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Inter-American Development Bank
Integration and Trade Sector

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THE IMPACT OF **POLICY MEASURES ON TRADE IN SERVICES** IN LATIN AMERICA AND THE CARIBBEAN

Danielle Trachtenberg



The Impact of Policy Measures on Trade in Services in Latin America and the Caribbean

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Inter-American Development Bank

May 2021

ABSTRACT

This paper uses data on policy measures affecting services operation and trade to document and estimate the impact of different types of policy measures on services exports and imports, with a focus on Latin America and the Caribbean. It finds that market-entry measures are important to both total services exports and imports in the region and bilateral trade flows with the United States, while measures relating to the operation of service providers are important for bilateral trade flows with the United States.

Keywords: International trade, trade in services, trade policy, regulation

JEL: F13, F14, F15

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1. Introduction

How do different types of policy measures affect trade in services? This paper uses a recently released dataset on regulatory policy measures from the WTO's Integrated Trade Intelligence Portal (I-TIP) Services Trade Policy Database to estimate the impact of different types of measures on services trade. I document the presence of different categories of measures in Latin America and the Caribbean (LAC) relative to other regions and estimate the impact of these measures on the region's total services exports and imports and bilateral trade in services with the United States.

The Services Trade Policy Database contains four main categories of measures: market entry, operations, competition, and administrative procedures. Globally, measures relating to the operations of services firms and administrative procedures have the greatest impact on trade in services, while market entry measures have the greatest impact on services exports and imports in LAC as a whole. Focusing the analysis on bilateral trade in services between the United States and certain groups of LAC countries further highlights the importance of market-entry measures but suggests that too many of these might deter trade in services. More measures related to services operations appear to be beneficial for certain bilateral services flows, indicating that policy barriers to services operations exist on both sides. As is common in the services trade literature, the lack of quality services trade data results in a small sample size that limits the rigor of the econometric analysis presented here. Results should be interpreted as an indication of the types of policies having impacts on services trade while acknowledging there are many possible factors affecting services trade not controlled for in this analysis.

2. Literature Review

The literature assessing how policy measures affect trade in services generally finds that the liberalization of restrictions has a positive impact. The literature includes two different approaches to measuring the level of restrictions in a country: direct methods to collect and quantify information on policies being applied (e.g., the services trade restrictiveness index [STRI]), and indirect methods using gravity equations to estimate barriers to trade in services, sometimes estimated as the tariff equivalent of policies (e.g., Anderson et al. 2018, Benz 2017).² Using the same recently released data on regulatory measures as in this paper, Hoekman and Shepherd (2019) calculate tariff equivalents and find that services policies tend to be more restrictive than import tariffs on goods.

² See Francois and Hoekman (2010: 658) for more information on both methods.

While restrictions on services operations and trade tend to limit trade in services, countries can also make commitments such as those made in the General Agreement on Trade in Services (GATS) to provide market access and ensure that foreign services providers receive national treatment. Lamprecht and Miroudot (2018) find that regional trade agreements (RTAs) have more binding commitments than the GATS. Moreover, they find the presence of commitments, even without liberalization, is beneficial to trade in services.

The literature analyzing the liberalization of trade in services that is specific to LAC tends to focus on one country or one sector, such as Wallsten (2001) (telecommunications); Sánchez et al. (2003) (transportation); Peek and Rosengren (2000) (financial sector); Faber and Gaubert (2019) (tourism in Mexico); Atkin, Faber, and González-Navarro (2019) (retail in Mexico); Iacovone, Mattoo, and Zahler (2013) (Chile); and Fernandes and Paunov (2012) (Chile). There is little cross-country or cross-sector analysis of the impact of regulatory policies on trade in services for the region, and there is not much information available comparing the types of policies being applied to trade in services in LAC to the situation in other regions. This paper contributes to these gaps in the literature by documenting and analyzing the impact of different types of policy measures on service imports and exports.

3. Data

This paper uses a new data source on applied services policy measures, the WTO's Integrated Trade Intelligence Portal (I-TIP) Services Trade Policy Database, which was first released in late 2019 and is documented in Borchert et al. (2020).³ The database contains information on measures affecting services operation and trade in services, including the country applying the measure, the sector, the service mode, and the type of measure. The database has two sources: data collected by surveys from the WTO and World Bank and data on services measures from the OECD STRI Regulatory Database. Data were collected in 2016.

There are approximately 450 individual policy measures in the database. The database contains information from 68 countries, including 11 in LAC (Argentina, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, Mexico, Panama, Peru, Uruguay). The measures cover 23 detailed subsectors falling under professional services, transportation services, financial and insurance services, telecommunications, and retail and wholesale services, in addition to horizontal measures. The data distinguishes three modes of supply of services—modes 1, 3, and 4—and five major categories of measures—conditions on market entry, conditions on operations, measures affecting competition, administrative procedures and regulatory transparency, and miscellaneous measures. This paper focuses on measures applying to modes 1 and 4 of trade in services and all categories of

³The Services Trade Policy Database can be found at <http://i-tip.wto.org/services/default.aspx>.

