Uncovering the Barriers of the China-Latin America Caribbean Trade

Moreira, Mauricio and Soares, Andre and Li, Kun

Inter-American Development Bank

3 October 2016

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Inter-American Development Bank

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

Moreira, Mauricio Mesquita.
Uncovering the barriers of the China-Latin America & Caribbean trade / Maurício Mesquita Moreira, André Soares, Kun Li.

p. cm. — (IDB Monograph ; 474)

Includes bibliographic references.

1. Tariff-China. 2. Tariff-Latin America. 3. Non-tariff trade barriers-China. 4. Non-tariff trade barriers-Latin America. 5. China-Commerce-Latin America. 6. Latin America-Commerce-China. I. Soares, André. II. Lin, Kun. III. Inter-American Development Bank. Integration and Trade Sector. IV. Title. V. Series.

IDB-MG-474

Keywords: Trade Barriers, Chinese Firms, LAC Firms, Tariffs, China, Latin America.

JEL Codes: F1, F15, F21, O54.

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Acknowledgments

Uncovering the Barriers of Chin-LAC trade is the product of joint research effort carried out by the Integration and Trade Sector of the IDB (INT) under the general supervision of Antoni Estevadeordal (Sector Manager) and the direction of Maurício Mesquita Moreira (Sector Economic Advisor) in collaboration with André Soares and and Kun Li (INT Consultants). Camila Viegas-Lee and Marcela Colmenares oversaw the production of this publication. Victoria Patience edited the English version and María Inés Martiarena, Beatriz Velloso, Jing Chen, were, respectively, in charge of the translation to Spanish, Portuguese and Chinese. The Word Express, Inc. did typesetting. We would like thank the government officials and private sector managers in both China and Latin America and the Caribbean that gave us the opportunity to discuss the issues covered in this study. We are especially grateful to Joaquim Tres (IDB/INT), for his support in creating the necessary conditions for this project to move forward.

The opinions expressed in this publication are those of the authors and do not necessarily reflect the views of the IDB or its board.

Introduction

In the space of 10 years, two economies that barely traded, let alone exchanged investments, have become major trade partners. Driven by a booming exchange in commodities for manufacturing goods, trade between China and Latin America and the Caribbean (LAC) grew at a breakneck annual average rate of 31.2 percent between 2000 and 2011, only briefly interrupted by the financial crisis in 2009. Through this process, China became LAC's second-largest trade partner—accounting for 13.7 percent of the region's trade in 2015—and the largest trade partner of countries such as Brazil, Chile and Peru. Though reaching more modest levels, LAC's share of China's trade also increased substantially, reaching 5.9 percent in 2015 as the region became a key supplier of raw materials such as copper, iron ore and soybeans.

Since 2012, however, this boom seems to have come to an end. Bilateral trade growth has decelerated sharply and turned negative in 2014, on the back of marked and intertwined slowdowns in the growth of China and LAC, the origins of which range from a protracted recovery of the world economy to the diminishing returns of China's growth, to macroeconomic mismanagement in some of the largest LAC economies. This turn of events has raised questions about the future of the relationship. Does this slowdown signal a new pattern and loss of dynamism for bilateral trade or just a strong cyclical adjustment, prompted by an unusually long commodity cycle?

The right answer to this question seems to combine elements of both explanations, but cyclical adjustment appears to explain most of the story, if only because there has been no significant change in the fundamentals behind the dynamism of the last decade. Yes, China is unlikely to return to double-digit growth because it is already experiencing inexorable diminishing returns. As its capital stock grows and the productivity gains associated with moving people to more productive activities are exhausted, return on investment tends to fall and so does growth. Lower growth, in turn, compounded by the growing share of services in gross domestic product (GDP), translates into less dynamic demand for commodities.

However, with a GDP per capita of US$7,989 (IMF, 2016), China is still far from experiencing the low rates of return seen in developed countries

or their share of services in GDP. This is why most analysts do not see China's annual growth falling below 6 percent at least until the end of this decade. If we add to these expectations the fact that the country's natural resource constraints will not improve, it is easy to see a scenario in which the growth in demand for LAC commodities remains robust, though not as epic as in the last decade. Likewise, factor endowments on both sides of the relationship suggest that LAC will remain a major importer of Chinese manufacturing goods, though the composition of such imports is likely to change as China's wages, capital stock and human capital continue to grow.

In sum, looking forward, there is no good reason to believe that the bilateral trade will become less relevant or that its pattern will be radically altered. The most likely scenario is one of a more mature relationship, one that is still extremely positive, but where both governments and private sectors will have to work much harder to fully enjoy its potential gains. There will be less tolerance of the sort of neglect for trade barriers that has marked the boom years.

That is particularly the case for most of LAC, which was granted a huge market for its commodities almost overnight, and therefore had few incentives to develop a more forceful trade policy. It was only late in the decade that governments and the private sector came to realize that one of the major concerns revealed during the boom—the overwhelming concentration of the region's exports in a handful of commodities—could not be addressed without improving their access to the Chinese market. Chile, Peru and, more recently, Costa Rica were notable exceptions. China, in turn, despite several barriers imposed on its manufacturing exports, particularly in the Southern Cone, mostly chose to look the other way, which is perhaps explained by the fact that these barriers were not seriously hurting Chinese exports to the region, which were almost trebling every four years.

In this scenario, where epic and effortless gains are things of the past, we expect that the importance of trade policy will increase, but that any great policy-related activism will face significant obstacles. There is not enough information on the specifics of China's trade regime, nor enough policy analysis of its impacts on trade and investment flows. LAC's trade regime, with a few exceptions, is better documented, but there is also not a critical mass of analytical work to guide policy decisions.

This report hopes to contribute to closing this gap by offering a more detailed analysis of trade barriers and their impact on both sides of the relationship. It is not intended to be exhaustive. It focuses mainly on

more pressing market access issues, identified by an extensive analysis of trade data and official documents, as well as by several interviews with government officials and firm executives. Most of the equally important, but exceedingly complex, government support issues are left for future research.

Within the realm of market access, the focus is on non-tariff barriers, which are generally more obscure and challenging to assess and seem to be particularly binding for LAC agricultural trade and for China's manufacturing exports. The former tend to be up against quotas, tariff-rate quotas (TRQs), price controls, state trading and inscrutable sanitary and phytosanitary measures. The latter often face constantly changing technical barriers, arbitrary custom valuations, non-automatic import licenses and contingent trade-remedy measures (anti-dumping, countervailing and safeguards), which use the so-called surrogate country method to establish dumping, relying on price or production data from third countries.

The analysis is divided into three sections. The first examines the main costs encountered by LAC exporters in China, the second looks at the "frictions" faced by their Chinese counterparts in the region and the final section summarizes the main findings and outlines both policy and research agendas.

Accessing the Chinese market: trade barriers to LAC firms

LAC's well known difficulties to diversify its exports to China—iron ore, soybeans, copper and oil still account for more than 80 percent of shipments—go well beyond trade costs and are rooted in plain comparative advantages and historically low investments in education and science and technology. That does not mean, however, that trade barriers do not play a role in these difficulties or that trade policy is powerless.

In fact, despite China's significant progress toward trade liberalization, which began well before its accession to the World Trade Organization (WTO) in 2001 (Ianchovichina & Martin, 2004), LAC's exporters still face significant barriers to penetrating the Chinese market, which are particularly binding for natural resource-intensive sectors, where LAC has strong comparative advantages and where diversification is more likely to occur. Even more worrying is the fact that the relevance of these barriers often increases with the levels of processing and sophistication of the exports.

Do tariffs still matter?

A brief overview of the current structure of China's import tariffs, shown in Table 1, leaves little doubt that agriculture should be at the top of LAC's bilateral trade agenda. The average tariff for agriculture is significantly higher

TABLE 1/
China's import tariffs, 2013

Average applied MFN tariff (%)	Total	Agriculture	Manufacturing	Mining
Simple average (6-dig)	9.9	13.4	9.3	3.2
Average weighted by				
Chinese imports	4.6	10.3	5.4	1
Argentina's exports to WLD	14.4	17.3	13.1	1.7
Brazil's exports to WLD	10.1	17	9.2	0.8
Colombia's exports to WLD	4.1	12.3	9.5	1.4
Mexico's exports to WLD	9.6	16.1	10.9	0.7
World's exports to WLD	8	16.1	8.5	2.4

Source: tariffs from WTO, trade data from UN-Comtrade, 2013.
Note: Broad sectoral categories defined based on Standard International Trade Classification (SITC), Rev. 3. Manufacturing includes 1, 25, 266, 267, 269, 5, 61 to 67, 69, 7 and 8. Agriculture includes 0, 21, 22, 233, 24, 261, 263, 264, 265, 268, 29 and 4. Mining includes 27, 28, 3 and 68.

than those for the other sectors, with tariff peaks as high as 65 percent. Not only are tariffs higher, they are particularly stacked against LAC exports. With the exception of Colombia, the weighted average based on the composition of LAC's exports to the world is significantly higher than either the simple average or the weighted average based on China's current imports.

Tariffs on manufacturing goods are not as high as in agriculture, but they are far from harmless and are particularly at odds with China's comparative and competitive advantages and its status as "the world factory." The simple average is more than twice as high as that of the OECD (3.6 percent), and tariff peaks can be as high as 45 percent. LAC's manufacturing exports also tend to face tariffs that in general are higher than the simple average, although the bias is not as strong as in the case of agriculture.

Although revealing, average applied tariffs do not tell the whole story, particularly in the light of the complexities of China's trade regime. As with other East Asian economies in the past, processing trade plays a major role in China's dealings with the rest of the world. Imports to the country face radically different levels of protection depending on their end use (such as intermediate, capital or consumer goods) and their final destination. Goods imported to be processed and re-exported enjoy zero tariffs, which are mostly made up of (manufacturing) intermediate goods. Estimates from 2010 put processing imports at 45 percent of all imports—a number that is significantly higher when commodity imports are excluded.[1] What this means in practice is that if a country exports goods that are part of China's exporting value chain, it can take advantage of duty-free access to a market that is currently valued at US$447 billion for processing imports. Unfortunately, this is not the case for Latin American exporters, who export a limited amount of manufacturing goods to China (2 percent of all LAC's manufacturing exports in 2014 or just 1.6 percent of all China's manufacturing imports), 35 percent of which are made up of consumer and capital goods. Recent estimates are hard to come by, but data from China Customs Administration for 2006 indicates that in that year only 25 percent of imports from LAC were considered "processing imports" and therefore enjoyed duty-free status.

If exporters are targeting the domestic market, which, as suggested, is the overwhelming case of Latin American exporters, then applied average tariffs tend to under—rather than overestimate the amount of protection they face. The reasons are related to how tariffs vary along the value chain; the way some imports are taxed and the incidence of non-tariff barriers.

[1] Yu & Tian, 2012.

Higher obstacles at the top of the value chain. China's tariff structure tends to discriminate against non-processing imports at the top of the value chain. This can be seen in at least two ways. As Figure 1 shows, the average most favored nation (MFN) tariff for consumer goods (11.1 percent) is twice that of intermediate goods (4.9 percent) and 10 times that of raw materials (1.1 percent). Whereas this bias is far from unique—it exists in most countries—it is particularly pronounced in China's case, with consumer goods having one of the highest levels of protection in the world. This feature certainly poses a challenge to LAC's exporters seeking to sell directly to Chinese consumers, a privilege that usually carries higher profit margins.

This bias is also visible at finer levels of aggregation, along the lines of what is traditionally called tariff escalation; that is, import duties that increase according to the level of processing, irrespective of the end use of the good. This is particularly the case for agriculture, where processed

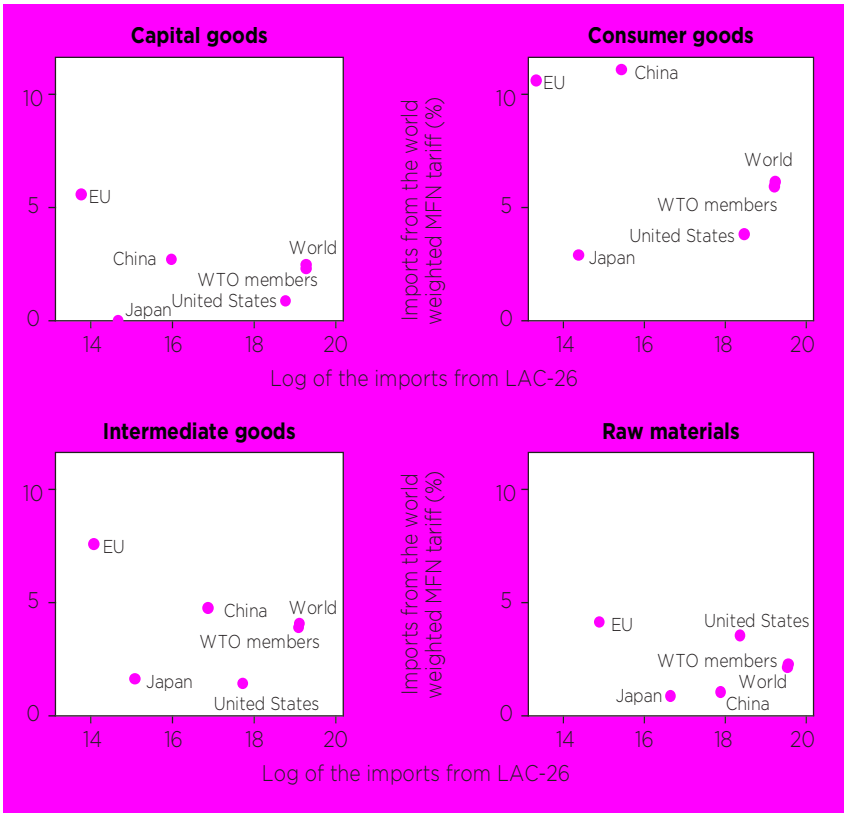
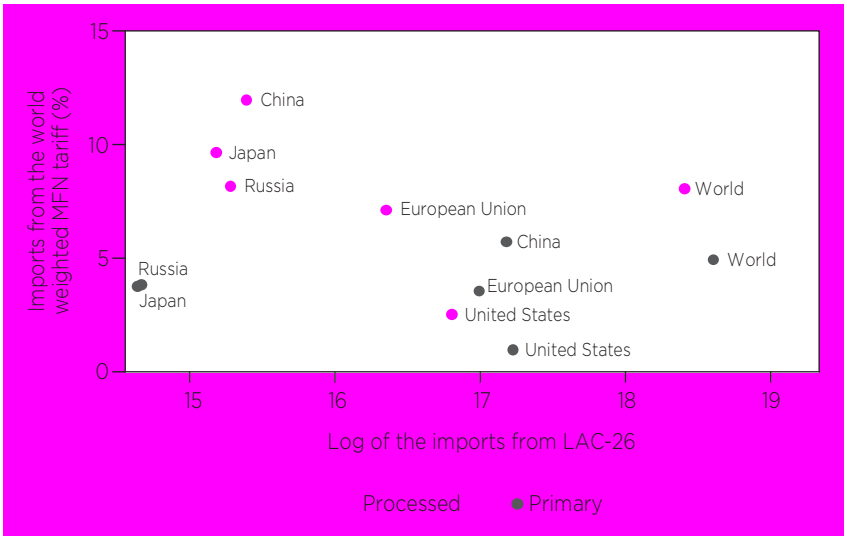


FIGURE 1/
China's import tariffs by end-use categories, 2014

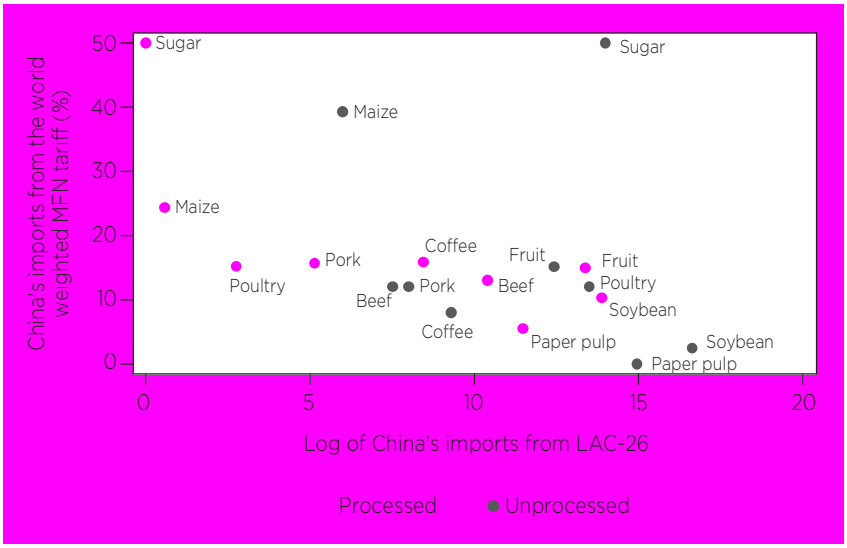
Source: Iberoamerican Federation of Exchanges.

FIGURE 2/
Tariff escalation for agricultural goods: LAC's main partners, 2014



Source: IDB/INT with data from TRAINS and WITS.
Note: Goods defined according to Broad Economic Category: Food and Beverages.

FIGURE 3/
Tariff escalation for selected agricultural goods: China, 2014



Source: IDB/INT with data from TRAINS and WITS.

goods face significantly higher tariffs than unprocessed goods. Here too, China is not alone in adopting this practice, with LAC's other key trade partners having even more significant distortions (Figure 2).

Figure 3 takes a closer look at these practices by selecting nine value chains, which account for 90 percent of LAC's exports to China and

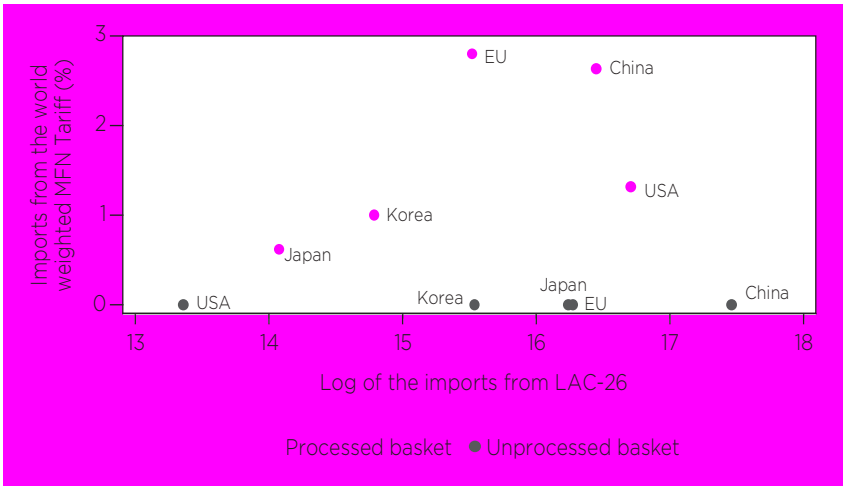


FIGURE 4/
Tariff escalation for selected metals: China and selected countries, 2014

Source: IDB/INT with data from TRAINS and WITS.

for 63 percent of its exports to the world. This breakdown reveals that tariff escalation mostly matters for soybeans and coffee, and, to a lesser extent, for paper pulp, even though China is competitive in pulp paper and processed soybeans and does not have a significant coffee industry.[2] In contrast, sugar and maize do not show any sign of tariff escalation—in fact, the latter even show signs of "de-escalation"—a characteristic that seems to be driven by the tariff quotas imposed at the bottom of value chain (see section on non-tariff barriers, NTBs).

Tariff escalation might also be a concern for LAC metal exporters. While the region is one of the largest exporters of mineral ores to China, it exports hardly any processed minerals. For example, for every dollar of mineral ore exported in 2014, LAC was only able to export 47 cents of processed minerals.[3] As shown in Figure 4, China has the second-highest tariff wedge across the value chain (2.6 percentage points) among LAC's main metal importers.

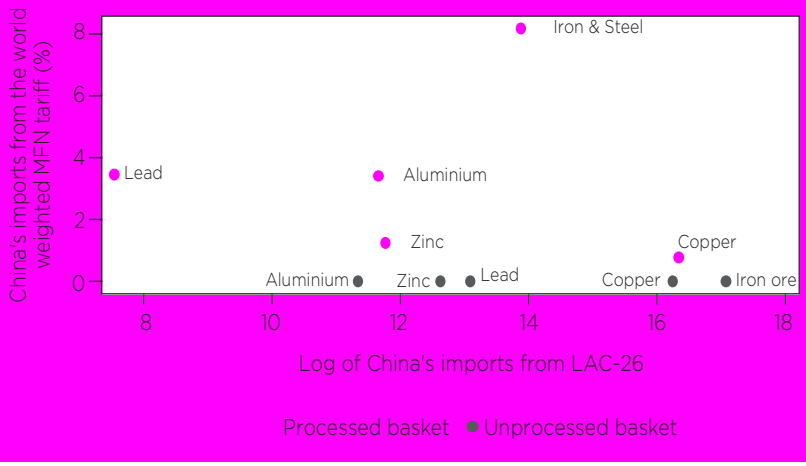
Figure 5 takes a more detailed look at the value chain for LAC's main metal exports. Reasons for concern mainly lie in the iron segment, regarding both the level of tariffs on processed products (8 percent) and the tariff wedge (8 percent), and, to a lesser extent, in the value chain for lead and aluminum. It is not so much of an issue for copper or zinc.

As in the case of some agricultural goods, defensive interests do not seem to justify the kind of tariff escalation seen in the value chain for iron. For example, China is the largest steel producer in the world with outputs

[2] According to a LAC pulp paper association, China is the third largest exporter of paper to the world and to LAC, with 9.4 percent and 6 percent of the market share, respectively.

[3] Mineral ore is defined as HS-2 digit 26, and processed minerals as HS-2 digit 72–80.

FIGURE 5/
Tariff escalation for selected metals: LAC's main exports to China, 2014



Source: IDB/INT with data from TRAINS and WITS.

BOX 1/
What is behind Chile's exports of refined copper?

Chile's sales of refined copper are the only processed metal exported by LAC to China. The country is not only the largest exporter in the region but also in the world, and 31 percent of its exports go to China. This performance runs counter to the view that LAC is not competitive in processed metals and raises the question of how Chile is able to access the Chinese market. The reasons behind this puzzle are threefold.

First, there is a structural shortage in the domestic supply of refined copper. Even though China was able to ramp up its domestic smelter and refinery capacity to 4.4 MT and 7.9 MT, respectively, in 2013, consumption has outpaced this, reaching 9 MT (USGS, 2013). The power sector is the main driver behind the refined copper market in China, accounting for 47 percent of total apparent consumption, followed by household appliances (15 percent), transportation (10 percent) and construction (9 percent) (USGS, 2013). China's push for urbanization requires more power transmission capacity and positively affects sales of household appliances. China's state-owned power sector enterprise, State Grid, currently plays a decisive role in the market, accounting for 40 percent of China's total refined copper consumption (Fickling, 2016).

Second, the Chile–China FTA gives advantages to Chilean exporters. As Chile's main refined copper producer, CODELCO (Corporación Nacional del Cobre) is able to export refined copper to China under a tariff-free regime, while India, Australia and Japan have to pay a 0.2 percent tariff. This small gap is enough for Chile to be competitive in terms of price after tariffs. In 2013, Chile's refined copper unit price after tariffs was US$7,508 per ton, 1.1 percent lower than the average unit price from its main competitors.

