of imports unless foreign suppliers fully absorb the increase in customs duties. Second, domestic production costs could rise due to higher prices set by domestic suppliers that import intermediate goods. Third, domestic exporters and multinationals face higher barriers to entering and operating in foreign markets due to retaliation practices whereby foreign governments raise tariffs on US exports. Fourth, as trade barriers are imposed to protect domestic producers from foreign competition, they may boost domestic employment, sales, and profit margins in protected industries.

We find that an increase in direct and indirect import costs in 2018 led to a significant increase in the cost of goods sold (COGS) and nominal domestic sales and to a decrease in cash flow and capital expenditure (CAPEX). We do not find a statistically significant effect on employment or inventories. The export retaliation channel had a significantly negative effect on cash flow but not on the other measures considered. By contrast, we do not find any significant effects of the sector import protection channel.

While the 2025 tariff episode is ongoing, our early evaluation points to some similarities with 2018. The direct import cost and the suppliers' cost channels are starting to increase nominal costs and sales. Cash flows are not responding yet. We stress that the 2025 results are still preliminary, as the sample of public firms with complete financial data ends at the second quarter of 2025. Moreover, our 2018 analysis suggests that the effects of tariffs could take longer to fully

materialize.

We also use earnings calls to study the effects of our channels of tariff exposure on firm sentiment. This is useful as a validation exercise for our other analyses, but it is also useful in its own right because earnings calls can convey information on future outcomes (Tetlock, Saar-Tsechansky, and Macskassy 2008). We find that all our measures of tariff exposure are related to negative sentiment and risk sentiment. Firms' negative sentiment and perceived uncertainty is even more sensitive to the 2025 tariff episode.

To obtain economically interpretable measures of exposure to the 2018 and 2025 tariffs, we merge and homogenize several data sets. We collect and codify all statutory tariff changes and exemptions imposed by the US government on US imports in 2025 and the associated retaliatory measures introduced by US trading partners. For 2018, we use statutory tariff changes collected by Fajgelbaum et al. (2020). We then merge the S&P Panjiva bill-of-lading data on product-country import flows with financial statements from Compustat at the parent-company level.¹ The imports of a company identified as a subsidiary are attributed to that subsidiary's associated ultimate parent company.

To construct the indirect tariff exposure measure, we use Factset Supply Chain data, which comprise time-varying information on the set of large suppliers of listed companies. We link each supplier (whether private or public) to their import records from Panjiva and use Factset Georev to compute the exposure to foreign retaliation. We do this by aggregating tariffs imposed on US exports by foreign countries using the shares of foreign markets in global sales at the firm level together with the firm's primary industry code. We compute an industry-level import protection exposure measure following Flaaen et al. (2021).

We find important heterogeneity, across companies and time, in the effects of import tariffs during the two tariff episodes. The 2025 tariff episode, while involving roughly the same set of globally exposed companies, has made a much larger impact on the direct import exposure because many more trading partners have been affected. The average tariff rate increase faced by the firms in our sample was about 2.5 percentage points in 2018 compared with 12 percentage points in 2025. By contrast, the 2025 episode involves a much smaller tit-for-tat response, with a comparable effect on foreign sales. For the supplier exposure channel, the average number of affected suppliers is comparable across the episodes, but the direct import exposure measure is 10 times larger in 2025 than in 2018. Overall, these exposures are concentrated mainly in the manufacturing and trade

¹Note that the bill-of-lading data for US imports include only *maritime* transportation flows. We supplement missing land and air trade between US and Mexico using Panjiva Mexico exports data, which covers maritime as well as non-maritime trade. However, exports data for Canada is not available through Panjiva. Hence, our import intensity measure represents a lower bound of the true measure. This limitation could be particularly important for the 2025 episode, wherein substantial tariffs were imposed on Canada and a broader set of goods for which land and air transportation may play a larger role in trade with the United States.

sectors, but the indirect (supplier) exposure is substantial for many services such as transportation, health care, real estate, and information technology.

Each of these channels can affect firms' prices, production, profit margins, employment, and investment decisions differently. Firms may respond to higher direct import costs by raising prices, accepting lower profit margins, or both. But they can also change suppliers and customer markets to mitigate the effects of tariffs. Employment and investment may increase due to the substitution away from high-cost imports and to an increase in domestic demand as competing foreign products become pricier. Or they could decrease due to higher marginal costs. Which of these channels dominates is ultimately an empirical question.

We identify the effects of tariffs using the difference-in-differences (DiD) approach. We estimate two empirical specifications. One leverages the variation in treatment within NAICS three-digit industries. That is, we compare the financial outcomes before and after treatment for firms that are more exposed to tariffs relative to those that are less exposed within an industry, absorbing the variation in tariffs specific to that industry. We achieve this by controlling for time-varying industry effects as well as firm fixed effects. Our second approach allows for variation both within and across industries.² This second specification enables us to consider the sector import protection channel, which is constructed at the industry level. While broader, this approach could be more sensitive to preexisting trends and contemporaneous confounding factors in the financial performance of industries.

We focus on the contemporaneous effects of tariffs due to limitations in our data and sample. While trade shocks, like any other macroeconomic disturbances, likely trigger a dynamic response in economic outcomes, our analysis is limited because each of the tariff episodes we study unfolded over a period of only about two quarters. Starting in 2020, the effects of the 2018 tariffs on firms were likely dominated by the effects of the COVID-19 pandemic and the policy countermeasures it triggered. A dynamic analysis of the 2025 episode will not be feasible until a few years from now, when more data become available.

Our empirical strategy offers several advantages over industry-level analyses or those based on equity returns around tariff announcements. First, we control for potential general equilibrium effects related to demand factors co-moving with tariffs. Second, accounting for all three channels of exposure contemporaneously allows for a tighter identification given the high level of correlation between the exposure measures. Finally, we can provide a direct and intuitive economic linkage between the exposures of US companies to foreign markets and the firm-level effects of those exposures.

²That is, we control for time and firm fixed effects.

Related Literature This paper contributes to the recent literature on the effects of trade wars on the US economy. Many papers in this literature find full pass-through of import costs at the border and at least partial pass-through into domestic prices (e.g., [Amiti, Redding, and Weinstein 2020](#), [Fajgelbaum et al. 2020](#), [Flaaen, Hortaçsu, and Tintelnot 2020](#), [Cavallo et al. 2021](#), [Barbiero and Stein 2025](#), [Cavallo, Llamas, and Vazquez 2025](#)). While we do not observe prices and therefore cannot estimate the pass-through of import costs, we contribute to this literature by providing indirect evidence on pricing behavior based on the responses of sales, costs, and profits.

Another large strand of literature focuses on the trade reallocation impact of the 2018 trade war. For example, [Handley, Kamal, and Monarch \(2025\)](#) find that US import tariffs led to lower exports for firms that used affected products in their production. [Gopinath et al. \(2025\)](#) find increased global trade fragmentation along regional blocks after 2018. [Fajgelbaum et al. \(2024\)](#) find that countries that were not directly involved in the trade war benefited from it due to increased export sales of affected products. [Freund et al. \(2024\)](#) show that, despite strong decoupling in direct trade between the United States and China after 2018, the two countries' supply chains still strongly depend on each other. [Alfaro et al. \(2025\)](#) show that US banks have been instrumental in channeling credit toward investment in new supplier linkages. We contribute to this literature by providing new evidence on how import tariffs could dislocate exports through retaliation and domestic production via the supplier channel.

Much of the literature on tariffs employs industry variation. For instance, [Flaaen and Pierce \(2024\)](#) use industry-level 2018 tariff exposure data to show that exposure to higher input tariffs and import protection are more important than foreign retaliation. They find that the tariffs, on net, lowered US manufacturing employment and raised producer prices. While we also focus on these three channels, we additionally study the role of supply-chain connections via firms' suppliers and how those impact downstream firms. Our main contribution to this literature is our construction and use of firm-level tariff exposure measures, which enables us to control for time-varying industry factors.

Our paper is related to that of [Amiti, Kong, and Weinstein \(2020\)](#), who also use firm-level Compustat data. They identify common and idiosyncratic factor returns around trade war announcements to measure the (implied) effect of the 2018 trade war on investment. By contrast, we look at the broad responses of firms' activities, focusing on realized outcomes and relying directly on our exposure measures to tightly identify multiple channels of exposure from the cross section of companies.

We also contribute to the literature that uses earnings calls data to analyze sentiment about tariffs. For instance, [Clayton et al. \(2025\)](#) construct instruments of geoeconomic pressures such as tariffs and export controls via large-language-model (LLM) querying of earnings calls. While they focus on a wider set of policies, their methodology measures the proportion and intensity of

tariff and outcome measures. Our paper instead focuses on the quantitative measures of firm-level tariff exposure. We show that sentiment about tariffs measured from earnings calls is correlated with our tariff exposure channels; in other words, firms that are more exposed to tariffs view them more negatively.

To sum up, we contribute to the literature in two major ways. First, to the extent of our knowledge, this is the first paper that uses firm-level data on multiple channels of exposure to the 2018 and 2025 trade wars to estimate and compare their effects on large firms' financial and real activities. Second, we compare the effects of the 2018 tariff episode with the 2025 tariff episode. While these two events differ in magnitude and breadth, they are similar in many other dimensions. Tariffs in both episodes appear to be permanent or, at least, have higher persistence relative to previous post-World War II tariff episodes in the United States (see [Schmitt-Grohé and Uribe 2025](#)).

The paper proceeds as follows. [Section 2](#) defines our tariff exposure channels and compares them between the two episodes. [Section 3](#) presents our empirical strategy. [Section 4](#) describes our empirical results. [Section 5](#) concludes.

2 Tariff Exposure Measures

This section describes the data and presents our tariff exposure measures.³ [Section 2.1](#) compares the import and export tariff rates during the two episodes. [Section 2.2](#) presents tariff sentiments measures based on earnings calls. [Section 2.3](#) defines our tariff exposure channels. [Section 2.4](#) compares tariff exposures between the two episodes.

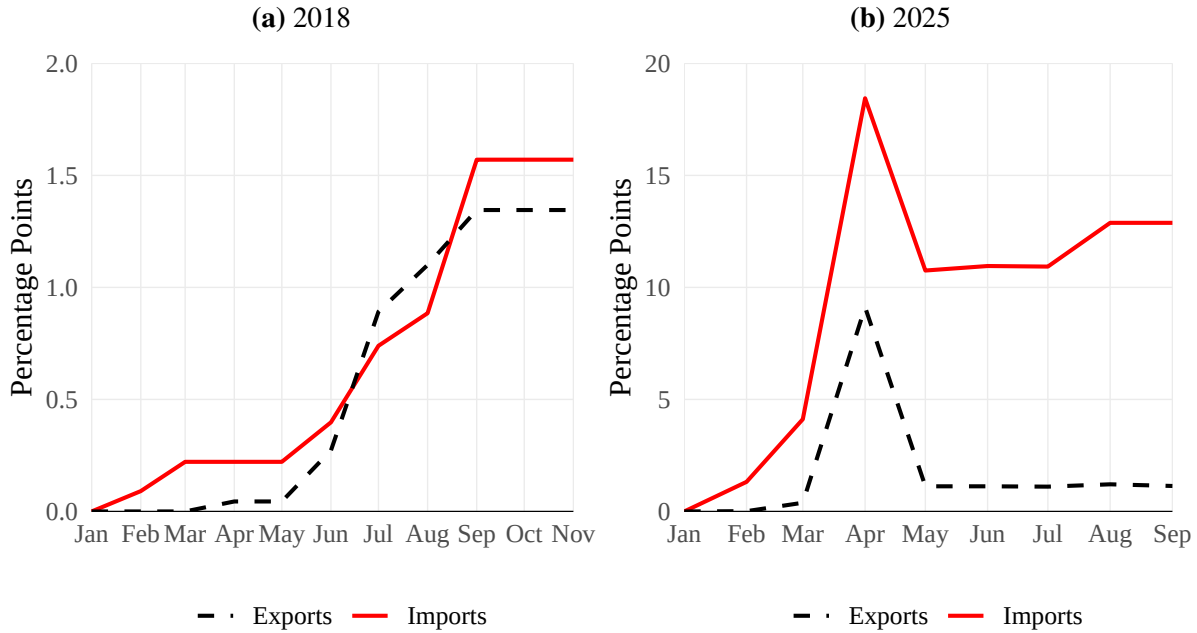
2.1 Import and Export Tariff Rates

Having maintained generally low tariffs for decades, the United States began raising import duties in 2018. The first wave of tariffs began in February 2018, followed by five more waves from March until September 2018. While the first three waves involved tariffs on specific products, including solar panels, washing machines, steel, and aluminum, the last three waves were applied toward the majority of goods imported from China. Overall, the relatively fast and persistent tariff implementation covered \$300 billion of annual US imports (13 percent of total imports) at an average tariff rate increase of 13 percentage points ([Fajgelbaum et al. 2020](#)). In response, some of the major US trade partners (Canada, China, the European Union, Mexico, Russia, Turkey) retaliated by imposing tariffs on US exports on a comparable scale.