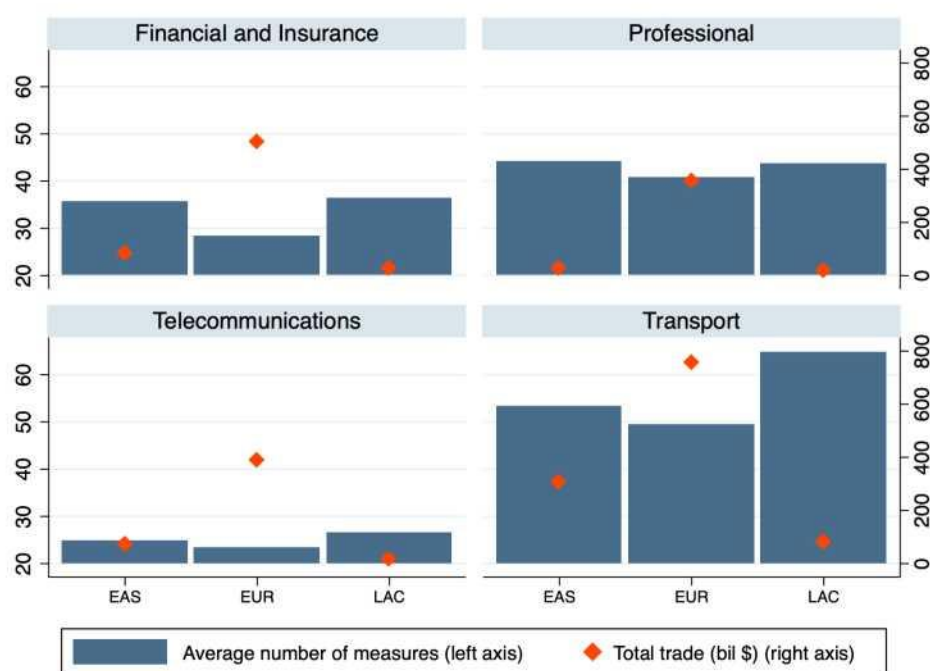
measures except for miscellaneous measures in four sectors: financial and insurance, professional, telecommunications, and transportation.

Approximately 235,000 of the 245,000 observations in the database are yes/no observations that indicate whether the measure exists for the country, sector, and mode. Examples of yes/no measures are “access to railway infrastructure mandated at the national level,” which falls under the category of measures affecting competition, or “laws or regulations establish a process for recognizing higher education degrees earned abroad,” in the conditions on market entry category. The remaining 10,000 observations are measures with a numerical response, such as “maximum foreign ownership allowed (%)” in the market entry category, or “average visa processing time (days),” under measures concerning administrative procedures and regulatory transparency. In this paper, all measures with a numerical response are treated as “yes” measures.

Lists of applied services trade policy measures such as the WTO’s Service Trade Policy Database are the underlying data for cross-country measures of the restrictiveness of services sectors. Examples of this include the two STRI measures popular in services trade policy literature and which are calculated by the OECD and World Bank. Both STRI indices aggregate underlying data on the presence of policy measures using proprietary weighting schemes, although the country and year coverage differ between the two indices.

The Services Trade Policy Database allows the user to work directly with information on applied policy measures. One advantage of using the underlying data rather than aggregate measures of restrictiveness is not relying on the weighting and aggregation schemes used in both versions of the STRI. Although many policy measures affecting services sectors can restrict trade, some measures in this dataset may have the effect of promoting trade by establishing transparent regulations for services providers, fostering competition, or protecting foreign rights. For example, while a measure such as “cross-border supply prohibited” clearly restricts international trade, a measure such as “foreign drivers permitted to transport cargo in a host country” might promote trade in mode 4 in the transportation services sector. For this reason, aggregate measures of services restrictiveness may not accurately capture the nuances of policies on services trade. Furthermore, countries with more measures in a sector are not necessarily more restrictive than others.

Figure 1. Average Number of Measures and Total Services Trade, by Region and Sector

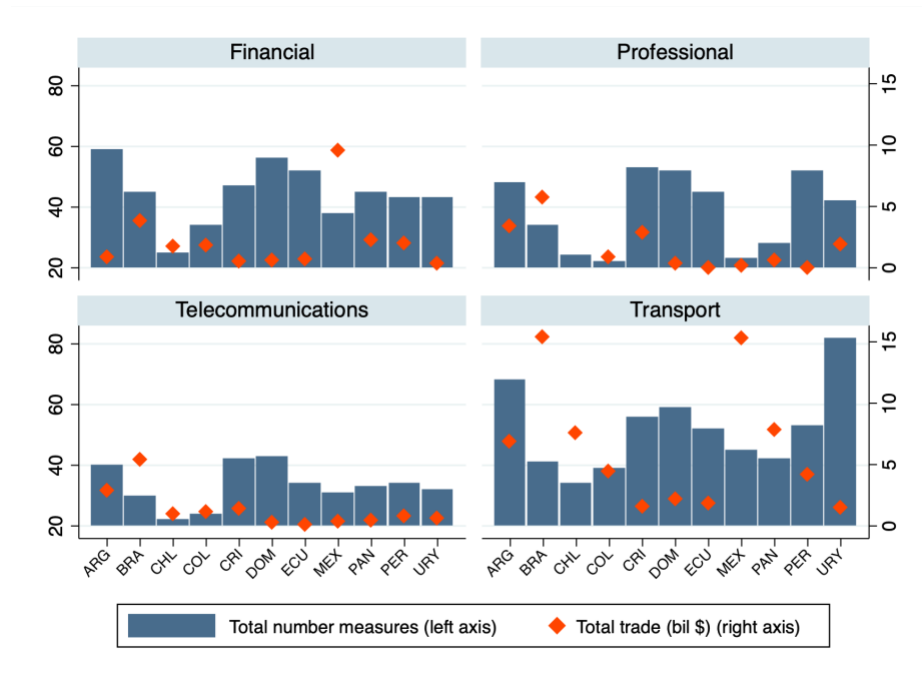


Source: WTO I-TIP, IMF Balance of Payments, and author's calculations.

4. Services Trade Policy Measures in Latin America and the Caribbean

Figure 1 shows the average number of measures applied in four services sectors for three regions: East Asia (China, Taiwan, Hong Kong, Japan, and South Korea), Europe (EU28, Switzerland, Norway, Iceland, and Liechtenstein), and LAC (Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Mexico, Panama, Peru, and Uruguay). LAC has the same average number of measures in two sectors (professional services and financial and insurance services) as East Asia—36 and 44, respectively. In telecommunications services and transport services, LAC applies more measures on average than either East Asia or Europe. Figure 1 also plots total services trade (exports plus imports, average for 2015–2017). Although more measures are not necessarily indicative of a more restrictive environment, as described above, in the sectors and regions plotted on the graph, the total trade in services is generally lower in regions with more measures.

