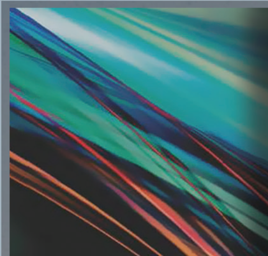
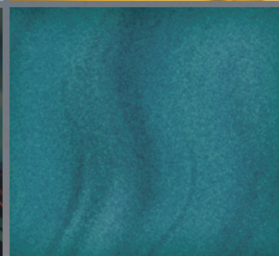
Bringing down the Barriers

A Review of IDB Research on Trade Costs in Latin America and the Caribbean

Special Report on Integration and Trade

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A Review of IDB Research on Trade Costs in Latin America and the Caribbean

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>> Prologue

In 2007 the Integration and Trade Sector (INT) of the Inter-American Development Bank (IDB) embarked on a long-term and wide-ranging research agenda with the goal of identifying and measuring the impact of the principal barriers to trade and economic integration for Latin America and the Caribbean (LAC). At the time, few policymakers in the region (or economists) were thinking seriously about such questions. The reason was that trade policy measures such as tariffs, import restrictions, and quotas, long considered the main source of trade costs for LAC countries, continued to occupy a central place in discussions of the region's trade policy agenda.

This focus made sense for much of the region's recent history, when protectionist governments widely employed import tariffs, quotas, and licensing requirements, which represented a major barrier to trade and integration. This scenario began to change in the early 1990s, as countries across the region embraced trade liberalization. Through a combination of unilateral policy reforms, participation in multilateral trade talks, and the emergence of numerous regional trade agreements, LAC countries managed to reduce the burden of traditional trade costs considerably in the course of a decade.

However, the discourse surrounding trade policy in LAC has been slower to change. Issues such as tariffs and quotas continued to attract most of the attention even as a new set of trade costs—especially those associated with transportation, logistics, and information—emerged as the main barriers to LAC's economic integration by the early 2000s.

In fact, there was little strictly "new" about these trade costs. They had always been present, but their relevance to trade policy had been obscured by the more immediate and obvious barriers of high tariffs and

import restrictions. As a result, there was a serious lack of information on the size and effect of these costs. While firms instinctively knew that poor roads, slow customs procedures, and lack of market information posed major constraints on their export performance, policy makers had little guidance on how to deal with such issues—in many cases, they failed to recognize them as part and parcel of the trade policy agenda.

INT's research program over the past several years has sought to fill this gap. Beginning in 2008, the Sector has published a series of analytically rigorous and policy relevant studies of the impact of transportation costs, information constraints, and trade facilitation on LAC's trade performance. Two additional reports considered the effect of regulatory overlap—an unintended consequence of the proliferation of trade agreements since the early 1990s—and the region's participation in global value chains, the defining trend in 21st century trade. At the same time, the Sector has continued to monitor and analyze traditional trade costs such as tariffs, which remain considerable barriers to trade for certain countries and sectors despite the region's broad movement towards liberalization over the past two decades.

Our work on this set of issues has employed pioneering econometric techniques and drawn on a wealth of original data. Despite its methodological rigor, this research has not been merely academic. Our findings have helped raise awareness of the importance of these new trade costs for the region's prospects in an increasingly integrated global economy. It has also directly informed the Sector's operational work in the region, helping governments design and implement, with IDB support, the best policies and programs to take advantage of the opportunities inherent in economic integration. This report captures the main insights from nearly a decade of hard work at the frontier of trade research, highlighting its contribution to our understanding of the region's main challenges in the trade policy arena.

Antoni Estevadeordal
Manager, Integration and Trade Sector, IDB

>> Introduction

Two decades of trade liberalization have left Latin America and the Caribbean (LAC) more integrated with the world economy than ever before. Tariff levels stand at all-time lows, a web of free-trade agreements connect the region with economies across the globe, and trade accounts for a larger share of regional GDP than at any time in the modern era. A trade boom during the 2000s saw total flows increase by over 12 percent a year between 2002 and 2013, driving the region's dynamic growth during that period.

At the same time, there is a prevailing sense that the region could be doing better. LAC continues to lag behind developing regions such as East Asia and Eastern Europe on many indicators of economic integration. These regions boast a higher percentage of intra-regional trade and also account for a larger (and growing) share of global trade, whereas LAC's share of total trade flows has remained relatively flat—even as countries aggressively lowered tariffs and entered into numerous bilateral and regional trade agreements.

Meanwhile, LAC's exports remain concentrated in a relatively small number of commodities and natural-resource based products. Expectations that economic integration would create opportunities to export higher value-added, technology-intensive goods and diversify export portfolios have largely been disappointed. In fact, the region's impressive trade growth in recent years was largely the consequence of an unprecedented commodity boom caused by demand from China. This trend has only intensified concerns over lack of diversification and the relative deficit of high-value added products in LAC's exports.

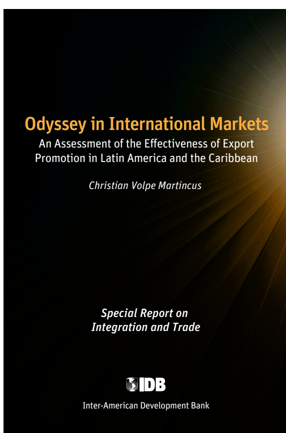
An additional concern stems from the distribution of the benefits of trade. For trade to reach its full potential as a driver of growth and

development, small and medium sized enterprises (SMEs) and firms from traditionally poor regions need to increase their participation in international markets. The region's SMEs, however, have struggled to integrate into networks of international trade and production, in contrast with the experience of small firms in East Asia and Europe. At the same time, exports in LAC countries tend to originate in a relatively small number of already prosperous regions, with broad swaths of countries barely exporting.

What prevents LAC countries from achieving long-standing goals of deeper regional integration, export diversification, and more equitable participation in trade? The region's strong progress on the traditional liberalization agenda means that tariff and other trade policy barriers are unlikely to be the main culprit.

Instead, a different set of barriers, not part of the traditional trade agenda, have emerged as the most formidable obstacles to LAC's economic integration. They fall broadly into four categories: information constraints, regulatory overlap, costs associated with customs processes, and transportation costs. One might think of them as "latent" trade costs in the sense that they did not seem to be major barriers to trade when tariffs in excess of 50 percent and import quotas were commonplace in the region. Their relevance to the region's trade performance only became clear once traditional trade barriers such as tariffs had been reduced considerably.