We use daily statutory tariff hikes from [Fajgelbaum et al. \(2020\)](#) at the country-product level (HS 10-digit product level) to estimate the effects of tariffs on US companies. [Fajgelbaum et al.](#)

³[Appendix C](#) details data construction and sources.

Figure 1: Cumulative Increase in Tariff Rates



Source: [Fajgelbaum et al. \(2020\)](#), US Census Bureau, US Federal Registrar, Chinese and Canadian Ministry of Finance.

Notes: This figure shows the monthly trade-weighted implemented tariff increase in US imports and exports in 2018 and 2025. We use annual 2017 import weights for the 2018 episode and annual 2024 import weights for the 2025 episode. Tariff rate increases are statutory tariff changes since January at the HS10 industry-country level. We account for all exemptions, amendments, and non-stacking rules enacted by each country. The day of implementation of the tariff is assigned to month m if it comes 15 days before or after the first day of month m .

(2020) obtain data on import tariffs from the US International Trade Commission (USITC) tariff schedule revisions published in 2018. Exports tariffs are sourced from official documents released by foreign governments.

Figure 1a shows the average import tariff rate and the average export tariff rate in 2018, according to [Fajgelbaum et al. \(2020\)](#). In the months following their introduction, most of these tariffs persisted, maintaining the average tariff rate at the level reached in late 2018. In September 2019, additional duties were applied to Chinese goods, adding an increase of about 1 percentage point to the average US tariff rate ([Rodríguez-Clare, Ulate, and Vasquez 2025](#)). However, due to the COVID-19 pandemic, the effects of this later wave are difficult to measure.

In 2025, another major ramping up of tariffs impacted US imports. The magnitude and breadth of this episode, which is still unfolding, is unusual in several ways. First, in February and March, exports from only Canada, Mexico, and China were targeted, but by April, all US trading partners had been impacted, albeit at different rates. Second, while some tariffs—including those on steel (March 12), aluminum (June 6), and automobiles (April 3)—were applied at the product level, most were applied at the country level. Overall, the average statutory import tariff rate increased

by about 10 percent from January to June 2025. Third, the retaliatory effect experienced by the United States was subdued relative to the 2018 episode. Only China and Canada retaliated against the 2025 tariffs—and not broadly across product categories.

We gather information on daily statutory tariff hikes from the US Federal Registrar notices, the Department of Finance Canada, and the Ministry of Finance of China. All legal exemptions declared in such notices are considered. [Figure 1b](#) shows the monthly average import and export tariff rate increase in the United States.⁴ The largest increase in tariff rates occurred in April 2025 (with most of the increase due to a 145 percentage point increase in tariffs on Chinese goods, which was paused a month later). Most countries' tariffs were set at 10 percent as of May but slated to return to the levels announced in April if trade deals were not reached. Export tariff retaliation implies an average 1.1 percentage point increase on US exports duties.

2.2 Earnings Call Sentiment on Tariffs

We relate the relevance of the tariff waves and our channels of exposure with earnings calls sentiment by the firms in our sample. Sentiment and textual analysis is a fruitful area of research both to analyze and gather (perceived) exposure in real time ([Hassan et al. 2023, 2019, Alfaro and Chor 2023](#)). We gather mentions and bigram instances of tariffs with sentiment and risk concept from NL Analytics. We define the following normalized sentiment measures, as in [Hassan et al. \(2019, 2023\)](#). For each earning call of firm f at quarter t we consider:

$$\text{Tariff Exposure}_{ft} = \frac{\# \text{ Sentences containing "tariff"}}{\# \text{ Sentences}} \quad (1)$$

$$\text{Negative Sentiment}_{ft} = \frac{\# \text{ Sentences containing "tariff" and negative keyword}}{\# \text{ Sentences with negative keywords}} \quad (2)$$

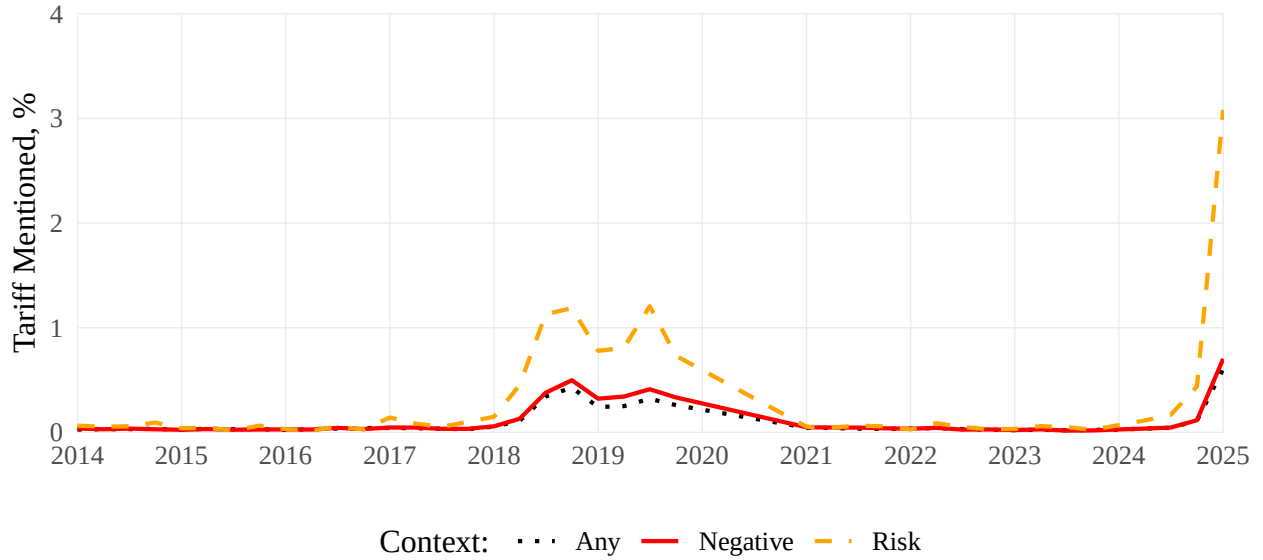
$$\text{Risk Sentiment}_{ft} = \frac{\# \text{ Sentences containing "tariff" and a risk keyword}}{\# \text{ Sentences with risk keywords}} \quad (3)$$

Each normalization is designed to emphasize the cross-sectional difference across companies within any given period and investigate whether it relates to our cross-sectional difference in tariff exposure.

[Figure 2](#) presents the average tariff exposure, negative sentiment, and risk measurement sentiment for the sample of companies publishing regular earnings calls. The measures clearly intensify around the time of the largest tariff introductions. The first increase happens in mid-2018, around the time of the first wave. A second wave applied on finished Chinese goods is also visible in mid-2019. We do not focus on this wave because it was too close to the start of the COVID-19

⁴We account for the Canadian and Mexican goods USMCA exemption by discounting the statutory rate with the product-specific (observed) share of dutiable value in June.

Figure 2: Proportion of Tariff Mentions in Earnings Calls



Source: NL Analytics, S&P Compustat.

Notes: Average quarterly tariff mentions for US Compustat companies. *Any* mention corresponds to the average number of sentences in which the word “tariff” appears in a given call, normalized by the number of sentences in the call. *Negative* mentions counts the share of sentences with negative keywords that also contain the word “tariff.” *Risk* mentions counts the share of sentences with risk-related keywords that also contain the word “tariff.”

pandemic, and because it was reversed within a quarter. The 2025 episode is also clearly visible. Notably, perceived risk is relatively higher in 2025. Average negative sentiment and mentions appear at slightly higher levels than in 2018.

2.3 Tariff Exposure Channels

We consider four channels through which an increase in import tariffs can affect the cost and revenue of domestic firms. First, domestic importers face a direct increase in marginal cost associated with higher tariffs they pay on imported goods. We call this a direct import cost channel. Second, domestic firms may face an increase in marginal costs due to higher prices charged by importing suppliers of intermediate goods. We call this an importing suppliers’ pass-through channel. Third, domestic exporters experience a decline in foreign revenue due to retaliatory taxes imposed by foreign governments in response to US tariffs. In addition to the three firm-level channels, we consider a sectoral channel that captures how, by imposing tariffs, a country can protect domestic firms in sectors where imports represent an important fraction of its total domestic sales.

2.3.1 Firm-level Measures

Direct Import Cost Channel Our first channel of interest is the direct import cost exposure faced by each company during the 2018 and 2025 US import tariff episodes. To construct this measure,

we merge the universe of maritime trade transactions from S&P Panjiva with US Compustat firms.⁵ These data provide information on the pre-tariff value of goods imported by each listed firm f (and its subsidiaries), disaggregated by country of origin c and HS6 product-level code p . For each country-product specific tariff increase $\Delta\tau_{pc,t}$ in year t , we define the direct import cost exposure of each consolidated firm as follows:

$$\begin{aligned} \text{Import Cost}_{f,t} &= \frac{\sum_c \sum_p \text{Imports}_{fcp,t-1} \Delta\tau_{cp,t}}{\text{Costs of Goods Sold}_{f,t-1}} \\ &= \underbrace{\frac{\sum_c \sum_p \text{Imports}_{fcp,t-1}}{\text{Costs of Goods Sold}_{f,t-1}}}_{\text{Import Intensity}_{f,t-1}} \times \underbrace{\frac{\sum_c \sum_p \text{Imports}_{fcp,t-1} \Delta\tau_{cp,t}}{\sum_c \sum_p \text{Imports}_{fcp,t-1}}}_{\text{Change in Effective Tariff Rate}_{f,t}} \end{aligned} \quad (4)$$

We decompose direct import costs into the $t - 1$ annual exposure of company f , multiplied by the firm-specific average tariff rate applied on its imports. We summarize the exposure to both the 2018 and 2025 tariff episodes with the cumulated tariff increase in each year as of June 2018 and June 2025, respectively. This choice reflects the frequency limitations and availability of data up to date. Costs of goods sold is computed as global consolidated costs of goods sold, adjusted by the share of sales in the US available from Factset GeoRev.