Figure 2. Total Number of Measures by Sector and LAC Country

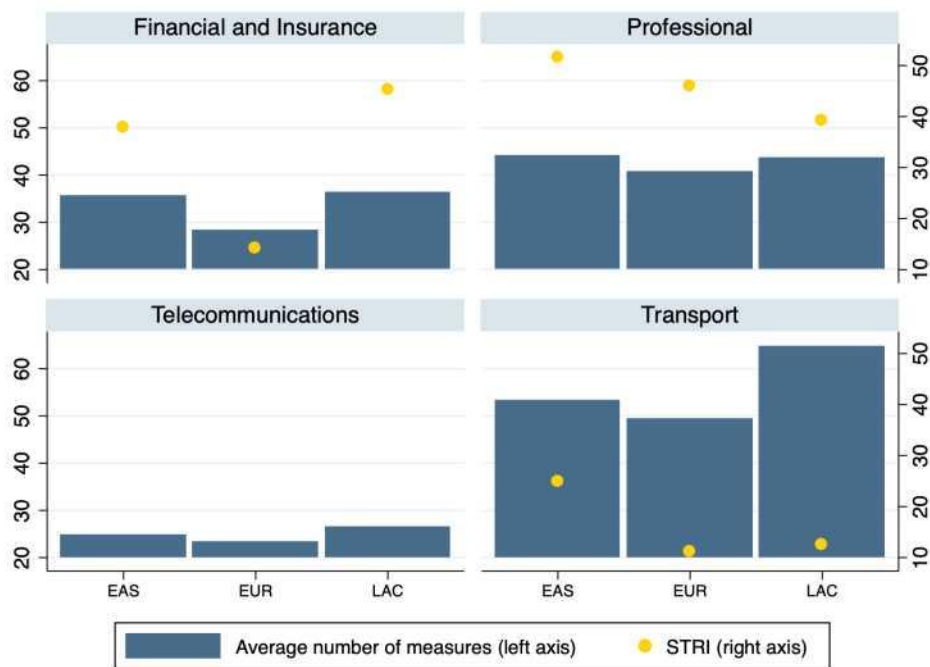


Source: WTO I-TIP, IMF Balance of Payments, and author's calculations.

Figure 2 plots the total number of measures and total services trade by country for LAC. Within the region, a larger number of measures in a sector is generally associated with lower total trade in that sector (the transportation sector is an example of this), but it is not always the case that total trade is higher in the countries with the lowest number of measures. In the telecommunications sector, almost all LAC countries have similarly low values of total trade in services, and the two countries with the fewest measures (Chile and Colombia) do not have the highest values of total trade.

The average number of measures by sector and region does not match the restriction pattern in the STRI neatly. Figure 3 plots the average value of the World Bank's STRI for each region and the average number of measures by sector. In financial and insurance services and professional services, LAC and East Asia apply the same number of measures on average, but there is still a substantial gap between STRI values in these same sectors. In the transportation sector, countries in LAC apply a high number of measures, but the region has a low STRI value.

Figure 3. Average Number of Measures and STRI by Region and Sector

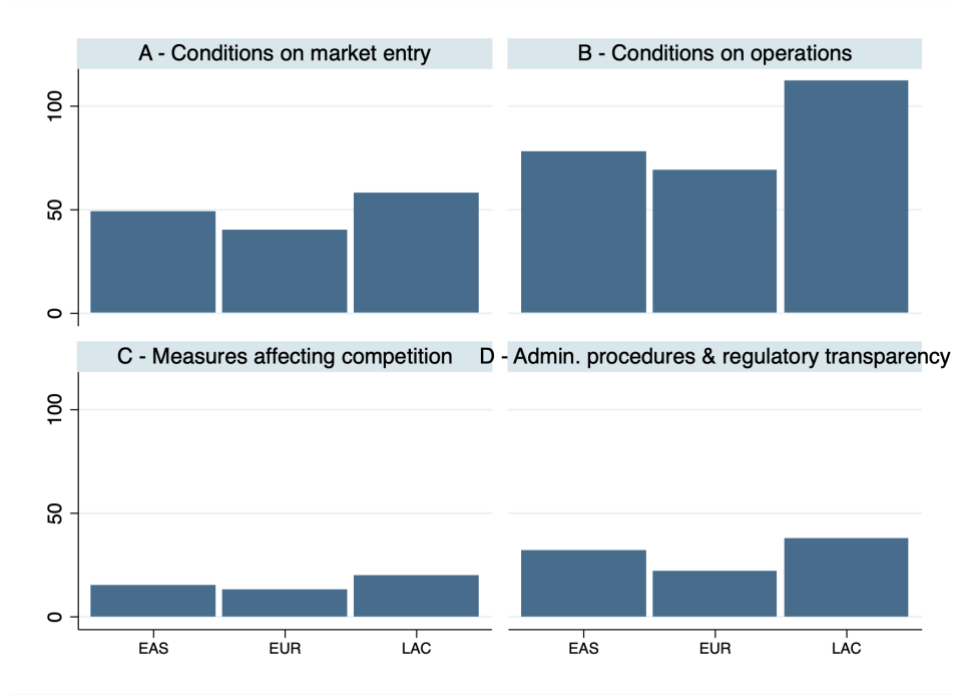


Source: WTO I-TIP, World Bank, and author's calculations.

Note: The World Bank STRI was not available for modes 1 and 4 in the telecommunications sector.

Figure 4 shows the average number of measures by type of measure for East Asia, Europe, and LAC. Compared to East Asia and Europe, LAC countries apply more measures on average in all categories. All regions have more measures relating to services operations and market entry than to the other categories.

