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Industrial Development in Latin America

What Is China's Role?

By Jorge Guajardo, Manuel Molano, and Dante Sica



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Industrial Development in Latin America

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Foreword

Latin America Can Do Better in Its Relations with China

China's expanded role in global trade in the first part of the twenty-first century profoundly shifted the way that the world does business. The Asian giant's reach has had broad implications for both industrialized and developing countries, accelerating globalization and changing the terms of trade for economies large and small.

In the last twenty years, Latin American countries have become key players in this new era of Chinese commercial engagement. The commodity boom, while contributing much to the region's economic and social progress, sent a plethora of raw and basic materials to Asia, largely to feed China's economic demand. At the same time, Latin America's export of high-value-added and complex goods diminished. Its industries—and the training and jobs that accompany them—suffered. Is China the reason for the region's industrial slowdown?

This year is an inflection point for economic relations between China and Latin America. The timed adjustment of World Trade Organization (WTO) rules in December introduces into the debate the issue of market economy status for China. Each WTO member will face the question of whether to grant China market economy status.

The Atlantic Council believes that it is vital that the region understands what that would mean for economic growth, employment, and prosperity.

This report aims to give Latin American policymakers and private sector leaders a greater understanding of where the region stands vis-à-vis China. The facts are indisputable: the region's share of industrial exports over time, along with the diversity of those exports, has declined. The share of domestic consumption met by imported goods has risen.

To assess the impact that China has had on these developments in Latin America, the authors of this report have constructed a model that projects the role that Chinese practices have played in producing such results. The model dissects China's use of industry subsidies to increase its exporters' market share. It seems increasingly clear that this practice,

which hurts industrial leaders throughout the Western Hemisphere and Europe, has retarded Latin American industrial development.

The authors of this report examine the role that China has played in the region's three key economies: Argentina, Brazil, and Mexico. While trade with China has affected all three countries, there are nuances among them: namely Brazil and Argentina have experienced significantly different changes to their export bases and industrial sectors, while Mexico exports fewer commodities to China.

China has clearly played a role in the economic transformations in Latin America over the last two decades, and it will continue to do so in both trade and investment. This report specifically does not address issues related to investment in the region, but here, too many local producers have pointed out the difficulty of competing with non-market companies that bid with turnkey projects. China's foreign direct investment, however, will be left for another paper.

The path forward for Latin American manufacturing and industry will require domestic policies that combat trade imbalances without being overly protectionist. To make industrial sectors newly competitive, governments need to expand multilateral trade coordination, consolidate institutions that can attract foreign direct investment in industry, and increase social goods like education and infrastructure that can make high-value-added exports competitive in the world market.

This paper is the second one on Sino-Latin American relations from the Adrienne Arsht Latin America Center. Ours is an effort to inform public and private sector leaders in Latin America, the United States, and Europe about the complexities of China's growing interest in Latin America. There is much opportunity in expanding relations between Latin America and the rising Asian power. But Latin America can and must do a better job insuring that this relationship brings the region closer to sustainable and equitable socioeconomic growth.

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State of Play

Should Latin American and Caribbean Countries Grant China Market Economy Status?

Countries will only be able to make the right decision after fully understanding the impact that Chinese competition has had on their domestic industries.

The year 2016 may go down in history as one of the most turbulent periods for trade policy. The Brexit vote challenged the premise of the European Union, a model of free trade. In the United States, both presidential candidates have expressed reservations about liberalizing trade and signing free trade agreements.

At the epicenter of the backlash against globalization is China. China has earned a reputation as a villain in trade imbalances for much of the world. Countries that have a trade surplus with this Asian country are few and far between, and those that do, primarily commodity exporters, have seen their surplus fade away with the end of the commodity boom. Perhaps this year's most relevant trade issue is that, for the first time in almost two decades, the international community may lose its last resort against "unfair Chinese competition."

In December 2016, a subparagraph of article 15 within China's accession protocol at the WTO will expire. Under this subparagraph, countries could automatically not base their dumping margins calculation in Chinese costs and prices. This ability extended from the presumption that those numbers were influenced by state intervention in the Chinese economy.

From December onwards, the decision to recognize China as a market economy is not automatic: each WTO member could grant it or not according to national laws, pursuant to paragraph D of article 15, which is not set to expire in 2016.

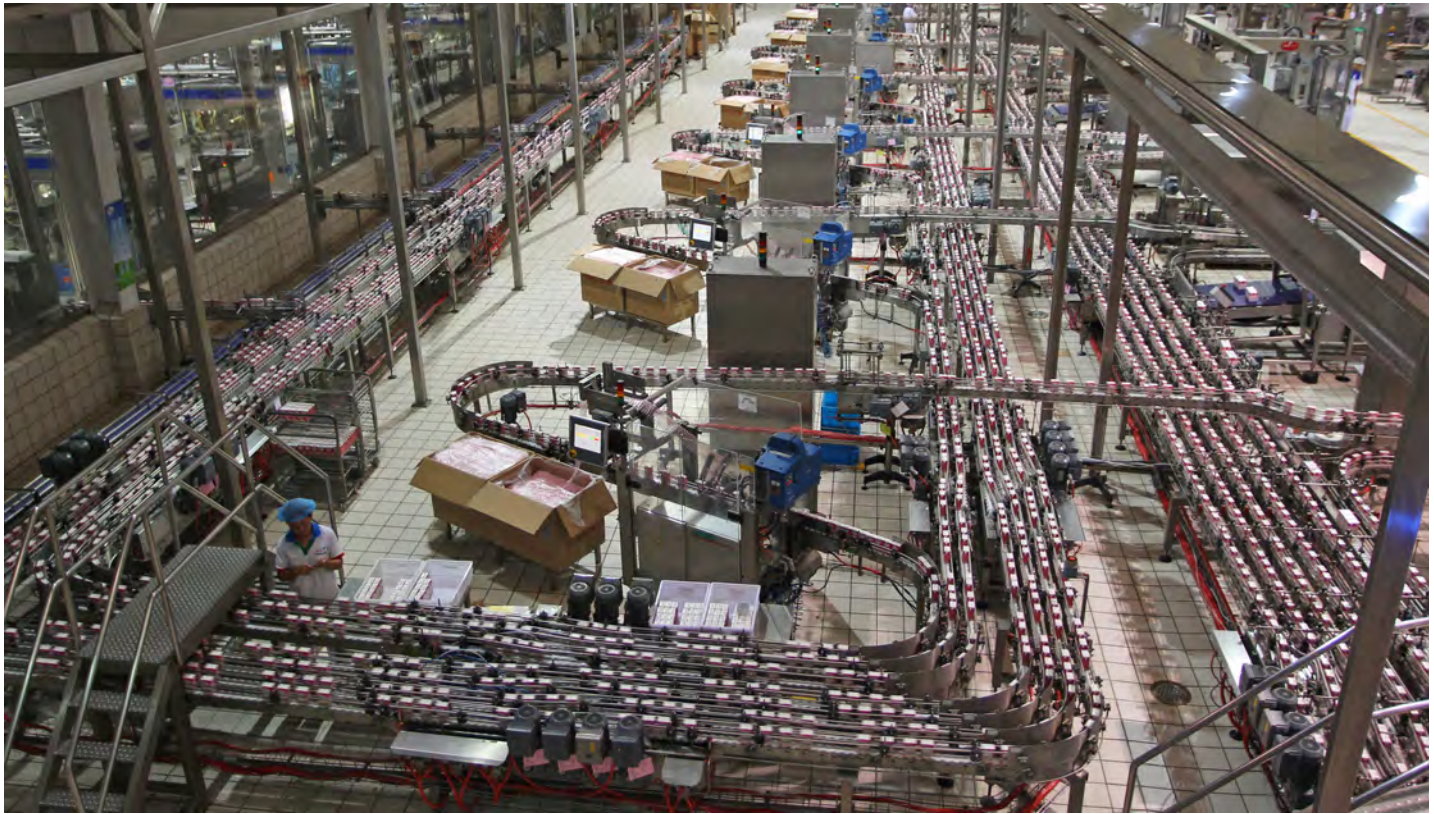
In practice, this development means that it will be more difficult for countries who recognize China as a market economy to impose high antidumping duties against Chinese products. Antidumping is the most common trade defensive measure issued against a country that offers products in the market for

a price that is allegedly below the production cost. In the case of non-market-driven economies, such as China, WTO countries may use another country as a proxy to calculate the dumping duty. Antidumping measures are industry's frontline defense against a flood of cheap Chinese products, and the world is on the edge of losing this critical trade policy tool.

The decision to recognize China as a market economy is not automatic, rather each country has to grant this status according to domestic regulations. In so doing, countries will have to balance the pros and cons. China is not only an important trade partner but also a major investor that provides significant financing to many countries, including in Latin America and the Caribbean (LAC). The decision to deny China market economy status may trigger setbacks on other fronts. Therefore, in order for policymakers to make the right decision, it is necessary to assess the impact of Chinese competition in the region on each country's industry.

