IDB WORKING PAPER SERIES Nº IDB-WP-01419

The Reorganization of Global Value Chains: What's in it for Latin America and the Caribbean? Technical Appendix

Mauricio Mesquita Moreira
Juan Blyde
Christian Volpe
Marcelo Dolabella
Ignacio Marra

Inter-American Development Bank
Integration and Trade Sector

December 2022

The Reorganization of Global Value Chains: What's in it for Latin America and the Caribbean? Technical Appendix

Mauricio Mesquita Moreira
Juan Blyde
Christian Volpe
Marcelo Dolabella
Ignacio Marra

December 2022

Cataloging-in-Publication data provided by the
Inter-American Development Bank
Felipe Herrera Library

The reorganization of global value chains: what's in it for Latin America and the Caribbean?: technical appendix / Mauricio Mesquita Moreira, Juan S. Blyde, Christian Volpe Martincus, Marcelo Dolabella, Ignacio Marra de Artiñano.

p. cm. — (IDB Working Paper Series; 1419)

1. Business logistics-Latin America-Econometric models. 2. Business logistics-Caribbean Area-Econometric models. 3. Production management-Latin America-Econometric models. 4. Production management-Caribbean Area-Econometric models. 5. Commercial Policy-Latin America-Econometric models. 6. Commercial Policy-Caribbean Area-Econometric models. I. Mesquita Moreira, Mauricio. II. Blyde, Juan S. III. Volpe Martincus, Christian. IV. Dolabella, Marcelo. V. Marra de Artiñano, Ignacio. VI. Inter -American Development Bank. Integration and Trade Sector. VII. Series.

IDB-WP-1419

http://www.iadb.org

The Reorganization of Global Value Chains: What's in it for Latin America and the Caribbean? Technical Appendix.

Mauricio Mesquita Moreira, Juan Blyde, Christian Volpe, Marcelo Dolabella, and Ignacio Marra.

December 2022

Abstract

Online Technical Appendix to "The Reorganization of Global Value Chains: What's in it for Latin America and the Caribbean?" It describes in more detail the data sources, the empirical strategy; and presents a series of robustness checks.

Keywords: Value Chains, Trade, Latin America, Nearshoring.

A. Event Study

The event studies employ the following specification:

$$lnY_{jkt} = \sum_{S=-T}^{T} \alpha_S \cdot (I_S \cdot Target_k) + \sum_{S=-T}^{T} \beta_S \cdot (I_S \cdot Target_k) \cdot \theta_{j=V} + \delta_{jk} + \delta_{jt} + \delta_{kt} + \varepsilon_{jkt} \qquad (A.1)$$

where Y_{jkt} are the import values of source country j for product k in month t; I_S is a month indicator dummy variable that is equal to 1 during a specific month before or after the trade policy measure is enacted (we consider 12 months before and 12 months after the enactment of the policy); $Target_k$ is a dummy variable that is equal to 1 if product k is targeted by the trade policy measure; $\theta_{j=V}$ is a dummy variable that is equal to 1 for a particular source country of interest, for example, China (V=China); δ_{jk}, δ_{jt}, and δ_{kt} are country-product fixed effects, country-time fixed effects, and product-time fixed effects, respectively; and ε_{jkt} is the error term that is clustered at the HS8-digit level, because some of the trade measures are set at the HS8-digit level.

The trade policy measures considered are a series of US trade policy shifts implemented between February 2018 and September 2019, including the list of products for aluminum and steel, the list of products for washing machines and solar panels, and the four waves of products targeting China. For the latter, which was implemented in September 2019, we consider the 6 months before and after the list was enacted. The entire analysis employs data from February 2017 to March 2020.

B. Estimating Trade Effects of Margin of Preference Changes

This section presents the technical details of the econometric exercise presented in section 4 in the subsection on the search for niches, the aim of which is to assess how sensitive LAC exports to the US are to changes in their margin of preference (MOP) to Chinese products. The exercise uses monthly data from the US Census Bureau at the Harmonized Tariff Schedule (HTS) 10-digit level.[1] A monthly tariff dataset was constructed by combining annual tariff rates by tariff program and monthly HTS revisions, mostly imposed by recent US trade policy events (the Section 301 tariffs on goods from China and the EU, the Section 232 tariffs on aluminum, iron, and steel, and the Section 201 tariffs on solar panels and washing

[1] Oil and gas (NAICS sector 211), waste and scrap (910), second-hand goods (930), returned goods (980), and special classification (990) are not included, either because of price volatility (oil and gas) or because of the special characteristics of the goods in question.

machines).[2] [3] The panel ranges from January 2017 to December 2019, including all LAC countries and the most relevant US trade partners.[4]

The specification draws loosely on Amiti et al. (2020) and aims to capture the average effect on US imports of changes in the countries' MOP relative to Chinese products, especially those of LAC. It takes the following form:

$$\Delta ln(M_{kjt}^{US}) = \beta \Delta MOP_{ktj}^{CHN} + \theta_{jt} + \theta_{jk} + \mu_{kjt} \quad \text{(B.1)}$$

where $\Delta ln(M_{kjt}^{US})$ represents the 12-month difference in monthly US consumption imports of product k in month t and partner j. ΔMOP_{ktj}^{CHN} is the 12-month MOP change, defined as:

$$\Delta MOP_{ktj}^{CHN} = ln \frac{\left(1 + tar_{k,t}^{CHN} - tar_{k,t}^{j}\right)}{\left(1 + tar_{k,t-12}^{CHN} - tar_{k,t-12}^{j}\right)}$$

where $tar_{k,t}^{j}$ is the tariff of product k in month t on imports from partner j, while $tar_{k,t}^{CHN}$ is the analogous Chinese variable.

The following set of fixed effects were included: country-time (θ_{jt}), which controls for country-time varying effects such as exchange rate movements; country-product (θ_{jk}), which controls for invariant country-product characteristics, such as a specific SPS requirement that did not change over the sample period. Seasonal effects that might affect monthly data are controlled by the 12-month difference. A product-time fixed effect was not included because it would absorb the China tariffs, which are collinear. Standard errors were clustered at the HS 8-digit level, which is used to set most US tariffs. This allowed for regression errors (μ_{kjt}) to be correlated over time and across HS 10-digit products within each HS 8-digit tariff line. Whenever the equation was estimated for a restricted sample of imports from a particular country, subscript j was dropped from the notation.

Three types of tariffs were used. First, an "effective tariff" (eff_tar) was calculated by dividing duties paid by the value of imports. This variable provides a better understanding of the actual tariff barrier faced by different exporters.

Second, a "statutory applied tariff" (app_tar) was calculated with information on what each partner should pay for each product according to the US HTS. This

[2] HS codes are established and discontinued over the sample period. In order to avoid measurement error and spurious increases and decreases in trade flows, we constructed a concordance among HS 10-digit codes from 2017 to 2019.

[3] A supplementary document discloses the step-by-step procedure implemented to construct the monthly applied tariffs dataset. It is available upon request.

[4] Data for 2016 was also used to calculate growth rates for 2017. The sample of countries included countries with the largest number of varieties/products exported to the US, along with all Latin American and Caribbean countries except Cuba. Altogether, 140 countries were included in the analysis, totaling 99.2% of the value imported and 97.7% of the varieties imported from 2016 to 2019.

variable was adjusted by replacing it with values of the "effectively applied tariff" in three cases: (i) for non-ad-valorem tariffs (e.g., specific, compound, and mixed rate); (ii) for tariff lines under specific trade policy instruments (e.g., tariff-rate quotas and safeguard measures) imposed multilaterally or under PTAs; and (iii) for product-partners affected by recent US trade policy.[5] These adjustments were needed to better reflect actual levels of protection. For example, many tariff exemptions targeting China were granted for products at the HTS 10-digit level, and it is therefore impossible to know from the statute which were affected. However, when a good is not imported from China or country *j*, the effective tariff cannot be computed.

Third, a "statutory nominal tariff" (nom_tar) was computed using only information from the HTS. Whenever there was not an ad-valorem rate for a particular rate, as in cases (i) and (ii) above, a zero rate or the minimum ad-valorem rate was imputed. For case (iii), it was assumed that the full line is affected by the new tariff.

The three tariff variables are highly correlated, ranging from 0.88 (effective tariff vs. statutory applied tariff) to 0.96 (statutory applied vs. statutory nominal tariffs).

Table B.1 presents the descriptive statistics. The average and median growth rates by month show a slight decrease after early 2017. The average MOP starts increasing in mid-2018, reflecting the imposition of tariff duties on Chinese goods, dropping to zero after tariffs are imposed in the last list of goods (see figure B.1). An analysis of the log change in tariffs (panel C) reveals that most of the variation comes from the increase in tariffs to China.

Table B.1. Summary Statistics

Variable	Obs.	mean	Std. dev.	min	p25	p50	p75	max
Log change in imports	3,419,222	0.048	1.303	-10.524	-0.572	0.044	0.667	11.887
Change in inverse hyp. sine of imports	6,055,671	0.198	6.726	-20.531	-1.759	0.071	2.349	21.611
ΔMOP_{ktj}^{CHN}—eff_tar	2,958,049	0.040	0.071	-0.704	0	0.0002	0.086	1.003
ΔMOP_{ktj}^{CHN}—app_tar	5,805,135	0.036	0.069	-2.169	0	0	0.077	2.198
ΔMOP_{ktj}^{CHN}—nom_tar	6,112,407	0.046	0.078	-0.288	0	0	0.095	0.438

To identify region-specific impacts, the independent variable was interacted with regional/country dummies (table B.2). Using the effective tariff, a positive and significant impact is observed for imports from Mexico, South America, and a group of other Asian economies (column 1). A 1% increase in the growth rate of

[5] In these cases, whenever there were no imports and the effectively applied tariff could not be calculated, the missing values were imputed with a quarter/semester average at the HS 10-digit country level.

the MOP between China and Mexico increases the growth rate of US imports from Mexico by about 0.35%. When trade weights are employed (column 4) most of these impacts disappear, except for the impact on Mexican imports. [6] However, the findings for the effective tariff are not robust to other definitions of tariffs (columns 2-3 and 5-6).

Figure B.1. Evolution of the Variables of Interest

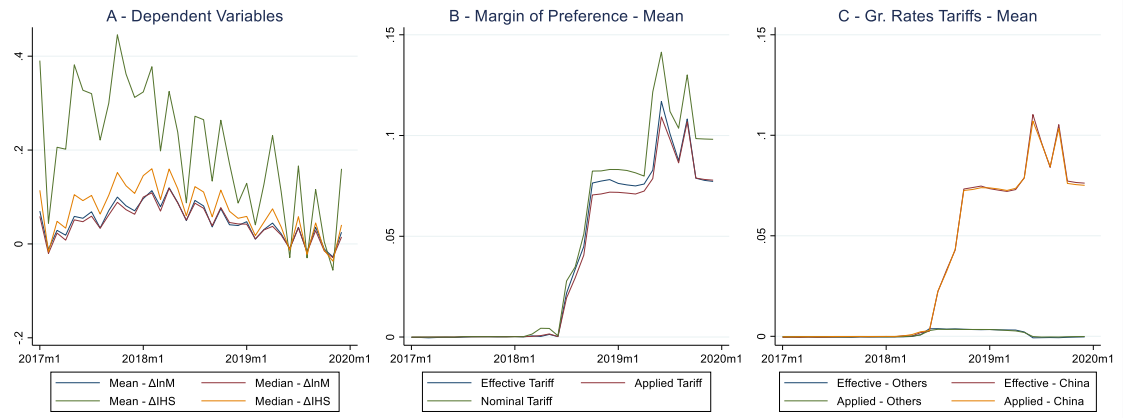


Table B.2. Baseline Specification by Region

	Log change in imports			Log change in imports—trade weights			Change in the inverse hyp. sine of imports	
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
dlnt_MEX	0.345***	0.0770	0.0882	0.435**	0.0131	0.0702	-0.0324	0.244
	(0.101)	(0.0864)	(0.0850)	(0.219)	(0.157)	(0.207)	(0.314)	(0.329)
dlnt_SA	0.538***	-0.121	-0.182	-0.480	0.0432	-0.135	-1.113**	-1.714***
	(0.136)	(0.122)	(0.117)	(0.503)	(0.430)	(0.304)	(0.434)	(0.452)
dlnt_CAC	0.0654	-0.280*	-0.249	-0.857**	-0.627**	-0.210	-2.475***	-2.252***
	(0.192)	(0.159)	(0.153)	(0.342)	(0.318)	(0.233)	(0.732)	(0.668)
dlnt_OtAS	0.214***	0.0483	0.0223	0.298	0.211	-0.0497	-0.0174	-0.418**
	(0.0519)	(0.0483)	(0.0461)	(0.196)	(0.212)	(0.160)	(0.201)	(0.195)
dlnt_EUN	-0.0773**	-0.0278	-0.00504	0.144	0.0571	0.0538	0.0985	0.183
	(0.0341)	(0.0318)	(0.0319)	(0.130)	(0.153)	(0.110)	(0.130)	(0.136)
dlnt_ROW	0.402***	0.0380	0.0771*	0.155	0.0992	-9.72e-05	-0.370**	-0.330*
	(0.0568)	(0.0429)	(0.0414)	(0.209)	(0.180)	(0.179)	(0.168)	(0.177)
Observations	2,927,575	3,262,485	3,385,716	2,919,668	3,253,085	3,375,016	5,693,400	5,997,805
Adjusted R-2	0.045	0.046	0.044	0.107	0.107	0.099	0.043	0.041
Tariff Type	eff_tar	app_tar	nom_tar	eff_tar	app_tar	nom_tar	app_tar	nom_tar

