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# Trade Deflection: The Spillover Effects of U.S. Tariffs on Import Prices in Bystander Countries *

Sofie Grouws† Sharon Jeon‡ Giulia Lo Forte§ Justin Pierce¶

October 29, 2026

**Abstract**

Even as tariffs have reduced U.S. imports from China, Chinese exports have continued to expand globally. Yet despite the relevance of this redirected trade for firms and consumers, globally, there is little systematic evidence on how import prices have responded in "bystander" countries. We show that Chinese products targeted by U.S. tariffs experience persistent declines in import prices in bystander countries, and that these declines are largest in emerging markets. In exploring mechanisms for observed price declines, we show that they are larger for products that China exported heavily to the U.S. before the tariffs, in concentrated import markets, and in countries that are geopolitically closer to China. These findings are novel given the lack of price adjustment for Chinese imports documented in the U.S., the country that imposed the tariffs.

**Keywords:** import prices, inflation, pass-through, tariffs

**JEL classifications:** F14, F16, F62

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# 1 Introduction

Since 2018, the United States has pursued a historic increase in trade barriers, with China being a particular target of new tariffs. A literature has quickly sprung up in which a series of influential papers have examined the effects of these tariffs on import prices, economic activity, and welfare in the U.S. and China. However, while the tariffs have been linked to massive shifts in trade flows, there is much less evidence on the spillover effects of this reallocation for countries *other than* the U.S. and China, particularly regarding effects on import prices. Despite the importance of this channel for firms, consumers, and policymakers, there is, to our knowledge, no global empirical evidence about its relevance.

In this paper, we provide the first comprehensive empirical evidence on the effects of U.S. tariffs on China for import prices in bystander countries. We find that U.S. tariffs have led to a systematic and persistent fall in prices of tariffed Chinese products, relative to non-tariffed products, in other destination countries. These findings are notable, and they contrast with estimates from the literature focused on effects of tariffs on U.S. import prices, in which foundational papers have documented full pass-through (i.e. no reductions in import prices due to tariffs). In this sense, they uncover a puzzle regarding why Chinese export prices would adjust in third-country markets when they do not for trade with the U.S.[1] We also find that the price response is highly uneven across destinations, and that while much of the concern about the potential effects of deflected Chinese goods has arisen from high-income countries ("advanced economies" or "AEs"), the largest and most persistent price declines are observed in lower-income ("emerging market" or "EM") countries and member countries of the Association of Southeast Asian Nations (ASEAN).[2] When focusing on mechanisms for the responses of import prices, we find evidence for the relevance of factors highlighted in standard models—e.g. the importance of the U.S. market and the elasticity of substitution across varieties—but also for a key role for a non-economic factor: geopolitics. The latter helps to link the literatures on the reallocation of trade flows due to economic factors, like tariffs, versus more general "geoeconomic fragmentation."

The economic importance of the U.S. trade actions and the resulting reallocation of trade flows that we study are readily apparent in aggregate data (Figure 1). At the end of 2017, on the eve of the tariff increases we study, the share of U.S. imports sourced from China was over 22 percent. By December 2024, that share had plunged to 13 percent, with further declines to come as additional tariffs were put in place. The reallocation of Chinese exports across destination countries was similarly dramatic, with the share of China's exports destined for the U.S. falling sharply as the U.S. imposed tariffs. But despite these new barriers, China's total global exports rose by over 50 percent from 2017 to 2024, indicating that goods that might have otherwise been sent to the U.S. have been redirected elsewhere, a process known as "trade deflection" (Bown and Crowley, 2007). These aggregate shifts establish that redirection occurred on a large scale, but are silent on the terms of that redirection, which is the focus of this paper.

How this deflection might show up in prices is not obvious ex ante. If bystander markets absorb additional Chinese goods along a downward-sloping demand curve, prices should fall, and by more where demand is less elastic or where China's established position leaves little room to expand at unchanged terms. But it is possible that redirection may not lead to price declines. For example, the need for Chinese exporters to cover the fixed costs associated with redirecting goods to new markets could boost prices in those markets. Alternatively, the U.S. may be an unimportant destination for some Chinese export products, meaning

[1] A recent set of papers use more disaggregated data to estimate the extent of tariff pass-through, sometimes finding incomplete pass-through (Alviarez et al., 2023; Ignatenko, 2026; Ganapati and Hottman, 2026; Javorcik, Pierce and Wisniewski, 2025; Flaaen et al., 2025). In our data, we replicate the findings in Fajgelbaum et al. (2024) and Amiti, Kong and Weinstein (2020), with no relationship between U.S. tariffs and U.S. import prices.

[2] Media coverage, particularly in Europe, has raised the possibility of a surge in low-priced imports from China following U.S. tariffs, with concerns about effects on domestic producers. Examples include, "With Trump's tariffs, Europe fears a flood of cheap goods from China," (Shear and Smialek, 2025), "China reroutes clothes exports to Europe after U.S. tariffs upset trade" (Hancock, 2025) and "Pressure grows on Europe to act on Chinese import surge" (Martinez, Reid and Blenkinsop, 2025).

that deflection and price effects are minimal. Price effects may also be determined by the nature of the redirection of export volumes, which is also not clear, *ex ante*. On one hand, deflected exports might flow disproportionately to countries that are similar to the U.S., such as other advanced economies. On the other hand, the demand structure of emerging markets may align more closely with China's export basket, particularly if Chinese producers respond to U.S. tariffs by shifting toward goods with greater appeal in price-sensitive markets (Schott, 2008).

To conduct our baseline analysis of how the redirection of Chinese exports has affected import prices in bystander countries, we use six-digit HS import data for all available countries in the United Nations' Comtrade database covering the years 2017-2021. Measuring prices in these data is not straightforward, and this difficulty is likely part of why the evidence we provide has previously been unavailable. The presence of changing units of quantity (e.g. from kilograms to units) meant that average unit values were subject to large, spurious swings from year to year. Our paper includes a contribution in economic measurement via an algorithm that yields consistent units of quantity over time in Comtrade international trade data. This algorithm will be useful in a wide range of international trade applications requiring cross-country product-level data. With these consistent quantity data in hand, we calculate each product's exposure to the 2018-19 U.S. tariffs on China and employ a difference-in-differences approach to estimate the spillover effects of the tariffs on bystander countries' import prices, as well as quantities and values.[3]

Our central result concerns import prices. We provide the first evidence of how U.S. tariffs on Chinese goods affect import prices in a wide range of bystander countries across varying income levels and regions.[4] We find that, globally, U.S. tariffs are associated with statistically significant declines in bystander countries' prices, as measured by unit values, for imports from China. By 2021, prices for tariffed Chinese products have declined 4.4 percent relative to non-tariffed products, an economically significant amount with relevance to consumers, domestic producers, and policymakers in bystander countries. These effects are not uniform across country groups, and they depart from the public narrative. In particular, despite extensive media coverage, the relationship between tariffs and import prices is weaker and relatively short-lived for advanced economies in general, and the EU in particular. The most prominent effects, rather, are for emerging markets, where the negative association with prices is precisely estimated and increasing in magnitude over time, especially for the Asian countries that make up ASEAN.

Next, we investigate potential mechanisms that can explain why the price declines we document are so uneven across markets. We consider three categories of candidate mechanisms, each rooted in a distinct feature of pre-tariff trade: characteristics of a given product, characteristics of a given destination market, and geopolitical alignment with China. Among these, many of the product and market characteristics we consider follow from standard models, while the examination of the relevance of geopolitical alignment is more novel. We find that products for which the U.S. was an important export destination for China see larger declines in import prices due to U.S. tariffs. We also find that price decreases are larger in markets that were more concentrated across source countries and had higher elasticities of substitution across those sources, consistent with standard models. Finally, we provide the first evidence that import price declines are also larger in countries that are geopolitically closer to China, a pattern that holds within both advanced economies and emerging markets and is consistent with a realignment of Chinese trade flows along geopolitical lines. Indeed, we find that geopolitical alignment is the most statistically and economically significant characteristic driving heterogeneity in price responses. This finding speaks to the puzzle of why import prices decline in third-country markets but not in the U.S., the destination that is the most geopolitically distant from China according to a commonly-used measure of geopolitical distance.

[3] We explore alternative empirical strategies including event study and local projections in robustness checks.

[4] As discussed further below, Emlinger et al. (2026) consider effects on EU import prices in the 15 months after tariffs are imposed and find no effect.

We note that as with other papers examining tariff pass-through (Amiti, Redding and Weinstein, 2019; Fajgelbaum et al., 2019), our proxy for import prices is an average unit value, i.e. value divided by quantity for a particular exporter-importer-HS6-year trade flow. Thus, while we refer to these average unit values as "import prices" or "unit prices," it is important to note that they can be affected by changes in the composition of individual varieties within a given HS6-origin country-destination country triplet, unlike the transaction-level price measures considered in papers such as Ganapati and Hottman (2026) or Flaaen et al. (2025). While concerns about composition and measurement issues will always be present in all but the most specialized datasets, we perform an additional exercise to explore their potential economic significance: We redo our analysis using data for the European Union, which are available at a finer level of product disaggregation (CN8). Results are highly similar to our baseline, suggesting that our destination-origin-HS6-year-level analysis provides meaningful estimates of the relationship between tariffs and import prices. We also note that the results in this paper necessarily relate to the implications of the 2018-19 tariffs, and the deflection effects of more recent tariffs could be different, especially because they cover a broad set of countries, leaving few true "bystander" countries. Another potential measurement concern could arise from trans-shipment of goods produced in China to bystander countries where they are fraudulently relabeled as a product of the bystander, in order to evade taxes. As we discuss below, researchers who have carefully examined the extent of trans-shipment (Iyoha et al., 2025; Freund, 2025; Schulze and Xin, 2025) find that it is fairly small in terms of value and swamped by the role of actual shifts in production to those countries.

Our baseline estimates are based on a sample covering the years 2017-2021 due to changes in HS6 product codes by the World Customs Organization prior to and subsequent to the sample. However, given our use of a difference-in-differences strategy, we would also like to evaluate the validity of the parallel trends assumption inherent in that approach, which requires additional pre-tariff years of data. To complete this evaluation, we focus on the set of product codes that remain unchanged across the 2012 and 2017 HS vintages, which accounts for 88 percent of the products in the baseline analysis, and include data for the years 2015 and 2016. Results using this extended sample show no statistically significant relationship between tariffs and import prices in pre-tariff years for the global sample, indicating that the parallel trends assumption holds in this setting.

The tariff-associated price declines we document are also accompanied by a reallocation of Chinese export volumes toward the same destination countries, a combination that points to a shift in Chinese export supply rather than to changes in destination-market demand. We find that the U.S. tariffs are associated with statistically significant increases in the quantities of bystander countries' imports from China. These effects are widespread across countries, and the magnitudes are economically significant, with quantities of tariffed products imported from China rising by 8 percent in 2019, on average, relative to non-tariffed products.[5] By contrast, we find that responses for import values are smaller and more imprecisely estimated, highlighting the importance of using a harmonized dataset that allows examination of quantities and prices. In terms of the existing literature, while several papers have examined the reallocation of U.S. imports across source countries (Nicita, 2019; Bown, 2022; Freund et al., 2024; Alfaro and Chor, 2023; Handley, Kamal and Monarch, 2024), and others have examined the ability of bystander countries to increase their own exports (Fajgelbaum et al., 2024), the reduced form estimates we provide on the reallocation of Chinese exports to a comprehensive set of destinations in response to tariffs had been previously lacking.

Our baseline results are robust to a range of robustness checks, including weighting by import values in the destination country and using a continuous measure of tariff exposure based on the share of import value covered. In addition, while we use a difference-in-differences approach as in Flaaen and Pierce (2026) to present our main results, we show that we obtain similar estimates using two alternative strategies: an event

[5] We note that, unlike our main results relating to import prices, we do find evidence of pre-existing trends in import volumes, as described in Appendix Section C.4.2.

study *à la* Fajgelbaum et al. (2019) and local projections as in Jordà (2005). These approaches address the staggered timing of tariffs across products and dynamic responses to tariffs, respectively.

This paper contributes to the rapidly growing literature on the economic effects of massive recent tariffs. Substantial attention has been devoted to the effect of tariffs on U.S. import prices (Amiti, Redding and Weinstein, 2019; Fajgelbaum et al., 2019; Flaaen, Hortaçsu and Tintelnot, 2020; Cavallo et al., 2021; Cavallo, Llamas and Vazquez, 2025; Minton and Somale, 2025; Bai, Jaccard and Stumpner, 2026), U.S. employment and manufacturing activity (Flaaen and Pierce, 2026; Javorcik et al., 2025), U.S. export growth (Handley, Kamal and Monarch, 2025), U.S. sourcing patterns (Bown, 2022; Alfaro and Chor, 2023; Javorcik, Pierce and Wisniewski, 2025), and U.S. welfare when tariffs are interacted with industrial policy (Ju et al., 2024). Chor and Li (2024) examine the effects of U.S. tariffs on economic activity in China.

However, despite the massive shifts in global trade since 2018, less attention has been devoted to the spillover effects of tariffs to countries beyond the U.S. and China, and almost none to prices in those countries. Most papers that have considered such spillovers tend to focus on the potential for bystander countries to replace China as a source of U.S. imports (Freund et al., 2024; Alfaro and Chor, 2023), or to increase exports globally (Fajgelbaum et al., 2024), with availability of financing being an important driver for these countries' attempts to expand shipments to the U.S. (Alfaro et al., 2025; Correa et al., 2025).[6] Another example of research on third-country exports is Utar, Zurita and Torres (2025), who document an increase in net exports by Mexican firms associated with U.S.-China tariffs, particularly for foreign-owned multinationals that produce high-tech goods using imported inputs.[7]

Still, the literature has focused mostly on third countries' export expansion, rather than their imports and import prices. Two notable exceptions are worth flagging and are closely related to our paper. First, Benguria and Saffie (2024), who explore how U.S. exports shifted away from countries that imposed retaliatory tariffs and toward other countries. Benguria and Saffie (2024) find an important role for financial factors (Manova, 2013) and relationship stickiness (Martin, Mejean and Parenti, 2026) in determining the extent of those export moves and provide a model that rationalizes these empirical findings.[8] Second, Antràs, Kulesza and Presbitero (2026), who provide model-based measures of a country's exposure to various effects of U.S. tariff changes, derive theoretical predictions for the expected change in Chinese export prices, and find a negative relationship between such changes and trade values around the 2025 "Liberation Day" tariffs. These contemporaneous findings provide a theoretical basis for our empirical analysis, while our results support the theoretical predictions in their model. Our contribution is to provide what is, to our knowledge, the first comprehensive empirical estimates of the relationship between the 2018-19 U.S. tariffs and import prices in alternative destinations, and an investigation of the mechanisms behind the heterogeneous effects of trade deflection across products and markets.

Recent research using dynamic general equilibrium trade models also provides frameworks that support our empirical analysis. In the model presented in Hoang and Mix (2026), China faces two tariff-related shocks to its exports: a negative demand shock from U.S. tariffs that lowers prices and wages in China, and a supply shock from Chinese retaliatory tariffs on U.S. imports, which raises costs for Chinese exporters. In their model and empirical results, the demand shock dominates, so that China experiences a terms of trade deterioration and the world's imports from China increase. Here, we provide the first empirical evidence that this shift in trade is associated with a relative decline in global import prices. Reyes-Heroles, Traiberman and Van Leemput (2020) provide a dynamic general equilibrium trade model that captures features of trade between Emerging Markets and Advanced Economies. They conduct simulations of several

[6] Xu (2022) highlights the relevance of trade financing in trade flows in a historical context.

[7] The reliance on Chinese inputs among bystander countries increasing exports to the U.S. has also been noted by others including Alfaro and Chor (2023), Hoang and Lewis (2024), and Schulze and Xin (2025).

[8] In an appendix, Benguria and Saffie (2024) examine the effect of retaliatory tariffs on U.S. export prices and find no effect, consistent with the literature on U.S. tariff pass-through.

scenarios involving higher trade costs, including the U.S.-China trade tensions of 2018-19, and find that EMs experience gains in GDP and welfare, partially due to lower prices on imported capital goods. Each of these papers provides a theoretical justification for the types of channels we investigate empirically in this paper.

Our paper also builds on the important work of Bown and Crowley (2007), who provided the first detailed study of the type of trade deflection we examine here, focusing on the effects of antidumping duties. In particular, Bown and Crowley (2007) were the first to explicitly consider the differing reactions of exports to discriminatory tariffs (applied by an importer against one of its import source countries), versus nondiscriminatory tariffs (applied against all source countries).[9] They propose a three-country Cournot model, in which goods are strategic substitutes and marginal costs are increasing in production, and obtain theoretical predictions of adjustments in trade flows under the two types of tariffs. Most relevantly for our setting, they find that the average antidumping duty imposed by the U.S. against Japan led to a 5-7 percent increase in deflected Japanese exports of the affected product to third countries. A follow-up paper (Bown and Crowley, 2006) focused on trade deflection to the EU finds that these U.S. antidumping duties led to redirected Japanese exports and lower unit values. Building on this work, Grant and Anders (2010) find trade deflection effects arising from U.S. non-tariff barriers on seafood imports, and Crowley, Meng and Song (2018) show that trade policy uncertainty arising from antidumping investigations can lead to similar trade deflection effects.[10] Here, we consider the potential effects of trade deflection—including effects on import prices for all bystander countries—following the start of a historically large increase in tariffs on a broad range of products, imposed by the world's largest importer against the world's largest exporter.

Highlighting the relevance of this topic to policymakers, a series of policy pieces—typically focused on the EU as a potential destination for Chinese exports—have examined the possibility of a surge of imports from China, and some aspects of the trade deflection we consider. Al-Haschimi et al. (2025) examine causes for strong global Chinese export growth and find a role for state investments in the manufacturing sector that have lowered export prices, along with weak domestic demand. Boeckelmann et al. (2025) derive estimates of potential increases in euro area imports of Chinese goods, estimate effects on import prices with a VAR, and translate that impact to a potential decrease in headline inflation of 15 basis points in 2026. Gunnella, Stamato and Kobayashi (2025) consider the effects of U.S. tariffs imposed in the first Trump administration on the redirection of trade volumes (but not prices), and argue that some redirection of Chinese exports to the EU occurred.[11] Relatedly, Emlinger et al. (2026) perform a detailed empirical analysis of the implications of U.S. tariffs for the EU, using a staggered difference-in-differences analysis to estimate the reallocation of trade flows in the 15 months after tariffs are imposed.[12] Here, we provide analysis that looks beyond the euro area, use a different empirical approach covering a longer period after tariffs, and provide evidence for a key outcome—import prices—that is not considered at all in most of these pieces and is never considered for destinations outside the EU, which we find to be most affected.

Lastly, a related literature examines the role of geopolitical factors in realigning trade flows between, and across, blocs of countries. Gopinath et al. (2025) find that more geopolitically distant countries—as measured by UN General Assembly voting—have seen decreases in trade, FDI, and portfolio flows following the Russian invasion of Ukraine in 2022. As we discuss below, these forces can offer an explanation for why Chinese export prices adjust in third-country markets, but not in the U.S. While papers including

[9] As they note, their work also draws on insights regarding trade diversion effects going back to Viner (1950), with subsequent theoretical work on the topic by Bond and Syropoulos (1996), Bagwell and Staiger (1997), and McLaren (2002).

[10] Bown and Crowley (2010) examine China-specific trade restrictions imposed by the EU and U.S. from 1992-2001 and find no systematic evidence of deflection of trade flows.

[11] Ropele (2026) reports on results of a survey of Italian firms' expectations of the effects of Chinese rerouting and indicates that the most exposed firms (primarily manufacturers) expect downward pressure on both input and output prices.

[12] Emlinger et al. (2026) examine some responses of trade values to tariffs in other countries, but they do not consider effects on quantities or prices for those countries. In addition, our analysis uses import data from 69 economies, which allows us to control for source-economy-specific factors, which is not possible using only Chinese export data as in Emlinger et al. (2026).

Fernández-Villaverde, Mineyama and Song (2024) and Javorcik et al. (2024) show that this "fragmentation" can harm the global economy, Bonadio et al. (2025) argue that this need not be the case. In the latter's quantitative model, as countries move toward a U.S.- or China-centric bloc, the median country experiences real income gains. Here, we provide novel evidence on the impact of one of the driving forces behind shifting U.S. and Chinese trade —tariffs— and show that the resulting import price declines are concentrated in countries geopolitically closer to China, with effects that can feed through to changes in real incomes.

The remainder of the paper is structured as follows. Section 2 describes the data used and our definition of exposure to tariffs. Section 3 outlines the empirical strategy, while Section 4 presents the results. Section 5 discusses robustness checks. Section 6 examines the potential mechanisms driving heterogeneous import price responses across products and markets. Section 7 concludes.

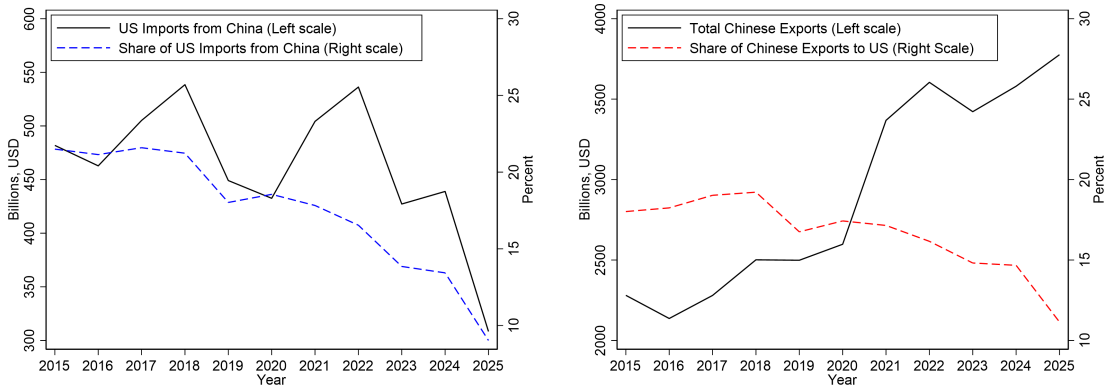
# 2 Data

## 2.1 Data Source Description

Our study relies on two main data sources. First, we gather information on U.S. tariffs on Chinese imports from the U.S. International Trade Commission (USITC). The dataset provides information on tariffs and U.S. import values at the eight-digit and ten-digit level of the Harmonized Tariff Schedule (HS), at a monthly frequency for the years 2017–2021. We complement tariff information from the USITC with exemptions granted on a small set of ten-digit HS codes (Bown and Kolb, 2019).

The second source provides import data for the bystander countries (i.e., not the U.S. or China) that are the focus of our analysis. Our baseline analysis employs data from UN Comtrade (2025) on import values[13] and quantities at the HS six-digit product level between 2017 and 2021.[14] We construct a dataset of import values, quantities, and unit prices for 69 economies. Figure 1, constructed from IMF Direction of Trade data, displays the drastic decline in U.S. imports from China alongside a steady increase in Chinese exports to other destinations.

Figure 1: U.S. and China Trade Flows




Sources: IMF Direction of Trade via Haver Analytics; authors' calculations.
Notes: Left panel displays total U.S. import values from China on the left scale and the share of U.S. imports from China on the right scale. Right panel displays total value of China exports to the world on the left scale and the share of Chinese exports to the U.S. on the right scale.

As discussed above, throughout the paper, we construct unit prices as import values divided by quantities at the HS six-digit product level. Because these unit values are averages over the varieties shipped within

[13] We use CIF (Cost, Insurance, and Freight) values when available and FOB (Free On Board) values otherwise.
[14] We provide the list of available destination countries in Appendix A.

a product category, we note that they reflect both the prices of individual varieties and the composition of varieties within the category. We use the terms unit value and price interchangeably in what follows, and we conduct an exercise to evaluate measurement issues related to the use of unit values in Section 5.4. Inclusion in our sample of importing countries is based on availability of import data covering the entire sample period from 2017–2021 and reporting of data in time-consistent six-digit HS codes. We also use 2017 Chinese export values from UN Comtrade for our analysis measuring the pre-tariff market structure.