LAC countries will only be able to make the right decision after fully understanding the impact that Chinese competition has on their domestic industry. The changes to the export composition—including the shift to raw goods that powered the commodity boom—of many LAC countries over the past decade have been relatively unexplored. Industrial and high-value-added sectors in Latin America now represent a smaller portion of gross domestic product (GDP) than at the turn of the century, suggesting a process of deindustrialization.

The question is whether China has been the main cause of this trend. If so, countries in the region should not grant China market economy status, because this decision would only undermine the health of the region's



industry. If not, and the deindustrialization process in LAC countries is instead a result of a decade of misguided government policies, is China a scapegoat for systemic shortcomings?

This report will shed light on these issues and, for the first time, present new evidence on the deleterious effects of China's exports on the region's industry. In this examination, a general equilibrium analysis assesses how changes in China's export subsidy policy would impact LAC industries. The results demonstrate that supply levels in heavy industry and light manufacturing would be higher in many Latin American economies if Chinese subsidies to export products were not present. In addition, the report details the effects of Chinese competition in three LAC countries: Argentina, Brazil, and Mexico. These countries represent a significant portion of the region's industry and have been struggling with Chinese competition for more than a decade. Argentine and Brazilian industries were negatively impacted by Chinese competition and, in some sectors, China's exports already exceed domestic production.

The report shows that granting China market economy status is likely to worsen an already difficult economic situation for many Latin American industries. At this juncture, governments in the region should negotiate a side agreement with the Chinese in order to balance the exports of sectors that clearly show the negative effect of Chinese

competition. One proposal could be to negotiate an agreement in which the Chinese bear the burden of proof in each antidumping case to show that their domestic costs are not below market price. Otherwise, the country may continue to use a third market as a proxy for antidumping cases. Alternatively, LAC governments could follow the US and European strategy, which will most likely include delaying any formal decision in 2016, continuing to use a third market for antidumping cases, and waiting for China to start a panel at the WTO to discuss this issue. This course of action will likely prolong the present scenario indefinitely.

Implications for Deindustrialization

The policy implications of China's impact on the region's deindustrialization process extend beyond the issue of granting China market economy status. Governments in the region should join forces in order to negotiate trade and investment agreements with the Chinese from a position of greater strength. It is easier for China to maximize its interests in the region through individual bilateral negotiations with governments that are not in an economic or political position to require concessions from the Chinese. Countries in the Pacific Alliance have coordinated initiatives with the Chinese government but have yet to start negotiating trade and investment deals. Governmental changes have thrown the future of Mercosur, the region's other

▲ Chinese exports from factories like this one have had a major impact on Latin America's industrial composition.



▲ Development in countries like Mexico is intricately to global trade—including trade with China.

trade bloc, into uncertainty, but its member countries should explore multilateral negotiations with China. These efforts should be done in coordination with the bilateral agendas that are already in negotiation with China. Additionally, China has a US \$30 billion fund to develop industrial capacity in LAC countries, the distribution of which should be used to update regional infrastructure and enhance the competitiveness of regional companies.

It must be noted that LAC countries also play their own role in the shifts affecting regional industries and industrial competitiveness. A series of policy measures should be taken by governments in the region to reverse or to mitigate any alleged deindustrialization process. Policymakers can develop a competitive industrial policy by setting mid- and long-term guidelines regarding macroeconomic policies, consolidating institutional capabilities to address industries' evolution, and stimulating systemic competitiveness.

The first action necessary to balance terms with China is for LAC countries to promote macroeconomic stability within their borders. In this pursuit, it is imperative to generate mechanisms that consolidate stability and promote development throughout the whole region. It is crucial to maintain external balances, which are directly related to exchange rate policy. Removing certain distorting and regressive taxes, and replacing them with direct taxes, will enforce this strategy. This action should be accompanied by the implementation of fiscal responsibility laws. In addition, each country faces the need to establish a competitive equilibrium exchange rate that is sustainable in all economic cycles in order to avoid any sort of currency exchange

lag that may distort relative prices. The main aim of these measures—to guarantee stability—will enable capital inflows to finance industrial development and employment.

Another issue is institutional strengthening. Public institutional efficacy must be improved in order to provide companies with the quality of services and predictability that they need in order to confidently invest in Latin American countries. To this end, governments must maintain and guarantee clear rules in taxation, property rights, and contract enforcement—and reinforce public sector capacities.

Policymakers should establish strategies to enhance systemic competitiveness. Investments in human capital, as well as infrastructure, are necessary to forge an adequate productive industrial base and network of businesses. Domestic financial markets must grow in size and sophistication to ensure access to affordable international financing, which would secure the necessary resources for investments.

Improving the quality of education and access to new technologies are key factors for long-term systemic competitiveness. Once policy incentives are aligned, industrial policies should be implemented on two simultaneous axes. On the one hand, there should be transversal policies, such as tariffs, taxes, and labor policies; and on the other hand, there should be vertical policies focused on different sectors according to their respective competitiveness and need for development. It is crucial to focus resources and policies on those sectors that compete directly with China in order to enhance competitiveness.

Regional Deindustrialization Myth or Fact?

Over the last two decades, there was significant growth in emerging economies. China has proven to be the most powerful of this group of countries, demonstrating extraordinary growth that has resulted in increasingly active relationships with the world, and Latin America in particular. During these years, the world shifted toward a new production model through global value chains. This scenario relocated manufacturing production to countries with lower production costs. Asian countries gained prominence as the center of the manufacturing transformation, while design and commerce remained in developed markets such as the United States and Europe. In this dynamic, China began a process of technology absorption aimed at becoming an industrial powerhouse and progressively increased value-added exports. As a result, it has maintained a remarkable share of manufactured goods in its gross domestic product.

While China maintained an industrial share of approximately 30 percent over the last decade, the two biggest players in South America lost significant shares. Argentina's and Brazil's share of manufactured goods as a percentage of GDP has been decreasing over the last twelve years: Argentina's fell by nearly half and Brazil lost one third of its share. In these countries, the evolution of bilateral commerce with China reveals a growing trend toward structural deficit, consolidated in the case of Argentina.

Over the last fifteen years, China entered the markets of both of these countries by selling high-value-added consumer goods. While in a few cases, such as certain automotive parts, LAC countries still import from countries like Germany and Italy due to their advanced technology and the quality of their products, there has been an influx of industrial and electronic goods from China.

Another way to measure deindustrialization is through the industrial value added, or how much the industry has grown over a certain period of time. Over the past decade, LAC countries' industrial value added underperformed when measured against the rest

FIGURE 1. Manufacturing's Share of Total GDP (%)