To better understand these so-called latent trade costs, it is helpful to adopt the perspective of a firm. The first barrier a potential exporter faces is information. Uncertainty surrounding market demand, consumer preferences, and regulations can prevent firms from entering foreign markets or exporting new products, even when doing so would be profitable. Even among seasoned exporters, imperfect knowledge of the ins and outs of a foreign market could result in suboptimal performance. The nature of information costs makes measuring them directly a challenge, but research undertaken in INT's report *Odyssey in International Markets: An Assessment of the Effectiveness of Export*



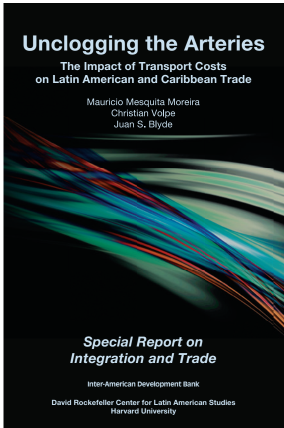
Promotion in Latin America and the Caribbean shows that policies to lower information costs can have a considerable impact, giving us an idea of the magnitude of their effect on trade.

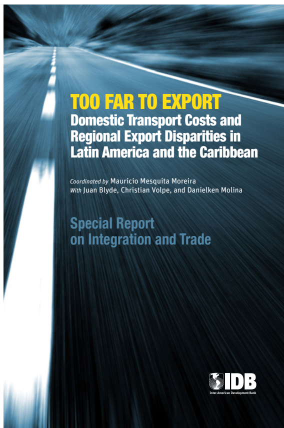
Information costs represent only the first barrier a firm must surmount to succeed in foreign markets. Once a firm has identified an export opportunity, it must navigate the often complex web of rules and regulations governing trade. These considerations fall under the rubric of traditional trade costs and include tariff levels, rules of origin, and other market access provisions. These are, of course, the very issues that have been addressed to a lesser or greater extent in the dozens of free trade agreements signed by countries in the region since the 1980s. However, the region's progress in signing FTAs has created an unforeseen consequence for firms: overlapping and divergent regulatory regimes for different trading partners. The existence of multiple trade rules, especially in the all-important area of rules of origin (RoO), has the potential to raise costs, divert trade patterns, and critically, impede the development of intraregional trade and regional value chains. While the minutiae of rules of origin and other trade disciplines may seem opaque, they matter for firms' bottom lines, as research carried out for the report *Bridging Regional Trade Agreements in the Americas* shows.

Once a firm has identified an export opportunity and complied with trade regulations, it must arrange for its product to arrive at its destination. Doing so requires a firm to navigate two systems—the first is the customs procedures that control and regulate the flow of goods across borders. Inefficient and burdensome customs procedures impose additional compliance and time costs on firms that can undermine their competitiveness in foreign markets. Policies to upgrade and streamline customs—measures that fall under the rubric of trade facilitation and address countries "soft" infrastructure—can increase firms' ability to participate in foreign trade, but their impact has not been systemically measured in LAC. These issues are the subject of INT's forthcoming flagship report, *Out of the Border*

Labyrinth: An Assessment of Trade Facilitation Initiatives in Latin America and the Caribbean.

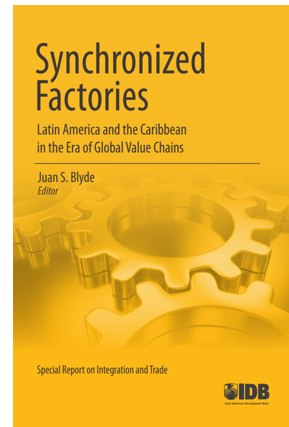
The second system that exporters depend on is a country's transportation network hard infrastructure. The cost of physically moving goods from the point of production to destinations in foreign markets represents a major trade cost for LAC firms given the region's deteriorating physical infrastructure and often inefficient transportation services. While the relevance of transportation costs has long been abundantly clear to firms in the region, policymakers and economists have been slow to view infrastructure as a part of the trade agenda. INT's research, reported in two publications—*Unclogging the Arteries: the Impact of Transport Costs on Latin American and Caribbean Trade* and *Too Far to Export: Domestic Transport Costs and Regional Export Disparities in Latin America and the Caribbean*—provide compelling evidence that improving transportation infrastructure must be a central plank in countries' integration strategies.





This set of trade costs—information, regulation, trade facilitation and transportation—affects different stages of the export process, and each has the potential to raise the cost of exporting, in turn undermining the competitiveness of the region's firms in foreign markets. These trade barriers have taken on added urgency with the rise of global value chains. Increasingly, firm's opportunities to trade will come in the context of cross-border production chains organized by multinational corporations (MNCs). Our flagship report *Synchronized Factories: Latin America and the Caribbean in the Era of Global Value Chains* concludes that the region's participation in global value chains has been limited by factors such as poor transportation infrastructure, inefficient customs

procedures, highly complex trade rules, and information constraints.



Simply put, tariffs and other trade policy measures are no longer the largest barrier to trade for LAC. The measures that will yield the greatest trade gains include investing in well-targeted export promotion to overcome information costs; improving physical infrastructure, port efficiency, and transportation services to bring down transport costs; upgrading customs facilities and processes; and working towards the convergence of existing FTAs. These policies will also address the most important constraints to LAC's participation in global value chains.

Only by tackling this agenda can the region truly reap the rewards of its great progress on trade liberalization. This is the overarching conclusion of nearly a decade of research on LAC's trade costs. The purpose of this report is to present the context, findings, and implications of that research agenda, highlighting how the Sector's analytical work has directly informed its operations with public and private sector counterparts in LAC. It proceeds as follows. The next section gives a brief overview of the region's trade performance over the past several decades, emphasizing the importance of the emergence of China as a major trading partner and the rise of global value chains. Next, we describe in detail the rationale, methodology, and findings of the core INT research products on LAC's trade costs. The fourth section discusses how the region's formal integration architecture can best respond to these new challenges, and the fifth section concludes.

>> The Context: New Trade Policy Setting and New Drivers of Trade

1

The New Setting: Liberalization, Integration, Frustration

To understand why the "new" trade costs matter so much for LAC's current trade performance and future prospects, one must first look back at the evolution of the region's trade policies over the past several decades. Regional integration projects in Latin America and the Caribbean date back to the middle of the 20th century, although the scope, content, and ideological underpinnings of these initiatives have, not surprisingly, changed with the shifting winds of economic policy in the region.