Importing Suppliers' Cost Pass-through Channel Tariffs can affect the cost of production via direct purchase of foreign goods subject to tariff or by increasing the import cost and, therefore, price for domestic suppliers. In line with our focus on detailed firm-level information, we go beyond using input–output information at the sectoral level to measure these indirect costs (see [Barbiero and Stein 2025](#), for such sectoral calculations). In particular, we measure firm-to-firm linkages using data from Factset Supply Chain (formerly Factset Revere) and link each supplier to its US imports declarations. We retrieve information on the sales size of each supplier as a normalization parameter. The observed linkages are reliable because companies are compelled to declare only their largest suppliers and customers. However, Factset Supply Chain (like other similar data sources) rarely contains information on the size of the customer–supplier linkage. For this reason, we compute a simple average tariff exposure as follows:

$$\text{Suppliers' Cost}_{f,t} = \frac{1}{\#S_{f,t-1}} \sum_{s \in S_{f,t-1}} \frac{\sum_p \sum_c \text{Imports}_{scp,t-1} \Delta\tau_{cp,t}}{\text{Sales}_{s,t-1}}, \quad (5)$$

where $S_{f,t-1}$ is the set of suppliers of firm f at time $t - 1$.

⁵Since Compustat generally represents consolidated financials of several subsidiaries that might be in charge of US imports, we first consolidate both variables to the ultimate parent level using quarterly subsidiary-to-ultimate-parent mapping from S&P Capital IQ.

Export Exposure As discussed in [Section 2.1](#), US exporters experienced retaliatory tariffs both in 2018 and 2025. The strength of the retaliation and the set of countries and products affected differ across time, however. To account for the effect of such retaliation on exporters' sales, we merge detailed year-by-firm geographic revenues from Factset GeoRev to Compustat and our measures of tariff retaliation on the industry code i associated with the primary code of company f .⁶ Geographic revenue sales include revenues coming from US exports and revenues coming from foreign subsidiaries.⁷

The Export Retaliation Exposure index is defined as

$$\text{Export Retaliation}_{f,t} = \frac{\sum_c \text{Revenue}_{f,c,t-1} \Delta \tau_{f \rightarrow i,c}^*}{\sum_c \text{Revenue}_{f,c,t-1}}, \quad (6)$$

where $\Delta \tau_{f \rightarrow i,c}^*$ represents tariffs applied by the foreign country c on industry i to which that firm f belongs.

2.3.2 Sectoral Measures

Tariffs can have an effect on domestic companies by increasing the marginal cost of production or by increasing the price of goods sold by the foreign competitors of domestic companies. This increase in foreign competitors' price can affect market shares, prices, and activities of domestic companies operating in the same sector. In this case, we follow [Flaaen et al. \(2021\)](#) and create a NAICS3-level measure of import protection using total gross imports in industry i at time $t - 1$ affected by tariffs at time t and normalized by the domestic production in the sector from the US Bureau of Economic Analysis (BEA):

$$\text{Sector Import Protection}_{it} = \frac{\sum_c \text{Imports}_{ic,t-1} \Delta \tau_{ic,t}}{\text{Gross Output}_{i,t-1} + \text{Imports}_{i,t-1} - \text{Exports}_{i,t-1}} \quad (7)$$

Larger values of the sector import protection variable indicate that a larger fraction of domestic sectoral sales is impacted by tariffs, thus effectively protecting *domestic* firms in this industry. We then link this variable to the industry information i of each Compustat company.

⁶If the industry code is specified at different levels of aggregation, we compute the export weighted average retaliatory tariff at the correct level of aggregation because our level of sales disaggregation is country-firm-time specific rather than product-country-firm-time specific.

⁷Given that tariffs may be circumvented if sales are not routed via US exports, this measure captures the trade war generally, but with some noise. Indeed, [Amiti, Kong, and Weinstein \(2020\)](#) provide suggestive evidence that the sales disaggregation may be a better proxy than export-only data for grasping the extent of the return declines for exporters. As a robustness exercise intended to reduce measurement error bias, we also test our results by constructing an indicator equivalent to [Equation \(6\)](#).

2.4 Tariff Exposure during the Two Episodes

Our sample consists of nonfinancial US public companies from Compustat aggregated to the ultimate-parent-company level. This sample presents several advantages for our analysis. First, Compustat companies (and their subsidiaries) account for about 30 percent of US imports.⁸ When we also include their largest direct suppliers, this accounts for 45 percent of US imports.⁹ Almost half of US public companies have a substantial volume of sales coming from outside the United States, leaving them highly exposed to trade wars. Available data on public companies enable us to study their decision-making process at a quarterly frequency and with a high level of detail. Because publicly traded companies are large, the estimated effects can be generalized to the economy as a whole.

Table 1 provides descriptive statistics for the companies in our sample. We organize the table in terms of percentiles of import intensity. Import intensity, defined as total imports over costs of goods sold (COGS), provides a useful and fairly fixed reference for comparing the underlying tariff exposure across tariff episodes. We use the 2017 annual import intensity of each company to define the percentile bins. For most companies, the 2017 import intensity ranking corresponds to the 2024 import intensity ranking. Non-importers are smaller, on average, than importers. However, among importers, the smallest companies are more exposed to tariffs.¹⁰

The first two rows of Table 1 show that 56 percent of companies are not direct importers. Only half of the importer companies have US import intensity that is larger than 1 percent of their global costs.¹¹ This is not surprising given that a large number of publicly listed companies are in services. However, about 25 percent of the companies in our sample have substantial direct-import intensity. This is because our mapping of every subsidiary's trade into imports from Panjiva in any given year shows us how many multinationals in manufacturing, trade, mining, and technology operate globally.

The 2018 and 2025 average tariff rates are somewhat larger (about 2.5 percent for 2018 and 12 percent for 2025) than the aggregate increase of 1.5 percent and 9.5 percent shown in Figures 1a and 1b. This implies a trade distribution that is skewed slightly more toward high-tariff goods in our sample than in the aggregate data. Comparing the direct tariff costs exposure, either normalized

⁸This estimate is computed as a percentage of 2017 import value in the S&P Panjiva data set for companies whose ultimate parent is available in Compustat data.

⁹The value for 2017 is estimated from S&P Panjiva as a percentage of import value of companies whose ultimate parent is in Compustat or directly linked to Compustat companies according to the Factset Supply Linkage data set.

¹⁰These differences are mainly driven by industry-level characteristics. Table B.1 shows that tariff exposures are, for the most part, balanced, when controlling for industry fixed effects.

¹¹Our measure of import intensity is computed from US imports over global consolidated costs, therefore its magnitude does not necessarily represent the full extent to which a company's production process is linked with foreign inputs. To address this measurement error, we also normalize direct cost by US sales (available to us) and use dummy variables as treatment.

Table 1: Tariff Exposure and Financial Outcomes: 2018 versus 2025

	Non-Importers	Importers				
		Import Intensity Percentile Bin				
		56-75	75-90	90-95	95-99	99-Max
	(1)	(2)	(3)	(4)	(5)	(6)
2018 Tariff Episode (%)						
Import Intensity	0.00	0.32	3.34	12.28	32.24	64.39
Tariff Cost / US COGS	0.00	0.00	0.10	0.36	0.65	1.72
Tariff Cost / US Sales	0.00	0.00	0.07	0.24	0.37	0.78
Tariff Rate	1.03	2.46	2.59	2.81	2.39	2.49
Suppliers' Tariffs/Sales	0.01	0.02	0.03	0.03	0.03	0.04
Suppliers' Tariff Rate	0.77	1.07	1.11	1.29	1.20	1.24
N Suppliers Affected by Tariff	31.08	37.60	37.70	41.99	41.47	45.02
Sector Import Protection	0.13	0.22	0.43	0.64	0.54	0.42
Foreign Sales	25.44	30.67	35.50	36.54	36.81	20.72
Export Tariff / Sales	0.09	0.14	0.27	0.26	0.30	0.11
2025 Tariff Episode (%)						
Import Intensity	0.00	0.36	10.40	13.30	42.23	70.04
Tariff Cost / US COGS	0.00	0.04	1.18	1.34	4.73	8.22
Tariff Cost / US Sales	0.00	0.03	0.60	0.84	3.50	4.88
Tariff Rate		12.71	11.66	11.74	12.28	11.97
Suppliers' Tariffs/Sales	0.10	0.20	0.22	0.21	0.22	0.32
Suppliers' Tariff Rate	5.73	5.97	5.99	5.64	6.04	7.57
N Suppliers Affected by Tariff	40.43	42.70	45.11	42.44	47.16	57.04
Sector Import Protection	0.79	1.06	2.29	3.05	3.64	4.60
Foreign Sales	30.22	27.68	34.66	36.18	34.95	20.18
Export Tariff / Sales	0.16	0.17	0.32	0.39	0.36	0.07
Size						
Employment (M)	3.73	24.02	24.85	26.37	23.63	8.28
log(Sales)	3.15	5.98	5.86	5.77	5.31	4.42
log(Assets)	5.90	7.82	7.62	7.43	7.04	6.48
Financials						
Sales/Assets	0.17	0.23	0.25	0.25	0.24	0.22
COGS/Assets	0.13	0.16	0.17	0.17	0.17	0.14
PPE/Assets	0.20	0.26	0.25	0.21	0.22	0.21
CAPEX/Assets	0.01	0.01	0.01	0.01	0.01	0.01
Leverage	0.28	0.30	0.30	0.27	0.28	0.25
Profitability	-0.14	0.04	0.03	0.03	-0.02	-0.01

Source: Authors' calculations using data from Compustat, Factset, and Panjiva.

Note: Non-importers are firms that show no direct imports in our data.

by global COGS or by US sales, shows results that align with the substantial difference between the magnitudes of the 2018 and 2025 average tariff rates. Most of the variation is explained by differences in import intensity, but there is still a substantial difference in the average tariff rates.

Moving to suppliers' import exposure statistics, we see that the exposure to import costs is much broader than what is implied by direct import intensity. Even for non-importers, the average number of their suppliers affected by tariffs is 30 in 2018 and 40 in 2025, with increasing exposure for import-intensive companies. However, the suppliers' tariff rate is lower, on average, than the tariff rate from direct goods. This is likely due to the fact that in both episodes, higher rates were applied to China, which typically exports finished goods rather than intermediates.

Sector import protection and export retaliation exposures are also correlated with import intensity, but with high variation. This is because industries with high import costs typically have foreign competitors, and because importers typically are exporters. As shown in [Figure 1b](#), the magnitude of the export retaliation is similar in the two episodes, but the duties exposures are 10 times larger in 2025 than in 2018.

[Figure 3](#) shows the extensive and intensive margin of exposures for our three main channels, by industry.¹² For each channel, we plot the proportion of firms in the sample with positive tariff exposure and the median value conditional on positive exposure. We observe important exposure differences across industries, channels, and episodes.

First, direct import costs are, on average, more concentrated in manufacturing, wholesale, and retail trade for both the extensive and intensive margins. Agriculture, mining, and utilities also present important exposures. The proportion of firms affected somewhat by the two tariff episodes is similar. The main difference is the magnitude of the intensive margin.

Other important patterns are apparent in [Figure 3](#). First, nearly all industries are at least somewhat exposed to the tariff episode on the extensive margin side. On the intensive margin side, the importing supplier exposures are more sensitive to the broadness and magnitude of the tariff rate. Retail and wholesale trade have the largest (median) exposure to supply chain exposure. Manufacturing appears to have comparable median exposure to mining, utilities, transportation, construction and health care. Manufacturing also has one of the largest extensive margin exposures. Finally, export exposure is much more concentrated in manufacturing.

[Figure A.4](#), [Figure A.5](#), [Figure A.6](#), [Figure A.7](#) in appendix study the correlation of exposures in the two episodes at the extensive and intensive margin. While all channels of exposures are highly correlated, the advantage of exploiting firm-level information is that there are also prevalent sets of companies with only one exposure to the trade war episodes. The intensive margin exposures are much less correlated than the extensive margin exposures.