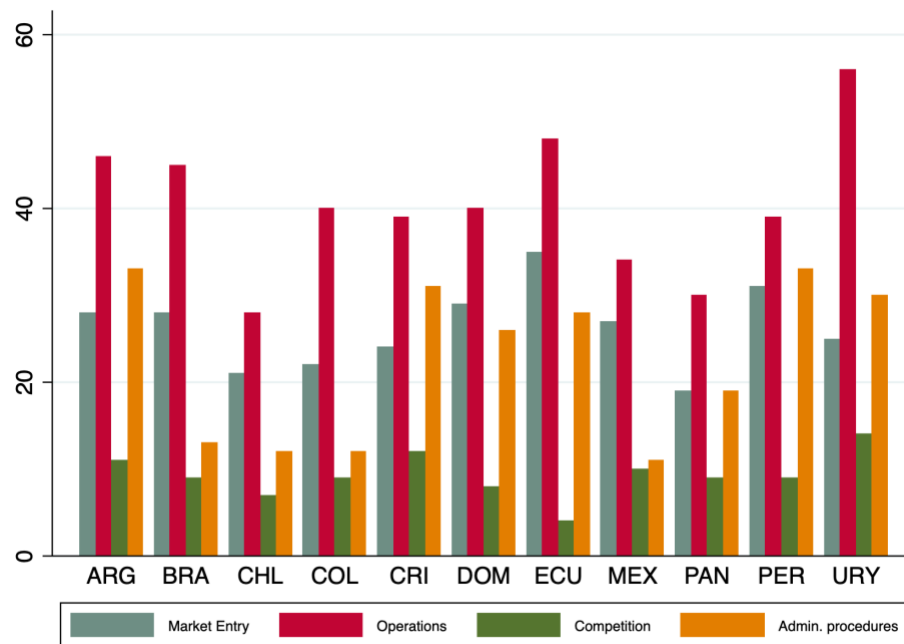
Figure 4. Average Number of Measures by Category and Region



Source: WTO I-TIP, World Bank, and author's calculations.

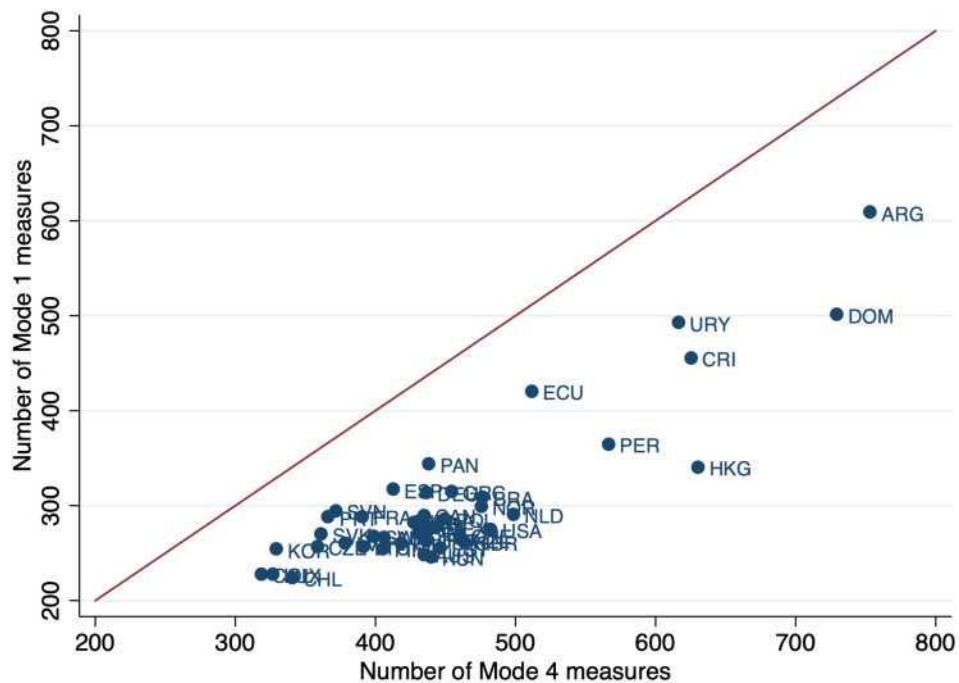
Figure 5 breaks down the number of unique measures by category and LAC country. All countries have more measures relating to operations than to the other categories. Countries with similar trade regimes tend to have similar patterns across the four categories of measures. For example, Argentina, Brazil, and Uruguay (Mercosur countries) apply a similar number of measures across each category.

Figure 5. Total Number of Measures by Category and LAC Country



Source: WTO I-TIP and author's calculations.

Figure 6. Number of Measures by Mode



Source: WTO I-TIP and author's calculations.

Although the Services Trade Policy Database distinguishes whether measures apply to mode 1, 3, or 4 services trade, this paper focuses on trade in services via mode 1 (cross-border supply) and mode 4 (presence of natural persons). Figure 6 plots the number of measures for mode 1 and mode 4 for countries in East Asia, Europe, LAC, and several other OECD countries alongside the 45-degree line. Mode 1 involves the cross-border supply of services and accounts for 25%–30% of all trade in services, while mode 4 involves services supplied by nationals of a country in the territory of another country and accounts for less than 5% of services trade (Saez et al. 2014). All countries have more measures regulating the supply of services via mode 4 than mode 1. Several LAC countries have substantially more measures than the median (276 for mode 1 and 437 for mode 4), including Argentina, the Dominican Republic, Uruguay, and Costa Rica.