Additional import data for the European Union for the years 2017–2021 come from Eurostat (2025), which provides information on trade flow values and quantities imported from each trading partner at a more granular product level, the eight-digit Combined Nomenclature (CN).[15] The first six digits of the eight-digit CN classification are identical to the six-digit HS classification, thus allowing us to link U.S. tariff rates to European import values and quantities.

## 2.2 Quantities Harmonization

In order to study the effects of tariffs on bystander countries, we construct a novel dataset encompassing import values, quantities, and unit prices for over 5,000 six-digit Harmonized System products for 69 economies between 2017–2021. A key challenge in constructing consistent trade quantity measures from the data is the heterogeneity and inconsistency of quantity units reported across countries, products, and time. UN Comtrade provides two quantity measures: a primary quantity and an alternative quantity, each with associated unit codes. However, these unit codes may change within the same origin-destination-product group across years or contain missing observations. Such inconsistency inhibits the study of changes in quantities and unit prices across many countries over time.

To enable the study of these trends, we construct a time-consistent quantity variable by applying an algorithm we develop to the primary and alternative quantity variables provided by UN Comtrade. This algorithm and quantity measure are important for our study, as they permit the examination of unit values across countries, products, and time, and they are also transparent, straightforward to understand, and replicable.[16] The previous unavailability of this information has also limited the ability of researchers to perform a variety of cross-product-country analyses using Comtrade data. In our online appendix, we will provide the code necessary for other researchers to apply the algorithm to Comtrade data, thus yielding what we expect to be a highly useful contribution in terms of economic measurement for future empirical trade research.

The algorithm is straightforward and simply uses the full information available in the primary and alternative unit of quantity fields in the Comtrade data without any imputation or conversion. Specifically, for a given origin-destination-product group, our algorithm constructs the time-consistent quantity variable to preserve as many observations with the same unit of quantity as possible. The algorithm sorts the origin-destination-product groups into cases hierarchically, to determine time-consistent quantity units as follows. The algorithm first identifies groups for which the primary or alternative unit code is identical for an origin-destination-product triplet over the entire sample period (cases 0–3); then finds groups where both variables can be combined to construct a fully consistent quantity code (cases 4–5); and finally tags groups where it is only possible to construct a consistent unit of quantity code for a subset of years (cases 6–9). The sorting algorithm is as follows:

- Case 0: Primary unit code and alternative unit code are fully consistent and match each other.

[15] The eight-digit CN product category is used for intra-EU and extra-EU trade; however, our analysis focuses on extra-EU imports.

[16] CEPII-BACI provides another source of trade values, quantities, and unit values, including for a potentially larger set of countries. We use Comtrade data because it allows transparency and control in our data cleaning procedures, does not rely on any imputation, and we can restrict attention to import data without incorporating mirrored export data that can cause measurement concerns.

- Case 1: Primary unit code is fully consistent.
- Case 2: Primary unit code is always missing while alternative unit code is fully consistent.
- Case 3: Primary unit code changes over the years while alternative unit code is fully consistent.
- Case 4: Primary unit code changes, but the alternative unit code is equal to the non-missing modal primary unit code for observations when the primary unit code is not the modal code.
- Case 5: Alternative unit code changes, but the primary unit code is equal to the non-missing modal alternative unit code when alternative unit code is not the modal code.
- Case 6: Primary unit code alternates between a non-missing and missing code, and the alternative unit code matches the non-missing primary unit code in some years when the primary unit code is missing.
- Case 7: Primary and alternative unit codes both alternate between missing and non-missing unit codes.
- Case 8: Primary unit code alternates between a missing and non-missing code, while alternative unit code alternates between two non-missing codes or 3+ codes.
- Case 9: Alternative unit code alternates between a missing and non-missing unit code, while primary unit code alternates between 2 non-missing or 3+ codes.
- Groups that cannot be categorized by any of the above rules are flagged, and their quantities are treated as missing while preserving the associated trade values.

For origin-destination-product groups that fall into cases 0–3, we take the full consistent quantity variable that UN Comtrade provides (either primary or alternative). In cases 4–5, we combine the primary and alternative quantities to construct a new quantity that is consistent across our analysis period. In cases 6–9, we combine the two variables to produce consistent quantity unit codes for as many years in the analysis period as possible. Table 1 provides the share of the origin-destination-products that fall into each group.

Table 1: Share of Origin-Destination-Product by Case

| Case 0 | Case 1 | Case 2 | Case 3 | Case 4 | Case 5 | Case 6 | Case 7 | Case 8 | Case 9 | Missing |
|---|---|---|---|---|---|---|---|---|---|---|
| 60.7 | 28.3 | 3.3 | 0.7 | 0.08 | 0.005 | 0.03 | 1.5 | 1.4 | 2.2 | 1.7 |

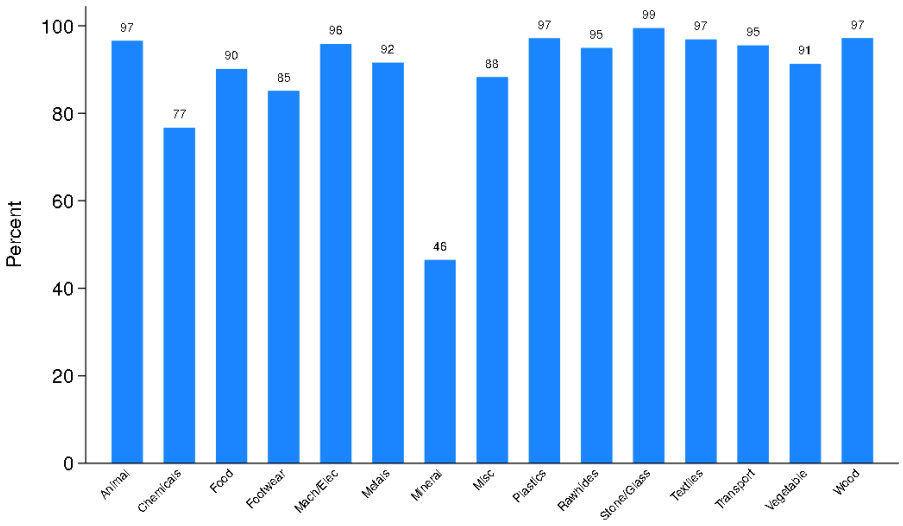
Sources: UN Comtrade; authors' calculations.
Notes: 92% of the origin-destination-product combinations have consistent primary or alternative quantity units over the entire sample period.

## 2.3 Product-Level Tariff Exposure

The 2018–19 U.S. tariffs on Chinese imports were applied to eight and ten-digit HS codes. HS codes are harmonized globally only up to six digits. Thus, in order to study the effects of the U.S.-China trade war on third-party countries, we construct a measure of tariff exposure defined at the six-digit HS code. We define our baseline tariff exposure measure to be a dummy variable for tariff status at the six-digit level, which is equal to one if at least one eight- or ten-digit HS code within the broader six-digit product category is tariffed. We use a binary variable as the baseline exposure indicator in our analysis, as in Fajgelbaum et al. (2019), but in Section 5.2 we show that our results are robust to using a continuous value of tariff exposure based on the share of US imports within an HS6 being tariffed.

We provide a visual representation of the distribution of tariffed products by aggregate sectors known as HS Sections in Figure 2.[17] As shown in the Figure, by 2021, tariffs affect most of the products that the U.S. imports from China, but with substantial variation across HS Sections. Only "Minerals" (which includes oil and petroleum products) is affected by tariffs for less than 50 percent of products, while "Stone/Glass" faces tariffs on almost all products within the HS Section.

Figure 2: Share of Products Subject to U.S. Tariffs on Imports from China




Sources: U.S. International Trade Commission (USITC); U.S. Census; authors' calculations.
Notes: Figure displays the share of products that are tariffed as of 2021 on U.S. imports from China by two-digit product grouping, according to our baseline tariff exposure measure. Shares in percent are reported above each bar.

The left panel of Figure 3 reports the share of world imports from China (excluding the U.S.) of tariffed and non-tariffed six-digit products. There is a slight step up in the China share for tariffed products beginning in 2019—the year following the U.S. tariffs implementation—relative to imports of non-tariffed products, which is amplified in 2020 and persists in the following year. A natural concern is that tariffed products may exhibit distinct trends unrelated to trade diversion, such as common demand shocks affecting these product categories regardless of origin. The right panel of Figure 3 explores this alternative explanation by displaying imports of tariffed products by country of origin. The data reveal a widening gap between tariffed Chinese products (solid red line) and tariffed products from other countries (dashed red line) after 2018, pointing to potential China-specific trade diversion rather than category-specific import trends.[18]

Table 2 provides summary statistics for the key dependent and independent variables in our sample.

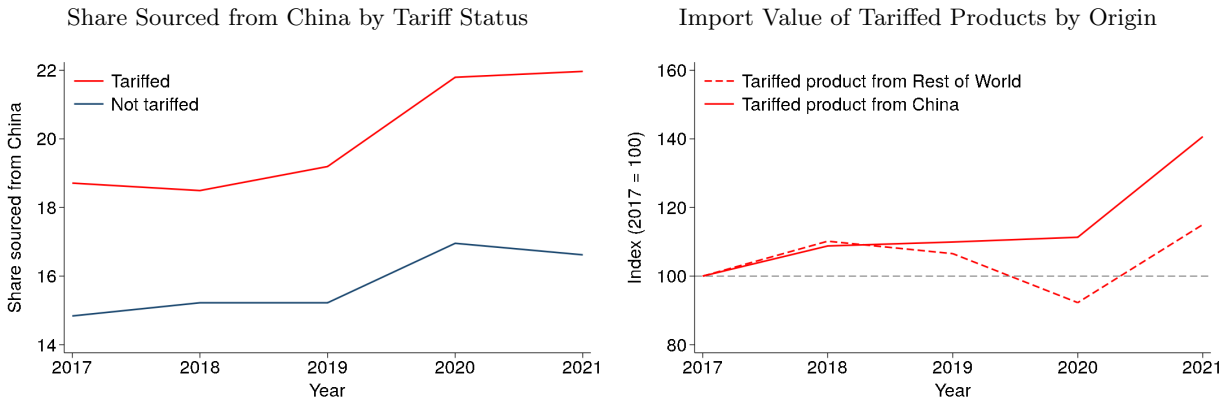
# 3 Empirical Strategy

Our empirical strategy exploits a simple yet powerful source of variation: The U.S.–China trade war created differential tariff exposure across products, while leaving Chinese exports to other destinations unaffected by U.S. policy. This allows us to compare the export performance of tariffed versus non-tariffed Chinese products in third-country markets, holding constant a rich set of confounding factors. As a reminder, our

[17] HS Sections are defined in the U.S. Harmonized Tariff Schedule (https://hts.usitc.gov/). As an example, HS Section VI "Products of the Chemical or Allied Industries" includes HTS Chapters 28-38, with products such as organic and inorganic chemicals, pharmaceuticals, fertilizers, and explosives.

[18] As shown in Figure 16, imports sourced from China of non-tariffed products also increase relative to imports from rest of the world. Our origin-year FE capture policies and shocks that affect all products coming from China.

Figure 3: Value Share of Third-Country Market Imports by Tariff Status and Source




Sources: UN Comtrade; authors' calculations.
Notes: The left panel displays the value share of world (excluding U.S.) imports sourced from China for each year separately for products that are affected by tariffs and products that are not affected by tariffs. The right panel displays the average import value of tariffed products by origin. Values are weighted by the 2017 import value for each origin-destination-product group.

Table 2: Basic Summary Statistics for the Third-Country Market Sample: 2017-2021

| | count | mean | sd | min | max |
|---|---|---|---|---|---|
| Basic tariff status | 19,768,403 | 0.05 | 0.22 | 0 | 1 |
| Basic tariff status (China only) | 1,087,972 | 0.89 | 0.32 | 0 | 1 |
| Value (ln) | 19,768,350 | 9.34 | 3.35 | -7 | 25 |
| Quantity (ln) | 18,869,811 | 6.29 | 4.07 | -7 | 31 |
| Unit price (ln) | 18,869,769 | 3.05 | 2.40 | -18 | 23 |

Sources: UN Comtrade; authors' calculations.
Notes: Table shows summary statistics for the tariff variable and the three main outcome variables for the world sample. Tariff status is 1 if the observation is from China and in a six-digit HS code that receives a tariff during the trade war, and 0 otherwise. The data is at the origin-destination-product-year level, with destination economy being each of the 69 economies in our data and product being defined at a six-digit HS code. The sample excludes both U.S. and Chinese imports. There are 53 observations with missing value (ln) and 898,592 observations with missing quantity (ln), resulting in 898,634 observations for which we cannot recover unit price.

sample of bystander importing countries excludes the U.S. and China (though their exports are, of course, included in bystanders' imports).

The logic is straightforward. If U.S. tariffs on Chinese goods lead Chinese exporters to divert shipments toward alternative markets, we should observe differential growth in Chinese exports of tariffed products relative to non-tariffed products in destinations outside the United States. Moreover, if this trade diversion puts downward pressure on prices in third markets, we should see larger declines in unit values for products facing higher U.S. tariffs.

We build our baseline approach on the recent literature analyzing pass-through of the 2018-19 tariffs to U.S. import prices (Amiti, Redding and Weinstein, 2019; Fajgelbaum et al., 2019). However, whereas those papers focus on the direct effects of tariffs in the U.S. market, we examine the spillovers to countries not involved in the trade dispute. We adopt a difference-in-differences design as our primary specification and verify robustness using an event study approach that accommodates the staggered timing of tariff implementation and a local projections approach that accounts for longer-run changes and dynamic responses in Section 5.

We begin with a generalized difference-in-differences design that interacts an indicator for exposure to

tariffs with the full set of year dummies. Our baseline specification is:

$$\ln y_{odgt} = \alpha_{og} + \alpha_{gt} + \alpha_{ot} + \alpha_{dg} + \alpha_{dt} + \alpha_{od} + \sum_{j=2018}^{2021} \beta_j \text{ tariffed}_{og} \times \mathbf{I}(t = j) + \varepsilon_{odgt} \quad (1)$$

where $y_{odgt}$ measures the value, quantity, or unit value of six-digit HS product $g$ exported from origin $o$ to destination $d$ in year $t$, all in logs. The indicator $\text{tariffed}_{og}$ equals one when product $g$ from China ($o$ = China) is subject to U.S. tariffs as of 2021, and zero otherwise, which prevents contamination from products that will be tariffed in the future being included in the "control group."[19] Because tariff waves arrived at different dates during the 2018–19 period, this fixed 2021 definition averages over products tariffed at different times, as in Flaaen and Pierce (2026); the event-study specification in Section 5 accounts explicitly for the staggered timing. By construction, $\text{tariffed}_{og}$ takes a value of zero for all trading partners other than China. We interact this indicator with year dummies $\mathbf{I}(t = j)$ to trace out the dynamic response, with 2017 serving as the baseline year.

The specification includes a comprehensive battery of fixed effects: origin–product ($\alpha_{og}$), product–time ($\alpha_{gt}$), origin–time ($\alpha_{ot}$), destination–product ($\alpha_{dg}$), destination–time ($\alpha_{dt}$), and origin–destination ($\alpha_{od}$). These six sets of fixed effects absorb time-invariant bilateral trading relationships as well as any shocks specific to products, origins, destinations, or years. Given this rich structure, $\beta_j$ captures how Chinese exports of tariffed products evolve differently than non-tariffed products within the same origin–destination pair. In other words, we compare trade of tariffed versus non-tariffed goods from China to, say, Canada in 2019, while controlling for factors common to all products exported from China to Canada in that year, factors common to all products imported by Canada in that year, and factors common to all products exported by China in that year. This within-pair-year comparison accounts for alternative explanations such as aggregate trade diversion toward particular destinations, shocks to particular product categories, or policies or shocks in particular origin countries, including China. We two-way cluster standard errors at the origin and product level to account for correlation in the error term across destinations and years for a given origin and product, which aligns with the level at which U.S. tariffs are assigned.

# 4 Results

This section provides the baseline results of our analysis, including simple breakouts by country group, with robustness checks and a detailed examination of mechanisms following in subsequent sections. In most cases, we display results visually, with the estimated $\beta_j$ coefficients of Equation 1, which capture the effects of tariffs on the noted dependent variables, along with the associated 95% confidence intervals. Figure 4 shows the relationship between tariffs imposed by the U.S. and unit prices on imports from China observed in other countries.[20]

As is clear in the figure, products subject to U.S. tariffs and imported from China see systematic relative declines in unit prices in third-country markets. The price drop appears immediately in 2018, the year the first tariffs take effect, and persists through 2021. By the end of the sample period, prices for tariffed products have declined roughly 4.4 percent relative to non-tariffed products in the same markets.[21] This price reduction is both economically meaningful and statistically significant, consistent with Chinese exporters reducing prices as they redirect shipments away from the United States.[22]

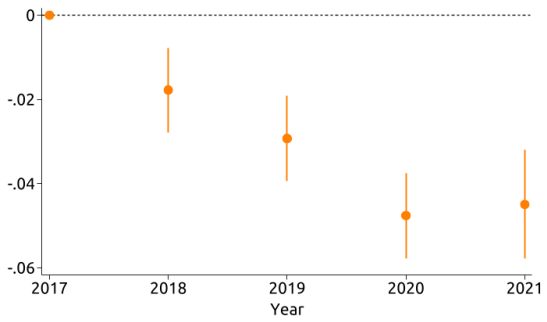
[19] Over time, some products received exemptions from tariffs, and those with exemptions in effect as of 2021 have a $\text{tariffed}_{og}$ value of zero.

[20] The regression table with full estimates for this specification is shown in Table 6 in Appendix C.1.

[21] $\widehat{\beta}_{2021} = -0.045$, which implies an effect of $(\exp(-0.045) - 1) * 100 = 4.4\%$.

[22] During the same time period, China also imposed retaliatory tariffs on some U.S. products, which could potentially be

Figure 4: Import Price Response of Tariffed Chinese Goods in Third-Country Markets




Sources: UN Comtrade; authors' calculations.
Notes: The figure displays coefficient estimates of a difference-in-differences regression of logged unit price on interactions of a tariffed indicator and year dummies, in the world sample, which excludes the U.S. and China as importers. The regression includes origin–product, product–time, origin–time, destination–product, destination–time, origin–destination fixed effects. Estimates are unweighted and standard errors are clustered by origin country and six-digit HS product level. Error bars show 95% confidence intervals.

It is worth considering the interpretation of these results given the origin-destination-product-year-level definition of the dependent variable and the rich set of fixed effects included in the estimating equation. Importantly, the negative and significant coefficients are not driven by potentially low-priced Chinese imports increasing their market share in destination markets while holding prices constant. Rather, our results indicate that Chinese export prices for a given tariffed product in a given destination decline relative to pre-tariff levels. We explore some of the factors that drive the tariff-driven changes in prices for bystander countries, focusing on heterogeneity across markets and products, in Section 6.

This result is novel when compared with canonical estimates that find complete pass-through of tariffs—i.e. no change in unit prices—to Chinese import prices in the U.S., the country that imposed the tariffs (Amiti, Redding and Weinstein, 2019; Fajgelbaum et al., 2019).[23] As we discuss below, one possibility for why Chinese exporters may lower prices in bystander countries, but not the U.S., can be found in the results of Gopinath et al. (2025), who document reductions in trade and investment between geopolitically distant countries, such as the U.S. and China. Geopolitical tensions, attempts to diversify sources of demand, or uncertainty about future U.S. tariffs may lead Chinese exporters to seek to expand exports to other countries, even at lower prices.

## 4.1 Effects by Country Group

These pooled results aggregate across countries with widely differing economic structures, geographic positions and trade relationships. An important question is whether the price effects of deflected Chinese exports are larger for countries whose composition of import demand is similar to the U.S.—i.e. other advanced economies—or for emerging markets whose demand may align more closely with products in which China has a comparative advantage (Schott, 2008).

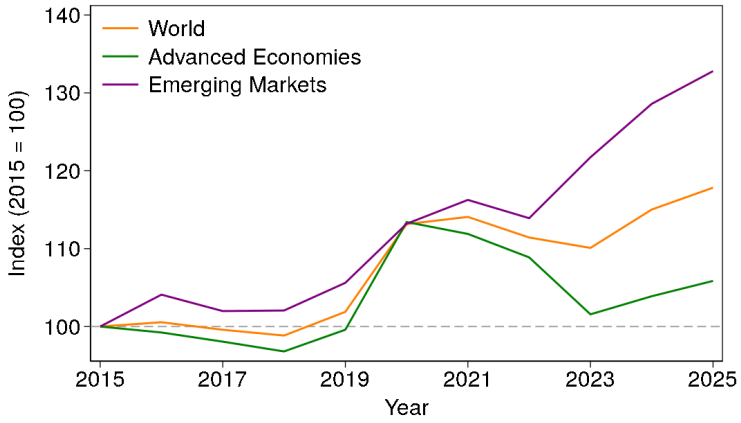
Aggregate data shows that a shift in Chinese export destinations, while massive, masks important heterogeneity across country groups. Figure 5 displays indexed import shares from China over the period 2015–2025 for countries at different income levels. Emerging markets stand out: Their import share from China has grown by more than 30 percent over the last decade, substantially outpacing the more modest increase observed in advanced economies. While this descriptive evidence extends beyond our estimation window, this

redirected to the same destination markets that are receiving Chinese products. Table 7 in Appendix C.1 shows that our results are robust to excluding all trade flows originating from the U.S.

[23] In Appendix C.5, we estimate the relationship between tariffs and U.S. import prices, as in those papers, and replicate their finding of zero pass-through in 2018 and 2019 using our empirical strategy. This exercise increases confidence that our findings of price reductions in bystander countries are not due to differences in data aggregation or empirical strategy.

divergence raises the question of whether different country groups experience different degrees of exposure to redirected Chinese exports when trade barriers rise. We therefore next document how responses vary across groups of countries organized by income or geography.

Figure 5: Import Share from China Over Time, by Region




Sources: IMF Direction of Trade via Haver Analytics; authors' calculations.
Notes: Regions are defined by IMF classifications and the data availability for our main analysis.

### 4.1.1 Estimates by Country Income Groups

As mentioned above, it's unclear, *ex-ante*, whether the effects of U.S. tariffs on import prices would be larger for EMs or AEs. On the one hand, EMs are natural candidates for absorbing diverted Chinese exports. Many EMs had already become major destinations for Chinese exports in the early 2010s (Brandt and Lim, 2024), establishing trade relationships and distribution networks that could facilitate rapid expansion when U.S. tariffs made that market less profitable. Moreover, EMs may have more elastic demand for Chinese products if consumers are more price-sensitive than in advanced economies. On the other hand, AEs, by virtue of being more similar to the U.S., may be better suited for attracting deflected Chinese exports that were once bound for the U.S. market.

The left panel of Figure 6 presents import price results for the 56 EMs in our sample.[24] The figure indicates that EMs see relative declines in prices on imports from China associated with U.S. tariffs, and that the magnitude of this effect continues to cumulate through the end of our sample. While results for AEs also indicate a negative relationship between U.S. tariffs and Chinese import prices, the effect begins to attenuate in 2021. As a result, the magnitude of the estimated relationship with import prices at the end of our sample is more than twice as large for EMs (a relative 4.8 percent decline) than for AEs (2.2 percent).