¹²The sectoral import protection exposure does not vary by firm and is therefore better grasped from [Table 1](#).

Figure 3: Extensive and Intensive Margin of Exposure by Industry



Source: Authors' calculations using data from Compustat, Factset, and Panjiva

Notes: The extensive margins show the proportion of firms in each sector with a non-zero corresponding exposure measure. The intensive margins show the median values of the corresponding measure conditional on it being positive.

3 Empirical Strategy

Our empirical strategy is based on differences-in-differences (DiD) estimation applied to the sample of US-listed companies. We estimate our empirical model for the 2018 and 2025 tariffs separately. For each episode, we estimate two regression models using a sample that includes the two years before and the two after the episode. In this section, we describe the regression specifications based on the 2018 tariffs. We estimate the same specifications for the 2025 tariffs.

In the first model, we control for firm and time-varying industry fixed effects, which account for industry-level demand but may also absorb supply factors:

$$\begin{aligned}
 y_{ft} = & \delta_f + \delta_{it} \\
 & + \beta^{\text{IC}} \times \text{Import Cost}_f \times \text{POST}_{2018} \\
 & + \beta^{\text{SC}} \times \text{Suppliers' Cost}_f \times \text{POST}_{2018} \\
 & + \beta^{\text{ER}} \times \text{Export Retaliation}_f \times \text{POST}_{2018} \\
 & + \varepsilon_{ft},
 \end{aligned} \tag{8}$$

where y_{ft} is a characteristic of interest of firm f in quarter or year t (for example, log-change in COGS or sales), POST_{2018} is an indicator variable of the period after the tariff implementation, δ s are fixed effects, β s are slope coefficients, ε_{ft} is the error term, and the rest are exposure variables as described in the preceding section.¹³ The coefficients β^{IC} , β^{SC} , and β^{ER} capture the average differential change in outcome after the tariff introduction. Our identification strategy requires parallel trends within industry and time conditional on firm fixed effects.

The second specification, by contrast, allows for the study of the sectoral-protection exposure.

$$\begin{aligned}
 y_{ft} = & \delta_f + \delta_t \\
 & + \beta^{\text{IC}} \times \text{Import Cost}_f \times \text{POST}_{2018} \\
 & + \beta^{\text{SC}} \times \text{Suppliers' Cost}_f \times \text{POST}_{2018} \\
 & + \beta^{\text{ER}} \times \text{Export Retaliation}_f \times \text{POST}_{2018} \\
 & + \beta^{\text{IP}} \times \text{Sector Import Protection}_i \times \text{POST}_{2018} \\
 & + \varepsilon_{ft}
 \end{aligned} \tag{9}$$

Notice that relative to [Equation \(8\)](#), this specification includes the sector import protection measure, which varies by industry, and time effects (as opposed to industry-time effects).

¹³Note that the DiD specification includes only the interaction terms because the levels are absorbed by firm and time effects.

Table 2: The Effects of 2018 Tariffs, within Industry-Time

	$\Delta \text{Log COGS}$ (1)	$\Delta \text{Log Sales}$ (2)	$\frac{\Delta \text{Cash Flow}}{\text{Sales}}$ (3)	$\Delta \text{Log Emp.}$ (4)	$\frac{\Delta \text{Inventories}}{\text{Assets}}$ (5)	$\frac{\Delta \text{CAPEX}}{\text{Assets}}$ (6)
Import Cost	1.243** (0.609)	1.056* (0.580)	-1.384*** (0.521)	0.621 (0.430)	-0.048 (0.079)	-0.167*** (0.050)
Suppliers' Cost	0.693 (0.497)	0.977** (0.473)	-0.407 (0.644)	0.239 (0.404)	0.044 (0.058)	0.010 (0.053)
Export Retaliation	0.688 (0.745)	0.635 (0.760)	-2.591*** (0.774)	0.488 (0.610)	0.117 (0.096)	0.168** (0.072)
Firm Effects	Yes	Yes	Yes	Yes	Yes	Yes
NAICS3 $\times$ Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,952	13,014	13,380	12,414	13,486	13,625
R^2	0.349	0.384	0.379	0.405	0.352	0.295
Within R^2	0.000	0.001	0.001	0.000	0.000	0.001

Notes: Standard errors clustered at the firm level are in parentheses. ***, **, * indicate statistical significance at the 1, 5, and 10 percent levels, respectively. Estimation period: 2015–2019 at an annual frequency. $\Delta \text{Log COGS}$ is the log difference in cost of goods sold (COGS), $\Delta \text{Log Sales}$ is the log difference in sales, $\frac{\Delta \text{Cash Flow}}{\text{Sales}}$ is the change in cash flow over lag sales, $\Delta \text{log Emp.}$ is the log difference in employment, $\frac{\Delta \text{Inventories}}{\text{Assets}}$ is the change in inventories over lag assets, and $\frac{\Delta \text{CAPEX}}{\text{Assets}}$ is the change in capital expenditure (CAPEX) over lag assets.

4 Results

Next, we present our empirical results. [Section 4.1](#) focuses on the 2018 tariff episode, while [Section 4.2](#) focuses on the 2025 episode. We consider six response variables: (1) log difference in the cost of goods sold (COGS), (2) log difference in sales, (3) change in cash flow over lag sales, (4) one-year log difference in employment, (5) change in inventories over lag assets, and (6) change in capital expenditures (CAPEX) over lag assets. We present annual results for the 2018 tariff episode. Due to data availability, we present quarterly results for the 2025 tariffs episode. We validate our results with the earnings calls sentiment analysis in [Section 4.3](#).

4.1 2018 Tariff Episode

For the 2018 episode, we estimate our model using data at an annual frequency. We do this because the Compustat annual sample is generally better populated and it allows us to study the effects on employment, which is reported only annually.

[Table 2](#) shows estimates of [Equation \(8\)](#) for the 2015–2019 period.¹⁴ A one-standard-deviation

¹⁴Appendix [Figure A.8](#) shows a version of [Equation \(8\)](#) with time-varying β s and each channel measure included

Table 3: The Effects of 2018 Tariffs, All Channels

	$\Delta \text{Log COGS}$ (1)	$\Delta \text{Log Sales}$ (2)	$\frac{\Delta \text{Cash Flow}}{\text{Sales}}$ (3)	$\Delta \text{Log Emp.}$ (4)	$\frac{\Delta \text{Inventories}}{\text{Assets}}$ (5)	$\frac{\Delta \text{CAPEX}}{\text{Assets}}$ (6)
Import Cost	0.882 (0.584)	0.705 (0.547)	-0.972** (0.411)	0.324 (0.402)	-0.050 (0.075)	-0.181*** (0.048)
Suppliers' Cost	1.287*** (0.442)	1.613*** (0.429)	-0.897 (0.598)	0.548 (0.343)	0.041 (0.053)	0.069 (0.048)
Export Retaliation	0.466 (0.703)	0.464 (0.710)	-1.659*** (0.575)	0.410 (0.568)	0.081 (0.088)	0.075 (0.067)
Sector Import Protection	-1.012 (0.637)	-0.967 (0.636)	0.695 (0.683)	0.295 (0.481)	0.056 (0.084)	-0.018 (0.053)
Firm Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,967	13,029	13,395	12,429	13,501	13,640
R^2	0.264	0.331	0.336	0.378	0.310	0.191
Within R^2	0.001	0.001	0.000	0.001	0.000	0.001

Notes: Standard errors clustered at the firm level are in parentheses. ***, **, * indicate statistical significance at the 1, 5, and 10 percent levels, respectively. Estimation period: 2015–2019 at an annual frequency. $\Delta \text{Log COGS}$ is the log difference in cost of goods sold (COGS), $\Delta \text{Log Sales}$ is the log difference in sales, $\frac{\Delta \text{Cash Flow}}{\text{Sales}}$ is the change in cash flow over lag sales, $\Delta \text{Log Emp.}$ is the log difference in employment, $\frac{\Delta \text{Inventories}}{\text{Assets}}$ is the change in inventories over lag assets, and $\frac{\Delta \text{CAPEX}}{\text{Assets}}$ is the change in capital expenditure (CAPEX) over lag assets.

increase in our import cost measure increases COGS by 1.2 percent and sales by 1.1 percent while reducing cash flow by 1.3 percent (of sales) and CAPEX by 0.2 percent (of assets).¹⁵ The import cost measure does not have any statistically significant effect on inventories or employment. Taken together, these results suggest that tariffs increase the relative cost of imports, which contributes to an increase in total costs. This effect is stronger for firms with a greater import cost exposure. We cannot rule out the substitution from imports toward other factors of production, but our estimates indicate that such substitution may be limited, especially in the short run.

separately. This exercise reveals no apparent pre-trends. [Table B.2](#) shows estimates of the model with a discrete treatment (that is, set to one if the corresponding channel measure is non-zero). These results align with the baseline.

¹⁵The standard deviation of the import costs variable is 0.002, or 0.2 percent. Hence, a firm that experienced a 1 percent increase in import cost increased total costs by 6 percent and sales by 5 percent. This coefficient is remarkably similar to the long-term effect of the direct import cost pass-through into producer prices found by [Flaen et al. \(2021\)](#) using industry-level data. This large (greater than 1) effect can be due to the fact that we can observe only a proxy of US-related costs, which is the variable normalizing import costs. Moreover, COGS and sales used as dependent variables are global. Another possibility is that our measure is correlated with other kinds of direct or indirect unobservable costs, which we are currently investigating. [Appendix Figure A.8](#) shows that a pre-trend is not a likely explanation.

While the effect of tariffs on COGS is intuitive, their effect on sales may look surprising. We note, however, that these are relative effects: Sales of firms highly exposed to the tariffs increase *relative* to sales of firms with low exposure. That is, a positive coefficient may coexist with sales declining for both groups but less so for the more exposed group. We rationalize this relative effect as follows. The tariff effect on sales can be decomposed into a quantity effect and a price effect. The increase in sales suggests that the price effect dominates the quantity effect. Highly exposed firms are more likely to increase prices by more than less exposed firms. However, we cannot separate the price and quantity effects because we do not observe them. On the financial side, an increase in tariffs reduces cash flows and capital expenditure through the import cost channel.

The suppliers' cost channel has a significant (positive) effect on firms' sales but not on other outcomes. While the effect on COGS is statistically insignificant, it is positive, with sizable effects well within the confidence bands. We discuss these effects in more detail later.

Next, export retaliation significantly lowers cash flow but raises CAPEX. We attribute the negative effect on cash flow to lower foreign demand. The increase in CAPEX may indicate firms' desire to expand their domestic or foreign (unaffected) customer base.

Table 3 presents our estimates of Equation (9), which employs variation across sectors and includes the sectoral import protection measure. Our results on the financial side remain mostly unchanged: Import cost reduces cash flow and CAPEX, with export retaliation also reducing cash flows. Contrary to within-industry specification, we do not find significant effects of import cost on sales or costs. Thus, firm-level data and within-industry variation materially improve the identification strategy employed in our analyses.

When allowing for variation across sectors over time, however, we find a significant positive effect of suppliers' costs on COGS and sales. This suggests that the relevant variation in suppliers' costs stems from variation across sectors. One possibility is that firms tend to rely on a handful of suppliers. Once we control for sector-time effects, this variation is absorbed, yielding insignificant results for suppliers' costs.

The export retaliation channel has a negative effect on cash flow (as before) but not on CAPEX (contrary to within regressions) or other outcomes. The effects of sector import protection measure are insignificant for all outcome variables.