5. Econometrics

The figures above show that LAC countries apply more measures by category and sector on average than countries in East Asia and Europe and that trade in services in LAC tends to be smaller in sectors with more measures compared to these other regions, suggesting that more regulations may have a negative impact on trade in services. However, greater numbers of services-related policy measures do not necessarily have a negative effect of this sort. As discussed above, the existence of certain measures may facilitate trade by establishing clear regulations and providing rights to foreign firms. Furthermore, different types of measures may have varying impacts on trade in services. For example, domestic regulations concerning market entry might affect imports of services more than exports, while conditions governing the operations of services providers might impact domestic service exporters more than foreign providers. For any category of measure, a certain number of regulations might facilitate trade in services, but too many regulations might stifle this. Furthermore, certain policy measures may be part of a country's GATS or RTA commitments to increase market access.

This section estimates the impact of different categories of measures on services exports and imports. For each of the four categories of measures (A–D) in figure 4, the category share ($CatShare_{is}$) is defined as the number of measures in category A–D for country i and sector s relative to the maximum number of measures in the category in the dataset. In other words, if the $CatShare_{is}$ for country-sector pair is is equal to 0.75 for category A (conditions on market entry), then the number of measures that country-sector pair is imposes on the market entry category is 75% of the total number of measures in the category in the dataset.

Table 1. Summary Statistics for Country-Sector Category Shares and Number of Measures

All countries	Category	25th percentile	Median	75th percentile	Maximum
	MarketEntrySh	0.13 (8)	0.18 (11)	0.23 (14)	0.54 (33)
	OperationsSh	0.07 (9)	0.11 (13)	0.16 (20)	0.36 (44)
	CompetitionSh	0.14 (3)	0.19 (4)	0.19 (4)	0.48 (10)
	ProceduresSh	0.15 (5)	0.21 (7)	0.30 (10)	0.55 (18)
LAC	Category	25th percentile	Median	75th percentile	Maximum
	MarketEntrySh	0.13 (8)	0.18 (11)	0.23 (14)	0.36 (22)
	OperationsSh	0.09 (11)	0.13 (16)	0.17 (21)	0.36 (44)
	CompetitionSh	0.10 (2)	0.14 (3)	0.19 (4)	0.48 (10)
	ProceduresSh	0.18 (6)	0.30 (10)	0.39 (13)	0.45 (15)

Source: WTO I-TIP and author's calculations.

Table 1 shows the values of the four $CatShare_{is}$ variables at the 25th, 50th, 75th, and 100th percentiles and the numbers of measures corresponding to each percentile in parentheses for all 68 countries in the dataset and the 11 LAC countries. The maximum share (100th percentile) is calculated as the country-sector pair with the most measures in a category divided by the total number of measures in the category present in the dataset. The maximum share values are all less than 0.60, indicating that no country-sector pair implements more than 60% of the total number of possible measures in a category. The difference between the number of measures in the 25th and 100th percentiles is smallest for measures in the competition category (3 measures at the 25th percentile and 10 at the 100th), and greatest for measures in the operations category (9 and 44, respectively).

Comparing LAC countries to the whole dataset, the distribution of shares is similar for the market entry, operations, and competition categories. In the procedures category, LAC countries have more observations at the lower end of the distribution.

Equation (1) estimates the impact of each of the four $CatShare_{is}$ variables on trade flows. It is a cross-section across country-sector pairs using the 68 countries in the WTO Services Trade Policy Database and 4 aggregate services sectors: professional, financial and insurance, telecommunications, and transportation. X_{is} is the 2015–2017 average trade flow (exports or imports) of country i in services sector s .

The *GATS* control variable is based on detailed data on commitments in the four services sectors from the WTO I-TIP services portal. Specifically, $GATS_{is}$ is the share of subsectors in service sector s and country i with GATS commitments. For example, Argentina has made GATS commitments in four of the eleven subsectors under professional services, so $GATS_{is}$ is equal to 0.36 for professional services in Argentina. Because countries opt in to GATS commitments, countries that are large services traders in a particular sector may make more commitments in that sector to set standards in that area that are favorable to them. The *GATS* variable controls for any potential relationship between the number of commitments and the amount of trade in a sector.

All specifications were run with OLS and standard errors are clustered at the country level. Country or sector fixed effects appear separately but do not appear together because of the small size of the cross-section (210 observations). Additional controls are present in some specifications. One of these is the average STRI in a sector, which controls for sector-specific trends in specifications with country fixed effects, calculated using the World Bank's STRI. Other controls are the 2015–2017 average GDP per capita by country, the population in millions, and the area in millions of square kilometers to control for country-specific factors, particularly country size, in specifications with sector fixed effects. GDP per capita and population are from the World Development Indicators, while area is from CEPII's gravity database.

$$\ln(X_{is}) = \alpha + \sum_{CatA}^{CatD} \beta CatShare_{is} + \gamma GATS_{is} + \delta_i + \gamma_s + \epsilon_{is} \quad (1)$$

The size of the cross-section limits the rigor of the analysis presented here, including by not allowing for the simultaneous use of country and sector fixed effects. Results should be taken as an indication of the types of policies having impacts on services trade while acknowledging there are many possible factors impacting services trade that are not able to be controlled for in this analysis.

5.1 Results

Table 2 shows the results for how different categories of services policy measures impact exports in a cross-section where exporting country i is also the country applying the measures. Columns (1)–(3) use country fixed effects, leaving cross-sector variation in $CatShare_{is}$ to estimate equation (1). Columns (4)–(7) use sector fixed effects, leaving variation in $CatShare_{is}$ across countries.

In this global cross-section, measures in the procedures, competition, and operations categories have significant impacts on exports that are consistent across multiple specifications. Administrative procedures are associated with lower levels of exports: the coefficient of -5.28 in column (3) represents a 5.28% decline in exports for a 100% increase in the share of administrative procedures that a country implements.

In other words, if a country increases the number of administrative procedures it implements in a sector from 5 to 10 (a change also equal to moving from the 25th to 75th percentile of the procedure share), exports in that sector would decrease by 5.28%. Using the median values of exports in all four sectors, this change would be equal to a decrease of US\$ 38 million in financial and insurance services, US\$ 118 million in professional services, US\$ 94 million in telecommunications, and US\$ 282 million in transportation services. These results highlight the importance of administrative procedures as a hurdle to trade in services.