Third, the high quality of Chile's cathodes matters. CODELCO was able to certify their cathodes in China and to prove that they are superior to the local supply, allowing the company to win contracts with key suppliers such as State Grid (CODELCO, 2010).

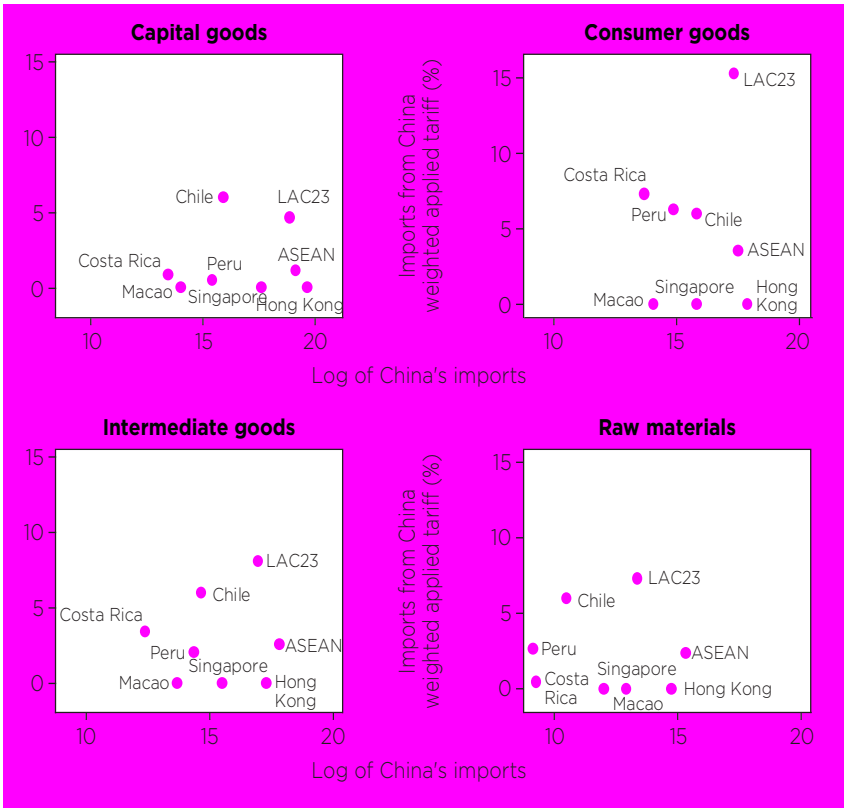


FIGURE 6/
China's tariffs by FTA and product clusters, 2013

Source: IDB/INT with data from Comtrade and TRAINS.

of 803 million metric tons in 2015, accounting for 49 percent of the world's production (World Steel Association, 2015).

Tariffs and trade diversion. Aside from the issue of the level and structure of China's tariff protection, LAC exporters have to contend with increasing negative trade preferences, driven by China's growing network of trade agreements. As of October 2015, China had 13 free trade agreements (FTAs), only three of which were with LAC—Chile (2005), Peru (2009) and Costa Rica (2011)—and was negotiating another seven.[4] Figure 6 illustrates these concerns, showing that in end-use categories, the tariffs imposed on LAC companies is approximately twice those facing China's FTA partners. The disadvantages, as would be expected, are significantly smaller for the three LAC countries with FTAs mentioned above, but they are still sizeable for consumer goods.

[4] See http://fta.mofcom.gov.cn/topic/encosta.shtml. China's other signed FTAs are with ASEAN, Pakistan, New Zealand, Singapore, Hong Kong, Macau, Iceland, Switzerland, Korea and Australia.

How much do tariffs hurt LAC exports? While the evidence presented so far suggests that tariffs are still an important hurdle for LAC exporters, nothing has been said about exactly how much they hurt the region's exports or, to put it another way, how much could be gained by a more aggressive trade policy.

To answer this type of question, trade economists usually resort to two types of tools: computable general equilibrium and gravity models. The former offers what may potentially be a more complete answer because it takes into account first- and second-order impacts on all product and factor markets. However, it demands a massive amount of data, which is not usually available for the whole region, and the results are too dependent on arbitrary assumptions about the way the economy works. The gravity model, in turn, is less data intensive, robust to different assumptions and has a proven record of reliably predicting bilateral trade flows. The intuition behind it is simple: bilateral trade is directly proportional to the GDPs of trade partners and is inversely proportional to the geographical and cultural distances between them. Deviations from this norm are attributed to trade costs or frictions such as tariffs and NTBs.[5]

This study uses the simplicity and accuracy of the gravity model in an attempt to give a more precise answer about the impact of China's tariffs on LAC exports. Unlike the traditional gravity approach, which looks only at aggregated bilateral flows, the model used here is run at the partner-product level (Harmonized System, 4-digits) to better capture the significant sectoral variation in Chinese tariffs. The details of the exercise and its results are discussed in the Technical Appendix; the focus here is on a simulation that illustrates the mains finding.

Rather than use the proverbial zero-tariff scenario, the simulation is based on something more realistic: a cut in China's tariffs on LAC's agricultural and manufacturing exports which bring them to OECD levels. Mining products are not included since tariffs are already low, on average. Figure 7 illustrates the magnitude of the cut by comparing the tariff distribution faced by LAC exporters in the two markets for the categories in question. China's median tariff is approximately twice that of the OECD for agricultural goods and more than three times for manufacturing goods.

Figure 8 presents the results of the simulation based on a model specification that tries to balance the needs to control for "unobservables" that might bias results (such as product and country idiosyncrasies) and to have enough variation in the data to be able to identify impacts. As can

[5] See, for example, Head & Thierry, 2014.

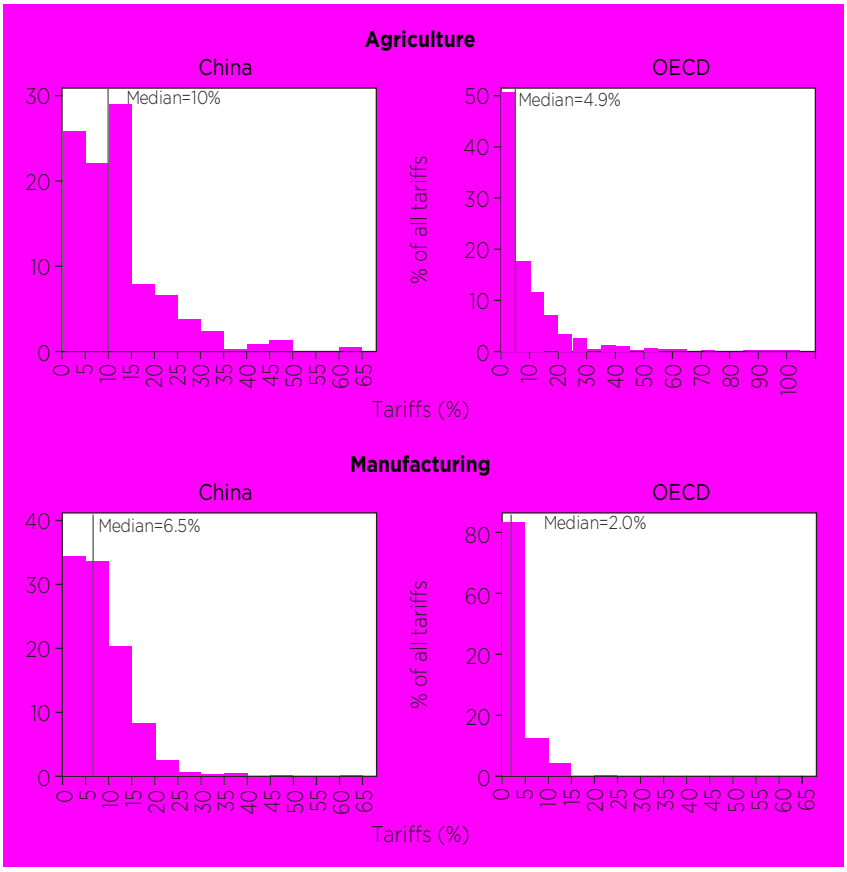


FIGURE 7/
Distribution of China's and OECD applied tariffs on LAC agricultural and manufacturing exports, percentages

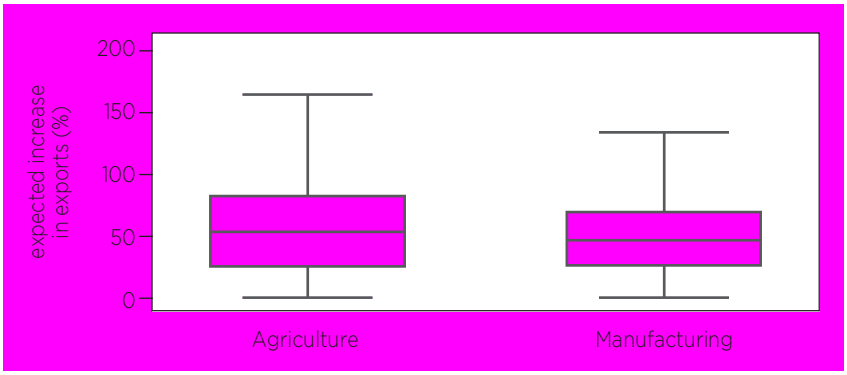
Source: IDB/INT with data from WITS.

be seen, the median impact on exports from both categories is significant, reaching 53 percent in agriculture and 46.5 percent in manufacturing. In both cases, though, there is significant variance across products. Leaving outliers aside, the increase in agricultural exports ranges from 26 percent to 82 percent, and that of manufacturing goods from 26 percent to 69 percent. Overall, agricultural exports would grow by 9.6 percent and those of manufacturing goods would reach 37.4 percent. These are exactly the type of gains that policymakers literally cannot leave lying on the table.

Beyond tariffs: Taxation and subsidies for agriculture

As mentioned earlier, the barriers that LAC exporters face when accessing the Chinese market go well beyond tariffs and involve other forms of protection. Tax policies and subsidies are some of these less visible but no

FIGURE 8/
Distribution of the impacts of a convergence of China's tariffs with OECD applied tariffs on LAC exports: agriculture and manufacturing



Source: IDB/INT with data from WITS.
Note: This figure presents the distribution of the impacts at the partner-4-digit HS level covering all 26 LAC countries. The median of the impacts is given by the line subdividing the boxes. The bottom and upper hinges of the boxes are, respectively, the first and third quartile of the distribution. The whiskers represent the maximum and minimum impacts within 1.5 times the distance between the first and third quartile. The outliers beyond this range were not plotted. The simulation is based on a global sectoral gravity model with fixed effects, as described in the Technical Appendix (Table A1, specification 2). See Table 1 for category definitions. Data is for 2013.

less effective barriers, particularly for agricultural goods. Taxation stands out in terms of both its low visibility and its impact on exports.

The extra protection arises mostly from the way the value added tax (VAT) is levied on local and imported goods, a practice that has its roots in a fiscal reform implemented in the early 1990s.[6] The reform has granted farmers a number of VAT exemptions, including the 13 percent tax on the sale of their products to wholesalers. Since, despite WTO regulations pointing to the contrary, this exemption was not extended to imports, exporters face a significantly higher tax burden—a VAT wedge—which varies according to the peculiarities of the product's value chain and the level of processing.[7] Products at the bottom of the value chain, such as unprocessed grains and soybeans, face the full 13 percentage point discrimination. The impact is lower for processed products, such as meat and dairy, since local food processors are required to pay taxes on their value added.[8]

To give a clearer picture of how much more protection this VAT wedge adds to tariffs, Figure 9 presents estimates for some of LAC's most important commodity exports. On average, the VAT wedge raises protection by as much as 73 percent, led by soybeans, whose nominal protection rises from 1.5 percent (import tariff) to 13.2 percent (tariff plus the VAT wedge). As shown in the tariff simulation discussed in the previous sections, this extra protection can easily translate into billions of dollars of foregone revenue for exporters, given that the demand for these commodities are generally very price sensitive.

[6] See Huang, Rozelle, & Chang, 2004. The first regulation governing VAT on agricultural products was the "Interim Regulation on the VAT of the People's Republic of China" of December 13, 1993. It was replaced on November 10, 2008, without significant changes, by Decree No. 538.

[7] See Article III of GATT for regulations concerning the application of domestic taxes to imports.

[8] Even though wholesalers and processors do not pay the 13 percent VAT on local farm products, they can deduct this amount from the taxes they pay when they sell their products. VAT is 13 percent for "first stage processed" products (e.g., unprocessed grains, fruits and soybeans) and 17 percent for "value-added processed products" (e.g., dairy and potato products). See (USDA, 2007)for a detailed explanation of the "effective" VAT taxes along the agricultural value chain.

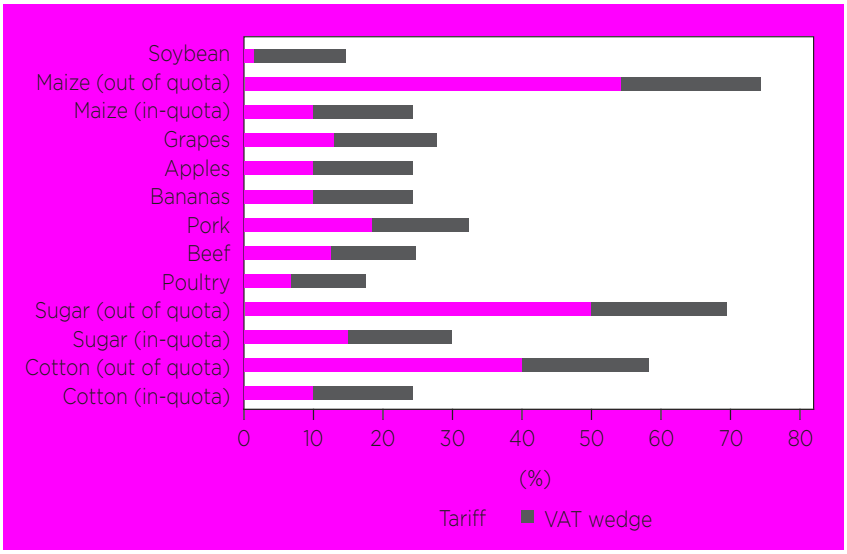


FIGURE 9/
Import tariffs and the VAT wedge

Source: IDB-INT with Tains data for tariffs and interviews and USDA 2007 for the VAT wedge.
Note: VAT wedge is the difference between the effective VAT rates for domestic production and imports.

Even though the VAT wedge is about foregone revenue and not expenditure, it falls under the category of agricultural subsidies as defined by the WTO Agreement on Agriculture.[9] It is not, however, the only agricultural subsidy LAC exporters should be worried about. The OECD, for instance, listed 24 active programs in China, ranging from payments based on input use to payments based on area, animals or income. They are estimated to have reached US$54.2 billion, or 4 percent of the country's agricultural output, in 2014.[10] This is substantial but considerably less than the revenue foregone under the VAT exemption, which may be as high as US$1.1 trillion or 13 percent of the agricultural output, assuming it is being fully implemented. These figures are particularly worrying given that part of China's WTO accession commitment was to keep trade distorting (or "amber box") agricultural subsidies under 8.5 percent of the output value.[11]

How relevant are non-tariff barriers?

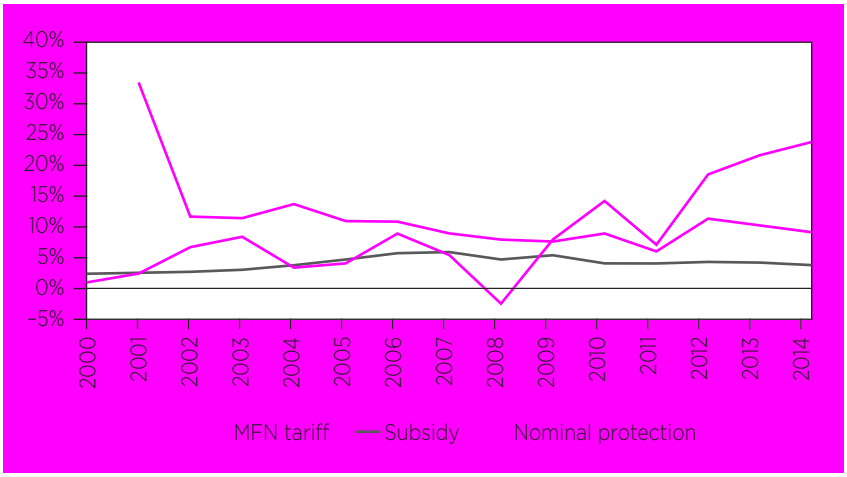
As challenging as tariffs and subsidies can be, LAC exporters face an even tougher obstacle in dealing with NTBs, which, due to the different reasons underlying them, are divided here into two groups: technical and non-technical measures. The former include basically regulatory barriers such as technical barriers to trade (TBTs) and sanitary and phytosanitary measures

[9] See Annex 3 of the agreement: https://www. wto.org/spanish/res_s/ booksp_s/analytic_index_s/agriculture_02_s.htm#ann_3A1

[10] OECD Producer and Consumer Support Estimates Database. https://www.oecd.org/tad/agricultural-policies/producerandconsumersupportestimatesdatabase.htm

[11] See, for example, Brink, 2014. The National Development and Reform Commission (NDRC), in a recent report on the implementation of the 2014 Plan for National Economic and Social Development, acknowledges that "amber box" subsidies to agriculture "are close to the limit" (see NDRC, 2015).

FIGURE 10/
China's nominal protection, subsidies and MFN tariffs for agricultural goods



Source: IDB-INT with OECD (subsidies and nominal protection) and WTO (tariffs) data.
Note: Nominal protection is the ratio between the average price received by producers at farm gate (including payments per ton of current output), and the border price (measured at farm gate). Subsidy (measured as a percentage of the value of output) includes payments based on input use, area, income and non-commodity criteria. Payments based on output are estimated to be virtually zero for most goods (See OECD Producer and Consumer Support Estimates Database). MFN is the weighted average (China imports from the world) most favored nation applied tariff.

(SPS). The latter covers state trading, TRQs and price controls. As with the other barriers, agricultural goods are impacted more by NTBs than other goods and are therefore the focus of this analysis. There is enough evidence to suggest that NTBs have been growing in importance over the last decade, and have certainly overtaken tariffs as the biding constraint for a significant number of LAC agricultural exports.

Figure 10 offers an overview of this trend. Although China's tariffs for agricultural goods experienced a sharp decline after the WTO accession, and subsidies (excluding the VAT wedge) have stabilized at around 4 percent of agricultural output, the gap between domestic and international prices has grown almost exponentially since 2008, a change that can only be explained by other measures of government intervention. As of 2014, the average price gap was as high as 24 percent compared to an average tariff of 9.2 percent. Figure 11 offers a more detailed breakdown, with price gap and relevant NTB information on some of LAC's most important commodity exports. As can be seen, beef, pork and poultry are the most affected goods, with price gaps that are much higher than their import tariffs. Mining products and sugar and cotton appear to face the opposite situation, but this seems to mainly be explained by stringent domestic price controls.

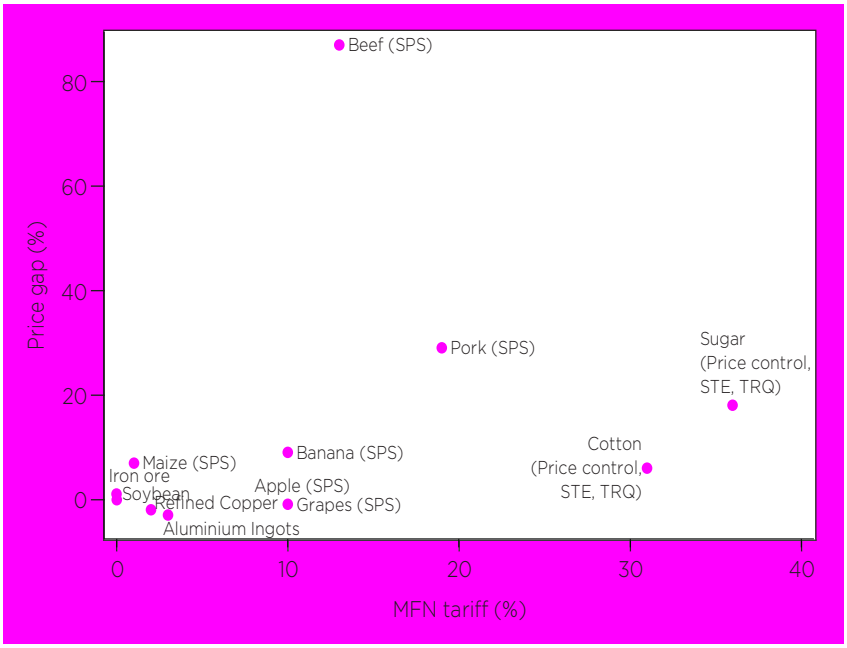


FIGURE 11/
Price gap and import tariffs for selected commodities, 2013

Source: IDB/INT with data from UNCTAD TRAINS, NDRC Price Monitoring Center, Ministry of Agriculture and Comtrade.
Note: Price gap is the difference between domestic wholesale prices and international border prices. SPS are phytosanitary measures, TRQs are tariff-rate quotas, ST is state trading and HK is used when Hong Kong imports are used as a reference when there is an import ban in mainland China.

Non-technical measures

Over the last decade, China's imports of a small, yet relevant group of agricultural commodities and raw materials have been regulated by state trading enterprises (STEs) and TRQs and have been subject to price controls. Imports of grains (wheat, rice and maize), sugar, fertilizers and cotton are controlled by STEs and have TRQs; imports of wool are only subject to TRQs; and imports of tobacco and crude and processed oil are controlled by STEs and do not have TRQs. Only crude oil and wool are not subject to any type of price control (see Table 2).[12]

These policies tend to harm LAC exports in at least three ways. First, state trading might allow STEs to behave as monopsonists, pushing down import prices. Second, whereas TRQs are less distortive than outright import bans or simple quotas, they still can cause heavy losses for exporters (and consumers) depending on how the intra- and extraquota tariffs are set, and on how the quotas (and rents) are distributed between importers and exporters and among export countries.[13] Third, price controls may set domestic prices that are lower than the international level, discouraging imports.

[12] See China's notification to the WTO for more details: https://docs.wto.org/dol2fe/Pages/FE_Search/DDFDocuments/22941/Q/G/STR/N9CHNA1C1.pdf

[13] See, for example, Li & Carter, 2009.

TABLE 2/
China's STE, TRQ and price control policy characteristics

Product	Price control	TQ quantity (tons)	Out of quota rates	In quota rates	TQR allocated to STE in 2014	STE
Wheat	minimum procurement price scheme	9,636,000	65%	1–10%	90%	COFCO – China National Cereals, Oil and Foodstuff Import and Export Co. (Group)
Maize	reserves set at market prices	7,200,000	20–65%	1–10%	60%	COFCO – China National Cereals, Oil and Foodstuff Import and Export Co. (Group)
Rice	minimum procurement price scheme	5,320,000	10–65%	1–15%	50%	COFCO – China National Cereals, Oil and Foodstuff Import and Export Co. (Group)
Sugar	temporary price program	1,945,000	50%	15%	70%	COFCO – China National Cereals, Oil and Foodstuff Import and Export Co. (Group) China National Export Bases Development Co. China Sugar and Wine Co.(Group) China Commerce Foreign Trade Co.
Fertilizers	benchmark factory prices and fluctuations	13,650,000	50%	4%	90% for urea 51% for NPK 51% for Diammonium phosphate N/A for the others	China National Chemicals Import and Export Co. China National Agriculture Means of Production Group Co.
Cotton	temporary price program	894,000	40%	1%	33%	China National Textiles Import and Export Co. China National Cotton Reserve Corporation Beijing Jiu Da Textiles Group Co. Tianjin Textiles Industry Supply and Marketing Co. Shanghai Textiles Raw Materials Co.