To summarize, we find that import tariffs increase costs and sales due to both a direct effect on import costs and an indirect effect operating through suppliers' costs and, in turn, affecting downstream firms' costs and sales. Moreover, we find that cash flow declines in response to an increase in import costs and due to export retaliation. Import costs and export retaliation also have a significant effect on CAPEX, with the former reducing it and the latter increasing it. We find no statistically significant effects for the sector import protection channel.

Table 4: The Effects of 2025 Tariffs, within Industry-Time

	$\Delta \text{Log COGS}$ (1)	$\Delta \text{Log Sales}$ (2)	$\frac{\Delta \text{CashFlow}}{\text{Sales}}$ (3)	$\frac{\Delta \text{Inventories}}{\text{Assets}}$ (4)	$\frac{\Delta \text{CAPEX}}{\text{Assets}}$ (5)
Import Cost	1.318 (1.115)	0.772 (1.040)	-0.707 (0.885)	0.101 (0.096)	-0.037** (0.018)
Suppliers' Cost	0.060 (0.832)	-0.243 (0.688)	0.952 (0.754)	-0.026 (0.067)	0.009 (0.013)
Export Retaliation	1.081 (1.205)	2.373** (1.162)	2.964** (1.415)	0.147* (0.089)	-0.021 (0.021)
Firm Effects	Yes	Yes	Yes	Yes	Yes
NAICS3 $\times$ Date Effects	Yes	Yes	Yes	Yes	Yes
Observations	27,435	27,623	27,878	27,878	27,878
R^2	0.318	0.331	0.354	0.465	0.241
Within R^2	0.000	0.000	0.000	0.001	0.000

Notes: Standard errors clustered at the firm level are in parentheses. ***, **, * indicate statistical significance at the 1, 5, and 10 percent levels, respectively. Estimation period: 2023:Q1–2025:Q2. $\Delta \text{Log COGS}$ is the log difference in cost of goods sold (COGS), $\Delta \text{Log Sales}$ is the log difference in sales, $\frac{\Delta \text{Cash Flow}}{\text{Sales}}$ is the change in cash flow over lag sales, $\frac{\Delta \text{Inventories}}{\text{Assets}}$ is the change in inventories over lag assets, and $\frac{\Delta \text{CAPEX}}{\text{Assets}}$ is the change in capital expenditure (CAPEX) over lag assets.

4.2 2025 Tariff Episode

For the 2025 episode, we estimate our empirical model for the period of 2023:Q1 through 2025:Q2.¹⁶ Table 4 shows the estimates of the baseline specification, wherein we control for industry-time fixed effects.¹⁷ Unlike with the 2018 episode, we do not find any significant effect of the import cost channel except for the negative effect on CAPEX. The CAPEX response in 2025 is consistent with the response in 2018. Quantitatively, a 1 standard-deviation increase in import cost (1.1 percent) reduces CAPEX by 0.04 percent, roughly similar to the 0.02 percent reduction that we find for 2018. We do not find any evidence of suppliers' cost having a significant effect on any outcome variable.

In contrast to our findings for 2018, export retaliation increases domestic sales, cash flow, and

¹⁶At the time of writing, the Compustat data have only partial information for the third quarter of 2025. We switch to quarterly frequencies because annual data for 2025 are not available yet. Because employment data are only available at an annual frequency, we drop it from the set of outcomes.

¹⁷Appendix Figure A.9 shows a dynamic version of this specification, with each treatment exposure used separately. While sales and costs exhibit no apparent pre-trends, the parallel-trends assumption required by the DiD identification appears tenuous for cash flows.

inventories during the 2025 episode. Quantitatively, a 1 standard-deviation increase in the export retaliation measure (0.7 percent) increases sales by 1.7 percent, cash flows by 2.1 percent, and inventories by 0.1 percent. These results may indicate a sell-off of inventories or front-loading from buyers. Alternatively, in 2025, the United States may have put more effort in negotiations to extract concessions from its trade partners and to retain market access for its exporters. For instance, the European Union, Malaysia, Cambodia, and China all agreed to reduce tariffs on some US goods, a commitment that is not currently captured in our exposure measure but that may be somewhat already reflected in exporter performance.

We acknowledge that it is still too early to fully assess the impact of the 2025 tariffs on firms' financial performance. Nonetheless, our preliminary results suggest many similarities between the effects of the 2018 and 2025 episodes. In particular, we find comparable responses to the import cost and suppliers' cost channels, albeit less precisely estimated for the 2025 episode, and more pronounced effects of export retaliation during the 2025 tariff episode.

4.3 Exposure Channels and Firms' Tariff Sentiment

[Table 5](#) indicates the relevance of each of our four channels of tariff exposure to firm sentiment by showing the results from our estimates of [Equation \(9\)](#). Each channel is expressed in terms of a standard deviation for exposed companies. Therefore, the coefficients are interpretable as the percentage increase in tariff mentions for a 1 standard-deviation exposure in any given episode. For instance, the coefficients on import cost for 2018 imply that a 1 standard-deviation exposure to the 2018 trade war via higher (direct) import costs is associated with a 0.2 percentage point increase in negative sentiment and a 0.4 percentage point increase in risk sentiment.

The direct import cost channel has the largest coefficients for both tariff episodes. Sector import protection is associated with negative sentiment and higher risk. To the extent that this measure effectively captures the degree of import protection of any given sector, it should be associated with less negative sentiment. We believe this could be due to spurious correlation of this measure with other industry-level characteristics. This result underscores the difficulty of measuring firm-level protectionism. We note that, for an equal degree of exposure, the sentiment coefficients are relatively larger for the 2025 episode. This may be due to the salience—both in magnitude and breadth—of tariff hikes during the 2025 episode.

5 Conclusion

This paper shows that an increase in direct and indirect import costs due to the 2018 tariffs led to a significant increase in COGS and domestic sales and to a decrease in cash flow and CAPEX. For the 2025 episode, these two channels have had relatively smaller effects so far. Export retaliation

Table 5: Tariff Exposure Channels and Firm Sentiment

	2018 Episode			2025 Episode		
	Exposure (1)	Negative (2)	Risk (3)	Exposure (4)	Negative (5)	Risk (6)
Import Cost	0.202*** (0.024)	0.219*** (0.029)	0.436*** (0.085)	0.564*** (0.051)	0.520*** (0.071)	1.870*** (0.259)
Suppliers' Cost	0.068*** (0.012)	0.065*** (0.014)	0.196*** (0.042)	0.258*** (0.033)	0.253*** (0.045)	0.904*** (0.177)
Export Retaliation	0.020 (0.021)	0.026 (0.027)	0.090 (0.072)	0.280*** (0.050)	0.321*** (0.073)	1.342*** (0.280)
Sector Import Protection	0.104*** (0.016)	0.141*** (0.020)	0.271*** (0.056)	0.460*** (0.044)	0.512*** (0.062)	1.256*** (0.229)
Firm Effects	Yes	Yes	Yes	Yes	Yes	Yes
Quarter Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	40,331	40,331	40,331	24,164	24,164	24,164
R ²	0.392	0.297	0.177	0.583	0.456	0.408
Within R ²	0.082	0.054	0.021	0.177	0.092	0.062

Notes: The exposure, negative, and risk sentiment measures are defined as in [Equations \(1\) through \(3\)](#). Standard errors clustered at the firm level are in parentheses. ***, **, * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

had a significant negative effect on cash flow but not on any other measure in 2018. By contrast, we find important positive effects of export retaliation on sales, cash flows and inventories during the first half of 2025. We do not find a significant effect of import protection in either 2018 or 2025.

We acknowledge that the 2025 tariff episode is still ongoing, and therefore our results need to be taken with caution. In addition, our 2018 analysis suggests that the effects of tariffs on real and financial outcomes may take longer than just two quarters to fully materialize. Nonetheless, our comparison of the 2018 and 2025 tariff episodes to date suggests many similarities in firm-level real and financial outcomes.

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Online Appendix *(not for publication)*