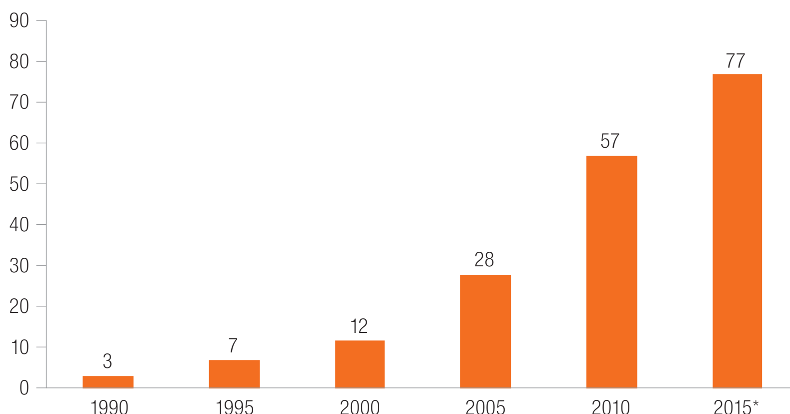
In the 1960s and 1970s trade agreements sought to create an integrated regional market that was nonetheless protected from the global economy. The aim was to promote domestic industries in LAC through a combination of high external tariffs and coordinated public investment among member countries, in line with the import-substitution industrialization (ISI) strategies in vogue throughout the region at the time. This so-called "old regionalism", embodied in initiatives such as the Latin America Free Trade Area (LAFTA), the Central American Common Market (CACM), and the Andean Group, generally failed to obtain the outcomes that policymakers hoped for, as progress towards integrated markets was hindered by the tenacity of protectionist instincts throughout the region. More fundamentally, the debt crisis, which beset most of the region in the 1980s, forced policymakers to rethink state-led development strategies and undertake major market reforms, which occasioned a reorientation of trade policy towards liberalization.

The turn towards trade liberalization in the region proceeded on several parallel tracks. First, governments undertook unilateral tariff reductions, which helped bring average tariffs in the region from over 40 percent in the mid-1980s to around 12 percent a decade later. Many countries in the region also adopted the comprehensive provisions of the Uruguay Round of multilateral negotiations, which concluded in 1994. Finally, a new round of regional integration initiatives beginning in the early 1990s led to the emergence (or re-emergence) of intra-regional trade blocs such as Mercosur, the Andean Community, the Caribbean Community (CARICOM), and the Central American Common Market, as well as a sharp uptick in bilateral FTAs, driven by Chile and Mexico. As a result, the total number of regional trade agreements (RTAs) involving countries in the region grew dramatically from the 1990s onward (see Figure 1).

In general, this move towards a "new regionalism" was embedded in a policy framework that privileged open, competitive market economies driven by private enterprise. Another distinctive feature of this period was the prevalence of "North-South" agreements between countries in the region and advanced, industrialized economies and, especially since the early 2000s, FTAs between LAC and Asian economies.

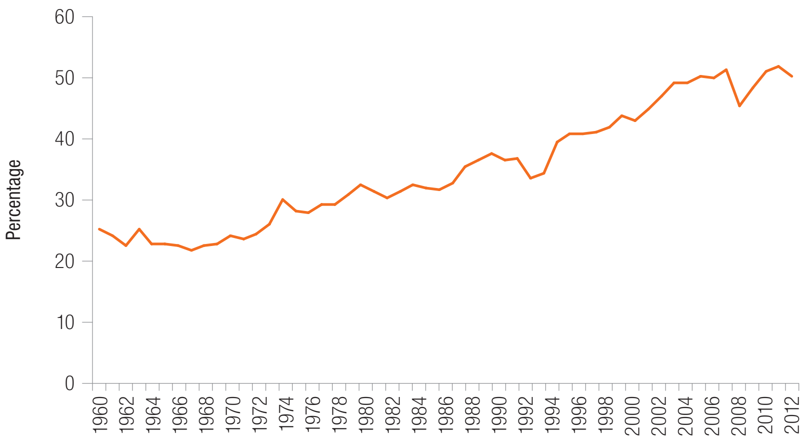
By the mid-2000s, however, disappointment with the results of trade liberalization took hold in some parts of the region. Even in countries that

Figure 1 ■ RTAs Involving a LAC Country



Source: WTO Regional Trade Agreement Information System.
*January–May.

Figure 2 ■ LAC Trade as Share of GDP



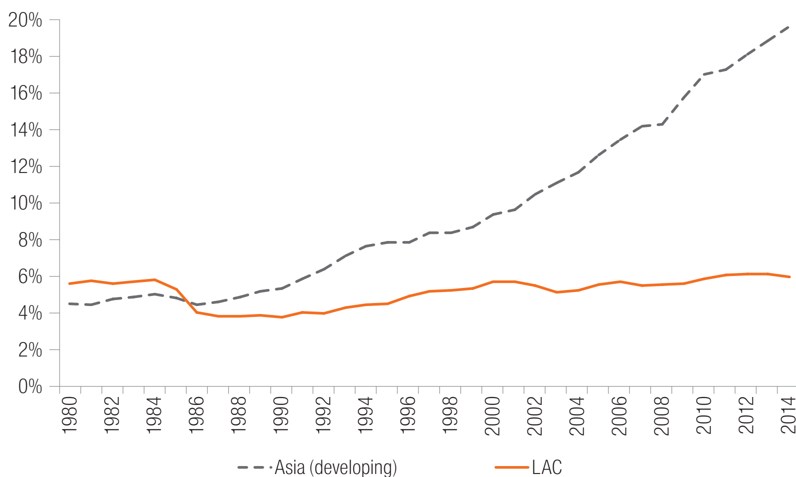
Source: World Bank World Development Indicators.

have remained committed to integration with the global economy, concerns have arisen surrounding trade patterns and the distribution of gains from trade. A brief review of the region's trade performance since the mid-1980s sheds light on the nature of these concerns. LAC has undoubtedly become much more integrated into the global economy over this period, with the region's trade as a share of total GDP growing steadily from 32 percent in 1986 to over 50 percent by 2013 (see Figure 2).

Still, judging by its participation in overall global trade, the region has underperformed. Its share of total world trade, which exceeded 8 percent in the early 1960s, steadily declined in subsequent decades and has hovered around 5 percent since the early 1990s. The contrast with East Asia is notable. This region has seen its share of global exports rise from around 4 percent in 1980 to nearly 20 percent by 2013 (see Figure 3), while LAC's share failed to grow during that period. In addition, LAC has seen its volume of imports expand at a faster pace than exports. This imbalance would have resulted in unsustainable current account imbalances in some countries if not for an unprecedented positive terms of trade shock for the region during the past decade.[1]

[1] Estevadeordal, Antoni, Paolo Giordano and Bárbara Ramos, "Trade and Economic Integration" in *Routledge Handbook of Latin America and the World* (2014).

Figure 3 ■ LAC and Developing Asia, Share of World Exports



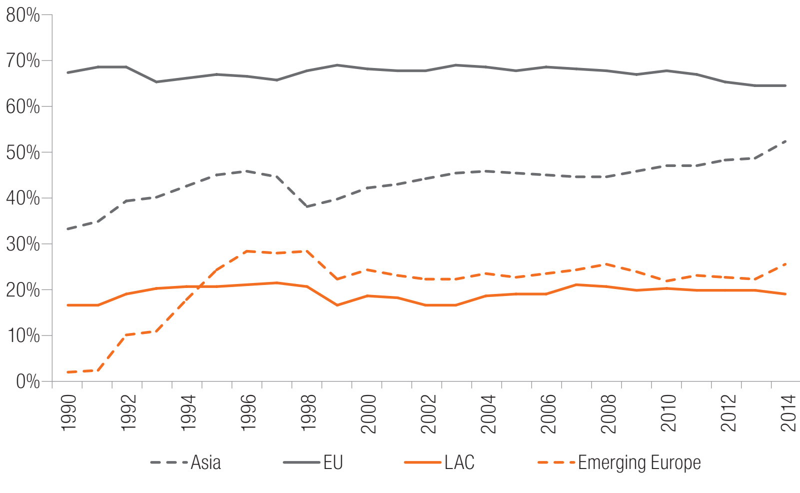
Source: International Monetary Fund Direction of Trade Statistics.