(continued on next page)

TABLE 2/
China's STE, TRQ and price control policy characteristics
(*continued*)

Product	Price control	TQ quantity (tons)	Out of quota rates	In quota rates	TQR allocated to STE in 2014	STE
Wool	not applicable	287,000	38%	1–3%	not regulated by this measure	not regulated by this measure
Tobacco	price of tobacco is set at the central level	not applicable	not applicable	not applicable	not applicable	China National Tobacco Import and Export Co. (Group)
Crude oil	not applicable	not applicable	not applicable	not applicable	not applicable	China National Chemicals Import and Export Co. China International United Petroleum and Chemicals Co. China National United Oil Co. Zhu Hai Zhen Rong Company
Processed oil	determined on the basis of the price of crude oil on the international market plus the average processing fee, taxes and reasonable transportation fees in China	not applicable	not applicable	not applicable	not applicable	China National Chemicals Import and Export Co. (all processed oil) China International United Petroleum and Chemicals Co. (all processed oil) China National United Oil Co. (all processed oil) Zhu Hai Zhen Rong Company (all processed oil) China Aviation Oil Import and Export Co. Ltd (Aviation kerosene) 64 other companies (fuel oil)

Source: IDB/INT based on China's notifications to the WTO.

Chinese STEs' control over imports varies across products. In most cases, they only administer part of the TRQs, with the remainder being distributed to non-state trade importers, although without clear criteria for doing so. The only exceptions are tobacco, crude and processed oil. Four STEs have the right to import crude oil and 68 can do so for processed oil, while tobacco is the only case where one company has total control over the import market.[14]

Price controls are administered by both the central and provincial governments and prices are categorized as either "fixed" and "guided," with the latter being allowed to float within a given range. In addition, the government may create different temporary price programs or reserve systems to support certain sectors.[15]

The TRQs are managed by the National Development and Reform Commission (NDRC) and by the Ministry of Commerce. Every year, both institutions issue a public call for companies interested in applying for quotas. The NDRC is responsible for grains and cotton and the Ministry of Commerce for sugar, fertilizers and wool. The allocation criteria are defined according to the number of applications, past import performance, production capacity and other relevant commercial standards. After companies apply to the program, the quotas are allocated according on a first-come, first-served basis. None of the calls determine a minimum quota amount that would be shared by each applicant. The call states that each company will be allocated its quota according to the analysis of the company's import performance.[16]

As is the case with most TRQ regimes around the world, China's quotas are mostly underutilized. The only exceptions are cotton, sugar and wool (see Figure 12). Whereas underutilization could be interpreted as evidence of a non-binding restriction, it might also be related to high in-quota tariffs and to the way the quotas are administered. In fact, some of China's trade partners with agricultural interests have raised concerns about "opaque management practices," particularly in terms of quota amounts and their recipients.[17]

To determine exactly how much damage these practices have been causing LAC's export interests would require a complex and rigorous empirical analysis, which is beyond the scope of this report. A detailed analysis of China's price and import dynamics for two of LAC's most important commodities—cotton and sugar—may help to shed some light on this issue.

China's cotton imports have been systematically above the quota threshold, despite the punitive 40 percent out-of-quota tariff, reflecting

[14] Out-of-quota cotton imports may be subject to a sliding-scale tariff which fluctuates according to a formula based on the international price, but may never exceed the 40 percent ad valorem duty ceiling.

[15] For details see 中华人民共和国价格法 (Price Law of the People's Republic of China) and 国家计委和国务院有关部门定价目录 (State Planning Commission and State Council departments' pricing catalogue, 2001)

[16] For more detailed information about China's TRQ policy, see 农产品进口关税配额管理暂行办法 (Interim measures for import tariff quotas for agricultural products).

[17] See, for example, USTR, 2014.

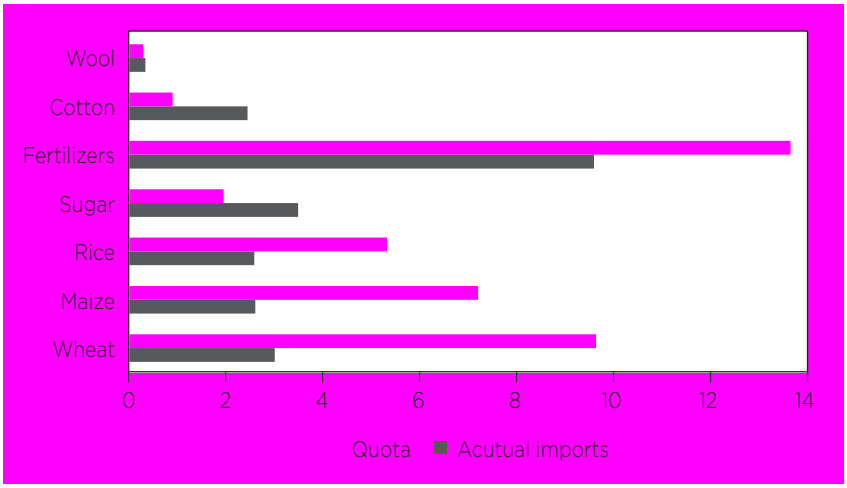


FIGURE 12/
China imports and TRQs by product, 2014, thousands of tons

Source: IDB/INT with data from Comtrade, China's Ministry of Commerce and NDRC.

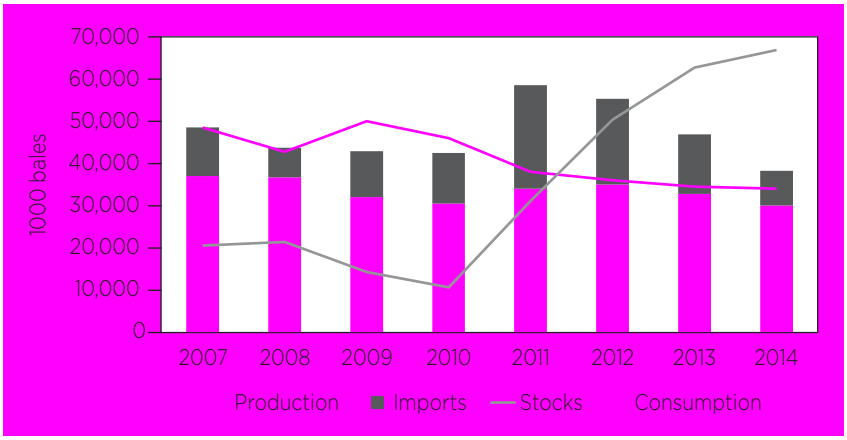


FIGURE 13/
China's cotton production, consumption, imports and stocks

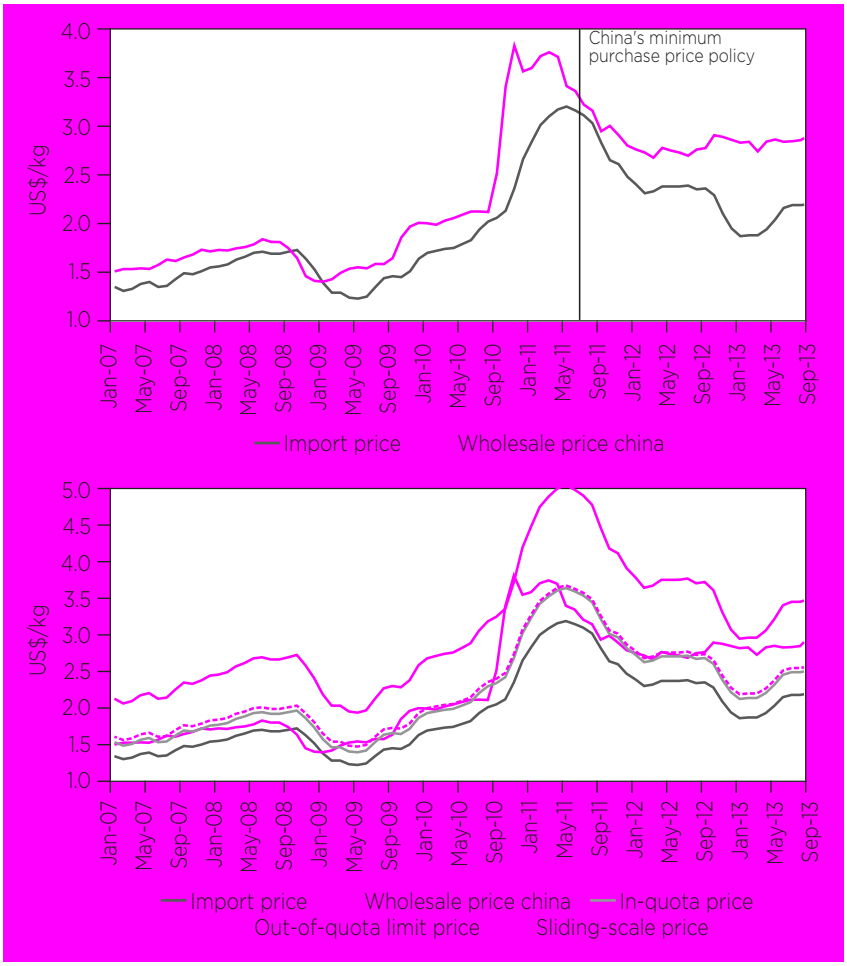
Source: IDB/INT with data from USDA.

the local industry's lack of competitiveness. More recently, these imports experienced a boom as a result of the minimum purchase price program launched in May 2011, amid a significant drop in cotton prices.[18] The program has widened the gap between domestic and international prices, leading the government to accumulate huge reserves—60 percent of the world cotton reserves in 2014, according to the U.S. Department of Agriculture (USDA) as spinning mills turned to the much cheaper and better quality imported cotton (see Figures 13 and 14).

Ironically, this greater distortion introduced by the price support program has been instrumental in showing the potential that LAC cotton

[18] The price program was an initiative launched by the NDRC alongside the Ministry of Commerce, the Ministry of Finance and five other ministries. For details on the regulation, see 发改委等联合发布今年起实行棉花临时收储制度 (NDRC has established this year's temporary cotton storage to implement the system).

FIGURE 14/
China's cotton price gaps: domestic and import prices



Source: IDB/INT with data from Comtrade, NDRC Price Monitoring Center and CEIC.

exports have in China or how much they have been hampered by TRQs. As shown in Figure 15, imports from LAC took off after the price support program was introduced, particularly those from Brazil and Mexico. The numbers jumped from US$103 million in 2008 to US$984 in 2012, nearly tripling their market share to 8.3 percent. The boom, however, was short-lived, as in 2014 the government started to sell their bloated state reserves through public auctions, incurring in deep losses.[19] The International Cotton Advisory Committee forecast that the auctions, and import limitations, will shrink Chinese cotton stocks by 7 percent in 2015–16, and by a further 10 percent in 2016–17, negatively impacting imports from the world that have tended to decline by 6–8 percent during this period (ICAC, 2016).

[19] Ministry of Finance, 2015. This process appears to have been far from smooth, with the auctions facing price and quality issues—see, for example, Hornby, 2014 and China Cotton Association, 2014. For example, an auction organized by the Xinjiang Production and Construction Corp in August 2014 offered 12,322 tons of cotton and only resulted in the sale of 708 tons (5.7 percent of the total offer) due to the poor quality of the cotton.

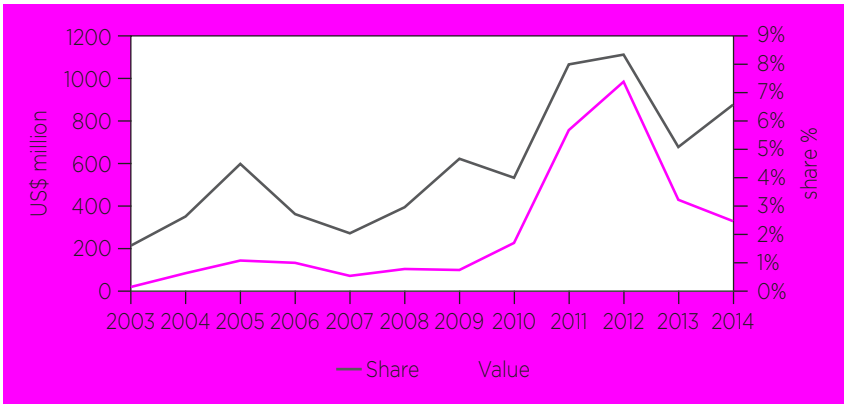


FIGURE 15/
China's cotton imports from LAC: value and share of all imports, 2003–14

Source: IDB/INT with data from USDA.

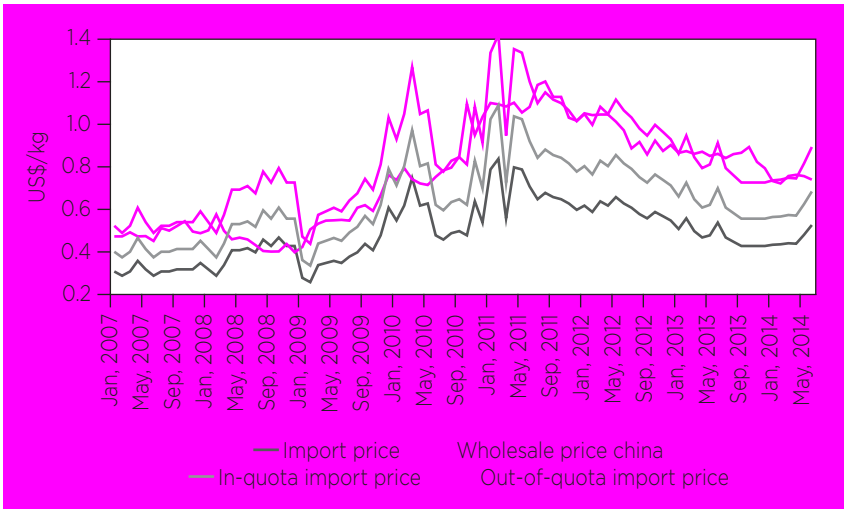


FIGURE 16/
China's sugar price gaps: domestic and import prices, US$/kg

Source: IDB/INT with data from Comtrade, Zhengzhou Commodity Exchange (ZCE), NDRC Price Monitoring Center and CEIC.

Sugar exports face a similar scenario with TRQs, state trading and price interventions; except for in this case there is a floating price range at the provincial level as a well as interventions in the price of inputs, with the government requesting that local sugar mills purchase sugarcane at a guidance price.[20] As with cotton, these policies have been keeping domestic prices higher than the international level, particularly in the last five years (Figure 16), when the widening gap between domestic and import prices and booming domestic demand have boosted imports beyond the quota threshold, despite the punitive tariffs (Figure 17).

[20] A USTR report (USTR, 2013) lists the data for the last three years, which varies from RMB400 to RMB500 per ton (US$0.95–1.05 per kg), according to the province. Other articles from different localities indicate that the price ranged from 5 percent to 7 percent (湛江：第二期甘蔗指导价每吨440元 – Zhanjiang: Phase II, guidance price set at 440 yuan per ton of sugarcane; 关于做好2013跨2014年榨季甘蔗收购价格管理工作的通知 湛价〔2013〕172号 – Chamber of Commerce announces 2014 sugarcane price based on the 2013 harvest).

FIGURE 17/
China's sugar imports, production, consumption and stocks

Source: IDB/INT with data from Comtrade and USDA.

Here too, there is a significant increase in government stocks of expensive local products and a sharp response from LAC exports. These increased by nearly a factor of 10 between 2008 and 2013, driven mainly by exports from Brazil and, to a lesser extent, Guatemala, which had barely exported to China before.[21] Here, too, this boom might be short-lived as the government moved to start unloading its stocks at heavy losses in 2014 and changed its price support policy to rely more on direct subsidies to sugarcane farmers.[22] The first quarter in 2016 has already seen record declines in sugar imports, with a 39 percent drop in comparison to 2015.

These experiences regarding cotton and sugar leave no doubt as to the region's capacity to respond promptly to opportunities in China once price and quantitative distortion are removed. The magnitude of these responses under very uncertain and distorted policy conditions underscores this claim. Both sides of the relationship—that is, consumers and taxpayers in China and producers in LAC—seem to have a lot to gain from a move toward freer markets without NTBs or government support.

[21] During this period, China overtook the U.S. to become the main destination of Guatemala's sugar exports. It is worth mentioning that Mexico and El Salvador, two of LAC's largest sugar producers, do not export to China. In both cases, the U.S. offers a higher price for their exports in comparison to China. For example, China's average import price from the world in 2013 was US$455 per ton, while the U.S. imported sugar from Mexico and El Salvador the same year for US$495 and US$469 per ton, respectively.

[22] For more information, see 云南下发蔗糖产业振兴3年行动计划 到2015年云南要建25个国家级糖料基地 (In 2015, the Yunnan sugar industry issued a three-year action plan to revitalize the industry by building 25 national sugar bases) and 加大政策性甘蔗保险宣传 力争完成甘蔗投保任务 (Policy to increase insurance for sugarcane production so as to protect and promote the sugarcane industry).

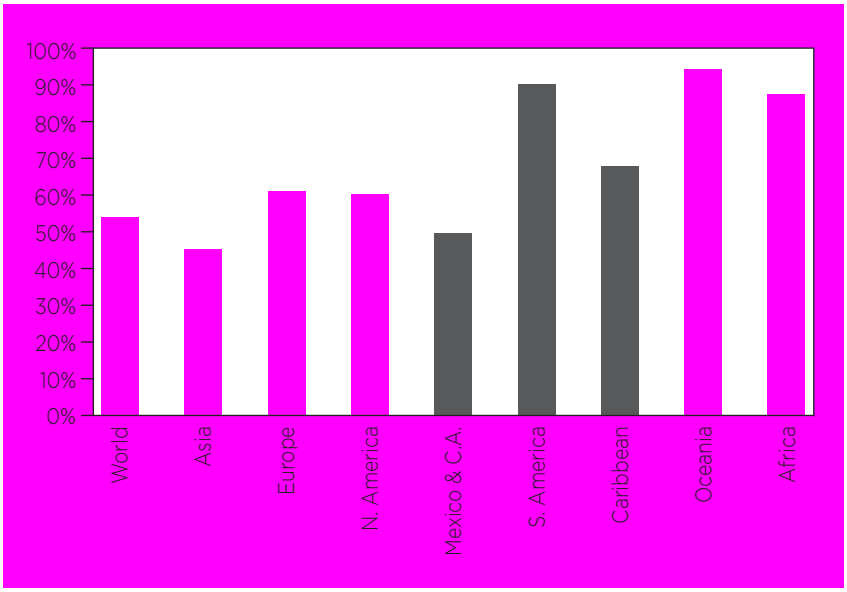


FIGURE 18/
Share of China's imports subjected to at least one technical measure: by origin, 2011–14 average, percentages.

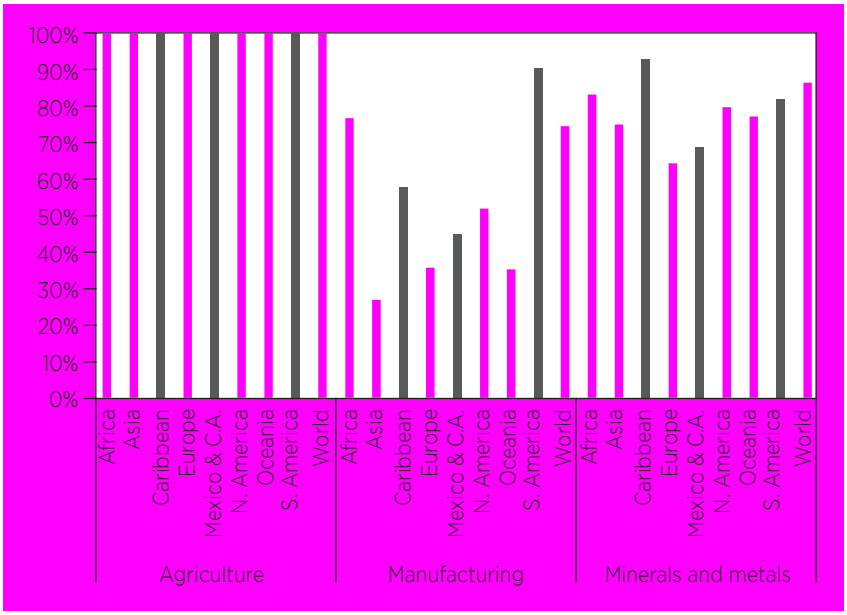
Source: IDB-INT with data from China's General Administration of Customs.
Note: The coverage measure is based on the compilation of technical measures (TM) at the tariff line, agregrated at the six digits of the Harmonized System. Each six digit is considered affected if there is at least one tariff line subjeted to TMs.

Technical (regulatory) measures

Whereas non-technical measures such as TRQs have the unambiguous objective of protecting local producers and keeping imports out, technical measures such as TBTs and SPS are supposed to pursue legitimate policy objectives, such as the protection of human health and safety, or protection of the environment. In practice, though, they can be discriminatory and create unnecessary obstacles to trade. Whether or not this is the case is an empirical question. The data does not suggest that LAC is unfairly targeted by these measures, but since the regulatory effort—in China and elsewhere—is mostly concentrated in agriculture and mining and since LAC's exports are so heavily concentrated in these sectors, the region is more likely to pay the costs of such measures. That much can be seen in Figure 18, which shows that imports from South America, along other commodity-export regions, are more extensively affected; and in Figure 19, which makes it clear that this exposure comes from agriculture (or food-related manufacturing) and mining.

A review of the existing regulations and interviews with LAC exporters suggests that most of the difficulties are concentrated in agricultural exports and mostly relate to opaque SPS rules and long and uncertain waits

FIGURE 19/
Share of China's imports subjected to at least one technical measure: by industry and origin, 2014, percentages.



Source: IDB-INT with data from China's General Administration of Customs.
Note: The coverage measure is based on the compilation of technical measures (TM) at the tariff line, agregrated at the six digits of the Harmonized System. Each six digit is considered affected if there is at least one tariff line subjeted to TMs.

to get products certified. China's SPS regulation is governed by a myriad of laws and agencies,[23] three of which have been particularly costly for LAC exporters: the China Food Safety Law, the Law on the Entry and Exit of Animals and Plant Quarantine and the Regulations on the Administration of Agricultural Genetically Modified Organisms Safety.

The Food Safety Law, issued by the Ministry of Health, oversees SPS guidelines for food production, domestic trade and imports, which have to be inspected and approved before entering the Chinese market.[24] The Law on the Entry and Exit of Animals and Plant Quarantine establishes how the government should inspect and approve imports (including the farms and processing plants they originate from) and how to quarantine and ban them in case of confirmed diseases. It is enforced by the General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ).[25] Lastly, the Regulations on the Administration of Agricultural Genetically Modified Organisms Safety controls food imports that are made up or contain genetically modified organisms (GMOs), which are supposed to obtain a technical certification—detailed by the Ministry of Agriculture—from the AQSIQ.

[23] See WTO, 2014.

[24] The annex to the law specifies the international and domestic food standards for imported products by tariff line. For details, see 国家质量监督检验检疫总局 卫生部《关于进口食品、食品添加剂检验》2009年第72号 (State Administration of Quality Supervision, Inspection and Quarantine, Ministry of Health, "Testing for imported food and food additives," 2009, No. 72).