A Additional Figures

Figure A.1: Distribution of Import Cost Exposure by Industry

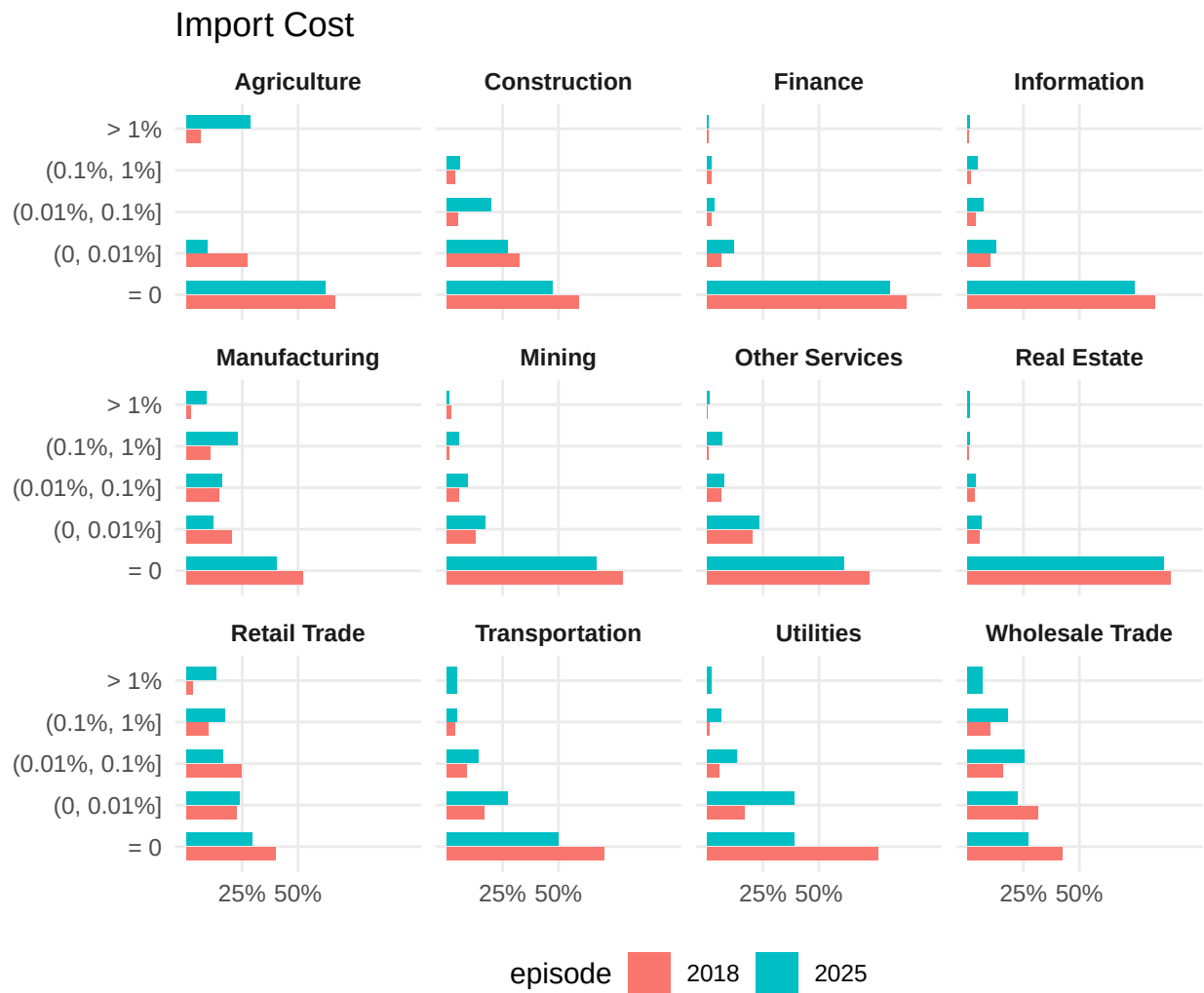


Figure A.2: Distribution of Importing Supplier Exposure by Industry

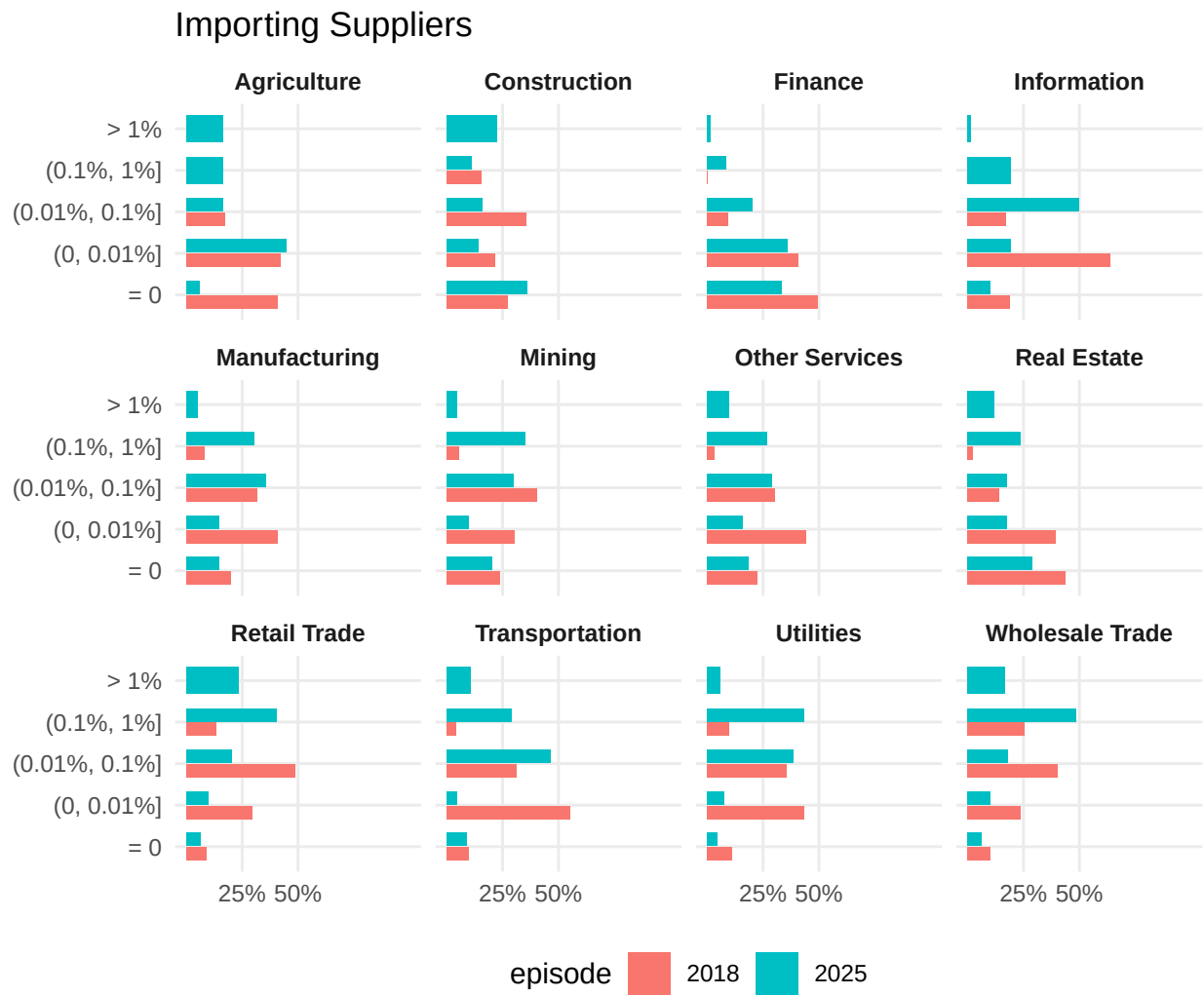


Figure A.3: Distribution of Export Retaliation Exposure

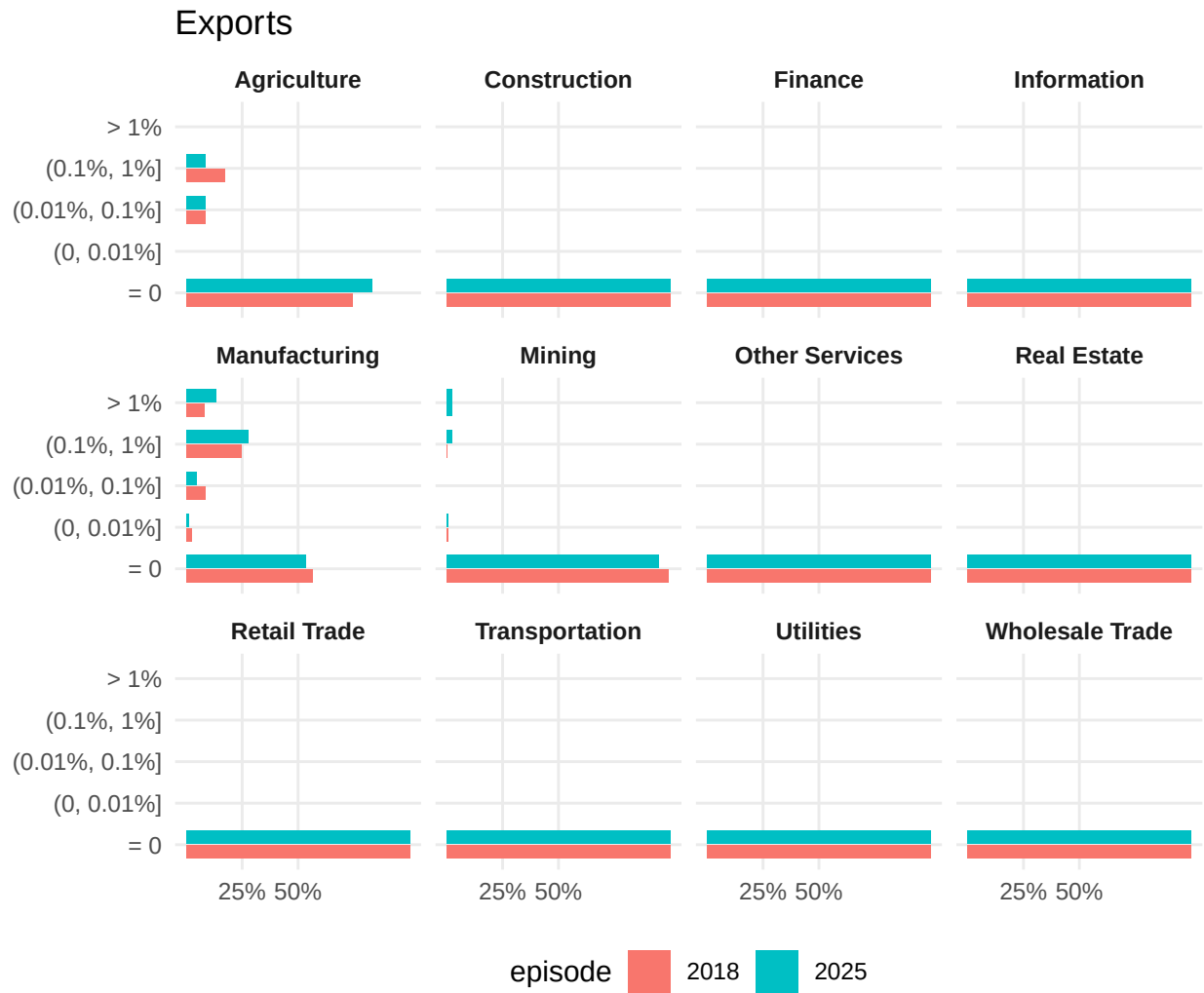


Figure A.4: Extensive Margin Set-intersection – 2018 Episode

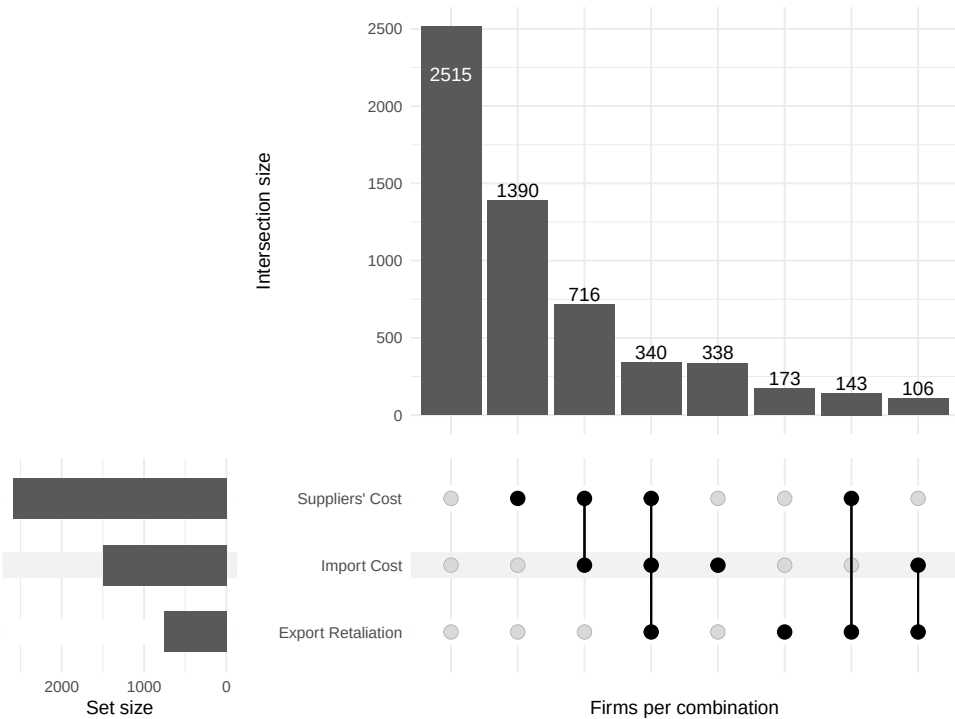
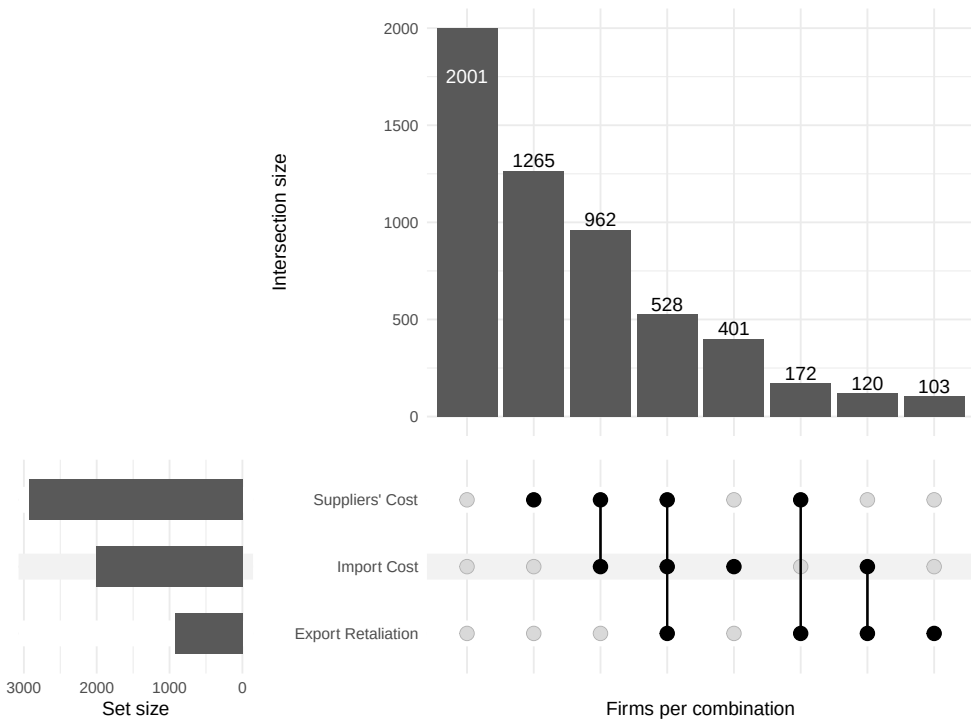