*Note: Observations are at the HTS10-digit country-month level for January 2017 to December 2019. All models include country-product fixed effects; and country-time fixed effects. The dependent variable in columns (1)–(3) is the 12-month log change in imports and the independent variable is the 12-month change in the MOP_{ktj}^{CHN} between China and partner j using three types of tariffs (eff_tar, app_tar, nom_tar). The estimations in columns (4)–(6) allow for larger imports to weigh more on the model. The value of imports in 2017 is used as a weight. The 12-month change in the inverse hyperbolic sine function of imports is used as the dependent variable in columns (7)–(8) to assess both the intensive and extensive margins. The independent variable is interacted with regional dummies to retrieve country/region-specific impacts. The selected dummies cover Mexico (MEX); South America (SA); Central America and the Caribbean (CAC); the European Union (EUN); other Asian countries (OtAS), which includes Bangladesh, Cambodia, India, Indonesia, Malaysia, Pakistan, the Philippines, Singapore, South Korea, Sri Lanka, Thailand, Chinese Taipei, and Vietnam; and a Rest of the World (ROW) group. Standard errors were clustered at the HS8-digit level (*** p<0.01, ** p<0.05, * p<0.1).*

[6] Probability weights were used as weights with import flows in 2017. The results do not change significantly when weights are set as the 12-month lagged import value.

Lastly, to capture the effects on both the intensive and extensive margins, the 12-month change in the inverse hyperbolic sine function of imports is used as a dependent variable in the last two columns.[7] Both tariffs point to negative impacts for South and Central America when the extensive and intensive margins are considered.[8]

Assessing the impact using different dimensions

Even though the aggregate results do not indicate signs of trade diversion due to tariffs imposed on China, except perhaps to Mexico, the effect could be present for specific groups of country and products. To test this hypothesis, the previous model is estimated interacting regional with product dummies.

Table B.3 shows the results by end-use categories: intermediate and capital goods (INTCAP); consumer goods (CON); and mixed goods (MIX).[9] Consumer goods is the only category that shows more robust signs of trade diversion to South America, Mexico, other Asian economies, and the EU, to a lesser extent. The effects for intermediate and capital goods are mostly non-significant; when they are significant, they usually take a negative sign. For mixed goods, there are signs of positive effects for most LAC countries, but only within the specification with the statutory tariffs and the inverse hyperbolic sine (columns [7] and [8]). Mexico is the exception, as the coefficient is significant only in the intensive margin (columns [1], [2] and [4]).

The model was also estimated for other product categories based on different characteristics. Table B.4 displays the results for the effective tariffs—the only MOP definition with more robust effects.[10] When goods are divided into manufacturing goods (NAICS sectors 311–339) and non-manufacturing goods, the results suggest that the positive impact seen in the aggregate model (table B.2, column [1]) seems to be driven, as expected, by manufacturing in Mexico and by both groups of goods in South America.

[7] Whenever the US starts to import or stops importing a product from a particular origin, it is not possible to calculate the 12-month log change in imports. These observations are then set to missing and are not included in the estimation sample. The inverse hyperbolic sine (IHS) function takes the form of $ln[x + (x^2 + 1)^{0.5}]$ and equals zero whenever imports are zero ($x = 0$) and has a slope that tracks $ln(x)$ more closely than $ln\ (1 + x)$ when x is small.

[8] The effect of ΔMOP_{ktj}^{CHN} using the effectively applied tariff on the inverse hyperbolic sine is not displayed because this tariff is not defined for zero trade. Therefore, the extensive margin effect is not captured with this tariff and it yields identical results compared to column (1). Trade weights were also not used with the inverse hyperbolic sine function because using lagged weights would bias downwards trade creation effects.

[9] US Census Bureau End-Use classification. End-use 1-digit codes 1 and 2 are classified as intermediate and capital goods; code 4 refers to consumption goods; and codes 0 (food, feeds, and beverages), 3 (automotive vehicles, parts, and engines), and 5 (other goods) were classified as mixed goods. We re-classified code 302 (auto parts, engines, bodies, and chassis) as intermediate goods rather than mixed goods. The full classification is available at https://www.census.gov/foreign-trade/reference/codes/enduse/imeumstr.txt.

[10] Other results are available upon request.

Table B.3. Impact of Changes in Margins of Preference Relative to China's on Export Growth to the US. Selected Regions and End-Use Categories

		Log change in imports			Log change in imports—trade weights			Change in the inverse hyp. sine of imports	
Variables		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mexico	INTCAP	0.180*	0.03	0.0437	0.144	-9.88E-05	0.0342	-0.166	0.179
	CON	0.911***	0.243	0.278	1.004	0.344	0.33	1.193*	1.780***
	MIX	1.072***	0.522*	0.328	1.049**	-0.0201	0.0843	-0.94	-1.251
South America	INTCAP	0.0815	-0.293**	-0.384***	-0.354	0.152	-0.21	-2.526***	-3.212***
	CON	1.664***	0.606***	0.616***	0.319	-0.0407	-0.0644	2.418***	1.758**
	MIX	0.258	0.0441	0.0836	-1.503	-0.514	0.239	3.225**	3.156***
Central America and Caribbean	INTCAP	-0.228	-0.440**	-0.350*	-0.943**	-0.855**	-0.488	-4.418***	-4.686***
	CON	0.262	-0.112	0.0448	-0.919	0.0199	-0.163	0.0221	0.509
	MIX	0.326	0.117	-0.229	0.157	0.241	0.326	3.804*	2.726**
Other Asia	INTCAP	0.152***	-0.0142	-0.0462	0.322	0.196	-0.206	-0.435*	-0.781***
	CON	0.422***	0.317***	0.299***	0.357	0.342	0.178	1.867***	1.719***
	MIX	0.308*	0.122	0.107	-0.00151	0.123	0.56	0.0659	-1.971***
European Union	INTCAP	-0.0988***	-0.0544	-0.0313	0.151	0.00574	0.00224	-0.0579	0.0566
	CON	0.00448	0.114	0.116*	0.259	0.123	0.04	0.993***	1.116***
	MIX	0.232	0.185	0.179*	0.0736	0.194	0.202	0.7	-0.17
Obs.		2,927,575	3,262,485	3,385,716	2,919,668	3,253,085	3,375,016	5,693,400	5,997,805
Adjusted R2		0.046	0.046	0.044	0.108	0.107	0.099	0.043	0.042
Tariff Type		eff_tar	app_tar	nom_tar	eff_tar	app_tar	nom_tar	app_tar	nom_tar

*Note: Observations are at the HTS10-country-month level for the period January 2017 to December 2019. All models include country-product fixed effects; and country-time fixed effects. The dependent variable in columns (1)–(3) is the 12-month log change in imports and the independent variable is the 12-month change in the MOP_{ktj}^{CHN} between China and partner j using three types of tariffs (eff_tar, app_tar, nom_tar). Estimations in columns (4)–(6) allow for larger imports to weigh more on the model. The value of imports in 2017 is used as a weight. The 12-month change in the inverse hyperbolic sine function of imports is used as the dependent variable in columns (7)–(8) to assess both the intensive and extensive margins. The independent variable is interacted with regional dummies and end-use classification dummies. The selected regional dummies cover Mexico (MEX), South America (SA), Central America and the Caribbean (CAC), the European Union (EUN), other Asian countries (OtAS), and a Rest of the World (ROW) group. This last group and standard errors were omitted. Standard errors were clustered at the HS 8-digit level (*** p<0.01, ** p<0.05, * p<0.1).*

The results of two different measures of product differentiation—homogeneous versus differentiated goods (Rauch, 1999) and high versus low unit values—suggest that the most significant, positive impacts in Mexico and South America were driven by differentiated goods.[11]

The estimates for the two logistics-inspired categories—freight intensity and time sensitiveness—do not suggest that LAC's proximity to the US market has systematically favored trade diversion for goods that are more exposed to logistics costs.[12] The positive impact for high-freight goods was greater for

[11] In the homogenous vs. differentiated goods comparison, Rauch's (1999) classification was used at the SITC 4-digit level. Since the classification was created using an older version of the SITC, unmatched products at the SITC 4-digit level were taken as the average classification at the SITC 3-digit level. The remaining products without matches were considered differentiated. Goods traded in an organized exchange and with reference prices were considered homogeneous goods. The unit value price (UVP) difference between country j and China was constructed as follows: $ln\left(\text{abs}\left(UVP_{k,t}^{j} - UVP_{k,t}^{CN}\right) + 1\right)$, where values close to zero represent a similar price paid per quantity and larger values represent larger differences in prices. FOB import values were used to calculate UVPs. In the sequence, the median value of these variables for 2017 was calculated for each country-product. These observations were split into two closely balanced groups, with low- and high-quality differences, with the threshold at around US$29 per quantity. Products which were not traded in 2017 or were not exported by China in the same period were dropped from the equation.

[12] Freight intensity was defined as follows: The median freight value from all origins and months of 2017 was used to classify HS 10-digit products as 1) low freight <= 3.03% (median product) or 2) high freight >

Mexico, for instance, but this is not the case for more time-sensitive goods. Surprisingly, the opposite is true for South America.