Table 2. Impact of Services Policy Measures on Exports

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	ln(exp)	ln(exp)	ln(exp)	ln(exp)	ln(exp)	ln(exp)	ln(exp)
MarketEntrySh	0.51 (1.14)	-0.13 (1.15)	3.87*** (1.45)	1.27 (2.89)	1.22 (2.76)	0.55 (2.12)	-0.28 (2.63)
OperationsSh	6.77*** (1.41)	5.28*** (1.63)	3.45** (1.55)	-7.19** (3.46)	-5.65** (2.82)	0.19 (2.46)	-6.14** (2.83)
CompetitionSh	-2.43* (1.44)	-1.15 (1.45)	-3.05** (1.58)	2.52 (1.99)	1.21 (1.97)	-0.48 (1.77)	0.66 (1.86)
ProceduresSh	-8.29*** (1.18)	-7.31*** (1.29)	-5.28*** (1.43)	-5.37*** (2.03)	-4.01* (2.11)	-2.30 (1.89)	-2.20 (2.01)
GATS		-0.82** (0.30)	-0.65** (0.32)		1.41*** (0.42)	0.58 (0.37)	1.80*** (0.37)
STRI			-0.10*** (0.03)				
GDPpc						0.04*** (0.01)	
Area						0.13*** (0.05)	0.06 (0.05)
Pop							0.00*** (0.00)
Country FE	Yes	Yes	Yes	No	No	No	No
Sector FE	No	No	No	Yes	Yes	Yes	Yes
Adj. R squared	0.71	0.71	0.73	0.26	0.29	0.48	0.35
Observations	210	210	210	210	210	210	210

Standard errors are clustered at the country level.

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

Measures relating to competition also are associated with lower levels of services exports in some specifications. The direction of the impact of measures relating to the operation of services providers is less clear. When variation across sectors is used to estimate equation (1) in the specifications with country fixed effects, the impact of measures relating to operations is positive and strongly significant. In other words, sectors with more operations measures are associated with higher exports. In the specifications with sector fixed effects that use variation across countries, the coefficient sign becomes negative but remains significant in most cases—that is, countries with more operations-related measures are associated with lower exports. This pattern suggests that

sector-specific measures relating to operations, which are best captured in the specifications with sector-level variation (country fixed effects), may be important in setting standards for how services providers operate that benefit exports. A country with more operations measures relative to other countries, however, might have lower services exports. The coefficient for the GATS variables is also sensitive to the type of variation used.

Table 3. Impact of Services Policy Measures on Imports

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	ln(imp)	ln(imp)	ln(imp)	ln(imp)	ln(imp)	ln(imp)	ln(imp)
MarketEntrySh	1.39 (1.10)	0.56 (1.06)	1.89 (1.65)	1.26 (2.39)	1.23 (2.33)	0.07 (1.67)	-0.63 (2.15)
OperationsSh	12.34*** (1.30)	10.40*** (1.60)	9.79*** (1.41)	-2.79 (2.93)	-1.69 (2.60)	3.33 (2.41)	-2.03 (2.63)
CompetitionSh	-3.72*** (1.09)	-2.05* (1.17)	-2.68* (1.26)	2.54 (2.18)	1.61 (2.17)	0.18 (2.00)	1.19 (1.97)
ProceduresSh	-3.00*** (0.95)	-1.72* (1.01)	-1.04 (1.35)	-5.11*** (1.64)	-4.15** (1.59)	-2.30 (1.38)	-2.27 (1.53)
GATS		-1.07*** (0.28)	-1.01*** (0.30)		1.00** (0.39)	0.35 (0.34)	1.38*** (0.33)
STRI			-0.03 (0.03)				
GDPpc						0.04*** (0.01)	
Area						0.16*** (0.05)	0.10** (0.05)
Pop							0.00*** (0.00)
Country FE	Yes	Yes	Yes	No	No	No	No
Sector FE	No	No	No	Yes	Yes	Yes	Yes
Adj. R squared	0.75	0.77	0.77	0.28	0.30	0.50	0.38
Observations	210	210	210	210	210	210	210

Standard errors are clustered at the country level.

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

Table 3 replicates table 2 using imports as the dependent variable, with similar results. At the global level, administrative procedures and competition measures have a negative impact on imports. However, the effect of operations measures on imports is positive in all specifications in which it is significant. Using the coefficient of 9.79 in column (3) and median trade values in each sector, doubling the number of measures relating to operations (a 100% increase) in a country is associated with an increase of US\$ 71 million in imports of financial and insurance services, US\$ 219 million in professional services, US\$ 175 million in telecommunications, and US\$ 524 million in transportation services. These effects highlight the importance of regulations relating to services

operations, suggesting that more measures may create an easier environment for services firms to operate within a country, thereby increasing services imports.

Table 4 introduces a dummy variable for countries in LAC and interaction terms with the four category shares. Market-entry measures in LAC have a net positive impact on both exports and imports. Doubling the number of market entry measures in a sector in a LAC country results in a 9.33% ($3.27 + 6.06$) increase in exports and an 8.22% ($0.90 + 7.32$) increase in imports relative to other sectors. Competition measures have a net negative impact on LAC exports of 6.62% ($1.42 + 5.20$), but an insignificant impact on LAC imports. Measures in the operations and procedures categories do not have a significant impact on services exports and imports in these specifications, perhaps because the group of LAC countries is too heterogeneous in the types of measures imposed. The next section looks at bilateral trade flows with the United States and groups of LAC countries which are more homogenous.