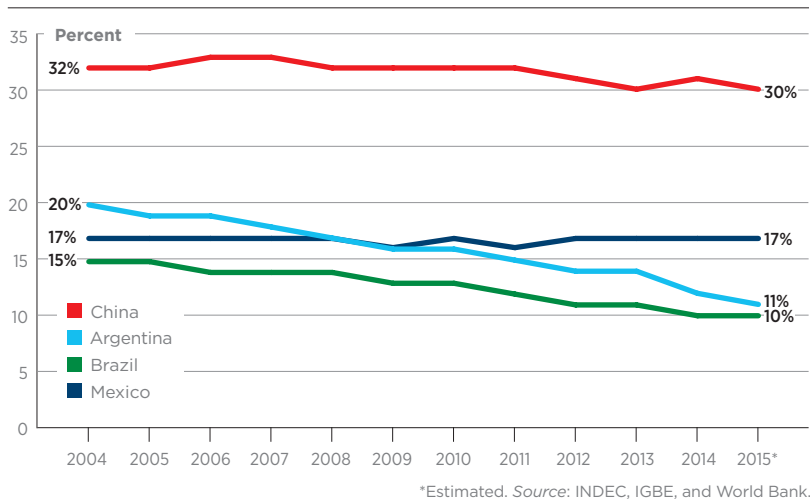


FIGURE 2. Year-on-Year Growth Decline in LAC Industrial Output

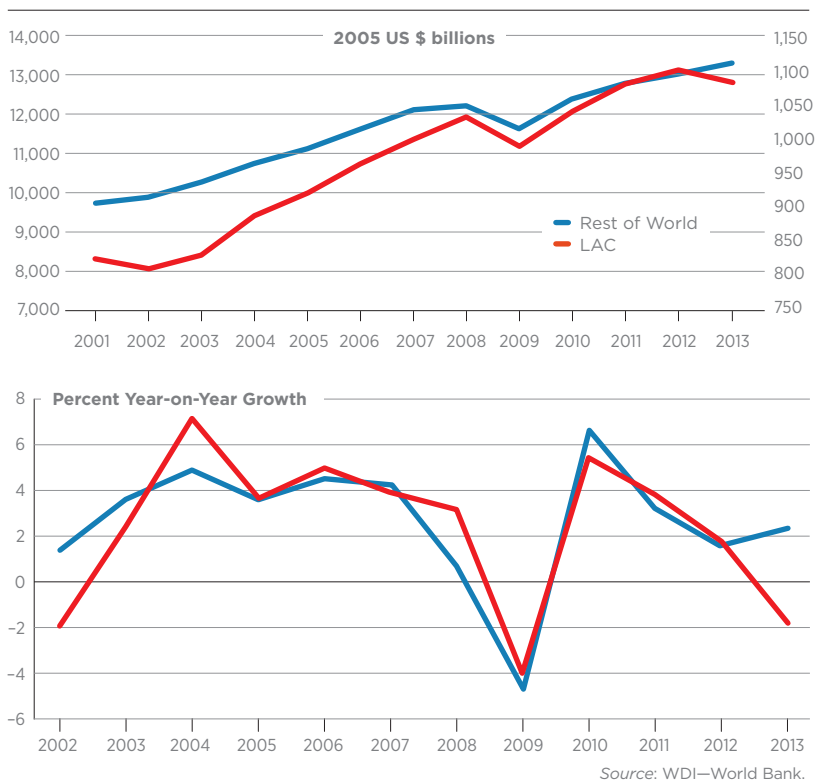
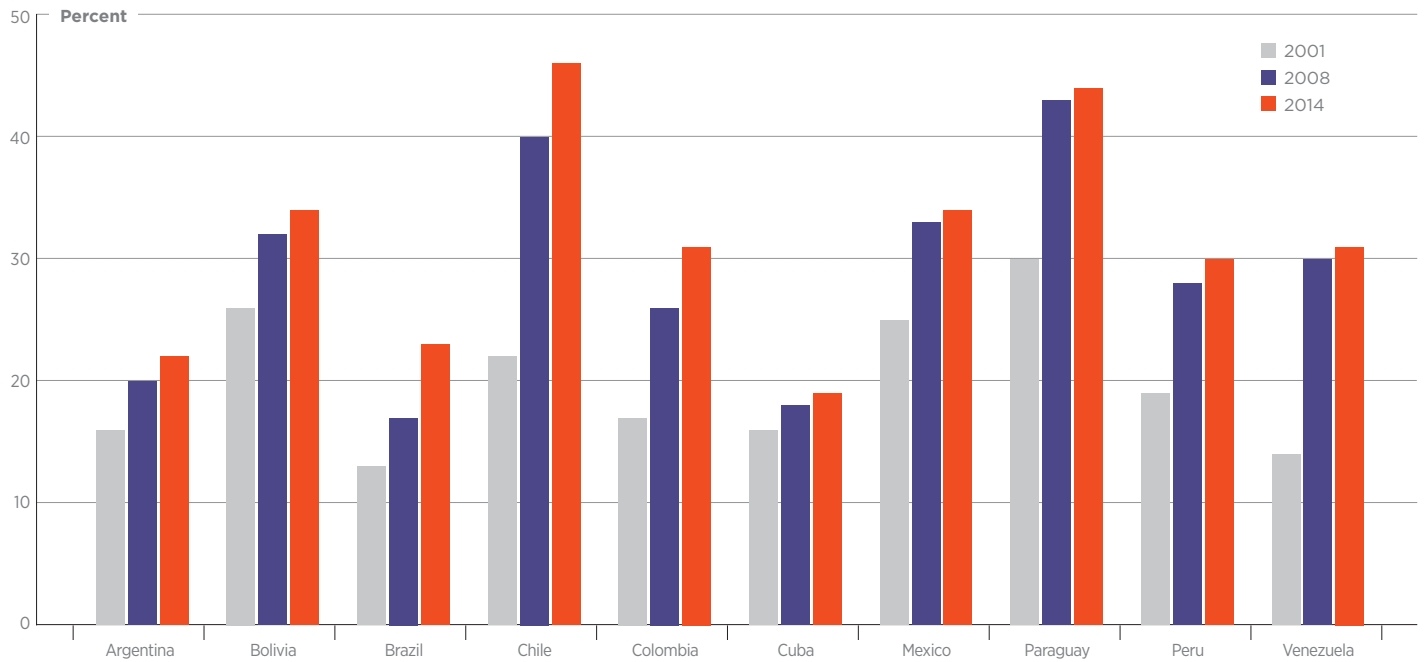
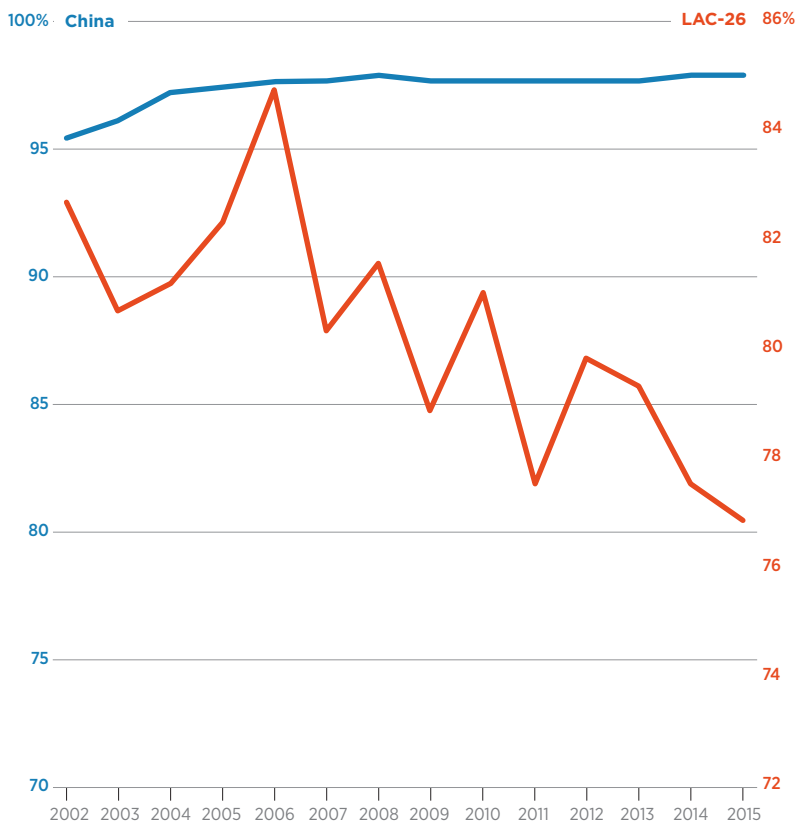


FIGURE 3. Import Penetration Rates—Import Growth over Domestic Production



Source: WDI—World Bank.

FIGURE 4. Industrial Exports as a Share of Total Exports



Source: Comtrade.

of the world. This situation became critical in 2013, when it became possible to observe a trend line break in the region's industrial value added in both absolute terms and year-on-year growth [see figure 2, p. 4]. Year-on-year growth also suggests that the LAC area is in free fall while the rest of the world has bounced back.

But a relative decline in industrial production does not always mean deindustrialization. It could be the result of decreased economic activity, as is the case when a country is consuming less of every good. Therefore, to discern another indicator of deindustrialization, we must measure how much domestic consumption has been supplied by imported goods. Is it the case that LAC countries are consuming less, yielding a decrease in industrial production? Or has domestic production been swapped for imported goods? Figure 3 above points to the latter hypothesis: imports are increasingly meeting consumer demand.

Across the region, imported goods have supplied greater portions of consumption over the past decade. For example, in Brazil in 2001, only 13 percent of domestic consumption was supplied by imported goods, whereas in 2014 it was 23 percent. On average, the region lost 5 to 6 percent of domestic consumption to imported goods over the past decade.

When it comes to international trade, it is also possible to observe a sharp decline in

Latin America is not only losing industrial production in domestic markets, but also exporting fewer industrial products.