[25] The law also states that every year AQSIQ has to post a catalogue of products that are subject to entry inspection. See, for example, the 2014 catalogue: 关于实施2014年《出入境检验检疫机构实施检验检疫的进出境商品目录》有关问题的通知 (Notice on issues relating to the implementation of the 2014 "Entry and exit inspection and quarantine catalogue").

LAC's exports seem to be particularly hobbled by AQSIQ's lengthy and sometimes opaque process of approval of processing plants and GMOs and by SPS measures that are often stricter than international standards. This has been particularly the case for meat, soybeans and maize exports, which are discussed in more detail in the following paragraphs.[26]

Meats. AQSIQ's lengthy approval process has been of special relevance for meat exports, the processing plants for which have to be certified. The process starts with both governments signing a sanitary protocol, assuring that only processing plants registered, supervised and controlled by the veterinary and sanitary systems of the resident country are eligible to export to China. In addition, foreign government institutions are responsible for coordinating the approval process with the Certification and Accreditation Administration (CNCA)—which operates under AQSIQ—which involves an official visit from CNCA's technicians to assess the exporting company's production and storage processes on-site. Even when approved, exports are still subjected to AQSIQ entry inspections. The only exception to the plant approval rule are U.S. meat exports, exempted by a bilateral agreement, which clearly puts LAC producers at disadvantage.[27]

As of March 2016, AQSIQ had approved 248 processing plants for pork, 111 for poultry and 146 for beef in foreign countries. At first glance, these numbers suggest that China is particularly strict over the approval of beef and poultry establishments. In the last four years, an annual average of 5.5 new poultry plants and 9.25 new beef plants received permission to export. In contrast, an average of 23 new plants per year are added to the pork segment (see Figure 20).

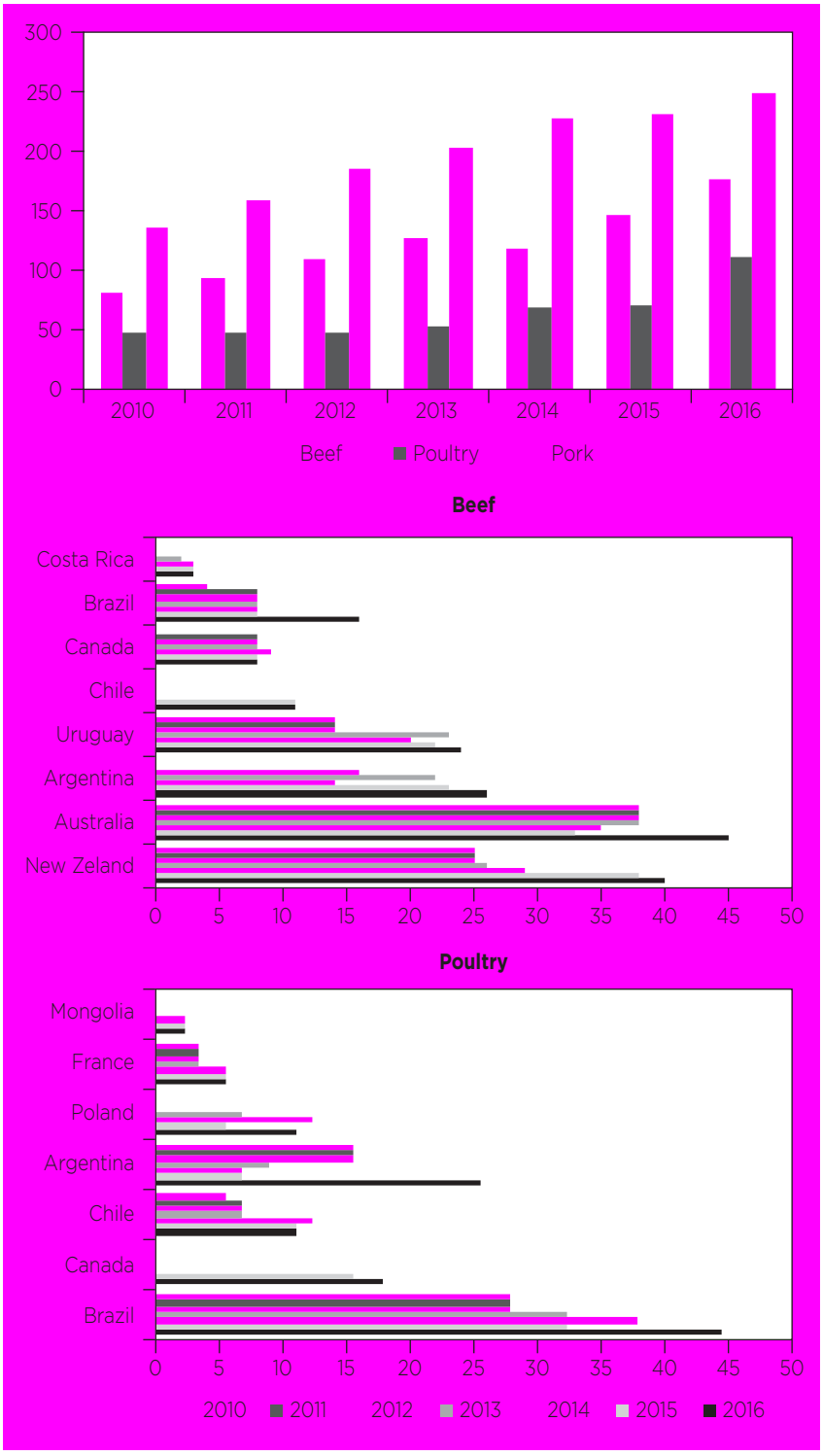
The fact that the U.S. does not need to have its plants approved by the AQSIQ makes it difficult to have a clear picture of how export capacity is distributed among different countries. Nevertheless, the data suggest that LAC has a significant presence in poultry, accounting for more than 70 percent of the approved non-U.S. establishments; a moderate 44 percent share in beef and a small role in pork, with only 10 percent of the approved plants.

Figure 20 also indicates how difficult it is for LAC countries to expand their number of exporting plants, although there is significant heterogeneity across countries. In 2016, Brazil managed to add the most—15 poultry, eight beef and six pork plants—but its total approved plants—40 poultry, 16 beef and 12 pork plants—still represent a fraction of its production capacity.

[26] In Circular No. 49 from the State Council (Several opinions of the state council on strengthening imports), the Chinese government acknowledges that AQSIQ should speed up its approval process. For more details, see 商务部解读国办关于加强进口的若干意见, 国办发[2014]49 号 (Ministry of Commerce's interpretation of the State Council's opinions on strengthening imports).

[27] According to the 1999 Agreement on U.S.–China Agricultural Cooperation, the Chinese government recognized that the U.S. has a sound system of epidemiological disease control and accepted that the USDA Food Safety Inspection Service would be in charge of approving establishments to export to China.

FIGURE 20/
Number of foreign export plants approved by AQSIQ as of March 2016



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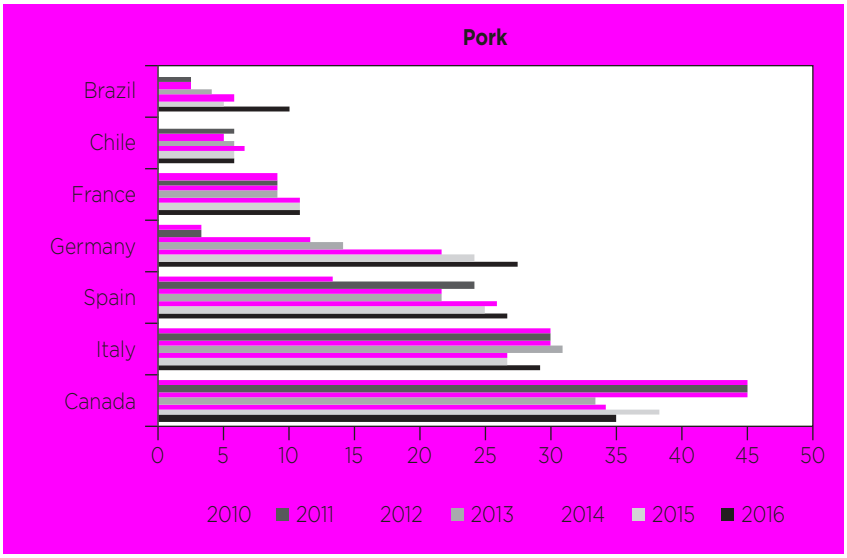


FIGURE 20/
Number of foreign export plants approved by AQSIQ as of March 2016
(continued)

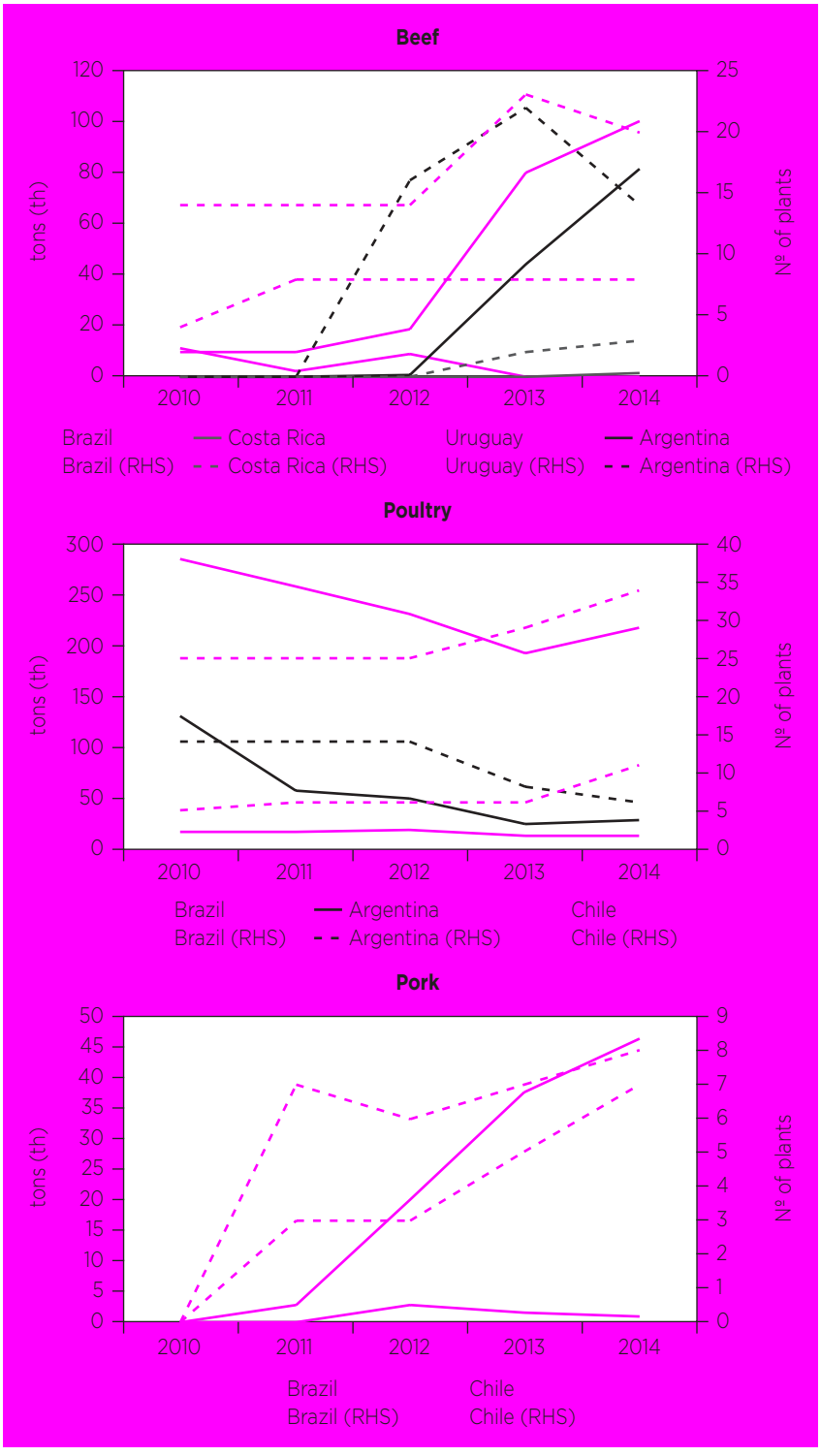
Source: IDB/INT with data from AQSIQ Meat products inspection and quarantine access list, July reports (肉类产品检验检疫准入名单).

It is not clear how binding these capacity constraints have been for LAC exports. Figure 21 shows that there is not a clear correlation between meat exports and the number of plants approved, suggesting that there are other supply, demand and regulatory factors at play. In the case of poultry, for instance, prices seem to be a major impediment as they have been systematically higher than those of U.S. exports and higher than the domestic wholesale price after accounting for VAT and (specific) import tariffs (Figure 22). The levy of anti-dumping and countervailing duties on U.S. exports in 2010 helped LAC to narrow and, in some cases, close the price gap with the U.S., prompting a boom in LAC exports (Figure 23).[28] But that would not have been possible if Brazil had not had its initial batch of plants approved in December 2009.

The constraints imposed by plant certification can perhaps be seen more clearly in the volume of LAC exports that reach China via Hong Kong, which has a free trade agreement with the mainland, in an attempt to evade SPS controls. As is shown in Figure 24, Brazil's exports to China caught up with those to Hong Kong after a critical mass of plants were certified in 2009, but export volumes to the two markets have remained similar since then despite the huge difference in size between them. This seems to reflect the fact that only 40 of the 61 plants that have applied for certification have been successful (Hugueney & Soares, 2014). This sort of triangulation can

[28] The anti-dumping and countervailing duties were adopted in February and October 2010, respectively. The anti-dumping duty was 53.4 percent for companies that responded to the investigation and 105 percent for the others, while the countervailing duty was 12.5 percent and 30.3 percent, respectively. After a WTO decision in favor of the U.S., the Ministry of Commerce lowered the anti-dumping duty to 46.6 percent for companies that responded to the investigation and to 73.8 percent for all other companies. The countervailing duties were also cut to 4.0 percent and 4.2 percent, respectively. For details, see WTO-DS427: China—Anti-Dumping and Countervailing Duty Measures on Broiler Products from the United States.

FIGURE 21/
China's meat imports and approved LAC plants: selected countries, 2010–14



Source: IDB/INT with data from Comtrade (trade) and AQSIQ (plants).

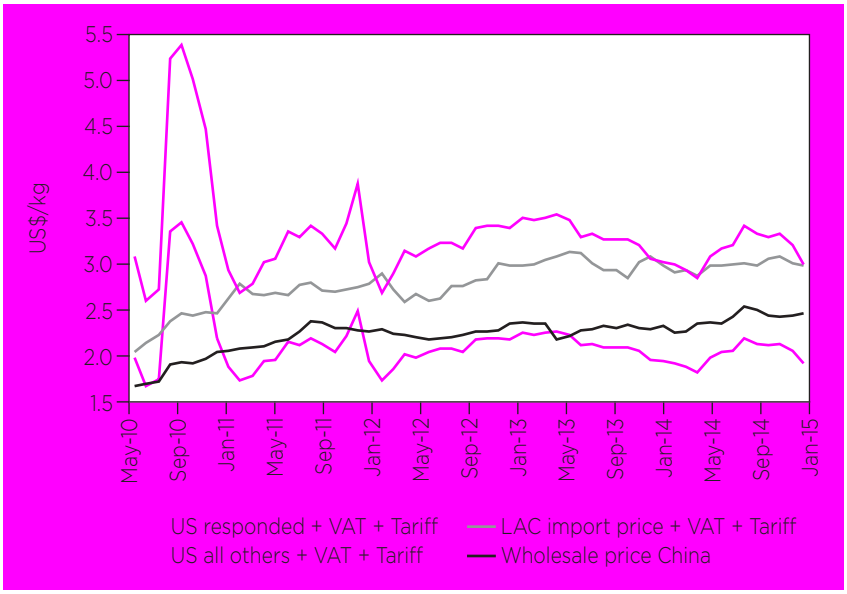


FIGURE 22/
China's domestic and import price of poultry by selected partners: US$/kg, May 2010–Jan 2015

Source: IDB-INT with COMTRADE, USDA and Ministry of Agriculture data.
Note: Import prices are based on average unit values. See footnote 28 for definitions of U.S prices.

FIGURE 23/
China's poultry* imports: selected countries, US$ million, 2008–14

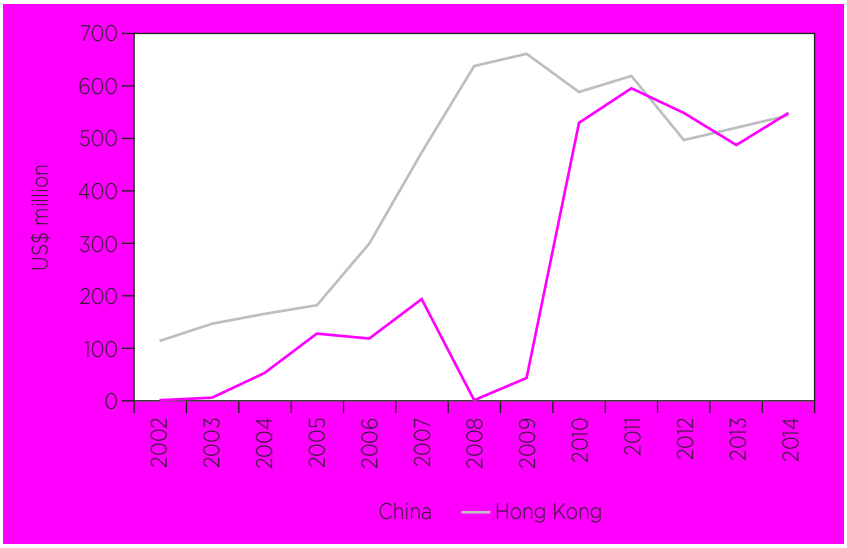
Source: IDB-INT with COMTRADE data.
* HS-6 020714, cuts and offal, frozen.

also be observed in Argentina's and Chile's poultry exports when facing SPS barriers.[29]

Although effective, the Hong Kong route comes with a hefty cost attached to it. The use of a middleman raises transaction costs, forcing

[29] Argentina's exports to Hong Kong increased by a factor of four after China suspended eight Argentine export plants in March 2013. Likewise, Chile's exports to Hong Kong increased by a factor of seven in September 2013 after their exports to the mainland were suspended based on the presence of a forbidden chemical (dioxin) in their shipments (IDB-INT with data from Comtrade).

FIGURE 24/
China and Hong Kong imports of poultry* from Brazil. US$ million, 2002–2014



Source: IDB-INT with COMTRADE-data.
* HS-6 020714, cuts and offal, frozen.

LAC companies to export for significantly lower prices. From 2013 to 2014, for instance, LAC export prices to Hong Kong were on average 60 percent lower than those of LAC exports to China and 39 percent lower than wholesale prices in the mainland, suggesting that a considerable share of the rents were being appropriated by intermediaries.[30,31]

The difficulties in plant certification seem to be particularly costly for LAC beef exporters. Countries such as Australia and New Zealand, which already enjoy locational advantages, have the bulk of China's certified beef processing plants (45 and 40, respectively) and are capturing most of this booming market (Figure 25), which is still mostly supplied by local producers despite their low productivity.[32] Among LAC's potential exporters only Uruguay and Argentina—with 24 and 26 approved plants, respectively—do not seem to be bound by plant constraints. The latter, in particular, is likely to be more constrained by domestic than Chinese trade policy (Regúnaga & Tejeda Rodriguez, 2015). Brazilian exports started to pick up at the end of 2015, when the Chinese government lifted the ban on Brazilian beef. Exports are estimated at US$517 million for 2015, positioning Brazil as one of the main beef suppliers to the Chinese market.

Apart from the low volume of LAC's exports—despite proven comparative advantages—there are two other important signs that China's

[30] IDB-INT with data from Comtrade, China's Ministry of Agriculture and USDA.

[31] Aside from the issues plant certification, LAC's poultry exports also face SPS standards that are often stricter than in the rest of the world. For instance, exports are supposed to have no traces of salmonella, a common group of bacteria in raw food and one of the most common causes of food illness in the world. This zero tolerance seems to go beyond scientific advice and is not commonly adopted elsewhere in the world (see, for example, USDA, 2013b.

[32] As of 2014, imports were just 6 percent of domestic consumption (USDA). See Rabobank, 2014 for an analysis of the competitiveness of local producers.

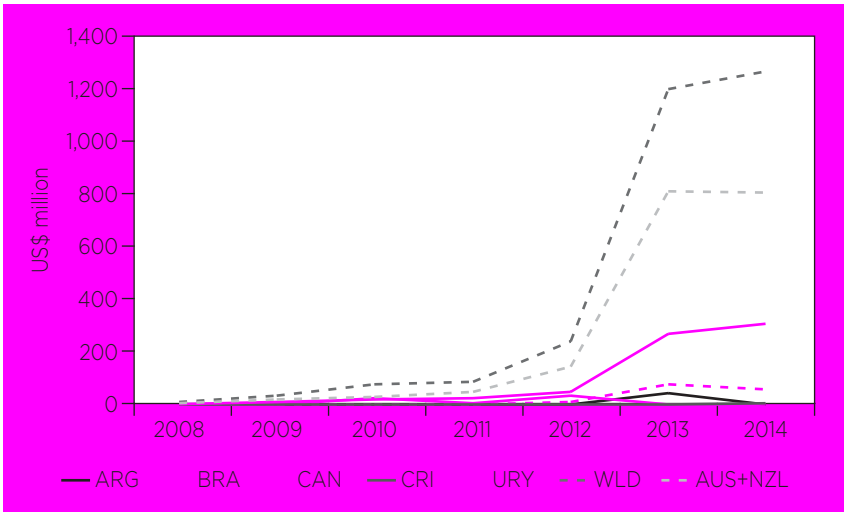


FIGURE 25/
China's beef* imports by main partners: US$, 2008–2014

Source: IDB-INT with COMTRADE data.
* HS-6 020714, cuts and offal, frozen.

beef imports face substantial SPS capacity constraints. First, domestic wholesale prices have been systematically above import prices (including VAT and tariffs)—indeed, as of April 2015, there was an astonishing 44 percent price gap between the two.[33] Second, as with poultry, the Hong Kong route has been widely used, particularly by Brazil, whose exports were suspended in 2012 over a controversial case of bovine spongiform encephalopathy (BSE).[34] Since 2009, Brazil's exports to Hong Kong have been consistently higher than the combined amount of China's imports from its main suppliers: Australia and New Zealand.

