Beyond Tariffs: Infrastructure Gaps and Trade in Latin America and the Caribbean *

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Abstract

Despite progress in reducing policy-induced trade barriers, Latin America's trade openness has barely increased. We use disaggregated trade data to find considerable empirical evidence of under-trading, albeit with substantial heterogeneity across sub-regions and products. Poor transport infrastructure and customs inefficiencies are key factors explaining under-trading in manufacturing in most sub-regions in Latin America and the Caribbean (LAC), while other constraints, such as the quality of factors of production or governance, appear to affect specific countries in the region. Leveraging recent advances in the structural gravity literature, we estimate trade elasticities at different horizons and show how long-run elasticities in LAC significantly diverge from peers, in part due to the region's relatively poor infrastructure. Counterfactual policy experiments suggest that closing half of the infrastructure gap between LAC and advanced economies could lift exports by up to 30 percent and yield significant GDP gains.

KEYWORDS: Trade barriers; Infrastructure; Latin America and the Caribbean; Gravity

JEL CODES: F13, F14, F15, O54

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1 Introduction

Global trade has vastly expanded over the past decades, rising from less than 30 percent of World GDP in the 1970s to more than 50 percent before the pandemic.[1] Export-orientation has been deemed instrumental to the development of many emerging markets and developing economies (EMDEs), and is associated with narrowing income gaps, declining poverty, and improvements in living standards.[2] Yet, Latin American has largely been unable to capitalize on this trend. Its trade openness—measured as the ratio of imports and exports over GDP—increased modestly in spite of continued reduction in tariffs. Latin America also lags behind other fast growing economies in integrating itself into global value chains (GVCs).[3] Going forward, the region's trade challenges may prove steeper as it navigates a complex landscape of rising global geopolitical tensions, an acceleration of harmful trade interventions, and growing risks of international trade fragmentation.

Against this backdrop, this paper benchmarks Latin America and the Caribbean's (LAC) trade performance, identifies key factors holding back the region's trade potential (especially, poor infrastructure), and quantifies the potential benefits from improving the region's infrastructure while highlighting how poor infrastructure may have limited the potential gains from tariff liberalization. To tackle these issues, we proceed in several steps. To benchmark LAC's trade performance, we estimate a gravity model and show that, given its trade policies and economic and geographic characteristics, LAC trades less than its peers. We also identify the crucial role of poor infrastructure in holding back LAC's trade, as it is the key driver of trade under-performance both across product groups—manufacturing, primary products, and services—and across sub-regions in LAC—Mexico, Central America excluding Mexico, the Caribbean and South America. For the later subregion, other factors such as governance and human capital are also important.

Having established the crucial role of infrastructure in explaining LAC's trade under-performance, the paper then quantifies the region's potential gains from improvements in infrastructure. These gains are calculated by embedding the stylized gravity framework into a fuller general equilibrium trade models. This framework allow us to capture the endogenous response to changes in multilateral resistance resulting from the simultaneous changes in trade costs across LAC. The results from this exercise point to large aggregate gains—they suggest that closing LAC's infrastructure gap with peers by 10 percent is associated with a 5 percent increase in exports and an increase in output of over one percentage point. Results also point to sizable heterogeneity across countries in the region.

Third, we show that poor infrastructure quality also helps explain why LAC's trade openness has reacted so little to changes in policy, including declining tariffs. Using a novel dynamic gravity framework, we show that medium-term trade elasticities for LAC are lower than peers and that the lack of responsiveness of LAC's trade flows to changes in tariffs is particularly acute for LAC

[1] See https://data.worldbank.org/indicator/NE.TRD.GNFS.ZS

[2] For the importance of trade for growth in EMDEs see Frankel and Romer (1999); Dollar and Kraay (2004); Bhagwati and Srinivasan (2002); Feyrer (2019); Goldberg and Pavcnik (2016); Bustos (2011).

[3] GVC integration has been shown to facilitate technological transfer, bringing countries closer to the innovation frontier (Acemoglu et al., 2015; Melitz and Redding, 2021; Perla et al., 2021; Cai et al., 2022).

countries with a lower infrastructure quality. This points to important complementarities between infrastructure quality and trade policies, and shows that improving infrastructure could also facilitate integration by amplifying the impact of trade policies going forward.

Related Literature. This paper contributes to mainly four strands of the literature. First, on the methodological level, our gravity framework builds on Anderson and van Wincoop (2003)'s seminal work showing how gravity equations naturally emerge from theory, and which has consequently served as a powerful organizing device for empirical trade analysis. This framework is used for instance in Bhattacharya and Pienknagura (2024), which studies LAC's trade performance in recent years and estimates the salience of key country-specific factors in explaining under-performance in some sub-regions. Trade elasticities arising from these empirical exercises often fall short of the magnitude required for general equilibrium models to match stylized facts, a disconnect, dubbed the "International Elasticity Puzzle".[4] By taking a dynamic perspective and analyzing elasticities at different horizons, Anderson and Yotov (2023) provide a method to reconcile these two approaches. We contribute to this literature by estimating dynamic trade elasticities and showing how Anderson and Yotov (2023)'s novel method can help shed light on the divergence in the dynamic response of trade flows to trade costs across regions.

Second, we contribute to a literature that quantifies the effects of trade policies using general equilibrium trade models. These models focus on the misallocation costs of trade frictions, and have been used to assess the economic impact of Free Trade Agreements (FTAs) such as NAFTA and Mercosur (Yeats, 1998; Caliendo and Parro, 2015; Campos and Timini, 2022).[5] In this paper, we use general equilibrium trade models to investigate the gains from lowering trade barriers via infrastructure improvements in LAC. We do so by first tying measures of infrastructure and logistics quality to trade barriers, as estimated in a gravity framework, then by simulating counterfactuals following Larch et al. (2025)'s approach to capture trade diversion effects. Failing to account for these trade diversion effects can lead to understating the impact of changes in trade barriers, which explains why we find a larger impact of infrastructure improvements than typically found in the literature.[6]

Third, we contribute to a growing discussion on the complementarities of trade policies and infrastructure in emerging and developing economies.[7] For instance, better roads help increase the pass-through of input tariffs reductions into input prices (Fiorini et al., 2021). In line with these observations we confirm the prediction that given deficiencies in infrastructure, the impact of trade policy on LAC is muted. Infrastructure also has an impact on the direction of trade, with mining-related transport infrastructure disproportionally benefiting some export sectors (Bonfatti

[4] We refer the reader to Head and Mayer (2014) and Larch and Shikher (2025) for recent surveys of the empirical gravity literature.

[5] Risk sharing is another potential channel of gains from trade, see Allen and Atkin (2022).

[6] Felbermayr et al. (2022) show that under-investment in infrastructure can explain about 20 percent of the border effect in Europe.

[7] Besides infrastructure, skill complementarity also helps reaping the benefit of lower input tariffs in Ecuador (Bas and Paunov, 2021).

and Poelhekke, 2017). Consistent with this, we find a persistent concentration of LAC's exports in primary sectors. Large infrastructure improvements in themselves can also have large effects on trade, as we find for LAC, and as is the case for members of the Belt and Road initiative (Baniya et al., 2020). Verma (2024) show that infrastructure projects occur in the wake of trade policies, but not always at the scale that would be optimal to maximize the welfare gains associated with trade improvements, suggesting that, as in our simulation, LAC could benefit further from infrastructure investments.

Finally, we contribute to the literature studying LAC's trade patterns and its determinants. Our finding of significant but heterogeneous under-trading in LAC aligns with existing empirical literature while adding substantial nuance. IMF (2017) and Cerra and Woldemichael (2017) suggest that the LAC region trades significantly less than expected based on its economic, cultural, and geographical characteristics. However, IMF (2017) notes that while intra-regional trade as a share of LAC exports is lower than in Europe or Asia, LAC exhibits similar levels of regional trade integration when comparisons are restricted to emerging markets and developing countries (EMDEs). Similarly, Bown et al. (2017) conclude that the average country pair within LAC maintains intra-regional trade flows that meet or exceed predictions from standard gravity models. Importantly, these conclusions are sensitive to regional definitions, as including or excluding specific countries alters the average size and distance metrics for regional country pairs. Campos et al. (Forthcoming) present evidence that Latin American countries as a whole do not under-perform in trade, though significant heterogeneity exists within the region. Our empirical results echo and extend these nuanced findings.

The rest of the paper proceeds as follows. Section 2 describes the databases used in our analysis and summarize the structure of trade in LAC and the region's recent trade policies. Section 3 examines in more detail the evidence for under-trading for sub-regions in LAC across product groups, and possible factors that could explain it. Section 4 estimates the output gains from lowering trade-related infrastructure, and Section 5 assesses how trade in LAC respond to tariffs in the short and long run. Finally, Section 6 concludes.

2 Data and Stylized Facts: The Evolution of Trade and Trade Policy in LAC

This section describes the main data sources used in the paper, provides an overview of LAC's trade structure, and traces out the evolution of LAC's trade integration and trade policies over time.

2.1 Data

This paper uses trade data from different sources.[8] The IMF's Balance of Payments (BoP) database contains information on the total trade of goods and services across countries. The IMF's Direction of Trade Statistics (DOTS) has information on bilateral merchandise trade flows across all IMF

[8] See Appendix A for details on data availability.

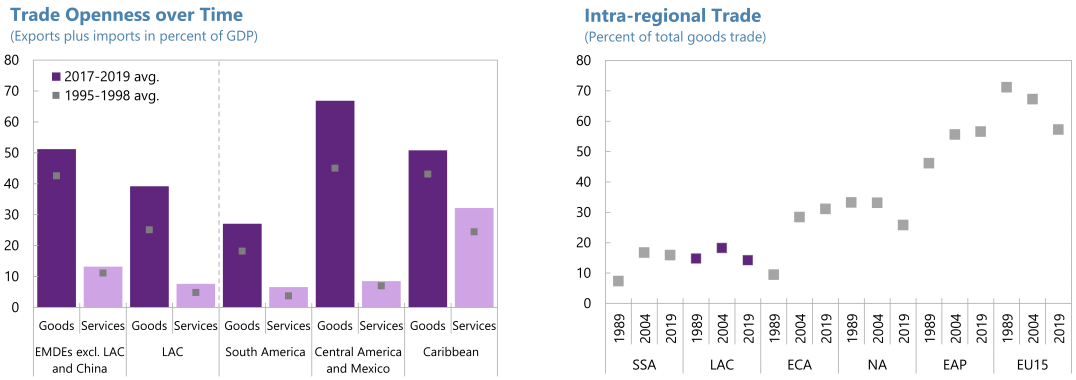


Figure 1: The Evolution of LAC's Trade Integration

Notes: EMDEs excl LAC and China = Emerging and Developing Asia and Europe excluding China. EAP = East Asia and Pacific; ECA = European and Central Asia; EU15 = European Union 15 extended; NA = North America; SSA = Sub-Saharan Africa. Left panel includes intra-regional trade. *Sources:* IMF BOP database; IMF DOTS; and IMF staff calculations.

member states starting in 1946. CEPII's Base pour l'Analyse du Commerce International (BACI) data (Gaulier and Zignago, 2010) has bilateral merchandise trade flows for 200 countries at the Harmonized System 6-digit level. Data on bilateral trade in services are from the WTO-OECD Balanced Trade in Services (BaTIS) database. Lastly, the ITPD-E (Borchert et al., 2020a) contains consistent data on both international and *domestic* trade at the industry level covering agriculture, mining, energy, manufacturing, and services from 2000 to 2019.

Information on gravity variables and other trade policies comes from several sources. Data on each country's economic, geographical, and cultural characteristics are from CEPII's Gravity database (Conte et al., 2022). Some examples are countries' GDP and population, their bilateral geographical distance, and dummies for common language, land border and whether a country is landlocked. Data on bilateral trade agreements and tariffs are from both CEPII's Gravity database and the UNCTAD TRAINS database, data on importer's trade-weighted merchandise MFN tariffs are from the World Bank's World Development Indicators, and data on non-tariff trade barriers are from Estefania-Flores et al. (2022). Data on infrastructure, governance, and human capital are obtained from WB's LPI, WB's Enterprise Survey, and the Penn World Tables revision 10.1, respectively.

2.2 LAC's Trade Structure

Despite some progress in increasing trade integration—LAC's trade in goods and services with the rest of the world increased from about 30 percent of GDP in 1995 to 47 percent in 2019—the region remains behind other EMDEs (Figure 1, left panel).[9] This is especially noticeable for South America. LAC's low degree of integration is also visible in terms of intra-regional trade, which

[9]The terms "trade integration" and "trade openness" are used interchangeably to refer to a country's share of GDP traded internationally.

stands at a modest 14 percent of total goods trade, significantly below that of Europe and Central Asia and East Asia and the Pacific, and comparable to Sub-Saharan Africa (Figure 1, right panel).

Commodities, including agricultural products, take up a large share of LAC's exports, with China playing an increasing role as a key destination. With the notable exception of Mexico, the top export products of the largest economies of the region are primary commodities, consistently accounting for over 40 percent of merchandise exports (see Figure A1, Panel 1, in Annex A[10]).[11] The region's goods exports remain concentrated more broadly (Figure A1, Panel 2). The Caribbean's exports are the most concentrated, reflecting a high dependence on agricultural products.[12] South America's exports are more concentrated than Asian and European EMDEs, although less than those of Africa and Central Asia. Export concentration in Central America and Mexico is in line with other EMDEs, reflecting more a diversified manufacturing base.