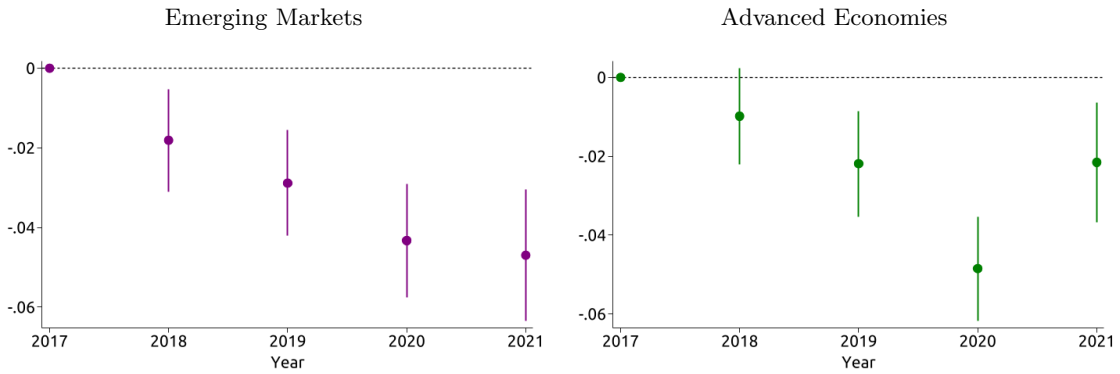
These magnitudes confirm that EMs play a substantial role in absorbing Chinese goods that face higher costs of accessing the U.S. market. Furthermore, the price declines are consistent with theoretical predictions by Reyes-Heroles, Traiberman and Van Leemput (2020), who show that third countries—EMs in particular—can experience welfare gains from trade diversion through lower import prices.

### 4.1.2 Estimates by Region

In this subsection, we examine heterogeneity by region in the import price effects of U.S. tariffs on bystander countries.

[24] Full regression results for this specification are shown in Table 8 in Appendix C.1, with results for advanced economies shown in Table 9.

Figure 6: Import Price Response by Income Group




Sources: UN Comtrade; authors' calculations.
Notes: Each panel displays the estimates of separate difference-in-differences regressions of log unit price on interactions of a tariffed indicator and year dummies for either emerging markets or advanced economies. Regressions include origin–product, product–time, origin–time, destination–product, destination–time, and origin–destination fixed effects. Estimates are unweighted and standard errors are clustered at the origin country and six-digit HS product level. Error bars show 95% confidence intervals.

**European Union Countries** The potential for trade diversion to Europe has attracted considerable media and policy attention. News coverage has raised concerns about surges in Chinese imports and declining prices that could harm European producers.[25] In addition, the European Central Bank devoted an alternative scenario in its September 2025 Macroeconomic Projections to analyzing the potential effects of lower Chinese export prices (European Central Bank, 2025).

While recent concerns focus on the second Trump administration's tariffs, we can narrow our attention on the 2018–2019 episode, which also featured massive U.S. tariffs that were, in that case, overwhelmingly targeted against China. Figure 7 reveals a nuanced pattern: Unit prices decline, but the estimates are statistically significant only in 2019 and 2020. By 2021, there is no statistically significant relationship between U.S. tariffs and Chinese import prices for the European Union.[26] Thus, while there is evidence that the 2018-19 U.S. tariffs led to lower-priced Chinese imports entering the EU, our examination suggests that effects were short-lived.[27]

**ASEAN Countries** By contrast, results in the right panel of Figure 7 show that ASEAN countries experience relative price declines that are much larger and more persistent than those observed for the EU, or the world more generally. For ASEAN countries, tariff exposure is associated with a relative fall in unit prices of around 12 percent in 2020 and 2021, nearly three times larger than the estimated global effect in the same years. These estimates for ASEAN countries contrast even more sharply with those for the EU, which sees no change in prices in 2021. Since ASEAN members are themselves emerging markets, these results also shed light on the composition of the EM effect documented in Section 4.1.1: The large and persistent price decline in Southeast Asia contributes to the cumulating EM response. Combined, the results in Figure 7 indicate that while much of the concern related to low-priced Chinese imports has been expressed in Europe, we find that emerging markets, and ASEAN countries in particular, see the largest and clearest effects.

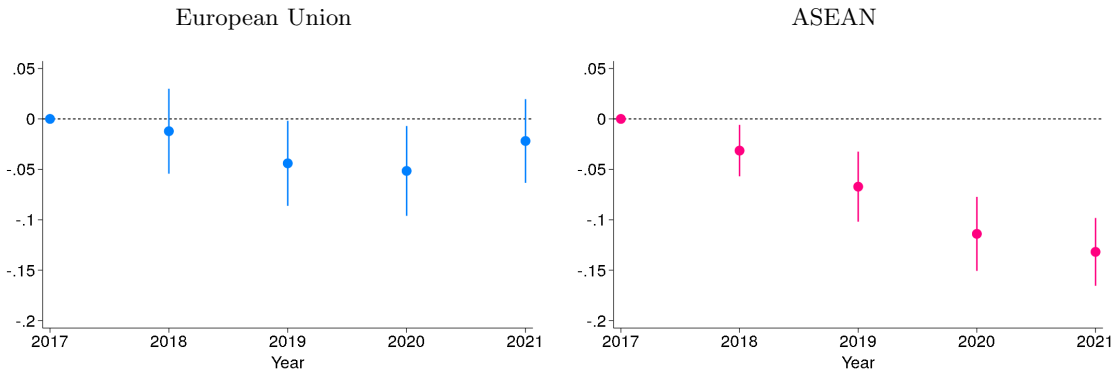
One possibility is that the lower prices on exports to EMs represent tariff-evading trans-shipment of Chinese goods through other countries. A series of papers have examined this possibility, with a particular focus on other Asian countries. But while these papers find evidence of trans-shipment, they also show that

[25] See "With Trump's Tariffs, Europe Fears a Flood of Cheap Goods from China." (Shear and Smialek, 2025) https://www.nytimes.com/2025/04/14/world/europe/europe-china-dumping-tariffs.html

[26] Full regression results are presented in Table 10 in Appendix C.1, with results for ASEAN in Table 11.

[27] Naturally, the effects of the 2025-26 tariffs could differ from those we estimate for the earlier period, for the EU and for other bystander countries.

Figure 7: Import Price Response by Geographic Region




Sources: UN Comtrade; authors' calculations.
Notes: Each panel displays the estimates of separate difference-in-differences regressions of log unit price on interactions of a tariffed indicator and year dummies for either EU or ASEAN countries. Regressions include origin–product, product–time, and origin–time fixed effects. Estimates are unweighted and standard errors are clustered by origin country and six-digit HS product level. Error bars show 95% confidence intervals.

its magnitude is small relative to the share of domestic value added, suggesting that it is unlikely to be the driving force behind our findings. Iyoha et al. (2025), for example, finds that trans-shipment accounts for 8.8 percent of the increase in Vietnam's exports to the U.S., and Freund (2025) finds that trans-shipment accounts for 7.5 percent of the level of U.S. Vietnamese imports. Indeed, Freund et al. (2024) show that the bulk of increased exports from China to EMs represents exports of inputs to support actual shifts in production to those EMs, a finding that is also present in Schulze and Xin (2025). This type of increase in exports of *inputs* would not explain our findings, which relate to changes in prices of tariffed *outputs*.

## 4.2 Extended Sample and Pre-Trend Analysis

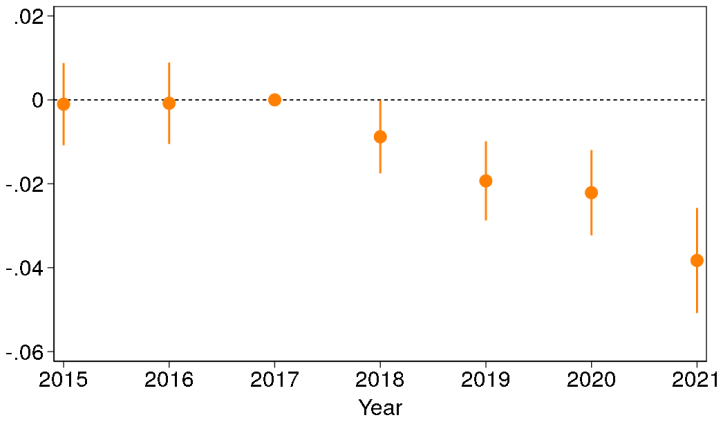
An identifying assumption of the difference-in-differences specification in Equation 1 is that the "treated" and "control" products would have followed similar trends in the absence of tariffs. To examine whether this assumption is supported by the data, we would like to check that the products exhibit parallel trends in the years preceding the imposition of tariffs, but regular revisions to HS codes complicate consistent tracking of products over time. The 2018-19 tariffs apply to products according to the 2017 World Customs Organization revision of the HS codes, so our ability to compare trends of the tariffed and untariffed products before this 2017 update is limited.

To mitigate this limitation and assess whether the parallel-trends assumption holds, we restrict attention to HS codes that remain unchanged between the 2012 and 2017 revision. Using data from 2015–2021, we construct consistent quantities and unit prices using the same hierarchical algorithm in the main analysis. This approach allows us to extend the pre-tariff period by two additional years and examine whether tariffed and non-tariffed products exhibit statistically similar trends prior to the introduction of U.S. tariffs. A drawback of this approach is that omitting codes subject to reclassifications may exclude products experiencing the most substantial changes, which are potentially related to the effects of tariffs. In addition, this approach will necessarily ignore changes in the composition of six-digit HS codes that are determined at the destination country level, such as moving some eight-digit HS codes from one HS to another. Therefore, results based on this selected sample should be interpreted with caution. On the other hand, this approach preserves 88 percent of product codes, with an additional benefit of significantly expanding the set of countries in our sample. By allowing for data between 2015 and 2021 to be reported in either HS 2012 or HS 2017, we can include an additional 42 economies in our data, bringing our total number of economies to 111.

Figure 8 shows the estimated coefficients for extending the time horizon for the full sample. The pre-

treatment coefficients cluster tightly around zero and then move down immediately following the imposition of tariffs. This pattern provides reassuring evidence that the parallel trends assumption underlying our difference-in-differences design is satisfied with respect to average unit values. The post-treatment effects we document are consistent with responses to tariffs rather than pre-existing differential trends between tariffed and non-tariffed products.

Figure 8: World Unit Price of Tariffed Chinese Goods Imports with Extended Sample



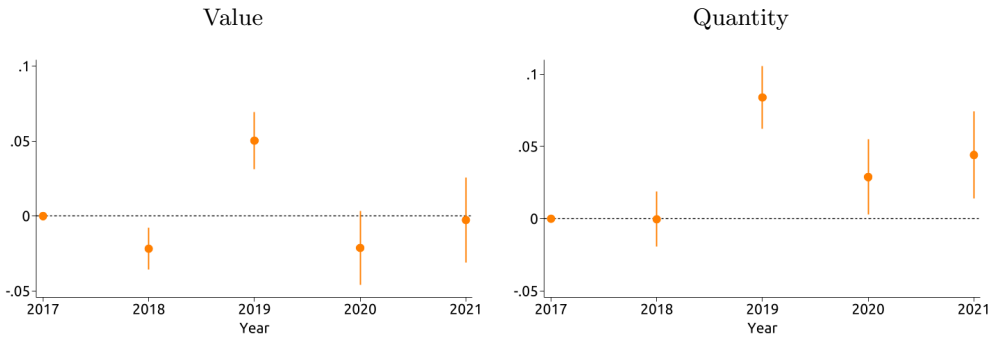

Sources: UN Comtrade; authors' calculations.
Notes: The figure displays the estimates of difference-in-differences regression for the log of unit price on interactions of a tariffed indicator and year dummies for the world sample which excludes the U.S. and China as importers. The regression includes origin–product, product–time, origin–time, destination–product, destination–time, and origin–destination fixed effects. Estimates are unweighted and standard errors are clustered at the origin country and six-digit HS product level. Error bars show 95% confidence intervals. We provide a list of the additional countries in the extended sample in Appendix A.

## 4.3 Trade Volumes

Lastly, we decompose the global changes in unit prices into changes in values and quantities, with results presented in Figure 9. The figure shows that the relative declines in world import prices associated with U.S. tariffs are driven initially by lower values (with quantities little-changed in 2018) and then by persistent relative increases in quantity. This increase in quantity in later years of the sample is consistent with trade deflection due to U.S. tariffs, as in Bown and Crowley (2007).

The figure reveals another important message: Focusing only on trade values—as much research has done due to data limitations—obscures much of the trade deflection and its effects that we document. In particular, only 2019 sees a statistically significant relative increase in value associated with tariffs, which might lead one to conclude that there was minimal trade deflection in response to tariffs. Because we undertake the quantity harmonization procedure described in Section 2.2, we are able to uncover both a relative increase in trade quantities, as well as the associated decline in import prices.

Figure 9: Trade Volumes of Tariffed Chinese Goods Imports in Third-Country Markets




Sources: UN Comtrade; authors' calculations.

Notes: The panels displays the estimates of difference-in-differences regressions of log value or log quantity on interactions of a tariffed indicator and year dummies for the world sample. Regressions include origin–product, product–time, origin–time, destination–product, destination–time, and origin–destination fixed effects. Estimates are unweighted and standard errors are clustered at the origin country and six-digit HS product level. Error bars show 95% confidence intervals.

We show in Appendix C.4.2 that the extended sample (2015-2021) results for value and quantity exhibit upward pre-trends, meaning that goods tariffed by the U.S. were already seeing increases in third-country imports from China prior to taking effect. Notably, however, these pre-trends are of similar magnitude for values and quantities: The two series co-move ahead of the onset of tariffs, so that their ratio, the unit value, exhibits no different pre-trend. The parallel-trends assumption is therefore satisfied for our central outcome of interest. While the trends in trade volumes may be driven by non-tariff factors, such as global demand or Chinese supply shocks, the clear break in trend for unit prices in Figure 8 shows that the tariffs are associated with an economically meaningful and statistically significant change in market conditions.

# 5 Robustness

This section describes a series of robustness checks that validate our baseline results along four dimensions: how we weight observations across heterogeneous trade flows, how we measure tariff exposure, how we model the timing and dynamics of tariff effects, and whether our results are conflated with product reallocation within six-digit HS categories.

## 5.1 Weighted versus Unweighted Results

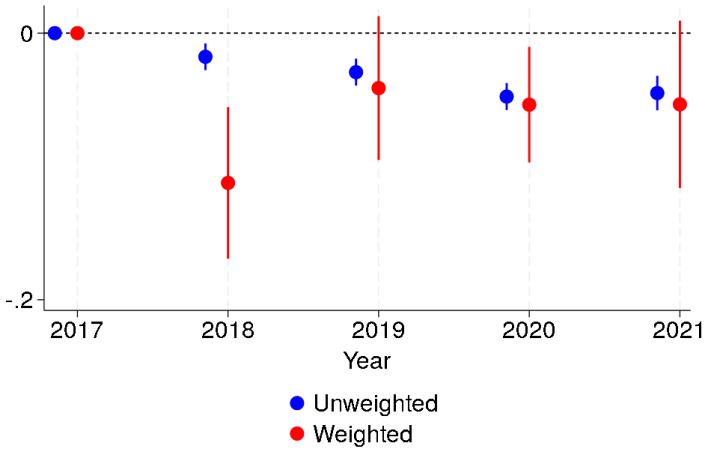
We first examine whether our results are sensitive to how we aggregate across the heterogeneous trade flows in our data. The baseline estimates in Section 4 are unweighted, meaning that they give effects for the average origin-destination-product triplet. In this robustness check, we weight each observation by the destination's 2017 import value for that origin-destination-product combination.[28] This weighting scheme estimates the effect on the average dollar of imports and ensures our estimates reflect economically important flows rather than treating all products equally regardless of their market size. The weighted specification thus provides policy-relevant estimates of aggregate impacts and reveals whether tariff effects are broad-based or concentrated in high-volume flows. If the estimates are similar, the effects operate consistently across large and small trade flows. If they diverge, it signals important heterogeneity.

Figure 10 presents the weighted results. Estimates for unit price continue to indicate a negative and statistically significant relationship with tariffs, with some loss of precision, but with weighted estimates

[28] For products that are not imported by a destination in 2017, we take the minimum destination-product import value as the weight.

being larger in magnitude, especially in 2018.[29] The similar effects on unit values, whether unweighted or weighted, indicate that the price response to U.S. tariffs in other destination countries is robust to weighting approach. This consistency is reassuring: The price effects appear robust to how we aggregate across heterogeneous products and destinations.

Figure 10: Weighted Difference-in-Differences Estimates for Unit Prices - World Sample




Sources: UN Comtrade; authors' calculations.
Notes: The figure displays estimates of a difference-in-differences regression of log unit price on interactions of a tariffed indicator and year dummies. The regression includes origin–product, product–time, origin–time, destination–product, destination–time, and origin–destination fixed effects. Weighted estimates (in red) are weighted by the 2017 import value for each origin-destination-product group; baseline estimate (in blue) are unweighted. Standard errors are clustered at the origin country and six-digit HS product level. Error bars show 95% confidence intervals.

## 5.2 Tariff Share

Our baseline specification uses a binary tariff exposure indicator: A product is either tariffed or not. This simplifies the analysis but discards potentially useful information. The binary measure is one way of dealing with a practical challenge in the harmonized system: The U.S. applied tariffs at the eight- and ten-digit HS level, but trade data for third countries are only consistently available at the six-digit level where HS codes are globally harmonized. This aggregation problem means that within a single six-digit category, some finely-defined products faced tariffs while others did not. Collapsing this variation into a binary indicator requires choosing an arbitrary threshold.

In this robustness check, we avoid this arbitrariness by defining a continuous measure of tariff exposure. Our tariff-share variable captures the fraction of U.S. import value within each six-digit HS code that faced tariffs:

$$\text{tariff-share}_{og} = \sum_{p \in g} \frac{\mathbf{I}(\text{tariff}_p) \times \text{Import}_{p,2017}}{\text{Import}_{g,2017}} \tag{2}$$

where $\mathbf{I}(\text{tariff}_p)$ indicates whether the ten-digit product $p$ faced a tariff at the end of our sample period, and $\text{Import}_{p,2017}$ is the value of 2017 U.S. imports from China for ten-digit HS product $p$. This weighting scheme reflects economic importance: If 80% of the value of U.S. imports in a six-digit category faced tariffs, that category experienced more intense exposure than one where only 20% of imports were tariffed.

[29] We discuss a reason for the loss of precision and provide weighted estimates for value and quantity in Appendix C.2.

Using this continuous measure, we estimate a tariff-share version of our baseline DiD:

$$\ln y_{odgt} = \alpha_{og} + \alpha_{gt} + \alpha_{ot} + \alpha_{dg} + \alpha_{dt} + \alpha_{od} + \sum_{j=2018}^{2021} \beta_j \text{ tariff-share}_{og} \times \mathbf{I}(t = j) + \varepsilon_{odgt} \tag{3}$$

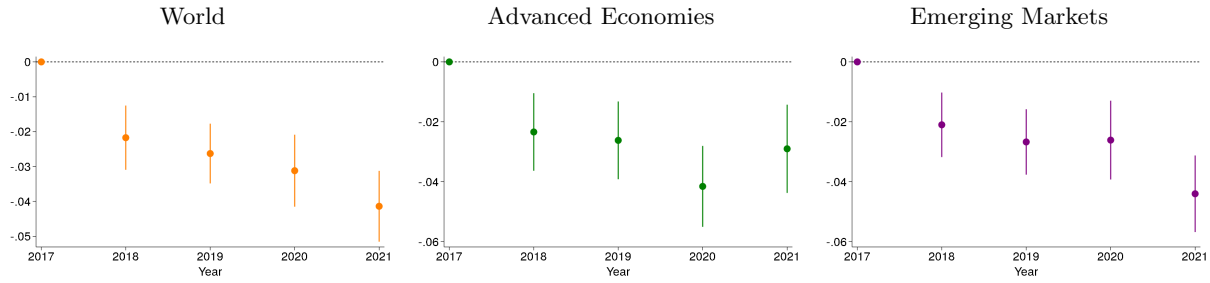
where tariff-share$_{og}$ corresponds to the tariff share applied to a six-digit HS code, defined in Equation 2, which can only be non-zero for imports originating from China.

Compared to our binary exposure baseline specification, the interpretation of the coefficients $\beta_j$'s shifts from tariffed versus non-tariffed to more tariffed versus less tariffed, and $\beta_j$ now measures the change in Chinese exports to third countries associated with a one percentage point increase in tariff exposure in year $j$. This specification exploits more variation in the data and tests whether trade diversion scales with tariff intensity: We would expect products facing more intense tariff exposure to exhibit larger relative price declines in third markets.

Figure 11 presents the estimated effects on unit prices for all countries, AEs, and EMs. All three groups show negative effects on unit prices, confirming that higher tariff exposure leads to systematically lower prices in third-country markets. As in the baseline results, the pattern is clearest for emerging markets, where the effects are persistent and cumulate throughout the sample period. By 2021, the coefficient for emerging markets moves below −0.04, implying a ten percentage point increase in tariff exposure leads to a relative reduction in import prices of more than 4 percent. For advanced economies, unit prices decrease in the aftermath of the tariffs, but begin to recover in 2021.

These tariff-share results verify that the binary exposure findings are not artifacts of how we aggregate finely-defined tariffs to the six-digit level. The consistency between binary and continuous exposure specifications strengthens confidence in the baseline results.

Figure 11: Unit Prices of Chinese Imports using Tariff Share




Sources: UN Comtrade; authors' calculations.
Notes: Each panel displays the estimates of separate difference-in-differences regressions of the noted log of unit price on the tariff share measure interacted with year dummies. Regressions include origin–product, product–time, origin–time, destination–product, destination–time, and origin–destination fixed effects. Estimates are unweighted and standard errors are clustered at the origin country and six-digit HS product level. Error bars show 95% confidence intervals.

## 5.3 Alternative Empirical Strategies

We explore two alternative empirical strategies for estimating the effect of tariffs on Chinese exports to bystander countries that offer different ways to capture the timing and dynamic effects of tariffs: An event study as in Fajgelbaum et al. (2019) and local projections as in Jordà (2005).

### 5.3.1 Event Study

The U.S.-China trade war unfolded in waves, rather than a single shock. The first tariffs took effect in the summer of 2018, but 22 percent of tariffed products were tariffed only in 2019. Products hit by the first wave

had experienced tariffs for more than one year in 2019, while products added in later rounds had shorter exposure. Our baseline difference-in-differences specification in Section 4 tracks differential responses for tariffed versus untariffed products over time, but does not distinguish products with different tariff start dates.