As mentioned earlier, the Hong Kong route is a costly alternative to direct access to the mainland. For instance, between May 2010 and December 2013, for every kilogram of beef exported to Hong Kong, LAC exporters forewent the opportunity to earn, on average, an additional US$0.24, which would add up to US$110 million in exports to the mainland.[35]

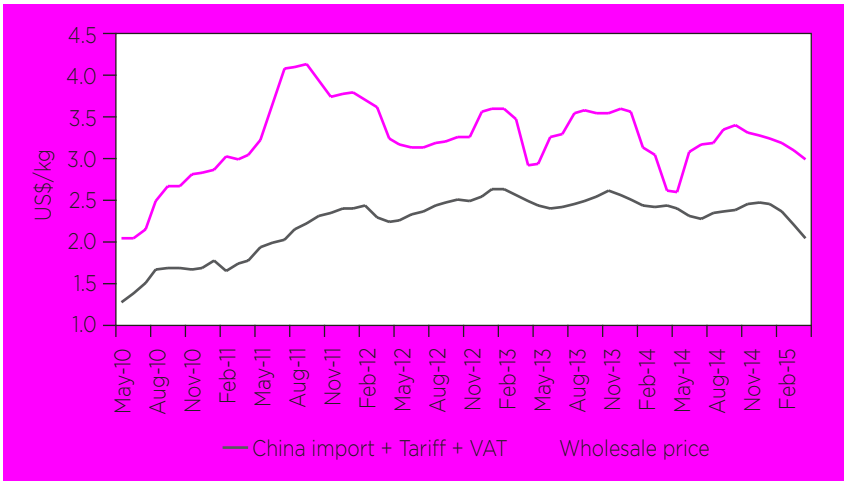
LAC pork exporters face a similar situation to their counterparts in the poultry and beef industries: an incipient, booming import market—which still accounts for only 2 percent of domestic sales in 2014—fueled by the lack of competitiveness of local producers and fast-growing consumption, but which remains largely out of reach because of the low numbers of certified plants. As is the case with beef, domestic prices have been consistently higher than those of imports, despite sizable import tariffs and VAT exemptions (Figure 26). An important

[33] IDB-INT with data from Comtrade, Ministry of Agriculture of China and USDA.

[34] Also known as mad cow disease. In 2013, the World Organization for Animal Health (OIE) recognized that it was an unconfirmed case and maintained Brazil's status as having a negligible BSE risk (see Resolution No. 18, 82nd General Session, May 2014).

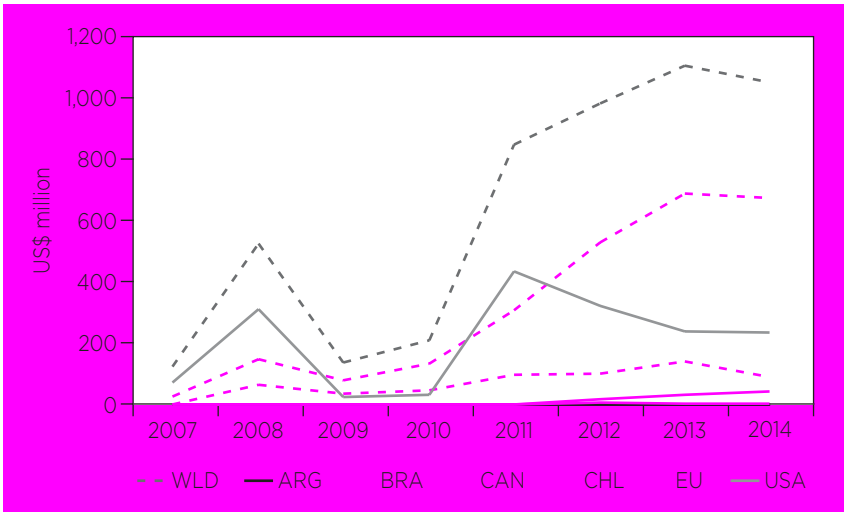
[35] IDB-INT with data from Comtrade, Ministry of Agriculture of China and USDA.

FIGURE 26/
China's domestic and import prices for pork meat



Source: IDB-INT with COMTRADE and China's Ministry of Agriculture data.
Note: Import prices are based on average unit values.

FIGURE 27/
China's imports of pork meat* by main partners. US$, 2007–2014



Source: IDB-INT with COMTRADE data.
* HS-4 0203.

difference in this case is market size: the consumption of pork per capita in China is 42 kg per year, in comparison with 9.8 kg for poultry and 4.5 kg for beef (USDA, 2013).[36]

Among LAC countries, only Brazil, Chile and, more recently, Mexico have pork plants approved for export to China. Together, these total only 26 plants, or 11 percent of the total, which, as shown in Figure 27, translates into a very limited share of pork imports. A major SPS constraint seems to

[36] For an analysis of China's pork industry, see Rabobank, 2012.

be China's ban of the use of ractopamine, a feed additive that reduces fat content (Mike Tokach, Dritz, & Nelssen, 2012), widely used by producers in Brazil and Mexico. Since China is not alone in banning this additive—the E.U. and Russia, for example, have a similar stance—rather than dispute the rule, a more effective strategy for LAC exporters would be to adapt their production techniques. That was, for instance, the decision made by Chile, whose ban on ractopamine in 2012 led to an immediate boom in its exports to China, which almost doubled in 2013.

For some unclear reason, unlike poultry and beef, there are no signs that plant constraints for pork exports are being mitigated by the Hong Kong route. Exports to Hong Kong seem to be in line with the demand for the domestic market.[37]

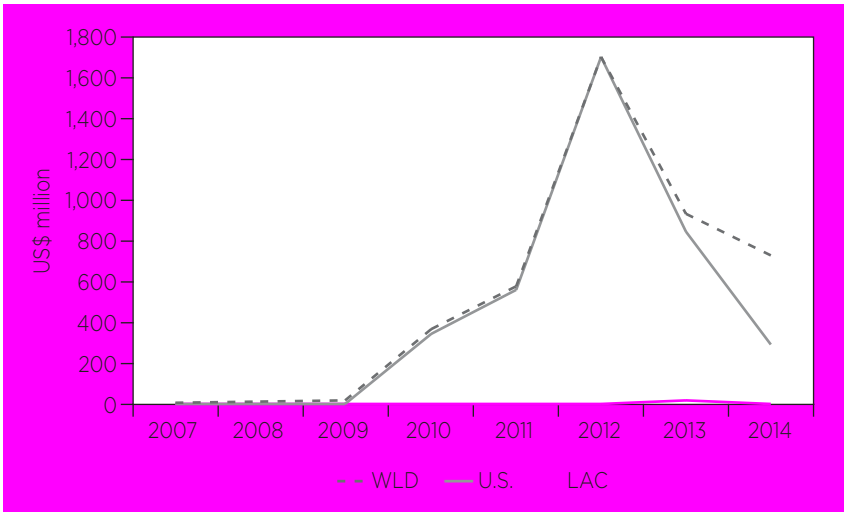
Soybeans and maize. LAC exporters of soybeans and maize share concerns about the length and predictability of China's approval process for GMOs, particularly in the face of the fast pace of technical progress in this area. Uncertainty about the likelihood of the approval and the time frame for this tends to delay the adoption of new and improved varieties that could benefit producers and consumers on both sides of the relationship. These concerns have been particularly acute among soybean exporters, which typically send more than 60 percent of their harvest to China (65 percent of LAC's soybean exports in 2014 went to China), prompting the governments of Brazil and Argentina to ask for a trilateral meeting in the hope of a more coordinated, speedier process (SBA, 2013).

Delays in the process of GMO approvals have been particularly costly to maize exporters, with Argentina only starting to export in mid-2013, after years of negotiations (Reuters, 2013) and Brazil only able to sign a SPS protocol in 2014. As result, LAC has largely missed the import boom that started in 2010 and continues to account for only a tiny share of China's maize imports, which are overwhelmingly dominated by the U.S. (Figure 28).

A brief examination of the data from the Office of Genetically Modified Organisms at China's Ministry of Agriculture suggests that these delays might not be driven by the approvals of GMOs per se, but rather by lack of coordination and difficulties in signing SPS protocols. Table 3 shows that from 2004 to 2014, China's Ministry of Agriculture approved 108 GMOs for use as raw materials, including LAC's main export products. Another factor might be the issue of how competitive LAC's maize exports of maize are, particularly in the face of tariffs that range from 20 percent

[37] IDB/INT with data from Comtrade.

FIGURE 28/
China's imports of maize.* World, U.S. and LAC. US$ Million, 2007–2014



Source: IDB-INT with COMTRADE data.
* HS-6 100510 and 100590.

TABLE 3/
China's GMO approvals by product, 2004–14

Products	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total by product
canola	1		5			6			5			17
cotton	2		2	1	2		1	2	1	2	2	15
maize	7	1	8	2	2	7	3	3	7	5	2	47
oilseed rape	3		2			1			2			8
rapeseed	3											3
soybean	1		2		1	1	2	2	1	4	2	16
sugar beets						1			1			2
Total by year	**17**	**1**	**19**	**3**	**5**	**16**	**6**	**7**	**17**	**11**	**6**	**108**

Source: IDB/INT with data from the Office of Genetically Modified Organisms at China's Ministry of Agriculture.

to 65 percent. Figure 29 shows that, except for a brief period, Brazil's and Argentina's prices, including import tariffs and VAT exemptions, have been systematically above the domestic wholesale prices.

LAC's institutional responses to regulatory measures. LAC countries have given different institutional responses to these regulatory challenges, some

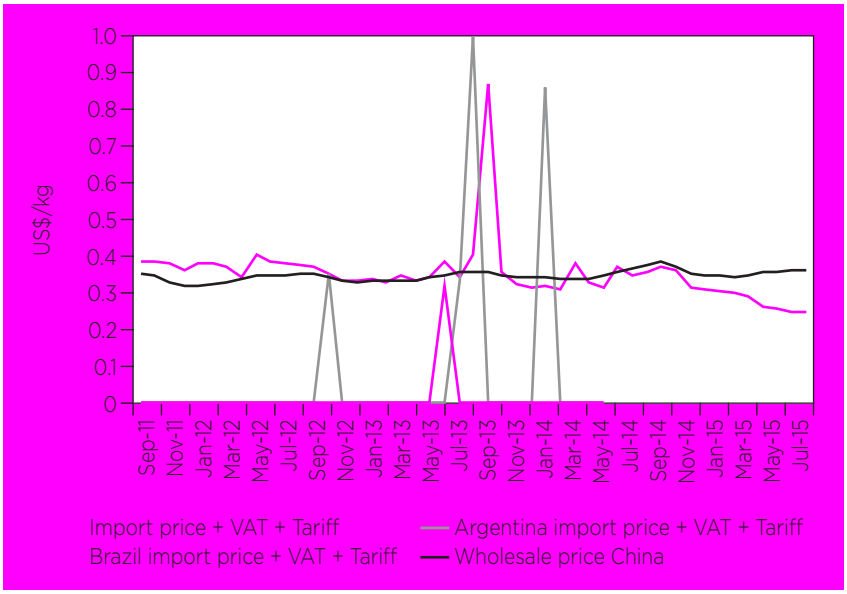


FIGURE 29/
Maize import prices in China and expected import prices from Brazil and Argentina, US$/kg

Source: IDB/INT with data from Comtrade, NDRC Price Monitoring Center and CEIC.

more effective than others. Overall, though, what prevails is a very weak presence on the ground in China, with most countries lacking the technical and financial resources to avoid the worst impact of these measures. Even large countries with greater resources, such as Brazil and Mexico, are still in the process of putting adequate institutional infrastructure into place so as to effectively monitor—and eventually dispute—SPS measures and AQSIQ regulations. The contrast is particularly sharp with other major competitors in the agriculture business such as the U.S., Australia and New Zealand, which have plenty of such resources in place.

Brazil, for instance, waited until 2009 to send an agricultural attaché to the embassy in Beijing, a decision which, according to a former Brazilian ambassador to China, was pivotal in the country's negotiations to open up the beef, poultry and pork markets. Likewise, Mexico has only recently taken measures to strengthen its resources on the ground, which it did by opting to open offices of its ministries of economy and agriculture in Beijing. Peru, despite its groundbreaking trade agreement, is still deciding on the best approach. According to interviews with officials at the Ministry of Foreign Commerce and Tourism, the embassy is in the process of receiving its first attaché.

Argentina appears to have the most developed institutional structure. Not only does the country have an office of its Ministry of Agriculture in

Beijing, similar to Mexico's, with a team of five technicians, it also monitors SPS changes in China and has a way of sharing this information with Argentine agriculture companies, via the Argentine Agricultural Office, which operates an official website that translates China's SPS measures and AQSIQ's regulations into Spanish. The site also displays information about the main requirements for exporting different products to the Chinese market. Unfortunately, as mentioned earlier, these efforts have been hampered by domestic trade policy in Argentina.

These long overdue initiatives, which for the most part have yet to acquire a critical mass, seem to face a serious challenge in terms of access to high-level officials at China's Ministry of Agriculture and, particularly, AQSIQ. A common complaint among LAC diplomats is that negotiations are often obstructed and delayed by the lack of dialogue with approval-level officials, which make advances heavily dependent on sparse and cumbersome bilateral meetings between heads of state.

How exactly do technical barriers hurt LAC exports? The discussion so far of technical barriers and related price and quantity outcomes suggests that LAC exports have been critically affected in some cases, however it does not go so far as to provide a precise measurement of their impact. The evaluation of this impact is notoriously difficult, particularly when the objective is to cover all products in several countries. Case studies of goods and sectors in specific countries are much easier to conduct because they typically involve a single measure. When it comes to the universe of exports from 26 countries, the challenge is significantly more daunting as it requires lumping together highly varied measures and circumstances of trade, most of which are very difficult to quantify.

Despite these difficulties and limitations, this section makes an attempt to pin down the quantitative impact of these measures on LAC's exports to China by resorting to the same gravity model used in the tariff simulations discussed earlier. Like tariffs, technical measures can distort trade flows away from what the partners' size and geographical and cultural distances might lead one to expect. Unlike tariffs, though, technical measures cannot be easily quantified into an equivalent ad valorem. To address this challenge, this study employs a proxy that well known in trade literature, which consists of frequency ratios: that is, the percentage of products affected by technical measures within a chosen product category.[38] Since the model is being run at the sector level (HS

[38] See, for instance, Fugazza, 2013, Li & Beghin, 2012 and Disdier, Fontagné, & Mimoni, 2008.

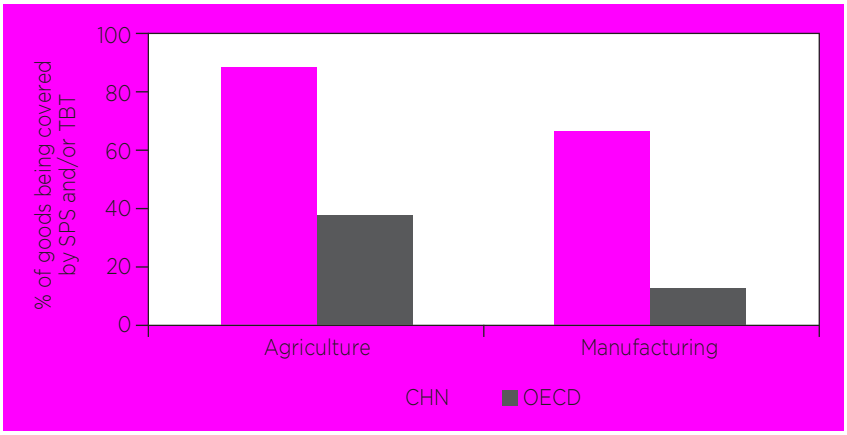


FIGURE 30/
Frequency of SPS and TBT measures applied to LAC exports to China and the OECD: manufacturing and agriculture.

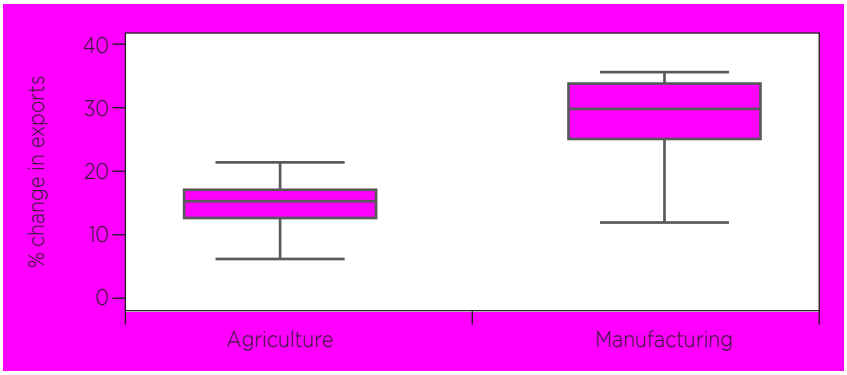
Source: IDB/INT with data from Comtrade and the WTO.
Note: For each category, this figure presents the average percentage of HS 6-digit items within each HS 4-digit sector affected by SPS and/or TBTs, averaged over the 26 LAC countries exporting to China and the OECD. See appendix for detailed data.

4-digits), the frequency ratios are calculated based on the number of products (HS 6-digits) within each sector that are being targeted by these measures.[39]

As expected, the results of the model point to technical barriers having a negative and statistically significant impact on LAC's agricultural and manufacturing exports (see Technical Appendix). As in the tariff exercise, these results are used to assess the possible gains for LAC exporters of bringing down the frequency of China's technical barriers to the OECD level. The magnitude of the change, shown in Figure 30, would involve cutting China's frequencies to less than half the current levels for agriculture and to one-fifth for manufacturing. Figure 31 presents the results of the simulation for the two product categories. As can be seen, there are significant gains to be reaped in both categories, ranging from 13 percent to 17 percent in agriculture and from 25 percent to 34 percent in manufacturing, if outliers are left out of the calculation. Overall, LAC agricultural and manufacturing exports to China would increase by 16 and 22 percent, respectively. It is worth noting that these gains do not necessarily have to come through a reduction in frequency. A better understanding of Chinese technical standards either through greater transparency or greater research efforts from LAC governments and firms could also bring about similar effects.

[39] Another similar measure, the coverage ratio (i.e., the value share of exports affected by technical measures) was also used as a robustness check. This ratio, however, tends to underestimate the impact of technical barriers since the import value of the most affected products tends to be drastically reduced. See the technical appendix for more.

FIGURE 31/
Distribution of the impacts on LAC's exports of a convergence of China's frequency of TBTs to OECD levels: agriculture and manufacturing



Source: IDB/INT with data from WITS.
Note: This figure presents the distribution of the impacts at the HS 4-digit partner level covering all 26 LAC countries. The median of the impacts is given by the line subdividing the boxes. The bottom and upper hinges of the boxes are, respectively, the first and third quartile of the distribution. The whiskers represent the maximum and minimum impacts within 1.5 times the distance between the first and third quartile. Outliers beyond this range were not plotted. The simulation is based on a global sectoral gravity model with fixed effects, described in the Technical Appendix (Table A1, specification 2). See Table 1 for category definitions. Data is for 2013.

Accessing the Latin American market: trade barriers to Chinese firms

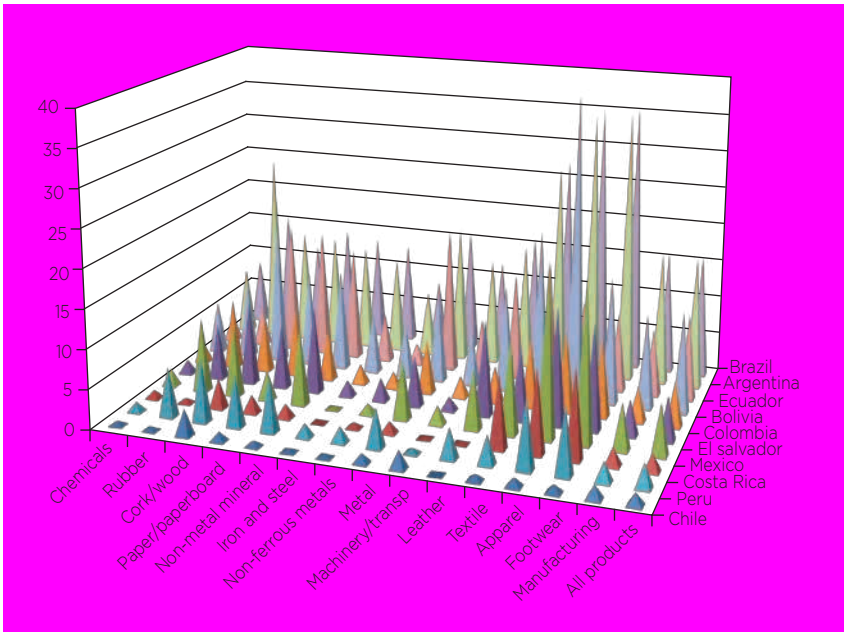
A casual observer of China–LAC trade might be forgiven for concluding that Chinese exporters face little obstacles when trying to access the Latin American market. After all, China's exports to LAC—roughly 95 percent of them consisting of a wide variety of manufacturing goods—have surged in the last 15 years, growing at a breakneck average annual growth rate of 19 percent. Figure 32, which focuses on manufacturing imports from LAC's main markets, shows that this surge took place across the board, with China's share of the region's manufacturing imports increasing sevenfold to 21.4 percent.

The reality, though, is much more complex and nuanced. There is little doubt that LAC has gone a long way toward liberalizing its trade—the average MFN tariff dropped from 40 percent in the mid-1980s to 10 percent in the second half of the 2000s—and a lot has also been done toward eliminating non-tariff barriers and deepening regional integration (63 FTAs signed, covering an average of 50 percent of the region's trade). However, not every country has moved at the same pace, leaving a significant variation in the level and composition of protection across the region.

FIGURE 32/
Growth and share of manufacturing imports from China: LAC and selected LAC countries, 2000–14

Source: IDB-INT with WITS data.
Note: Manufacturing imports are defined as STIC REV3, itens 1, 25, 266, 267, 269 and 5 to 9. The share is defined with regard to manufacturing imports from the world.

FIGURE 33/
LAC's applied tariffs for manufacturing goods: Selected countries, %, 2014



Source: IDB-INT with WTO tariff data and IDB INTrade data.
Note: Simple averages based on SITC Rev 3, 5 to 8. Data for El Salvador is for 2013.

For Chinese exporters, this variation is compounded by different reactions to the surge in their sales, which broadly reflect countries' different development strategies and specialization patterns. The bottom line is that, despite LAC's trade liberalization and the surge in the region's exports, Chinese firms still face considerable tariff and non-tariff barriers in a significant number of LAC countries. These barriers might not have been as effective in stopping the surge as some policymakers might have hoped, but they can hardly be considered harmless to producers and consumers on both side of the relationship. This section offers a broad overview of these barriers, with a focus on manufacturing goods, which, as mentioned earlier, account for more than 90 percent of China's exports to LAC.

Tariff barriers: It depends on where you go

Figure 33 largely sums up the uneven (applied) tariff terrain faced by Chinese firms when exporting to LAC in the country and sector dimensions. The averages are weighted by China's exports to the world to avoid any bias arising from the impact of LAC's tariffs on China's exports to the region. Brazil and Argentina sit at one end of the spectrum, with levels of

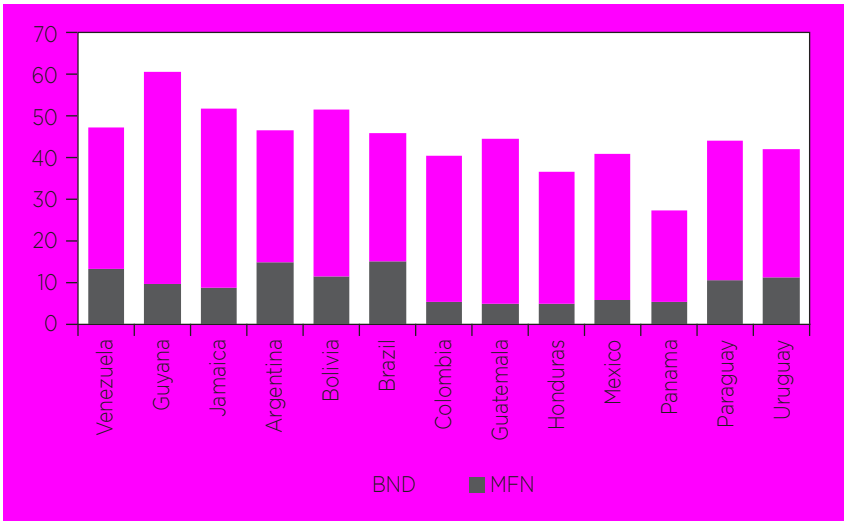


FIGURE 34/
Average MFN and bound tariffs for manufacturing goods: Selected LAC countries, 2013, (%)

Source: IDB-INT with WITS data.
Note: Simple averages based on SITC Rev 3, 5 to 8 .