LAC has also seen a significant shift in the composition of its main trading partners. China increased tenfold its share of LAC's merchandise exports (excluding Mexico) over the last 25 years, to about 20 percent in 2021, while the combined share of advanced Europe and the US tumbled from 60 to about 30 percent. By 2018, China has become the main consumer of LAC's products, excluding Mexico—with exports to China heavily concentrated in mineral (about half of exports), as well as vegetable and animal primary products.[13] In contrast, the share of intra-regional exports has remained steady at about a fourth of LAC's total merchandise exports during 1996-2021. Despite improvements in market share diversification over time, Central America, the Caribbean, and Mexico's exports remain more concentrated across destinations than most other regions in the world, partly due to their strong trade ties with the US.

2.3 The Evolution of Trade Policy in LAC

LAC has made substantial progress in reducing import tariffs over time, despite heterogeneities across LAC's subregions and trading partners. Looking ahead, the broad decline in LAC's barriers to trade faces challenges related to non-tariff trade barriers, climate concerns, and, importantly, policy developments outside of the region.

Declining Tariffs. LAC has significantly lowered its import tariffs and ratified over 300 trade agreements since 1996, reflecting a global trend of declining tariffs on goods and services, particularly noticeable between the 90s and the Great Financial Crisis of 2007/2008. However, a divergence has appeared across LAC's subregions. In South America and the Caribbean, the reduction in Most Favored Nation (MFN) import tariffs has stalled since the late 2000s.[14] In contrast, MFN tariffs

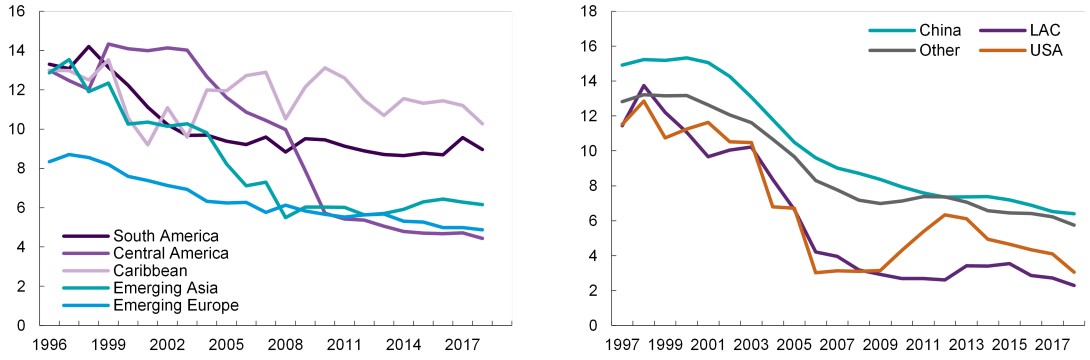
[10] Annexes A and B describe in more detail some of the trade patterns seen in LAC

[11] Importantly, the type of products that are traded can have first-order effects on growth and development (Ekanayake et al., 2023)

[12] Caribbean countries are also uniquely dependent on tourism, reflected in a high share of services in total trade (40 percent, see Appendix Figure A5), close to three times higher than LAC's average (about 15 percent)

[13] See Appendix for details, in particular Figure A2

[14] Actual tariffs can depart from MFN levels in specific cases that require waivers from the WTO's nondiscrimination rule. This is the case for several Caribbean countries who have entered nonreciprocal trade agreements with Canada



a) Most-Favored Nation Tariffs b) LAC's Effective Import Tariffs by Partner

Figure 2: The Evolution of Tariffs in LAC

Notes: In percent. Panel a) Weighted by imports. Panel b) represents three-year moving averages. Effectively applied tariff is the lowest available tariff rate for each country pair. Preferential tariffs are used for trade flows in a regional trade agreement. *Sources:* ITPD-E; UNCTAD TRAINS; and IMF staff calculations.

in Central America fell by up to 8 percentage points on average, reaching levels similar to those observed in other EMDEs (Figure 2, left panel). Importantly, not all trading partners have been subject to the same tariff evolution. Regional trade agreements such as NAFTA-USMCA, Mercosur, or the Andean Community have played important roles in simplifying regional trade policies and lowering tariffs applied to neighboring countries. At the same time, the tariffs that LAC effectively imposed on China and other trade partners have not fallen as much. For instance, import tariffs with China have stagnated between 6 and 8 percent since 2010. (Figure 2, right panel).

Free Trade Agreements. FTAs have also accelerated convergence of tariff schedules among their signatories. Tariff schedules are highly complex objects, with different rates covering a multitude of products (Machado Parente and Moreau, 2024). For instance, the complete tariff schedule of Mexico covers thousands of tariff lines over more than 300 pages.[15] A major advantage of customs unions and free trade areas is to drastically simplify and harmonize these schedules. For instance, Mercosur members have to adopt Mercosur's Common Nomenclature, a coding system to harmonize the description of tradable goods, and Mercosur's Common External Tariffs (CET).[16] Between 1993 and 2005 most tariffs structures have converged with the broad decline of tariffs. Furthermore, the tax schedules of LAC countries have grown much closer with others. For instance, the tariff schedules of Argentina and Brazil in 2005 have become as closed as Canada's and USA's were in 1993.

FTAs also insulate against unilateral tariff increases, which have become more frequent in the past few years, as such increases are usually precluded from the agreement. For instance, Mexico raised import tariffs on steel and 392 other products in August 2023 and only countries with no

(CARIBCAN) and the United States (CBERA), which allowed them to export some goods duty free.

[15] See for instance Mexico's tariff schedule in 2012 here.

[16] While many exceptions in the original CET have been overruled, some related to preexisting bilateral tariff agreements, its implementation is still incomplete and Mercosur's countries' tariff schedules are not fully aligned with the CET. See Laens and Terra (2005) for further details on the CET.

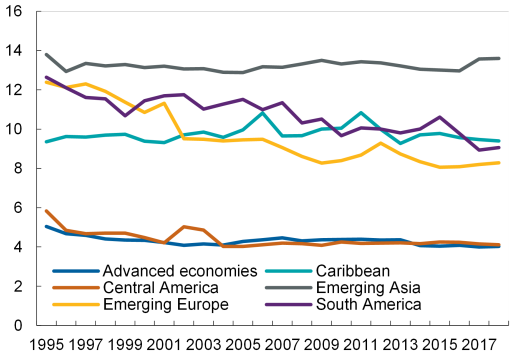


Figure 3: Non-tariff Barriers. Average MATR weighted by goods imports

Notes: Author's calculations based on Estefania-Flores et al. (2022). Measure of Aggregate Trade Restrictions (MATR) is an empirical measure of how restrictive official government policy is towards the international flow of goods and services, developed by IMF authors.

pre-existing trade agreements with Mexico were affected.[17] Similarly Canada and Mexico's goods compliant with the USMCA are partly shielded from the recent tariff increases dictated by the US administration.

Beyond Tariffs: the Role of Non-tariffs Trade Barriers. Increasingly, it is recognized that trade policy is not limited to tariffs, with tools such as quotas and regulations playing an important role. A WTO Agreement on Technical barriers to trade specifies the exceptions in which rules, regulations, and standards can be used to pursue "legitimate objectives" such as "national security requirements; the prevention of deceptive practices; protection of human health or safety, animal or plant life or health, or the environment". Deep FTAs can help reduce these barriers to trade, particularly for LAC, which has signed 74 such agreements in the past 20 years (Rocha and Ruta, 2022).

In contrast to the broad decline in LAC's tariffs, non-tariff Trade Barriers (NTBs) have stayed stubbornly high in most subregions, as measured by the Measures of Aggregate Trade Restrictions (MATR).[18] Central America is one exception, with NTBs on par with advanced economies (Figure 3). NTBs particularly affect sectors such as Agriculture, where they often take the form of phytosanitary restrictions, or services, where various regulatory hurdles prevent foreign firms from effectively accessing domestic markets. Importantly, a group of Andean countries —Ecuador, Chile, Colombia, and Peru—have successfully reduced trade barriers in services between 2008 and 2016 (Borchert et al., 2020b).

[17] Decreto por el que se modifica la Tarifa de la Ley de los Impuestos Generales de Importación y de Exportación, Diario Oficial de la Federación 15/08/2023.

[18] See Estefania-Flores et al. (2022)

3 Does LAC under-trade?

The stylized facts presented in Section 2 point to LAC's slow progress in improving its trade performance despite its efforts to reduce tariffs. This section delves into the potential factors affecting the region's trade flows.

We start by estimating a stylized gravity model and find that trade volumes in LAC are significantly lower than what would be expected given the region's economic, cultural, and geographical characteristics as well as its trade policies. We also find that LAC's poor infrastructure conditions are among the key factors in explaining this trade under-performance.

The stylized gravity model is:

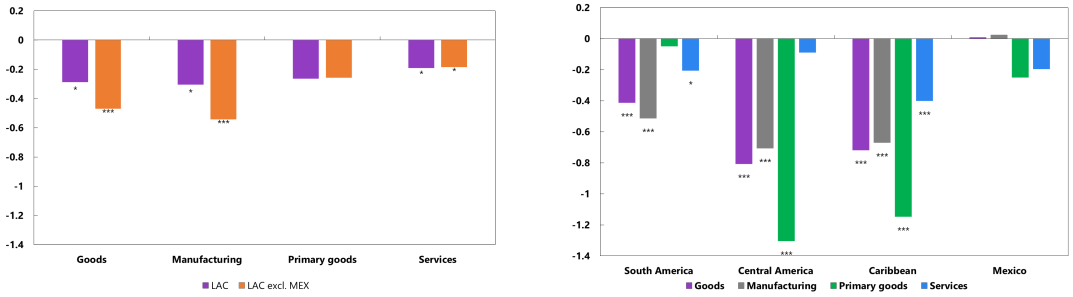
$$\begin{aligned} X_{ij}^{s} = \exp[&\alpha_0 + \alpha_1 \ln(GDP_i) + \alpha_2 \ln(GDP_j) + \alpha_3 \ln(POP_i) + \alpha_4 \ln(POP_j) \\ &+ \alpha_5 \ln(DIST_{ij}) + \alpha_6 LANG_{ij} + \alpha_7 CONTIG_{ij} + \alpha_8 LLOCK_i + \alpha_9 LLOCK_j \\ &+ \alpha_{10} TARIFF_{ij} + \alpha_{11} NTARIFF_{ij} + \alpha_{12} RTA_{ij} \\ &+ \beta LAC_{ij}] \times \epsilon_{ij} \end{aligned} \tag{1}$$

where we regress trade flows from exporter i to importer j in sector s on economic variables of both countries (GDP and population), gravity variables like distance, common language dummy, contiguity dummy and land-lock dummies, and on trade policy variables that capture both tariffs and non-tariff measures and trade agreements. LAC_{ij} is a dummy for whether exporter i or importer j are from LAC. The key coefficient of interest β_1 captures the average trade performance in LAC relative to other countries with similar trade policies and geographic and cultural characteristics. When we break down the analysis by LAC's subregions we divide LAC_{ij} dummy into mutually exclusive groups for South America (SA), Central America excluding Mexico (CA), the Caribbean (CAR), and Mexico (MEX). We estimate the model with PPML to account for the large number of zero trade flows (Santos Silva and Tenreyro, 2006).

Due to the objective of the benchmarking exercise, the gravity model in equation (1) does not include the full set of fixed effects required to capture general equilibrium effects. This would prevent us from studying the role of country-specific factors, such as infrastructure. In this sense, the results in this section are meant to document key patterns in the data rather than establishing the general equilibrium implications of the variables of interest. Such a general equilibrium analysis using the latest development in gravity estimation is deferred to Section 4.

Figure 4, Panel 1 presents the results from baseline regressions and highlights LAC's significant under-trading in all sectors, with the exception of primary goods (agriculture and mining).[19] For example, manufacturing trade flows in the average LAC country are 26 percent(100 x (exp-0.31-1) lower than trade flows in other countries with similar trade policies and cultural and geographical characteristics. Once Mexico is isolated from the rest of LAC, our stylized gravity suggests even

[19]LAC's apparent under trading appears once we control for trade policy related variables. (Bhattacharya and Pienknagura, 2024) show that if we excluded these variables, the difference between LAC's trade performance and that of peers is not statsitically different. Put differently, LAC's progress on the trade policy front would predict larger trade flows relative to what is observed.