Figure A.5: Extensive Margin Set-intersection – 2025 Episode

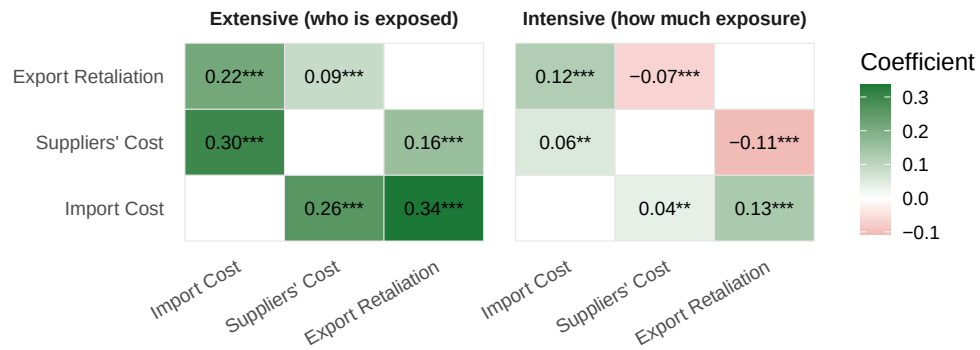


Notes: Set-intersection plot of number of companies in the 2017 and 2024 trade war episodes with exposure higher than zero, and the intersection combinations for each exposure.

Figure A.6: Regression Coefficient Matrices of Exposure – 2018 Episode

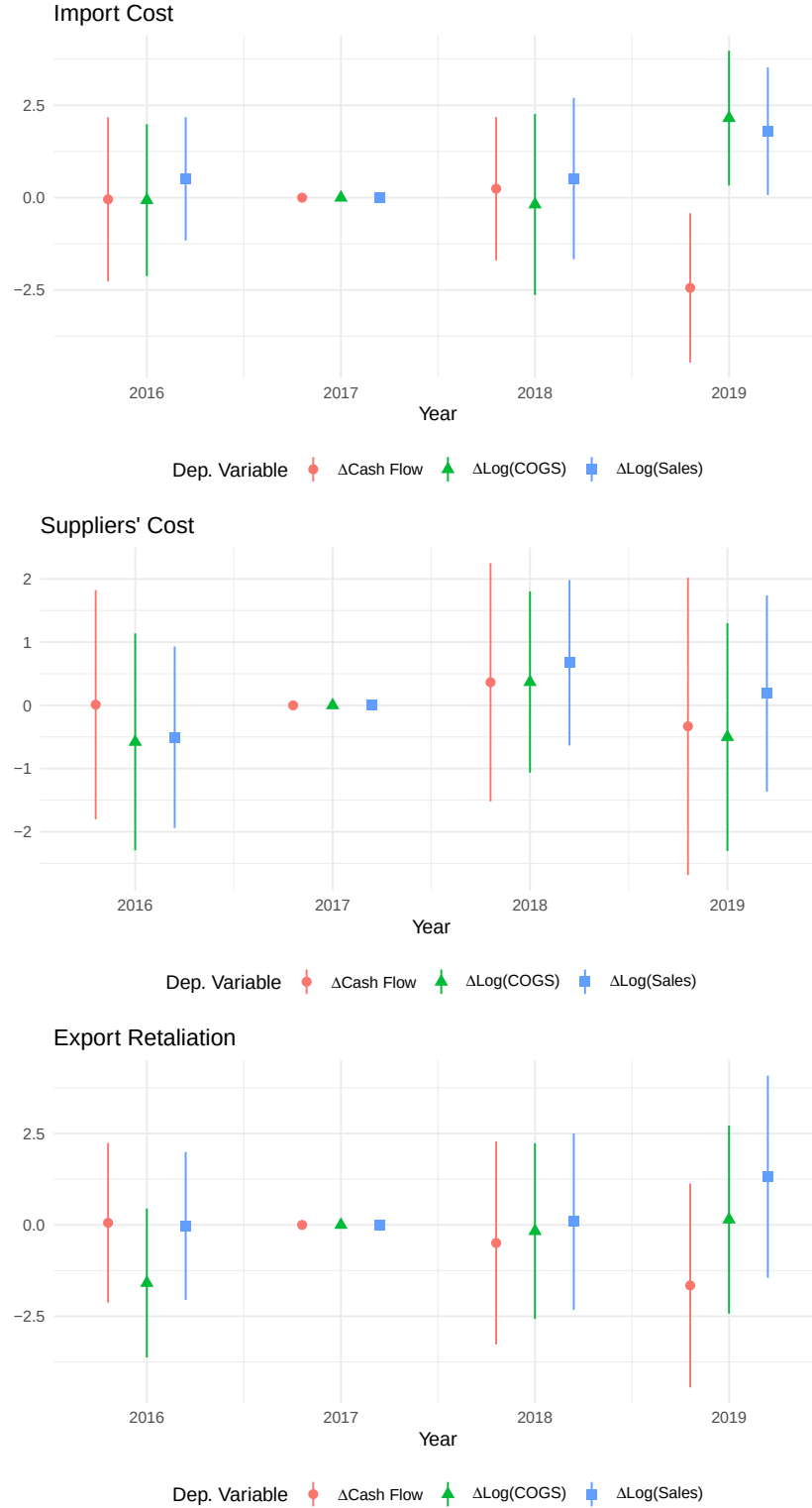


Figure A.7: Regression Coefficient Matrices of Exposure – 2025 Episode



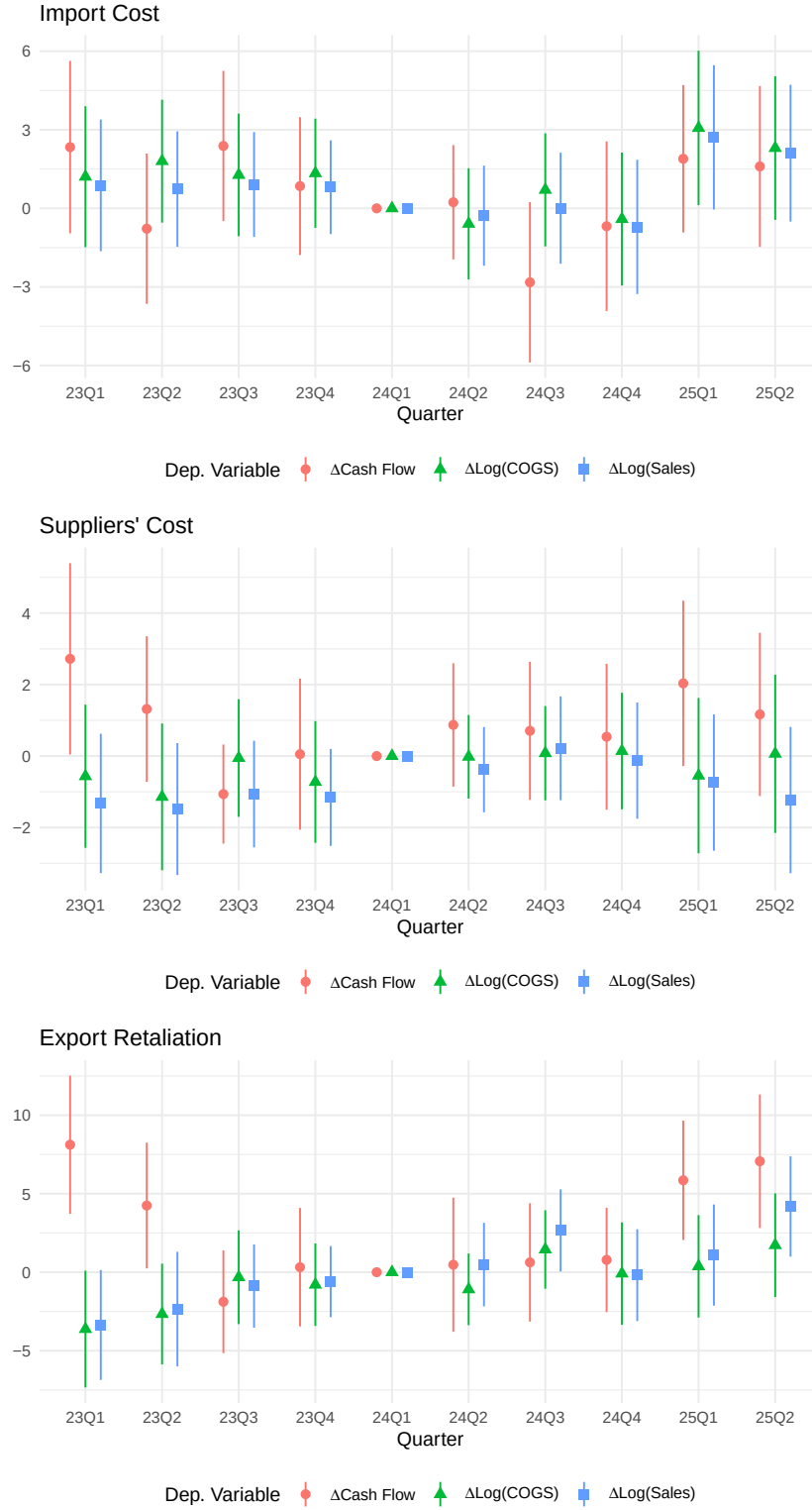
Notes: Coefficient estimates for the following model: $y_f = \beta \cdot x_f + \varepsilon_f$, where y is the exposure in the matrix column, and x is the channel in the row column, estimated separately for the two episodes. Extensive margin coefficients are estimated on a liner probability model where x and y are dummies for positive exposure. The intensive margin coefficients are estimated on continuous exposures conditional on positive value. Partial coefficients, controlling for industry fixed effects and log assets, present the same pattern, albeit the magnitudes are lower. The results are available on request.

Figure A.8: Annual Response for 2018 Episode – Dynamics



Notes: Coefficient estimates for the following model: $y_{ft} = \delta_f + \delta_{it} + \sum_{l=-1}^{t+2} \beta_l^x X_f + \varepsilon_{ft}$, where X is either our direct import cost, supplier's exposure, or export retaliation measure. Each channel is estimated in isolation. Standard errors clustered by firm.

Figure A.9: Quarterly Response for 2025 Episode – Dynamics



Notes: Coefficient estimates for the following model: $y_{ft} = \delta_f + \delta_{it} + \sum_{l=-4}^{t+6} \beta_l^x X_f + \varepsilon_{ft}$, where X is either our direct import cost, supplier's exposure, or export retaliation measure. Each channel is estimated in isolation. Standard errors clustered by firm.