Table B.4. Impact of Changes in Margins of Preference Relative to China's on Export Growth to the US. Selected Regions and Goods Categories. Effective Tariffs

Variables	*MEX*	*SA*	*CAC*	*OtAS*	*EUN*	*ROW*	*Obs.*	*Adj. R-2*
Non-manufacturing	0.568	0.650*	0.875*	0.331	-0.161	0.803***	2,927,575	0.045
	-0.491	-0.373	-0.466	-0.238	-0.32	-0.263		
Manufacturing	0.343***	0.535***	0.0445	0.213***	-0.0770**	0.398***		
	-0.101	-0.137	-0.194	-0.0521	-0.0342	-0.057		
Homogeneous	-0.0247	-0.0777	-0.119	0.189*	-0.107	0.263***	2,927,575	0.045
	-0.199	-0.24	-0.279	-0.11	-0.0732	-0.0916		
Differentiated	0.421***	0.696***	0.0953	0.219***	-0.0718**	0.430***		
	-0.107	-0.145	-0.207	-0.0548	-0.0357	-0.061		
Low-UVP-difference	0.266**	0.252	-0.0557	0.362***	-0.230***	0.385***	2,278,199	0.044
	-0.128	-0.184	-0.245	-0.071	-0.053	-0.0824		
High-UVP-difference	0.769***	1.076***	0.482	0.308***	-0.000981	0.643***		
	-0.185	-0.209	-0.323	-0.0913	-0.0521	-0.089		
Low-freight-goods	0.266**	0.541***	0.075	0.0859	-0.0840**	0.333***	2,927,573	0.045
	-0.12	-0.179	-0.25	-0.0609	-0.0404	-0.0619		
High-freight-goods	0.471***	0.535***	0.0541	0.410***	-0.0656	0.514***		
	-0.139	-0.162	-0.199	-0.0727	-0.0488	-0.0781		
Non-time sensitive	0.398***	0.340**	0.297	0.430***	-0.158***	0.340***	2,895,771	0.046
	-0.136	-0.169	-0.243	-0.0782	-0.0523	-0.0727		
Time sensitive	0.319***	0.692***	-0.0245	0.131**	-0.0447	0.423***		
	-0.122	-0.165	-0.217	-0.0585	-0.0394	-0.0667		

Note: Observations are at the HTS10-country-month level for the period January 2017 to December 2019. All models include country-product fixed effects; and country-time fixed effects. The dependent variable is the 12-month log change in imports and the independent variable is the 12-month change in the MOP_{ktj}^{CHN} *between China and partner* j *calculated with the effectively applied tariff. The independent variable is interacted with regional dummies to retrieve country/region-specific impacts. The selected dummies cover Mexico (MEX), South America (SA), Central America and the Caribbean (CAC), the European Union (EUN), other Asian countries (OtAS), and a Rest of the World (ROW) group. These variables are also interacted with dummies displaying different product characteristics. Five different specifications were estimated and displayed in the table. Standard errors were clustered at the HS8 level (*** p<0.01, ** p<0.05, * p<0.1).*

Lastly, the baseline specification was re-estimated with three different dependent variables to capture potential effects on the extensive margin: i) a dichotomous dummy to capture whether a partner exported an HS 10-digit product in a specific month; ii) the trade creation dummy, which captures whether or not the country exported that particular product 12 months before; and iii) a count variable indicating the number of varieties imported from a partner in a sector

3.03%. For time sensitiveness, the share of HS 10-digit products sourced from China by air in 2017 was used. Goods in which the share of air-sourced imports were larger than or equal to 3.9% (median) were labelled sensitive. As a robustness check, the model was re-estimated using a threshold of 50% to classify whether or not products were time-sensitive. Here, no parameters from the time-sensitive group were statistically different from zero. This low efficiency is explained by the small number of products for which more than 50% of imports from China are sourced by air.

(HS 2-digit and HS 4-digit).[13] [14] No robust findings could be drawn from these specifications. The first showed trade creation forces for imports from the rest of the world, while the second showed negative effects for Central America and the Caribbean. The count variable was negatively impacted for South and Central America and the Caribbean when sectors were defined at the HS 4-digit level. No significant effects were observed when regressions were run at the HS 2-digit level.[15]

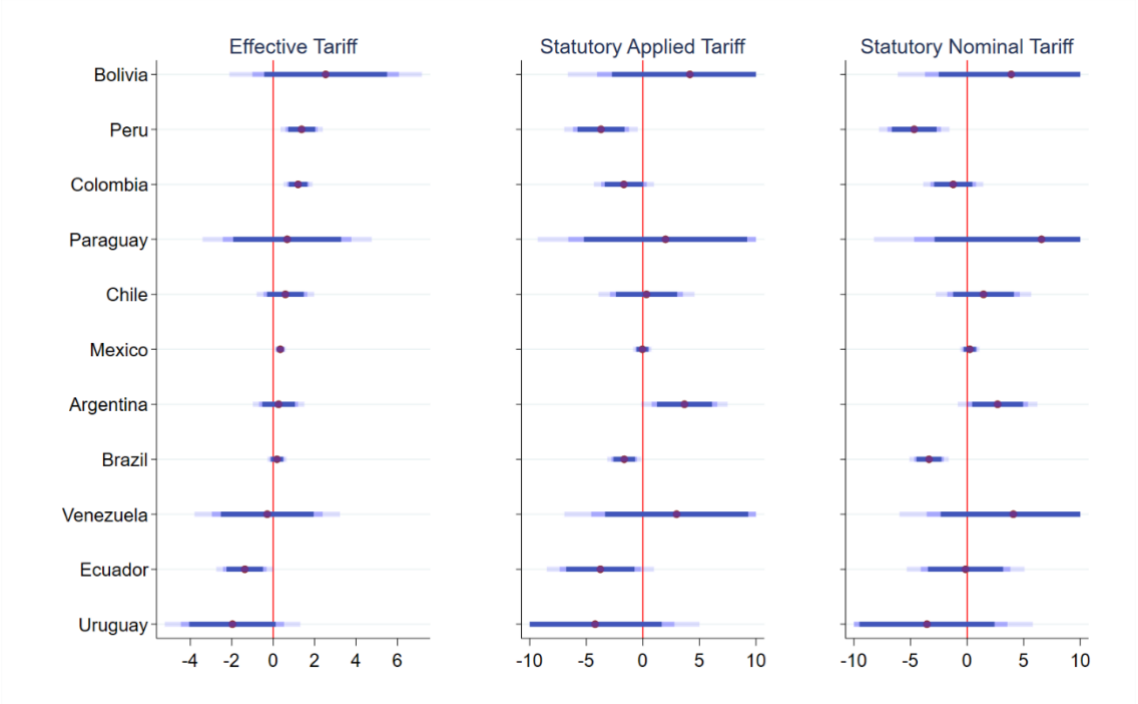
Country- and country-sector-specific impacts.

To identify country-specific effects, the MOP variable in the baseline specification was interacted with country dummies. The results of the preferred specifications using the three MOP definitions for selected LAC economies and subregions are shown in figures B.2 and B.3.

To identify the heterogeneity of the MOP effects that go beyond the country dimension, separate regressions were run for each of 26 LAC countries, interacting the MOP variable with sector dummies. Tables B.5 to B.10 show the results for the same range of specifications used in table B.2 and for sectors (i) for which there are more than 30 observations and (ii) that account for at least 1% of total US imports from country *j* or at least 1% of total exports of country *j* to the world.[16]

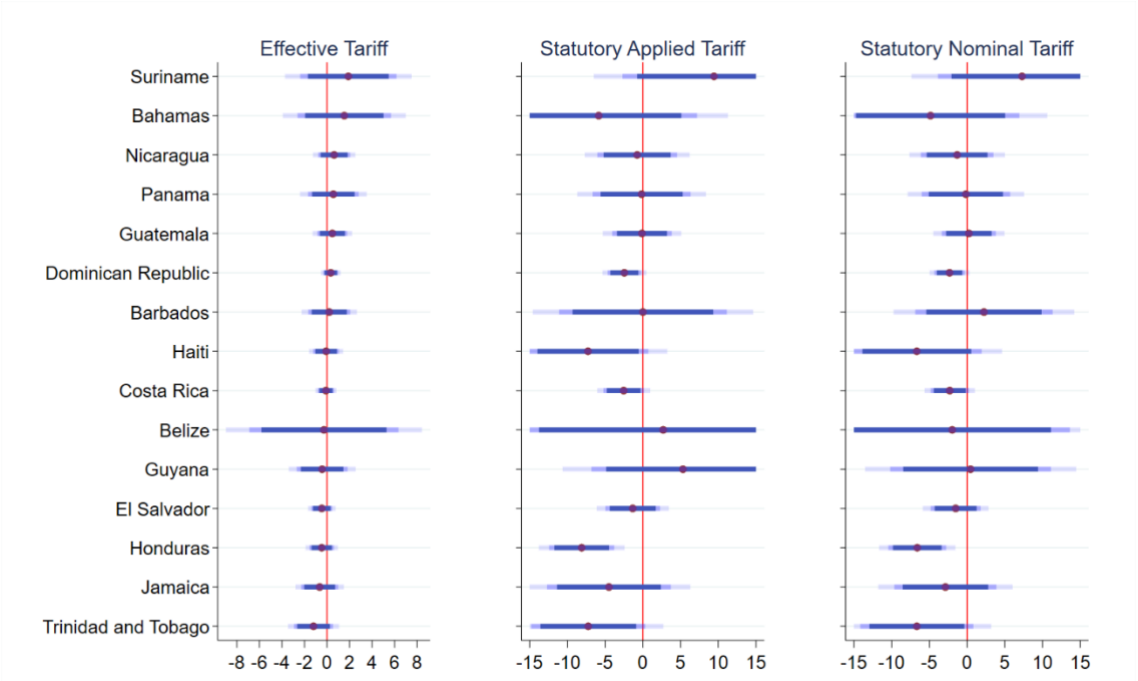
[13] For the extensive margin analysis, estimations were carried with the MOP variable using only the statutory nominal tariff because it minimizes data loss. Additionally, European countries were considered in the ROW group for computing efficiency reasons.
[14] For the specification with the count variable, the simple average tariff was calculated for each country-sector-time observation, and the MOP variable was calculated using actual and lagged values for tariffs in country *j* and China. Regressions were run at the sector level.
[15] Results available on request.
[16] Share based on UN COMTRADE data for 2017, prior to the imposition of tariffs on Chinese goods. It does consider oil and gas (211) or other exports (910 waste and scrap, 930 second-hand goods, 980 returned goods, 990 special classification). Due to missing data, the sector-specific share for Trinidad and Tobago was calculated using 2015 data. Missing data also meant that the world exports criterion was not used for Venezuela and Haiti.

Figure B.2. Mexico and South America



Note: Observations are at the HTS 10-digit country-month level for January 2017 to December 2019. All models include country-product fixed effects and country-time fixed effects. The dependent variable is the 12-month log change in imports for the first panel and the 12-month change in the inverse hyperbolic sine of imports in the second and third panels. The independent variable is the 12-month change in the MOP_{ktj}^{CHN} between China and partner j *using three types of tariffs (effective, statutory applied, and statutory nominal). The independent variable is interacted with country dummies to retrieve country-specific impacts. Standard errors were clustered at the HS 8-digit level. ark blue, blue, and light blue bars represent 90%, 95%, and 99% confidence intervals, respectively. For visualization purposes, we restrict the x-axis range from -10 to 10.*

Figure B.3. Central America and the Caribbean



Note: Observations are at the HTS 10-digit country-month level for January 2017 to December 2019. All models include country-product fixed effects and country-time fixed effects. The dependent variable is the 12-month log change in imports for the first panel and the 12-month change in the inverse hyperbolic sine of imports in the second and third panels. The independent variable is the 12-month change in the MOP_{ktj}^{CHN} between China and partner j *using three types of tariffs (effective, statutory applied, and statutory*

nominal). The independent variable is interacted with country dummies to retrieve country-specific impacts. Standard errors were clustered at the HS 8-digit level. The dark blue, blue, and light blue bars represent 90%, 95%, and 99% confidence intervals, respectively. For visualization purposes, we restrict the x-axis range to rub-15 to 15.

.

Table B.5. Impact of Changes in Margins of Preference Relative to China's on Export Growth to the US. Country-Sector Estimates. Effective Tariffs

	NAICS 3-digit	ARG	BRB	BOL	BRA	BHS	BLZ	CHL	COL	CRI	DOM	ECU	GTM	GUY	HND	HTI	JAM	MEX	NIC	PAN	PER	PRY	SUR	SLV	TTO	URY	VEN
111	Agricultural prod	-2.8		0.2	1.2			0.9	-0.8	1.2	2.6	-0.7	0.2		0.4		0.6	0.3	2.0		1.5	1.0		-1.1			
112	Livestock prod						-0.5																				
114	Fish & oth marine prod	1.6				-3.3		0.1		3.4		-0.4		-2.2	0.9				7.0	0.2	2.6		2.6		0.3		-0.2
212	Minerals & ores				-0.1	-3.8		0.1	2.5									1.1			5.9						
311	Food & kindred prod	1.6	1.5	-1.0	-0.6		-0.6	0.3	0.4	-0.7	0.8	-1.2	-0.0	-0.2	0.6		0.3	1.2	-1.0	1.8	0.8	0.7		0.8	1.8	-0.8	
312	Beverages & tobacco	3.4									-3.5		0.2		0.5		-3.5	0.1	-2.3						-0.5		
313	Textiles & fabrics										1.7		-1.3							-6.3				1.3		-3.3	
314	Textile mill prod		-0.2							-1.3														-0.5			
315	Apparel & accessories								2.1		0.4		0.5		-0.4	0.0		1.3	0.1	0.4	3.6			-1.4			
316	Leather products	1.4			0.5						2.6											0.0				-6.7	
321	Wood prod			1.1	-0.3			0.9				-0.1		-0.5	-1.8							5.1				-3.9	
322	Paper				1.6			4.3	0.2	-1.1			-1.7		0.5									2.2			
324	Petroleum & coal prod				-5.0				-2.9																		-6.9
325	Chemicals	-2.4		-5.1	0.3	2.1		1.6	1.1	0.1	0.8	-4.9	0.0		3.6	-10.1	3.5	0.0		1.8	0.8	3.0		-1.1	-2.4	-4.6	-0.5
326	Plastics & rubber prod	-1.2			-0.8			0.8	0.6	-1.3	0.1		1.6		-1.1			0.1		23.8	-1.9			-0.5			
327	Nonmetallic mineral				0.4				-0.3	-1.4	2.3		1.1											5.6			
331	Primary metal mfg	-0.8			-1.4				-0.6	-3.9	-3.1	-2.3	-5.1		1.5			-0.5			-0.4			-15.8			0.4
332	Fabricated metal prod	0.7			0.4				1.4	-2.9	0.5		-0.1					0.4						3.9			
333	Machinery, expt electr	1.0			0.0			-0.4	-1.2	-0.1								0.3		-8.1			4.0		2.0		
334	Computer & electronic		-1.2							-0.7	-0.8						2.1	-0.1		-0.5				-0.0			
335	Electrical eqpt & comp				0.6				0.3	0.6	0.9	-1.0						0.4		1.8							
336	Transportation eqpt	0.2			0.5				1.2	0.0					-3.3			1.1	0.4	-5.2		-1.6	5.0	0.1			
337	Furniture & fixtures			-0.6			-0.3											1.4									
339	Misc. manufac. cmdty			17.2	0.8				2.0	0.8	0.4							0.9		5.9	3.3					1.5	

Note: Dark blue, blue, and light blue cells represent 99%, 95%, and 90% confidence intervals, respectively.