The trajectory of intra-regional trade has also been disappointing. Boosting trade within LAC was an explicit goal of the new regionalism-era of integration agreements, as intra-regional trade offers greater opportunities for export diversification and the possibility of developing regional value chains. However, the share of intra-regional trade in LAC's total trade has flat-lined at around 20 percent since the early 1990s, far short of the levels attained in Asia or the EU (see Figure 4). For countries such as Argentina, Brazil, Paraguay, and Uruguay intra-regional shares of total exports actually declined since 2000 despite their participation in the Mercosur bloc.[2] Clearly, dynamic intra-regional trade has yet to materialize even with the proliferation of regional trade agreements among LAC countries.

Another important dimension of the region's trade performance is the composition of trade. Here again, the results have not met expectations. LAC's exports have traditionally been concentrated in a small number of commodities and natural resource-based goods, which make export earnings vulnerable to fluctuating demand and volatile prices. In addition, primary sector exports generally contain low value added, create

[2] *ibid.*

Figure 4 ■ Intra-regional Exports as Share of Total Exports



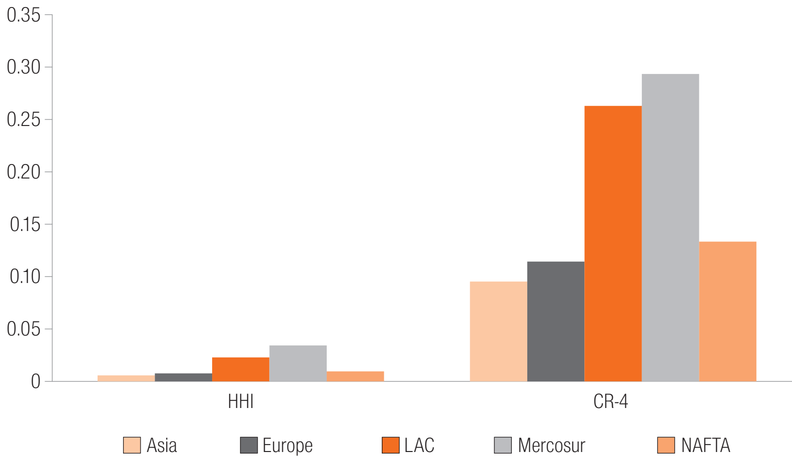
Source: IMF Direction of Trade Statistics.

fewer forward and backward linkages to other industries, present limited employment opportunities, and do not generate the knowledge spillovers associated with manufacturing.

For all these reasons export diversification has been a longstanding goal of governments in the region. However, as Figure 5 shows, LAC's exports remain markedly more concentrated than those of other regions, a trend that is especially strong in the Mercosur countries. In addition, the last decade has witnessed a return to higher export concentration for LAC, after considerable diversification between 1980 and the mid-1990s. This reversal is due mainly to the emergence of China, which occasioned both a sharp increase in demand for commodities as well as an unprecedented competitive challenge to the region's manufacturing sectors. The following section discusses the implications of the rise of Asia-LAC trade in more detail.

A final source of disillusionment with the results of trade liberalization has been the distribution of gains. At the firm level, it is clear that the region's trade is dominated by a small number of large multinational corporations (MNCs), while small and medium enterprises (SMEs) account for very little of LAC's trade despite their important role in the region's economies. Greater internationalization of SMEs would give more firms the

Figure 5 ■ Export concentration of LAC and other regions, 2012–2013



Source: UNComtrade.
Note: HHI refers to the Herfindahl-Hirschman normalized concentration index, which ranges from 0 (diversified) to 1 (concentrated). CR4 refers to the aggregated share (in decimals) of total exports held by the top 4 exported products.

opportunity to participate in trade, thus extending the benefits of economic integration more broadly. Beyond these static gains, internationalization enables SMEs to become more productive, innovative, and competitive, leading to growth and job creation in the domestic economy.

While the concentration of trade in a few firms characterizes most countries in the world, LAC represents an extreme case. The SME sector makes up between 90 and 95 percent of the region's firms, but only around 13 percent of these firms export.[3] In Asia and Europe, by contrast, SMEs have had more success integrating into the global economy. In Thailand and Malaysia, for example, the portion of SMEs that generates at least 1 percent of their revenue from exports is 47 percent and 55 percent respectively, compared to 13 percent for LAC. In terms of export intensity, or the share of exports in a firm's total sales, the average SME exporter in Brazil, Mexico, Chile, Colombia, and Jamaica have export intensities between 10 and 20 percentage points lower than SMEs in Turkey, and a full 40 percent lower than in Portugal.

[3] *Going Global: Promoting the Internationalization of Small and Mid-sized Enterprises in Latin America and the Caribbean*. Inter-American Development Bank, 2014.

Distributional concerns also arise at the regional level, with LAC exhibiting a high degree of geographic concentration of exports within countries. Regional disparities have long been a notable characteristic of development in LAC countries, and this pattern also applies to export performance. Our 2013 flagship publication *Too Far to Export*, discussed in detail below, shows that exports in Brazil, Chile, Colombia, Mexico, and Peru are produced overwhelmingly in a handful of regions within those countries, usually those that are home to capital cities, major ports, and traditional industrial hubs. A vast swath of territory is more or less excluded from export markets, posing a major challenge for policymakers concerned about spreading the gains from trade and integration more broadly.

This characteristic of the region's trade is clearly linked to the lack of modern infrastructure to connect peripheral regions to industrial centers and ports of exit within countries—which is the main thesis of *Too Far to Export*. However, other features of LAC's trade performance that have failed to meet expectations—the reliance on traditional commodity exports, the under-participation of SMEs in trade, and the tepid growth of intra-regional trade—are also inextricably tied to the set of trade costs discussed in this report.

Information, regulation, transportation and trade facilitation costs, as well as the region's weak insertion in global value chains, militate against the diversification of goods, the participation of smaller firms, and the development of intra-regional trade and production networks. Understanding these costs and how to address them therefore holds the key to improving the region's trade performance and taking full advantage of the integration initiatives currently in place. This is the fundamental rationale for taking on the research agenda described in this report. Before moving on to describe our research findings, it is important to highlight two new features of the trade environment facing LAC—the rise of global value chains and the rise of China as a commercial power—that suggest the set of "new" trade costs have taken on heightened importance.