Here, we adopt an event study design that addresses this timing heterogeneity by aligning each product to its own treatment year. Instead of using calendar years, we measure time in years relative to when tariffs actually took effect for each product. Following Fajgelbaum et al. (2019), we estimate:

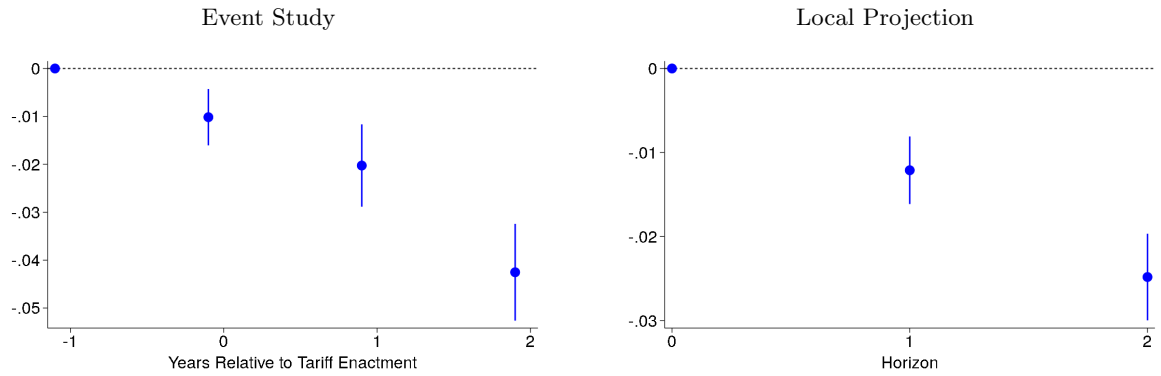
$$\ln y_{odgt} = \alpha_{og} + \alpha_{gt} + \alpha_{ot} + \alpha_{dg} + \alpha_{dt} + \alpha_{od} + \sum_{j=0}^{3} \beta_j \text{ tariffed}_{og} \times \mathbf{I}(\text{event}_{odgt} = j) + \varepsilon_{odgt} \tag{4}$$

where $\text{tariffed}_{og}$ is the tariff indicator defined in the baseline difference-in-differences approach. The event time indicator $\mathbf{I}(\text{event}_{odgt} = j)$ tracks years since tariffs were first applied to product $g$ from China, with the year before tariffs serving as the excluded comparison period. By construction, $\mathbf{I}(\text{event}_{odgt} = j)$ equals zero for all goods from origins other than China. This design offers an alternative visualization of how import prices evolve around the tariff shock. The coefficients $\beta_j$ trace out the trajectory relative to the pre-tariff year, revealing whether effects emerge immediately upon tariff implementation or accumulate over time. This matters for understanding the adjustment process: Immediate effects suggest rapid trade diversion, while gradual effects point to search frictions or contracts that take time to unwind. The fixed effects structure remains identical to Equation 1, ensuring that identification continues to rely on variation across products within the same origin–destination cell. Standard errors are again two-way clustered at the origin and product level.

The left panel of Figure 12 shows the event study estimates $\beta_j$ and corresponding 95% confidence intervals for unit prices. Unit prices decline steadily starting in the year following tariff implementation. The pattern aligns closely with our baseline difference-in-differences results from Section 4, providing reassurance that the main findings are not artifacts of how we handle tariff timing.

Comparing the event study to our baseline difference-in-differences, the event study framework provides an alternative lens for understanding dynamics because it synchronizes products to their actual treatment dates. However, the substantive conclusions remain the same: Tariffs trigger trade diversion accompanied by systematic price reductions that persist and deepen over time.

Figure 12: Unit Price Regressions with Alternative Empirical Strategies - World Sample




Sources: UN Comtrade; authors' calculations.
Notes: Each panel displays the estimates of separate regressions for logged unit price. The event study includes origin–product, product–time, origin–time, destination–product, destination–time, and origin–destination fixed effects. The local projection includes origin, destination, product, and time fixed effects. Results are unweighted. Standard errors are clustered at the origin country and six-digit HS product level. Error bars show 95% confidence intervals.

### 5.3.2 Local Projections

Next, we consider estimates based on the local projections technique of Jordà (2005), which we estimate in levels, with lagged values of the dependent variable and tariffed indicator, as well as product, destination, origin, and year fixed effects:

$$(\ln y_{odgt+h} - \ln y_{odgt}) = \alpha_o + \alpha_d + \alpha_g + \alpha_t + \text{tariffed}_{odgt} + \ln y_{odgt-1} + \text{tariffed}_{odgt-1} + \varepsilon_{odgt} \quad (5)$$

Impulse responses for log average unit value for the world sample are displayed in the right panel of Figure 12.[30] The figure indicates a step down in the destination country's import unit values following tariffs that is precisely estimated and at its largest magnitude two years after the imposition of tariffs. This finding is broadly consistent with the baseline difference-in-difference results presented in Section 4.

## 5.4 Assessing Unit Values with More Disaggregated Data

A remaining concern with the results above is that unit values at the six-digit HS level conflate prices and product composition: A decline in the unit value of a product category may reflect lower prices for given varieties, a shift toward less expensive varieties within the category, or both. Ideally, we would address this concern by examining trade flows at a finer level of product disaggregation, to determine if doing so changes our reported estimates, but such detailed data is not available for all trading partners. The European Union is an exception: Eurostat reports extra-EU imports at the eight-digit Combined Nomenclature (CN) level, whose first six digits coincide with the six-digit HS classification. Narrower product categories leave less scope for compositional shifts across varieties, so if the unit value changes we document were driven primarily by within-category composition, they may differ substantially at the eight-digit level.

We repeat our analysis on eight-digit level Eurostat data and compare the results to the six-digit Comtrade estimates for the EU from Section 4.1.2. As shown in Figure 13, the two sets of results exhibit a similar unit price response path, first falling and then retracing the short-lived decline. Overall, our analysis at the more granular eight-digit product level corroborates the main findings for unit price responses obtained with the more aggregate six-digit HS codes, providing additional confidence that our unit value results are not driven by shifts toward less expensive varieties within the HS-6 digit categories.

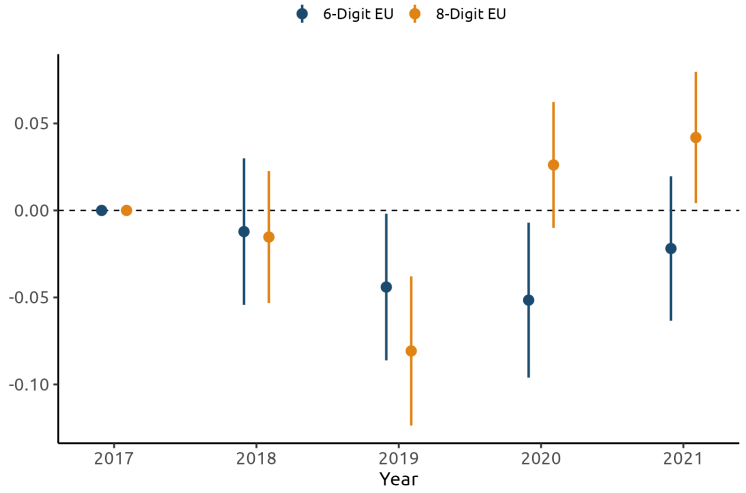
In Appendix C.5, we present an additional check for product composition effects by applying our analysis method to the U.S. import volume and price responses at the six-digit HS level and comparing the results to those put forth in Amiti, Redding and Weinstein (2019) and Fajgelbaum et al. (2019) using more granular ten-digit HS data. As shown in Figure 26 in Appendix C.5, we replicate the results in those papers, finding no relationship between tariffs and U.S. import prices in 2018 and 2019, increasing confidence that our results for bystander countries are not driven by changes in product composition.

# 6 Exploring Mechanisms for Heterogeneous Price Declines

Our main results show that U.S. tariffs led to a persistent fall in import prices of tariffed Chinese products in third-country markets. This finding is most striking when considered in conjunction with several foundational papers that have documented full pass-through to U.S. import prices after the 2018-19 tariffs (Amiti, Redding and Weinstein, 2019; Fajgelbaum et al., 2019): Why do Chinese export prices fall in third-country markets, but not in the U.S., the country that actually implemented the tariffs? Furthermore, we also demonstrate

[30] Estimates extend through a horizon period of two years as the lagged $tariffed$ variable cannot be separately identified beyond that horizon.

Figure 13: EU Import Price Response: Eight-Digit CN versus Six-Digit Comtrade




Sources: Comtrade; Eurostat; authors' calculations.
Notes: The panel displays the estimates of difference-in-differences regressions of the log of unit price on interactions of a tariffed indicator and year dummies at both the 6- and 8-digit levels. Regressions include origin–product, product–time, and origin–time fixed effects. Error bars show 95% confidence intervals. Estimates are unweighted and standard errors continue to be clustered at the six-digit HS code and year level, reflecting the fact that tariffs vary at the HS-6 product group, as we cannot track tariff changes at the finer product level.

that trade deflection from U.S. tariffs did not affect all third-country markets uniformly, with the effects of trade deflection changing based on geographic location and level of development.

In this section, we empirically examine a series of potential mechanisms to understand what drives the extent to which U.S. tariffs lead to price declines in different tariffed products and third-country markets. In principle, many features of pre-tariffed trade could shape where deflected Chinese exports flow and how prices respond, making this an important empirical question. In terms of products, the effects of trade deflection may be strongest for products heavily dependent on the U.S. market and for capital-intensive products, where capacity constraints make it costly to scale down production rather than re-route output at lower prices. In terms of markets, prices may decrease more in China's major destination markets, in countries where imports from China faced less competition, or in destinations where buyers can easily switch across suppliers. Finally, the redirection may follow geopolitical lines, with China deepening ties with more geopolitically aligned countries that would be less likely to impose future tariffs. Rather than selecting among these explanations ex-ante, we investigate each of them, using triple difference-in-differences specifications to consider how each potential feature conditions trade diversion responses, differencing out common shocks and product-specific trends. The data support some of these mechanisms and reject others: price declines are larger for U.S.-dependent products, in China's major destination markets, in more concentrated markets, in markets where buyers substitute more easily across suppliers, and in geopolitically closer countries, but we find no evidence that capital intensity plays a role.

## 6.1 Product-Specific Features

We examine two dimensions of heterogeneity that vary at the product level and capture pre-trade-war supply-side pressures to help explain why the extent and implications of deflection of Chinese exports differ across markets. First, $\mathbf{I}$(US_important) identifies products where the 2017 U.S. share of Chinese exports exceeds the median export share across all other destinations, capturing products for which the U.S. was an important pre-tariff destination for Chinese exports. These products have larger potential for redirection when tariffs hit, leading to larger declines in import prices in alternative markets. Second, $\mathbf{I}$(HighK) equals

one for products whose capital-to-employment ratio, computed from the NBER-CES Manufacturing Industry Database, exceeds the median ratio across all products, identifying capital-intensive goods. Capital-intensive production is difficult to scale down in the short run: capacity is largely fixed and capital costs are sunk, so producers facing the loss of U.S. demand may find it optimal to maintain output rather than idle capacity. The resulting excess supply must then be sold in alternative markets, requiring price cuts to move the displaced volume. If this excess-capacity channel operates, price declines in bystander markets should be larger for capital-intensive products.

To examine heterogeneity along these dimensions, we augment Equation 1 with the triple interaction term $\text{tariffed}_{og} \times \mathbf{I}(t) \times \mathbf{I}(\text{dimension})$, which tests whether tariff effects vary systematically with these pre-existing characteristics. Because both $\mathbf{I}(\text{US_important})$ and $\mathbf{I}(\text{HighK})$ vary at the product level, their interactions with year and $\text{tariffed}_{og}$ are absorbed by the product–year and origin–product fixed effects; the set of fixed effects is therefore identical to the baseline in Equation 1.

This structure differences out all time-invariant bilateral, product-specific, destination, and origin characteristics, as well as common time trends within each dimension. The triple interaction is identified by residual variation in how tariff exposure affects trade flows differentially across our two heterogeneity dimensions, conditional on this rich set of controls. Standard errors are two-way clustered at the origin and product levels to account for correlation in shocks within these groups.

Table 3 presents estimates for the two measures of market heterogeneity. For U.S.-focused products (column 1), the baseline effects of tariffs (first four rows) continue to be negative and statistically significant. The triple interaction coefficients reveal additional price compression: U.S.-focused products—i.e. those products for which the U.S. was an important destination for Chinese exports prior to tariffs—experience *further* declines of 0.5 percentage points in 2018, rising to 1 percentage point in 2020 and 2.2 percentage points by 2021. These findings indicate that products that were more reliant on the U.S. market require increasingly large price reductions to redirect exports successfully, consistent with larger deflected volumes moving further down destination demand curves.

In contrast, we find no evidence that capital intensity conditions the price response. As shown in column 2 of Table 3, the triple interaction coefficients for capital-intensive products are small in magnitude and statistically indistinguishable from zero for all years except 2021, where the coefficient is small and positive, the opposite of the sign the excess-capacity channel would predict. This null result suggests that the excess-capacity channel is not an important driver of the price declines we document: While capital-intensive producers may face constraints on downscaling, these constraints do not translate into systematically larger price cuts in bystander markets. In the appendix, we note that when we split the sample by destination income group, we find modest negative triple interaction coefficients for Advanced Economies but not for Emerging Market destinations (Table 14 and Table 15 in Appendix C.3, respectively), suggesting that, to the extent this channel operates, it does so predominately for Advanced Economies.

## 6.2 Destination-Market Conditions

We next consider three dimensions that vary at the destination–product (market) level and capture destination markets' conditions pre-tariffs: an indicator of a destination's pre-tariff importance for China, an indicator of a destination market's concentration of import sources, and a measure of importer–product elasticities of substitution. First, $\mathbf{I}(\text{CN_major})$ equals one when a destination imported an above-median share of China's 2017 exports of product $g$, where the median is taken across all destinations importing that product. This indicator identifies the major pre-tariff destination markets for each Chinese product, mirroring at the destination level our measure of the importance of the U.S. market. These markets have already shown themselves to be well-suited to Chinese exports and offer existing distribution networks. Since they account

Table 3: World - Product Mechanism

| | (1) Price (ln) | (2) Price (ln) |
|---|---|---|
| $\text{tariffed}_{og} \times \mathbf{I}(2018)$ | -0.0148*** | -0.0183*** |
| | (0.0054) | (0.0054) |
| $\text{tariffed}_{og} \times \mathbf{I}(2019)$ | -0.0311*** | -0.0282*** |
| | (0.0058) | (0.0063) |
| $\text{tariffed}_{og} \times \mathbf{I}(2020)$ | -0.0425*** | -0.0484*** |
| | (0.0057) | (0.0062) |
| $\text{tariffed}_{og} \times \mathbf{I}(2021)$ | -0.0331*** | -0.0573*** |
| | (0.0068) | (0.0073) |
| $\text{tariffed}_{og} \times \mathbf{I}(2018) \times \mathbf{I}(\text{US_important})$ | -0.0055* | |
| | (0.0033) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2019) \times \mathbf{I}(\text{US_important})$ | 0.0033 | |
| | (0.0042) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2020) \times \mathbf{I}(\text{US_important})$ | -0.0092** | |
| | (0.0044) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2021) \times \mathbf{I}(\text{US_important})$ | -0.0216*** | |
| | (0.0048) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2018) \times \mathbf{I}(\text{HighK})$ | | 0.0016 |
| | | (0.0037) |
| $\text{tariffed}_{og} \times \mathbf{I}(2019) \times \mathbf{I}(\text{HighK})$ | | -0.0027 |
| | | (0.0046) |
| $\text{tariffed}_{og} \times \mathbf{I}(2020) \times \mathbf{I}(\text{HighK})$ | | 0.0020 |
| | | (0.0058) |
| $\text{tariffed}_{og} \times \mathbf{I}(2021) \times \mathbf{I}(\text{HighK})$ | | 0.0334*** |
| | | (0.0060) |
| N | 18,743,236 | 17,753,001 |
| Adj. $R^2$ | 0.743 | 0.736 |

Sources: UN Comtrade; authors' calculations.

Notes: Table shows estimated coefficients for the triple difference-in-differences specification. The data is at the origin-destination-year-product level, with destination country being each of the 69 economies in our data and product being defined as a six-digit HS code. The dependent variable is (ln) price of imports. Column (1) presents the triple interaction $\text{tariffed}_{og} \times \text{I}(t) \times \text{I}(\text{US_important})$. I(US_important) identifies products where the 2017 US share of Chinese exports exceeded the median export share across all other destinations. Column (2) presents the triple interaction $\text{tariffed}_{og} \times \text{I}(t) \times \text{I}(\text{HighK})$. I(HighK) identifies six-digit HS products whose capital-to-employment ratio, computed from the NBER-CES Manufacturing Industry Database, exceeds the median ratio across all products. Regressions include origin–product, product–time, origin–time, destination–product, destination–time, origin–destination fixed effects. Estimates are unweighted and standard errors are clustered at the origin country and six-digit HS product level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

for a large share of Chinese exporters' sales of a product, exporters facing the loss of U.S. demand may have a particularly strong incentive to protect their positions there. Second, we measure the concentration of destination $d$'s import sources for product $g$ with a Herfindahl-Hirschman index computed from 2017 import values ($\text{HHI}_{dg}$), including imports from China. We then create an indicator variable, $\mathbf{I}(\text{HighHHI})$, taking value of one when the $\text{HHI}_{dg}$ index of a destination country is at or above the median value across all destinations importing product $g$, capturing destinations that source a product from a concentrated group of suppliers. Markets served by a concentrated set of suppliers prior to tariffs may sustain higher markups, leaving more room for prices to fall. Our third measure, $\sigma_{dg}^{\text{HS4}}$, is the elasticity of substitution across importers estimated by Soderbery (2018) at the importer–HS-4 digits level, winsorized at the 1st and 99th percentile to account for the extremely skewed distribution. This measure captures how easily buyers in destination market $d$ switch between product $g$ imported from the different origins $o$; that is, for example, how easily buyers would switch between a product imported from China and from any other country. In destination–products where buyers can more easily switch across suppliers, we would expect stronger price competition and, therefore, larger price declines.

Because all variables vary at the destination–product level, their lower-order interactions are not absorbed by the fixed effects; we therefore include $\mathbf{I}(t) \times \text{dimension}$ and $\text{tariffed}_{og} \times \text{dimension}$ as additional regressors in Equation 1. The triple interaction is identified by residual variation in how tariff exposure affects trade flows differentially across these dimensions.

Results are reported in Table 4. Before turning to the market-level measures, we note that across all three regressions, we continue to find a negative and significant relationship between tariffs and import prices in bystander countries, consistent with our baseline findings. When considering heterogeneity in terms of importance for Chinese exporters prior to tariffs (column 1), we find that relative price declines are larger in China's major pre-tariff destination markets. For destinations that absorbed a below-median share of Chinese exports of a product, tariffed products show a small price response in 2018, widening to declines of roughly 3 to 4 percent in 2019–2021. Major destination markets for China experience additional declines of 0.6 percentage points in 2018, widening to 1.5 to 2.0 percentage points in the later years. These additional reductions lead to an overall relative decline in prices of tariffed products in these markets of 5.3 percent by 2021.[31] These results are consistent with Chinese exporters lowering prices to defend their sales in the markets that are more relevant for them. Such larger price declines could also be the result of Chinese exporters having already incurred sunk costs and established networks necessary to expand exports to these markets.

We find an even stronger pattern when looking at market concentration. The estimated coefficients in column 2 of Table 4 show that, in less concentrated markets, prices of tariffed Chinese products decline by at most 2.3 percent, and the estimate is not statistically significant for 2019. Destination markets with concentrated import sources experience further price declines throughout the sample period. The additional price decline becomes larger in magnitude over time, widening from less than 1 percentage point in 2018 to 6.8 percentage points in 2021, for an overall relative decline of 8 percent.[32] This pattern is consistent with Chinese exporters compressing their markups in markets where limited competition had allowed higher prices before tariffs, leaving more room for their prices to fall.

Finally, column 3 of Table 4 shows that price declines are larger in destinations where buyers substitute more easily across sources. The triple interaction coefficients with $\sigma_{dg}^{\text{HS4}}$ are negative and statistically significant in all years. This pattern is consistent with Chinese exporters lowering prices more aggressively to retain buyers who could otherwise easily switch to alternative suppliers.[33]

[31] The total effect is the sum of the baseline and the triple-interaction coefficients. For 2021, that is $-0.0393 + (-0.0149) = -0.0542$, implying an effect of $(\exp(-0.0542) - 1) \times 100 = -5.3\%$.

[32] For 2021, the total effect is $-0.0153 - 0.0678 = -0.0831$, which implies a relative reduction of $(\exp(-0.0831) - 1) = -8.0\%$.

[33] Results for all destination–product dimensions are qualitatively similar when restricting the sample separately to Advanced

Table 4: World - Destination Mechanism

| | (1) Price (ln) | (2) Price (ln) | (3) Price (ln) |
|---|---|---|---|
| $\text{tariffed}_{og} \times \mathbf{I}(2018)$ | -0.0152*** | -0.0153*** | -0.0170*** |
| | (0.0053) | (0.0053) | (0.0056) |
| $\text{tariffed}_{og} \times \mathbf{I}(2019)$ | -0.0310*** | -0.0093 | -0.0235*** |
| | (0.0053) | (0.0060) | (0.0061) |
| $\text{tariffed}_{og} \times \mathbf{I}(2020)$ | -0.0394*** | -0.0232*** | -0.0252*** |
| | (0.0054) | (0.0058) | (0.0058) |
| $\text{tariffed}_{og} \times \mathbf{I}(2021)$ | -0.0393*** | -0.0153** | -0.0262*** |
| | (0.0068) | (0.0077) | (0.0075) |
| $\text{tariffed}_{og} \times \mathbf{I}(2018) \times \mathbf{I}(\text{CN_major})$ | -0.0066*** | | |
| | (0.0025) | | |
| $\text{tariffed}_{og} \times \mathbf{I}(2019) \times \mathbf{I}(\text{CN_major})$ | 0.0028 | | |
| | (0.0036) | | |
| $\text{tariffed}_{og} \times \mathbf{I}(2020) \times \mathbf{I}(\text{CN_major})$ | -0.0205*** | | |
| | (0.0033) | | |
| $\text{tariffed}_{og} \times \mathbf{I}(2021) \times \mathbf{I}(\text{CN_major})$ | -0.0149*** | | |
| | (0.0036) | | |
| $\text{tariffed}_{og} \times \mathbf{I}(2018) \times \mathbf{I}(\text{HighHHI})$ | | -0.0061* | |
| | | (0.0032) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2019) \times \mathbf{I}(\text{HighHHI})$ | | -0.0462*** | |
| | | (0.0049) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2020) \times \mathbf{I}(\text{HighHHI})$ | | -0.0565*** | |
| | | (0.0051) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2021) \times \mathbf{I}(\text{HighHHI})$ | | -0.0678*** | |
| | | (0.0063) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2018) \times \sigma_{dg}^{\text{HS4}}$ | | | -0.0020* |
| | | | (0.0010) |
| $\text{tariffed}_{og} \times \mathbf{I}(2019) \times \sigma_{dg}^{\text{HS4}}$ | | | -0.0042*** |
| | | | (0.0012) |
| $\text{tariffed}_{og} \times \mathbf{I}(2020) \times \sigma_{dg}^{\text{HS4}}$ | | | -0.0082*** |
| | | | (0.0013) |
| $\text{tariffed}_{og} \times \mathbf{I}(2021) \times \sigma_{dg}^{\text{HS4}}$ | | | -0.0071*** |
| | | | (0.0011) |
| N | 18,743,236 | 18,743,236 | 17,079,768 |
| Adj. $R^2$ | 0.743 | 0.743 | 0.750 |

Sources: UN Comtrade; authors' calculations.

Notes: Table shows estimated coefficients for the triple difference-in-differences specification, at the origin-destination-year-product level, with destination country being each of the 69 economies in our data and product being a six-digit HS code. The dependent variable is (ln) price of imports. Column (1) interacts $\text{tariffed}_{og} \times \text{I}(t)$ with I(CN_major), which equals one when importer $d$ received an above-median share of Chinese exports of product $g$ in 2017, with the median taken across all importers of $g$. Column (2) uses I(HighHHI), which equals one if the Herfindahl-Hirschman index of $d$'s 2017 imports of product $g$ across origins is at or above the median across all destinations importing $g$. Column (3) uses $\sigma_{dg}^{\text{HS4}}$, the destination–HS4 elasticity of substitution from Soderbery (2018), winsorized at the 1st and 99th percentiles. Regressions include origin–product, product–time, origin–time, destination–product, destination–time, and origin–destination fixed effects. Estimates are unweighted and standard errors are clustered at the origin country and six-digit HS product level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

### 6.3 Geopolitics as a Driver of Trade Realignment

The channels examined so far reflect conventional economic features of pre-tariff trade that are implied by standard models. However, recent years have seen a surge in geopolitical tension, and an active literature is debating the extent of geopolitical fragmentation in trade flows (Fernández-Villaverde, Mineyama and Song, 2024; Gopinath et al., 2025; Javorcik et al., 2024). Here, we provide the first examination of how geopolitical factors may be influencing how import prices respond to tariffs. Thus, our analysis helps to link the literatures examining tariff-based and geopolitics-based explanations for the recent and ongoing reallocation of global trade flows.