Table B.6. Impact of Changes in the Margins of Preference Relative to China's on Export Growth to the US. Country-Sector Estimates. Applied Tariffs

	NAICS 3-digit	ARG	BRB	BOL	BRA	BHS	BLZ	CHL	COL	CRI	DOM	ECU	GTM	GUY	HND	HTI	JAM	MEX	NIC	PAN	PER	PRY	SUR	SLV	TTO	URY	VEN
111	Agricultural prod	-1.4		0.8	2.0			1.5	-0.8	1.4	0.4	-1.6	-0.1		0.0		1.2	0.2	1.4		1.7	0.7		-1.1			
112	Livestock prod						-0.4																				
114	Fish & oth marine prod	0.4				3.3		0.2		3.2		1.0		0.7	0.4				3.9	-1.4	1.6		1.7		0.0		5.3
212	Minerals & ores				0.6	-3.0		0.1	0.4									0.6			5.3						
311	Food & kindred prod	1.2	1.5	-1.2	-0.4		-0.3	-0.5	0.5	-0.6	0.1	-1.4	-0.3	0.6	0.1		0.4	0.7	0.5	1.0	0.0	1.2		0.8	1.6	-0.6	
312	Beverages & tobacco	2.7									-5.9		3.3		0.6		-4.1	0.4	-2.2						-0.6		
313	Textiles & fabrics										1.6		-3.4							-7.0				-0.5		-1.3	
314	Textile mill prod		0.1							-1.5														-4.8			
315	Apparel & accessories								1.5		-1.8		0.8		-0.5	0.2		0.2	-0.3	-1.3	0.8			-1.1			
316	Leather products	0.9			-0.7						0.9											-0.2				-5.1	
321	Wood prod			0.9	-0.7			0.9				0.1		2.3	-1.2							3.7				-3.2	
322	Paper				0.9			2.5	0.7	-1.1			-1.7		0.6									1.8			
324	Petroleum & coal prod				-1.6				0.3																		-3.9
325	Chemicals	-1.9		-6.6	-0.0	1.6		1.0	0.4	0.1	0.3	-3.4	-0.2		1.8	-12.4	2.1	-0.3		2.1	0.2	2.0		-0.5	-1.4	-5.1	-7.4
326	Plastics & rubber prod	-1.1			-1.5			0.3	0.2	-1.9	-0.9		1.1		-1.3			-0.4		10.3	-1.9			-0.1			
327	Nonmetallic mineral				-0.1				-0.8	-1.6	1.2		0.1											5.6			
331	Primary metal mfg	-2.4			-1.6				-2.5	-2.6	-0.9	-3.2	-4.8		-2.7			-0.2			-1.7			-1.8			-1.0
332	Fabricated metal prod	0.5			-0.2				1.0	-3.1	-0.1		0.3					0.3						4.3			
333	Machinery, expt electr	0.7			-0.3			-0.4	-1.2	-0.2								0.1		-7.6			3.4		2.0		
334	Computer & electronic		-0.8							-0.6	-0.8						1.7	-0.2		-0.7				0.1			
335	Electrical eqpt & comp				0.4				-0.3	0.6	0.9	-1.5						0.3		2.5							
336	Transportation eqpt	-0.1			0.1				0.9	0.1					-3.2			0.9	0.4	-6.2		-3.2	4.3	-0.3			
337	Furniture & fixtures			-0.5			1.6											1.4									
339	Misc. manufac. cmdty			7.6	0.3				0.9	0.4	-1.1							0.4		4.7	1.3					1.2	

Note: Dark blue, blue, and light blue cells represent 99%, 95%, and 90% confidence intervals, respectively.

Table B.7. Impact of Changes in Margins of Preference Relative to China's on Export Growth to the US. Country-Sector Estimates. Nominal Tariffs

	NAICS 3-digit	ARG	BRB	BOL	BRA	BHS	BLZ	CHL	COL	CRI	DOM	ECU	GTM	GUY	HND	HTI	JAM	MEX	NIC	PAN	PER	PRY	SUR	SLV	TTO	URY	VEN
111	Agricultural prod	-1.8		0.6	2.4			0.3	-0.8	0.0	1.3	0.7	0.3		-0.1		0.7	0.8	1.2		1.4	2.9		-1.2			
112	Livestock prod						1.2																				
114	Fish & oth marine prod	1.4				-0.5		0.0		-1.6		0.3		1.4	-4.0				-0.9	-3.9	-0.5		-0.4		2.4		2.1
212	Minerals & ores				0.7	-1.7		-1.2	-0.1									0.7			1.2						
311	Food & kindred prod	0.4	1.9	-1.2	-0.6		-2.6	-0.2	0.1	-0.3	0.2	-1.1	-0.4	1.0	1.0		-0.2	0.7	1.6	1.1	0.2	4.2		0.5	0.9	-0.2	
312	Beverages & tobacco	1.0									-1.5		1.6		-1.9		-1.7	1.1	0.0						0.5		
313	Textiles & fabrics										1.6		-2.2							-4.3				-1.5		-0.5	
314	Textile mill prod		0.8							-1.6														-4.7			
315	Apparel & accessories								2.0		-1.2		0.6		0.1	0.1		0.0	1.1	-0.0	0.7			-2.1			
316	Leather products	0.5			-1.1						1.0											1.6				-4.0	
321	Wood prod			-0.6	-1.1			-0.3				-0.2		0.8	-1.1							4.7				-0.2	
322	Paper				0.5			0.7	1.1	-1.0			-1.4		0.5									1.2			
324	Petroleum & coal prod				-1.5				-0.8																		-6.6
325	Chemicals	-0.9		-7.9	-0.3	0.8		0.4	0.5	-0.2	0.1	-3.1	0.2		1.6	-9.9	2.9	-0.0		1.9	0.3	2.6		-0.1	-1.9	-4.1	-4.5
326	Plastics & rubber prod	-0.9			-1.3			0.0	0.0	-1.7	-1.0		1.2		-1.2			-0.2		12.3	-2.0			-0.7			
327	Nonmetallic mineral				-0.2				-0.6	-1.4	0.8		-0.9											4.9			
331	Primary metal mfg	-1.6			-2.5				1.4	-2.3	-1.7	-2.2	-1.8		-5.8			-0.5			-2.1			-10.7			2.3
332	Fabricated metal prod	0.4			-0.5				0.9	-3.0	-0.4		-0.8					0.3						3.1			
333	Machinery, expt electr	0.9			-0.2			-0.3	-0.7	-0.1								0.2		-6.3			3.3		0.8		
334	Computer & electronic		-1.1							-0.6	-0.6						0.8	-0.1		0.9				0.5			
335	Electrical eqpt & comp				0.1				0.5	0.4	0.7	-2.4						0.4		2.5							
336	Transportation eqpt	0.4			0.1				1.2	0.1					-2.9			0.4	0.2	-5.8		-3.8	3.3	0.4			
337	Furniture & fixtures			-1.2			1.9											1.2									
339	Misc. manufac. cmdty			5.6	0.1				0.2	0.5	-0.4							0.4		6.7	0.9					2.5	

Note: Dark blue, blue, and light blue cells represent 99%, 95%, and 90% confidence intervals, respectively.

Table B.8. Impact of Changes in the Margins of Preference Relative to China's on Export Growth to the US. Country-Sector Estimates with Trade Weights. Effective Tariffs

	NAICS 3-digit	ARG	BRB	BOL	BRA	BHS	BLZ	CHL	COL	CRI	DOM	ECU	GTM	GUY	HND	HTI	JAM	MEX	NIC	PAN	PER	PRY	SUR	SLV	TTO	URY	VEN
111	Agricultural prod	-3.5		3.2	2.0			1.7	0.1	0.4	0.2	0.7	-1.2		1.7		2.0	-0.1	3.3		0.2	8.1		-1.7			
112	Livestock prod						0.8																				
114	Fish & oth marine prod	-0.3				4.6		1.6		-1.0		1.3		-2.6	-5.9				-0.3	-0.8	0.8		9.3		-0.6		4.6
212	Minerals & ores				2.1	-7.3		-2.0	1.5									-0.8			13.5						
311	Food & kindred prod	0.1	4.6	2.6	0.9		-0.9	1.0	0.2	-1.1	0.2	-1.3	-0.8	2.3	-0.1		1.9	0.4	-0.8	2.1	0.4	9.5		1.0	3.6	-1.3	
312	Beverages & tobacco	-1.1									-8.3		-0.9		-0.2		-7.3	0.4	-3.6						-2.7		
313	Textiles & fabrics										0.2		-8.2							-4.4				1.0		-3.1	
314	Textile mill prod		1.7							-0.7														-0.3			
315	Apparel & accessories								2.0		-1.0		-3.2		0.6	-0.3		0.4	-3.5	2.8	0.2			0.9			
316	Leather products	-0.8			1.2						1.4											9.2				-13.4	
321	Wood prod			4.6	0.5			1.2				1.6		-0.1	-3.2							4.8				-2.0	
322	Paper				0.4			2.0	-1.9	0.1			-4.7		0.7									1.1			
324	Petroleum & coal prod				-0.1				4.4																		-9.1
325	Chemicals	-3.3		1.0	1.3	2.2		3.5	1.4	1.5	0.3	-9.6	-2.5		1.7	-10.8	3.5	0.1		6.0	-0.0	10.6		-1.2	-4.7	-4.3	11.2
326	Plastics & rubber prod	-0.9			0.6			2.1	1.3	-2.5	-0.0		-0.1		-3.9			0.3		28.1	0.8			0.5			
327	Nonmetallic mineral				1.9				1.0	-4.8	1.1		-0.7											5.7			
331	Primary metal mfg	-1.3			-1.8				1.6	-8.1	-0.2	0.1	-4.2					0.1			-1.9			-18.4			-1.8
332	Fabricated metal prod	-4.6			0.1				2.1	-2.2	1.7		0.3					0.2						2.7			
333	Machinery, expt electr	-0.8			-0.3			0.6	-0.1	-1.1								0.1		-10.2			8.9		1.4		
334	Computer & electronic		-0.3							-3.9	-0.7						2.7	0.1		-2.7				0.2			
335	Electrical eqpt & comp				0.9				1.7	-0.0	0.5	1.2						0.0		0.5							
336	Transportation eqpt	-1.7			-2.0				-1.0	0.6					-1.5			0.9	1.0	-3.9		-2.2	11.1	-1.2			
337	Furniture & fixtures			2.4			-7.3											1.0									
339	Misc. manufac. cmdty			29.4	3.0				2.5	-0.5	2.4							-0.0		8.2	-0.3					5.2	

Note: Dark blue, blue, and light blue cells represent 99%, 95%, and 90% confidence intervals, respectively.