The New Drivers: Asia and Global Value Chains

The global trade environment facing LAC countries today differs markedly from that of the 1990s and early 2000s. The first major change has been the emergence of Asia, particularly China, as an important trading

partner for the region. Trade with Asia traditionally accounted for only a minor part of the region's trade flows, representing just over 10 percent in 2002. That would change decisively in the following decade, as the insatiable demand of China and other Asian economies for LAC's raw materials—as well as the region's receptiveness to Asian manufactures—brought about an unprecedented boom in inter-regional trade. From a starting point of around US$ 75 billion in 2002, total trade reached US$ 532 billion in 2014.[4] Trade with China has clearly been the most dynamic component of Asia-LAC trade, increasing at an annual average rate of 27 percent over that period.

Due to its distinct commodities-for-manufacturing pattern, the expansion of Asia-LAC trade has meant different things for different economies in the region. Resource-rich countries such as Chile, Peru, Argentina, Brazil, and Venezuela experienced a boom in their traditional export sectors, with Chinese demand for fuel, minerals, and agricultural commodities driving a spike in both the volume and prices of these products. Elsewhere in the region, the trade surge mostly manifested itself as stiff competition from low-cost Chinese manufactures. This has been the fate of Mexico and Central America. Argentine and Brazilian manufacturers have also faced import competition from Chinese producers, even as the countries' agriculture and mining sectors enjoyed major gains.

LAC-Asia trade has thus reawakened long-standing concerns in the region over export concentration, over-reliance on low-value added and volatile commodities, and the competitiveness of manufacturing sectors. While it is important to be realistic about how much the overriding pattern of LAC-Asia trade can be altered given the powerful complementarities driving it, there should be room for LAC countries to add value to natural-resource based exports and find niches to export manufacturing products to Asia.

What is standing in the way of a more balanced, diversified trade relationship between the two regions? For one, the large distances involved make LAC-Asia trade even more dependent on efficient and reliable

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[4] Asia includes Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Fiji, Hong Kong, India, Indonesia, Japan, Kiribati, Lao P.D.R., Malaysia, Maldives Marshall Islands, Micronesia, Mongolia, Myanmar, Nepal, Palau, Papua New Guinea, Philippines, Republic of Korea, Samoa, Singapore, Solomon Islands, Sri Lanka, Thailand, Timor-Leste, Tonga, Tuvalu, Vanuatu, and Vietnam.

transport networks and services. Many of the value-added products that LAC countries could potentially export to Asian markets—fruits, processed foods, meat products—have a limited shelf life, which places a premium on timely delivery.[5] For similar reasons, more efficient customs procedures would boost LAC's ability to diversify exports to Asia. In addition, information barriers take on greater importance in the context of LAC-Asia trade, as Asian markets present LAC firms an unfamiliar regulatory environment, business culture, and set of consumer preferences.[6] In short, the emergence of Asia as a major trade partner for LAC accentuates the importance of the several issues emphasized in this report: information, transportation, and trade facilitation.

A second fundamental shift in global trade over the past couple of decades has been the fragmentation of production across borders—otherwise known as global value chains (GVC). As a result of this phenomenon, trade between countries is defined less and less by an exchange of final goods and increasingly as a process of joint production of goods, with raw materials, intermediate inputs, services, and production "tasks" being contributed by various countries. The rise of global value chains has been driven by large multinational corporations (MNCs), which act as the "lead units" in supply chains, and determine what is produced, by whom, where, and when.

This new form of global production carries several implications for LAC. First, global value chains present developing economies with an opportunity to diversify exports more quickly—especially towards more technologically-intensive industries. Participating in export markets for computers, for example, no longer requires building a vertically-integrated domestic industry as in the past. Instead, countries can specialize in a component such as microchips, allowing them to take part in a dynamic sector and realize efficiency and technological gains associated with supplying MNCs. Production fragmentation thus opens up opportunities for the region to diversify exports beyond traditional natural resources.

However, LAC has yet to take full advantage of these opportunities. INT's 2014 flagship report, *Synchronized Factories: Latin America and the*

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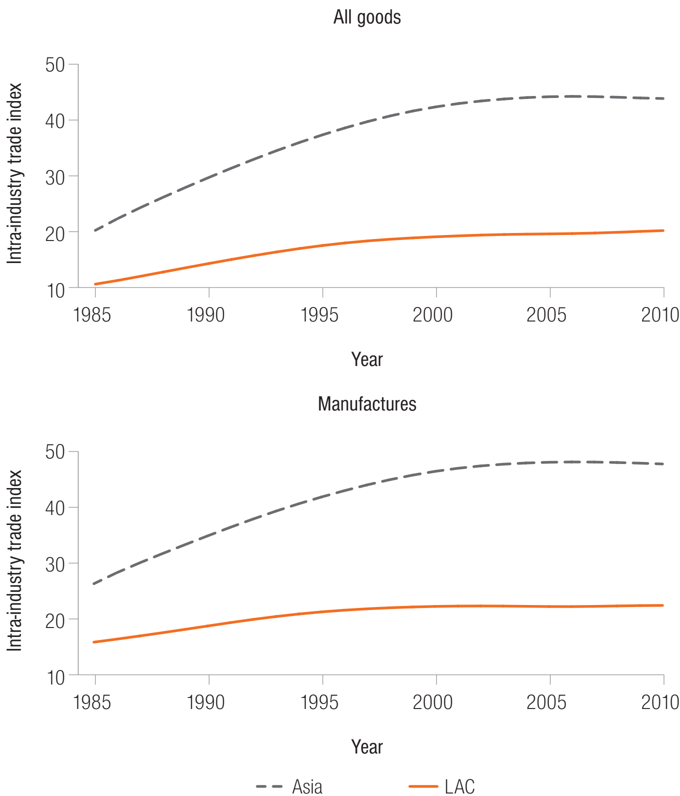
[5] *Shaping the Future of the Asia-Latin America and the Caribbean Relationship*, Inter-American Development Bank 2012.

[6] "Pathways to China: the Story of Latin American Firms in the Chinese Market," Inter-American Development Bank, 2012.

Caribbean in the Era of Global Value Chains, which examines the region's participation in global value chains, suggests that barriers arising from information, transportation and trade facilitation costs are undermining LAC's ability to tap into this new mode of global trade. LAC's share of intra-industry trade in total trade, a common indicator of value chain insertion, stands at around 20 percent—well below the figure in Asia, where intra-industry trade rose markedly during the 2000s to nearly 45 percent by 2010. Looking just at manufacturing goods, the contrast is even starker (see Figure 6).