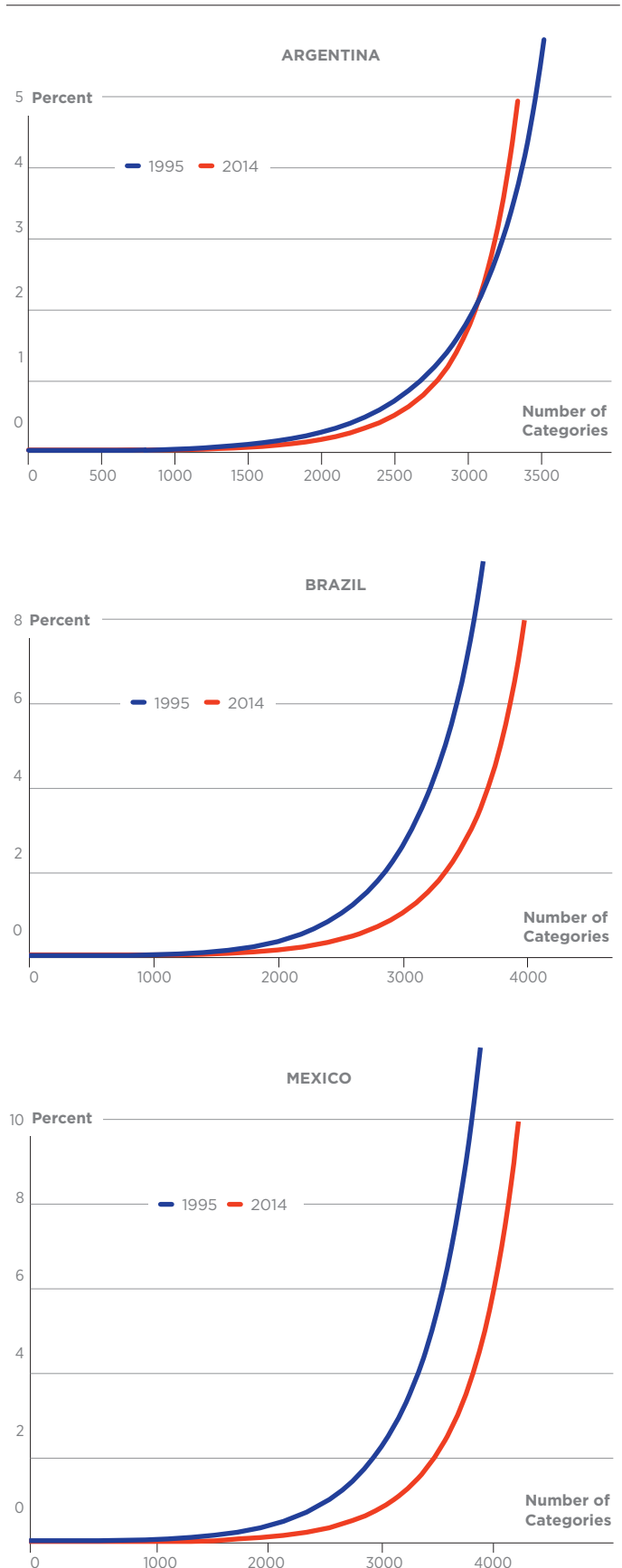
LAC's share of industrial exports over time, while China's industrial exports now occupy a larger share of total exports worldwide. This means that LAC is not only losing industrial production in domestic markets, but also exporting fewer industrial products to its trade partners.

Moreover, the composition of the industrial base for exports has changed over time, and differs greatly when comparing countries in the region. The Atlas of Economic Complexity is a good tool for analyzing the composition of exports and the skill level involved in producing the export (Hausman et al, 2013).

Such an examination points to the shift in the nature of exports during the last twenty years in three of the region's largest economies: Argentina, Brazil, and Mexico. The figures to the right demonstrate the diversity of exports by illustrating the number of categories exported as a percentage of total exports. A steeper curve indicates a narrower export base.

In the two years shown, which point to a gradual shift over time, Mexico and Brazil expanded their export bases while Argentina's narrowed. There are fewer categories in Argentina's export base than in the export base of the other two countries. In the Brazilian and Mexican cases, the cumulative curve is flatter for the year 2014 than for 1995, suggesting that exports are more diversified.

FIGURE 5. Composition of Exports



Source: Mexican Institute for Competitiveness (IMCO) with UN Comtrade data.

Is China Behind Latin America's Deindustrialization?

More protectionist economies in the region have suffered an erosion in their industrial base. Argentina and Brazil experienced greater commodity-led growth since the commodity super-cycle of 2007-10, the effects of which ended recently.

The advanced economies of the world can benefit from Chinese industrial expansion, because their large capital stocks, access to investment, and educated populations allow them to diversify into more sophisticated products. At the same time, low-value-added industrial commodity production happens somewhere else, mainly in China.

On the other hand, Latin American countries cannot easily venture into sectors that are more knowledge-intensive; hence China has become both their client for raw materials and their industrial competitor. Therefore, in order to correctly assess the LAC countries' relationship with China, it is necessary to determine how much of the region's deindustrialization is due to China.

We chose two different strategies to measure China's impacts on the region's deindustrialization process. First, a general equilibrium analysis assesses the impact on the region's industries of China's most deleterious export strategy: the use of subsidies to help its exporters gain market share abroad. Some of the subsidy advantages, however,

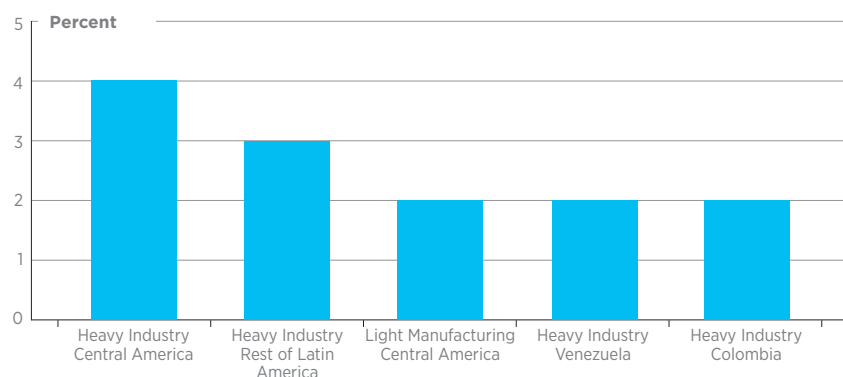
diminish by the fact that raw materials have to travel very long distances to get to China. Second, three case studies illustrate China's impact on local production in three key economies: Argentina, Brazil, and Mexico.

In order to understand China's footprint in the global economy, we applied a very well-known general equilibrium model (GEM). The model used is based on the General Trade Analysis Project database, or GTAP (Narayan and Walmsley, 2008). The details of the model are included in the appendix. Interestingly, the results of the model show that supply levels in heavy industry and light manufacturing would be higher in many Latin American economies if Chinese subsidies to export products were not present. This representation means that, for the past decade, industrial production in LAC economies was smaller than predicted due to the distorted competitive prices of Chinese products.

As the Mexican and Central American economies address current hurdles to integration, such as access to natural gas, the barriers to light manufacturing will probably decrease. To this point, access to relatively cheaper manufactured products from China has reduced the imperative to improve the region's industrial capacity. But the increased costs of doing business with China—stemming from China's own economic transition—will mean that the region will have to rebuild its own native supply for many of the inputs of production and consumption items. In the future, sectors such as infrastructure and banking will miss Chinese capital, as China's own economic woes materialize, and they have to concentrate investment in their own country.

A huge opportunity to rebuild the region's industrial capacity arises from the Latin American deindustrialization that has occurred since China came to world markets and became dominant in global manufacturing. Policymakers must emphasize keeping markets competitive and costs lean.

FIGURE 6. Projected Increase in LAC Domestic Production without Chinese Exporter Subsidy



Source: IMCO, Gtap8inGams model.

Up Close

The Big Three Economies



▲ Latin America's vast natural resources have played a major role in China's interest in the region.

JIMMY BAIKOVICIUS/FLICKR

Impact in Argentina

The commercial relationship between China and Argentina evolved with an uneven mix of concentrated primary exports and diversified industrial imports, the result of which is a decrease in the country's industrial capacity.

While exports heading to China in 2015 were concentrated in the soy industry—soybeans (68 percent) and soy oil (7 percent)—imports coming from the Asian giant to Argentina were completely diversified, and the main three products did not exceed 7 percent of total imports; 99 percent of the imports were industrial manufactures.

Chinese industrial exports increased by 441 percent from 2003 to 2014, which represented greater momentum than total exports, which increased by 435 percent in the same period. The same happened in Argentina, where accumulated industrial exports' growth (158 percent) gained more dynamic growth than

total exports (128 percent), which indicates that some sectors were able to grow stronger over the same period.

As a result, it is possible to see a shocking increase in Chinese participation in domestic production. This analysis focuses on the relevance of Chinese imports over domestic production in each sector of the economy. The data suggest that imports from China are assuming a more prominent position within the Argentine domestic market. There are sectors in which growth increases between 5 and 10 percentage points, such as textiles, apparel, chemicals, compost, metal products, and rubber. In other sectors, this growth is much higher, such as in electrical and electronic goods. In just a few sectors, such as shoes, printing materials, and the automotive sector, imports from China have been held back by defensive measures.

Impact in Brazil

Brazil followed the same path as Argentina: Chinese production advanced aggressively over its industrial sectors. The most affected sectors were electronics and machinery. However, some sectors have been able to maintain domestic production share within their internal market or mitigate the effect of Chinese insertion through defensive measures and political incentives to local production. This is the case in the shoe and clothing sectors, as well as white and brown goods sectors (heavy and light durable consumer goods, such as household appliances). The automotive and auto parts industries were one of the most incentivized sectors through preferential agreements with Argentina such as Mercosur's "Economic Complementarity Agreement N°14 (ACE14)."