1. LAC and LAC excluding Mexico

2. LAC's subregions

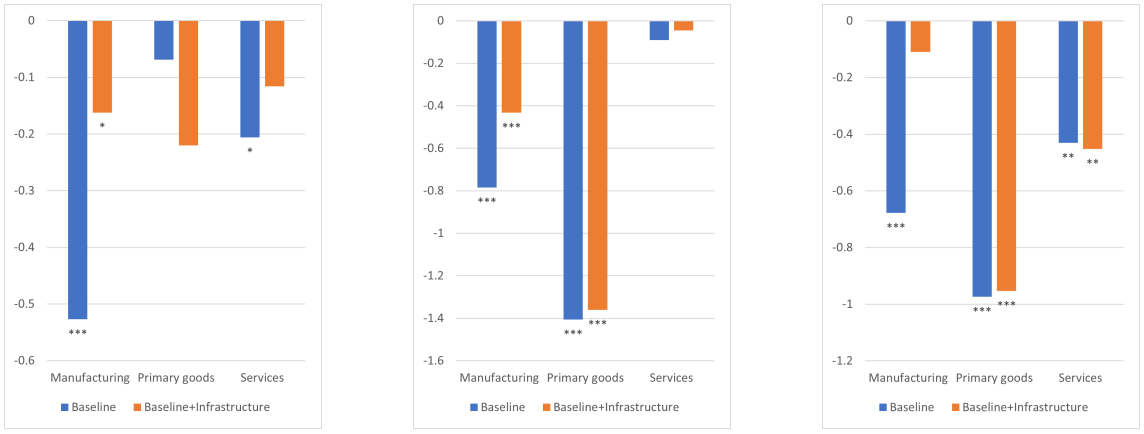
Figure 4: Trade performance in LAC

Notes: In the left panel, bars are the estimated coefficients for the LAC dummy from equation (1). These capture the difference in trade flows of LAC countries relative to non-LAC countries, conditional on population, GDP, distance, border, common language, landlocked, and trade policies. In the right panel, each bar represents the estimated coefficient of an extended version of equation (1), where we include three sub-regional dummies: one for South America, one for Central America, and one for the Caribbean. As in the left panel, they represent each sub-region's trade performance relative to a non-LAC country. Full estimation results are shown in Tables C1 and C2. ***p<1%, **p<5%, *p<10%.

further under-trading in manufacturing, reflecting the strong relative trade performance between Mexico and the US. Namely, conditional on trade policies and economic and geographic characteristics, trade flow in LAC (excluding MEX) are more than 40 percent lower than trade flows in other countries in the world. Annex Table C3 also suggest that LAC's under-performance in trade emanates from little intra-regional trade rather than from inter-regional trade, particularly in the case of services.

However, these aggregate results mask substantial heterogeneity within the LAC region, and when we dis-aggregate the data by sub-regions we find much broader evidence of under-trading. More specifically, Figure 4, Panel 2, suggests significant under-trading across all product groups (merchandise trade and services) for the Caribbean region. In South America lower-than-predicted trade volumes (based on a baseline gravity model that controls for bilateral gravity variables and exporter and importer GDP, population, and trade policy variables) are dominated by trade in manufactured goods and services. Central America (excluding Mexico) shows evidence of significant under-trading in merchandise goods, both manufactured goods and primary commodities, but not in services. By contrast, the baseline regressions suggest over-trading in merchandise goods, and in particular manufactured products, in the case of Mexico (albeit estimates are statistically unsignificant), and no evidence of under trading for other flows. However, the addition of a NAFTA dummy implies significant under-trading in primary commodities (Appendix Table C4). This could be because NAFTA tends to favor trade in manufactured goods at the expense of trade in primary commodities, hence encouraging resource re-allocation away from primary commodities towards manufactured goods.

To investigate the drivers of LAC's relative trade (under) performance, we augment the stylized gravity model with three sets of variables: (i) transport infrastructure and customs regulations,



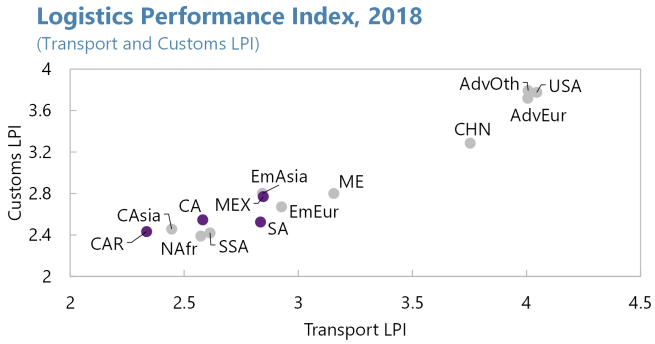
1. South America 2. Central America 3. The Caribbean

Figure 5: Infrastructure and Under-trading in LAC

Notes: Blue bars are the estimated coefficients for the subregional dummies from equation (1). This capture the difference in trade flows of each subregion in LAC relative to non-LAC countries, conditional on population, GDP, distance, border, common language, landlocked, and trade policies. Orange bars capture similar differences, but now also conditional on a country's infrastructure (both physical and customs). Full estimation results are shown in Tables C5. ***p<1%, **p<5%, *p<10%.

which are proxied by the World Bank's Logistics Performance Index (LPI) for the quality of trade and transport infrastructure, and for the efficiency of customs and border clearance, respectively; (ii) access to, and quality of, factors of production. Access to factors of production are proxied by the share of firms in the World Bank's Enterprise surveys (WBES) reporting electricity and access to finance as obstacles to doing business, whereas quality of factors of production are proxied by the Human Capital Index from the Penn World Tables; and (iii) governance and other institutional indicators. These are proxied by variables in the WBES on the share of firms reporting crime, corruption and political instability as obstacles to doing business.

Tables C5-C7 summarize how each of these additional variables affect the stylized estimates for LAC's under-trading, and Figure 5 focuses on the role of infrastructure, which, as will become clearer in what follows, is the central focus of the analysis. For South America, we find that both physical and customs infrastructure explain away a large part of the under-trading in manufactured goods and some of the relative poor performance in services trade. For example, without controlling for infrastructure, South America's trade flows are 35 percent lower than other countries with similar trade policies and geographic and cultural characteristics. Once infrastructure conditions are considered, South America's trade flows become now only 20 percent lower than that of other countries. The same holds for governance and the quality and access to factor inputs (particularly human capital), which are significant in explaining under-trading in nearly all sectors. For Central America excluding Mexico, controlling for infrastructure—particularly transport infrastructure—reduces part of the under-trading in manufacturing goods. On the other hand, controlling for governance or factors of production do little in explaining the region's trade under performance.



Sources: IMF staff calculations. Notes: Aggregates are GDP-weighted. LPI = Logistics Performance Index; AdvEur = Advanced Europe; AdvOth = Advanced Other; CA = Central America; CAR = Caribbean; CAsia = Central Asia; EmAsia = Emerging and Developing Asia; EmEur = Emerging and Developing Europe; LPI = Logistics Performance Index; ME = Middle East; NAfr = North Africa; SA = South America; SSA = Sub-Saharan Africa.

Figure 6: Logistics Performance Index

For the Caribbean, under-trading in manufactured goods can be largely explained by the transport and customs infrastructure. As is the case with Central America excluding Mexico, the other variables do little in explaining the relatively poor performance of trade flows in the Caribbean.

Our results suggest that infrastructure conditions, here measured by transport infrastructure and inefficiencies in customs clearance, is the only variable that helps explain a significant part of under-trading *across all of LAC's subregions*, particularly in manufacturing goods.[20][21] Given the seemingly preponderant role that infrastructure plays in explaining the region's trade performance, in what follows, we extend the stylized gravity framework in this section to estimate the potential gains from trade from improving infrastructure conditions in LAC.

4 Infrastructure improvements and the gains from trade

What are the potential gains from trade if LAC could close its infrastructure gaps relative to other regions? These gains are potentially large as infrastructure gaps between LAC and other EMDEs and AEs are sizeable. For example, Figure 6 shows that countries with a low Transport LPI—which measures, inter alia, the quantity and quality of physical infrastructure—tend to have low Customs LPI—which measures, among other things, processing times for customs clearance. Most Latin American countries have taken advantage of the commodity boom in the 2000s and 2010s to

[20] Arena et al. (2023) and Corugedo et al. (2023) have shown that trade policy, as well as structural policies related to human capital, governance, and infrastructure, are important drivers of trade volumes and diversification in Colombia, Guatemala, and Trinidad and Tobago, respectively.

[21] The robustness of all these exercises to the use of alternative measures of country-specific variables affecting trade is explored in Bhattacharya and Pienknagura (2024). These include replacing (i) the LPI variables with the WBES survey results on transport and customs regulations as major or very severe constraints on business operations; (ii) the Human Capital Index with the WBES survey results on an inadequately educated workforce as a major or very severe constraint for the 'factor input variables' augmented regressions; and (iii) the WBES governance indicators (political instability, corruption, theft and crime) with the WGI governance indicators (corruption, political stability and absence of violence / terrorism, and rule of law). Results are broadly consistent.

undertake large infrastructure investments. Yet a significant infrastructure gap remains with other regions, such as Emerging Asia or Eastern Europe.

To estimate these gains, we embed the stylized gravity model in Section 3 into a fuller general equilibrium trade model that captures multilateral resistance (Anderson and van Wincoop, 2003) and allows infrastructure (together with governance and human capital) to affect international trade costs (Donaubauer et al., 2018). In the model, each country produces a unique variety using a fixed supply of labor as only input. Consumers have CES preferences over goods from different countries, so these varieties are imperfect substitutes (Armington, 1969). There are iceberg trade costs to ship goods across countries. In equilibrium, total world production equals total exports for all countries in the world. The equilibrium equations are:

$$X_{ij} = \frac{Y_i E_j}{Y} \left(\frac{t_{ij}}{\Pi_i P_j} \right)^{1-\sigma} \tag{2}$$

$$\Pi_i^{1-\sigma} = \frac{\Sigma_j \left(\frac{t_{ij}}{P_j} \right)^{1-\sigma} E_j}{Y} \tag{3}$$

$$P_j^{1-\sigma} = \frac{\Sigma_i \left(\frac{t_{ij}}{\Pi_i} \right)^{1-\sigma} Y_i}{Y} \tag{4}$$

$$p_i = \frac{\left(\frac{Y_i}{Y} \right)^{\frac{1}{1-\sigma}}}{\alpha_i \Pi_i} \tag{5}$$

$$E_i = \phi_i Y_i = \phi_i p_i Q_i, \tag{6}$$

where X_{ij} represents trade flows between exporter i and importer j, Y denotes real output, E denotes expenditure, t_{ij} is the iceberg trade cost from i to j, Π_i and P_j denote the outward and inward "multilateral resistance" terms, respectively, σ is the elasticity of substitution, α is the CES preference parameter, p_i is the factory-gate price for each good country i produces, Q_i is the fixed endowment supplied by producers and ϕ represents the trade deficit.

We estimate the model and perform counterfactual analyses in three steps, following Larch et al. (2016).[22] In the first step, we estimate trade costs in a partial equilibrium gravity framework. Namely, by taking logs on both sides of the Equation (2) and allowing infrastructure, human capital and the quality of governance ($Z_i \equiv [Infra_i, H_i, Gov_i]$), as well as other standard gravity variables included in Section 3, to affect bilateral trade costs (t_{ij}), we obtain an estimable partial equilibrium gravity equation:

$$\begin{aligned} X_{ij} = \exp[&\alpha_i + \alpha_j \\ &\underbrace{+\beta_1 \log(DIST_{ij}) + \beta_2 CONTIG_{ij} + \beta_3 \log(TARIFF_{ij}) + \beta_4 RTA_{ij} + \beta_5 INTL_{ij} + \beta_6 INTL_{ij} Z_i}_{\equiv \log\left(t_{ij}^{1-\sigma}\right)}] \\ &\times \epsilon_{ij} \end{aligned} \tag{7}$$

[22] See Larch and Shikher (2025) for details on the methodology.

where α_i and α_j denote exporter and importer fixed effects, respectively, and $INTL_{ij}$ is an international border dummy (i.e., $INTL_{ij} = 1$ if $i \neq j$).

The presence of fixed effects prevent us from including country-specific variables in the regression, only when interacted with the international border dummy. Consequently, our specification builds upon the stylized gravity in Section 3, as all exporter- and importer-specific variables are non-parametrically controlled for by the exporter and importer fixed effects. Moreover, these fixed effects control for multilateral resistance terms, $\log\left(\frac{Y_i}{\Pi_i^{1-\sigma}}\right)$ and $\log\left(\frac{E_j}{P_j^{1-\sigma}}\right)$, which are not observed in the data (Hummels et al., 2001; Feenstra, 2015). As in the previous section, we estimate the model with PPML to account for the large number of zero trade flows, following.

The main coefficient of interest, β_6, tests whether infrastructure, human capital, or the quality of governance affect international trade costs. Because domestic trade flows are included and these variables are interacted with the border dummy, $INTL_{ij}$, our main coefficient of interest assesses by how much better infrastructure, human capital, or governance improve international trade flows relative to domestic trade flows (Campos and Timini, 2022). Table C8 displays the main regression coefficients. In line with the literature, we estimate that lower distance, contiguity, lower import tariffs, and regional trade agreements are all associated with more trade. When included one at a time, better infrastructure, better human capital, and better governance are all associated with more international trade relative to domestic trade. When infrastructure, human capital, and governance are included at the same time, we find both infrastructure measures to be more strongly associated with international trade flows.[23] This highlights once again the importance of infrastructure relative to these other factors underlying trade patterns in LAC.

In the second step, we back out estimates for trade costs assuming an elasticity of substitution of $\sigma = 5$, in line with existing literature. We then solve Equations (2)–(6) and calculate baseline levels of trade flows and output in equilibrium. In the third step, we compare outcomes in the baseline equilibrium with outcomes in counterfactual equilibria where we improve LAC's infrastructure conditions, which in turn directly impact the costs of international trade.

The main counterfactual in this section artificially increases infrastructure conditions in each LAC country such that the infrastructure gap relative to the average advanced economy is reduced by 10, 20, and 50 percent. These lower the cost of trading with LAC, as the coefficients associated with both infrastructure measures in Table C8 are positive. Consequently, we find that the region's exports would increase by 5, 11, and 30 percent, respectively, as the reduction in trade costs increases demand for the region's exports (Figure 7, top-left panel). As a result, the top-right panel of Figure 7 shows that LAC's output would increase by 1.5, 2.5, and 7 percent, respectively, in response to larger global demand for the region's products.