Likewise, the exports of Asia and the EU have 12 and 15 percentage points more foreign value added, respectively, than do LAC's exports,

Figure 6 ■ Intra-industry Trade Indexes, Regional Averages



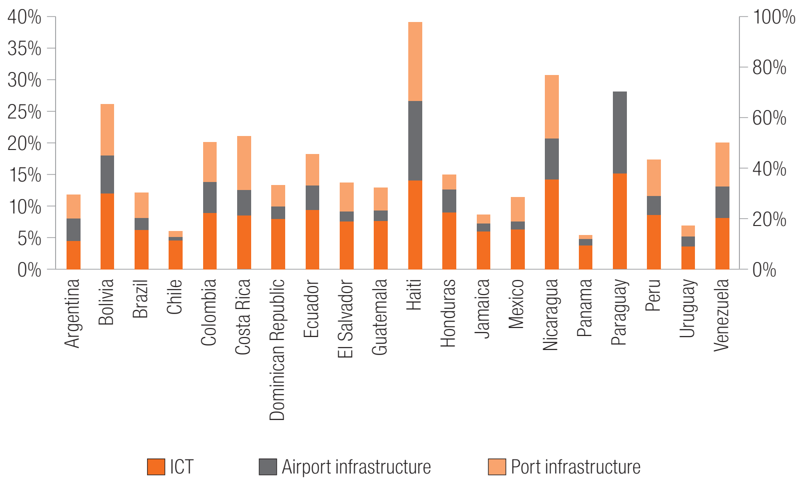
Source: Synchronized Factories: Latin America and the Caribbean in the Era of Global Value Chains.

meaning exports in those regions incorporate more foreign inputs in their production process. These figures, however, reflect the full range of each region's exports and therefore do not tell us how a region's value chain participation varies across industries. This information matters, because global value chains exist in low-technology sectors such as textiles as well as in advanced manufacturing. To the extent LAC does participate in supply chains, however, it tends to be in its traditional role as a source of raw materials. LAC actually outperforms Asia and the EU in foreign-value added in primary sector exports, while lagging behind in medium and high-technology manufacturing sectors.

Looking at downstream linkages, or the portion of a country's exports that end up being used as intermediate inputs in the exports of a third country (so-called "indirect value-added"), a similar trend emerges. On an aggregate level, the region outperforms Asia and the EU when it comes to indirect value added; this result is driven, however, by the region's role as a supplier of raw commodities that are then transformed into export goods by other countries. The region exports relatively few inputs for manufacturing industries: the share of parts and components in LAC's total manufacturing exports was 14 percent in 2010, compared with 40 percent in Asia. In other words, LAC specializes in the bottom of the value chain. This is not the case, it is worth pointing out, for Mexico and some Central American countries, which tend to occupy a more downstream position in value chains—that is, their exports contain more foreign value-added.

What explains the region's weak insertion in GVCs? Participating in global value chains in advanced manufacturing industries requires that firms possess a high level of technological sophistication and productivity in order to meet the specifications of MNCs. In addition to firm-level capacities, public goods such as high-quality transportation infrastructure, reliable information and communications networks, and efficient customs processes are critical for the coordination and management of complex relationships among firms, as well as the reliable and efficient flow of intermediate goods throughout the production chain. Information can be another barrier to supply chain integration for developing countries. Domestic firms must be aware of the specific requirements of multinational firms, while multinationals need to overcome information barriers in order to locate and contract with local producers that can best meet their needs.

Figure 7 ■ Simulated Change in the Number of Vertical Affiliates from Improving Logistics Infrastructure to the EU-27 Average



Source: Synchronized Factories: Latin America and the Caribbean in the Era of Global Value Chains.
Note: The values for Haiti are represented on the right axis.

LAC systematically underperforms Asia and the EU on various measures of port and airport efficiency as well as indices of ICT penetration, making transportation and communications infrastructure a likely culprit for the region's low participation in GVCs. We tested this proposition in *Synchronized Factories* by estimating the effect of these variables on MNC's location decision—a key determinate of the geography of global value chains. Our analysis confirms this suspicion, showing a strong, positive relationship between a country's performance on infrastructure indices and the number of foreign affiliates it attracts. An improvement from the 1st to the 3rd quartile in terms of logistics infrastructure, for example, is associated with an average increase of 15 percent in the number of affiliates. All LAC countries could realize considerable gains in the number of MNC affiliates by improving their logistics infrastructure to the average level of the EU, with the biggest impact coming from the ICT and port upgrades (see Figure 7).

Another potential barrier lies in the so-called "spaghetti bowl" of regional trade agreements. The proliferation of FTAs in the region means that a given country likely has different trade rules in effect with different partners. To the extent a firm's production relies on intermediate goods

from various countries, which is increasingly the reality for firms that are highly integrated in global value chains, it will have to deal with multiple rules of origins regimes. As discussed in *Synchronized Factories*, such overlapping rules substantially raise the costs of compliance for firms, and thus inhibit the formation of efficient cross-border production networks.

In short, the rise of GVCs makes the issues of information, transportation networks, trade facilitation, and regulatory complexity all the most pressing for LAC. These are the areas the region must address in order to thrive in a global economy where trade takes place in production chains organized by MNCs. The following section describes in detail INT's research findings on each of these trade costs.

>> Understanding the Causes, Contours, and Consequences of LAC's New Trade Costs 2

For policymakers in the region—and their partners in the IDB—it is not enough to merely say countries should focus on transport infrastructure, trade facilitation, regulatory convergence information barriers, and joining global value chains. In order to make good policy choices, they need precise information on what is driving high trade costs as well as the likely impacts of different policy interventions. INT's research agenda over the past several years has sought to provide just that type of information, building original datasets where information had been scarce and using state-of-the-art econometrics to tease out the underlying causes of LAC's disappointing trade performance. This work has been both methodologically rigorous and practical-minded. Our research findings have informed and guided the Sector's engagement with governments in the region through lending, technical cooperation, and capacity building operations. This section discusses their findings in detail.

Information

The first problem facing a potential exporter is information. Markets require information to function, and in the case of international trade, firms often lack good information about the level of demand, consumer preferences, and regulatory environment, meaning that potential export opportunities are lost.

Overcoming these information barriers is costly for firms. It might involve visits to potential new export destinations, studies of

foreign market conditions, and learning about technical and regulatory requirements for exporters. In addition, firms cannot be sure competitors will not also benefit from these efforts—the so-called free rider problem—which leads to under-investment in information gathering by all firms.

This classic market failure presents an opportunity for the public sector to provide information to help firms enter foreign markets, and governments throughout the region have established trade promotion organizations (TPO) with precisely that mandate. Despite their prevalence in LAC, there is surprisingly little rigorous analysis of the impact of TPOs. INT's 2010 flagship report, *Odyssey in International Markets*, sought to fill this gap by using firm-level data to better understand how, why, and under what conditions trade promotion programs increase exports. This work represents a major methodological advance over past assessments of export promotion agencies in LAC, which largely relied on simple before-and-after comparisons without controlling for other factors that might have affected export performance.