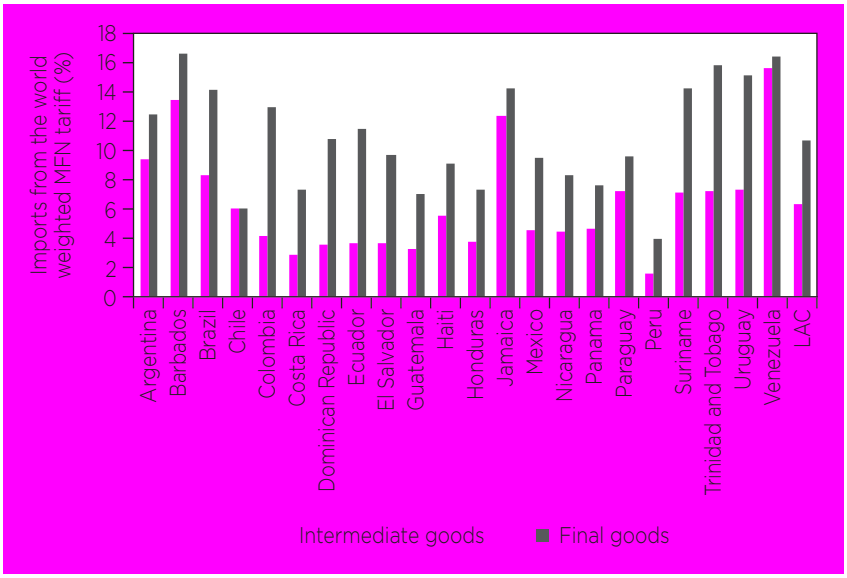
protection that are well above those of other countries in the region as they try to protect their manufacturing interests across the board, largely in vain. At the other end are countries such as Chile, Peru and Costa Rica, which have long embraced free trade policies and, in the case of the first two, have dwindling interests in manufacturing. Market access in these cases was further improved, as mentioned in the previous section, by signing FTAs with China.[40] At the sectoral level, it is clear that Chinese exporters have a significantly greater challenge in labor-intensive industries, a common pattern across all LAC countries except Chile.

Other important characteristics of LAC tariff barriers are a substantial "binding overhang" and a noticeable tariff escalation. The former is related to the gap between bound tariffs (the tariff commitments made at the WTO) and applied MFN tariffs. As can be seen in Figure 34, this gap is huge for most countries in the region and may pose a significant risk for China's exporters since it leaves considerable room for sudden tariff increases, except when bound by FTAs.

Tariff escalation is also prevalent in most LAC countries, as final manufacturing goods are subject to tariffs that are, on average, 97 percent higher tariffs than intermediate goods (Figure 35). How much this has been hurting China's exports to LAC is hard to tell. Whereas there seem to be good grounds for believing that tariff escalation matters for the diversification and sophistication of LAC's exports to China, the growing

[40] Chile's FTA with China, which entered into force in 2006 and included a 10-year tariff phase-out schedule, will cover 97 percent of tariff lines in 2017. The FTA with Peru, which was ratified in 2010, has a longer schedule (17 years) but will reach 90 percent of tariff lines in 2020, while that with Costa Rica, enforced in 2011, has a 15-year schedule. See http://www.sice.oas.org/agreements_e.asp

FIGURE 35/
LAC MFN tariffs, final vs. intermediate goods. 2013 (%)



Source: IDB/INT with data from WITS based on UNCTAD-SOP classification for final and intermediate goods.

diversification and sophistication of China's exports to the region suggest that the reverse might not be true. Still, this does not rule out an economically significant effect. For instance, this bias might be behind the fact that final consumption goods accounted for only 15 percent of China's exports to LAC in 2014, where the same figure for the U.S. market was approximately 30 percent.[41]

How exactly do tariffs hurt China's exports? The evidence presented so far suggests a mixed picture: on the one hand, there is little doubt that the tariffs faced by Chinese exporters are still significantly high in most LAC countries, particularly in the MERCOSUR; on the other, they do not seem to have stopped these exporters from making significant inroads in the region. The burning question, then, is exactly how binding are these tariffs for Chinese exporters? Also, what kind of response can be expected if LAC embarks on bilateral or unilateral initiatives to lower tariffs on Chinese manufacturing goods? As discussed in Chapter 1, which addressed the other side of the relationship, a simple exercise using a sectoral gravity model may offer important clues toward answering these questions.

As in the exercise with China's tariffs, the idea here is to simulate the impact of cutting LAC's tariffs on Chinese manufacturing exports at the partner-product (HS 4-digit) level to OECD levels. Figure 36 presents

[41] IDB/INT with data from WITS based on broad economic category classifications.

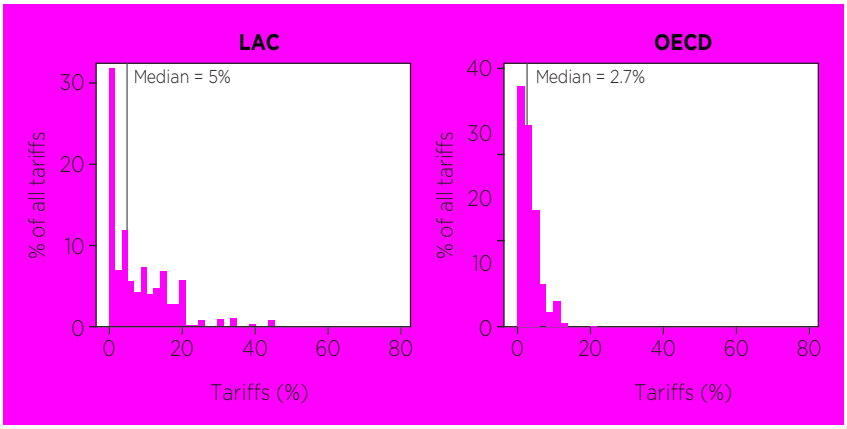


FIGURE 36/
Distribution of LAC and OECD applied tariffs on Chinese manufacturing exports, percentages

Source: IDB/INT with data from WITS.
Note: These are simple averages of MFN and preferential tariffs at the partner HS 4-digit level faced by China manufacturing exporters in the 26 LAC countries and the OECD. See Table 1 for category definitions. Data is for 2013.

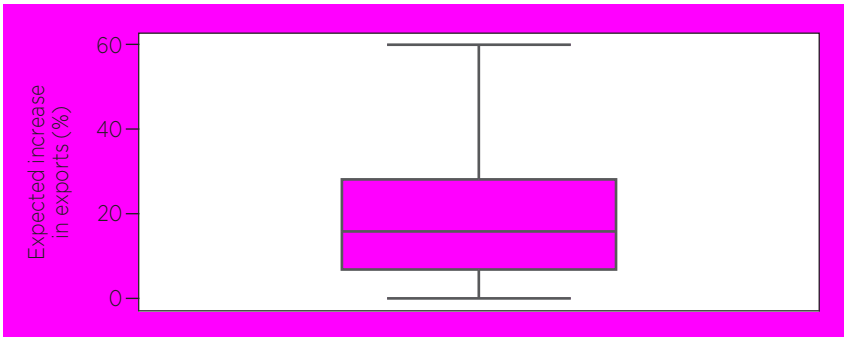


FIGURE 37/
Distribution of the impacts on China's exports of LAC's tariffs converging with the OECD's: manufacturing

Source: IDB/INT with data from WITS.
Note: This figure presents the distribution of the impacts at the partner-product (HS 4-digit) level covering all 26 LAC countries. The median of the impacts is given by the line subdividing the boxes. The bottom and upper hinges of the boxes are, respectively, the first and third quartile of the distribution. The whiskers represent the maximum and minimum impacts within 1.5 times the distance between the first and third quartile. The outliers beyond this range were not plotted. The simulation is based on a global sectoral gravity model with fixed effects, described in the Technical Appendix (Table A2, specification 2). See Table 1 for category definitions. Data is for 2013.

the tariff distribution for Chinese exporters in both regions to illustrate the magnitude of these cuts: LAC's median tariff is nearly twice as high as that of the OECD and there is much greater variance in its tariffs.

The results of the simulation (see Figure 37) make it clear that despite all the trade liberalization and the boom in China's exports to the region, tariffs still represent a significant obstacle for manufacturing exporters of several products. Leaving the outliers aside, the increases across the manufacturing

sector would range from 7 percent to 28 percent, with a 16 percent median impact. Overall, Chinese manufacturing exports would grow by 10 percent.

Non-tariff barriers: A significant obstacle in the MERCOSUR

As with tariffs, Chinese exporters face a very varied landscape of NTBs when trying to export to the region. As might be expected, the problems are concentrated in the same countries where tariffs remain a significant obstacle, mostly among Mercosur countries and, to a considerably lesser extent, Mexico and Colombia. These barriers could be divided into two categories: those that are, a priori, legitimate trade defense measures, the implementation of which is ambiguous given the safeguard and anti-dumping provisions in China's WTO Accession Protocol; and other less regulated and more opaque measures, such as import licenses, technical barriers, local content and customs valuation.

Trade defense measures

These are the best documented barriers and the data suggest that the use of this type of instrument in LAC has increased sharply so as to stop Chinese exports in the last decade. The number of cases has followed a clearly upward trend, reaching a peak of 38 initiated cases in 2013, accounting for 36 percent of the region's contingent trade measures (Figure 38). The action, however, has been heavily concentrated within a small group of

FIGURE 38/
LAC's trade defense measures against China

Source: IDB/INT with data from the World Bank Temporary Trade Barriers Database.

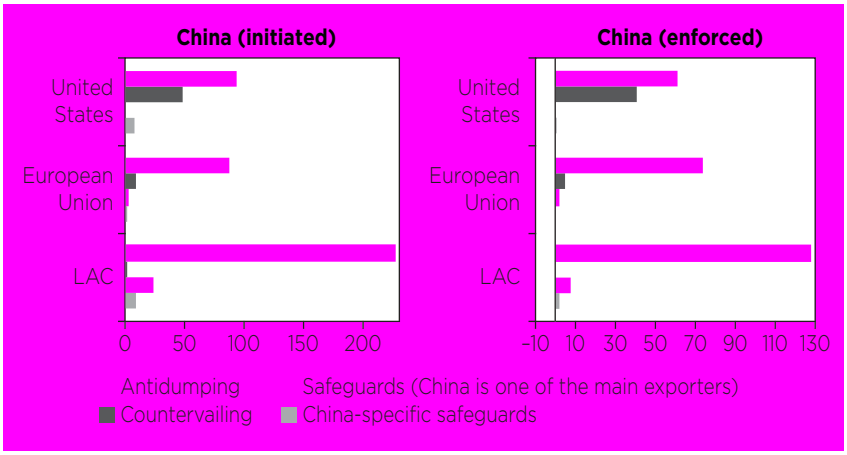


FIGURE 39/
Trade measures initiated and enforced by selected partners against China, 2000–14

Source: IDB/INT with data from the World Bank Temporary Trade Barriers Database.

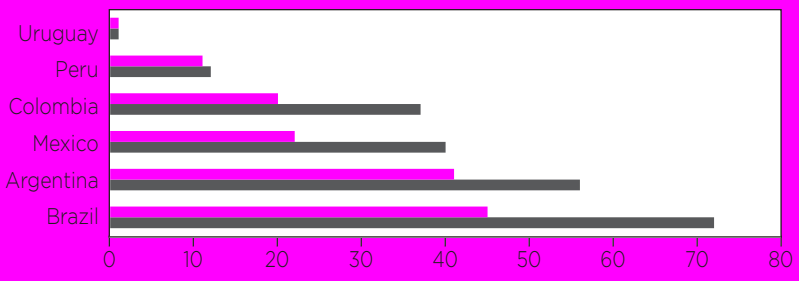
countries with stronger manufacturing interests and products, and has focused on a specific type of instrument: anti-dumping.

Figure 39 breaks down this activity by type of instrument and gives some perspective on its relevance through comparison with China's other major trade partners. As can be seen, anti-dumping—probably because of its less stringent regulatory requirements—was the most intensively used instrument by a large margin, with numbers of cases well beyond those of the U.S. and the European Union. Safeguards come a distant second and there has been little use of countervailing duties, which have been more prevalent in countries such as the U.S. The following paragraphs look at the dynamics of these contingent trade measures in more detail.

Anti-dumping. As Figure 40 shows, Argentina, Brazil and Mexico are the LAC countries with the largest number of anti-dumping cases initiated and enforced against China over the past 10 years. Combined, they account for 77 percent of the cases initiated in this period. Other countries such as Colombia and Peru also have been active, but their cases amount to less than those of Argentina. Peru, in particular, had a sharp drop in anti-dumping activity after signing its FTA with China in 2009.

Anti-dumping measures can take the form of a duty contingent on prices falling below a certain level or just an unconditional duty. Moreover, duties can be defined as a specific amount per unit, such as cents per kilogram, or in ad valorem terms, such as a percentage of the price. Figure 41 shows that LAC measures against China, driven mostly by Brazil, rely more

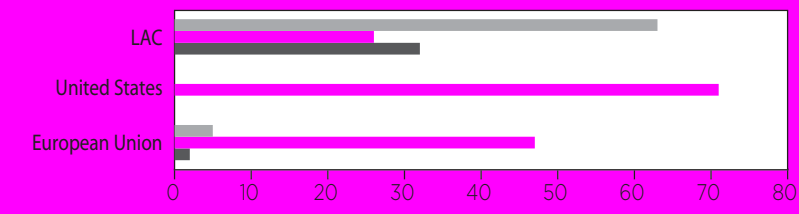
FIGURE 40/
Anti-dumping cases initiated and enforced by LAC against China, 2000–14



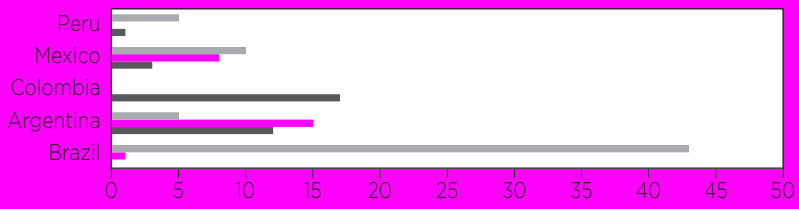
	Brazil	Argentina	Mexico	Colombia	Peru	Uruguay
Enforced	45	41	22	20	11	1
Initiated	72	56	40	37	12	1

Source: IDB/INT with data from the World Bank Temporary Trade Barriers Database.

FIGURE 41/
LAC anti-dumping measures against China, 2000–14



	European Union	United States	LAC
Specific duty	5	0	63
Ad valorem duty	47	71	26
Duty if price falls under	2	0	32



	Brazil	Argentina	Colombia	Mexico	Peru
Specific duty	43	5	0	10	5
Ad valorem duty	1	15	0	8	0
Duty if price falls under	0	12	17	3	1

Source: IDB/INT with data from the World Bank Temporary Trade Barriers Database.
Note: This figure only covers a subset of the cases shown in Figure 40 for which there is detailed information about the type of duties implemented.

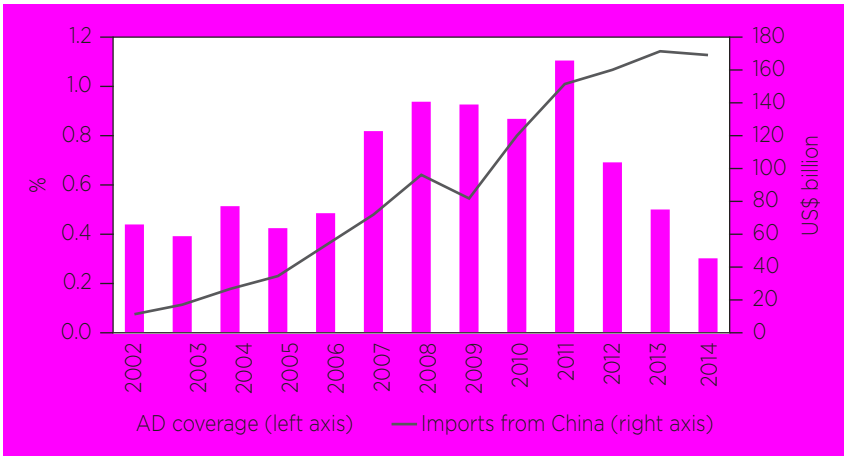


FIGURE 42/
LAC anti-dumping cases against China as a share of bilateral imports, 2002–14

Source: IDB/INT with data from the World Bank Temporary Trade Barriers Database.

heavily on specific duties than the U.S. and Europe. As is well known, this type of duty is more likely to create distortions and uncertainty for both importers and exporters, as its impact depends on the prevailing price of the product. Government officials in Brazil, though, often justify their use on the grounds that invoice prices for Chinese imports systematically underestimate the actual prices paid by importers.

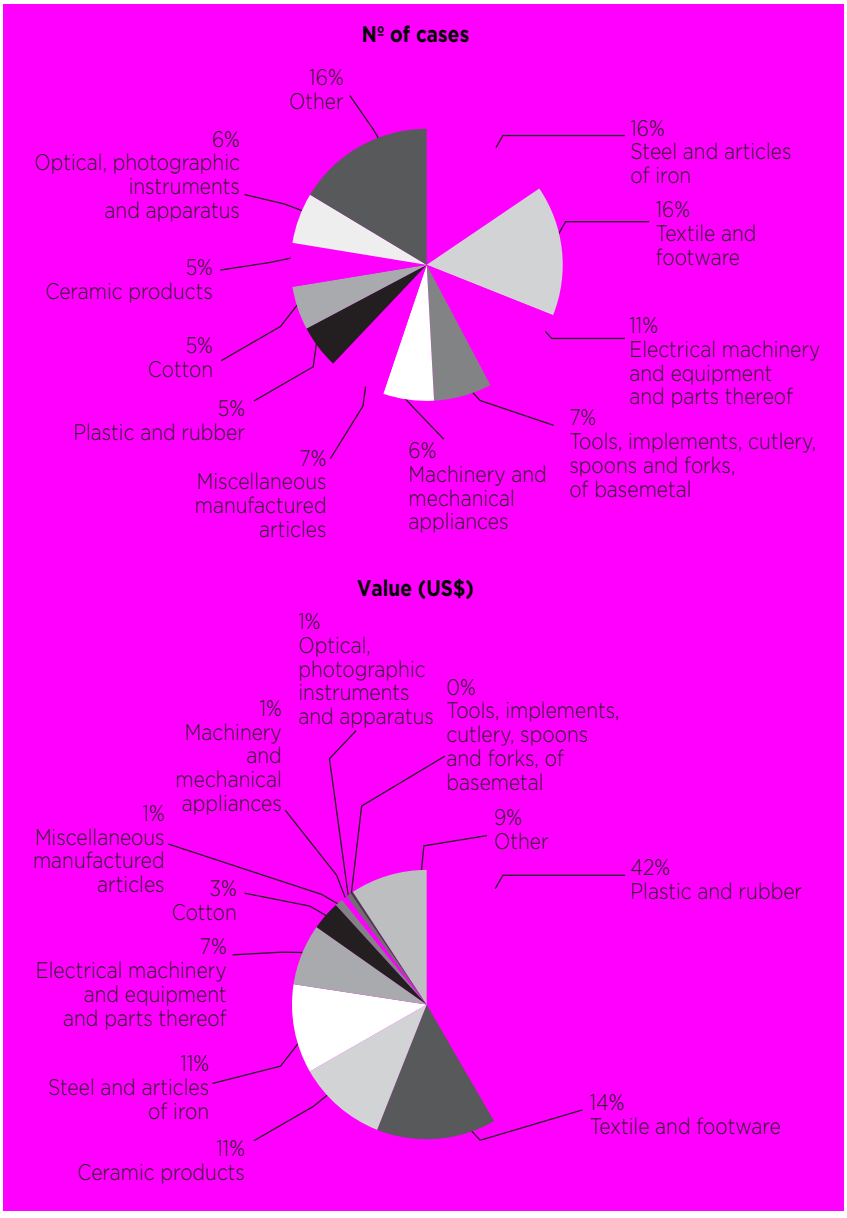
Despite this surge in anti-dumping activity, the number of cases has not gone beyond 1.2 percent of the region's imports from China (Figure 42), even at their peak, and were concentrated in sectors such as articles of iron and steel, textile and footwear, electrical machinery and equipment and mechanical machinery and equipment, which accounted for 56 percent of all cases and for 47 percent of the affected trade flows (Figure 43).

Without a detailed analysis of each of these cases—which is beyond the scope of this study—it would be impossible to assess if they reflected legitimate concerns or if they were driven by protectionism. However, the non-recognition of China as a market economy by the most active users casts a cloud over the legitimacy of these of anti-dumping measures. Brazil, Argentina, Mexico and Colombia have all been using the "surrogate country method" in their anti-dumping cases, taking advantage of Section 15 of China's WTO Accession Protocol, which states that if a country does not recognize China as a market economy, it may resort to a methodology that is not based on China's domestic prices or costs.[42]

As is widely recognized, the surrogate country method leaves considerable room for anti-dumping rates that are outright protectionist,

[42] Brazil and Argentina formally recognized China as a market economy in 2004, but have never enforced this by law. Peru, which is also among the anti-dumping users in Figure 40, granted China market economy status in 2004 but only enforced this in 2007, during negotiations of its FTA with China. For details, see, for example, IBA, 2010. http://docsonline.wto.org/imrd/directdoc.asp?DDFDocuments/t/WT/L/432.doc.

FIGURE 43/
LAC anti-dumping measures against China: sectoral distribution and coverage



Source: IDB/INT with data from the World Bank Temporary Trade Barriers Database and Comtrade. Value distribution based on 2013 trade flows. Distribution of numbers of cases based on the accumulated number of enforced cases in the 2000–14 period.

with little consideration for the facts on the ground. This much is clear, for instance, in Brazil's choice of surrogate country. Between 2010 and 2013, 60 percent of the countries chosen were in the OECD and 22 percent in LAC, all of them bearing little similarity with China in terms of factor

prices, technology, geography or per capita income.[43] The same kind of practice is also observed among other LAC users of anti-dumping measures against China.[44]

Despite their relevance, the days of the region's apparent excesses in terms of anti-dumping might be numbered, as these are associated with China's WTO Accession Protocol and the special provision on market economy status is set to expire at the end of 2016. There seems to be, however, different interpretations of the language of the protocol, with some key trade partners arguing that it does not imply automatic market economy recognition from all WTO members; or, in other words, it does not imply that surrogate country method can no longer be used after 2016.[45]

Whatever interpretation prevails, it does not seem to be in the interests of LAC or China to allow regulatory loopholes to be used to distort trade, as this harms both consumers and producers. If there are still doubts about the nature of the Chinese economy, the very least that LAC countries could do would be to allow and encourage Chinese exporters to submit their evidence on a case-by-case basis, a procedure that is already written into most anti-dumping legislation in the region, but rarely used.[46]

How effective are the measures? Legitimate or not, there remains the question of how effective these anti-dumping measures have been in stopping Chinese exports. A careful econometric analysis of this activity among the heaviest users in the region—Argentina, Brazil, Colombia and Mexico—paints a mixed picture. Using firm-level data from China Customs for 2000–12 and anti-dumping data from the World Bank Global Anti-dumping Database, the analysis covers 79 affirmative anti-dumping actions against China, involving 171,567 country-firm-product-year observations.[47] The main findings point to a substantial trade-dampening effect in Brazil, Mexico and Argentina, whereas Colombia's anti-dumping measures seem to have failed to stop Chinese exports on the whole (Figure 44).