Table 4. Impact of Services Policy Measures on LAC's Services Trade

	(1) ln(exp)	(2) ln(imp)
MarketEntrySh	3.27** (1.29)	0.90 (1.10)
OperationsSh	4.01** (1.75)	10.29*** (1.47)
CompetitionSh	-1.42 (1.45)	-2.14* (1.12)
ProceduresSh	-4.49*** (1.60)	-0.49 (1.12)
LAC*MarketEntrySh	6.06** (2.70)	7.32*** (2.21)
LAC*OperationsSh	-2.69 (2.79)	-3.15 (3.31)
LAC*CompetitionSh	-5.20** (2.42)	-1.44 (2.39)
LAC*ProceduresSh	3.26 (2.52)	2.58 (4.86)
GATS	-0.74** (0.32)	-1.07*** (0.28)
STRI	-0.12*** (0.03)	-0.05* (0.03)
Country FE	Yes	Yes
Sector FE	No	No
Adj. R squared	0.74	0.79
Observations	210	210

Standard errors are clustered at the country level.

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

5.2 Services trade with the United States

This section examines the impact of the different categories of policy measures on bilateral trade flows of services with the United States. Bilateral services trade data is taken from the US Bureau of Economic Analysis (BEA) International Economic Accounts and merged with the data on policy measures affecting services trade from the WTO I-ITIP. The merged dataset covers 55 countries, including 9 countries in LAC (Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Mexico, Panama, and Peru). This section breaks LAC into three

groups based on countries' trading relationships with the United States: Mexico, Mercosur (Argentina and Brazil), and CAFTA-DR (Costa Rica and the Dominican Republic). Chile, Colombia, Panama, and Peru are excluded from these specifications. While the results presented above indicate which types of policies are important to services trade worldwide, a more detailed analysis of bilateral services flows within trading blocs can shed light on areas to focus on to stimulate greater services trade within the bloc. This section focuses on the bilateral trade with the United States because of the reliability of US-collected data and the importance of the United States in participating in and setting standards in global services trade.

Table 5 shows the values of bilateral services trade with the United States for Mexico and the countries in the Mercosur and CAFTA-DR groups. The three groups run a services trade deficit with the United States in all four sectors except professional and telecommunications services in the CAFTA-DR group, which are driven by high services exports in Costa Rica. Table 5 also shows the number of measures imposed by sector in two categories: market entry and operations. The number of measures imposed by a group is the sum of the measures imposed in a sector by the countries belonging to the group, and this does not vary bilaterally.

Table 5. Services Trade with the United States and Number of Measures Imposed by Sector

Group	Sector	Exports (millions of US\$)	Imports (millions of US\$)	Market-Entry Measures (number)	Operations Measures (number)
Mexico	Financial and Insurance	367	1,857	19	10
Mexico	Professional	756	1,292	11	9
Mexico	Telecommunications	959	1,123	9	13
Mexico	Transport	2,952	3,999	14	23
Mercosur	Financial and Insurance	609	2,814	27	46
Mercosur	Professional	1,426	1,769	33	25
Mercosur	Telecommunications	620	5,641	13	27
Mercosur	Transport	233	6,164	28	52
CAFTA-DR	Financial and Insurance	35	276	23	42
CAFTA-DR	Professional	264	126	42	24
CAFTA-DR	Telecommunications	278	110	14	34
CAFTA-DR	Transport	412	1,197	29	49

Source: WTO I-TIP, US BEA and author's calculations.

Note: Mercosur refers to Argentina and Brazil. CAFTA-DR refers to Costa Rica and the Dominican Republic. Trade values are the 2015–2017 average.

Equation (2) estimates the impact of each of the four $CatShare_{is}$ variables on bilateral trade flows and is identical to equation (1), with the exception of the trade values on the left-hand side, which are now the average value for 2015–2017 of the services exports and imports of country i with the United States in sector s , instead of country i 's total services exports and imports in sector s .

$$\ln(X_{is}^{US}) = \alpha + \sum_{CatA}^{CatD} \beta CatShare_{is} + \gamma GATS_{is} + \epsilon_{is} \quad (2)$$

Table 6 shows the results for the impact of measures on LAC exports to the United States by group. Column (1) analyzes the impact of measures imposed in LAC countries on their exports to the United States, while column (2) focuses on the impact of measures imposed in the United States on LAC exports to the country. Only two categories of measures are presented (market entry and operations) due to collinearity among the US share variables; however, both types of measures are seen to be important for the three LAC groups analyzed. As with the results of the global cross-section presented above, the small sample size impacts the ability to control for many factors affecting trade and these results should be interpreted accordingly.

Market-entry measures imposed in two groups, Mexico and CAFTA-DR, have a significant net negative impact on exports to the United States: a 100% increase in the number of measures relating to market entry in a sector decreases exports to the United States in that sector relative to others by 4.59% in Mexico and 12.26% in CAFTA-DR. In Mexico, the impact translates into a decline in exports to the United States ranging from US\$ 17 million in financial and insurance services to US\$ 135 million in transportation services. In the CAFTA-DR group, the 12.26% decline in exports ranges from US\$ 4 million in financial and insurance services to US\$ 50 million in transportation services. The importance of market-entry measures for LAC countries was also seen in table 4, where these were shown to have a positive impact on total LAC services exports and imports. The negative coefficients seen here suggest that too many measures relating to market entry could jeopardize exports to the United States, perhaps by deterring certain firms whose services exports would be competitive there from entering the market, even if the presence of more market-entry measures has a positive impact on total exports in a LAC country.