How effective are TPOs in their current form? Could they be doing better? A good way to start answering these questions is to look at foreign missions. While several TPOs in LAC established their own offices abroad, others rely instead on personnel in diplomatic missions to carry out trade promotion activities. A direct presence abroad allows for better knowledge of that market and closer relationships with foreign counterparts, but the advantages of a foreign presence must be measured against the additional costs of this strategy.

The evidence generated in *Odyssey* suggests that being abroad does in fact pay off. While both foreign TPO offices and diplomatic missions help expand bilateral exports, the effect of the former is considerably greater. Using a standard gravity model to estimate the impact of a TPO's foreign presence on bilateral trade flows, we found that a TPO office abroad led to a five-and-a-half times greater increase in total bilateral exports (see Figure 8).[7] Moreover, foreign TPO offices are more effective in promoting new export products (instead of merely expanding sales of existing exports). The presence of a TPO mission increases the *number*

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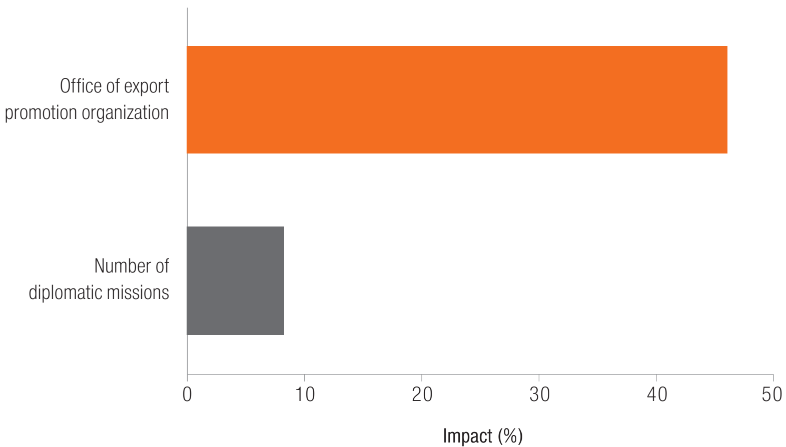
[7] A gravity model is a commonly used model in trade economics that estimates bilateral trade flows as a function of countries' GDP and the distance between them as well as other county characteristics such as a common language, the existence of colonial ties, and membership in a common free trade agreement.

Figure 8 ■ Impact of Foreign Missions on Countries' Total Bilateral Exports



Source: Odyssey in International Markets: An Assessment of the Effectiveness of Export Promotion in Latin America and the Caribbean.

of products exported to a foreign market by 28 percent, while opening a new embassy or consulate leads to only a 6 percent gain. TPOs' considerable impact on new export products suggests that informational barriers present a significant obstacle to export diversification—a longstanding policy goal for LAC.

A more nuanced assessment of TPO performance requires firm-level analysis. The question that matters is the following: does receiving TPO support cause better export performance? Isolating the causal impact of trade promotion would require knowing what a firm's exports *would have been* in the absence of any intervention. This counterfactual can be approximated by comparing the export performance of a group of firms that received export promotion services with that of a very similar group of firms that did not receive support.

We applied this strategy to analyze the impact on various measures of export performance of several TPO's in the region. For Peru, the aim was to determine whether PROMPERU helped firms increase the number of export products or markets. The results were encouraging: participation in PROMPERU activities was associated with a 17 percent increase in firms' export growth, a 10 percent increase in the number of

products exported, and an 8 percent increase in the number of export destinations (see Figure 9a).

In the case of Costa Rica, export promotion was also associated with faster growth in overall exports, due mainly to a greater increase in export destinations for assisted firms. Here, we also compared the effects on differentiated versus homogenous products.[8] The results show that assistance from Procomer led to 15 percent greater export growth and a 9 percent increase in destination markets for exporters of differentiated goods (see Figure 9b).[9]

Next, we examined whether Uruguay XXI helped firms enter an entirely new market or export an entirely new product. The years between 2000 and 2007, the period under study, were dynamic ones for Uruguayan exporters: 50 percent entered a new export market and 60 percent introduced a new export product during that period. INT's analysis found that firms receiving trade promotion support were 40 percent more likely to enter a new export market, a quite large impact (see Figure 9c).

Odyssey also considered the important question of how the effect of trade promotion varies for different types of firms. As discussed above, informational barriers are likely to present a greater obstacle for smaller firms than larger ones. Support from TPOs should therefore be especially beneficial for small firms—if they are doing their job effectively. Evidence from Chile and Argentina bears this out. In both countries, the positive impact of trade promotion (by PROCHILE in the Chilean case and ExportAr in Argentina) on export performance was greater for small and medium-sized firms and those with less export experience (see Figure 9d).

A final conclusion is that choice of program matters. A systematic analysis of ProExport Colombia's different services found that a combination of training, missions and fairs, and networking services led to better outcomes than other programs, across all firms. Firms receiving all three types of support performed better than if they had used each of the services separately.

[8] Examples of homogenous goods are mineral and agricultural commodities. Unlike homogenous goods, differentiated goods vary in terms of their characteristics and their quality and therefore the problem of incomplete information is more acute for differentiated goods.

[9] The analysis in this case was limited to firms already exporting differentiated products.

Figure 9 ■ Average Export Assistance Effect on Assisted Firms

Figure 9a: Peru: Average Export Assistance Effect on Assisted Firms

Figure 9b: Costa Rica: Average Export Assistance Effect on Assisted Firms by Type of Products

Figure 9c: Uruguay: Export Assistance Effect on the Probability of Entering New Country and Product Markets

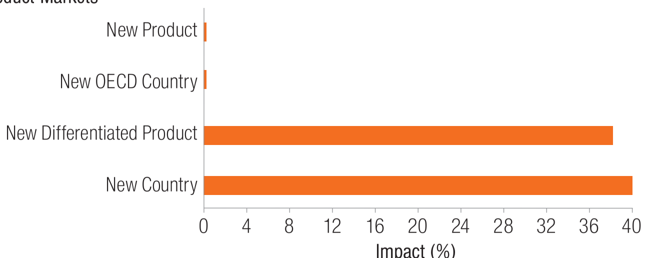
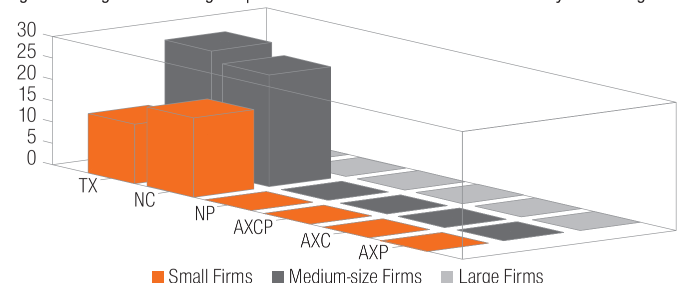


Figure 9d: Argentina: Average Export Assistance Effect on Assisted Firms by Size Categories



Source: Odyssey in International Markets: An Assessment of the Effectiveness of Export Promotion in Latin America and the Caribbean.