Both dimensions of infrastructure contribute substantially to the gains from trade. The bottom-left panel of Figure 7 shows that closing the infrastructure gap by 20 percent would lift LAC's output

[23] Column (6) of Table C8 shows a negative coefficient on governance and a coefficient on human capital that is smaller than those on infrastructure variables. Because human capital and infrastructure have similar standard deviations, the marginal contribution of a one standard deviation increase in human capital to international trade is smaller than the marginal contribution of infrastructure.

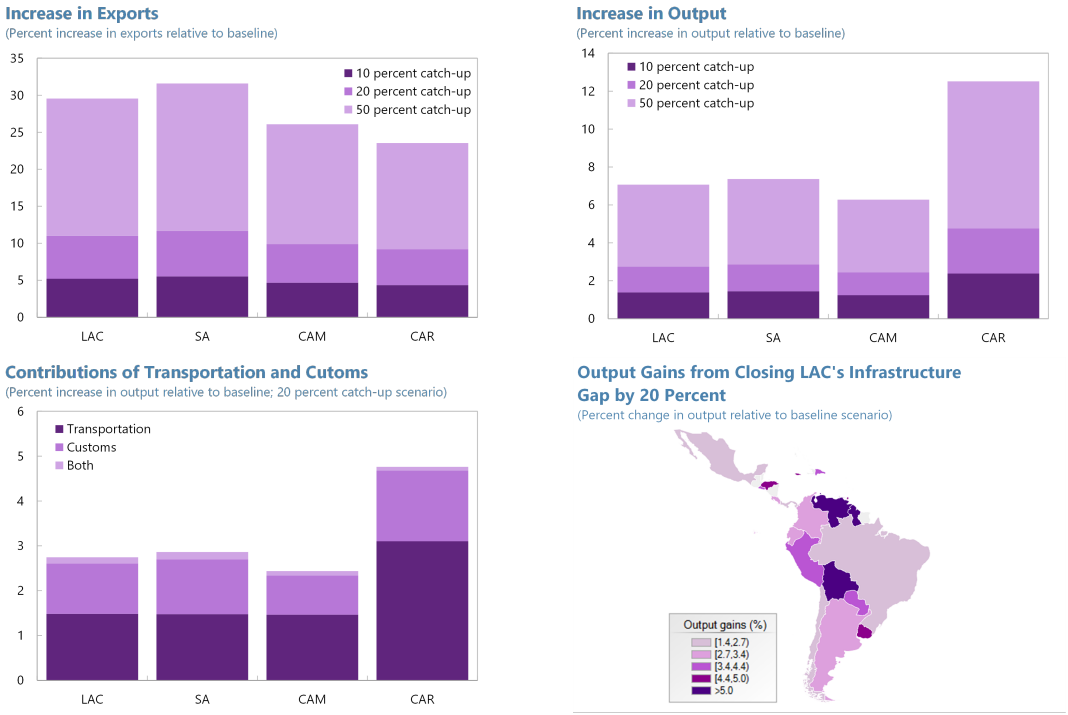


Figure 7: Infrastructure Improvements and the Gains from Trade in LAC

Notes: CA = Central America including Mexico; CAR = Caribbean; SA = South America. *Disclaimer:* The boundaries, colors, denominations, and any other information shown on the maps do not imply, on the part of the International Monetary Fund, any judgment on the legal status of any territory or any endorsement or acceptance of such boundaries. *Sources:* IMF staff calculations.

by 2.8 percent, with improvements in transportation infrastructure responsible for 1.5 percentage points (pp), improvements in customs efficiency for 1.1 pp, and 0.2 pp due to the interaction between the two types of infrastructure (i.e., transport infrastructure gains are larger when there is better customs efficiency). Moreover, the bottom-right panel of Figure 7 shows that the output gains are quite heterogeneous across countries, ranging from 1.5 to 6 percent, depending on the extent of initial infrastructure gaps and the extent to which countries in the region are close to large trading partners.

A wide range of policy actions could help close infrastructure gaps. The World Bank's Logistics Performance Index (LPI), used to capture infrastructure in the analysis, points to several policies that could help improve infrastructure and boost trade in LAC, including: (i) streamlining, automating, and digitizing customs procedures, reducing bureaucratic red tape, and enhancing transparency in trade processes; (ii) investing in the quantity, the quality, and the integration of different transport modes, and improving transport-related technologies such as digital tracking systems; (iii) developing a logistics sector with efficient freight forwarding, warehousing, and providers by encouraging competition and fostering Public-Private Partnerships; and (iv) training customs and transportation personnel to enhance their skills.

5 Dynamic Gravity Model

The analysis thus far focused on static (or long run) gains from reducing trade costs by improving infrastructure conditions. However, gains from trade might take time to materialize, as countries slowly form links with each other and infrastructure improvements gradually expand the capacity to serve increased foreign demand. In this section, we estimate a dynamic gravity model to compare how trade in LAC responds to import tariffs relative to trade in peer regions in the *short and long run*. We argue that poor infrastructure conditions prevent LAC from reaping long-run gains from lowering trade barriers.

We apply the methodology from Anderson and Yotov (2023) to test how trade elasticities vary not only over time horizons, but also across regions. The authors build on a vast international trade literature that assumes bilateral links between countries evolve dynamically over time.[24] They argue that, if firms take time to invest in capacity to connect and serve other destinations, the following dynamic gravity equation arises:

$$X_{ijt} = \frac{Y_{it}E_{jt}}{Y_t}\left(\frac{t_{ijt}}{\Pi_{it}P_{jt}}\right)^{1-\sigma}\lambda_{ijt}^{1-\rho} \tag{8}$$

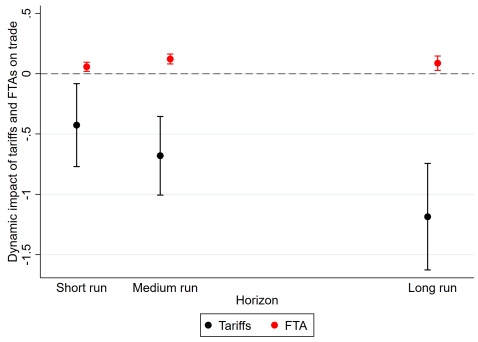
Relative to Equation (2), the new term $\lambda_{ijt}^{1-\rho}$ captures origin-destination specific bilateral capacity for trade. The variable λ_{ijt} measures the efficiency of existing trade shares between i and importer j in year t and ρ captures how frequently countries can adjust their capacity and modify their desired trade links.[25] This new term affects directly how trade responds to changes in fundamentals in the short and long run. In the long run, all trade shares are efficiently allocated, so $\lambda_{ijt} = 1$ and Equation (8) boils down to Equation (2). The same applies if $\rho = 1$ and there are no frictions for countries to adjust capacity. In the short run, however, pre-existing trade relationships will affect how trade flows react to changes in fundamentals.

We estimate the dynamic gravity Equation (8) in a partial equilibrium gravity setting with three sets of fixed effects, following Anderson and Yotov (2023). The first two are the standard exporter-time (α_{it}) and importer-time (α_{jt}) fixed effects to control for any time-varying exporter-specific and importer-specific characteristics that may affect bilateral trade flows. These include the multilateral resistance terms, output, and expenditure. The third set of fixed effects comprises exporter-importer-time interval fixed effects (α_{ij,Δ_t}) that control for variation in the average existing trade shares across countries, represented by $\lambda_{ijt}^{1-\rho}$. These fixed effects would encapsulate all the determinants of trade flows in Section 4's gravity framework that are exporter-importer specific but time-invariant.[26]

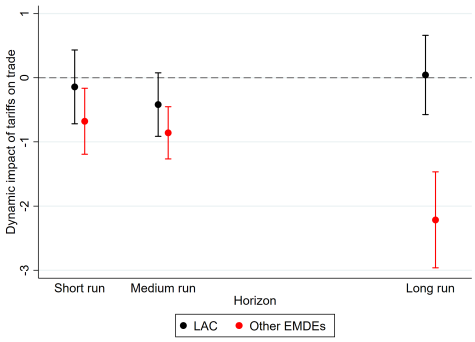
[24] See Arkolakis (2010); Chaney (2014); Crucini and Davis (2016); and Anderson and Yotov (2020) for different theoretical justifications in the literature for the dynamic evolution of bilateral trade links.

[25] In this sense, the parameter is analogous to the hazard rate in sticky price macroeconomic models with Calvo-pricing.

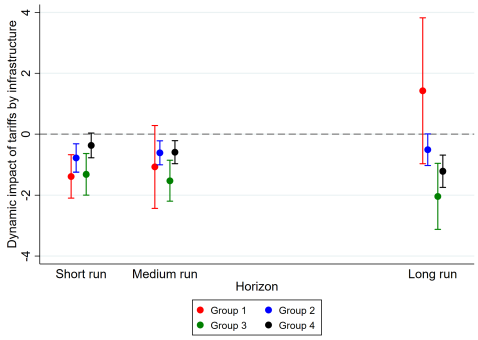
[26] See Anderson and Yotov (2023) for a discussion on the advantages and caveats of using exporter-importer-time interval fixed effects.



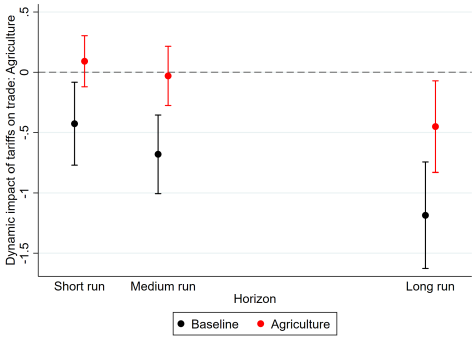
1. Dynamic trade elasticities



2. LAC versus other EMDEs



3. By infrastructure group



4. Agricultural trade

Figure 8: Dynamic Trade Elasticities

Notes: This figure plots the β_2 coefficient of the following regression: $X_{ijt} = \exp(\beta_1 RTA_{ijt} + \beta_2 \log(TARIFF_{ijt}) + \beta_3 \log(TARIFF_{ijt}) \times LAC_{ij} + \alpha_{it} + \alpha_{jt} + \alpha_{ij,\Delta_t}) \times \epsilon_{ijt}$, which is performed for LAC and for other EMDEs. Dots represent the point estimates and the bars represent 95% CIs. Top-left panel includes considers total goods trade. Top-right panel focuses on agricultural trade flows. Bottom panels focuses on cases where the region of analysis is the exporter (i) and the importer (j), respectively. *Sources:* IMF staff calculations based on Anderson and Yotov (2023).

The resulting dynamic gravity framework is as follows:

$$\begin{aligned} X_{ijt} = \exp(&\beta_1 RTA_{ijt} + \beta_2 RTA_{ijt} \cdot LAC_{ij} + \beta_3 RTA_{ijt} \cdot EMDE_{ij} \\ &+ \beta_4 \log(TARIFF_{ijt}) + \beta_5 \log(TARIFF_{ijt}) \cdot LAC_{ij} + \beta_6 \log(TARIFF_{ijt}) \cdot EMDE_{ij} \\ &+ \alpha_{it} + \alpha_{jt} + \alpha_{ij,\Delta_t}) \times \epsilon_{ijt} \end{aligned} \tag{9}$$

where RTA_{ijt} denotes whether exporter i and importer j were in a trade agreement in year t, and $TARIFF_{ijt}$ is the import tariff that j imposed on i's exports in year t. LAC_{ij} and $EMDE_{ij}$ are dummy variables that take value 1 if either country i or j are in LAC or either country i or j are a peer EMDE country not in LAC, respectively. In line with previous sections, we estimate (9) with PPML to account for the large number of zero trade flows. The main coefficients of interest, $\beta_4 + \beta_5$ and $\beta_4 + \beta_6$, capture respectively the response of trade flows between LAC and the rest of the world (ROW) and between EMDEs and ROW to changes in import tariffs at different horizons, depending

on the α_{ij,Δ_t}. In what follows, short run denotes specifications where we consider importer-exporter-3-year groups, medium run where we consider 4-year groups, and long run where $\alpha_{ij,\Delta_t} = \alpha_{ij}$.

The first panel in Figure 8 replicates Anderson and Yotov (2023) by omitting regional dummies in Equation 9. In line with their findings, we estimate that the elasticity of trade flows to import tariffs grows in magnitude between short and long run. Contrary to their findings, we find a stable and positive relationship between trade flows and trade agreements over time. As a consequence, in what follows we will focus on the dynamics of trade to import tariffs, which we break down by region in the second panel of Figure 8. Two results stand out. First, LAC has a similar elasticity of trade to import tariffs in the short and medium run. Second, other EMDEs experience small increases in trade flows in the short run when import tariffs go down—at similar magnitudes than in LAC—but sharper increases in the long run as trade links adjust. Taken together, these results suggest that reducing import tariffs on LAC's exports will not boost trade in the long run by *as much as* in other EMDEs.