In addition, the literature on the role of geopolitics in realigning trade suggests a potential explanation for why import prices from China of tariffed goods decline heterogeneously across markets, and in particular, why the U.S. seems to experience no price decline. Gopinath et al. (2025) find that since trade tensions escalated between the U.S. and China in 2018, a reallocation of trade and investment flows across countries has been taking place, with flows increasingly reflecting geopolitical considerations. In particular, it is possible that the 2018-19 U.S. tariffs on China triggered a realignment of Chinese exports along geopolitical lines, with Chinese firms expanding market share in more geopolitically-friendly markets. In doing so, Chinese firms could be able to insulate from future geopolitically-driven demand shocks and trade clashes, including tariffs and export restrictions, that are perceived to be a more likely risk in geopolitically distant countries.

Geopolitically closer markets may also present a lower risk of trade remedies, as antidumping filings are sensitive to the broader bilateral relationship and the threat of retaliation from the targeted country (Blonigen and Bown, 2003; Bown, 2011). Therefore, geopolitically closer governments are less likely to respond to falling Chinese import prices with antidumping duties, allowing Chinese exporters to price more aggressively in these markets. A geopolitically-motivated trade realignment of this nature would result in larger declines in Chinese import prices in more geopolitically aligned markets and more muted declines (or even increases) in more distant markets such as the U.S.

To investigate this potential driver, we again employ a triple difference-in-differences specification to identify how geopolitical alignment conditions price responses in bystander markets. Using ideal point estimates derived from voting in the United Nations General Assembly—a standard measure of geopolitical factors used by Gopinath et al. (2025) and many others—we create a measure of each destination country's pre-tariff geopolitical distance from China as the absolute difference in their ideal point estimates in 2017 ($\text{GeoDist}_d^{CN}$). $\text{GeoDist}_d^{CN}$ ranges from 0.016 to 3.17 in our sample, with larger values representing greater geopolitical distance from China. The triple interaction $\text{tariffed}_{og} \times \mathbf{I}(t) \times \text{GeoDist}_d^{CN}$ tests whether tariff effects vary systematically with a destination's geopolitical distance from China.

The results show that price declines associated with tariffs are concentrated in markets that are geopolitically more similar to China. Column 1 of Table 5 presents the baseline coefficients and triple interaction coefficients from the triple difference-in-differences regression on import price in the world sample. The baseline effects are strong with import prices of tariffed products from China declining in third-country markets. The effect grows over time, from -2.84 percent to -9.98 percent between 2018 and 2021. Since our geopolitical distance measure ranges from 0 to 3.17, these baseline effects represent the price decline experienced by destination countries perfectly aligned with China. The triple interaction coefficients show that the price decline is weaker for countries that are more geopolitically distant to China. To illustrate this effect, consider the 2021 fitted values for Korea ($\text{GeoDist}_d^{CN} = 1.70$) and Brazil ($\text{GeoDist}_d^{CN} = 0.32$). By 2021, geopolitically more distant Korea is predicted to experience a relative import price *increase* in tariffed Chinese products of 3.2%, while Brazil is expected to experience a 7.6% decline.

One might be concerned that the effects of geopolitical distance in the world sample are being driven by

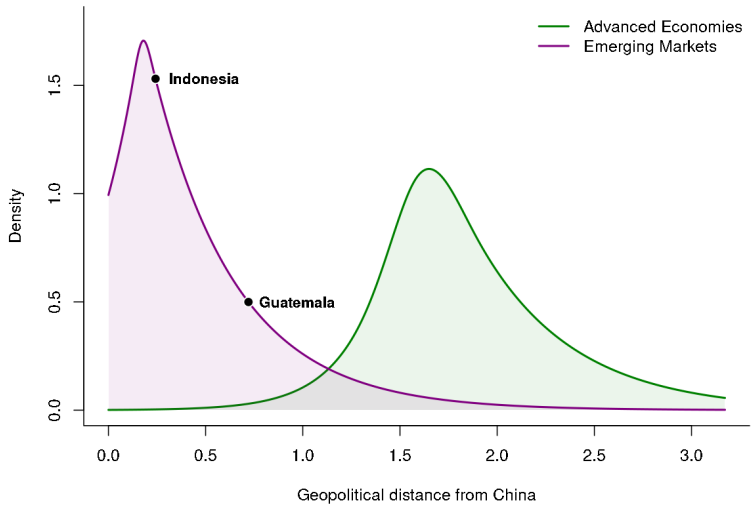
Economies and Emerging Markets (Table 16 and Table 17 in Appendix C.3).

Table 5: Political Alignment (World, Advanced Economies, Emerging Markets)

| | (1) World | (2) Advanced Economies | (3) Emerging Markets |
|---|---|---|---|
| $\text{treated}_{og} \times \mathbf{I}(2018)$ | -0.0288*** | -0.170*** | -0.0205*** |
| | (0.00523) | (0.0114) | (0.00670) |
| $\text{treated}_{og} \times \mathbf{I}(2019)$ | -0.0564*** | -0.139*** | -0.0423*** |
| | (0.00561) | (0.0108) | (0.00668) |
| $\text{treated}_{og} \times \mathbf{I}(2020)$ | -0.0799*** | -0.167*** | -0.0702*** |
| | (0.00568) | (0.0112) | (0.00742) |
| $\text{treated}_{og} \times \mathbf{I}(2021)$ | -0.105*** | -0.131*** | -0.107*** |
| | (0.00653) | (0.0143) | (0.00735) |
| $\text{treated}_{og} \times \mathbf{I}(2018) \times \text{GeoDist}_d^{CN}$ | 0.0148*** | 0.0851*** | 0.00998*** |
| | (0.00192) | (0.00541) | (0.00349) |
| $\text{treated}_{og} \times \mathbf{I}(2019) \times \text{GeoDist}_d^{CN}$ | 0.0393*** | 0.0642*** | 0.0377*** |
| | (0.00323) | (0.00451) | (0.00586) |
| $\text{treated}_{og} \times \mathbf{I}(2020) \times \text{GeoDist}_d^{CN}$ | 0.0417*** | 0.0617*** | 0.0595*** |
| | (0.00346) | (0.00507) | (0.00658) |
| $\text{treated}_{og} \times \mathbf{I}(2021) \times \text{GeoDist}_d^{CN}$ | 0.0804*** | 0.0575*** | 0.136*** |
| | (0.00491) | (0.00586) | (0.0105) |
| N | 18,335,022 | 5,628,970 | 12,610,406 |
| Adj. $R^2$ | 0.743 | 0.797 | 0.730 |

Sources: UN Comtrade; authors' calculations.
Notes: Table shows estimated coefficients for the triple difference-in-differences specification. The data is at the origin-destination-year-product level, with product being defined as a six-digit HS code. Columns (1) World, (2) Advanced Economies, (3) Emerging Markets correspond to different samples, with World being each of the 69 economies in our data; Advanced Economies being each of the advanced economies in our data; Emerging Markets being each of the emerging markets in our data. The dependent variable is (ln) price of imports. Each column presents the triple interaction $\text{treated}_{og} \times \text{I}(t) \times \text{GeoDist}_d^{CN}$, where $\text{GeoDist}_d^{CN}$ is the destination country's ideal-point distance from China, constructed from UN General Assembly voting data and measuring geopolitical alignment; larger values indicate greater geopolitical distance from China. Results are unweighted. Regressions include origin–product, product–time, origin–time, destination–product, destination–time, origin–destination fixed effects. Standard errors are clustered at the origin country and six-digit HS product level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figure 14: Distribution of 2017 Geopolitical Distance from China




Sources: UNGA-DM; authors' calculations.
Notes: The figure displays the probability distribution function of $\text{GeoDist}_d^{CN}$ from a log-spline density estimation for EMs and AEs in our sample.

income differences. Indeed, Figure 14 demonstrates that, in our sample, EMs tend to be more geopolitically aligned with China than the AEs, so it may be that the geopolitical distance indicator is simply capturing income levels. Running the triple difference specification for the AE and EM samples separately shows this is not the case. As shown in columns 2 and 3 of Table 5, geopolitical distance remains a statistically and economically important driver within both income groups. Indonesia and Guatemala, two EMs in our sample, provide an illustrative example of how geopolitical distance from China predicts differential import price declines within the same income group. Indonesia is approximately one standard deviation more geopolitically aligned with China than Guatemala ($\text{GeoDist}_d^{CN} = 0.242$ and 0.721, respectively). By 2021, the regression estimates a relative decline in Indonesian import prices of Chinese goods of approximately 7.5%, while Guatemala is estimated to experience a relative price decline of only around 1%, representing a 6.5 percentage points difference in price decline between the two countries.

Therefore, the geopolitical alignment channel speaks to our regional variation results as well as their discrepancy with the literature on pass-through to U.S. prices: Price declines are concentrated in EMs, which tend to be geopolitically closer to China, but geopolitical distance matters even within income groups, and the absence of price declines in the U.S. is consistent with its position as the destination that is most geopolitically distant from China.

## 6.4 Horse Race

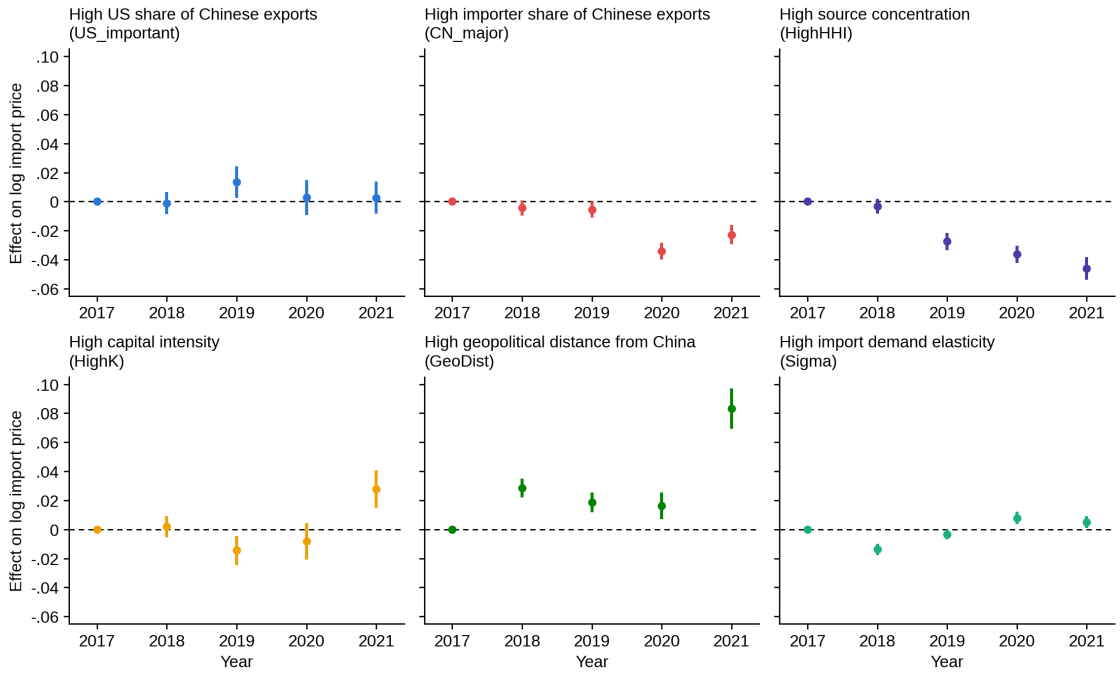
In sum, the results in this section appear to support five of the six candidate mechanisms. U.S.-dependent products face steeper price cuts in alternative markets, consistent with the larger shifts in Chinese exports. Moreover, price declines are larger in China's major pre-tariff destination markets, in markets with concentrated import sources, and in markets where buyers substitute more easily across suppliers. Finally, price declines are concentrated in countries geopolitically closer to China, within both Advanced Economies and Emerging Markets. By contrast, we find no strong evidence that capital intensity plays a role.

Having examined each of these potential mechanisms individually, a natural next step is to estimate their joint relationship with import prices in bystander countries. Given potential correlation between the measures we consider, we estimate a "horse race" specification, in which all of the triple interaction terms considered in this section are included simultaneously as independent variables, with the appropriate double interactions and fixed effects needed to identify their respective coefficients. To make the coefficients comparable across channels, we define each mechanism as an indicator variable in this specification. For the two measures that enter continuously in the individual regressions, importers' elasticity of substitution and geopolitical distance, we create a dummy variable equal to one when each of them is above the median value: $\mathbf{I}(\sigma_{dg}^{\text{HS4}})$ equals one when the import elasticity of destination $d$ is at or above the median value computed over other importers of the same 4-digit HS product, and $\mathbf{I}(\text{GeoDist}_d^{CN})$ equals one when destination $d$'s geopolitical distance to China is at or above the median of all other countries. These estimates are useful for determining which of our mechanism measures have the most explanatory power with regard to variation in import prices, holding the others constant.[34]

Results are reported visually in Figure 15, with coefficient estimates and 95 percent confidence intervals for each triple interaction term displayed in a separate panel, for readability, though they are generated from a single regression. We find that some mechanisms remain relevant when considered jointly, while others lose explanatory power. In particular, the importance of the U.S. as a pre-tariff destination for Chinese exports ($\mathbf{I}(\text{US_important})$, shown in the top left panel in Figure 15) no longer has explanatory power once we account for the other mechanisms. Similarly, the triple interactions for China's major destination markets

[34] Figure 18 in Appendix C.3 displays correlations between these variables and indicates that they are generally quite low, in absolute value.

Figure 15: World Horse Race Triple Interaction Coefficients




Sources: UN Comtrade; authors' calculations.

Notes: The figure plots estimated coefficients on the triple interaction treated$_{og}$ × I($t$) × an indicator for each heterogeneity dimension, with the dependent variable the log of import price (unit value). 95% confidence intervals are shown. The sample is the World. Each coefficient is estimated conditional on the others. Each indicator equals one when: the 2017 US share of China's exports of the product is at or above the median across products (US_important); the importer's 2017 share of China's exports of the product is at or above the median across importers (CN_major); the 2017 Herfindahl index of the importer's sources of the product, including China, is at or above the median across importers (HighHHI); the product's capital intensity (log capital per worker) is at or above the median across products (HighK); the importer's ideal-point distance from China, constructed from UN General Assembly voting data, is at or above the median across importers (GeoDist); and the importer's Soderbery (2018) import demand elasticity at the four-digit HS level is at or above the median across importers within the HS4 product (Sigma). Lower-order interactions not absorbed by the fixed effects are included but not reported. Regressions are unweighted and include origin–product, product–time, origin–time, destination–product, destination–time and origin–destination fixed effects. Standard errors are clustered at the origin country and six-digit HS product level.

(**I**(CN_major), shown in the top middle panel in Figure 15), while still negative and statistically significant, are small in magnitude and less precisely estimated, suggesting that this channel plays a secondary role once the other mechanisms are taken into account. Finally, the triple interactions for capital intensity (**I**(HighK), in the bottom left panel of Figure 15) and for importers' elasticities (**I**($\sigma_{dg}^{\text{HS4}}$), in the bottom right panel of Figure 15) do not have a consistent sign over time for the full sample, although both are negative and statistically significant when we restrict the sample to AEs (Figure 19 in Appendix C.3).

Two channels stand out as the main drivers of heterogeneity in price responses: market concentration and geopolitical distance. First, for concentrated markets (**I**(HighHHI), shown in the top right panel of Figure 15), the triple interaction is not statistically significant in 2018, but it gains statistical significance and size from 2019 onward, implying an additional relative price decline of about 4.5 percentage points by the end of the sample period. But importantly, the results reveal that the most important driver of heterogeneity in pricing responses across countries—as indicated by its statistical significance and the large magnitude of its final coefficient—is geopolitical distance. These conclusions are shown by the estimates for (**I**(GeoDist$_d^{CN}$), displayed in the bottom middle panel of Figure 15), with triple interaction coefficients that are positive and statistically significant in every year, and rising in magnitude from 0.03 in 2018 to 0.08 in 2021. These coefficients imply that destinations more geopolitically distant from China than the median country experience price declines that are larger (in absolute value) by about 8 percentage points in 2021. In

other words, our results indicate that geopolitical alignment, a novel factor we explore that does not feature in standard trade models, should be considered by researchers when examining features of the massive recent reallocation of global trade flows.

# 7 Conclusion

While a growing number of papers have studied the effects of the U.S.–China trade war on those two countries, much less is known about the implications for other bystander countries. One topic that has received considerable attention, recently, is the possibility that U.S. tariffs might lead to a redirection of low-priced Chinese exports to other countries. Comprehensive empirical evidence of any such effects, however, has been lacking.

This paper analyzes the impact of the U.S.–China trade war on bystander economies, contributing to a broader discussion of the spillover effects of this bilateral shock on other economies. Using a difference-in-differences specification, we estimate the relationship between U.S. tariffs on imports from China and Chinese import prices in bystander countries. This focus on import prices is only possible due to a contribution in economic measurement that allows us to harmonize units of quantity over time in Comtrade international trade data, and we further decompose changes in import prices into changes in quantity and value.

We provide the first global evidence that as U.S. imports from China fall sharply following the imposition of tariffs, prices on Chinese imports in other destinations fall. These effects are widespread across country groups, but they are not largest in the advanced economies where concerns about low-priced imports have been highly publicized, but rather in other emerging economies, particularly ASEAN members. Our findings are robust to weighting observations across heterogeneous trade flows, using alternative measures of tariff intensity, and different estimation strategies.

We also investigate mechanisms that determine heterogeneous responses to the U.S. tariffs. We find that mechanisms implied by standard economic models are relevant: for example, effects of tariffs are larger for products in which the U.S. was an important pre-tariff destination for Chinese exports—meaning that there was more trade to deflect—and in markets that exhibit more substitutability across sources or that were important Chinese export destinations before 2018. But we find that the most robust and economically meaningful factor in the heterogeneity in pricing responses is geopolitical alignment: Price declines are concentrated in countries that are geopolitically closer to China, a pattern that holds within both AEs and EMs. These results provide information on the products and markets that might expect to see larger effects of new round of U.S. tariffs imposed since 2025, though we note that the effects of the 2025-26 tariffs could be different than those we estimate here, particularly given their much broader country coverage and different magnitudes. These triple differences estimates also provide economic intuition for the responses to the 2018-19 tariffs we document.

Our results provide new information that is relevant to local producers in destination countries, as well as to monetary policymakers. On the one hand, our findings indicate that goods producers and their workers in countries seeing increases in low-priced imports from China may experience disruption due to deflected trade. On the other hand, the greater availability of low-priced goods suggests a channel through which consumers in bystander countries may benefit from this bilateral trade dispute. These potential effects on economic activity and prices provide novel information to policymakers as they consider appropriate responses.

For researchers, our estimates provide novel empirical evidence for assessing the spillover effects of U.S. tariffs to bystander countries. This information is relevant for considering effects on import-competing firms in those countries, but also for considering effects on prices and real incomes. Our finding that U.S. tariffs are associated with relative reductions in Chinese export prices in other markets also contrasts with the

literature finding complete tariff pass-through in the U.S., and our finding of the relevance of geopolitical alignment suggests a potential explanation for this divergence.

# References


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

**Alfaro, Laura, Mariya Brussevich, Camelia Minoiu, and Andrea Presbitero.** 2025. "Bank Financing of Global Supply Chains." Social Science Research Network (SSRN) Working Paper abstract_id 4840501.

**Al-Haschimi, Alexander, Natálie Dvořáková, Julien Le Roux, and Tajda Spital.** 2025. "China's growing trade surplus: why exports are surging as imports stall." *ECB Economic Bulletin – Focus*, , (2025/01). Accessed: 2025-11-20.

**Alviarez, Vanessa I, Michele Fioretti, Ken Kikkawa, and Monica Morlacco.** 2023. "Two-Sided Market Power in Firm-to-Firm Trade." National Bureau of Economic Research Working Paper 31253.

**Amiti, Mary, Sang Hoon Kong, and David Weinstein.** 2020. "The Effect of the U.S.-China Trade War on U.S. Investment." National Bureau of Economic Research Working Paper 27114.

**Amiti, Mary, Stephen J. Redding, and David Weinstein.** 2019. "The Impact of the 2018 Trade War on U.S. Price and Welfare." *Journal of Economic Perspectives*, 33(4): 187–210.

**Antràs, Pol, Adrian Kulesza, and Andrea F. Presbitero.** 2026. "The Remains of the Trade: The U.S.–China Trade War and Its Aftermath." National Bureau of Economic Research Working Paper 35785, Cambridge, MA. Prepared for the 2nd Annual AlUla Conference for Emerging Market Economies.

**Bagwell, Kyle, and Robert W. Staiger.** 1997. "Multilateral tariff cooperation during the formation of free trade areas." *International Economic Review*, 38: 291–319.

**Bai, Liang, Torsten Söchting Jaccard, and Sebastian Stumpner.** 2026. "Tariff Pass-through into Retail Prices: Measurement, Replacement, and Shrink-flation." King's College London, Vancouver School of Economics, and Banque de France Working Paper.

**Benguria, Felipe, and Felipe Saffie.** 2024. "Escaping the Trade War: Finance and Relational Supply Chains in the Adjustment to Trade Policy Shocks." *Journal of International Economics*, 152: 103987.

**Blonigen, Bruce A., and Chad P. Bown.** 2003. "Antidumping and retaliation threats." *Journal of International Economics*, 60(2): 249–273.

**Boeckelmann, Lukas, Lorenz Emter, Vanessa Gunnella, Karin Klieber, and Tajda Spital.** 2025. "China-US trade tensions could bring more Chinese exports and lower prices to Europe." *The ECB Blog*, Accessed: 2025-11-20.

**Bonadio, Barthélémy, Zhen Huo, Elliot Kang, Andrei A Levchenko, Nitya Pandalai-Nayar, Hiroshi Toma, and Petia Topalova.** 2025. "Playing with Blocs: Quantifying Decoupling." National Bureau of Economic Research Working Paper 34302.

**Bond, Eric W., and Constantine Syropoulos.** 1996. "The size of trading blocs: market power and world welfare effects." *Journal of International Economics*, 40: 411–437.

**Bown, Chad P.** 2011. "Taking Stock of Antidumping, Safeguards and Countervailing Duties, 1990–2009." *The World Economy*, 34(12): 1955–1998.

**Bown, Chad P.** 2022. "Four Years Into the Trade War, Are the US and China Decoupling." Peterson Institute for International Economics Working Paper.

**Bown, Chad P., and Melina Kolb.** 2019. "Trump's Trade War Timeline: An Up-to-Date Guide." Peterson Institute for International Economics.

**Bown, Chad P., and Meredith A. Crowley.** 2006. "Policy externalities: How US antidumping affects Japanese exports to the EU." *European Journal of Political Economy*, 22(3): 696–714.

**Bown, Chad P., and Meredith A. Crowley.** 2007. "Trade deflection and trade depression." *Journal of International Economics*, 72(1): 176–201.

**Bown, Chad P., and Meredith A. Crowley.** 2010. "China's Export Growth and the China Safeguard: Threats to the World Trading System?" *Canadian Journal of Economics / Revue canadienne d'Economique*, 43(4): 1353–1388.

**Brandt, Loren, and Kevin Lim.** 2024. "Opening up in the 21st century: A quantitative accounting of Chinese export growth." *Journal of International Economics*, 150: 103895.

**Cavallo, Alberto, Gita Gopinath, Brent Neiman, and Jenny Tang.** 2021. "Tariff Pass-Through at the Border and at the Store: Evidence from US Trade Policy." *American Economic Review: Insights*, 3(1): 19–34.