Table B.9. Impact of Changes in the Margins of Preference Relative to China's on Export Growth to the US. Country-Sector Estimates with Trade Weights. Applied Tariffs

	NAICS 3-digit	ARG	BRB	BOL	BRA	BHS	BLZ	CHL	COL	CRI	DOM	ECU	GTM	GUY	HND	HTI	JAM	MEX	NIC	PAN	PER	PRY	SUR	SLV	TTO	URY	VEN
111	Agricultural prod	0.3		2.7	3.3			4.0	0.4	0.4	-0.6	-0.4	-0.0		0.5		-0.1	0.0	4.5		-0.1	7.1		-1.8			
112	Livestock prod						0.6																				
114	Fish & oth marine prod	0.3				2.9		3.9		-0.9		0.2		1.6	-3.5				2.2	-1.6	-1.0		8.0		1.1		11.3
212	Minerals & ores				3.6	-6.3		-0.2	0.8									-0.3			13.6						
311	Food & kindred prod	0.1	4.3	-1.4	0.3		-0.7	1.6	1.1	-3.0	0.3	-2.0	-1.1	1.8	-0.4		0.6	-0.4	1.9	1.5	-0.5	8.7		1.2	3.2	0.4	
312	Beverages & tobacco	1.7									-8.3		-0.2		-0.1		-9.0	0.3	-3.3						-0.9		
313	Textiles & fabrics										-0.5		-8.7							-4.6				0.1		-3.3	
314	Textile mill prod		1.6							-1.1														-4.3			
315	Apparel & accessories								0.8		-1.9		-1.3		0.3	0.3		-1.1	-0.7	6.2	-1.4			0.9			
316	Leather products	1.3			0.7						0.9											8.9				-13.8	
321	Wood prod			0.8	0.3			3.1				0.1		0.2	-3.2							3.5				-1.4	
322	Paper				4.6			4.0	-1.6	0.2			-4.2		0.4									0.6			
324	Petroleum & coal prod				3.1				6.2																		-3.0
325	Chemicals	0.3		-5.5	1.8	1.8		2.0	1.9	1.6	0.2	-3.5	-2.1		0.8	-11.0	0.7	-0.3		6.1	-0.5	9.1		-0.4	-0.4	-5.7	-2.9
326	Plastics & rubber prod	0.7			0.7			4.0	1.3	-2.6	-0.2		0.0		-3.7			0.0		9.0	0.6			0.6			
327	Nonmetallic mineral				1.9				1.0	-5.3	0.8		-0.6											5.7			
331	Primary metal mfg	-2.0			-0.7				-3.6	-3.8	1.0	-0.9	-10.3					-0.3			-1.7			-3.6			-1.9
332	Fabricated metal prod	-2.6			-0.2				1.8	-2.3	1.7		0.3					-0.0						3.8			
333	Machinery, expt electr	-0.3			-0.4			2.0	-0.1	-1.0								-0.1		-9.5			7.9		4.5		
334	Computer & electronic		-0.1							-3.7	-0.7						1.7	-0.2		-2.7				0.2			
335	Electrical eqpt & comp				0.9				1.2	0.1	0.5	1.2						-0.2		1.0							
336	Transportation eqpt	0.1			-1.7				-1.0	0.7					-1.2			0.2	0.6	-4.2		-3.0	10.0	-0.9			
337	Furniture & fixtures			-1.4			-6.5											0.8									
339	Misc. manufac. cmdty			11.1	2.3				-0.5	0.1	3.0							-0.2		7.3	-1.6					4.9	

Note: Dark blue, blue, and light blue cells represent 99%, 95%, and 90% confidence intervals, respectively.

Table B.10. Impact of Changes in the Margins of Preference Relative to China's on Export Growth to the US. Country-Sector Estimates with Trade Weights. Nominal Tariff

	NAICS 3-digit	ARG	BRB	BOL	BRA	BHS	BLZ	CHL	COL	CRI	DOM	ECU	GTM	GUY	HND	HTI	JAM	MEX	NIC	PAN	PER	PRY	SUR	SLV	TTO	URY	VEN
111	Agricultural prod	0.3		2.6	3.3			-0.3	-0.8	-0.0	0.9	-0.2	1.0		0.8		0.3	1.2	1.9		1.5	5.7		-1.1			
112	Livestock prod						2.0																				
114	Fish & oth marine prod	0.1				-2.9		1.7		-0.8		0.1		2.0	-3.3				-0.3	-0.9	-1.7		5.6		2.4		9.1
212	Minerals & ores				0.8	-4.6		-1.1	3.1									0.2			-1.2						
311	Food & kindred prod	0.6	4.1	-0.9	-0.3		-3.1	0.3	-0.1	1.0	0.3	-2.1	-0.3	1.9	0.2		0.3	0.5	-0.0	0.9	0.5	5.0		1.9	2.0	-1.7	
312	Beverages & tobacco	0.8									0.2		0.9		-1.1		-5.7	0.5	-0.9						0.5		
313	Textiles & fabrics										0.1		-6.6							-2.5				-0.9		-1.8	
314	Textile mill prod		1.6							-1.0														-4.0			
315	Apparel & accessories								-0.7		-1.7		-0.3		0.7	-1.7		-0.9	-2.1	5.6	-0.7			1.0			
316	Leather products	-1.4			1.0						0.7											7.3				-12.7	
321	Wood prod			0.5	0.2			1.3				-0.8		1.4	-2.3							3.2				0.6	
322	Paper				-0.4			0.4	0.6	0.1			-3.5		0.5									0.3			
324	Petroleum & coal prod				1.2				-0.4																		-6.0
325	Chemicals	0.1		-7.6	1.7	-0.3		0.1	1.5	2.0	0.6	-4.6	-0.1		0.7	-10.7	1.4	-0.1		6.1	0.2	6.5		-0.1	-1.0	-3.9	-3.0
326	Plastics & rubber prod	-0.0			0.9			2.0	1.3	-2.0	-0.2		0.1		-3.5			0.1		9.4	0.8			0.6			
327	Nonmetallic mineral				1.8				0.4	-4.6	0.7		-1.1											5.2			
331	Primary metal mfg	-0.8			-1.5				2.9	-4.5	3.3	2.5	-2.7					-0.2			-3.7			-10.9			2.9
332	Fabricated metal prod	-0.9			-0.1				0.9	-2.0	1.6		-1.0					0.1						2.4			
333	Machinery, expt electr	-0.5			-0.4			1.4	0.5	-0.7								0.0		-7.0			8.5		2.0		
334	Computer & electronic		0.3							-2.6	-0.6						0.6	-0.2		-1.3				-0.3			
335	Electrical eqpt & comp				0.8				1.2	0.3	0.4	0.9						-0.0		1.5							
336	Transportation eqpt	3.3			1.9				-1.5	0.6					-1.2			0.1	0.8	-3.4		-3.1	9.1	-0.9			
337	Furniture & fixtures			-1.1			-5.1											0.7									
339	Misc. manufac. cmdty			6.8	1.7				-2.0	0.0	1.9							-0.1		8.4	-1.1					4.5	

Note: Dark blue, blue, and light blue cells represent 99%, 95%, and 90% confidence intervals, respectively.

Table B.11. Impact of Changes in the Margins of Preference Relative to China's on Export Growth to the US. Country-Sector Estimates with the IHS. Applied Tariffs

	NAICS 3-digit	ARG	BRB	BOL	BRA	BHS	BLZ	CHL	COL	CRI	DOM	ECU	GTM	GUY	HND	HTI	JAM	MEX	NIC	PAN	PER	PRY	SUR	SLV	TTO	URY	VEN
111	Agricultural prod	11.1		7.2	-0.2			10.1	1.0	-10.7	-8.3	-3.4	10.2		-21.8		-11.2	-5.7	1.6		4.1	1.5		0.6			
112	Livestock prod						38.3																				
114	Fish & oth marine prod	-9.3				11.7		9.4		10.5		-0.0		-8.7	-11.0				-8.4	22.9	19.6		-7.8		-23.6		16.9
212	Minerals & ores				-0.4	-11.5		-13.2	-1.1									7.4			-8.4						
311	Food & kindred prod	11.5	11.9	6.1	-3.1		32.2	0.7	2.4	6.0	0.4	5.2	1.9	5.2	2.3		8.1	0.8	-0.1	14.2	5.3	16.2		2.1	7.7	14.1	
312	Beverages & tobacco	10.0									-7.5		11.9		-12.3		-1.5	5.5	18.3						5.0		
313	Textiles & fabrics										-7.1		-19.7							28.3				-2.5		-13.6	
314	Textile mill prod		42.8							6.0														-16.8			
315	Apparel & accessories								7.7		-1.6		11.6		7.4	-0.6		-2.0	2.0	3.2	2.1			2.1			
316	Leather products	5.6			-5.0						2.6											24.4				6.1	
321	Wood prod			-1.8	-6.2			8.0				-14.7		-6.8	-1.3							-22.3				-5.9	
322	Paper				-2.4			-15.1	-5.7	1.2			-4.1		-10.9									3.9			
324	Petroleum & coal prod				5.1				3.8																		2.0
325	Chemicals	3.8		-18.5	-0.6	10.5		0.9	-0.5	-6.6	0.5	-17.7	-3.4		-4.5	-32.6	-17.1	-2.8		-17.2	-3.7	11.0		-11.2	-4.8	-11.6	-10.8
326	Plastics & rubber prod	6.1			-0.7			2.8	-1.2	-5.8	-3.4		5.5		-12.9			2.3		1.7	-12.6			-0.2			
327	Nonmetallic mineral				2.5				-8.9	1.5	3.6		-7.4											-22.6			
331	Primary metal mfg	-3.5			-9.9				-7.5	2.0	-17.5	-18.3	3.3		-22.3			-0.7			-7.6			19.6			9.9
332	Fabricated metal prod	1.6			-1.4				-4.2	-8.2	-11.9		-36.1					0.2						-2.9			
333	Machinery, expt electr	0.9			-0.5			-4.9	-4.4	-1.1								0.7		-17.1			10.1		-27.6		
334	Computer & electronic		-5.5							-6.4	-0.9						1.1	-0.8		8.1				-9.1			
335	Electrical eqpt & comp				-0.2				-8.9	1.0	-2.6	-17.1						1.6		-17.4							
336	Transportation eqpt	10.8			2.1				4.7	-1.1					-23.5			4.5	10.2	16.3		-21.8	22.3	-3.1			
337	Furniture & fixtures			-4.9			-16.4											1.5									
339	Misc. manufac. cmdty		2.1	17.2	-0.7				0.7	-12.2	-3.4							0.8		28.3	7.2					7.4	

Note: The dependent variable is the 12-month change in the inverse hyperbolic sine (IHS) of imports. Dark blue, blue, and light blue cells represent 99%, 95%, and 90% confidence intervals, respectively.