The products that are being commercialized between Brazil and China follow the same logic that applied to Argentina. While Brazilian exports to China over the last year were only concentrated in three primary products: soybeans (44 percent), iron minerals (16 percent), and crude oil (12 percent), the imports from China are completely diversified and composed of high-value-added industrial products.

The evolution of Brazilian industrial exports shows an increase of 111 percent in the 2003–14 period, below the increase of 207 percent that total exports accumulated over the same

period. This suggests the opposite of what happened in China, where industrial exports grew more than total exports.

The sectors with intensive labor, such as shoes, textiles, apparel, clothing, and clothing accessories, are those in which China has gained the greatest share on a worldwide scale; whereas Brazil follows a downward trend of its share within these sectors. The plastic and rubber sector, as well as the pharmaceutical sector, was able to maintain relative share over worldwide commerce, while industrial sectors such as paper, leather, capital goods, and chemicals were able to increase relative share in worldwide commerce. Despite these facts, no sector has been able to reach the structural change that the Asian giant accomplished in all of its industrial sectors.

Impact in Mexico

Mexico experiences a different trade scenario vis-à-vis China. The level of exports of Mexican commodities to that country is small compared to other Latin American countries, and China is seen by the Mexican manufacturing industry as a staunch competitor both for the domestic and the North American Free Trade Agreement (NAFTA) market. The latter is much more important than the former.

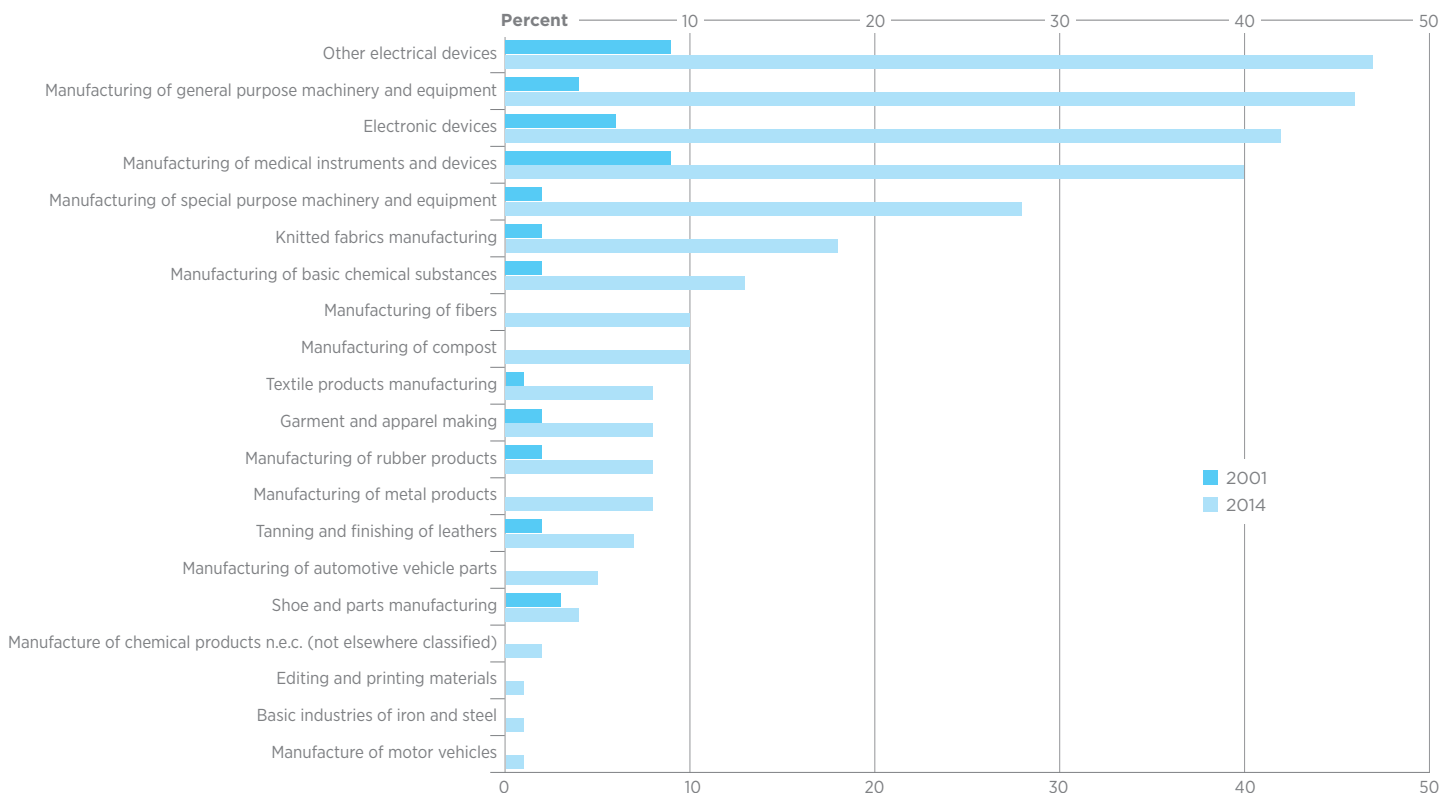
The enactment of NAFTA in 1994-95 represented only the formalization of a trade trend already ongoing between Mexico and the United States. Clearly, China's entrance into the WTO marked a deceleration of Mexican exports to the United States.

Like other Latin American economies, China's imports show double-digit rates of growth, while the corresponding local sectors do not grow as quickly, as shown in figures 7, 8, and 9.

Mexico responded early to the Chinese push toward international markets. Antidumping tariffs were enacted during the 1990s and were then gradually removed in many sectors. Some pockets of economic activity, such as shoes, textiles, and apparel, were more dynamic than others in mobilizing policy toward protectionism. Yet, Chinese imports continue to arrive, although sometimes of reduced quality compared to domestic products and sometimes using triangulation via third-party countries.

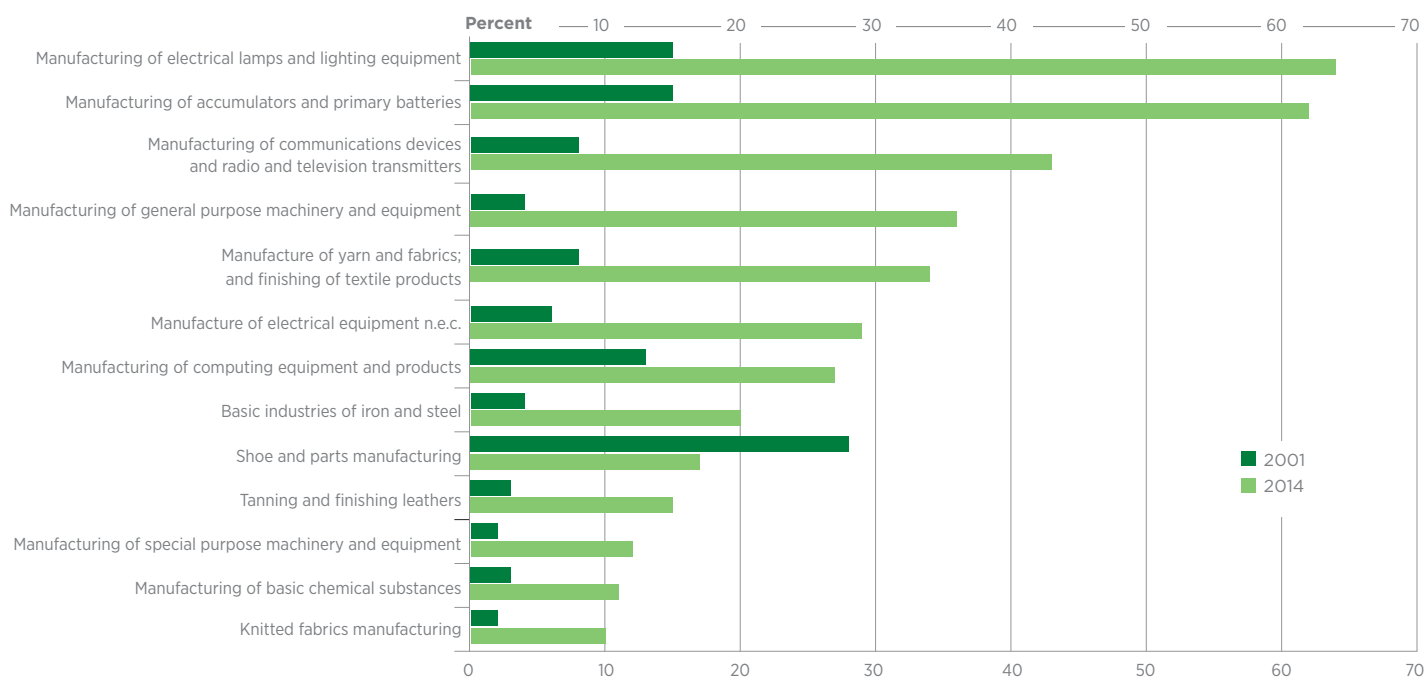
However, Mexican production has diversified to other sectors. The US market is considered by Mexican industrial manufacturers to be the central battleground with the Chinese. Chinese participation in the American market has grown faster than Mexico's. Once the current cost of labor