Table 6. Exports to the United States: Impact of Services Restrictions

	(1) ln(EXtoUS)	(2) ln(EXtoUS)
MarketEntrySh	7.09*	8.06
	(3.95)	(5.13)
OperationsSh	-1.70	8.43***
	(3.73)	(3.08)
MEX	2.27***	4.83***
	(0.82)	(0.98)
Mercosur	0.67	2.11
	(0.96)	(2.32)
CAFTADR	-3.15	4.36***
	(3.41)	(1.29)
MEX*MarketEntrySh	-11.68***	-19.40***
	(3.46)	(5.00)
MEX*OperationsSh	9.70**	3.77
	(4.16)	(2.76)
Mercosur*MarketEntrySh	3.37	-4.99
	(4.95)	(12.08)
Mercosur*OperationsSh	-9.87	-10.02**
	(6.75)	(4.76)
CAFTADR*MarketEntrySh	-19.35*	-31.33***
	(11.56)	(5.58)
CAFTADR*OperationsSh	28.05	4.32
	(29.76)	(4.30)
GATS	-1.28**	-0.37
	(0.63)	(0.64)
Measures	LAC	USA
Country FE	No	No
Sector FE	No	No
Observations	157	157

Robust standard errors in parentheses

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

Operations measures imposed in the LAC country groups only have a significant impact on exports to the United States in the case of Mexico, where a 100% increase in the number of measures imposed results in an 8% increase in exports to the United States.

In column (2) of table 6, the category share variables used are for the United States rather than the exporting country. US-imposed measures on market entry have a significant negative effect on exports from Mexico and CAFTA-DR, suggesting that US restrictions in this category are limiting services exports from these regions. Doubling the number of US-imposed market entry measures in a sector results in an 11.34% decline in exports to the United States from Mexico (ranging from US\$ 42 million in financial and insurance services to US\$ 335 million in transportation services) and a 23.27% decline in exports to the United States from CAFTA-DR (ranging from US\$ 8 million in financial and insurance services to US\$ 96 million in transportation services).

US-imposed measures in the operations category have a significant negative impact on exports from Mercosur but not on exports from Mexico or CAFTA-DR: doubling the number of these measures in a sector is associated with an 18.45% decline in that sector's exports to the United States. This impact ranges from US\$ 43 million in transportation services to US\$ 263 million in professional services.

Table 7 shows results for the types of measures affecting imports from the United States in the three LAC groups. Due to the interconnectedness of trade between the United States and Mexico and the possibility of LAC countries becoming more involved in global services supply chains, measures that affect imports of services can, in turn, impact domestic services operations and trade. Column (1) estimates the impact of measures imposed in LAC. Market-entry measures imposed in the three groups do not have a significant impact on imports from the United States, perhaps because the latter are driven by supply-side factors. Measures relating to operations imposed in the three groups only have a significant impact in Mexico. Doubling the number of measures relating to operations that are imposed in a sector in Mexico increases imports from the United States by 4.1%, an impact that ranges from US\$ 53 million in professional services to US\$ 164 million in transportation services. This result may indicate that more measures relating to operations imposed in Mexico might clarify the standards and procedures in place, making it easier for US services providers to operate in Mexico.

The impacts of US-imposed measures on LAC imports from the United States are shown in column (2) of table 7. Measures relating to services operations in the United States have a net positive impact on imports in Mexico and CAFTA-DR, suggesting that the presence of measures relating to services operations might help US firms operate both domestically and abroad. A 100% increase in the number of operations measures applied in the United States results in a 2.97% increase in Mexican imports from the country (ranging from US\$ 33 million in telecommunications to US\$ 119 million in transportation services) and a 10.34% increase in CAFTA-DR imports from the United States (ranging from US\$ 11 million in telecommunications to US\$ 124 million in transportation services). US-imposed market-entry measures have a net negative impact on Mercosur's imports from the country. Doubling the number of US-imposed market-entry measures in a sector would reduce Mercosur imports from the United States in that sector by 6.53%, a decrease ranging from US\$ 116 million in professional services

to US\$ 403 million in transportation services. This result might indicate that as US firms find it easier to operate at home, they might reduce their exports to the region, although market entry measures only have a significant impact in this regression in Mercosur.

Table 7. Imports from the United States: Impact of Services Restrictions

	(1)	(2)
	ln(IMfromUS)	ln(IMfromUS)
MarketEntrySh	5.83** (2.73)	10.87*** (3.85)
OperationsSh	-6.08** (2.74)	-2.60 (2.78)
MEX	0.52 (0.57)	2.03*** (0.76)
Mercosur	2.58*** (0.66)	4.75*** (1.07)
CAFTADR	-3.96*** (1.32)	-3.43*** (0.94)
MEX*MarketEntrySh	-3.29 (2.74)	-6.26 (3.90)
MEX*OperationsSh	10.18*** (3.19)	5.57** (2.26)
Mercosur*MarketEntrySh	-4.97 (4.09)	-17.40** (6.99)
Mercosur*OperationsSh	-1.89 (4.81)	-1.24 (3.62)
CAFTADR*MarketEntrySh	7.69 (8.16)	2.57 (4.09)
CAFTADR*OperationsSh	7.54 (14.26)	12.94*** (2.37)
GATS	-1.00** (0.50)	-0.80 (0.55)
Measures	LAC	USA
Country FE	No	No
Sector FE	No	No
Observations	157	157

Robust standard errors in parentheses

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

6. Conclusions

This paper attempts to fill some of the gaps in the services trade literature by analyzing the effects of different types of policy measures on trade in services, with a focus on LAC. The small size of the cross-section used in this analysis limits the rigor and depth of the analysis but indicates the types of measures with the largest impacts on services trade. Globally, measures relating to the operations of services firms and administrative procedures have the greatest impacts on trade in services. When looking at the 11 LAC countries in the database as a whole, market-entry measures have the largest impact on both exports and imports of services, suggesting that more market-entry measures might set standards that help both domestic and foreign services providers. Focusing the analysis on bilateral services trade between the United States and certain groups of LAC countries further highlights the importance of market-entry measures but suggests that too many of these might be a deterrent to trade in services. More measures relating to services operations appear to be beneficial for trade in services between the United States and Mexico and the United States and CAFTA-DR, suggesting that these measures may help to alleviate the impact of barriers to services operation on both sides.

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