B Additional Tables

Table B.1: Balance Test

Dependent Variables: Model:	Import Cost (1)	Import Intensity (2)	Tariff Rate (3)	Suppliers' Cost (4)	Foreign Sales (5)	Export Retaliation (6)
<i>Variables</i>						
Log(Assets)	0.0069*** (0.0017)	0.1702*** (0.0495)	0.1667*** (0.0240)	0.0014*** (0.0002)	1.424*** (0.4442)	0.0115*** (0.0038)
Leverage	0.0052 (0.0032)	0.1367 (0.1664)	0.0202 (0.0502)	0.0016 (0.0018)	0.0093 (0.5789)	-0.0050 (0.0059)
Sales/Assets	0.0007* (0.0004)	0.1010 (0.0812)	0.0165** (0.0068)	0.0013* (0.0007)	0.0979* (0.0510)	0.0009 (0.0006)
Profitability	-0.0005 (0.0003)	0.0291** (0.0138)	-0.0093** (0.0039)	-0.0012 (0.0008)	-0.0488 (0.0321)	-0.0003 (0.0002)
<i>Fixed-effects</i>						
NAICS3	Yes	Yes	Yes	Yes	Yes	Yes
<i>Fit statistics</i>						
Observations	46,202	45,942	58,446	31,693	58,446	58,446
R ²	0.16265	0.16514	0.10503	0.24459	0.29706	0.23650
Within R ²	0.01883	0.01177	0.02102	0.01128	0.03499	0.02585

Notes: Standard errors clustered at the firm level are in parentheses. ***, **, * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table B.2: 2018 Episode - Discrete Version

	$\Delta \text{Log COGS}$ (1)	$\Delta \text{Log Sales}$ (2)	$\frac{\Delta \text{Cash Flow}}{\text{Sales}}$ (3)	$\Delta \text{Log Emp.}$ (4)	$\frac{\Delta \text{Inventories}}{\text{Assets}}$ (5)	$\frac{\Delta \text{CAPEX}}{\text{Assets}}$ (6)
Import Cost	0.038*** (0.011)	0.043*** (0.010)	-0.030** (0.012)	0.012 (0.008)	0.001 (0.001)	0.001 (0.001)
Suppliers' Cost	-0.023 (0.017)	-0.011 (0.016)	-0.022 (0.025)	0.016 (0.011)	-0.001 (0.001)	0.001 (0.001)
Export Retaliation	0.007 (0.015)	0.005 (0.016)	-0.089*** (0.023)	0.006 (0.012)	0.001 (0.002)	0.001 (0.001)
Firm Effects	Yes	Yes	Yes	Yes	Yes	Yes
NAICS3 $\times$ Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,952	13,014	13,380	12,414	13,486	13,625
R ²	0.350	0.385	0.380	0.405	0.352	0.295
Within R ²	0.001	0.001	0.002	0.001	0.000	0.000

Notes: Standard errors clustered at the firm level are in parentheses. ***, **, * indicate statistical significance at the 1, 5, and 10 percent levels, respectively. $\Delta \text{Log COGS}$ is the log difference in cost of goods sold (COGS), $\Delta \text{Log Sales}$ is the log difference in sales, $\frac{\Delta \text{Cash Flow}}{\text{Sales}}$ the change in cash flow over lag sales, $\Delta \text{Log Emp.}$ is the log difference in employment, $\frac{\Delta \text{Inventories}}{\text{Assets}}$ is the change in inventories over lag assets, and $\frac{\Delta \text{CAPEX}}{\text{Assets}}$ is the change in capital expenditures (CAPEX) over lag assets. A coefficient of 0.038 implies an increase of 3.8 percentage points.

C Data Appendix

C.1 Firm-level Data

C.1.1 Panjiva

Our firm-level US import data come from Panjiva and include bill-of-lading data of all US maritime imports. So that our analyses includes the substantial volume of non-maritime trade occurring between the United States and Mexico, we supplement that data set with another Panjiva product, one covering Mexican exports. It includes maritime as well as non-maritime (truck, air, pipeline, etc.) trade records between Mexico and the United States. We append the two data sets by identifying in each data set the unique Panjiva firm ID of the importing US firm. Since Panjiva does not provide a similar database for Canadian exports, we are unable to account for non-maritime trade with Canada.

The resulting data set contains the Panjiva ID of the importing US firm, the six-digit Harmonized System (HS) product code of the goods shipped, a text field containing information about the goods' origins, the country from which the shipment departed for the United States, the volume of trade in twenty-foot equivalent units (TEU), and the Panjiva-imputed value of goods in US dollars.

Improving shipment's country of origin identification. Some further work needs to be done to identify each shipment's country of origin. The Panjiva field *shpmtorigin* is a well-formatted string indicating the country from which the shipment departed for the United States. In many cases, this country is not the country that produced the good. Another Panjiva field, *placeofreceipt*, does indicate the location from which the good originated. However, it is poorly formatted, often containing misspelled or truncated city or country names.

Given the importance of accurately determining a good's true origin for the purpose of calculating tariffs, we extracted country information from this text field. The process is as follows.

1. We combed the strings themselves to identify any known country names via fuzzy matching.
2. We systematically removed as much extraneous information as possible from the strings, leaving only what were plausibly city names.
3. We then applied a fuzzy matching algorithm to determine whether the cleaned string was plausibly a port city as listed in the UN location database.
4. We extracted the country corresponding to the city. When a match could not be identified, we defaulted to the country in *shpmtorigin*.
5. Using US Census imports data as a point of reference, we verified that this process improves the accuracy of import origin attribution.

After this process, the modified origin variable we create enables our data to explain 76 percent of the variation in 2017 import value by country,¹⁸ whereas the Panjiva data that use only *shpmtorigin* to identify the country of origin explains only 65 percent.

Matching Panjiva to Compustat. Panjiva firms are identified by an S&P-assigned Panjiva ID. To match Panjiva firm IDs with Compustat data, we use historical records of an S&P-provided crosswalk matching Panjiva ID to Company ID, a firm identifier that is consistent across S&P data products including Compustat. We further match each Company ID to that firm’s ultimate parent’s Company ID using another crosswalk provided by S&P. For any given time, S&P provides a crosswalk for only the current maps from the Company ID to the ultimate parent’s Company ID. We combine information from historical versions of the crosswalk to account for changes in firm ownership over time.

C.1.2 Factset Supply Chain

Factset Supply Chain collects and verifies supply chain relationship information using various sources: 10-K filings, conference call transcripts, company press releases, company websites, and news media reports. It provides records of supplier–customer relationships, competitors, joint ventures, creditors, and other factors that were in effect on any given date from 2003 to 2025. We exclude intra-company relationships and filter customer–supplier relationships active at any given time in 2017 or 2024.

Matching Factset and S&P Capital IQ. We then match each customer company ID from Factset with S&P CapitalIQ ID, the firm identifier in Panjiva. To do so, we use the following ordered criteria of matching, as in [Barbiero \(2023\)](#): Legal Entity ID (or Taxpayer Identification Number for US companies), historical CUSIP ID, and company name fuzzy matching conditional on two companies residing in the same state and country with a cosine similarity score of at least 90 percent. The master matching file contains successful matching between Factset ID and CapitalIQ ID for 5.3 million companies. This enables us to match 60 percent of the companies in the Factset Supply chain data set.

After matching the Factset IDs with the Capital IQ company IDs, we use Panjiva and CapitalIQ sales and import information for both private and public companies to build the supplier cost exposure in [Equation \(5\)](#).

¹⁸This calculation omits import values for Mexico and Canada due to Panjiva’s data limitations for these countries.

C.1.3 Factset Geographic Revenue

The Factset Geographic Revenue (GeoRev) data set captures revenue exposures of global entities to different countries/regions over time. Factset exploits annual reports and regulatory filings to achieve a consistent record. GeoRev covers about 72,000 entities for both 2017 and 2024. Most of these entities are publicly listed. After applying our matching strategy with capital IQ, we cover 47,771 entities. Not all companies declare their revenue segments at the country level. For this reason, Factset harmonizes heterogeneous declarations of sales distribution across geographies at different levels of aggregation and assigns a “certainty rank” to each value according to whether it was declared directly by the firm, imputed from previous values, or imputed from more aggregate firm-level data.

The main advantage of this data set is the vast array of sources used to infer the geographic revenues of each company and its global coverage. The data set is not well suited to use for studying the extensive margin of foreign-revenue exposure, as 70 percent of the country-level records have some degree of imputation, even though most of them are associated with a high to medium degree of certainty. Jointly with the industry information from Compustat, it offers the best exposure predictor available for exposure to retaliation.

C.1.4 Compustat

From Compustat, we download firm characteristics including employment, net sales, cost of materials, total operating expenses, and profitability at the quarterly and annual frequencies. Compustat firms are identified by the Capital IQ identifier GVKEY, which we aggregate up to the Panjiva-provided ultimate parent Company ID. We first remove from the Compustat quarterly data all subsidiary firms whose ultimate parent is observed in the Compustat data to avoid double counting. When an ultimate parent company is identified but not present in the Compustat data, a synthetic ultimate parent Company ID is created by aggregating subsidiaries to their parent. To ensure accuracy in this aggregation within the quarter, subsidiary data are aggregated to the ultimate parent Company ID only if all subsidiary firms reported a value for the firm characteristic in the quarter.

Quarterly Compustat firm characteristics are reported according to fiscal and calendar dates, with firms having varying definitions of a fiscal year. Annual Compustat data are reported according to company fiscal years, so when annualizing quarterly variables and daily Panjiva data, we aggregate according to each company’s definition of the fiscal year to ensure imports and cost of goods sold are computed on the same dates for each firm’s tariff shock.

C.2 Tariffs

2018 Import and Export Tariffs. We use the tariff measure from [Fajgelbaum et al. \(2020\)](#) to construct our 2018 firm-level tariffs. The authors construct a monthly panel database of import and tariffs using data published by the US International Trade Commission (USITC) and export tariffs sourced from official documents released by foreign governments. The revisions from the baseline tariff, published at the beginning of each year, serve as tariff shocks from 2017:Q1 to 2019:Q4. We use the maximum tariff revision in the 2018 calendar year at the HS-10 level. This measure is then weighted by the 2017 six-digit HS-country-level import or export value from official US Census Bureau merchandise flow to build a weighted average HS-6-country-level average tariff rate increase.

2025 US Import Tariffs. Our 2025 tariff measure is a novel data set of changes in the statutory tariff rate at the HS10-by-country level. We construct a database of changes in the imposed tariff rate, recorded ad hoc at the time of each new announcement beginning in January 2025. We source tariff announcements from executive orders, White House memoranda, Federal Register notices, and letters and general announcements on Truth Social posts. Because the 2025 tariffs are frequently revised and exempted, we calculate the cumulative change in the imposed tariff rate since January 2025 as of July 1, 2025, at the HS-10 level. This measure is then weighted by the 2024 six-digit HS-country-level import value from official US Census Bureau merchandise flow to build a weighted average HS-6-country level average tariff rate increase.

2025 US Export Tariffs. Our 2025 export tariff measure is a novel data set of changes in the statutory tariff rate at the HS10-by-country level. We hand-collect news and announcements of retaliation from several countries. From our investigation, only Canada, China, and the European Union (EU) outlined clear plans for retaliation. The EU did not implement the plan. We gather the targeted product codes, tariff increases, and subsequent amendments from the Canada and China's ministry of finance websites. This measure is then weighted by the 2024 six-digit HS-country-level import value from official US Census Bureau merchandise flow to build a weighted average HS-6-country-level average tariff rate increase.

Merging Tariffs and Panjiva. We merge the tariffs onto Panjiva's firm-level imports at the HS-6 and country level. Using the Panjiva-imputed value of goods imported in the year preceding the implementation of the tariffs and the weighted average product-country tariffs, we obtain a firm-level tariff expenditure. This tariff expenditure is scaled by firm's cost of goods sold, reported in Compustat the year before the tariffs, for the firm-level tariff shock.