Table 12. Impact of Changes in the Margins of Preference Relative to China's on Export Growth to the US. Country-Sector Estimates with IHS. Nominal Tariffs

	NAICS 3-digit	ARG	BRB	BOL	BRA	BHS	BLZ	CHL	COL	CRI	DOM	ECU	GTM	GUY	HND	HTI	JAM	MEX	NIC	PAN	PER	PRY	SUR	SLV	TTO	URY	VEN
111	Agricultural prod	1.8		8.6	0.3			7.6	3.8	-1.4	1.1	9.9	9.4		-4.3		-3.1	-0.8	5.4		0.1	5.3		-9.2			
112	Livestock prod						22.4																				
114	Fish & oth marine prod	-0.4				3.9		8.2		4.8		6.4		-10.8	-1.9				-6.2	8.1	9.5		3.4		-7.6		29.1
212	Minerals & ores				-6.0	-6.3		-14.0	5.5									2.8			-6.1						
311	Food & kindred prod	4.0	13.6	1.6	-5.3		3.5	4.9	-2.6	2.3	0.1	5.3	2.9	2.3	-1.9		5.5	-2.0	-3.9	13.4	1.5	36.8		6.2	6.2	7.0	
312	Beverages & tobacco	10.1									-0.7		-6.4		-1.8		-2.0	5.5	16.3						8.0		
313	Textiles & fabrics										-5.5		-16.7							17.8				-3.4		-8.2	
314	Textile mill prod		17.0							5.0														-12.9			
315	Apparel & accessories								7.2		-1.5		10.8		7.0	0.0		-2.7	3.8	6.6	1.9			3.3			
316	Leather products	2.6			-4.4						1.2											25.9				6.3	
321	Wood prod			-1.8	-5.3			2.9				-13.5		-6.1	-12.6							-6.6				0.8	
322	Paper				-1.6			-6.4	-5.9	2.5			-3.7		-9.1									3.7			
324	Petroleum & coal prod				11.5				9.2																		-3.8
325	Chemicals	4.1		-21.3	-1.7	4.9		1.1	3.0	-9.8	-2.3	-16.7	1.0		-9.8	-26.1	-16.7	-2.2		-13.5	-3.3	15.2		-11.4	0.2	-11.9	-2.9
326	Plastics & rubber prod	5.0			-0.1			4.7	-0.7	-4.5	-3.8		8.6		-9.5			2.8		0.6	-11.0			0.5			
327	Nonmetallic mineral				0.7				-4.7	-1.3	-0.1		-6.1											-17.1			
331	Primary metal mfg	-6.5			-20.8				-8.2	-9.1	-18.4	-5.9	2.2		-37.2			-0.4			-18.5			-42.6			2.4
332	Fabricated metal prod	3.0			-1.4				-3.9	-7.7	-11.1		-31.3					0.7						-3.6			
333	Machinery, expt electr	1.4			-0.6			-4.3	-5.6	-0.5								1.2		-13.6			7.6		-20.8		
334	Computer & electronic		-3.8							-5.4	-0.3						1.8	-0.3		4.9				-7.6			
335	Electrical eqpt & comp				-0.7				-6.1	0.8	-3.5	-4.7						2.2		-20.1							
336	Transportation eqpt	7.9			2.6				7.6	0.1					-20.9			4.6	7.6	18.9		-5.4	19.1	7.1			
337	Furniture & fixtures			-5.2			-16.5											1.9									
339	Misc. manufac. cmdty		2.1	15.4	0.1				-1.3	-11.7	-1.3							1.0		23.5	2.7					8.7	

Note: The dependent variable is the 12-month change in the inverse hyperbolic sine (IHS) of imports. Dark blue, blue, and light blue cells represent 99%, 95%, and 90% confidence intervals, respectively.

C. The Impact of Contiguity and Distance

Table C.2 displays the results of the gravity regression displayed in figure 5, including the coefficients for distance and contiguity of a gravity regression involving up to 222 countries for 1990–2000, 2001–2008, and 2009–2018. The Poisson pseudo maximum likelihood specification includes importer-year and export-year fixed effects, with pair-clustered standard errors. The 2001–2008 and 2009–2018 distance coefficients are statistically different at 5%. The differences between the other decades, including for contiguity, are not statistically different.

Table C.1. Impact of Distance and Contiguity on Trade

VARIABLES	(1) All Goods FE	(2) All Goods FE	(3) All Goods PPML	(4) All Goods PPML	(5) All Goods FE	(6) All Goods FE	(7) All Goods PPML	(8) All Goods PPML	(9) All Goods FE 1990-2000	(10) All Goods FE 2001-2008	(11) All Goods FE 2009-2018	(12) All Goods PPML 1990-2000	(13) All Goods PPML 2001-2008	(14) All Goods PPML 2009-2018
contig	0.427***	0.629***	0.617***	0.603***	0.572***	0.579***	0.536***	0.535***	0.492***	0.502***	0.697***	0.509***	0.533***	0.535***
	(0.095)	(0.104)	(0.086)	(0.086)	(0.094)	(0.094)	(0.086)	(0.085)	(0.097)	(0.106)	(0.106)	(0.088)	(0.088)	(0.095)
contig_a2008	0.351***	0.149**	-0.130***	-0.115***										
	(0.062)	(0.062)	(0.033)	(0.027)										
contig_b2000		-0.452***		0.042										
		(0.068)		(0.036)										
ln_dist	-1.461***	-1.461***	-0.584***	-0.584***	-1.438***	-1.519***	-0.623***	-0.617***	-1.357***	-1.526***	-1.467***	-0.647***	-0.612***	-0.561***
	(0.016)	(0.016)	(0.034)	(0.034)	(0.017)	(0.018)	(0.031)	(0.034)	(0.019)	(0.019)	(0.020)	(0.024)	(0.033)	(0.041)
ln_dist_a2008					-0.054***	0.028**	0.065***	0.058***						
					(0.014)	(0.014)	(0.014)	(0.011)						
ln_dist_b2000						0.198***		-0.020						
						(0.015)		(0.017)						
Constant	26.571***	26.570***	27.523***	27.521***	26.574***	26.558***	27.540***	27.542***	25.819***	26.866***	26.746***	27.466***	27.563***	27.574***
	(0.146)	(0.146)	(0.299)	(0.299)	(0.146)	(0.146)	(0.296)	(0.295)	(0.165)	(0.168)	(0.175)	(0.204)	(0.284)	(0.360)
Observations	558,709	558,709	558,719	558,719	558,709	558,709	558,719	558,719	135,528	181,991	241,190	135,528	181,991	241,200
R-squared	0.748	0.748			0.748	0.748			0.747	0.738	0.755			
importer*year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
exporter*year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
S.E. cluster	pair	pair	pair	pair	pair	pair	pair	pair	pair	pair	pair	pair	pair	pair

Pair clustered standard error in parentheses
*** p<0.01, ** p<0.05, * p<0.1

D. Import Penetration

The import penetration ratio is defined as

$$Import\ Penetration_i = \frac{M_i}{P_i - X_i + M_i}$$

where P is domestic output, X exports, and M imports; subscript i defines the NAICS 3-digit manufacturing sectors. Each country/region's share in domestic demand is obtained by breaking down the numerator by country. The import penetration ratio for all US manufacturing sectors is calculated by aggregating M, X, and P for all sectors and applying the formula.

The US manufacturing output destined to the domestic market is estimated by subtracting exports from total output (P-X). The share of total demand sourced from within US borders is calculated by replacing the numerator in the above formula by output minus exports (P-X).

The production estimates are built in three steps, based on three different datasets. First, a time series of domestic output in constant 2018 US$ is calculated by combining domestic output data in current prices for 2018 (Annual Survey of Manufactures) with the monthly real output indexes

(Federal Reserve's G.17 Release on Industrial Production and Capacity Utilization).[17] Second, Producer price indices (PPIs) for all NAICS sectors (Bureau of Labor Statistics) are used to bring the constant price series to current prices.[18] Finally, an HS-NAICS correspondence is used to match the current price output series with the trade data (US Census Bureau).

E. Estimation of the Impact of Tariffs on Multinational Production and FDI Flows

This technical appendix provides a more detailed description of the estimations carried out to determine how the 2018–2019 tariff hike in the US affected where US foreign affiliates were established abroad or where investments took place.

Data

The dataset draws from four main databases over 2010 to 2019:

1. Dun and Bradstreet's WorldBase on Multinational Production (MP): This database includes information on firms' legal names, year of establishment, country of establishment, and activity sector (NAICS 6-digit) for both 180,000 US multinational affiliates worldwide and their respective parent firms.
2. Bureau of Economic Analysis (BEA) Database on US FDI: This database provides annual data on FDI flows from the US to individual destination countries at the sector level. The classification has 17 sectors.
3. USITC Database on Tariffs: This database reports tariffs applied by the US on goods from third countries at the HS 8-digit level. The focus is on statutory nominal tariffs, aggregated to the HS 6-digit level by computing simple averages.
4. WITS Database on Tariffs: This database provides data on tariffs applied by third countries on goods from the US. This data is reported at the HS 6-digit level.

Pierce and Schott's (2012) concordance table was used to merge the sector-level MP and FDI data with the product line level tariff data. HS codes are mapped into the NAICS codes and then into the ISIC codes. Tariffs are the simple average of all products at the ISIC Rev 4. 2-digit level. Estimations are run at this level of aggregation, but results are presented using the BEA's sector classification for comparison across different outcomes.

Descriptive data

Tables E.1 (manufacturing) and E.2 (financial services) provide some descriptive data on the geographical distribution dynamics of new US foreign affiliates between 2000 and 2019.

[17] Production indexes are not available for all NAICS 6-digit codes. Most of the sectors used here are therefore defined at the NAICS 4-digit level. Some exceptions include two sectors defined at the 3-digit level (NAICS 315: apparel manufacturing, and NAICS 316: leather and allied product manufacturing) and a few others defined at the 5- or 6-digit level. In four cases (3117, 3324, 3346, and 3399) the series was calculated as a residual value by subtracting all other 4-digit codes from the aggregated 3-digit series.

[18] Whenever industrial production indexes were available for a combination of NAICS codes (for instance, NAICS 32223,9: other converted paper products), the PPI series were weighted by the 2018 output value.

Table E.1. Top Countries with Largest Increases in New Establishments of US Foreign Affiliates within Manufacturing, by Selected Subsector, 2001 vs. 2010 and 2011 vs. 2019