**Cavallo, Alberto, Paola Llamas, and Franco M. Vazquez.** 2025. "Tracking the Short-Run Price Impact of U.S. Tariffs." National Bureau of Economic Research NBER Working Paper 34496.

**Chor, Davin, and Bingjing Li.** 2024. "Illuminating the Effects of the US-China Tariff War on China's Economy." *Journal of International Economics*, 150: 103926.

**Correa, Ricardo, Andrea Fabiani, Matias Ossandon Busch, and Miguel Sarmiento.** 2025. "The Ripple Effect: Supply Chain Reconfigurations and Cross-border Credit Dynamics." Working paper, Paris School of Economics, May 2025.

**Crowley, Meredith, Ning Meng, and Huasheng Song.** 2018. "Tariff scares: Trade policy uncertainty and foreign market entry by Chinese firms." *Journal of International Economics*, 114: 96–115.

**Emlinger, Charlotte, Isabelle Méjean, Kevin Lefebvre, and Vincent Vicard.** 2026. "EU under Pressure? Exploring Chinese Trade Deflection." In *Paris Report 4: The New Global Imbalances.* , ed. Hélène Rey, Beatrice Weder di Mauro and Jeromin Zettelmeyer, Chapter 14. Paris and London:CEPR Press.

**European Central Bank.** 2025. "ECB Staff Macroeconomic Projections for the Euro Area, September 2025." European Central Bank. Accessed: 2025-11-20.

**Eurostat.** 2025. "International Trade in Goods (COMEXT) Database." Accessed: 2025-10-21.

**Fajgelbaum, Pablo D, Pinelopi K Goldberg, Patrick J Kennedy, and Amit K Khandelwal.** 2019. "The Return to Protectionism*." *The Quarterly Journal of Economics*, 135(1): 1–55.

**Fajgelbaum, Pablo, Pinelopi Goldberg, Patrick Kennedy, Amit Khandelwal, and Daria Taglioni.** 2024. "The US-China Trade War and Global Reallocations." *American Economic Review: Insights*, 6(2): 295–312.

**Fernández-Villaverde, Jesús, Tomohide Mineyama, and Dongho Song.** 2024. "Are We Fragmented Yet? Measuring Geopolitical Fragmentation and Its Causal Effect." National Bureau of Economic Research Working Paper 32638.

**Flaaen, Aaron, Ali Hortaçsu, and Felix Tintelnot.** 2020. "The Production Relocation and Price Effects of U.S. Trade Policy: The Case of Washing Machines." *American Economic Review*, 110(7): 2103–2127.

**Flaaen, Aaron, and Justin Pierce.** 2026. "Disentangling the Effects of the 2018–2019 Tariffs on a Globally Connected U.S. Manufacturing Sector." *The Review of Economics and Statistics*, 108(5): 1289–1333.

**Flaaen, Aaron B, Ali Hortaçsu, Felix Tintelnot, Nicolás Urdaneta, and Daniel Xu.** 2025. "Who Pays for Tariffs Along the Supply Chain? Evidence from European Wine Tariffs." National Bureau of Economic Research Working Paper 34392.

**Freund, Caroline.** 2025. "The China Wash: Tracking Products to Identify Tariff Evasion Through Transshipment." University of California San Diego, School of Global Policy and Strategy, 21st Century China Center and Center for Commerce and Diplomacy Policy Report.

**Freund, Caroline, Aaditya Mattoo, Alen Mulabdic, and Michele Ruta.** 2024. "Is US trade policy reshaping global supply chains?" *Journal of International Economics*, 152: 104011.

**Ganapati, Sharat, and Colin J Hottman.** 2026. "Did Foreigners Pay America's Tariffs? Quantity Discounts, Scale Economies and Incomplete Pass-Through." National Bureau of Economic Research Working Paper 34901.

**Gopinath, Gita, Pierre-Olivier Gourinchas, Andrea F. Presbitero, and Petia Topalova.** 2025. "Changing global linkages: A new Cold War?" *Journal of International Economics*, 153: 104042.

**Grant, Jason, and Sven Anders.** 2010. "Trade Deflection Arising from U.S. Import Refusals and Detentions in Fishery and Seafood Trade." *American Journal of Agricultural Economics*, 93(2): 573–580.

**Gunnella, Vanessa, Giovanni Stamato, and Alicja Kobayashi.** 2025. "The implications of US–China trade tensions for the euro area: lessons from the tariffs imposed by the first Trump Administration." *ECB Economic Bulletin – Focus*, , (2025/02). Accessed: 2025-11-20.

**Hancock, Alice.** 2025. "China reroutes clothes exports to Europe after US tariffs upset trade." *Financial Times*.

**Handley, Kyle, Fariha Kamal, and Ryan Monarch.** 2024. "Supply chain adjustments to tariff shocks: Evidence from firm trade linkages in the 2018-2019 U.S. trade war." *Economics Letters*, 244: 112009.

**Handley, Kyle, Fariha Kamal, and Ryan Monarch.** 2025. "Rising Import Tariffs, Falling Exports: When Modern Supply Chains Meet Old-Style Protectionism." *American Economic Journal: Applied Economics*, 17(1): 208–38.

**Hoang, Trang, and Carter Mix.** 2026. "Trade wars and rumors of trade wars: The dynamic effects of the U.S.–China tariff hikes." *Journal of International Economics*, 160: 104229.

**Hoang, Trang, and Gordon Lewis.** 2024. "As the U.S. is Derisking from China, Other Foreign U.S. Suppliers are Relying More on Chinese Imports." Federal Reserve Board. Accessed: 2024-11-14.

**Ignatenko, Anna.** 2026. "The Market Power of Buyers and Sellers in International Trade." Mimeo.

**Iyoha, Ebehi, Edmund J. Malesky, Jaya Y. Wen, Sung-Ju Wu, and Bo Feng.** 2025. "Exports in Disguise? Trade Rerouting During the U.S.–China Trade War." Harvard Business School HBS Working Paper 24-072.

**Javorcik, Beata, Benjamin Kett, Katherine Stapleton, and Layla O'Kane.** 2025. "Did the 2018 trade war improve job opportunities for US workers?" *Journal of International Economics*, 158: 104125.

**Javorcik, Beata, Justin Pierce, and Emily Wisniewski.** 2025. "Importers Big and Small: The Heterogeneous Effects of U.S.-China Tariffs on Sourcing and Prices." Mimeo.

**Javorcik, Beata, Lucas Kitzmüller, Helena Schweiger, and Muhammed A. Yıldırım.** 2024. "Economic Costs of Friendshoring." *The World Economy*, 47(7): 2871–2908.

**Jordà, Òscar.** 2005. "Estimation and Inference of Impulse Responses by Local Projections." *American Economic Review*, 95(1): 161–182.

**Ju, Jiandong, Hong Ma, Zi Wang, and Xiaodong Zhu.** 2024. "Trade wars and industrial policy competitions: Understanding the US-China economic conflicts." *Journal of Monetary Economics*, 141: 42–58. CARENGIE-ROCHESTER-NYU APRIL 2023 CONFERENCE.

**Manova, Kalina.** 2013. "Credit Constraints, Heterogeneous Firms, and International Trade." *The Review of Economic Studies*, 80(2): 711–744.

**Martinez, Maria, Helen Reid, and Philip Blenkinsop.** 2025. "Pressure grows on Europe to act on Chinese import surge." *Reuters*. Accessed: 2025-11-19.

**Martin, Julien, Isabelle Mejean, and Mathieu Parenti.** 2026. "Relationship Stickiness, International Trade, and Economic Uncertainty." *The Review of Economics and Statistics*, 108(1): 179–193.

**McLaren, John E.** 2002. "A theory of insidious regionalism." *Quarterly Journal of Economics*, 117: 571–608.

**Minton, Robert, and Mariano Somale.** 2025. "Detecting Tariff Effects on Consumer Prices in Real Time." *FEDS Notes, Board of Governors of the Federal Reserve System*.

**Nicita, Alessandro.** 2019. "Trade and Trade Diversion Effects of United States Tariffs on China." UNCTAD Research Paper No. 37 Working Paper.

**Reyes-Heroles, Ricardo, Sharon Traiberman, and Eva Van Leemput.** 2020. "Emerging Markets and the New Geography of Trade: The Effects of Rising Trade Barriers." *IMF Economic Review*, 69: 456–508.

**Ropele, Tiziano.** 2026. "Rerouting of Chinese products in response to US trade tariffs: evidence from Italian firms' expectations." Bank of Italy, Directorate General for Economics, Statistics and Research Questioni di Economia e Finanza (Occasional Papers) 1000.

**Schott, Peter K.** 2008. "The Relative Sophistication of Chinese Exports." *Economic Policy*, 23(53): 6–49.

**Schulze, Tatjana, and Weining Xin.** 2025. "Demystifying Trade Patterns in a Fragmenting World." International Monetary Fund IMF Working Paper WP/25/129.

**Shear, Michael D., and Jeanna Smialek.** 2025. "Why Europe Fears a Flood of Cheap Goods From China." *The New York Times*. Accessed 2026-06-19.

**Soderbery, Anson.** 2018. "Trade elasticities, heterogeneity, and optimal tariffs." *Journal of International Economics*, 114: 44–62.

**UN Commodity Trade Statistics Database (Comtrade).** 2025. Accessed: 2025-11-20.

**Utar, Hale, Alfronso Cebreros Zurita, and Luis Torres.** 2025. "The US-China Trade War and Relocation of Global Value Chains to Mexico." *Review of Economics and Statistics*.

**Viner, Jacob.** 1950. *The Customs Union Issue.* New York:Carnegie Endowment for International Peace.

**Xu, Chenzi.** 2022. "Reshaping Global Trade: The Immediate and Long-Run Effects of Bank Failures*." *The Quarterly Journal of Economics*, 137(4): 2107–2161.

# A Country Details

We consider 69 economies for our analysis. Each region consists of the following importing countries:

**Advanced Economies (AE)**: Andorra, Australia, Canada, European Union, Iceland, Israel, Japan, New Zealand, Norway, Rep. of Korea, Switzerland, Taiwan, United Kingdom.

**Emerging Market (EM)**: Albania, Armenia, Bahrain, Belarus, Bermuda, Bolivia (Plurinational State of), Bosnia Herzegovina, Brazil, Brunei Darussalam, Burkina Faso, Cambodia, Chile, Colombia, Costa Rica, Dominican Rep., Ecuador, El Salvador, Eswatini, Fiji, Georgia, Guatemala, Honduras, India, Indonesia, Iran, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Lao People's Dem. Rep., Liberia, Madagascar, Malaysia, Maldives, Mauritius, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nicaragua, North Macedonia, Oman, Pakistan, Panama, Paraguay, Peru, Russian Federation, Serbia, South Africa, Thailand, Türkiye, United Rep. of Tanzania, Uruguay, Zambia.

**European Union Member Countries**: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

We exclude the United Kingdom from the EU importer group, as it formally left the European Union in January 2020 (Brexit) and therefore does not maintain EU membership throughout the full analysis period.

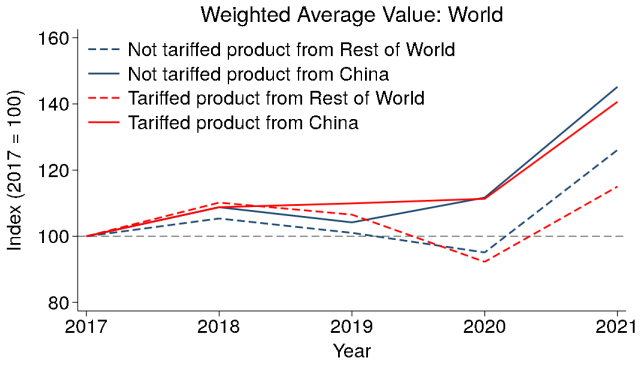
**ASEAN Member Countries**: Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor-Leste, and Viet Nam.

**Extended analysis**: For the extended analysis, our data goes back to 2015 and include the previous revision (HS2012) of the Harmonized System. We add 42 more importing countries: Angola, Argentina, Aruba, Azerbaijan, Bahamas, Belize, Benin, Botswana, Burundi, Cabo Verde, Cameroon, Comoros, Congo, Côte d'Ivoire, Dem. Rep. of the Congo, Egypt, Ethiopia, French Polynesia, Grenada, Jamaica, Kenya, Lebanon, Lesotho, Malawi, Mexico, Nepal, Niger, Nigeria, Qatar, Rep. of Moldova, Rwanda, Saudi Arabia, Senegal, Singapore, State of Palestine, Togo, Tunisia, Uganda, Ukraine, United Arab Emirates, Viet Nam, Zimbabwe.

# B Bystander Import Values by Source and Tariff Status

This section presents a figure displaying indexed import values for bystander countries (all countries in our sample, excluding the U.S. and China). The figure indicates that bystanders' imports of all products from China increase relative to those from the rest of the world, with a roughly similar pace of increases for tariffed and non-tariffed products. Imports of tariffed products from the rest of the world exhibit the weakest growth, and lag that of non-tariffed products, consistent with increased pressure from deflected Chinese exports among tariffed goods. Our difference-in-differences approach captures shocks common to products and destination and origin countries over time, allowing us to control for any common shocks along these dimensions, thus identifying effects due specifically to U.S. tariffs on imports from China.

Figure 16: Weighted Import Index by Tariff Status and Origin




Sources: UN Comtrade; authors' calculations.

Notes: Figure displays the indexed import value of tariffed and untariffed products by source for the 95 destination countries in our main world sample.

# C Additional Results and Robustness Checks

## C.1 Tables for Main Difference-in-Differences Results

This section reports tables for the main difference-in-differences results, which are presented graphically in Section 4.

Table 6: Main DiD Results - World Imports

| | (1) Value (ln) | (2) Quantity (ln) | (3) Unit Price (ln) |
|---|---|---|---|
| $\text{tariffed}_{og} \times \mathbf{I}(2018)$ | -0.022*** | -0.000 | -0.018*** |
| | (0.007) | (0.010) | (0.005) |
| $\text{tariffed}_{og} \times \mathbf{I}(2019)$ | 0.050*** | 0.084*** | -0.029*** |
| | (0.010) | (0.011) | (0.005) |
| $\text{tariffed}_{og} \times \mathbf{I}(2020)$ | -0.021* | 0.029** | -0.048*** |
| | (0.013) | (0.013) | (0.005) |
| $\text{tariffed}_{og} \times \mathbf{I}(2021)$ | -0.003 | 0.044*** | -0.045*** |
| | (0.014) | (0.015) | (0.007) |
| Adj. $R^2$ | 0.632 | 0.674 | 0.743 |
| Observations | 19,642,721 | 18,743,279 | 18,743,236 |

Standard errors in parentheses

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

Sources: UN Comtrade; authors' calculations.

Notes: Table shows the estimated coefficients for the difference-in-differences design in Equation 1. The data is at the origin-destination-year-product level, with destination country being each of the 69 economies in our sample. Product is defined as a six-digit HS code. The dependent variable is (ln) value in column (1), (ln) quantity in column (2), and (ln) unit prices in column (3). All specifications include product-time, origin-time, origin-product, destination-product, destination-time, and origin-destination fixed effects. Standard errors are in parentheses and clustered at the six-digit HS code and origin level.

Table 7: Main DiD Results - U.S. exports excluded

| | (1) Value (ln) | (2) Quantity (ln) | (3) Price (ln) |
|---|---|---|---|
| $\text{tariffed}_{og} \times \mathbf{I}(2018)$ | -0.0226*** | -0.00189 | -0.0178*** |
| | (0.00744) | (0.0102) | (0.00546) |
| $\text{tariffed}_{og} \times \mathbf{I}(2019)$ | 0.0465*** | 0.0812*** | -0.0299*** |
| | (0.0102) | (0.0116) | (0.00544) |
| $\text{tariffed}_{og} \times \mathbf{I}(2020)$ | -0.0257* | 0.0235* | -0.0476*** |
| | (0.0136) | (0.0139) | (0.00555) |
| $\text{tariffed}_{og} \times \mathbf{I}(2021)$ | -0.00993 | 0.0398** | -0.0479*** |
| | (0.0144) | (0.0160) | (0.00658) |
| Adj. $R^2$ | 0.627 | 0.672 | 0.742 |
| Observations | 18,749,005 | 17,892,045 | 17,892,004 |

Standard errors in parentheses

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

Sources: UN Comtrade; authors' calculations.

Notes: Table shows the estimated coefficients for the difference-in-differences design in Equation 1. The data is at the origin-destination-year-product level, with destination country being each of the 69 economies in our sample. The data excludes any transaction where the United States is the origin country. Product is defined as a six-digit HS code. The dependent variable is (ln) value in column (1), (ln) quantity in column (2), and (ln) unit prices in column (3). All specifications include product-time, origin-time, origin-product, destination-product, destination-time, and origin-destination fixed effects. Standard errors are in parentheses and clustered at the six-digit HS code and origin level.

Table 8: Main DiD Results - Emerging Markets Imports

| | (1) Value (ln) | (2) Quantity (ln) | (3) Unit Price (ln) |
|---|---|---|---|
| $\text{tariffed}_{og} \times \mathbf{I}(2018)$ | -0.010 | 0.015 | -0.018*** |
| | (0.009) | (0.012) | (0.007) |
| $\text{tariffed}_{og} \times \mathbf{I}(2019)$ | 0.066*** | 0.101*** | -0.029*** |
| | (0.013) | (0.014) | (0.007) |
| $\text{tariffed}_{og} \times \mathbf{I}(2020)$ | -0.013 | 0.030** | -0.043*** |
| | (0.014) | (0.014) | (0.007) |
| $\text{tariffed}_{og} \times \mathbf{I}(2021)$ | 0.004 | 0.055*** | -0.047*** |
| | (0.015) | (0.016) | (0.008) |
| Adj. $R^2$ | 0.612 | 0.664 | 0.729 |
| Observations | 13,194,428 | 12,680,057 | 12,680,016 |

Standard errors in parentheses

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

Sources: UN Comtrade; authors' calculations.

Notes: Table shows the estimated coefficients for the difference-in-differences design in Equation 1. The data is at the origin-destination-year-product level, with destination country being each of the 56 Emerging Market countries in our sample. Product is defined as a six-digit HS code. The dependent variable is (ln) value in column (1), (ln) quantity in column (2), and (ln) unit prices in column (3). All specifications include product-time, origin-time, origin-product, destination-product, destination-time, and origin-destination fixed effects. Standard errors are in parentheses and clustered at the six-digit HS code and origin level.

Table 9: Main DiD Results - Advanced Economies Imports

| | (1) Value (ln) | (2) Quantity (ln) | (3) Unit Price (ln) |
|---|---|---|---|
| $\text{tariffed}_{og} \times \mathbf{I}(2018)$ | -0.043*** | -0.039*** | -0.010 |
| | (0.011) | (0.013) | (0.006) |
| $\text{tariffed}_{og} \times \mathbf{I}(2019)$ | 0.002 | 0.024 | -0.022*** |
| | (0.012) | (0.015) | (0.007) |
| $\text{tariffed}_{og} \times \mathbf{I}(2020)$ | -0.039** | 0.016 | -0.048*** |
| | (0.016) | (0.017) | (0.007) |
| $\text{tariffed}_{og} \times \mathbf{I}(2021)$ | -0.028 | -0.009 | -0.022*** |
| | (0.023) | (0.024) | (0.008) |
| Adj. $R^2$ | 0.707 | 0.738 | 0.795 |
| Observations | 6,352,339 | 5,967,594 | 5,967,594 |

Standard errors in parentheses

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

Sources: UN Comtrade; authors' calculations.

Notes: Table shows the estimated coefficients for the difference-in-differences design in Equation 1. The data is at the origin-destination-year-product level, with destination country being each of the 13 Advanced Economies in our sample. Product is defined as a six-digit HS code. The dependent variable is (ln) value in column (1), (ln) quantity in column (2), and (ln) unit prices in column (3). All specifications include product-time, origin-time, origin-product, destination-product, destination-time, and origin-destination fixed effects. Standard errors are in parentheses and clustered at the six-digit HS code and origin level.

Table 10: Main DiD Results - European Union Imports

| | (1) Value (ln) | (2) Quantity (ln) | (3) Unit Price (ln) |
|---|---|---|---|
| $\text{tariffed}_{og} \times \mathbf{I}(2018)$ | -0.038 | -0.017 | -0.012 |
| | (0.030) | (0.036) | (0.021) |
| $\text{tariffed}_{og} \times \mathbf{I}(2019)$ | -0.003 | 0.063 | -0.044** |
| | (0.035) | (0.038) | (0.021) |
| $\text{tariffed}_{og} \times \mathbf{I}(2020)$ | -0.080** | -0.016 | -0.052** |
| | (0.032) | (0.040) | (0.023) |
| $\text{tariffed}_{og} \times \mathbf{I}(2021)$ | -0.144** | -0.118* | -0.022 |
| | (0.059) | (0.067) | (0.021) |
| Adj. $R^2$ | 0.859 | 0.867 | 0.821 |
| Observations | 948,055 | 929,961 | 929,961 |

Standard errors in parentheses

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

Sources: UN Comtrade; authors' calculations.

Notes: Table shows the estimated coefficients for the difference-in-differences design in Equation 1. The data is at the origin-destination-year-product level, with destination being the European Union. Product is defined as a six-digit HS code. The dependent variable is (ln) value in column (1), (ln) quantity in column (2), and (ln) unit prices in column (3). The specifications include product-time, origin-time, and origin-product fixed effects. Standard errors are in parentheses and clustered at the six-digit HS code and origin level.

Table 11: Main DiD Results - ASEAN Imports

| | (1) Value (ln) | (2) Quantity (ln) | (3) Unit Price (ln) |
|---|---|---|---|
| $\text{tariffed}_{og} \times \mathbf{I}(2018)$ | 0.058*** | 0.093*** | -0.031** |
| | (0.022) | (0.025) | (0.013) |
| $\text{tariffed}_{og} \times \mathbf{I}(2019)$ | 0.091*** | 0.160*** | -0.067*** |
| | (0.031) | (0.034) | (0.018) |
| $\text{tariffed}_{og} \times \mathbf{I}(2020)$ | -0.039 | 0.058 | -0.114*** |
| | (0.033) | (0.038) | (0.019) |
| $\text{tariffed}_{og} \times \mathbf{I}(2021)$ | -0.027 | 0.087** | -0.132*** |
| | (0.033) | (0.040) | (0.017) |
| Adj. $R^2$ | 0.680 | 0.731 | 0.737 |
| Observations | 1,722,155 | 1,678,385 | 1,678,385 |

Standard errors in parentheses

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

Sources: UN Comtrade; authors' calculations.

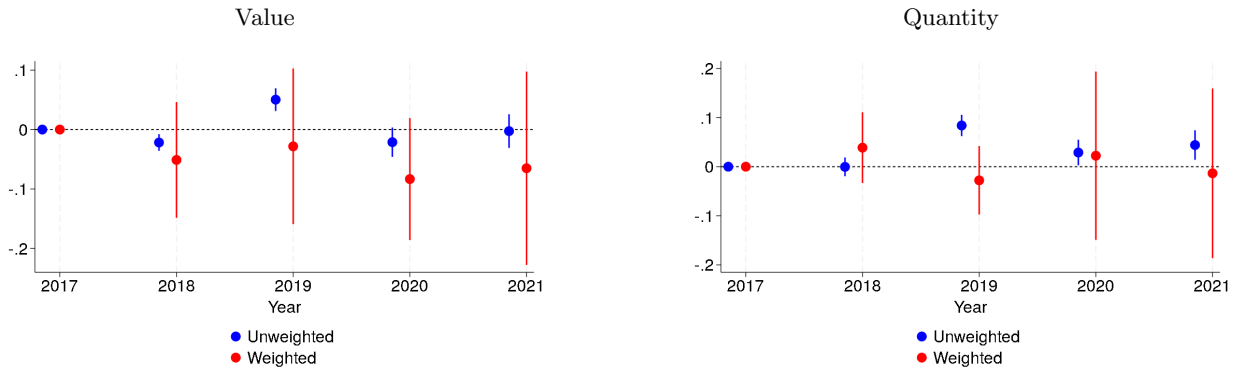
Notes: Table shows the estimated coefficients for the difference-in-differences design in Equation 1. The data is at the origin-destination-year-product level, with destination being the ASEAN aggregate. Product is defined as a six-digit HS code. The dependent variable is (ln) value in column (1), (ln) quantity in column (2), and (ln) unit prices in column (3). The specifications include product-time, origin-time, and origin-product fixed effects. Standard errors are in parentheses and clustered at the six-digit HS code and origin level.