This impact is also broken down into number of exporters (extensive margin) and export volume by exporter (intensive margin). In the case of Brazil and Mexico, the trade dampening effect is evenly explained by intensive and extensive margin negative effects. In Argentina, the intensive margin dominates the results, whereas in Colombia there is some weak evidence that the negative impact, if any, was through the extensive margin. Other results covering the impacts of anti-dumping measures on prices and trade deflection (that is, the deflection of Chinese exports to other non-LAC countries) do not

[43] Oliveira, 2015 .

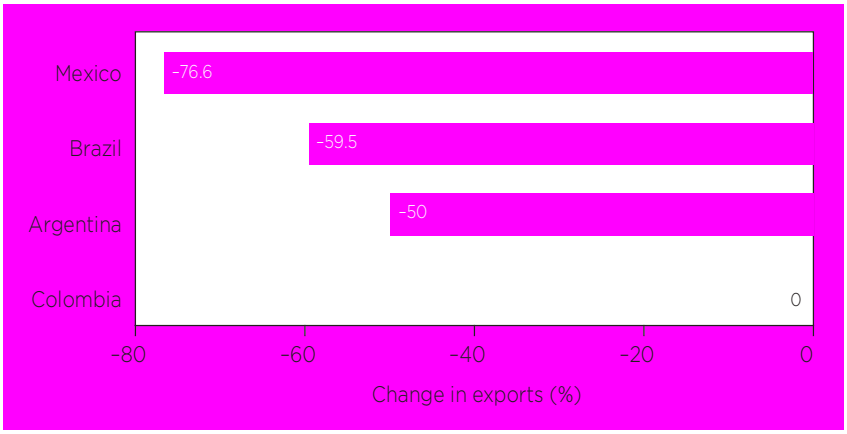
[44] See IBA op. cit, Box 9.

[45] http://insidetrade.com/daily-news/2016-slim-trade-bills-debate-will-abound-china-tpp-wto. Posted December 28, 2015. the Ministry of Commerce's Trade Remedy and Investigation Bureau argues that China should automatically be granted market economy status after 2016 and that its trade partners should start utilizing Chinese data to run anti-dumping investigations. The bureau is also aware that some countries may not adhere to this decision and mentioned in an interview that is prepared to consider starting cases against them at the WTO (interview with Ministry of Commerce officials).

[46] See IBA op. cit. and Oliveira 2015.

[47] Zhang 2016.

FIGURE 44/
Trade-dampening effects of selected LAC countries' anti-dumping measures against China, 2000–12, percentages



Source: IDB/INT with data from Zhang , 2016.
Note: This figure presents the average impact on China's exports of anti-dumping measures adopted during 2000–12. It was estimated using a difference-in-difference model with data at the product HS 6-digit level, with product and year fixed effects. See Zhang, 2016 for details.

suggest they have been statistically significant, except for the case of Mexico, where the prices of Chinese products affected by anti-dumping measures increased by 11.2 percent on average after the investigation.[48]

Safeguards. According to the WTO definition, safeguard measures should be applied to a product "irrespective of its source."[49] China, however, has become a notable exception as a transitional provision included in its Accession Protocol allowed WTO members to target the country's exports until December 2013.[50] Despite requirements that were significantly less stringent than the general safeguard protocol, this instrument was little used by LAC, with just a few cases initiated in four countries, only two of which were enforced: the Dominican Republic on lavatories and washbasins and Peru on textiles and clothing (Figure 45). The region's behavior was not significantly different from that of the U.S. and the European Union, which have also barely used these measures.

However, these China-specific safeguards might not capture all LAC's safeguard activity against China, since other more general safeguard instruments could also have been used, particularly after 2013. Safeguard instruments, by definition, are supposed to cover all trade partners, but their use might have been motivated by surge of imports from China. In fact, since 2002, 68 percent of the general safeguard cases initiated by LAC were related to goods which China is among the main exporters of, mainly textiles, footwear, electric and electronic equipment

[48] Zhang, 2016, Table 11.

[49] https://www.wto.org/english/docs_e/legal_e/25-safeg_e.htm.

[50] See Section 16 of the Accession Protocol. http://docsonline.wto.org/imrd/directdoc.asp?DDFDocuments/t/WT/L/432.doc.

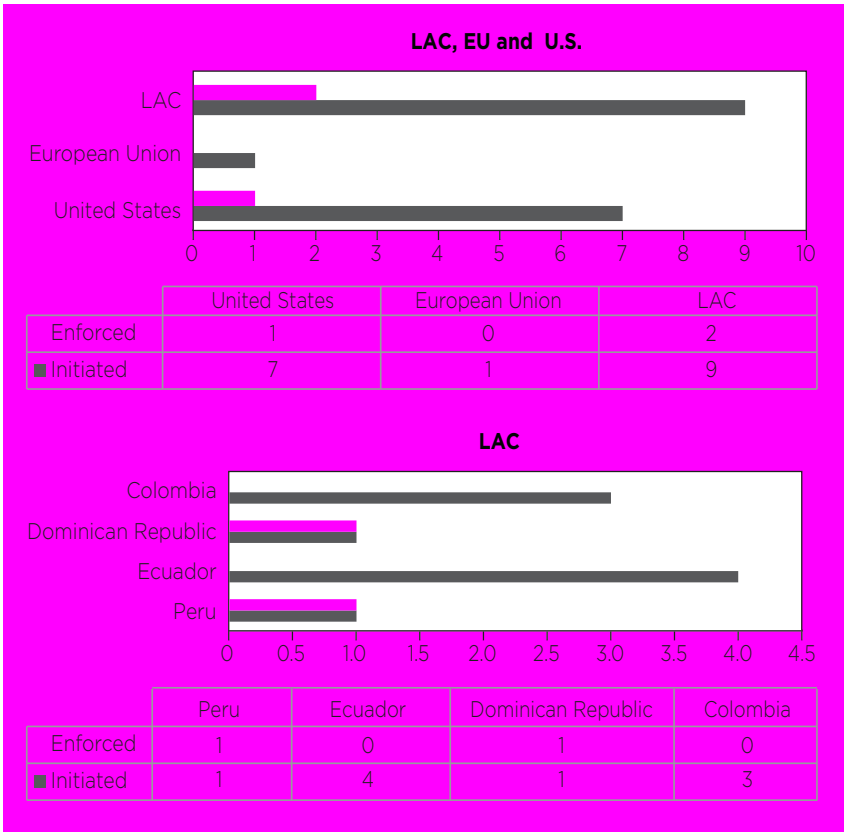


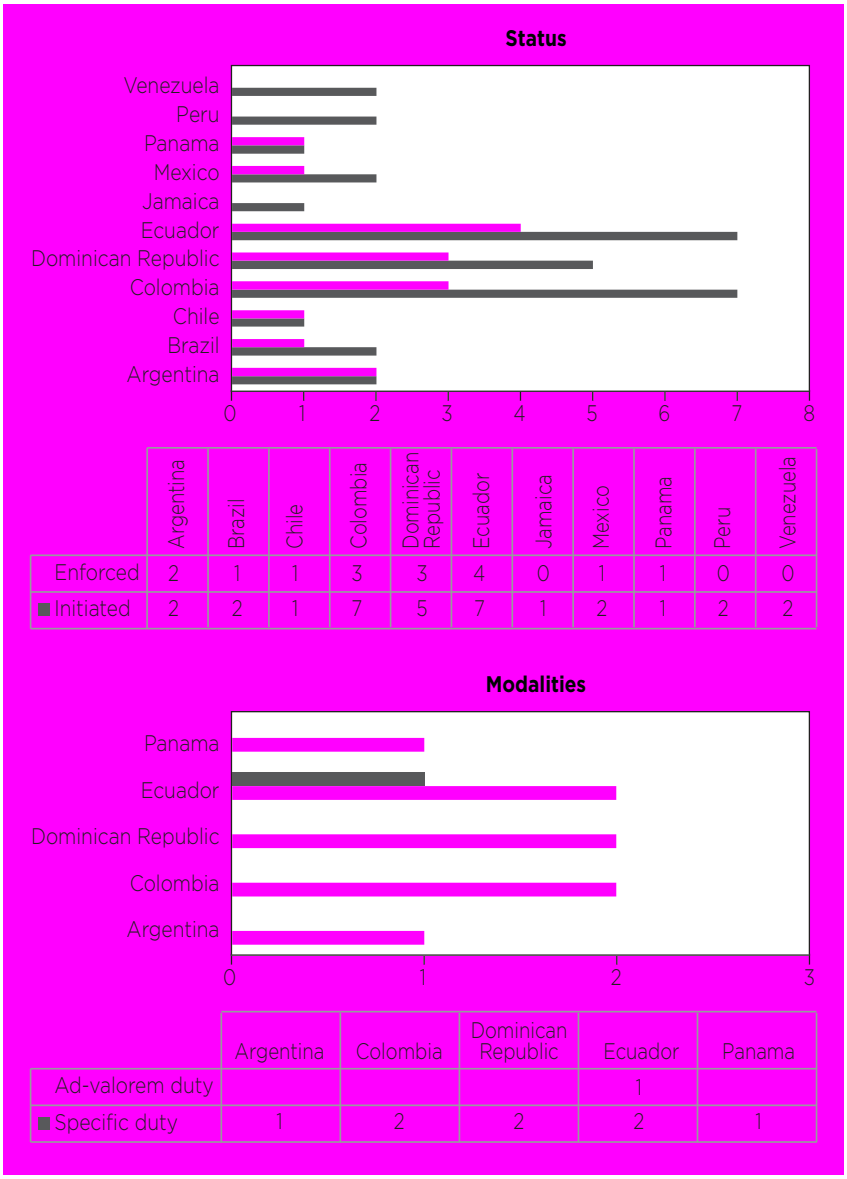
FIGURE 45/
China-specific safeguards initiated and enforced by selected countries and breakdown by LAC countries, 2002–14

Source: IDB/INT with data from the World Bank Temporary Trade Barriers Database.

and steel (Figure 46). Overall, though, the number of cases remains relatively small—particularly when compared to anti-dumping activity—and is highly concentrated in the smaller economies of the region and covers just a fraction of bilateral trade.

Countervailing duties. As with safeguards, Chinese exporters seem to have been little affected by the use of countervailing duties in LAC. Between 2002–14, LAC countries filed just one case against China regarding exports of amoxicillin (HS Chapter 29) to Mexico in 2011, which was later withdrawn, meaning that LAC lagged well behind countries such as the U.S. in this regard (Figure 47). Paradoxically, given the above-average size of the Chinese state, the region was much more active in pursuing countervailing cases against the rest of the world, with 24 cases initiated and 12 enforced in the same period, more in line with this activity in the E.U. and the U.S.

FIGURE 46/
LAC safeguard measures against goods which China is one of the main exporters of: Status and modalities, 2012–14



	Argentina	Brazil	Chile	Colombia	Dominican Republic	Ecuador	Jamaica	Mexico	Panama	Peru	Venezuela
Enforced	2	1	1	3	3	4	0	1	1	0	0
Initiated	2	2	1	7	5	7	1	2	1	2	2

	Argentina	Colombia	Dominican Republic	Ecuador	Panama
Ad-valorem duty				1	
Specific duty	1	2	2	2	1

Source: IDB/INT with data from the World Bank Temporary Trade Barriers Database.
Note: data on measures was only available for five LAC countries.

Other non-tariff barriers

In this group of less regulated and more opaque measures, Chinese firms face challenges that are distributed geographically in a way that is similar to the other barriers, that is, they are heavily concentrated among a few countries, led by Brazil and Argentina, and followed with a considerable distance by Mexico, Ecuador and Colombia. The most important issues

FIGURE 47/
Countervailing cases initiated and enforced against China and ROW, 2002–14

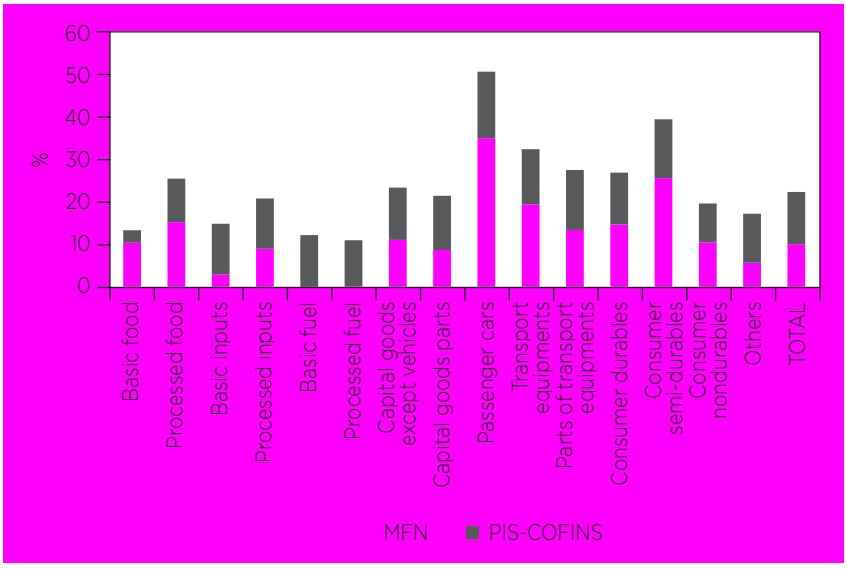
Source: IDB/INT with data from the World Bank Temporary Trade Barriers Database.

seem to have revolved around import licenses, local content and trade-related investment measures (TRIMs), TBTs and customs valuations. That much is clear in the market access reports published by China's Ministry of Commerce.[51] Brazil and Argentina come top of the list of complaints, with former being the object of concerns related to non-automatic licenses, customs valuation, local content rules for government procurement and trade-related tax incentives. Argentina is cited for arbitrary use of non-automatic import licenses and restrictive TBTs, while Mexico raises concerns with customs valuation and expensive and unwarranted TBTs, particularly with regard to labeling.

These reports tend to be geographically biased because they focus on the largest LAC markets. However, their choice of countries seems to be corroborated by more objective assessments of trade policy trends around the region, including the WTO trade policy reviews. Brazil and Argentina, for instance, clearly experienced major trade policy reversals in the second half of the 2000s, and even though these were driven by overall shifts

[51] China's Ministry of Commerce has created two different alert reports. The first is an annual foreign market access report that compiles aspects of trade policy and the main trade and investment barriers for selected countries. The report was first issued in 2005 and covers 13 selected countries including Brazil, Mexico and Argentina. The second is a fortnightly bulletin prepared by the Ministry of Commerce's Trade Remedy and Investigation Bureau that lists new non-tariff measures issued by most of China's trade partners. See http://gpj.mofcom.gov.cn/article/d/cw/.

FIGURE 48/
Brazil's average MFN import tariff and the PIS-COFINS, 2012 (%)



Source: Own calculation based on Receita Federal data.

in economic policy and ended up affecting all trade partners, Chinese competition seems to have one of the strongest motivations.

In Brazil, trade policy objectives pivoted from integration to openly protecting local industry by resorting to all policy tools available, ranging from higher taxes on imported goods to increasingly restrictive local content requirements for government procurement and less transparent import licensing requirements and customs valuations.[52] It could be argued that the turning point was the decision to extend the imposition of two indirect taxes to imports in 2004, the *Programa de Integração Social* (Social Integration Program, PIS) and the *Contribuição para o Financiamento da Seguridade Social (*Contribution for Social Security Financing, COFINS).[53] As shown in Figure 48 this apparently simple measure, when combined with the import tariffs applied to non-Mercosur countries, doubled the average protection for local production.

The PIS/COFINS measure was later followed by a string of other NTBs, with the highest impacts coming from a 30 percentage point increase in sales taxes on imported cars, later repackaged as a new automotive regime named *InovarAuto*; and the up to 25 percent margin of preference for local firms in government procurement, both part of the *Brasil Maior* plan.[54] InovarAuto is of particular interest because the motivation seems to be closely related to an attempt to stop the growing flow of Chinese imports. As shown in Figure 49, car imports from China quickly reached 4 percent

[52] See, for instance, Frischtak & Mesquita Moreira, 2015 and WTO, 2013.

[53] PIS and COFINS are federal taxes imposed monthly on firms' gross revenue at rates for most goods of 1.65 percent and 7.6 percent, respectively. http://www.receita.fazenda.gov.br/pessoajuridica/pispasepcofins/

[54] The InovarAuto automotive regime (Decree 7819, October 2012) establishes that all producers, local or otherwise, are subject to a higher tax unless they meet certain conditions such as local production, 65 percent local content, investing 0.5 percent of gross revenues in R&D and meeting certain energy efficiency criteria. See http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2012/Decreto/D7819.htm.

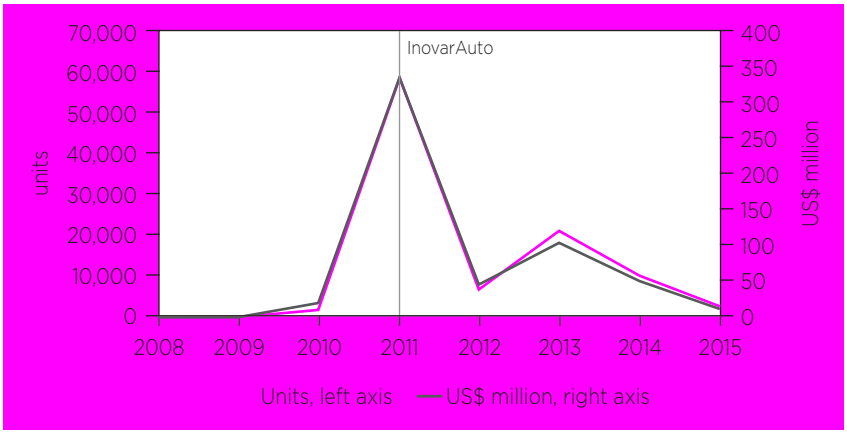


FIGURE 49/
Brazil's car imports from China before and after the introduction of InovarAuto

Source: IDB/INT with data from the Brazilian Ministry of Development Industry and Trade.

of the domestic market in 2011 but dropped sharply after the tax increase. Despite the obvious impact and questionable legality of the measure, the Chinese government did not dispute it at the WTO and only reserved its third-party rights in a case brought against InovarAuto by the E.U. in 2013.[55]

Argentina's trade policy has followed a similar protectionist trend in the last decade and, as in the case of Brazil, this seems to have been driven more by an overall shift in economic policy than by a specific response to Chinese competition. All the same, it is very likely that Chinese exporters were affected by these changes, particularly after 2012, when the government released plans to openly pursue import substitution.[56]

The most significant measures are summarized by the complaints to the WTO from the E.U., the U.S., Japan and Mexico in 2012, which were later upheld by a dispute resolution panel. The measures focused on the restrictive use of import licenses (*Declaraciones Juradas Anticipadas de Importación,* DJAIs) and a number of trade-related requirements (TRRs) such as: "(a) offsetting the value of imports with, at least, an equivalent value of exports (one-to-one requirement); (b) limiting imports, either in volume or in value (import reduction requirement); (c) reaching a certain level of local content in domestic production (local content requirement); (d) making investments in Argentina (investment requirement); and, (e) refraining from repatriating profits from Argentina (non-repatriation requirement)."[57] As in the case of Brazil, China refrained from challenging Argentina directly at the WTO, and only secured its third-party rights in these consultations. The good news about these trade restrictions is that Argentina's new administration, which took over in December 2015, has

[55] WTO Dispute Settlement DS472, Brazil — certain measures concerning taxation and charges, 2013.

[56] Ministerio de Industria, 2011.

[57] See https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds438_e.htm and WTO, 2015.

made a clear commitment to dismantle them and has already abolished import licenses and most TRRs.[58]

The other LAC countries that show up on the Ministry of Commerce's radar have not experienced the same dramatic shifts in trade policy seen in Brazil and Argentina. Existing NTBs, some of them adopted only recently, are few and far between and mostly target labor-intensive industries, which have been particularly hurt by Chinese competition. In Mexico, for instance, aside from the potentially arbitrary use of TBTs mentioned in the Ministry of Commerce's reports, labor-intensive sectors such as textiles and shoes have been singled out recently (2014) for more restrictive import procedures involving reference prices, limited entry at customs facilities, sector-specific records and advance notices.[59] Toy imports, in turn, have been subjected to a TRQ since 2009, with out-of-quota tariffs of 15 percent.[60]

In Colombia, NTBs are almost exclusively an issue for agricultural imports, with a wide range of products being subjected to TRQs (294 tariff lines in 2015). In manufacturing, which is at the core of China's export interests, the only issue has been the adoption of "temporary" specific taxes on clothing, shoes and textiles, which are more akin to a tariff than an NTB measure.[61] In Ecuador, another country that figures in reports from China's Ministry of Commerce, most of the trade restriction action has focused on tariffs, mainly motivated by balance of payment considerations.[62] There has been, though, an incipient but worrying pattern of temporary and unpredictable bans and quotas for products such as cars, cell phones and air-conditioning equipment.

[58] See http://www.infoleg.gob.ar/infolegInternet/anexos/255000-259999/257180/norma.htm

[59] See http://www.globaltradealert.org/measure/mexico8restrictivepolicies footwearimports and http://www.globaltradealert.org/measure/mexicovariousimport restrictionstextileproducts.

[60] See (World Trade Organization, 2013).

[61] See WTO tariff analysis (http://tao.wto.org/) and http://www.globaltradealert.org/measure/colombia temporaryimporttaxclothing andshoes. The latest temporary import tax on these products was adopted in February 2014, for a period of two years.

[62] See (Ferro, 2015).

Conclusions

This report has made a concerted effort to draw attention to a trade agenda that remained largely ignored during the boom. Mesmerized by epic export gains, both sides of the relationship largely looked the other way when it came to tariffs and non-tariff barriers and, as a result, have essentially failed to document, measure their impact and negotiate their removal. As in the leaky roof metaphor, the boom years would perhaps have been the best time to have addressed these issues, because the impressive gains could have mitigated the ensuing political and economic challenges of compensating the losers. Now that the boom is over and it is effectively raining, this agenda is likely to be more challenging and costly, but at the same time more urgent, particularly for LAC: South America can no longer count on booming exports of a few commodities, while Central America and Mexico continue to face a sizeable and growing trade imbalance with China.

For this agenda to be effectively addressed, trade negotiations need to be as insulated as possible from the political and ideological considerations that have marked so far China's relationship with a number of commodity-producing countries in the region. It seems clear that the fear of upsetting diplomatic relations led many countries to overlook important trade frictions, giving them undue political and strategic status. These frictions should be viewed as what they are: disputes that are an integral part of the daily routine of global trade. Likewise, unrealistic expectations as to foreign direct investment (FDI) and aid flows seem to have often dampened attempts at serious trade negotiations, even though these flows can be seen, at best, as being complementary to trade. The benefits of FDI can only be maximized in the context of low trade barriers, and aid flows cannot be the basis for any sustainable bilateral relationship.