Sector Description	Change Dist.			Gains 2019		Gains 2019 LAC		Gains 2010		Gain 2010 LAC		Share 2019		Share 2010		Share 2000	
	10-19	00-09	Top	Country	pp	Country	pp	Country	pp	Country	pp	Country	%	Country	%	Country	%
Food	-2234	628.2	1	NLD	18.18			CHN	16.88	BRA	6.5	GBR	27.3%	CHN	25.8%	DEU	10.7%
	-2234	628.2	2	GBR	17.60			GBR	9.68	HND	1.1	NLD	18.2%	AUS	12.9%	CHN	8.9%
	-2234	628.2	3	RUS	9.09			AUS	7.55			CHE	9.1%	GBR	9.7%	FRA	8.0%
	-2234	628.2	4	CHE	9.09			CZE	6.45			RUS	9.1%	CAN	6.5%	CAN	8.0%
	-2234	628.2	5	TUR	9.09			NOR	6.45			IRL	9.1%	NOR	6.5%	PHL	5.4%
Other non-metallic	-1916	562.4	1	DEU	19.44	COL	9.4	CAN	11.11	CHL	5.6	DEU	25.0%	CHN	16.7%	AUS	24.0%
	-1916	562.4	2	GBR	12.50			CHE	5.56	BRA	5.6	FRA	15.6%	ZAF	11.1%	CHN	18.7%
	-1916	562.4	3	FRA	10.07			BEL	5.56			GBR	12.5%	POL	11.1%	GBR	13.3%
	-1916	562.4	4	COL	9.38			CHL	5.56			PRT	9.4%	CAN	11.1%	FRA	12.0%
	-1916	562.4	5	PRT	9.38			SWE	5.56			BEL	9.4%	DEU	5.6%	POL	8.0%
Machinery	-1336	825	1	DEU	27.82	COL	2.4	IND	9.63			DEU	36.7%	CHN	16.8%	MEX	18.0%
	-1336	825	2	NLD	12.24	JAM	2.4	DEU	6.66			NLD	12.2%	GBR	15.8%	CHN	12.0%
	-1336	825	3	ITA	5.37	ARG	2.4	GBR	5.32			GBR	11.4%	IND	11.9%	GBR	10.5%
	-1336	825	4	TUR	4.08			CHN	4.80			CHN	10.6%	DEU	8.9%	CAN	6.8%
	-1336	825	5	JAM	2.45			HUN	1.98			ITA	7.3%	FRA	5.9%	BRA	6.0%
Electrical equipment	-1333	1039	1	DEU	32.67	COL	4.3	IND	17.39			DEU	45.7%	CHN	21.7%	CHN	16.3%
	-1333	1039	2	ITA	12.86			DEU	13.04			ITA	12.9%	IND	17.4%	MEX	16.3%
	-1333	1039	3	GBR	4.91			CHN	5.41			GBR	11.4%	DEU	13.0%	CAN	13.6%
	-1333	1039	4	COL	4.29			NLD	4.61			NLD	7.1%	MEX	10.9%	SVK	8.2%
	-1333	1039	5	VNM	4.29			AUT	4.35			MEX	5.7%	NLD	8.7%	GBR	6.8%
Textiles	-1321	1384	1	CHN	26.67			CAN	15.32	MEX	1.5	CHN	26.7%	CAN	25.0%	MEX	17.2%
	-1321	1384	2	DEU	26.67			ESP	12.50			DEU	26.7%	MEX	18.8%	ARG	12.9%
	-1321	1384	3	ITA	13.33			NLD	12.50			CAN	20.0%	GBR	18.8%	GBR	12.9%
	-1321	1384	4					NZL	12.50			MEX	13.3%	ESP	12.5%	CAN	9.7%
	-1321	1384	5					GBR	5.85			ITA	13.3%	NZL	12.5%	DEU	8.6%
Pharmaceuticals	-1205	1161	1	NLD	14.29	COL	4.1	DEU	13.70	PER	7.7	DEU	24.5%	GBR	23.1%	GBR	15.6%
	-1205	1161	2	IRL	14.08	ARG	4.1	IRL	7.69			IRL	21.8%	DEU	23.1%	ISR	9.4%
	-1205	1161	3	ARG	4.08			CHN	7.69			NLD	14.3%	ESP	7.7%	MEX	9.4%
	-1205	1161	4	JPN	4.08			PER	7.69			GBR	6.8%	ITA	7.7%	PHL	9.4%
	-1205	1161	5	CHE	4.08			CAN	7.69			ITA	4.1%	CHN	7.7%	MLT	9.4%
Chemical products	-871	249	1	DEU	34.79	COL	3.8	IND	8.60	PER	0.4	DEU	44.0%	IND	15.4%	GBR	13.6%
	-871	249	2	ESP	7.55	ARG	3.8	RUS	4.62			NLD	12.6%	GBR	15.4%	CHN	13.6%
	-871	249	3	NLD	6.42			QAT	3.08			ESP	7.5%	CHN	15.4%	MEX	8.1%
	-871	249	4	FIN	5.66			POL	3.08			GBR	7.5%	DEU	9.2%	IND	6.8%
	-871	249	5	ARG	3.77			ITA	3.08			CAN	7.5%	NLD	6.2%	DEU	6.8%
Electronics	-524	520	1	DEU	36.29			DEU	5.25	CRI	2.1	DEU	46.9%	GBR	18.1%	GBR	14.6%
	-524	520	2	NLD	8.66			IND	4.23	BRA	1.6	GBR	16.6%	CHN	12.8%	CHN	12.9%
	-524	520	3	CAN	6.96			GBR	3.53			CAN	12.3%	DEU	10.6%	MEX	9.2%
	-524	520	4	HUN	2.89			CHE	2.62			NLD	8.7%	MEX	6.4%	CAN	8.6%
	-524	520	5	VNM	2.17			CRI	2.13			TWN	3.2%	IND	6.4%	DEU	5.4%
Apparel	-441	1497	1	DEU	19.44	MEX	8.3	IND	12.50			GBR	38.9%	GBR	37.5%	MEX	32.8%
	-441	1497	2	IRL	16.67	PAN	8.3	BGR	12.50			DEU	19.4%	CHN	12.5%	GBR	26.9%
	-441	1497	3	ITA	8.33			TUR	12.50			IRL	16.7%	BGR	12.5%	CHN	13.4%
	-441	1497	4	PAN	8.33			GBR	10.63			PAN	8.3%	IND	12.5%	NIC	9.0%
	-441	1497	5	MEX	8.33			BEL	3.54			MEX	8.3%	TUR	12.5%	PAN	9.0%
Fabricated metal products	-211	425	1	DEU	28.10			DEU	8.28	BRA	3.9	DEU	39.8%	DEU	11.7%	MEX	25.0%
	-211	425	2	CZE	9.68			SGP	7.79	PER	2.6	NLD	11.8%	MEX	11.7%	CAN	12.1%
	-211	425	3	CAN	7.93			NLD	6.49			CAN	11.8%	IND	7.8%	GBR	10.6%
	-211	425	4	NLD	5.33			IND	5.52			CZE	9.7%	FRA	7.8%	CHN	7.6%
	-211	425	5	IRL	3.23			AUS	4.00			GBR	6.5%	SGP	7.8%	FRA	6.8%
Rubber	-151	483.5	1	DEU	25.30			IND	15.38	BRA	5.3	DEU	35.6%	IND	15.4%	MEX	25.0%
	-151	483.5	2	PRT	13.33			ITA	10.26			PRT	13.3%	MEX	12.8%	CAN	12.5%
	-151	483.5	3	CZE	10.00			DEU	6.51			CAN	11.1%	ITA	10.3%	CHN	9.4%
	-151	483.5	4	NLD	10.00			BRA	5.26			NLD	10.0%	BRA	10.3%	GBR	7.5%
	-151	483.5	5	FRA	6.67			TWN	5.13			CZE	10.0%	CAN	10.3%	BEL	5.6%
Repair and installation	33	-1707	1	NLD	15.00			CAN	28.58	ARG	7.7	CHE	20.0%	CAN	42.3%	CHN	17.6%
	33	-1707	2	GBR	12.31			NOR	7.69			GBR	20.0%	CHN	15.4%	CAN	13.7%
	33	-1707	3	DEU	10.00			BEL	7.69			CAN	15.0%	CHE	11.5%	GBR	13.7%
	33	-1707	4	ARE	10.00			ARG	7.69			NLD	15.0%	BEL	7.7%	FIN	11.8%
	33	-1707	5	CHE	8.46							ARE	10.0%	ARG	7.7%	CHE	11.8%
Paper	411	-304	1	DEU	28.57			SWE	15.79	COL	10.5	DEU	28.6%	MEX	21.1%	GBR	37.5%
	411	-304	2	FRA	21.43			COL	10.53	CRI	10.5	CAN	21.4%	SWE	15.8%	MEX	25.0%
	411	-304	3	BGR	14.29			CHL	10.53	CHL	10.5	FRA	21.4%	CHL	10.5%	CHN	12.5%
	411	-304	4	CAN	10.90			TUR	10.53			BGR	14.3%	CAN	10.5%	MYS	12.5%
	411	-304	5	PHL	0.00			CAN	10.53			MEX	14.3%	POL	10.5%	PHL	12.5%
Other manufacturing	-578	880.4	1	DEU	40.98			CRI	10.71	CRI	10.7	DEU	41.0%	GBR	28.6%	GBR	22.0%
	-578	880.4	2	IRL	8.96			MYS	7.14			GBR	24.6%	MEX	14.3%	MEX	15.4%
	-578	880.4	3	DNK	4.92			CZE	7.14			IRL	19.7%	CRI	10.7%	CAN	9.9%
	-578	880.4	4	BGR	4.92			ARE	7.14			DNK	4.9%	IRL	10.7%	BEL	6.6%
	-578	880.4	5	HUN	4.92			GBR	6.59			HUN	4.9%	CAN	7.1%	CHN	6.6%

Note: The table presents the percentage share of the new establishments of US foreign affiliates accounted for by the five main destination countries in 2000, 2010, and 2019, along with the respective changes between these years for the five non-LAC and LAC countries that had the largest increases (three-year moving average) for selected manufacturing subsectors.

Table E.2. Top Countries with Largest Increases in New Establishments of United States' Foreign Affiliates within Non-Financial Services, by Selected Subsector, 2001 vs. 2010 and 2011 vs. 2019

Sector Description	Change Dist.			Gains 2019		Gains 2019 LAC		Gains 2010		Gain 2010 LAC		Share 2019		Share 2010		Share 2000	
	10-19	00-09	Top	Country	pp	Country	pp	Country	pp	Country	pp	Country	%	Country	%	Country	%
Information services	-2848	2012.767	1	GBR	24.78	COL	3.4	DNK	5.63	PER	2.8	GBR	34.6%	IND	14.1%	IND	14.3%
	-2848	2012.767	2	NLD	18.12			JPN	5.63			NLD	22.3%	GBR	9.9%	NZL	9.5%
	-2848	2012.767	3	DEU	3.84			NLD	4.23			DEU	12.3%	DEU	8.5%	TWN	9.5%
	-2848	2012.767	4	BGR	3.35			DEU	3.69			SGP	5.0%	POL	5.6%	GBR	7.9%
	-2848	2012.767	5	AUT	3.35			SWE	2.82			ESP	4.5%	JPN	5.6%	AUS	6.3%
Other professional activities	-2404	-884.2002	1	DEU	24.43			CHN	6.41	ARG	3.1	DEU	27.6%	CHN	17.2%	CAN	13.2%
	-2404	-884.2002	2	ESP	7.65			ITA	4.69	MEX	1.1	GBR	14.3%	CAN	14.1%	AUS	12.0%
	-2404	-884.2002	3	POL	7.59			GBR	4.22			CAN	12.2%	GBR	7.8%	CHN	10.8%
	-2404	-884.2002	4	GBR	6.47			FIN	3.13			POL	10.7%	ZAF	7.8%	PHL	7.2%
	-2404	-884.2002	5	BEL	1.47			ARG	3.13			CHN	9.2%	SGP	6.3%	SGP	7.2%
Transportation services	-1628	1003.422	1	DEU	60.95			CHL	6.56	CHL	6.6	DEU	61.0%	CHN	16.4%	CHN	15.4%
	-1628	1003.422	2	GBR	5.71			NLD	6.56	PER	3.3	NLD	10.5%	CAN	13.1%	CAN	15.4%
	-1628	1003.422	3	NLD	3.92			NOR	4.92			CAN	5.7%	SGP	9.8%	GBR	13.5%
	-1628	1003.422	4	ESP	2.86			SGP	4.07			GBR	5.7%	AUS	9.8%	MEX	9.6%
	-1628	1003.422	5	IRL	2.86			AUS	4.07			MEX	5.7%	FRA	8.2%	AUS	5.8%
Accommodation	-911	-167.978	1	DEU	15.38			BRA	20.00	JAM	20.0	GBR	23.1%	VNM	20.0%	AUS	15.2%
	-911	-167.978	2	BGR	15.38			VNM	20.00	BRA	20.0	AUS	15.4%	GBR	20.0%	FRA	15.2%
	-911	-167.978	3	BMU	15.38			JAM	20.00			DEU	15.4%	JAM	20.0%	CAN	12.7%
	-911	-167.978	4	AUS	15.38			GBR	20.00			BMU	15.4%	CHN	20.0%	ARE	11.4%
	-911	-167.978	5	NLD	15.38			CHN	12.41			NLD	15.4%	BRA	20.0%	JPN	7.6%
Legal and accounting	-888	279.6885	1	DEU	13.61	COL	3.1	NLD	8.45	MEX	2.8	GBR	19.9%	CHN	9.9%	CAN	17.6%
	-888	279.6885	2	GBR	11.44			GBR	8.45	DOM	2.8	DEU	13.6%	CHE	8.5%	DEU	14.7%
	-888	279.6885	3	HUN	6.93			IRL	8.45			HUN	12.6%	NLD	8.5%	CHN	14.7%
	-888	279.6885	4	ITA	6.28			HUN	5.63			ESP	12.6%	GBR	8.5%	SGP	11.8%
	-888	279.6885	5	ESP	5.52			BEL	4.23			NLD	7.3%	IRL	8.5%	ZAF	11.8%
Telecommunications	-600	369.0713	1	GBR	19.15	COL	1.9	IND	5.95	GTM	2.4	GBR	41.8%	GBR	22.6%	GBR	16.7%
	-600	369.0713	2	IRL	16.12			GBR	5.95	CHL	2.4	IRL	20.9%	CAN	9.5%	CAN	9.6%
	-600	369.0713	3	NLD	5.70			IDN	4.76			CAN	8.2%	IND	6.0%	DEU	7.7%
	-600	369.0713	4	DEU	3.16			IRL	4.76			NLD	5.7%	IDN	4.8%	SGP	4.8%
	-600	369.0713	5	COL	1.90			AUT	3.57			ESP	4.4%	SGP	4.8%	AUS	4.5%
Computer programming	-492	499.7944	1	DEU	15.29	COL	0.8	IND	14.40	CRI	0.4	GBR	27.3%	IND	20.1%	GBR	21.9%
	-492	499.7944	2	GBR	9.69	CHL	0.4	DEU	2.12	PER	0.4	DEU	20.1%	GBR	17.7%	CAN	5.9%
	-492	499.7944	3	ESP	3.82			NOR	1.99	COL	0.4	ESP	6.5%	CAN	5.5%	IND	5.7%
	-492	499.7944	4	PRT	1.44			NLD	1.77	BRA	0.4	IRL	6.2%	IRL	5.1%	AUS	5.1%
	-492	499.7944	5	IRL	1.08			RUS	1.58			CAN	5.4%	DEU	4.9%	SGP	4.4%
Head offices and consultancy	-418	163.793	1	DEU	14.29	CRI	1.0	CHE	5.06	PER	1.9	GBR	17.8%	GBR	7.5%	GBR	15.2%
	-418	163.793	2	GBR	10.31	ARG	0.1	CHN	3.58	CHL	0.9	DEU	16.2%	IND	6.6%	MEX	14.6%
	-418	163.793	3	ITA	6.81			IND	3.54	TTO	0.9	ITA	10.6%	CHE	6.6%	NLD	6.1%
	-418	163.793	4	FRA	3.14			NOR	2.82	BRA	0.3	FRA	9.2%	CHN	6.1%	ESP	5.6%
	-418	163.793	5	NLD	2.79			FRA	2.57			ESP	5.9%	FRA	6.1%	SWE	5.1%
Office support and administrative	-331	338.2813	1	IRL	9.21	COL	0.8	CHN	5.41	NIC	0.6	GBR	43.1%	GBR	39.7%	GBR	47.0%
	-331	338.2813	2	DEU	8.89	BRB	0.4	DEU	3.69	GTM	0.6	DEU	17.2%	CHN	10.6%	CHN	5.2%
	-331	338.2813	3	GBR	3.40	MEX	0.2	IND	2.57			IRL	9.8%	DEU	8.3%	AUS	4.9%
	-331	338.2813	4	ITA	3.26			ITA	1.44			ITA	4.7%	IND	4.3%	DEU	4.6%
	-331	338.2813	5	NLD	2.66			MUS	1.44			POL	4.4%	AUS	3.2%	BRA	3.5%
Engineering	-263	241.6631	1	DEU	26.72			NOR	10.00	MEX	6.0	DEU	30.7%	GBR	14.0%	GBR	23.5%
	-263	241.6631	2	GBR	4.95			MEX	6.00	PER	4.0	GBR	19.0%	NOR	10.0%	NLD	11.3%
	-263	241.6631	3	FRA	3.84			POL	6.00	COL	2.0	NOR	11.8%	CAN	7.0%	CAN	11.3%
	-263	241.6631	4	HUN	2.61			DEU	4.00			NLD	8.5%	POL	6.0%	AUS	7.5%
	-263	241.6631	5	NLD	2.50			PER	4.00			FRA	7.8%	MEX	6.0%	FRA	5.6%
Scientific research	-88.66	-245	1	IRL	12.01			DEU	9.23	CHL	3.1	DEU	20.4%	GBR	16.9%	GBR	22.9%
	-88.66	-245	2	DEU	11.19			CAN	7.69			GBR	14.4%	CHE	10.8%	SGP	11.4%
	-88.66	-245	3	ESP	6.01			HUN	3.08			IRL	12.0%	DEU	9.2%	NLD	11.4%
	-88.66	-245	4	NLD	5.86			IND	3.08			NLD	12.0%	CHN	7.7%	FIN	8.6%
	-88.66	-245	5	EST	1.80			FRA	3.08			CHE	11.4%	CAN	7.7%	CHN	8.6%
Arts and entertainment	0	-10	1	NOR	12.00			GBR	31.43	DOM	14.3	GBR	76.0%	GBR	71.4%	GBR	40.0%
	0	-10	2	GBR	4.57			DOM	14.29			NLD	12.0%	DOM	14.3%	MEX	40.0%
	0	-10	3					NLD	14.29			NOR	12.0%	NLD	14.3%	HUN	20.0%
	0	-10	4					NOR	0.00			HUN	0.0%	MEX	0.0%	NOR	0.0%
	0	-10	5					HUN	-20.00			MEX	0.0%	NOR	0.0%	DOM	0.0%
Human health	160.54	-508	1	IRL	25.81			PER	11.11	PER	11.1	GBR	25.8%	GBR	29.6%	GBR	25.0%
	160.54	-508	2	AUS	11.95			JPN	7.41	PAN	7.4	IRL	25.8%	PER	11.1%	DEU	25.0%
	160.54	-508	3	CZE	4.84			PRT	7.41			AUS	19.4%	PAN	7.4%	IRL	25.0%
	160.54	-508	4	HUN	4.84			PAN	7.41			BEL	4.8%	CHN	7.4%	CAN	12.5%
	160.54	-508	5	ITA	4.84			TWN	7.41			ARE	4.8%	NLD	7.4%	KOR	12.5%