## C.2 Additional Results Related To Weighted Robustness Check

This section describes weighted estimates for value and quantity, equivalent to those reported for unit values in Section 5.1. As shown in Figure 17, coefficients for value and quantity are estimated much less precisely than in the baseline (Figure 9). This loss of precision stems from a mechanical issue: Weighting observations while clustering standard errors at the origin and product level creates an effective mismatch. Some clusters receive very little weight while others are heavily weighted, which in practice reduces the effective number of independent clusters and inflates standard errors.

The loss of precision for unit values in Section 5.1 was much less stark, and it has a natural interpretation. Price changes reflect market-wide competitive pressures that may operate similarly across large and small markets. Trade diversion in values and quantities, however, may be easier to detect in smaller, more flexible trade flows where the signal is not dominated by other shocks affecting high-volume products. The unweighted results, by giving equal voice to all products, pick up these pervasive but individually small responses that the weighted specification averages out.

Figure 17: Weighted Difference-in-Differences Estimates for Trade Volumes - World Sample




Sources: UN Comtrade; authors' calculations.

Notes: The figure displays estimates of a difference-in-differences regression of log import value or quantity on interactions of a tariffed indicator and year dummies. The regression includes origin–product, product–time, origin–time, destination–product, destination–time, and origin–destination fixed effects. Weighted estimates (in red) are weighted by the 2017 import value for each origin-destination-product group; baseline estimate (in blue) are unweighted. Standard errors are clustered at the origin country and six-digit HS product level. Error bars show 95% confidence intervals. The corresponding weighted estimates for unit prices are shown in Figure 10.

## C.3 Additional Heterogeneous Responses Results

This section reports tables corresponding to the triple difference-in-differences specification shown in Section 6. We report value and quantity results for the full sample, as well as price results for advanced economies and emerging markets separately. In addition, we display a correlation matrix of the various triple difference terms and the horse race specification results for advanced economies and emerging markets.

Table 12: World - Product Mechanism

| | (1) Value (ln) | (2) Quantity (ln) | (3) Value (ln) | (4) Quantity (ln) |
|---|---|---|---|---|
| tariffed$_{og}$ × **I**(2018) | -0.0331*** | -0.0163 | -0.0177** | 0.0051 |
| | (0.0077) | (0.0106) | (0.0071) | (0.0097) |
| tariffed$_{og}$ × **I**(2019) | 0.0582*** | 0.0905*** | 0.0469*** | 0.0764*** |
| | (0.0104) | (0.0119) | (0.0098) | (0.0114) |
| tariffed$_{og}$ × **I**(2020) | -0.0310** | 0.0109 | -0.0234* | 0.0244 |
| | (0.0128) | (0.0139) | (0.0140) | (0.0150) |
| tariffed$_{og}$ × **I**(2021) | -0.0048 | 0.0278* | -0.0225 | 0.0338** |
| | (0.0148) | (0.0163) | (0.0141) | (0.0157) |
| tariffed$_{og}$ × **I**(2018) × **I**(US_important) | 0.0204*** | 0.0292*** | | |
| | (0.0042) | (0.0051) | | |
| tariffed$_{og}$ × **I**(2019) × **I**(US_important) | -0.0143*** | -0.0120* | | |
| | (0.0055) | (0.0062) | | |
| tariffed$_{og}$ × **I**(2020) × **I**(US_important) | 0.0176*** | 0.0327*** | | |
| | (0.0058) | (0.0060) | | |
| tariffed$_{og}$ × **I**(2021) × **I**(US_important) | 0.0039 | 0.0298*** | | |
| | (0.0068) | (0.0088) | | |
| tariffed$_{og}$ × **I**(2018) × **I**(HighK) | | | -0.0034 | -0.0038 |
| | | | (0.0051) | (0.0068) |
| tariffed$_{og}$ × **I**(2019) × **I**(HighK) | | | 0.0100** | 0.0168** |
| | | | (0.0049) | (0.0069) |
| tariffed$_{og}$ × **I**(2020) × **I**(HighK) | | | -0.0058 | -0.0021 |
| | | | (0.0069) | (0.0081) |
| tariffed$_{og}$ × **I**(2021) × **I**(HighK) | | | 0.0069 | -0.0247** |
| | | | (0.0082) | (0.0113) |
| N | 19,642,721 | 18,743,279 | 18,615,242 | 17,753,044 |
| Adj. $R^2$ | 0.632 | 0.674 | 0.635 | 0.671 |

Sources: UN Comtrade; authors' calculations.

Notes: Table shows estimated coefficients for the triple difference-in-differences specification. The data is at the origin-destination-year-product level, with destination country being each of the 69 economies in our data and product being defined as a six-digit HS code. The dependent variable is (ln) value of imports in columns (1) and (3), and (ln) quantity in columns (2) and (4). Columns (1) and (2) present the triple interaction tariffed$_{og}$ × I($t$) × I(US_important). I(US_important) identifies products where the 2017 US share of Chinese exports exceeded the median export share across all other destinations. Columns (3) and (4) present the triple interaction tariffed$_{og}$ × I($t$) × I(HighK). I(HighK) identifies six-digit HS products whose capital-to-employment ratio, computed from the NBER-CES Manufacturing Industry Database, exceeds the median ratio across all products. Regressions include origin–product, product–time, origin–time, destination–product, destination–time, origin–destination fixed effects. Estimates are unweighted and standard errors are clustered at the origin country and six-digit HS product level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 13: World - Destination Mechanism

| | (1) Value (ln) | (2) Quantity (ln) | (3) Value (ln) | (4) Quantity (ln) | (5) Value (ln) | (6) Quantity (ln) |
|---|---|---|---|---|---|---|
| $\text{tariffed}_{og} \times \mathbf{I}(2018)$ | 0.0052 | 0.0288*** | 0.0067 | 0.0218** | -0.0209** | -0.0054 |
| | (0.0074) | (0.0103) | (0.0071) | (0.0097) | (0.0082) | (0.0103) |
| $\text{tariffed}_{og} \times \mathbf{I}(2019)$ | 0.0884*** | 0.1340*** | 0.0918*** | 0.1040*** | 0.0710*** | 0.0939*** |
| | (0.0103) | (0.0122) | (0.0095) | (0.0112) | (0.0100) | (0.0122) |
| $\text{tariffed}_{og} \times \mathbf{I}(2020)$ | 0.0236* | 0.0759*** | 0.0289** | 0.0549*** | 0.0074 | 0.0362*** |
| | (0.0134) | (0.0145) | (0.0121) | (0.0132) | (0.0121) | (0.0123) |
| $\text{tariffed}_{og} \times \mathbf{I}(2021)$ | 0.0343** | 0.0880*** | 0.0754*** | 0.0922*** | 0.0359** | 0.0631*** |
| | (0.0144) | (0.0162) | (0.0139) | (0.0150) | (0.0151) | (0.0149) |
| $\text{tariffed}_{og} \times \mathbf{I}(2018) \times \mathbf{I}(\text{CN_major})$ | -0.0573*** | -0.0572*** | | | | |
| | (0.0045) | (0.0054) | | | | |
| $\text{tariffed}_{og} \times \mathbf{I}(2019) \times \mathbf{I}(\text{CN_major})$ | -0.0771*** | -0.0917*** | | | | |
| | (0.0065) | (0.0077) | | | | |
| $\text{tariffed}_{og} \times \mathbf{I}(2020) \times \mathbf{I}(\text{CN_major})$ | -0.0882*** | -0.0795*** | | | | |
| | (0.0069) | (0.0075) | | | | |
| $\text{tariffed}_{og} \times \mathbf{I}(2021) \times \mathbf{I}(\text{CN_major})$ | -0.0681*** | -0.0683*** | | | | |
| | (0.0075) | (0.0076) | | | | |
| $\text{tariffed}_{og} \times \mathbf{I}(2018) \times \mathbf{I}(\text{HighHHI})$ | | | -0.0700*** | -0.0573*** | | |
| | | | (0.0062) | (0.0059) | | |
| $\text{tariffed}_{og} \times \mathbf{I}(2019) \times \mathbf{I}(\text{HighHHI})$ | | | -0.1010*** | -0.0550*** | | |
| | | | (0.0070) | (0.0088) | | |
| $\text{tariffed}_{og} \times \mathbf{I}(2020) \times \mathbf{I}(\text{HighHHI})$ | | | -0.1200*** | -0.0680*** | | |
| | | | (0.0066) | (0.0073) | | |
| $\text{tariffed}_{og} \times \mathbf{I}(2021) \times \mathbf{I}(\text{HighHHI})$ | | | -0.1850*** | -0.1200*** | | |
| | | | (0.0073) | (0.0092) | | |
| $\text{tariffed}_{og} \times \mathbf{I}(2018) \times \sigma_{dg}^{\text{HS4}}$ | | | | | -0.0014 | 0.0024 |
| | | | | | (0.0018) | (0.0022) |
| $\text{tariffed}_{og} \times \mathbf{I}(2019) \times \sigma_{dg}^{\text{HS4}}$ | | | | | -0.0064*** | -0.0017 |
| | | | | | (0.0019) | (0.0024) |
| $\text{tariffed}_{og} \times \mathbf{I}(2020) \times \sigma_{dg}^{\text{HS4}}$ | | | | | -0.0115*** | -0.0031 |
| | | | | | (0.0021) | (0.0024) |
| $\text{tariffed}_{og} \times \mathbf{I}(2021) \times \sigma_{dg}^{\text{HS4}}$ | | | | | -0.0092*** | -0.0018 |
| | | | | | (0.0020) | (0.0023) |
| N | 19,642,721 | 18,743,279 | 19,642,721 | 18,743,279 | 17,876,743 | 17,079,808 |
| Adj. $R^2$ | 0.633 | 0.674 | 0.632 | 0.674 | 0.636 | 0.680 |

Sources: UN Comtrade; authors' calculations.

Notes: Table shows estimated coefficients for the triple difference-in-differences specification, at the origin-destination-year-product level, with destination country being each of the 69 economies in our data and product being a six-digit HS code. The dependent variable is (ln) value of imports in columns (1), (3), and (5), and (ln) quantity in columns (2), (4), and (6). Columns (1) and (2) interact $\text{tariffed}_{og} \times \text{I}(t)$ with I(CN_major), which equals one when importer $d$ received an above-median share of Chinese exports of product $g$ in 2017, with the median taken across all importers of $g$. Columns (3) and (4) use I(HighHHI), which equals one if the Herfindahl-Hirschman index of $d$'s 2017 imports of product $g$ across origins is at or above the median across all destinations importing $g$. Columns (5) and (6) use $\sigma_{dg}^{\text{HS4}}$, the destination–HS4 elasticity of substitution from Soderbery (2018), winsorized at the 1st and 99th percentiles. Regressions include origin–product, product–time, origin–time, destination–product, destination–time, and origin–destination fixed effects. Estimates are unweighted and standard errors are clustered at the origin country and six-digit HS product level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 14: Advanced Economies - Product Mechanism

| | (1) Price (ln) | (2) Price (ln) |
|---|---|---|
| $\text{tariffed}_{og} \times \mathbf{I}(2018)$ | -0.0071 | -0.0081 |
| | (0.0063) | (0.0083) |
| $\text{tariffed}_{og} \times \mathbf{I}(2019)$ | -0.0282*** | -0.0101 |
| | (0.0070) | (0.0082) |
| $\text{tariffed}_{og} \times \mathbf{I}(2020)$ | -0.0530*** | -0.0465*** |
| | (0.0069) | (0.0086) |
| $\text{tariffed}_{og} \times \mathbf{I}(2021)$ | -0.0300*** | -0.0220** |
| | (0.0081) | (0.0089) |
| $\text{tariffed}_{og} \times \mathbf{I}(2018) \times \mathbf{I}(\text{US_important})$ | -0.0053 | |
| | (0.0044) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2019) \times \mathbf{I}(\text{US_important})$ | 0.0123*** | |
| | (0.0039) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2020) \times \mathbf{I}(\text{US_important})$ | 0.0087* | |
| | (0.0045) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2021) \times \mathbf{I}(\text{US_important})$ | 0.0164*** | |
| | (0.0048) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2018) \times \mathbf{I}(\text{HighK})$ | | -0.0002 |
| | | (0.0049) |
| $\text{tariffed}_{og} \times \mathbf{I}(2019) \times \mathbf{I}(\text{HighK})$ | | -0.0266*** |
| | | (0.0060) |
| $\text{tariffed}_{og} \times \mathbf{I}(2020) \times \mathbf{I}(\text{HighK})$ | | -0.0237*** |
| | | (0.0055) |
| $\text{tariffed}_{og} \times \mathbf{I}(2021) \times \mathbf{I}(\text{HighK})$ | | -0.0178** |
| | | (0.0076) |
| N | 5,967,594 | 5,563,735 |
| Adj. $R^2$ | 0.795 | 0.788 |

Sources: UN Comtrade; authors' calculations.

Notes: Table shows estimated coefficients for the triple difference-in-differences specification. The data is at the origin-destination-year-product level, with destination country being each of the advanced economies in our data and product being defined as a six-digit HS code. The dependent variable is (ln) price of imports. Column (1) presents the triple interaction $\text{tariffed}_{og} \times \text{I}(t) \times \text{I}(\text{US_important})$. I(US_important) identifies products where the 2017 US share of Chinese exports exceeded the median export share across all other destinations. Column (2) presents the triple interaction $\text{tariffed}_{og} \times \text{I}(t) \times \text{I}(\text{HighK})$. I(HighK) identifies six-digit HS products whose capital-to-employment ratio, computed from the NBER-CES Manufacturing Industry Database, exceeds the median ratio across all products. Regressions include origin–product, product–time, origin–time, destination–product, destination–time, origin–destination fixed effects. Estimates are unweighted and standard errors are clustered at the origin country and six-digit HS product level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 15: Emerging Markets - Product Mechanism

| | (1) Price (ln) | (2) Price (ln) |
|---|---|---|
| $\text{tariffed}_{og} \times \mathbf{I}(2018)$ | -0.0162** | -0.0173*** |
| | (0.0070) | (0.0065) |
| $\text{tariffed}_{og} \times \mathbf{I}(2019)$ | -0.0302*** | -0.0302*** |
| | (0.0075) | (0.0075) |
| $\text{tariffed}_{og} \times \mathbf{I}(2020)$ | -0.0364*** | -0.0429*** |
| | (0.0079) | (0.0079) |
| $\text{tariffed}_{og} \times \mathbf{I}(2021)$ | -0.0304*** | -0.0597*** |
| | (0.0085) | (0.0093) |
| $\text{tariffed}_{og} \times \mathbf{I}(2018) \times \mathbf{I}(\text{US_important})$ | -0.0035 | |
| | (0.0041) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2019) \times \mathbf{I}(\text{US_important})$ | 0.0025 | |
| | (0.0054) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2020) \times \mathbf{I}(\text{US_important})$ | -0.0124** | |
| | (0.0054) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2021) \times \mathbf{I}(\text{US_important})$ | -0.0295*** | |
| | (0.0062) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2018) \times \mathbf{I}(\text{HighK})$ | | 0.0002 |
| | | (0.0044) |
| $\text{tariffed}_{og} \times \mathbf{I}(2019) \times \mathbf{I}(\text{HighK})$ | | 0.0023 |
| | | (0.0059) |
| $\text{tariffed}_{og} \times \mathbf{I}(2020) \times \mathbf{I}(\text{HighK})$ | | 0.0056 |
| | | (0.0076) |
| $\text{tariffed}_{og} \times \mathbf{I}(2021) \times \mathbf{I}(\text{HighK})$ | | 0.0426*** |
| | | (0.0078) |
| N | 12,680,016 | 12,103,659 |
| Adj. $R^2$ | 0.729 | 0.722 |

Sources: UN Comtrade; authors' calculations.

Notes: Table shows estimated coefficients for the triple difference-in-differences specification. The data is at the origin-destination-year-product level, with destination country being each of the emerging markets in our data and product being defined as a six-digit HS code. The dependent variable is (ln) price of imports. Column (1) presents the triple interaction $\text{tariffed}_{og} \times \text{I}(t) \times \text{I}(\text{US_important})$. I(US_important) identifies products where the 2017 US share of Chinese exports exceeded the median export share across all other destinations. Column (2) presents the triple interaction $\text{tariffed}_{og} \times \text{I}(t) \times \text{I}(\text{HighK})$. I(HighK) identifies six-digit HS products whose capital-to-employment ratio, computed from the NBER-CES Manufacturing Industry Database, exceeds the median ratio across all products. Regressions include origin–product, product–time, origin–time, destination–product, destination–time, origin–destination fixed effects. Estimates are unweighted and standard errors are clustered at the origin country and six-digit HS product level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 16: Advanced Economies - Destination Mechanism

| | (1) Price (ln) | (2) Price (ln) | (3) Price (ln) |
|---|---|---|---|
| tariffed$_{og}$ × **I**(2018) | -0.0270*** | -0.0024 | -0.0022 |
| | (0.0070) | (0.0063) | (0.0072) |
| tariffed$_{og}$ × **I**(2019) | -0.0234*** | -0.0148** | 0.0135 |
| | (0.0077) | (0.0070) | (0.0088) |
| tariffed$_{og}$ × **I**(2020) | -0.0422*** | -0.0396*** | -0.0174** |
| | (0.0075) | (0.0067) | (0.0087) |
| tariffed$_{og}$ × **I**(2021) | -0.0032 | -0.0122 | 0.0197** |
| | (0.0091) | (0.0076) | (0.0088) |
| tariffed$_{og}$ × **I**(2018) × **I**(CN_major) | 0.0307*** | | |
| | (0.0048) | | |
| tariffed$_{og}$ × **I**(2019) × **I**(CN_major) | 0.0022 | | |
| | (0.0042) | | |
| tariffed$_{og}$ × **I**(2020) × **I**(CN_major) | -0.0124*** | | |
| | (0.0043) | | |
| tariffed$_{og}$ × **I**(2021) × **I**(CN_major) | -0.0348*** | | |
| | (0.0059) | | |
| tariffed$_{og}$ × **I**(2018) × **I**(HighHHI) | | -0.0263*** | |
| | | (0.0038) | |
| tariffed$_{og}$ × **I**(2019) × **I**(HighHHI) | | -0.0252*** | |
| | | (0.0042) | |
| tariffed$_{og}$ × **I**(2020) × **I**(HighHHI) | | -0.0314*** | |
| | | (0.0036) | |
| tariffed$_{og}$ × **I**(2021) × **I**(HighHHI) | | -0.0325*** | |
| | | (0.0041) | |
| tariffed$_{og}$ × **I**(2018) × $\sigma_{dg}^{\text{HS4}}$ | | | -0.0021 |
| | | | (0.0013) |
| tariffed$_{og}$ × **I**(2019) × $\sigma_{dg}^{\text{HS4}}$ | | | -0.0118*** |
| | | | (0.0018) |
| tariffed$_{og}$ × **I**(2020) × $\sigma_{dg}^{\text{HS4}}$ | | | -0.0109*** |
| | | | (0.0018) |
| tariffed$_{og}$ × **I**(2021) × $\sigma_{dg}^{\text{HS4}}$ | | | -0.0124*** |
| | | | (0.0016) |
| N | 5,967,594 | 5,967,594 | 5,807,322 |
| Adj. $R^2$ | 0.795 | 0.795 | 0.795 |

Sources: UN Comtrade; authors' calculations.

Notes: Table shows estimated coefficients for the triple difference-in-differences specification, at the origin-destination-year-product level, with destination country being each of the advanced economies in our data and product being a six-digit HS code. The dependent variable is (ln) price of imports. Column (1) interacts tariffed$_{og}$ × I($t$) with I(CN_major), which equals one when importer $d$ received an above-median share of Chinese exports of product $g$ in 2017, with the median taken across all importers of $g$. Column (2) uses I(HighHHI), which equals one if the Herfindahl-Hirschman index of $d$'s 2017 imports of product $g$ across origins is at or above the median across all destinations importing $g$. Column (3) uses $\sigma_{dg}^{\text{HS4}}$, the destination–HS4 elasticity of substitution from Soderbery (2018), winsorized at the 1st and 99th percentiles. Regressions include origin–product, product–time, origin–time, destination–product, destination–time, and origin–destination fixed effects. Estimates are unweighted and standard errors are clustered at the origin country and six-digit HS product level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

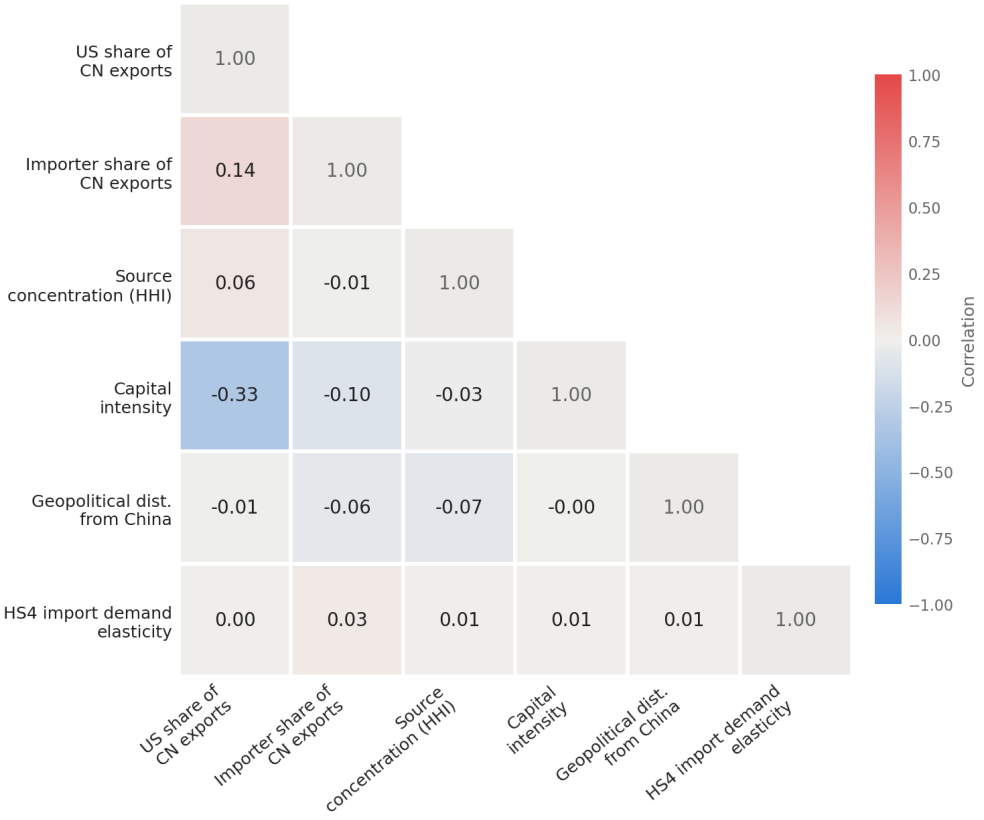
Table 17: Emerging Markets - Destination Mechanism

| | (1) Price (ln) | (2) Price (ln) | (3) Price (ln) |
|---|---|---|---|
| $\text{tariffed}_{og} \times \mathbf{I}(2018)$ | -0.0104 | -0.0189*** | -0.0221*** |
| | (0.0069) | (0.0069) | (0.0080) |
| $\text{tariffed}_{og} \times \mathbf{I}(2019)$ | -0.0295*** | -0.0072 | -0.0343*** |
| | (0.0070) | (0.0077) | (0.0083) |
| $\text{tariffed}_{og} \times \mathbf{I}(2020)$ | -0.0337*** | -0.0164** | -0.0219** |
| | (0.0077) | (0.0078) | (0.0096) |
| $\text{tariffed}_{og} \times \mathbf{I}(2021)$ | -0.0402*** | -0.0151 | -0.0363*** |
| | (0.0085) | (0.0098) | (0.0107) |
| $\text{tariffed}_{og} \times \mathbf{I}(2018) \times \mathbf{I}(\text{CN_major})$ | -0.0194*** | | |
| | (0.0031) | | |
| $\text{tariffed}_{og} \times \mathbf{I}(2019) \times \mathbf{I}(\text{CN_major})$ | 0.0005 | | |
| | (0.0047) | | |
| $\text{tariffed}_{og} \times \mathbf{I}(2020) \times \mathbf{I}(\text{CN_major})$ | -0.0255*** | | |
| | (0.0045) | | |
| $\text{tariffed}_{og} \times \mathbf{I}(2021) \times \mathbf{I}(\text{CN_major})$ | -0.0183*** | | |
| | (0.0049) | | |
| $\text{tariffed}_{og} \times \mathbf{I}(2018) \times \mathbf{I}(\text{HighHHI})$ | | 0.0016 | |
| | | (0.0041) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2019) \times \mathbf{I}(\text{HighHHI})$ | | -0.0451*** | |
| | | (0.0059) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2020) \times \mathbf{I}(\text{HighHHI})$ | | -0.0565*** | |
| | | (0.0061) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2021) \times \mathbf{I}(\text{HighHHI})$ | | -0.0665*** | |
| | | (0.0074) | |
| $\text{tariffed}_{og} \times \mathbf{I}(2018) \times \sigma_{dg}^{\text{HS4}}$ | | | -0.0025 |
| | | | (0.0015) |
| $\text{tariffed}_{og} \times \mathbf{I}(2019) \times \sigma_{dg}^{\text{HS4}}$ | | | -0.0024 |
| | | | (0.0017) |
| $\text{tariffed}_{og} \times \mathbf{I}(2020) \times \sigma_{dg}^{\text{HS4}}$ | | | -0.0079*** |
| | | | (0.0020) |
| $\text{tariffed}_{og} \times \mathbf{I}(2021) \times \sigma_{dg}^{\text{HS4}}$ | | | -0.0058*** |
| | | | (0.0018) |
| N | 12,680,016 | 12,680,016 | 11,181,644 |
| Adj. $R^2$ | 0.729 | 0.729 | 0.739 |

Sources: UN Comtrade; authors' calculations.