FIGURE 7. Imports from China as a Share of Domestic Consumption in Argentina



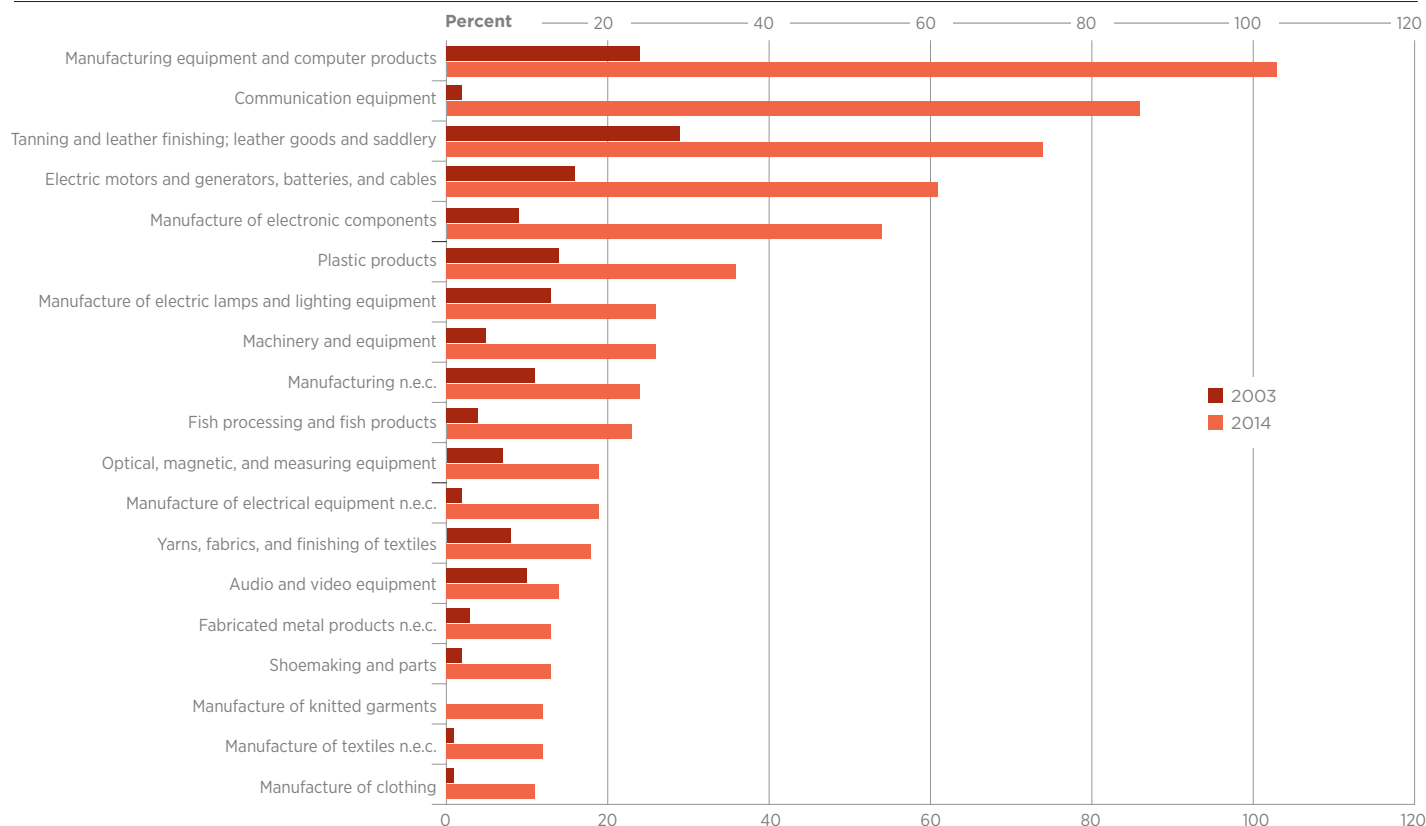
Source: Author estimations based on INDEC and gross production value of CEP.

FIGURE 8. Imports from China as a Share of Domestic Consumption in Brazil



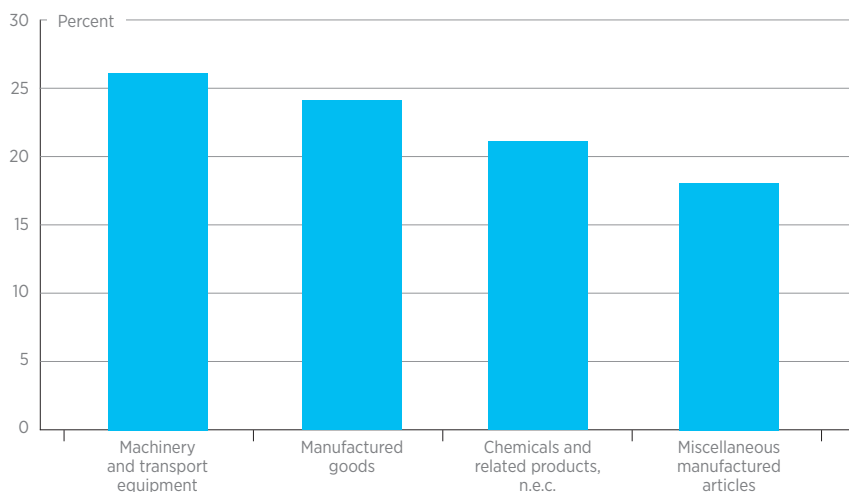
Source: Author estimations based on INDEC and gross production value of CEP.

FIGURE 9. Imports from China as a Share of Domestic Consumption in Mexico



Source: Author estimations based on INDEC and gross production value of CEP.

FIGURE 10. Annual Average Growth Rate of Chinese Imports to Mexico (2001-14)



Source: IMCO, Gtap8inGams model.

and the expensive logistics come to the fore, China's costs in the United States look suspicious to Mexican companies. Therefore, Mexico is unlikely, especially given this context, to accept China as a market economy.

Conclusions

We conclude that there are well-founded reasons to believe that China has had an effect on the region's deindustrialization. This happened suddenly, after China's accession to the WTO, and faster than expected. The solution to this problem is not found in

China, but rather in the region and in each country. There are no historical examples of China modifying its advantageous trade scenario due to bilateral agreements or political negotiations. No matter how much China says that it is not interested in a trade surplus with any given country, or that they will address over-capacity, experience demonstrates that China has never actually addressed any of these. Any Latin American country facing deindustrialization due to Chinese imports cannot afford to assume that this phenomenon will somehow take care of itself or that China can be talked into ameliorating the situation. Time is not on Latin America's side. Decisive action must occur. Governments need to understand both the urgency of the problem and the fact that the solution lies within each country, not with China.

Whether China actually planned to implement export subsidies in certain key industries in order to take over the whole production chain, with the jobs, investment, and growth that accompany them, is a matter for debate and not currently relevant. The real question is whether Latin America can expect different behavior from China in the future; the answer is probably not. While Chinese officials might say in WTO, OECD, and international forums that they will deal with excess capacity, the Chinese saying, "the mountains are high and the Emperor is far away" pertains. Municipal and provincial governments, in an effort to keep economic activity going in their individual localities, will continue to pour resources into heavy industries with non-transparent subsidies.

► While Chinese exports have increased, sectors like automobile production give Mexico a more diversified industrial base than other countries in the region.



FIAT CHRYSLER AUTOMOBILES/FLICKR

Policy Implications and Recommendations



▲ Latin America needs to improve its systemic competitiveness to advance industrial development, including investing in infrastructure.

REINHARD LINK/FLICKR

This report shows that granting China market economy status is likely to worsen an already difficult economic situation for many Latin American industries. A number of policy recommendations emerge from the conclusions of this paper:

1 Governments from the region might consider negotiating side agreements with the Chinese to balance the exports of sectors that have clearly been negatively affected by Chinese competition. The Brazilian National Confederation Industry (CNI) has made an interesting proposal, according to which Brazil should compare Chinese-based market prices for products to an average of third-market prices. In the event that the Chinese price varies considerably from the average of third-market prices, the government should use the latter to impose antidumping measures against Chinese products.

2 Governments from LAC countries should also adopt other trade defensive measures. In addition to antidumping measures, the WTO recognizes countervailing and safeguard measures, as well as temporary trade defensive measures. Currently, there are no countervailing or safeguard cases initiated by LAC countries against China at the WTO. This report shows that subsidies received by Chinese exporters play a relevant role in the LAC region's deindustrialization. At this moment, countries from LAC should allocate more time and human and financial resources to enhance capabilities to build countervailing cases against Chinese competition.