Note: The table presents the percentage share of the new establishments of US foreign affiliates accounted for by the five main destination countries in 2000, 2010, and 2019, along with the respective changes between these years for the five non-LAC and LAC countries that had the largest increases (three-year moving average), for selected non-financial services subsectors.

Empirical Approach

To identify the impact of the US tariff hike on investment in and the establishment of US foreign affiliates in the primary and manufacturing sectors, the arguably exogenous 2018–2019 changes at the sector-year level are used. To allow for identification, these changes exhibit substantial variance across sectors in terms of both magnitude and timing. Potentially relevant confounding factors—including unobserved country-sector systematic heterogeneity, specific country-sector trends, and overall macroeconomic conditions—are controlled through fixed effects and time trends. The specification takes the following form:

$$HS\left(Y_{ijt}^{USA}\right) = \alpha_i \tau_{jt}^{USA,China} + \beta \tau_{jt}^{USA,i} + \theta \tau_{jt}^{i,USA} + \delta_{ij} + \phi_{ij}.t \; + \; \rho_t + \varepsilon_{ijt} \qquad \text{(D.1)}$$

where *i* denotes country, *j* stands for sector, and *t* corresponds to year. *HS(Y)* is the inverse hyperbolic sine of the number of affiliates established in/FDI flows (in US$) from the US to country *i* in sector *j* in year *t*; $\tau_{jt}^{USA,China}$ is the average tariff applied by the US on China in sector *j* in year *t*; $\tau_{jt}^{USA,i}$ is the average tariff applied by the US to country *i* in sector *j* in year *t*; $\tau_{jt}^{i,USA}$ is the average tariff applied by country *i* on the US in sector *j* in year *t*; δ_{ij} is a set of country-sector fixed effects; $\phi_{ij}.t$ is a set of country-sector time (linear) trends; ρ_t is a set of year fixed effects; and ε is the error term. Table 2 in the main text reports countries for which the estimated parameter of interest α_i is positive and significant at the 90% level. Table E.3 shows the detailed results for the preferred specifications.

In the case of FDI outcomes for non-financial services, the objective was to identify the indirect impacts of the changes in the goods tariffs since services are not subjected to these changes. The timing of the tariff changes was the source of exogenous variation used to identify these impacts. A binary variable that takes value of 1 after 2017 was interacted with country-level indicators to identify changes in FDI trends. As before, the unobserved country-sector systematic heterogeneity, specific country-sector trends, and overall macroeconomic conditions are controlled by fixed effects. More specifically, changes in the spatial patterns of the opening of foreign affiliates and outward FDI flows in the non-financial services sectors during the period of changes in US trade policy toward China are assessed based on the following specification:

$$HS\left(Y_{ijt}^{USA}\right) = \psi_i I_{i,>2017}^{j} + \lambda_{ij} + \chi_{ij}.t + \tau_t + \mu_{ijt} \qquad \text{(D.2)}$$

where *i* denotes country, *j* stands for sector, and *t* corresponds to year. *HS(Y)* is the inverse hyperbolic sine of the number of affiliates established in/FDI flows (in US$) from the US to country *i* in sector *j* in year *t*; $I_{i,>2017}$ is a binary indicator that takes the value of 1 for country *i* after 2017 and 0 otherwise; λ_{ij} is a set of country-sector fixed effects; $\chi_{ij}.t$ is a set of country-sector time (linear) trends; τ_t is a set of year fixed effects; and μ is the error term. Table 2 in the main text reports countries for which the estimated parameter of interest ψ_i is positive and significant at the 90% level. Table E.4 shows the detailed results of the preferred specifications.

Table E.3. Impact of the Changes in US Tariffs toward China over US Investment in Manufacturing in Third Countries

Dependent Variable	Number of Affiliates	FDI Flows
Sector	Manufacturing	Manufacturing
	(1)	(2)
Latin American and Caribbean Countries		
ARG	0.003	0.132
BHS	0.000	0.005
BLZ	0.000	0.010
BOL	0.000	0.103
BRA	0.007*	0.320**
BRB	0.000	-0.019
CHL	-0.001	0.031
COL	0.008*	-0.105
CRI	0.002	0.047
DOM	-0.002	0.102
ECU	-0.000	-0.075
GTM	-0.003	0.167
GUY	-0.001	-0.057
HND	0.003	0.021
HTI	-0.000	-0.016
JAM	0.002	0.019
MEX	-0.040***	0.133
NIC	0.000	0.037
PAN	0.001	0.135
PER	0.000	0.209
PRY	0.000	-0.106
SLV	0.000	0.021
SUR	0.000	0.012
TTO	0.000	0.077
URY	-0.002	-0.036
Other Selected Countries		
BEL	0.002	0.067
BGR	0.006	0.013
CAN	-0.001	0.513***
CHN	-0.025***	0.153
CZE	0.003	-0.095
DEU	0.031***	0.410***
ESP	-0.008**	0.088
FRA	-0.012***	-0.021
GBR	0.011**	-0.172
HUN	0.005	-0.066
IRL	-0.006*	0.456***
ITA	-0.003	-0.033
JPN	-0.003	-0.094
KOR	-0.002	0.127
MYS	0.001	0.023
NLD	0.004	0.164
POL	-0.013***	0.234**
ROU	0.012***	0.088
SGP	0.004	0.073
SVK	-0.001	0.016
SVN	0.001	-0.068
THA	-0.001	0.283**
VNM	0.000	-0.212*

*Note: The dependent variable is the inverse hyperbolic sine (IHS) of the total number of affiliates of US multinational companies in the country (column [1]) and FDI flows from the US (column [2]). ***, **, and * represent 99%, 95%, and 90% confidence levels, respectively.*

Table E.4. US Investment in Non-Financial Services in Third Countries after the Increase in US Tariffs toward China

Dependent Variable	Number of Affiliates	FDI Flows
Sector	Non-Financial Services	Non-Financial Services
	(1)	(2)
Latin America and the Caribbean Countries		
ARG	-0.019	2.458
BHS	-0.022	-0.712
BLZ	0.001	-0.213
BOL	-0.005	0.288
BRA	-0.063	4.760*
BRB	0.005	0.183
CHL	-0.016	-1.434
COL	0.118*	2.081
CRI	-0.012	-0.876
DOM	-0.040	1.579
ECU	0.034	-0.022
GTM	0.037	-0.196
GUY	0.016	0.000
HND	-0.010	-0.214
HTI	-0.029	0.000
JAM	0.032	1.476
MEX	-0.094*	-1.577
NIC	0.008	-0.025
PAN	0.024	-0.619
PER	0.008	0.399
PRY	-0.000	0.081
SLV	-0.000	0.255
SUR	-0.000	-0.167
TTO	-0.012	-1.274
URY	-0.012	0.073
Other Selected Countries		
BEL	-0.116**	7.823*
BGR	-0.066	0.311
CAN	-0.068	0.807
CHN	-0.156***	-4.062
CZE	0.036	-2.573
DEU	0.074	13.444***
ESP	0.221***	-3.096
FRA	0.069	-1.077
GBR	0.001	-10.675***
HUN	0.071	-3.289
IRL	0.156*	3.281
ITA	-0.066	-8.040**
JPN	0.034	-4.395
KOR	0.003	-6.248*
MYS	-0.037	8.327**
NLD	0.095	-5.137
POL	-0.091*	-2.665
ROU	0.062	-3.378
SGP	-0.043	-4.762
SVK	-0.009	0.039
SVN	-0.008	0.086
THA	-0.021	0.459
VNM	0.051	-0.215

*Note: The dependent variable is the inverse hyperbolic sine (IHS) of the total number of affiliates of US multinational companies in the country (column [1]) and FDI flows from the US (column [2]). ***, **, and * represent 99%, 95%, and 90% confidence levels, respectively.*