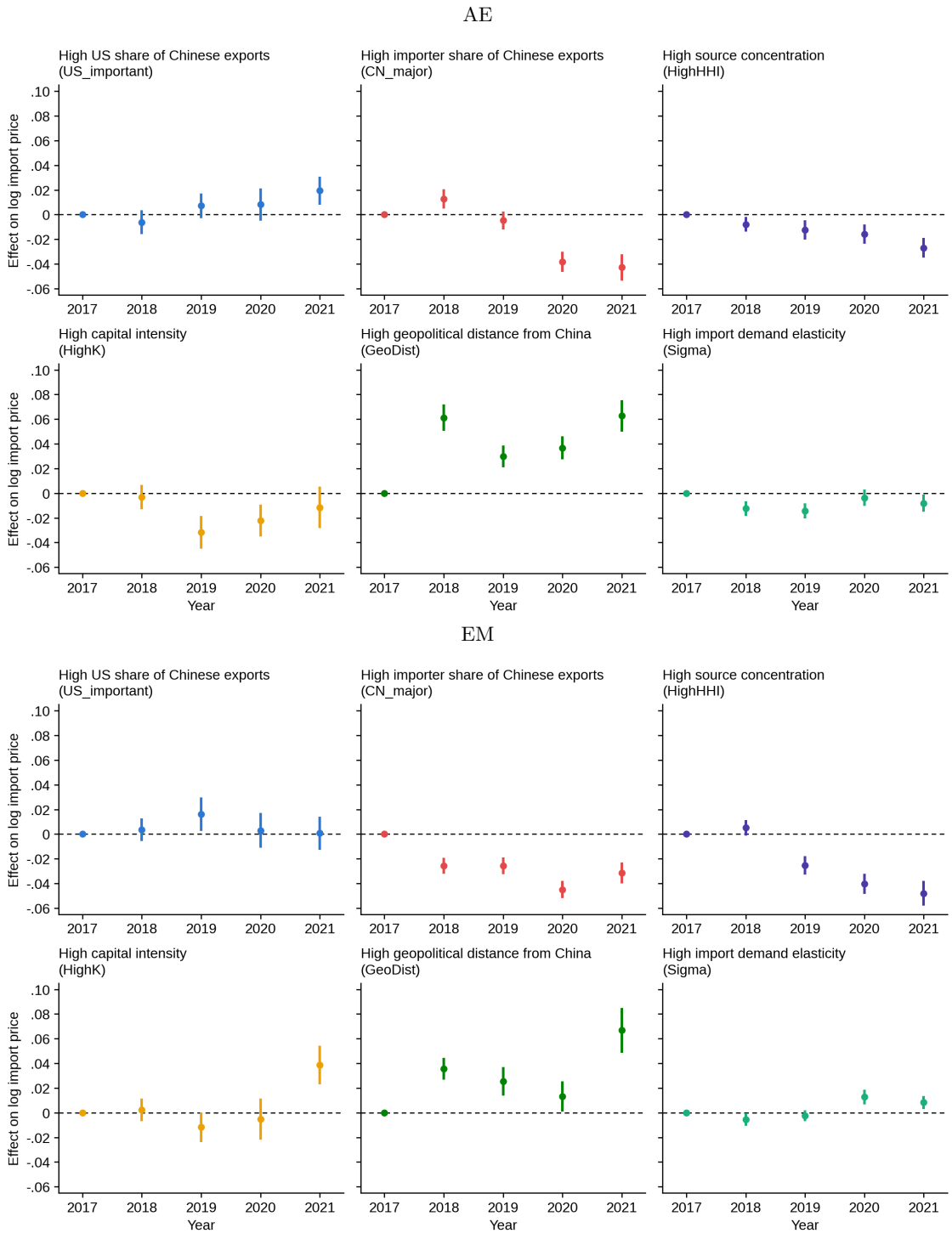
Notes: Table shows estimated coefficients for the triple difference-in-differences specification, at the origin-destination-year-product level, with destination country being each of the emerging markets in our data and product being a six-digit HS code. The dependent variable is (ln) price of imports. Column (1) interacts $\text{tariffed}_{og} \times \text{I}(t)$ with I(CN_major), which equals one when importer $d$ received an above-median share of Chinese exports of product $g$ in 2017, with the median taken across all importers of $g$. Column (2) uses I(HighHHI), which equals one if the Herfindahl-Hirschman index of $d$'s 2017 imports of product $g$ across origins is at or above the median across all destinations importing $g$. Column (3) uses $\sigma_{dg}^{\text{HS4}}$, the destination–HS4 elasticity of substitution from Soderbery (2018), winsorized at the 1st and 99th percentiles. Regressions include origin–product, product–time, origin–time, destination–product, destination–time, and origin–destination fixed effects. Estimates are unweighted and standard errors are clustered at the origin country and six-digit HS product level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figure 18: Correlation of Mechanism Measures




Sources: Comtrade; authors' calculations.
Notes: The figure shows pairwise Pearson correlations between the six indicators used in the horse-race triple-difference specification, for the World sample. Correlations are computed over the importer-exporter-HS6-year observations that have all six indicators non-missing. Each indicator equals one if the underlying measure is at or above its in-sample median. US share of CN exports: the US share of China's 2017 exports of the HS6 product. Importer share of CN exports: the importer's share of China's 2017 exports of the HS6 product, compared with the median across importers within the HS6. Source concentration (HHI): the Herfindahl index of the importer's 2017 import sources (including China) for the HS6 product, compared with the median across importers within the HS6. Capital intensity: the log capital-labor ratio of the HS6 product. Geopolitical distance from China: the importer's ideal-point distance from China, compared with the median across importers. HS4 import demand elasticity: Soderbery (2018) importer-by-HS4 elasticity, compared with the median across importers within the HS4.

Figure 19: AE and EM Horse Race Triple Interaction Coefficients




Sources: UN Comtrade; authors' calculations.

Notes: The figure plots estimated coefficients on the triple interaction treated$_{og}$ × I($t$) × an indicator for each heterogeneity dimension, with the dependent variable the log of import price (unit value). 95% confidence intervals are shown. The samples are the AE and EM economies. Each coefficient is estimated conditional on the others. Each indicator equals one when: the 2017 US share of China's exports of the product is at or above the median across products (US_important); the importer's 2017 share of China's exports of the product is at or above the median across importers (CN_major); the 2017 Herfindahl index of the importer's sources of the product, including China, is at or above the median across importers (HighHHI); the product's capital intensity (log capital per worker) is at or above the median across products (HighK); the importer's ideal-point distance from China, constructed from UN General Assembly voting data, is at or above the median across importers (GeoDist); and the importer's Soderbery (2018) import demand elasticity at the four-digit HS level is at or above the median across importers within the HS4 product (Sigma). Lower-order interactions not absorbed by the fixed effects are included but not reported. Regressions are unweighted and include origin–product, product–time, origin–time, destination–product, destination–time and origin–destination fixed effects. Standard errors are clustered at the origin country and six-digit HS product level.

## C.4 Additional Extended Sample Results

This section provides additional results for the "extended sample" analysis discussed in Section 4.2, which adds additional years–back to 2015–and additional countries by considering product codes that remain the same in the 2012 and 2017 vintages of the Harmonized System.

### C.4.1 Basic Summary Statistics for the Extended Sample

Table 18 provides summary statistics on the key dependent and independent variables in our extended sample.

Table 18: Basic Summary Statistics for the Extended World Sample: 2015-2021

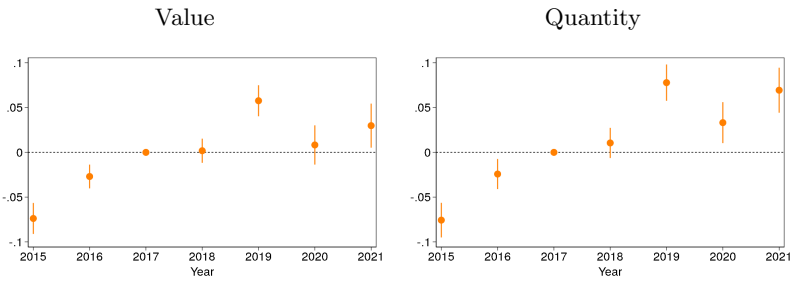
| | count | mean | sd | min | max |
|---|---|---|---|---|---|
| Basic tariff status | 33,403,644 | 0.05 | 0.23 | 0 | 1 |
| Basic tariff status (China only) | 2,017,970 | 0.89 | 0.31 | 0 | 1 |
| Value (ln) | 33,403,599 | 9.22 | 3.31 | -7 | 25 |
| Quantity (ln) | 31,302,642 | 6.41 | 4.01 | -7 | 32 |
| Unit price (ln) | 31,302,607 | 2.80 | 2.35 | -18 | 23 |

Sources: UN Comtrade; authors' calculations.
Notes: Table shows summary statistics for the basic tariff variable and the three main outcome variables for the full extended world sample. Basic tariff status is 1 if the observation is from China and in a six-digit HS code that receives a tariff during the trade war, and 0 otherwise. The data is at the origin-destination-year-product level, with destination country being each of the 111 economies in our data and product being defined at a six-digit HS code. 47 observations have missing value (ln) and 2,101,004 observations have missing quantity (ln), resulting in 2,101,039 observations for which we cannot construct unit price.

### C.4.2 Value and Quantity Results for the Extended Sample

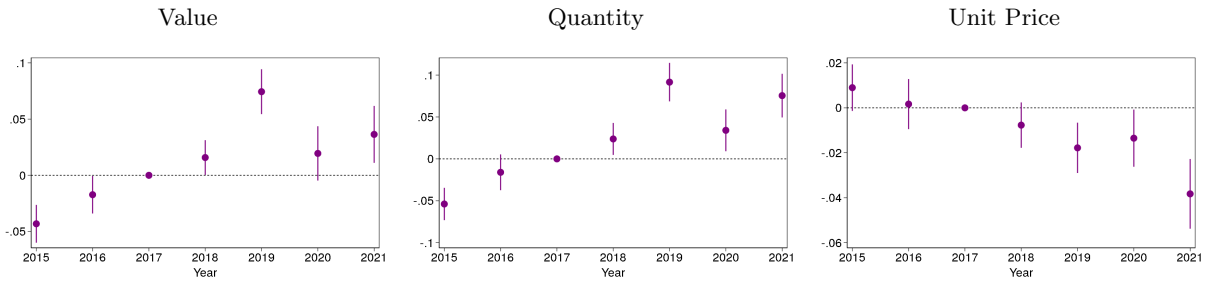
This section reports the value and quantity extended analysis results for the expanded set of 111 importing economies. The unit price results are reported in Section 4. In contrast to the unit price results, we do see clear evidence of upward pre-trends in both value and quantity across the world, AE, and EM results. Importantly, however, these pre-trends are comparable in magnitude for both values and quantities: The two sets of estimates move in parallel prior to tariff implementation, such that results for unit values — their ratio — show no differential pre-trend. This validates the parallel-trends assumption for our primary outcome of interest.

Figure 20: Extended Sample DiD - World, Expanded Sample




Sources: UN Comtrade; authors' calculations.
Notes: Each panel displays the estimates of separate difference-in-differences regressions for the noted log of the dependent variables. Regressions include origin–product, product–time, origin–time, destination–product, destination–time, and origin–destination fixed effects. Standard errors are clustered at the origin country and six-digit HS product level. Error bars show 95% confidence intervals. We provide a list of the additional countries in the extended sample in Appendix A.

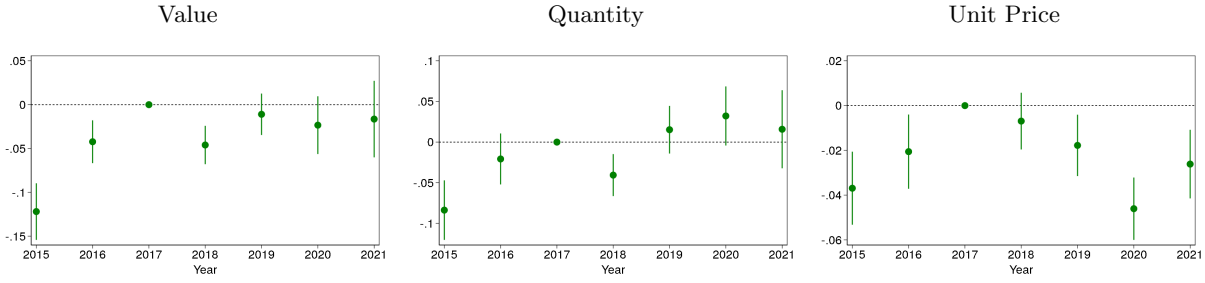
Figure 21: Extended Sample DiD - Emerging Markets, Expanded Sample




Sources: UN Comtrade; authors' calculations.

Notes: Each panel displays the estimates of separate difference-in-differences regressions for the noted log of the dependent variables. Regressions include origin–product, product–time, origin–time, destination–product, destination–time, and origin–destination fixed effects. Standard errors are clustered at the origin country and six-digit HS product level. Error bars show 95% confidence intervals. We provide a list of the additional countries in the extended sample in Appendix A.

Figure 22: Extended Sample DiD - Advanced Economies, Expanded Sample



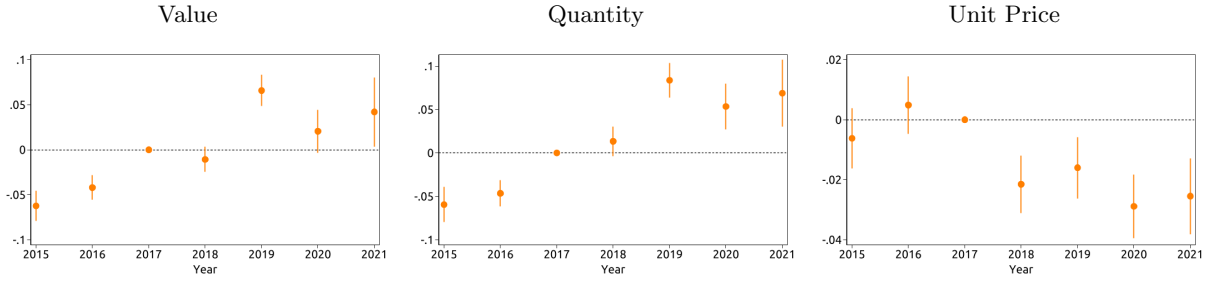

Sources: UN Comtrade; authors' calculations.

Notes: Each panel displays the estimates of separate difference-in-differences regressions for the noted log of the dependent variables. Regressions include origin–product, product–time, origin–time, destination–product, destination–time, and origin–destination fixed effects. Standard errors are clustered at the origin country and six-digit HS product level. Error bars show 95% confidence intervals. We provide a list of the additional countries in the extended sample in Appendix A.

### C.4.3 Extended Time-Frame DiD Results with Main Analysis Countries

This section reports the extended analysis difference-in-differences results for the set of 69 importing economies included in our main analysis. The results displayed here do not differ importantly from the results reported in Section 4 which employ the same empirical strategy but with an expanded set of 111 economies.

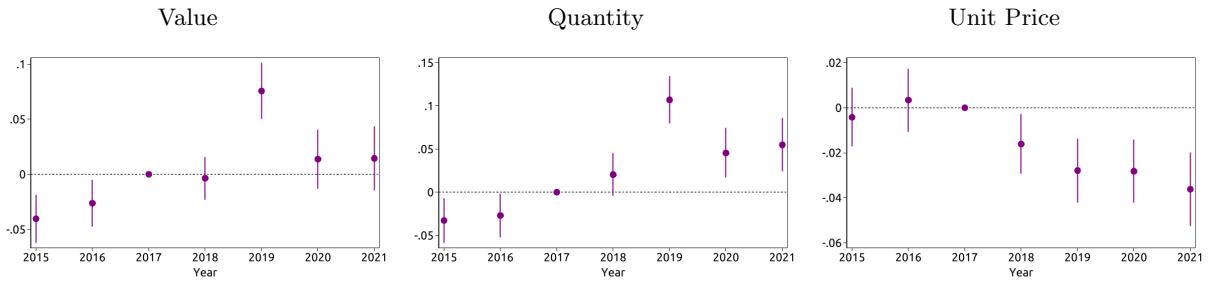
Figure 23: Extended Sample DiD - World, Main Sample




Sources: UN Comtrade; authors' calculations.

Notes: Each panel displays the estimates of separate difference-in-differences regressions for the noted log of the dependent variables. Regressions include origin–product, product–time, origin–time, destination–product, destination–time, and origin–destination fixed effects. Standard errors are clustered at the origin country and six-digit HS product level. Error bars show 95% confidence intervals.

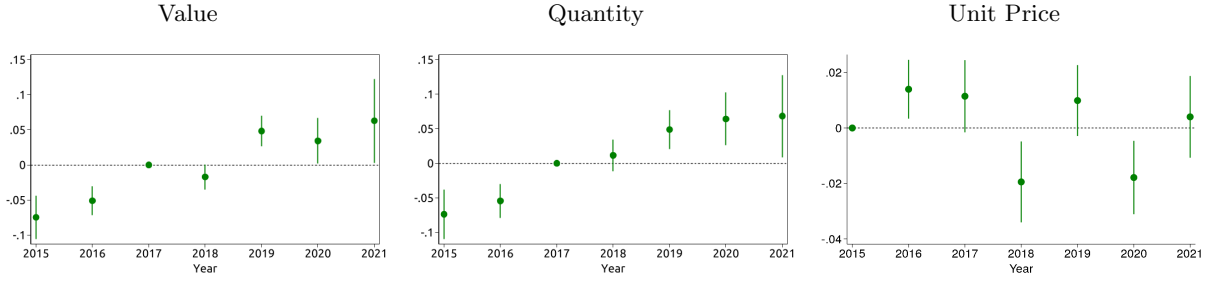
Figure 24: Extended Sample DiD - Emerging Markets, Main Sample




Sources: UN Comtrade; authors' calculations.

Notes: Each panel displays the estimates of separate difference-in-differences regressions for the noted log of the dependent variables. Regressions include origin–product, product–time, origin–time, destination–product, destination–time, and origin–destination fixed effects. Standard errors are clustered at the origin country and six-digit HS product level. Error bars show 95% confidence intervals.

Figure 25: Extended Sample DiD - Advanced Economies, Main Sample



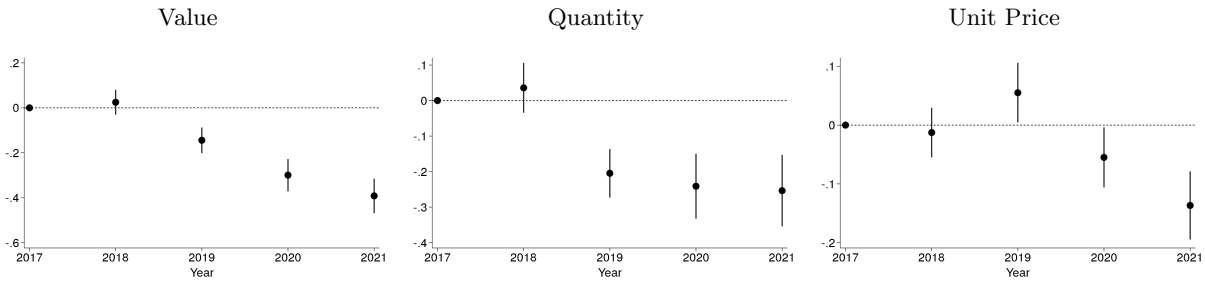

Sources: UN Comtrade; authors' calculations.

Notes: Each panel displays the estimates of separate difference-in-differences regressions for the noted log of the dependent variables. Regressions include origin–product, product–time, origin–time, destination–product, destination–time, and origin–destination fixed effects. Standard errors are clustered at the origin country and six-digit HS product level. Error bars show 95% confidence intervals.

## C.5 U.S. Import Response

Fajgelbaum et al. (2019) characterizes the U.S. import volume and price response to the 2018-19 tariffs using granular data at the HS-10 level. To provide an additional check for whether product composition within six-digit HS categories is driving our unit price results, we apply our standard methodology to the case of U.S. imports at the six-digit level and compare the results to the more granular results presented in Fajgelbaum et al. (2019). They find large declines in import values and quantities through the end of 2019, declining on average by 20% and 23% respectively. Value and quantity results from employing our methodology, shown in Figure 26, are quantitatively similar, revealing declines in value and quantity of 14% and 20% on average in 2019. Unit price remains close to zero, increasing slightly in 2019 in both our results and Fajgelbaum et al. (2019). Overall, the similarity of the results using our method with less granular data to the Fajgelbaum et al. (2019) results boosts our confidence that our main results are not driven primarily by product composition changes.

Figure 26: U.S. Import Response




Sources: UN Comtrade; authors' calculations.

Notes: Each panel displays the estimates of separate difference-in-differences regressions for the noted log of the dependent variables for the United States. Regressions include origin–product, product–time, and origin–time fixed effects. Standard errors are clustered at the origin country and six-digit HS product level. Error bars show 95% confidence intervals.