We investigate the role of infrastructure in explaining why trade in LAC, particularly in the long run, responds less to import tariffs than trade in other EMDEs. We split all country pairs into 4 mutually exclusive groups: Group 1 where both exporter i and importer j have poor infrastructure; Group 2 where i has good infrastructure but j has poor infrastructure; Group 3 where i has poor infrastructure but j has good infrastructure; and Group 4 where both i and j have good infrastructure. A country has good or poor infrastructure if its infrastructure level—measured by WB's LPI—is above or below the median infrastructure across countries in the sample, respectively. Figure 8, Panel 3 shows the estimated coefficients from specification 9 regressed each group. Two results stand out. First, short and medium term elasticities are not statistically different across groups. Namely, trade flows between countries with good infrastructure or bad infrastructure both tend to increase in the short run after the reduction in import tariffs. Second, in the long run, trade elasticities for importers with good infrastructure (groups 3 and 4) tend to be of larger magnitude than trade elasticities for importers with poor infrastructure (groups 1 and 2). These suggest important complementarities between import infrastructure and import tariffs in allowing countries to reap the benefits from trade liberalization episodes, and partially explain why long run trade in LAC is not as responsive to import tariffs as long run trade in other EMDEs.

Lastly, we investigate the role of specialization in agriculture in explaining differences across regions in the elasticity of trade over different horizons. Figure 8, Panel 4 shows that the elasticity of trade to import tariffs in agriculture is smaller in magnitude—and sometimes of an opposite sign—than overall trade flows. This provides an alternative explanation for the lack of long run trade response to tariffs in LAC, as: (i) agriculture accounts for a large share of the region's trade; (ii) demand for agricultural goods less elastic than manufacturing goods; and (iii) agricultural supply is subject to environmental constraints like growing cycles.

6 Conclusion

Trade policy plays an important role in transforming productivity shocks into growth (Pellegrina, 2022) and can also help to accelerate structural transformation (Teignier, 2018). Yet as this paper shows, while tariffs in LAC have generally tracked the declining global trend, the response of LAC's import and export flows has disappointed and been more muted that in EMDEs, particularly in the long run. We argue that remaining gaps in infrastructure and, in some cases, low quality of governance and human capital have been a major contributor to LAC's limited trade openness and lower degree of trade integration. We also point to the potential for substantial gains from improving transport- and customs-related infrastructure. Steps are currently being made in this direction, with important infrastructure projects connecting Latin America seeing the light of the day, such as the Chancay port in Peru or the bi-oceanic corridor.

Perhaps less sensitive to large infrastructure investments, services trade, currently low in the region, could also offer LAC a chance to deepen trade integration without having to cope with large and costly upfront investments or with adverse impacts on the environment. Barriers to services trade include high foreign equity restrictions, differing licensing requirements and building codes, and limitations on the movement of foreign professionals (OECD, 2024).

New challenges to the global trade landscape are emerging. Increasingly, environmental concerns are embedded in trade negotiations, complicating the implementation of trade agreements. Tariff policies are also scrutinized for a possible carbon-bias (Shapiro, 2021), and Carbon Border Adjustments could have far-reaching implications (Hufbauer et al., 2022). In a context of deepening global trade tensions and efforts to reshape the global trade order by key global players, while the region could benefit from some trade diversion, it could be negatively impacted if global trade splits into competing blocs.[27] Losing access to cheap equipment goods, most of which are imported from Asia, would also impede investment and slow growth in the medium-run.

Strengthening trade integration, including within the region, could be key to reaping the benefits of greater trade openness while mitigating the risks of global fragmentation. Reducing trade barriers, including non-tariff barriers, closing infrastructure gaps, and putting in place policies that make LAC an attractive investment destination could boost trade and growth in the region. Multilateral cooperation and trade policy coordination, including within LAC, could help reduce adverse cross-border spillovers and trade policy uncertainty, as well as identify and mitigate unintended consequences of trade policy actions.

[27] See for example Campos et al. (2023) and Machado Parente and Moreau (2024) for analyses of the potential impact of geoeconomic fragmentation.

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A Annex: Data Availability and Additional Stylized facts on LAC's trade

Data Availability Statement

The datasets were derived from sources in the public domain:

- *IMF Direction of Trade Statistics:* https://data.imf.org/en/datasets/IMF.STA:IMTS
- *CEPII BACI:* https://www.cepii.fr/cepii/en/bdd$_m$odele/bdd$_m$odele$_i$tem.asp?id = 37
- *ITPD-E:* https://www.usitc.gov/data/gravity/itpde.htm
- *CEPII Gravity Database:* https://www.cepii.fr/cepii/en/bdd$_m$odele/bdd$_m$odele$_i$tem.asp?id = 8
- *UNCTAD TRAINS:* https://trainsonline.unctad.org/bulkDataDownload
- *World Bank World Development Indicators:* https://datatopics.worldbank.org/world-development-indicators/
- *World Bank Logistic:* https://lpi.worldbank.org/international/scorecard
- *World Bank Enterprise Survey:* https://login.enterprisesurveys.org/content/sites/financeandprivatesector/e
- *Penn World Tables:* https://www.rug.nl/ggdc/productivity/pwt/

Stylized Facts

Fact 1. *Commodities take up a large share of LAC's exports, and China is playing an increasing role as a key consumer of exports from the region.*

Primary commodities account for the bulk of LAC's goods exports. Except for Mexico, the top export products of the largest economies of the region are primary commodities, consistently accounting for over 40 percent of merchandise exports (Figure A1, Panel 1). The region's goods exports remain concentrated more broadly (Figure A1, Panel 2). The Caribbean's exports are the most concentrated, reflecting a high dependence on agricultural products. South America's exports are more concentrated than Asian and European EMDEs, although less than those of Africa and Central Asia. Export concentration in Central America and Mexico is in line with other EMDEs, reflecting more a diversified manufacturing base.

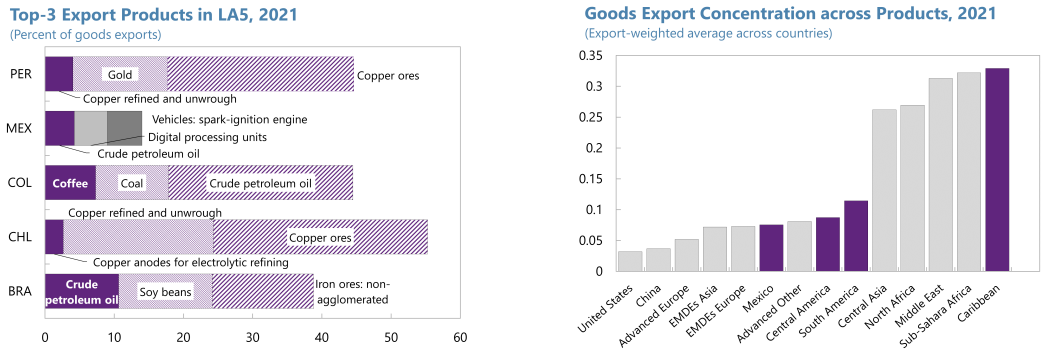


Figure A1: LAC's Exports Across Products and Industries

Notes: LA5 = Latin America 5 (Brazil, Chile, Colombia, Mexico, Peru). Advanced Europe = Advanced Economies in Europe. Advanced Other = Advanced Economies excluding Europe and the US. Export concentration measured as the Herfindahl–Hirschman Index (HHI) at the HS-3 product codes. For each country, the index is calculated as the sum of the squares of export shares of each product. *Sources:* BACI and IMF staff calculations.

Besides intra-regional trade, the US and China are the largest destinations for LAC's merchandise exports. Over the last 25 years, China's share of LAC's merchandise exports (excluding Mexico) increased tenfold, from near zero in 1996 to over a fifth in 2021, while the combined share of advanced Europe and the US was reduced in half over the same time period, from 60 to about 30 percent (Figure A2, top-left panel).[28] By 2018, China became the main consumer of LAC's products, excluding Mexico—with exports to China heavily concentrated in mineral (about half of exports), vegetable (20 percent), and animal (10 percent) primary products (Figure A2, top-right panel). The share of intra-regional exports has remained steady at about $\frac{1}{4}$ of total merchandise exports during 1996-2021. More broadly, despite improvements in market share diversification over time, Central America, the Caribbean, and Mexico's exports remain more concentrated across destinations than most other regions in the world, partly due to their strong trade ties with the US (Figure A2, bottom panel).

Fact 2. *LAC's integration into GVCs remains limited.* Both the region's average backward participation (i.e., the use of imported inputs in LAC's exports) and forward participation (i.e., the use of LAC's exports as inputs in other countries' exports) stand below other Asian and European EMDEs. Within LAC, however, there is some heterogeneity: (i) South America, where several countries are commodity exporters, have levels of forward participation in line with other EMDEs, although lower levels of backward participation;[29]

[28] In contrast, Caribbean exports to China have not markedly increased, and indeed declined during the period 2006-09, a "missed opportunity" for the Caribbean according Bernal (2015)

[29] Commodity exporters tend to have larger forward participation, as their production is less dependent on imported inputs and they export primary goods that enter as inputs in other countries' exports (e.g., Chile exports raw copper to China, who refines it and then exports copper-based products).

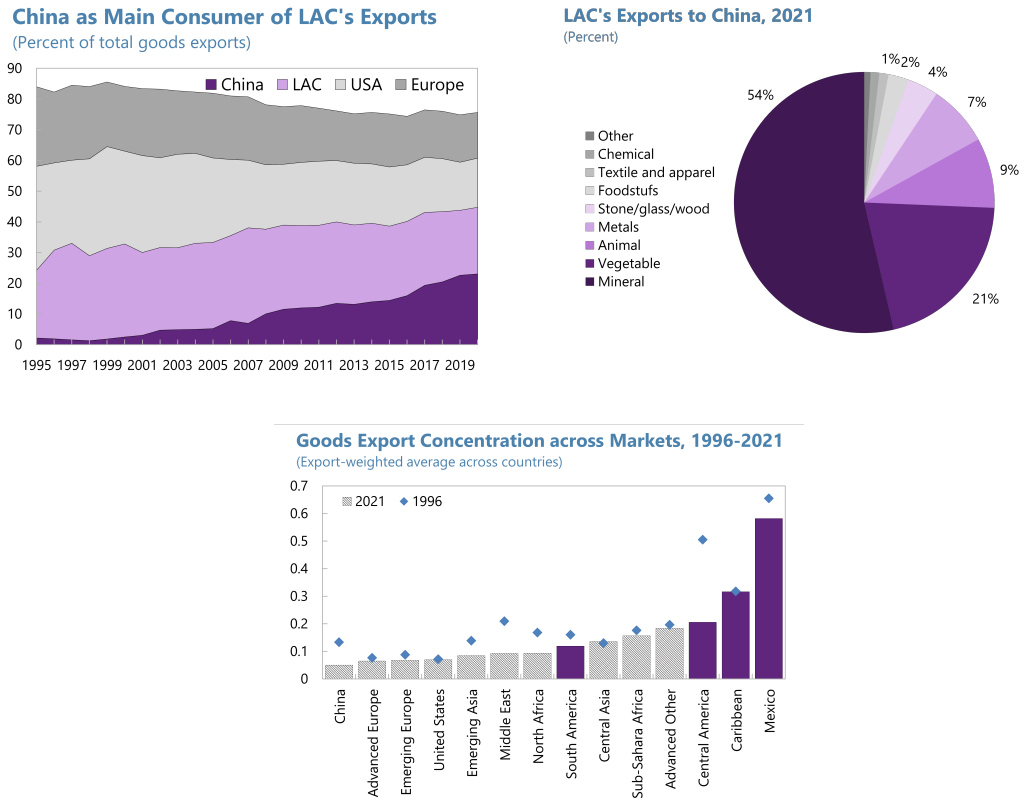


Figure A2: Geographical Composition of LAC's Exports and the Role of China

Notes: The figure reports exports of LAC excluding Mexico. The growing role of China as a destination for LAC's products is also present when including Mexico in the analysis. Advanced Europe = Advanced Economies in Europe. Advanced Other = Advanced Economies excluding Europe and the US. Export concentration measured as the HHI across export destinations. For each country, the index is calculated as the sum of the squares of export shares of each export destination. *Sources:* BACI and IMF staff calculations.

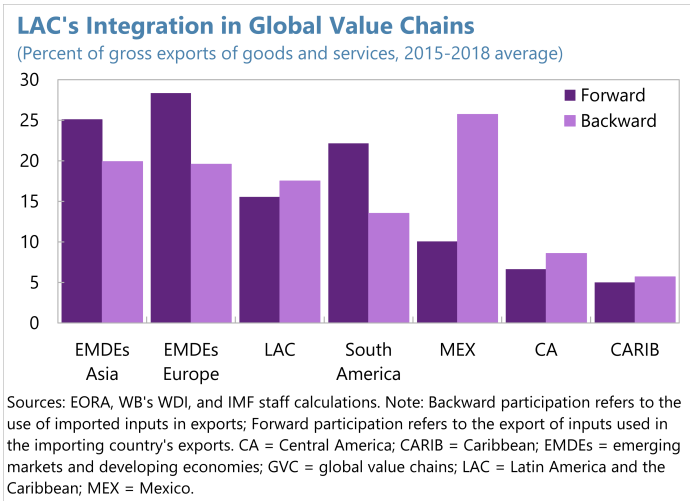


Figure A3: LAC's integration in GVCs

(ii) Mexico stands out for its high backward participation in manufacturing (reflecting the high

import content of its exports) but low forward participation (reflecting that much of its manufactures are exported to the US as final destination); (iii) Central America and the Caribbean are regions with little GVC integration on both dimensions.