3 ■ Latin American countries can make better use of national trade remedy measures in their own jurisdictions if trade-distorting subsidies are at the core of China's success in the market. Where China's sheer efficiency is the main culprit in Latin America's eroded production base and no subsidies are involved, then countries must think of a set of policies for the region and involve the disparate populations to compete with China. While social safety nets have helped millions throughout Latin America enter the middle class, incipient welfare systems should not prevent economies from opening up to investments that could bring more people into mid- and high-skilled employment.

4 ■ Governments in the region should join forces to negotiate trade and investment agreements with China in order to do so from a position of strength. It is easier for China to maximize its interests in the region through separate bilateral negotiations with governments, which puts a country in a weak economic or political bargaining position when making demands on the Chinese. Countries in the Pacific Alliance have coordinated initiatives with the Chinese government but have yet to start negotiating trade and investment deals. Now is the moment for the region's other bloc, Mercosur, to explore the possibility of negotiating as a bloc with China.

5 ■ LAC countries should be prepared to negotiate better agreements with China to channel Chinese foreign direct investment (FDI) to industries across the region. China has a US \$30 billion fund to

develop industrial capacity in LAC countries. This fund should be used to update regional infrastructure and enhance regional companies' competitiveness.

6 ■ Latin American diplomacy should join in efforts to ensure that China meets international labor and environmental standards.

7 ■ Latin American economic policymakers should devise mid- and long-term guidelines for stable macroeconomic policies, improved institution building, and systemic competitiveness, and then focus on an adequate industrial policy. Effectiveness, efficiency, and efficacy of all institutions must be improved in order to give the quality and predictability that companies need in order to properly invest in the country.

8 ■ Finally, a strategy that advances systemic competitiveness must be established. In order to achieve this, investments in roads, ports, waterways, railroads, and power generation must be implemented to forge an adequate infrastructure that improves all of the economy's transactions. The domestic financial markets must grow in size and sophistication to ensure access to affordable international financing and secure the necessary resources for investments. Improving the quality of education and access to new technologies is also a key factor for long-term systemic competitiveness.

Latin America's governments should consolidate efforts to negotiate as a region with China.

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Appendix

GTAP Model Specifications

In order to understand China's footprint in the global economy, IMCO constructed an implementation of a well-known general equilibrium model (GEM). The model we use is constructed on the General Trade Analysis Project database, or GTAP (Narayan and Walmsley, 2008).

GTAP is a thorough, econometrically sound description of the world economy. It is probably the largest collaborative effort of economists on the planet, coordinated by Purdue University. It describes in detail fifty-seven aggregated commodity sectors for 129 regions of the world. Data are curated by panels of experts to resolve statistical discrepancies. For example, the differences between the exports listed by the exporting country's national accounts versus the imports listed as received by the importing nations are resolved and refereed by panels of experts.

IMCO's implementation is programmed in the General Algebraic Modeling System (GAMS), following the formulation GTAPinGAMS developed by Dr. Thomas Rutherford, University of Wisconsin-Madison (Rutherford, 2005). We use the data from Ver. 8 of the model, which is a detailed picture of the world economy in 2008.

In order to understand China's impact, it cannot be considered in isolation. We constructed a trade area using China's main importing partners outside Latin America to determine the effects that Chinese policies have in the Latin American region. The countries that we analyze with China are Australia, Indonesia, Russia, Iran, Oman, Saudi Arabia, and the United Arab Emirates. Latin American countries that supply materials to China are not considered part of this hinterland, in order to understand the effects of industrialization.

In similar fashion, Mexico is modeled independently of NAFTA, Central America independently of the Central American Free Trade Agreement (CAFTA), and other countries in the region that have free trade agreements with the United States are also modeled independently. Mercosur is not considered a unified region, and every country in it is modeled by itself. These divisions are not arbitrary and are not put in place in the GEM to make a political statement, only to isolate effects for each of the countries in the Latin American region.

We also made some simplifying assumptions about the other trade blocs. Figures 11, 12, and 13 show the region and commodity groupings.

While the Chinese subsidies on certain industrial products (such as steel) are high enough to create a relative price difference of Chinese steel versus steel from the rest of the world close to zero, having constructed the actual Chinese trade area, more realistic figures emerge in terms of subsidization. According to the GTAP database, the Chinese influence area subsidizes industrial products at 57.6 percent in light manufacturing and 60 percent in heavy manufacturing, both ad valorem. This figure is found nowhere in trade statistics. It results from the addition of subsidy policies in the aforementioned countries in the Chinese influence area.

FIGURE 11. Regions in the IMCO GTAP8inGAMS Model

REGION SYMBOL	REGION DESCRIPTION
USYCAN	United States and Canada
ARGENTINA	Argentina
BOLIVIA	Bolivia
BRAZIL	Brazil
CHILE	Chile
COLOMBIA	Colombia
ECUADOR	Ecuador
MEXICO	Mexico
PARAGUAY	Paraguay
PERU	Peru
URUGUAY	Uruguay
VENEZUELA	Venezuela
EU_25	European Union
EECHINA	Chinese economic zone
CENTAM	Central America
RestOfLatam	Rest of Latin America and the Caribbean
RestOfWorld	Rest of the World

FIGURE 12. Countries by Region. IMCO GTAP8inGAMS Model

UNCODE AND COUNTRY NAME			UNCODE AND COUNTRY NAME			UNCODE AND COUNTRY NAME		
UNCODE	COUNTRY NAME	REGION	UNCODE	COUNTRY NAME	REGION	UNCODE	COUNTRY NAME	REGION
arg	Argentina	Argentina	xsm	Rest of South America	RestofLatam	bhr	Bahrain	RestofWorld
bol	Bolivia	Bolivia	xca	Rest of Central America		isr	Israel	
bra	Brazil	Brazil	xcb	Caribbean		kwt	Kuwait	
cri	Costa Rica	Centam	nzl	New Zealand	RestofWorld	qat	Qatar	
gtm	Guatemala		xoc	Rest of Oceania		tur	Turkey	
hnd	Honduras		hkg	Hong Kong		xws	Rest of Western Asia	
nic	Nicaragua		jpn	Japan		egy	Egypt	
pan	Panama		kor	Korea		mar	Morocco	
slv	El Salvador		mng	Mongolia		tun	Tunisia	
chl	Chile		tw	Taiwan		xnf	Rest of North Africa	
col	Colombia		col	Colombia		ben	Benin	
ecu	Ecuador	ecu	Ecuador	bfa	Burkina Faso			
aus	Australia	EECHINA	xe	Rest of East Asia	cmr	Cameroon		
chn	China		khm	Cambodia	civ	Côte d'Ivoire		
idn	Indonesia		lao	Lao People's Democratic Republic	gha	Ghana		
rus	Russian Federation		mys	Malaysia	gin	Guinea		
irn	Iran Islamic Republic of		phl	Philippines	nga	Nigeria		
omn	Oman		sgp	Singapore	sen	Senegal		
sau	Saudi Arabia		tha	Thailand	tgo	Togo		
are	United Arab Emirates		vnm	Vietnam	xwf	Rest of Western Africa		
aut	Austria		xse	Rest of Southeast Asia	xcf	Central Africa		
bel	Belgium		bgd	Bangladesh	xac	South Central Africa		
cyp	Cyprus		ind	India	eth	Ethiopia		
cze	Czech Republic		npl	Nepal	ken	Kenya		
dnk	Denmark		pak	Pakistan	mdg	Madagascar		
est	Estonia		lka	Sri Lanka	mwi	Malawi		
fin	Finland		xsa	Rest of South Asia	mus	Mauritius		
fra	France		xna	Rest of North America	moz	Mozambique		
deu	Germany		che	Switzerland	rwa	Rwanda		
grc	Greece	nor	Norway	tza	Tanzania			
hun	Hungary	xef	Rest of EFTA	uga	Uganda			
irl	Ireland	alb	Albania	zmb	Zambia			
ita	Italy	bgr	Bulgaria	zwe	Zimbabwe			
lva	Latvia	blr	Belarus	xec	Rest of Eastern Africa			
ltu	Lithuania	hrv	Croatia	bwa	Botswana			
lux	Luxembourg	rou	Romania	nam	Namibia			
mlt	Malta	ukr	Ukraine	zaf	South Africa			
nld	Netherlands	xee	Rest of Eastern Europe	xsc	Rest of South African Customs			
pol	Poland	xer	Rest of Europe	xtw	Rest of the World			
prt	Portugal	kaz	Kazakhstan	ury	Uruguay	Uruguay		
svk	Slovakia	kgz	Kyrgyzstan	can	Canada	USYCAN		
svn	Slovenia	xsu	Rest of Former Soviet Union	usa	United States of America	USYCAN		
esp	Spain	arm	Armenia	ven	Venezuela	Venezuela		
swe	Sweden	aze	Azerbaijan					
gbr	United Kingdom	geo	Georgia					
mex	Mexico							
pry	Paraguay							