An effective trade agenda would also require greater investments by both governments and private sectors in what could generally be termed trade intelligence: that is, a comprehensive monitoring of trade barriers in both markets. China seems to be one step ahead in this sense: the Ministry of Commerce's regular market access reports and bulletins clearly help to improve the knowledge and transparency of trade measures taken by LAC

governments, although they are still limited to the largest markets and are more descriptive than analytical.

In LAC, the state of trade intelligence is significantly more precarious. Chile seems to be the only country in the region which regularly monitors market access issues in China and makes this information available to the general public. Elsewhere, the initiatives are few and far between, mostly carried out on an ad hoc basis. This weakness extends to the private sector: even the few large firms that have managed to set foot in the Chinese market seem to have very limited resources on the ground to monitor, evaluate and lobby for the removal of trade barriers. This lack of a critical mass of trade intelligence is clearly undermining the region's ability to design an effective trade agenda.

The actions needed to close this information gap are less of a technical challenge and more an issue of convincing governments and firms to raise trade intelligence to the top of their negotiating agenda and commit the necessary resources. In the particular case of LAC, there is clearly an opportunity to pool scarce public and private resources at the subregional or regional level to achieve this common objective. This sort of undertaking would be especially effective among countries that share specialization patterns, as exporters would likely be exposed to the same barriers. Initiatives such as the Pacific Alliance, for instance, are already pointing in this direction, with countries wanting to share commercial offices and pool resources for export promotion. Whatever the strategy chosen, one thing is certain: bilateral trade in this new post-boom phase stands to gain a lot from greater transparency and understanding of the impact of the remaining trade barriers. The majority of producers and consumers on both sides of the relationship are likely to be the main winners.

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Technical Appendix: Estimating trade effect of NTBs and tariffs

The Gravity Model

To assess the effect of NTBs and tariffs on international trade, the following extended panel gravity model was estimated using product level data,

$$
\begin{aligned}
\ln M_{ijt}^{s} &= \beta_1 NTB_{ijt}^{s} \times D_{agriculture} + \beta_2 NTB_{ijt}^{s} \times D_{agriculture} \times \left(D_{iregion} \times D_{jregion}\right) \\
&+ \gamma_1 NTB_{ijt}^{s} \times D_{manufacture} + \gamma_2 NTB_{ijt}^{s} \times D_{manufacture} \times \left(D_{iregion} \times D_{jregion}\right) \\
&+ \delta_1 NTB_{ijt}^{s} \times D_{metal} \\
&+ \theta_1 \ln\left(1 + T_{ijt}^{s}\right) \times D_{agriculture} + \theta_2 \ln\left(1 + T_{ijt}^{s}\right) \times D_{agriculture} \times \left(D_{iregion} \times D_{jregion}\right) \\
&+ \vartheta_1 \ln\left(1 + T_{ijt}^{s}\right) \times D_{manufacture} + \vartheta_2 \ln\left(1 + T_{ijt}^{s}\right) \times D_{manufacture} \times \left(D_{iregion} \times D_{jregion}\right) \\
&+ \mu_1 \ln\left(1 + T_{ijt}^{s}\right) \times D_{metal} + \mu_2 \ln\left(1 + T_{ijt}^{s}\right) \times D_{metal} \times \left(D_{iregion} \times D_{jregion}\right) \\
&+ \pi_1 \ln\left(dist_{ij}\right) + \sum_g p_g Z_g + \tau_{i1} \ln GDP_{it} + \tau_{i2} \ln POP_{it} + \tau_{j1} \ln GDP_{jt} + \tau_{j2} \ln GDP_{jt} \\
&+ \pi_2 D_{agriculture} \times \left(D_{iregion} \times D_{jregion}\right) + \pi_3 D_{manufacture} \times \left(D_{iregion} \times D_{jregion}\right) \\
&+ \pi_4 D_{metal} \times \left(D_{iregion} \times D_{jregion}\right) + \varepsilon_{ijt}^{s} ,
\end{aligned}
\tag{1}
$$

where

- i is the reporting (importer) country,
- j is the partner (exporter) country,
- t = 2002 … … 2013, denotes the sample period,
- s is the HS 4-digit product code,
- M_{ijt}^{s} denotes country i's imports from partner country j of product s in year t,
- $dist_{ij}$ denotes the distance between country i and country j,
- Z denotes a group of standard dummy variables included in the gravity model, such as common language, sharing the same border, etc. A dummy variable for FTAs is also included in Z,
- GDP_{it} denotes country i's GDP at year t,
- POP_{it} denotes country i's population at year t,
- NTB_{ijt} denotes the measure of country i's NTBs on imports from country j of product s in year t,

T_{ijt}^{s} denotes the applied tariff rate country imposes on imports from country *j* of product *s* in year *t*.

Bilateral imports are classified into three sectors—agriculture, manufacturing and metal—following WTO classifications.

$D_{agriculture}$ is a dummy variable that is equal to one if product s is from the agriculture sector, zero otherwise,

Dmanufacture is a dummy variable that is equal to one if product s is from the manufacturing sector, zero otherwise,

Dmetal is a dummy variable that is equal to one if product s is from the metal sector, zero otherwise,

Diregion is a dummy variable that is equal to one if the reporting country i belongs to a region, zero otherwise,

Djregion is a dummy variable that is equal to one if partner country *j* belongs to a region, zero otherwise.

Data

Bilateral import data at HS 6-digit level was obtained from UN-Comtrade. It includes 157 reporting countries for the period 2002–13. For the regression, import data was aggregated at the HS 4-digit level. Data on GDP and population was obtained from the WDI of the World Bank. Data on distance and other standard gravity dummy variables is from the CEPII gravity dataset.

The measurement of NTBs is derived from the WTO NTB notifications. Each member country notifies the WTO of the NTBs it applies to trade in merchandise. Each notification provides information on which category the NTB belongs to, which countries are affected, which products are involved and when the notification was initiated. The notification data set is available on the Integrated Trade Intelligence Portal (I-TIP) for Goods.[63] The initiation date is the date when the measure is made known to other WTO members. The in-force date is the date when the measure comes into force. On the I-TIP, the in-force date may or may not be notified for SPS and TBTs, in which case the in-force date is assumed to be the same as the initiation date. As there is no information on the withdrawal date, the measure is assumed to be in force forever once it is initiated.

For each product at the HS 6-digit level that country *i* imports from country *j* in year *t*, the number of NTBs (both SPS and TBTs) is counted using the WTO NTB notification data. The data is then aggregated to the

[63] I-TIP provides comprehensive information on NTBs applied by WTO members to trade in merchandise. It includes members' notifications of NTBs, such as TBTs, SPS, anti-dumping and countervailing measures, as well as information on "specific trade concerns" raised at WTO committee meetings.

HS 4-digit level. The NTB variable is measured by the frequency ratio, that is, the percentage of the number of items (HS 6-digit level) under product (HS 4-digit level) for which there is at least one NTB. The interval of the frequency ratio is [0,1].

Data on tariffs is obtained from UNCTAD-TRAINS, with additional data from IDB INTrade Preferential Tariff data. The applied tariff is equal to the preferential rate if there is an FTA or a unilateral preferential agreement; otherwise it is equal to the MFN rate. When there are multiple preferential rates, the lowest one is applied.

Results

First, China's imports from LAC are studied by equation (1). Regression results are reported in Table A1. Equation (1) is estimated using OLS with fixed effects (FEs). In column (1), importer_year, exporter_year, importer_exporter and hs4digit FEs are included. In column (2), importer_year, exporter_year_hs4digit and importer_exporter FEs are included. In column (3), importer_year, exporter_year, importer_exporter_hs4digit and hs4digit_year FEs are included. In the regressions, all the standard errors are clustered by importer_exporter_hs4digit.

Importer_year_hs4digit FEs could not be included because there is not much variation across exporters for the NTBs imposed by importers. In the dataset, the NTB of an importer for a specific good and year is the same for all exporters. The only variation in this dimension comes from the composition of HS 6-digit items for each HS 4-digit product that two countries trade. Therefore, the variations across products and across importers are essential for identifying the effect of NTBs in this model.

Coefficient β_1 measures the effect of NTBs on agricultural goods imports. Coefficient β_2 measures the extra effect of NTBs on China's imports of agricultural goods from LAC compared with the rest. When β_2 is statistically significant, the effect of NTBs on China's imports of agricultural goods from LAC is equal to $\beta_1 + \beta_2$. The same logic applies to the manufacturing sector and to tariffs.

Second, LAC's imports from China were studied and the results are reported in Table A2.

To check for the robustness of the results and correct for the heteroscedasticity bias and the missing zero trade values of the log-linear method (Santos Silva & Tenreyro, 2006), a modified version of the

TABLE A1/
Regression results at HS 4-digit level. China imports from LAC. OLS

	(1)	(2)	(3)
NTM_fr x ag	–0.086***	–0.222***	–0.057***
	(0.010)	(0.008)	(0.008)
NTM_fr x ag x im_CHN_ex_LAC	0.198	0.315	0.099
	(0.257)	(0.231)	(0.168)
NTM_fr x manuf	0.069***	0.099***	0.001
	(0.006)	(0.005)	(0.005)
NTM_fr x manuf x im_CHN_ex_LAC	–0.343***	–0.404***	0.030
	(0.092)	(0.071)	(0.071)
NTM_fr x metal	0.010	0.022*	0.027***
	(0.014)	(0.011)	(0.010)
tariff x ag	–1.532***	–1.501***	–0.169***
	(0.031)	(0.027)	(0.020)
tariff x ag x im_CHN_ex_LAC	–6.513***	–4.539***	–1.831**
	(1.752)	(1.377)	(0.848)
tariff x manuf	–2.130***	–2.642***	–0.695***
	(0.026)	(0.024)	(0.022)
tariff x manuf x im_CHN_ex_LAC	–2.842***	–4.644***	–0.367
	(1.010)	(0.736)	(0.695)
tariff x metal	–1.970***	–1.924***	–0.836***
	(0.039)	(0.035)	(0.043)
tariff x metal x im_CHN_ex_LAC	–28.186***	–17.382***	–1.672
	(2.268)	(1.665)	(1.840)
FTA	0.029***	0.005	0.001
	(0.005)	(0.005)	(0.005)
dmy_ag_im_CHN_ex_LAC		–0.929***	
		(0.331)	
dmy_manuf_im_CHN_ex_LAC	–2.022***	–0.873***	
	(0.362)	(0.159)	
dmy_metal_im_CHN_ex_LAC	0.301		
	(0.395)		
Observations	27,000,155	27,000,155	27,000,155
R-squared	0.434	0.611	0.847
imp#year	YES	YES	YES
exp#year	YES	NO	YES
imp#exp	YES	YES	NO
exp#year#hs4	NO	YES	NO
hs4	YES	NO	NO
imp#exp#hs4	NO	NO	YES
hs4#year	NO	NO	YES

Note: Importer_exporter_hs4digit clustered standard errors in parentheses. FTA is dummy variable for free trade agreements.
*** p<0.01, ** p<0.05, * p<0.1

TABLE A2/
Regression results at HS 4-digit level using. LAC imports from China. OLS

	(1)	(2)	(3)
NTM_fr x ag	–0.067***	–0.217***	–0.054***
	(0.010)	(0.008)	(0.008)
NTM_fr x ag x im_LAC_ex_CHN	–0.317***	–0.008	–0.298***
	(0.109)	(0.087)	(0.090)
NTM_fr x manuf	0.062***	0.094***	0.000
	(0.006)	(0.005)	(0.005)
NTM_fr x manuf x im_LAC_ex_CHN	0.134**	0.186***	0.128***
	(0.065)	(0.047)	(0.040)
NTM_fr x metal	0.022	0.027**	0.026***
	(0.014)	(0.011)	(0.010)
tariff x ag	–1.523***	–1.505***	–0.171***
	(0.031)	(0.027)	(0.020)
tariff x ag x im_LAC_ex_CHN	–0.970*	1.129***	0.691
	(0.528)	(0.438)	(0.556)
tariff x manuf	–2.231***	–2.658***	–0.684***
	(0.026)	(0.024)	(0.022)
tariff x manuf x im_LAC_ex_CHN	8.141***	0.494***	–2.096***
	(0.235)	(0.189)	(0.240)
tariff x metal	–2.069***	–1.940***	–0.815***
	(0.039)	(0.035)	(0.043)
tariff x metal x im_LAC_ex_CHN	9.212***	0.234	–4.206***
	(0.502)	(0.377)	(0.534)
FTA	0.034***	0.006	–0.000
	(0.005)	(0.005)	(0.005)
dmy_ag_im_LAC_ex_CHN	–1.374***	–0.690***	
	(0.109)	(0.089)	
dmy_manuf_im_LAC_ex_CHN	0.376***	0.253***	
	(0.058)	(0.044)	
dmy_metal_im_LAC_ex_CHN			
Observations	27,000,155	27,000,155	27,000,155
R-squared	0.434	0.611	0.847
imp#year	YES	YES	YES
exp#year	YES	NO	YES
imp#exp	YES	YES	NO
exp#year#hs4	NO	YES	NO
hs4	YES	NO	NO
imp#exp#hs4	NO	NO	YES
hs4#year	NO	NO	YES

Note: Importer_exporter_hs4digit clustered standard errors in parentheses. FTA is dummy variable for free trade agreements.
*** p<0.01, ** p<0.05, * p<0.1

regressions above were estimated using the Poisson pseudo-maximum likelihood (PPML) method. The modifications were made to adjust the regressions to our computing power limitations and consisted of: (a) limiting the regressions to the 2-digit level; (b) taking into account only those zero trade values related to products (2 digits) that had been traded at least once between country-pairs in the sample period; and (c) using only one set of importer, exporter and 2-digit fixed effects (the PPML estimations with high-dimensional fixed effects did not converge).

The results are reported in Tables A3 and A4, which, for comparisons purposes, also include the estimates of an OLS regression (column 1) at the 2-digit level, with the same importer, exporter and 2-digit fixed effects of the PPML specification. The PPML results include two specifications that differ in their treatment of the zeros. Column 2 has only the non-zero values and column 3 includes them as specified above. The results suggest that the missing-zeros bias is not substantial as the coefficients do not change significantly.

The OLS-PPML comparison shows that the direction of the effect of China's tariffs and NTBs on LAC exports is robust to the estimation method. The magnitude of the impact, though, is mostly higher (column 1 and 3 in Table A3). The direction of the impacts is also generally consistent across methods in the case of LAC's tariffs and NTBs on Chinese exports (Table A4); however, the PPML coefficients mostly suggest a smaller impact.

Simulations

For the simulations presented in Figures 8, 31 and 37, the decision was to use the OLS coefficients derived from specification 2 in Tables A1 (Figures 8 and 31) and A2 (Figure 37). This was mostly driven by the belief that this specification provided the balance between controlling for unobserved characteristics and having enough variation to identify the impacts. The PPML results were ruled out due to the risk of aggregation bias and the limitations in the use of fixed effects. Moreover, the results suggest that missing-zeros bias might not be significant. The simulations focused on those barriers—tariffs and NTBs for LAC exports to China and just tariffs for China's exports to LAC—indicated to be binding by the available quantitative and qualitative evidence.

TABLE A3/
Regression results at HS 2-digit level. China imports from LAC, OLS vs PPML

	(1) OLS	(2) PPML no zero	(3) PPML partial zero
NTM_fr x ag	–0.182***	–0.401***	–0.414***
	(0.019)	(0.072)	(0.072)
NTM_fr x ag x im_CHN_ex_LAC	–0.088	0.713*	0.791*
	(0.365)	(0.317)	(0.313)
NTM_fr x manuf	–0.067***	–0.126	–0.150
	(0.022)	(0.104)	(0.104)
NTM_fr x manuf x im_CHN_ex_LAC	0.171	–1.038**	–0.955**
	(0.252)	(0.472)	(0.440)
NTM_fr x metal	0.210***	0.576***	0.571***
	(0.065)	(0.178)	(0.181)
tariff x ag	–2.135***	–0.444**	–0.521**
	(0.063)	(0.224)	(0.221)
tariff x ag x im_CHN_ex_LAC	–8.611***	–14.367***	–13.599***
	(2.702)	(3.614)	(3.413)
tariff x manuf	–3.434***	–2.100***	–2.264***
	(0.062)	(0.529)	(0.518)
tariff x manuf x im_CHN_ex_LAC	–6.718***	–13.523*	–12.894*
	(2.406)	(7.522)	(7.320)
tariff x metal	–4.394***	–0.302	–0.731
	(0.126)	(0.767)	(0.770)
tariff x metal x im_CHN_ex_LAC	–32.897***	–62.461***	–56.656***
	(4.240)	(17.943)	(18.161)
FTA	0.418***	0.435***	0.452***
	(0.011)	(0.049)	(0.049)
lg_dist	–1.083***	–0.566***	–0.581***
	(0.005)	(0.027)	(0.027)
contig	0.645***	0.402***	0.377***
	(0.018)	(0.058)	(0.058)
comlang_off	0.374***	0.055	0.064
	(0.011)	(0.057)	(0.057)
colony	0.425***	0.083	0.102
	(0.024)	(0.071)	(0.073)
comcol	0.690***	0.411***	0.432***
	(0.016)	(0.147)	(0.146)
curcol	1.145***	1.809***	1.821***
	(0.113)	(0.255)	(0.256)
col45	0.340***	0.031	0.050
	(0.034)	(0.127)	(0.130)

(continued on next page)

TABLE A3/
Regression results at HS 2-digit level. China imports from LAC, OLS vs PPML
(continued)

	(1) OLS	(2) PPML no zero	(3) PPML partial zero
smctry	0.121***	0.270*	0.276**
	(0.026)	(0.139)	(0.138)
lg_GDP_curD_im	0.666***	0.593***	0.738***
	(0.009)	(0.034)	(0.035)
lg_GDP_curD_ex	0.134***	0.405***	0.404***
	(0.008)	(0.025)	(0.028)
lg_ppln_im	0.075***	–0.540***	–0.728***
	(0.028)	(0.152)	(0.114)
lg_ppln_ex	–0.142***	0.439***	0.538***
	(0.029)	(0.123)	(0.127)
dmy_manuf_im_CHN_ex_LAC	–3.113***	–2.066**	0.520
	(0.478)	(1.003)	(0.702)
dmy_metal_im_CHN_ex_LAC		0.259	2.720***
		(0.904)	(0.628)
dmy_manuf		–0.170	–0.096
		(0.268)	(0.269)
dmy_metal		0.623***	0.746***
		(0.183)	(0.185)
im_CHN_ex_LAC	2.916***	2.683***	
	(0.373)	(0.730)	
ex_LAC		–3.972***	–2.268**
		(1.045)	(1.082)
dmy_ag_im_CHN_ex_LAC	–0.999		2.421***
	(0.613)		(0.730)
im_CHN			8.737***
			(0.989)
Constant		–21.498***	–25.132***
		(2.025)	(1.772)
Observations	5,295,119	5,295,119	10,485,943
R-squared	0.475	0.423	0.416
imp	YES	YES	YES
exp	YES	YES	YES
hs2	YES	YES	YES
year	YES	YES	YES

Note: Imp_exp_hs2digit clustered standard errors in parentheses. FTA is dummy variable for free trade agreements.
*** p<0.01, ** p<0.05, * p<0.1

TABLE A4/
Regression results at HS 2-digit level. LAC imports from China, OLS vs PPML

	(1) OLS	(2) PPML no zero	(3) PPML partial zero
NTM_fr x ag	–0.164***	–0.353***	–0.368***
	(0.019)	(0.076)	(0.075)
NTM_fr x ag x im_LAC_ex_CHN	–0.099	0.473	0.441
	(0.228)	(0.348)	(0.345)
NTM_fr x manuf	–0.081***	–0.144	–0.168
	(0.022)	(0.105)	(0.104)
NTM_fr x manuf x im_LAC_ex_CHN	0.252	–0.054	–0.042
	(0.216)	(0.221)	(0.222)
NTM_fr x metal	0.265***	0.668***	0.662***
	(0.065)	(0.173)	(0.176)
tariff x ag	–2.128***	–0.464**	–0.543**
	(0.063)	(0.224)	(0.220)
tariff x ag x im_LAC_ex_CHN	–2.490	–2.664	–2.781
	(1.603)	(1.919)	(1.844)
tariff x manuf	–3.521***	–2.463***	–2.621***
	(0.062)	(0.543)	(0.531)
tariff x manuf x im_LAC_ex_CHN	8.366***	–1.459	–1.364
	(0.875)	(1.526)	(1.506)
tariff x metal	–4.473***	–0.569	–1.012
	(0.127)	(0.816)	(0.811)
tariff x metal x im_LAC_ex_CHN	9.050***	10.104***	10.083***
	(1.947)	(2.084)	(2.086)
FTA	0.415***	0.440***	0.458***
	(0.011)	(0.049)	(0.049)
lg_dist	–1.084***	–0.562***	–0.576***
	(0.005)	(0.027)	(0.028)
contig	0.646***	0.408***	0.383***
	(0.018)	(0.058)	(0.058)
comlang_off	0.376***	0.053	0.061
	(0.011)	(0.057)	(0.057)
colony	0.425***	0.084	0.103
	(0.024)	(0.071)	(0.073)
comcol	0.686***	0.417***	0.437***
	(0.016)	(0.148)	(0.147)
curcol	1.144***	1.811***	1.826***
	(0.113)	(0.255)	(0.256)
col45	0.336***	0.033	0.052
	(0.034)	(0.127)	(0.130)

(continued on next page)

TABLE A4/
Regression results at HS 2-digit level. LAC imports from China, OLS vs PPML
(continued)

	(1) OLS	(2) PPML no zero	(3) PPML partial zero
smctry	0.123***	0.269*	0.275**
	(0.026)	(0.139)	(0.139)
lg_GDP_curD_im	0.671***	0.603***	0.746***
	(0.008)	(0.034)	(0.035)
lg_GDP_curD_ex	0.138***	0.405***	0.404***
	(0.008)	(0.025)	(0.028)
lg_ppln_im	0.062**	–0.596***	–0.771***
	(0.028)	(0.150)	(0.113)
lg_ppln_ex	–0.149***	0.435***	0.536***
	(0.029)	(0.123)	(0.128)
dmy_manuf_im_LAC_ex_CHN	0.740***	2.418***	0.859***
	(0.203)	(0.339)	(0.259)
dmy_metal_im_LAC_ex_CHN		0.102	–1.423***
		(0.396)	(0.312)
dmy_manuf		–0.165	–0.096
		(0.268)	(0.269)
dmy_metal		0.630***	0.747***
		(0.183)	(0.184)
im_LAC_ex_CHN	–0.106	–1.574***	
	(0.173)	(0.283)	
im_LAC		1.421***	4.532***
		(0.255)	(0.596)
dmy_ag_im_LAC_ex_CHN	–1.525***		–1.543***
	(0.279)		(0.275)
ex_CHN			–2.456*
			(1.323)
Constant		–21.037***	–24.800***
		(2.019)	(1.772)
Observations	5,295,119	5,295,119	10,485,943
R-squared	0.475	0.421	0.414
imp	YES	YES	YES
exp	YES	YES	YES
hs2	YES	YES	YES
year	YES	YES	YES

Note: Imp_exp_hs2digit clustered standard errors in parentheses. FTA is dummy variable for free trade agreements.
*** p<0.01, ** p<0.05, * p<0.1