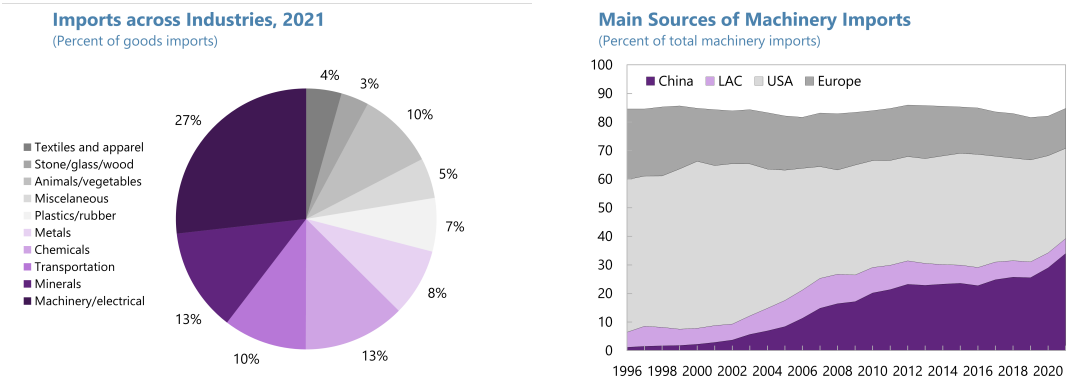


Figure A4: The Industrial and Geographical Composition of LAC's Goods Imports

Sources: BACI and IMF staff calculations.

Fact 3. *LAC's merchandise imports are concentrated in capital goods, with China playing a key role as a provider of these goods.*

Capital goods (in the form of machinery, electrical, and transportation products) account for over 1/3 of the region's imports of goods (Figure A4, left panel), with China becoming a main source of these products over time (Figure A4, right panel). Accompanying the growing role of China, the share of imports from the US has decreased from around 50 percent in 1996 to nearly 30 percent in 2021. As of 2021, LAC's machinery imports from China represent 8 times Germany's total machinery exports and 14 times Japan's total machinery exports, and have surged in line with China's growing role in infrastructure and energy projects (Myers and Ray, 2023). Besides being a large supplier of LAC merchandise imports, China exports to the region products that cannot be easily replaced from other sources, as the product composition of imports from China is very dissimilar to the composition of imports from other countries except the US.[30]

The region's exports have remained concentrated in a few sectors, with China recently becoming a key trading partner on par with the US and Europe. China has also become the main supplier

Fact 4. *LAC's trade in services is low, particularly within the region.*

At the global level, the share of services to total trade has been rising and reaching close to a quarter of world trade in 2019 (WTO, 2020). Meanwhile, in LAC, services only account for about 15 percent of total trade, a share that has stayed constant since the 1990s (Figure A5, left panel). This share rises to about 40 percent in the Caribbean, where tourism-related travel and transportation account for the bulk of services exports and imports respectively. The region's largest economies and top exporters of commercial services, Brazil and Mexico, only stand at the 35th and 36th global ranks for the global value of services exported (WTO, 2023). Most services exports from LAC are

[30] LAC's imports from origins other than the US have a low Spearman correlation index to imports from China. This index captures the correlation of export shares across products of different origins: $\text{Spearman}_i = 100\frac{\sum_p s_{i,p} s_{CHN,p}}{\sqrt{\sum_p s_{i,p}^2}\sqrt{\sum_p s_{CHN,p}^2}}$ where $s_{i,p}$ denotes the share of LAC's imports of product p from country i such that $\sum_p s_{i,p} = 1$. An index of 100 indicates that LAC's imports from country i have the same product structure than LAC's imports from China.

destined to North America, and intra-LAC trade in services is lower than in relevant peers' groups, with only about 11 percent of services exports directed to other LAC countries, compared to about half in European or in East Asian peer regions (Figure A5, right panel).

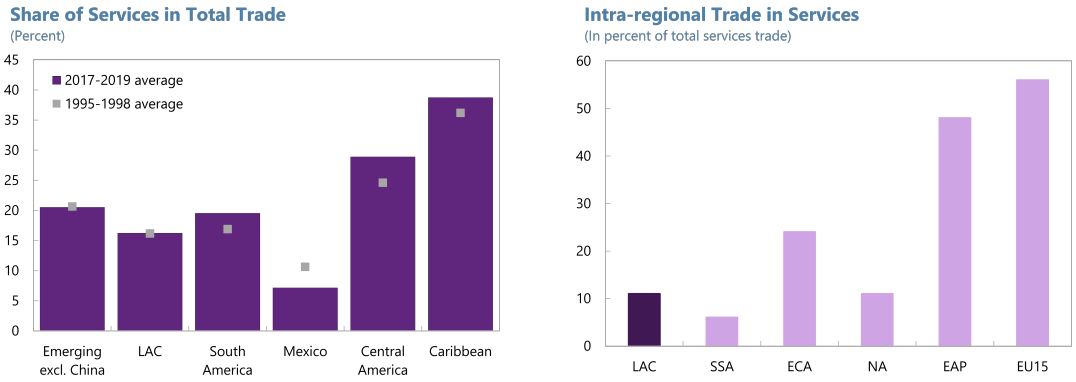
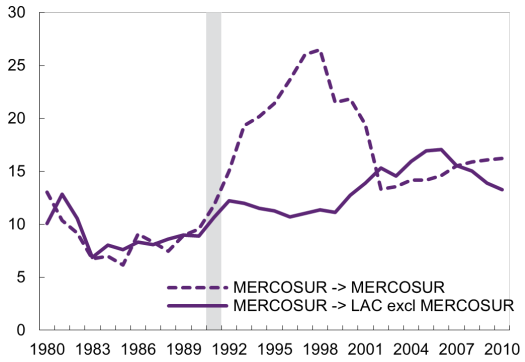


Figure A5: LAC's Trade in Services

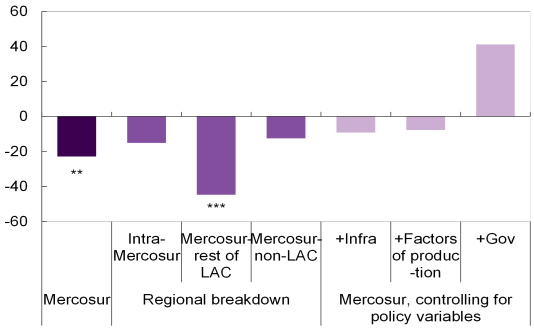
Notes: CA = Central America; EAP = East Asia and Pacific; ECA = European and Central Asia; EU15 = European Union 15 extended; NA = North America; SSA = Sub-Saharan Africa. Left figure includes intra-regional trade.
Sources: IMF BOP; IMF DOTS; WTO-OECD BaTIS, and IMF staff calculations.

B Annex: The Case of Mercosur

Established in 1991 by the Treaty of Asunción, Mercosur is a trade bloc consisting of Argentina, Brazil, Paraguay, and Uruguay,[31] with the aim of promoting trade integration and economic cooperation among its member countries. Upon implementation, member countries agreed to gradually reduce most of their bilateral tariffs to zero, to establish a common external tariff framework and to become a customs union by 1995.



a) Exports from Mercosur to Mercosur and to rest of LAC



b) MERCOSUR's Goods Trade Performance

Figure B1: Mercosur's Trade Performance

Notes: Panel a) in percent of goods trade. Panel b) Percent difference in trade flows in Mercosur vs. non-LAC regions, conditional on population, GDP, distance, border, common language, landlocked, MFN tariffs, trade agreements and non-tariff trade barriers. ***p<1%, **p<5%, *p<10%. MERCOSUR = Mercado Común del Sur (ARG, BRA, PRY, URY). *Sources:* IMF DOTS and IMF staff calculations.

Mercosur initially succeeded in improving trade and output of its member countries. Upon implementation, trade flows between member countries outpaced trade flows between Mercosur and non-Mercosur countries (Figure B1, left panel), consistent with gravity-model estimates in the literature[32] —pointing towards sizable output and welfare gains from the trade agreement. However, these trade gains appear to have been short-lived, as the extent of trade among Mercosur countries converged back to the level of trade between Mercosur and the rest of LAC by the mid-2000s. The gains have also been heterogenously distributed among countries (Campos and Timini, 2022).

We implement the gravity framework of Bhattacharya and Pienknagura (2024) to compare the trade performance of Mercosur to regions with similar economic and geographic characteristics (Figure B1, right panel). Three findigns stand out. First, Mercosur trades about 25 percent lass than peer regions. Second, the strong under-performance in trade flows happens between Mercosur and the rest of LAC, and not so much within Mercosur or between Mercosur and non-LAC countries. This suggests that an important limitation of the trade agreement was to not achieve greater integration between its members and the rest of LAC. Third, policy variables related to transport infrastructure, customs efficiency, and the quality of factors of production and governance explain the bloc's current trade performance. In other words, after controlling for each of those

[31] On 28 November 2023, the Brazilian Senate approved the draft Legislative Decree PDL 380/2023 to accept the Plurinational State of Bolivia as a full member state of the South American Common Market trading block (MERCOSUR). Venezuela is a full member but has been suspended since 1 December 2016.

[32] See Baier et al. (2007), Kohl (2014), Baier et al. (2019), El Dahrawy Sánchez-Albornoz and Timini (2021), Campos and Timini (2022)

factors, there is no longer a statistical difference between Mercosur's trade performance and other regions with similar economic and geographic characteristics.

C Annex: Additional Tables

Table C1: Baseline Gravity Estimation: Latin America's Trade Performance

Dep. Variable:	Merch. Trade		Manuf.		Non-Manuf.		Services	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log GDP, exporter	0.772***	0.768***	0.806***	0.803***	0.611***	0.611***	1.049***	1.049***
	(0.0372)	(0.0365)	(0.0427)	(0.0421)	(0.0453)	(0.0449)	(0.0356)	(0.0354)
log GDP, importer	0.617***	0.642***	0.608***	0.635***	0.666***	0.664***	1.003***	1.002***
	(0.0530)	(0.0574)	(0.0593)	(0.0652)	(0.0919)	(0.0854)	(0.0561)	(0.0543)
log Population, exporter	0.0284	0.0271	0.0594	0.0578	-0.0938*	-0.0937*	-0.369***	-0.369***
	(0.0476)	(0.0475)	(0.0528)	(0.0528)	(0.0524)	(0.0526)	(0.0418)	(0.0420)
log Population, importer	0.110*	0.0773	0.118*	0.0812	0.0748	0.0763	-0.307***	-0.306***
	(0.0567)	(0.0628)	(0.0622)	(0.0707)	(0.0973)	(0.0923)	(0.0586)	(0.0567)
log bilatereal distance	-0.345***	-0.346***	-0.354***	-0.355***	-0.317***	-0.317***	-0.583***	-0.582***
	(0.0649)	(0.0645)	(0.0699)	(0.0693)	(0.0746)	(0.0746)	(0.0422)	(0.0423)
Common language dummy	0.251**	0.264***	0.244**	0.261**	0.225	0.224	0.831***	0.831***
	(0.106)	(0.102)	(0.119)	(0.114)	(0.142)	(0.140)	(0.0823)	(0.0817)
Contiguity dummy	0.860***	0.844***	0.810***	0.788***	1.066***	1.067***	-0.0345	-0.0338
	(0.137)	(0.128)	(0.150)	(0.140)	(0.194)	(0.193)	(0.118)	(0.118)
Landlock dummy, exporter	-0.0837	-0.0879	0.0922	0.0871	-0.893***	-0.893***	-0.281**	-0.281**
	(0.102)	(0.103)	(0.116)	(0.116)	(0.162)	(0.162)	(0.115)	(0.115)
Landlock dummy, importer	-0.226**	-0.231**	-0.156	-0.163	-0.741***	-0.741***	-0.153	-0.153
	(0.0977)	(0.0984)	(0.103)	(0.104)	(0.142)	(0.142)	(0.125)	(0.125)
RTA dummy	0.677***	0.660***	0.776***	0.755***	0.284	0.285	0.0484	0.0498
	(0.0990)	(0.0978)	(0.108)	(0.106)	(0.175)	(0.176)	(0.0832)	(0.0846)
Non-tariff restrictions, importer	-0.341**	-0.288	-0.470**	-0.410**	0.210	0.208	-0.0376	-0.0399
	(0.169)	(0.176)	(0.193)	(0.203)	(0.216)	(0.206)	(0.109)	(0.107)
Average MFN tariffs, importer	-0.0448**	-0.0389*	-0.0480**	-0.0412*	-0.0277	-0.0279	-0.0332*	-0.0336*
	(0.0197)	(0.0200)	(0.0219)	(0.0221)	(0.0261)	(0.0265)	(0.0176)	(0.0174)
LAC dummy	-0.287*		-0.305*		-0.263		-0.192*	
	(0.147)		(0.172)		(0.202)		(0.102)	
Mexico dummy		-0.0242		-0.00891		-0.278		-0.217
		(0.234)		(0.262)		(0.361)		(0.237)
LAC exc. MEX		-0.469***		-0.543***		-0.258		-0.185*
		(0.0943)		(0.0955)		(0.221)		(0.0956)
Constant	-11.76***	-11.95***	-12.67***	-12.85***	-10.62***	-10.61***	-23.06***	-23.05***
	(0.983)	(0.996)	(1.124)	(1.138)	(1.792)	(1.750)	(1.016)	(1.011)
Observations	21,010	21,010	21,010	21,010	21,010	21,010	13,687	13,687
R-squared	0.537	0.552	0.504	0.521	0.275	0.274	0.752	0.752

Notes: Robust standard errors in parenthesis. *p<.05, **p<.01, ***p<.001.