APPENDIX GTAP MODEL SPECIFICATIONS

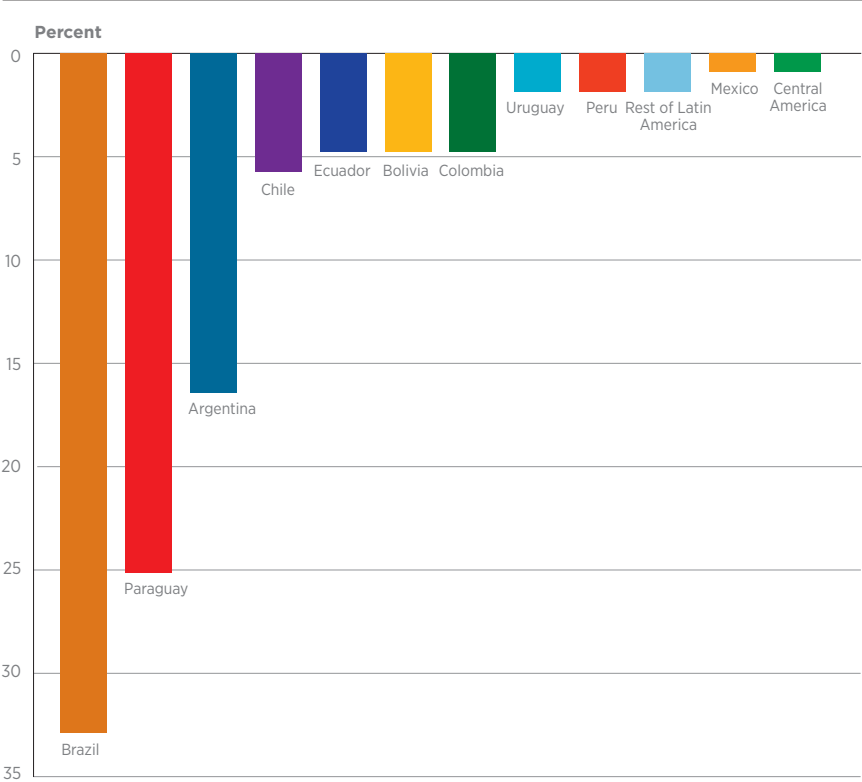
FIGURE 13. IMCO GTAP8inGAMS Model Commodity Groupings

UN CODE	DESCRIPTION	GROUP	UN CODE	DESCRIPTION	GROUP	
frs	Forestry	Extraction	ctl	Cattle, sheep, goats, horses	MeatLstk	
fsh	Fishing					
coa	Coal					
oil	Oil		oap	Animal products nec		
gas	Gas		rmk	Raw milk		
omn	Minerals nec		wol	Wool, silk-worm cocoons		
pdr	Paddy rice	GrainsCrops	cmt	Meat: cattle, sheep, goats, horse		
wht	Wheat		omt	Meat products nec		
gro	Cereal grains nec		ofi	Financial services nec		OthServices
v_f	Vegetables, fruits, nuts		isr	Insurance		
osd	Oil seeds		obs	Business services nec		
c_b	Sugar cane, sugar beet		ros	Recreation and other services		
pfb	Plant-based fibers		osg	PubAdmin/Defence/Health/Educat		
ocr	Crops nec		dwe	Dwellings		
pcr	Processed rice					
p_c	Petroleum, coal products		HeavyMnfc	vol	Vegetable oils and fats	ProcFood
crp	Chemical, rubber, plastic prods			mil	Dairy products	
nmm	Mineral products nec			sgr	Sugar	
i_s	Ferrous metals			ofd	Food products nec	
nfm	Metals nec	b_t		Beverages and tobacco products		
ele	Electronic equipment	tex		Textiles	TextWapp	
ome	Machinery and equipment nec	wap		Wearing apparel		
lea	Leather products	LightMnfc		trd	Trade	TransComm
lum	Wood products			otp	Transport nec	
ppp	Paper products, publishing			wtp	Sea transport	
fmp	Metal products		atp	Air transport		
mvh	Motor vehicles and parts		cmn	Communication		
otn	Transport equipment nec		ely	Electricity	Util_Cons	
omf	Manufactures nec		gdt	Gas manufacture, distribution		
			wtr	Water		
			cns	Construction		

In another projection, the model demonstrates a double-edged sword for industry in Latin America. According to the GEM experiment, the textile sectors in Mexico, Central America, and the rest of Latin America have benefited from Chinese subsidization. These sectors would actually be smaller today if Chinese subsidization were not present. Thus, while China's subsidization of high-value exports has had a deleterious effect on advanced industries in Latin America; the region's textile sectors rely on the relatively cheap materials from China.

The textile industry employs a significant number of workers in Latin America, however, insufficient growth in industrial sectors retards greater economic progress. Low-skilled jobs in the textile industry take greater precedence, and highly skilled—and higher-paying—positions in industry diminish.

FIGURE 14. Projected Decrease in LAC Domestic Textile Production Without Chinese Exporter Subsidy



Source: IMCO, Gtap8inGams model.

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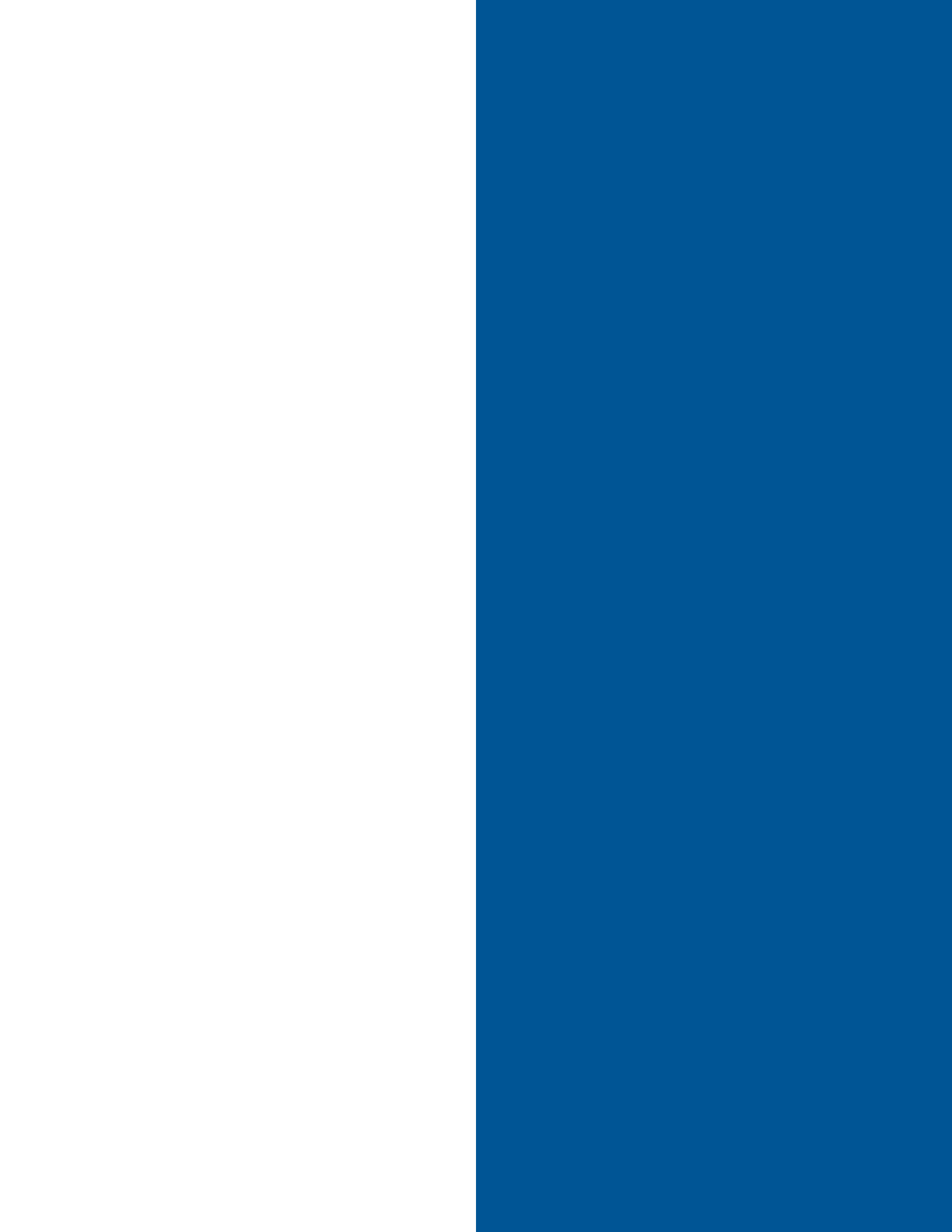
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