Table C2: Latin America's Trade Performance—By Subregion

Dep. Variable:	Merch. Trade		Services		Manuf.		Non-Manuf.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log GDP, exporter	0.770***	0.765***	1.046***	1.047***	0.806***	0.800***	0.600***	0.601***
	(0.0390)	(0.0365)	(0.0354)	(0.0353)	(0.0447)	(0.0422)	(0.0451)	(0.0447)
log GDP, importer	0.803***	0.638***	1.063***	1.001***	0.843***	0.632***	0.623***	0.645***
	(0.0524)	(0.0566)	(0.0290)	(0.0546)	(0.0622)	(0.0644)	(0.0460)	(0.0838)
log Population, exporter	-0.00619	0.0280	-0.369***	-0.368***	0.0150	0.0591	-0.0991*	-0.0949*
	(0.0496)	(0.0474)	(0.0426)	(0.0419)	(0.0557)	(0.0527)	(0.0530)	(0.0519)
log Population, importer	-0.125***	0.0808	-0.368***	-0.306***	-0.180***	0.0836	0.132**	0.0939
	(0.0461)	(0.0618)	(0.0345)	(0.0570)	(0.0528)	(0.0698)	(0.0581)	(0.0909)
log bilateral distance	-0.426***	-0.348***	-0.596***	-0.582***	-0.442***	-0.357***	-0.364***	-0.322***
	(0.0592)	(0.0638)	(0.0309)	(0.0420)	(0.0637)	(0.0687)	(0.0600)	(0.0739)
Common language dummy	0.327***	0.278***	0.841***	0.835***	0.334***	0.275**	0.234*	0.243*
	(0.0988)	(0.102)	(0.0824)	(0.0818)	(0.111)	(0.114)	(0.142)	(0.140)
Contiguity dummy	1.098***	0.832***	-0.0330	-0.0354	1.079***	0.777***	1.176***	1.053***
	(0.147)	(0.127)	(0.121)	(0.118)	(0.158)	(0.138)	(0.183)	(0.191)
Land-lock dummy, exporter	-0.144	-0.0967	-0.286**	-0.284**	0.0256	0.0816	-0.946***	-0.928***
	(0.109)	(0.104)	(0.116)	(0.115)	(0.122)	(0.117)	(0.161)	(0.161)
Land-lock dummy, importer	-0.287***	-0.236**	-0.168	-0.155	-0.238**	-0.167	-0.760***	-0.751***
	(0.109)	(0.0986)	(0.128)	(0.125)	(0.118)	(0.105)	(0.141)	(0.142)
RTA dummy		0.662***		0.0474		0.756***		0.286
		(0.0975)		(0.0846)		(0.106)		(0.176)
Non-tariff restrictions, importer		-0.292*		-0.0413		-0.412**		0.186
		(0.175)		(0.107)		(0.202)		(0.204)
Average MFN tariffs, importer		-0.0393**		-0.0320*		-0.0410*		-0.0348
		(0.0199)		(0.0174)		(0.0220)		(0.0276)
South America dummy	-0.436***	-0.413***	-0.271**	-0.207*	-0.524***	-0.513***	-0.0847	-0.0494
	(0.0837)	(0.0950)	(0.111)	(0.108)	(0.0797)	(0.0955)	(0.200)	(0.229)
Mexico dummy	0.403**	0.00828	-0.131	-0.196	0.509***	0.0258	-0.221	-0.251
	(0.169)	(0.228)	(0.232)	(0.233)	(0.185)	(0.257)	(0.354)	(0.357)
Central America dummy	-0.615***	-0.808***	-0.0767	-0.0892	-0.474***	-0.707***	-1.255***	-1.304***
	(0.139)	(0.127)	(0.0867)	(0.0931)	(0.144)	(0.131)	(0.239)	(0.240)
Caribbean dummy	-0.785***	-0.718***	-0.443***	-0.402***	-0.739***	-0.671***	-1.189***	-1.148***
	(0.176)	(0.145)	(0.156)	(0.155)	(0.183)	(0.139)	(0.248)	(0.251)
Constant	-12.52***	-11.79***	-23.64***	-22.99***	-13.81***	-12.74***	-9.333***	-10.06***
	(1.273)	(1.003)	(0.709)	(1.020)	(1.496)	(1.147)	(1.156)	(1.741)
Observations	21,010	21,010	13,687	13,687	21,010	21,010	21,010	21,010
R-squared	0.495	0.555	0.752	0.752	0.459	0.523	0.271	0.281

Notes: Robust standard errors in parenthesis. *p<.05, **p<.01, ***p<.001.

Table C3: Gauging Intra-LAC Trade

	(1)	(2)
Dep. Variable	Merchandise Trade	Services
log GDP, exporter	0.775***	1.045***
	(0.0414)	(0.0356)
log GDP, importer	0.810***	1.061***
	(0.0565)	(0.0293)
log Population, exporter	-0.00271	-0.367***
	(0.0508)	(0.0425)
log Population, importer	-0.123**	-0.366***
	(0.0484)	(0.0347)
log bilateral distance	-0.431***	-0.600***
	(0.0608)	(0.0315)
Common language dummy	0.301***	0.847***
	(0.106)	(0.0838)
Contiguity dummy	1.158***	-0.0321
	(0.165)	(0.123)
Land-lock dummy, exporter	-0.139	-0.287**
	(0.110)	(0.117)
Land-lock dummy, importer	-0.287***	-0.170
	(0.109)	(0.129)
LAC dummy	-0.0982	-0.183*
	(0.164)	(0.101)
Intra-LAC dummy	-0.426**	-0.521***
	(0.214)	(0.165)
Constant	-12.79***	-23.59***
	(1.302)	(0.717)
Observations	21,010	13,687
R-squared	0.459	0.750

Notes: Robust standard errors in parenthesis. *p<.05, **p<.01, ***p<.001.

Table C4: Latin America's Trade Performance—The Role of NAFTA

Dep. Variable:	Manuf.		Non-Manuf.	
	(1)	(2)	(3)	(4)
log GDP, exporter	0.800***	0.799***	0.601***	0.575***
	(0.0422)	(0.0432)	(0.0447)	(0.0427)
log GDP, importer	0.632***	0.631***	0.645***	0.624***
	(0.0644)	(0.0607)	(0.0838)	(0.0831)
log Population, exporter	0.0591	0.0596	-0.0949*	-0.0806
	(0.0527)	(0.0518)	(0.0519)	(0.0502)
log Population, importer	0.0836	0.0840	0.0939	0.0980
	(0.0698)	(0.0681)	(0.0909)	(0.0865)
log bilateral distance	-0.357***	-0.358***	-0.322***	-0.351***
	(0.0687)	(0.0691)	(0.0739)	(0.0737)
Common language dummy	0.275**	0.272**	0.243*	0.109
	(0.114)	(0.117)	(0.140)	(0.128)
Contiguity dummy	0.777***	0.771***	1.053***	0.834***
	(0.138)	(0.143)	(0.191)	(0.186)
Land-lock dummy, exporter	0.0816	0.0830	-0.928***	-0.889***
	(0.117)	(0.115)	(0.161)	(0.153)
Land-lock dummy, importer	-0.167	-0.166	-0.751***	-0.723***
	(0.105)	(0.105)	(0.142)	(0.147)
RTA dummy	0.756***	0.755***	0.286	0.261
	(0.106)	(0.106)	(0.176)	(0.177)
Non-tariff restrictions, importer	-0.412**	-0.411**	0.186	0.246
	(0.202)	(0.205)	(0.204)	(0.187)
Average MFN tariffs, importer	-0.0410*	-0.0412*	-0.0348	-0.0421
	(0.0220)	(0.0217)	(0.0276)	(0.0274)
South America dummy	-0.513***	-0.512***	-0.0494	-0.0218
	(0.0955)	(0.0962)	(0.229)	(0.230)
Mexico dummy	0.0258	0.0159	-0.251	-0.663**
	(0.257)	(0.217)	(0.357)	(0.286)
Central America dummy	-0.707***	-0.707***	-1.304***	-1.309***
	(0.131)	(0.131)	(0.240)	(0.240)
Caribbean dummy	-0.671***	-0.672***	-1.148***	-1.156***
	(0.139)	(0.140)	(0.251)	(0.251)
NAFTA dummy		0.0258		1.142***
		(0.215)		(0.257)
Constant	-12.74***	-12.71***	-10.06***	-9.085***
	(1.147)	(1.121)	(1.741)	(1.777)
Observations	21,010	21,010	21,010	21,010
R-squared	0.523	0.524	0.281	0.377

Notes: Robust standard errors in parenthesis. *p<.05, **p<.01, ***p<.001.

Table C5: Latin America's Trade Performance—The Role of Infrastructure

Dep. Variable:	Merch. Trade		Services		Manuf.		Non-Manuf.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log GDP, exporter	0.758***	0.435***	1.045***	1.008***	0.792***	0.162	0.596***	1.383***
	(0.0369)	(0.0977)	(0.0363)	(0.0785)	(0.0426)	(0.106)	(0.0455)	(0.0999)
log GDP, importer	0.633***	0.363***	1.005***	1.072***	0.627***	0.442***	0.645***	0.0873
	(0.0580)	(0.109)	(0.0556)	(0.0996)	(0.0659)	(0.122)	(0.0865)	(0.135)
log Population, exporter	0.0255	0.240***	-0.367***	-0.307***	0.0596	0.510***	-0.122**	-0.736***
	(0.0488)	(0.0835)	(0.0427)	(0.0656)	(0.0538)	(0.0881)	(0.0546)	(0.0785)
log Population, importer	0.0834	0.294***	-0.308***	-0.353***	0.0867	0.227***	0.0923	0.532***
	(0.0624)	(0.0744)	(0.0579)	(0.0850)	(0.0704)	(0.0870)	(0.0930)	(0.109)
log bilateral distance	-0.342***	-0.290***	-0.581***	-0.609***	-0.352***	-0.287***	-0.307***	-0.314***
	(0.0639)	(0.0635)	(0.0423)	(0.0458)	(0.0688)	(0.0656)	(0.0736)	(0.0759)
Common language dummy	0.293***	0.372***	0.838***	0.799***	0.286**	0.389***	0.277*	0.320**
	(0.102)	(0.101)	(0.0826)	(0.0814)	(0.115)	(0.112)	(0.141)	(0.148)
Contiguity dummy	0.835***	0.886***	-0.0363	-0.0327	0.779***	0.841***	1.068***	0.988***
	(0.127)	(0.132)	(0.118)	(0.121)	(0.139)	(0.144)	(0.190)	(0.178)
Land-lock dummy, exporter	-0.0885	-0.185*	-0.286**	-0.190*	0.106	0.00646	-1.064***	-0.944***
	(0.107)	(0.110)	(0.116)	(0.111)	(0.120)	(0.116)	(0.173)	(0.212)
Land-lock dummy, importer	-0.226**	-0.269***	-0.150	-0.108	-0.160	-0.215**	-0.723***	-0.758***
	(0.100)	(0.102)	(0.126)	(0.125)	(0.106)	(0.108)	(0.146)	(0.155)
RTA dummy	0.648***	0.591***	0.0467	0.0177	0.742***	0.651***	0.271	0.505***
	(0.0967)	(0.0879)	(0.0851)	(0.0880)	(0.105)	(0.0947)	(0.176)	(0.169)
Non-tariff restrictions, importer	-0.297*	-0.396***	-0.0399	0.0309	-0.418**	-0.482***	0.190	0.112
	(0.175)	(0.145)	(0.109)	(0.113)	(0.202)	(0.161)	(0.205)	(0.200)
Average MFN tariffs, importer	-0.0382*	-0.0281	-0.0317*	-0.0293	-0.0400*	-0.0327	-0.0331	0.00227
	(0.0200)	(0.0187)	(0.0175)	(0.0181)	(0.0220)	(0.0205)	(0.0276)	(0.0260)
LPI Infrastructure, exporter		3.602***		-2.225***		4.453***		0.358
		(0.983)		(0.642)		(1.169)		(0.933)
LPI Infrastructure, importer		2.292**		-1.398*		2.048**		3.330**
		(0.905)		(0.827)		(0.941)		(1.373)
LPI customs, exporter		-1.501**		2.748***		-0.0688		-5.203***
		(0.671)		(0.504)		(0.804)		(0.753)
LPI customs, importer		-0.571		1.312**		-0.763		0.703
		(0.704)		(0.653)		(0.749)		(1.097)
South America dummy	-0.427***	-0.217**	-0.206*	-0.116	-0.527***	-0.162*	-0.0686	-0.220
	(0.0956)	(0.0988)	(0.108)	(0.113)	(0.0959)	(0.0953)	(0.231)	(0.200)
Mexico dummy	0.00948	0.347	-0.193	-0.190	0.0256	0.502	-0.235	-0.143
	(0.230)	(0.264)	(0.234)	(0.226)	(0.258)	(0.308)	(0.362)	(0.373)
Central America dummy	-0.886***	-0.674***	-0.0899	-0.0447	-0.784***	-0.433***	-1.406***	-1.360***
	(0.137)	(0.147)	(0.0970)	(0.0995)	(0.136)	(0.145)	(0.275)	(0.279)
Caribbean dummy	-0.693***	-0.285	-0.431**	-0.452**	-0.678***	-0.110	-0.974***	-0.953***
	(0.145)	(0.174)	(0.188)	(0.189)	(0.140)	(0.181)	(0.257)	(0.275)
Constant	-11.59***	-9.140***	-23.01***	-24.00***	-12.53***	-9.707***	-9.774***	-12.22***
	(1.027)	(1.331)	(1.036)	(1.302)	(1.170)	(1.492)	(1.775)	(1.953)
Observations	15,453	15,453	11,389	11,389	15,453	15,453	15,453	15,453
R-squared	0.557	0.618	0.751	0.754	0.525	0.625	0.292	0.347

Notes: Robust standard errors in parenthesis. *p<.05, **p<.01, ***p<.001.

Table C6: Latin America's Trade Performance—The Role of Factors of Production

Dep. Variable:	Merch. Trade		Services		Manuf.		Non-Manuf.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log GDP, exporter	0.855***	0.690***	0.953***	1.038***	0.961***	0.713***	0.486***	0.490***
	(0.0363)	(0.0540)	(0.0311)	(0.0476)	(0.0418)	(0.0504)	(0.0483)	(0.122)
log GDP, importer	0.606***	0.620***	0.963***	0.958***	0.605***	0.643***	0.615***	0.567***
	(0.0552)	(0.0540)	(0.0480)	(0.0445)	(0.0599)	(0.0583)	(0.0924)	(0.0879)
log Population, exporter	-0.0718	0.0970	-0.346***	-0.453***	-0.0997**	0.110**	0.0315	0.138
	(0.0439)	(0.0619)	(0.0372)	(0.0545)	(0.0449)	(0.0556)	(0.0546)	(0.148)
log Population, importer	0.0570	0.0528	-0.307***	-0.297***	0.0389	0.00323	0.135	0.182*
	(0.0518)	(0.0528)	(0.0566)	(0.0531)	(0.0556)	(0.0549)	(0.0970)	(0.0941)
log bilateral distance	-0.307***	-0.312***	-0.680***	-0.696***	-0.298***	-0.327***	-0.394***	-0.389***
	(0.0983)	(0.104)	(0.0537)	(0.0562)	(0.0995)	(0.105)	(0.107)	(0.107)
Common language dummy	0.425***	0.508***	0.486***	0.446***	0.376***	0.418***	0.704***	0.897***
	(0.131)	(0.120)	(0.111)	(0.116)	(0.144)	(0.132)	(0.188)	(0.181)
Contiguity dummy	0.862***	0.854***	0.298***	0.322***	0.766***	0.765***	1.293***	1.208***
	(0.166)	(0.162)	(0.105)	(0.105)	(0.168)	(0.168)	(0.250)	(0.201)
Land-lock dummy, exporter	0.0440	-0.0714	-0.233**	-0.195*	0.174	-0.0895	-0.535**	-0.408**
	(0.102)	(0.0970)	(0.109)	(0.114)	(0.108)	(0.0970)	(0.213)	(0.204)
Land-lock dummy, importer	-0.144	-0.141	-0.417***	-0.389***	-0.0837	-0.0608	-0.445**	-0.567***
	(0.0981)	(0.0952)	(0.0851)	(0.0906)	(0.0979)	(0.0958)	(0.224)	(0.200)
RTA dummy	0.573***	0.623***	-0.0225	-0.0146	0.798***	0.835***	-0.398*	-0.213
	(0.119)	(0.117)	(0.0867)	(0.0859)	(0.122)	(0.121)	(0.211)	(0.182)
Non-tariff restrictions, importer	-0.388***	-0.425***	-0.0831	-0.136	-0.427***	-0.413***	-0.232	-0.427
	(0.126)	(0.118)	(0.0908)	(0.0913)	(0.132)	(0.124)	(0.294)	(0.268)
Average MFN tariffs, importer	-0.0118	-0.0111	0.00506	-0.000259	0.000663	-0.00612	-0.0802*	-0.0297
	(0.0116)	(0.0105)	(0.00815)	(0.00946)	(0.0101)	(0.0103)	(0.0424)	(0.0288)
Access to Finance as obstacle, exporter		0.00263		-0.00413		-0.0180***		0.0397***
		(0.00515)		(0.00338)		(0.00486)		(0.00684)
Access to Finance as obstacle, importer		0.00413		0.00866**		0.00618		-0.00336
		(0.00367)		(0.00339)		(0.00378)		(0.00722)
Human capital index, exporter		0.483***		-0.401***		0.435***		0.702**
		(0.130)		(0.0938)		(0.108)		(0.342)
Electricity as obstacle, exporter		-0.00807***		-0.00154		-0.00578**		-0.00984**
		(0.00251)		(0.00227)		(0.00251)		(0.00451)
Electricity as obstacle, importer		-0.00248		-0.00772***		-0.000336		-0.0129***
		(0.00238)		(0.00278)		(0.00252)		(0.00424)
South America dummy	-0.311**	-0.271*	-0.339***	-0.215**	-0.429***	-0.260*	0.265	0.0199
	(0.146)	(0.152)	(0.0799)	(0.0910)	(0.127)	(0.145)	(0.371)	(0.283)
Mexico dummy	-0.431	-0.374	-0.334**	-0.269*	-0.355	-0.188	-0.919***	-0.910***
	(0.268)	(0.281)	(0.144)	(0.151)	(0.297)	(0.297)	(0.289)	(0.273)
Central America dummy	-0.931***	-0.869***	-0.280***	-0.368***	-0.776***	-0.776***	-1.803***	-1.518***
	(0.163)	(0.167)	(0.0776)	(0.0852)	(0.169)	(0.178)	(0.187)	(0.207)
Caribbean dummy	-0.975***	-0.926***	-0.562***	-0.508***	-1.092***	-0.995***	-0.811***	-1.006***
	(0.190)	(0.190)	(0.0884)	(0.0892)	(0.208)	(0.207)	(0.258)	(0.284)
Constant	-12.00***	-11.90***	-19.86***	-18.86***	-14.04***	-12.42***	-7.321***	-10.20***
	(1.054)	(1.181)	(0.862)	(0.926)	(1.132)	(1.168)	(1.908)	(1.904)
Observations	10,350	10,350	8,501	8,501	10,350	10,350	10,350	10,350
R-squared	0.509	0.520	0.714	0.716	0.553	0.564	0.163	0.289

Notes: Robust standard errors in parenthesis. *p<.05, **p<.01, ***p<.001.

Table C7: Latin America's Trade Performance—The Role of Governance

Dep. Variable:	Merch. Trade		Services		Manuf.		Non-Manuf.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log GDP, exporter	0.859***	0.758***	0.968***	0.916***	0.965***	0.783***	0.501***	0.601***
	(0.0355)	(0.0463)	(0.0308)	(0.0353)	(0.0410)	(0.0435)	(0.0471)	(0.0744)
log GDP, importer	0.601***	0.578***	0.963***	0.934***	0.602***	0.619***	0.603***	0.476***
	(0.0561)	(0.0562)	(0.0480)	(0.0476)	(0.0608)	(0.0601)	(0.0924)	(0.0916)
log Population, exporter	-0.0737*	-0.0127	-0.352***	-0.306***	-0.103**	0.00941	0.0367	-0.0374
	(0.0440)	(0.0540)	(0.0372)	(0.0413)	(0.0450)	(0.0497)	(0.0548)	(0.0779)
log Population, importer	0.0582	0.0677	-0.308***	-0.279***	0.0382	0.00702	0.142	0.233**
	(0.0523)	(0.0574)	(0.0565)	(0.0549)	(0.0563)	(0.0593)	(0.0960)	(0.0963)
log bilateral distance	-0.313***	-0.337***	-0.673***	-0.685***	-0.303***	-0.345***	-0.404***	-0.421***
	(0.0977)	(0.105)	(0.0520)	(0.0551)	(0.0989)	(0.106)	(0.107)	(0.106)
Common language dummy	0.414***	0.381***	0.488***	0.461***	0.363**	0.330**	0.702***	0.664***
	(0.130)	(0.121)	(0.110)	(0.118)	(0.143)	(0.129)	(0.186)	(0.191)
Contiguity dummy	0.876***	0.886***	0.310***	0.310***	0.781***	0.794***	1.282***	1.295***
	(0.165)	(0.169)	(0.105)	(0.104)	(0.167)	(0.171)	(0.246)	(0.242)
Land-lock dummy, exporter	0.0327	-0.118	-0.232**	-0.275**	0.141	-0.126	-0.435**	-0.297
	(0.0985)	(0.0979)	(0.107)	(0.114)	(0.106)	(0.100)	(0.195)	(0.202)
Land-lock dummy, importer	-0.151	-0.196**	-0.415***	-0.445***	-0.0886	-0.0923	-0.453**	-0.691***
	(0.0975)	(0.0982)	(0.0844)	(0.0905)	(0.0977)	(0.0987)	(0.219)	(0.212)
RTA dummy	0.575***	0.594***	0.00717	0.0486	0.805***	0.845***	-0.389*	-0.368*
	(0.119)	(0.119)	(0.0833)	(0.0814)	(0.122)	(0.120)	(0.207)	(0.206)
Non-tariff restrictions, importer	-0.369***	-0.379***	-0.0625	-0.0790	-0.406***	-0.379***	-0.219	-0.357
	(0.126)	(0.119)	(0.0902)	(0.0902)	(0.133)	(0.122)	(0.290)	(0.273)
Average MFN tariffs, importer	-0.0145	-0.0114	0.00391	0.00814	-0.00126	-0.00431	-0.0866**	-0.0383
	(0.0117)	(0.0115)	(0.00811)	(0.0101)	(0.0102)	(0.0107)	(0.0421)	(0.0343)
Crime, corruption and political instability as obstacles, exporter		-0.00873***		-0.00473***		-0.0157***		0.00851*
		(0.00292)		(0.00182)		(0.00247)		(0.00446)
Crime, corruption and political instability as obstacles, importer		-0.00307		-0.00300		-0.000103		-0.0144***
		(0.00264)		(0.00201)		(0.00255)		(0.00487)
South America dummy	-0.302**	-0.00469	-0.330***	-0.143	-0.420***	-0.0411	0.282	0.252
	(0.145)	(0.184)	(0.0788)	(0.108)	(0.127)	(0.168)	(0.370)	(0.305)
Mexico dummy	-0.419	-0.210	-0.339**	-0.231	-0.342	-0.0510	-0.925***	-0.773***
	(0.268)	(0.276)	(0.143)	(0.152)	(0.297)	(0.293)	(0.288)	(0.264)
Central America dummy	-0.924***	-0.841***	-0.265***	-0.195**	-0.774***	-0.668***	-1.752***	-1.739***
	(0.161)	(0.178)	(0.0767)	(0.0840)	(0.168)	(0.186)	(0.182)	(0.196)
Caribbean dummy	-0.993***	-0.982***	-0.584***	-0.546***	-1.071***	-1.030***	-0.960***	-0.908***
	(0.193)	(0.203)	(0.0871)	(0.0899)	(0.208)	(0.218)	(0.260)	(0.256)
Constant	-11.94***	-9.722***	-20.20***	-19.10***	-13.99***	-10.90***	-7.432***	-6.785***
	(1.039)	(1.136)	(0.834)	(0.965)	(1.123)	(1.125)	(1.862)	(2.003)
Observations	12,638	12,638	9,704	9,704	12,638	12,638	12,638	12,638
R-squared	0.508	0.499	0.713	0.708	0.552	0.558	0.156	0.191

Notes: Robust standard errors in parenthesis. *p<.05, **p<.01, ***p<.001.

Table C8: Gravity Model Regressions

Dep. Var: Trade flows	(1)	(2)	(3)	(4)	(5)	(6)
Distance	-0.454***	-0.417***	-0.453***	-0.501***	-0.389***	-0.363***
	(0.122)	(0.0927)	(0.0979)	(0.103)	(0.0878)	(0.0810)
Contiguity	0.579***	0.605***	0.602***	0.582***	0.617***	0.652***
	(0.211)	(0.178)	(0.182)	(0.181)	(0.177)	(0.173)
Border	-2.937***	-8.218***	-6.501***	-3.227***	-10.62***	-11.22***
	(0.356)	(0.556)	(0.540)	(0.315)	(1.190)	(1.157)
ln(Tariff)	-6.114***	-3.464***	-3.194**	-3.091**	-3.270***	-2.856***
	(2.096)	(1.245)	(1.265)	(1.281)	(1.147)	(1.025)
Trade agreement	0.316**	0.342***	0.349**	0.249**	0.388***	0.460***
	(0.154)	(0.109)	(0.140)	(0.124)	(0.112)	(0.107)
Physical infra x Border		0.876**			0.776*	0.787*
		(0.439)			(0.453)	(0.459)
Customs infra x Border		0.584			0.953+	1.019*
		(0.479)			(0.612)	(0.599)
Human capital x Border			1.107***		0.522**	0.594**
			(0.141)		(0.252)	(0.272)
Governance x Border				0.790***	-0.451*	-0.588**
				(0.114)	(0.233)	(0.298)
Constant	17.25***	17.04***	17.27***	17.55***	16.88***	16.74***
	(0.802)	(0.607)	(0.636)	(0.670)	(0.575)	(0.531)
Obs.	44509	33085	30738	40628	28662	24260

Notes: Gravity regression coefficients from Equation (7). Border denotes the $INTL_{ij}$ dummy. Column (6) additionally controls for the interaction between GDP per capita in 2017 and border dummy. Standard errors clustered at country of origin in parentheses. +p<.20, *p<.10, **p<.05, ***p<.01. *Sources:* IMF staff calculations.