Note: TX: total exports; NC: number of countries; NP: number of products; AXCP: average exports per country and product; AXC: average exports per country; AXP: average exports per product. Small firms: 1–50 employees; medium-size firms: 51–200 employees; large firms: more than 200 employees.

The lessons for policymakers in the region are clear—TPOs can increase exports, especially if countries have the resources to invest in foreign offices and employ a combination of trade promotion services. Our careful analysis also suggests trade promotion can have a particular impact in three important areas: diversifying export products, helping SMEs enter foreign markets, and increasing exports of differentiated products.

Overcoming information costs therefore deserves a prominent role in any policy agenda aiming to diversify exports and achieve broader participation in international trade—two widely-shared goals in the region. The IDB has worked to advance this agenda through direct support to TPOs in the region, the organization of business and investment forums that bring together LAC firms and potential export clients, and most recently, the creation of ConnectAmericas, an innovative online platform to help businesses in the region overcome information barriers (see Box 1).

Regulation

Overcoming informational barriers can help firms export new products in new markets. But information is far from the only constraint on potential exporters. Once a firm identifies a promising export opportunity, it must comply with the rules and regulations governing access to that market, including tariff and other taxes, rules of origin, and non-tariff barriers.

These "traditional" trade barriers, as discussed earlier, have been lowered considerably in LAC since the 1980s through a combination of unilateral liberalization, regional trade agreements (RTAs), and participation in multilateral trade talks. However, the sheer number of trade agreements entered into by LAC countries created an unintended consequence in the form of a convoluted regulatory environment with numerous, overlapping sets of rules governing the region's trade flows. This situation has the potential to raise trade costs, divert trade patterns, and critically, impede the growth of intraregional trade—especially in intermediate goods and inputs. However, this danger largely flew under the radar of policymakers, who were more concerned with signing new deals than trying to sort out the "spaghetti bowl" of the existing trade architecture.

This phenomenon motivated INT's 2009 flagship publication, *Bridging Regional Trade Agreements in the Americas*, which describes the dimension and magnitude of costs arising from overlapping trade rules and

Box 1 ■ ConnectAmericas: Technology to Bridge the Information Gap

Access to information is fundamental to firms' ability to trade. The information barrier can take many forms, preventing firms from findinag potential business partners or clients, identifying options for financing, learning about new markets for their products, anticipating how to adapt their products and services to different business environments, or understanding the numerous practical issues surrounding the regulatory and logistical issues in trade.

Trade promotion organizations in LAC, as discussed in *Odyssey*, help firms overcome these challenges, but there is a limit to the resources these organizations can deploy in reaching firms in the region. For this reason, INT created an innovative online platform, ConnectAmericas, which leverages social media and online learning tools to help companies throughout LAC expand into international markets. Launched in March 2014, the ConnectAmericas platform features three main pillars: Connect, Learn, and Finance. The first service provides a social network for businesses, organized by sector, where companies can create profiles and access information on potential clients, suppliers, and investors. A messaging tool allows for instant communication among users to facilitate establishing business contacts.

In addition to connecting potential business partners, the learning component hosts a wealth of tools to help companies learn about the exporting process, such as databases on tariffs and other regulations as well as webinars and online courses covering issues ranging from developing a business plan to complying with technical requirements for foreign markets. Finally, with regard to financing, ConnectAmericas helps firms locate options to secure loans for trade operations, linking them to financial institutions and providing information on eligibility requirements for financing from the IDB Group as well as commercial banks. The initiative has targeted the region's small and medium enterprises (SMEs), as these firms are most likely to lack the financing options and business contacts they need to expand abroad. However, firms of all sizes actively participate.

All of the site's content and services are available to businesses at no cost and from anywhere with an Internet connection—helping overcome the inherent scale constraints of traditional trade promotion. ConnectAmericas is being supported by multinationals such as Google, DHL, Visa, and Alibaba, which are providing technical support and offering training materials to ConnectAmericas members. In its first year of existence, the platform has attracted over 25,500 members from 56 different countries. ConnectAmericas has proven especially popular among young entrepreneurs between the ages of 25 and 34, as well as among female business owners, who make up 45% of the participants in the social network, highlighting the platform's potential to extend business opportunities to new demographics.

argues that the best strategy to address the issue is working towards the convergence of existing agreements.

The issues that arise from overlapping trade agreements are often not intuitive, and they touch on the more arcane aspects of trade policy. To get a better sense of the issues at stake, consider country A, which has different bilateral RTAs with country B and country C. The first potential challenge arises from the transaction costs associated with the existence of different tariff schedules, rules of origin, customs processes, and other regulations governing market access in the A-B and A-C agreements. Firms in country A would have to comply with a different sets of rules

when seeking access to market B and market C, which raises transaction costs for the firm itself as well as for customs authorities in county A, leading to a less efficient processing of the country's exports and imports.

A related problem is trade diversion, which occurs when a preferential trade agreement benefits an inefficient exporter over a more efficient one. In the example above, trade diversion would result if firms in country A choose to import a particular good from country C due to more liberalized rules in the A-C agreement, even when country B would otherwise be the more efficient producer. Regulatory divergence thus raises the risk that trade flows are determined by the particularities of RTAs rather than overall economic efficiency.

Rules of origin (RoO) are one trade discipline where regulatory divergence is particularly problematic. RoO establish the minimum level of value added that must originate in a member country for a product to qualify for trade preferences under an RTA. Such rules exist to prevent outside parties from taking advantage of an agreement through transshipment.[10] Despite their reasonable intentions, rules of origin have the potential to inhibit trade in at least three ways. First, highly restrictive rules of origin essentially erect barriers around a given RTA zone that prevent member countries from using intermediate goods from outside the RTA region. In this way, restrictive RoO in RTAs become *de facto* protectionist measures against inputs from non-member countries. Limiting firms' access to intermediate goods is especially detrimental to trade integration and firms' competitiveness given the global fragmentation of production, a trend described above, which has greatly increased the importance of trade in intermediates.

Secondly, given the complexity and considerable technical detail involved in RoO compliance, divergent rules of origin regimes among a country's RTAs pose especially burdensome transaction costs on firms and customs authorities. A final concern has to do with trade diversion. When several countries are connected by overlapping bilateral RTAs, differing rules of origin among the agreements can influence the pattern of trade among these countries. In this scenario, production sharing between a country pair, B-C, with potential complementarities is undermined by restrictive RoO in country B's trade agreements. As a result, trade in intermediates and production become increasingly clustered in a third

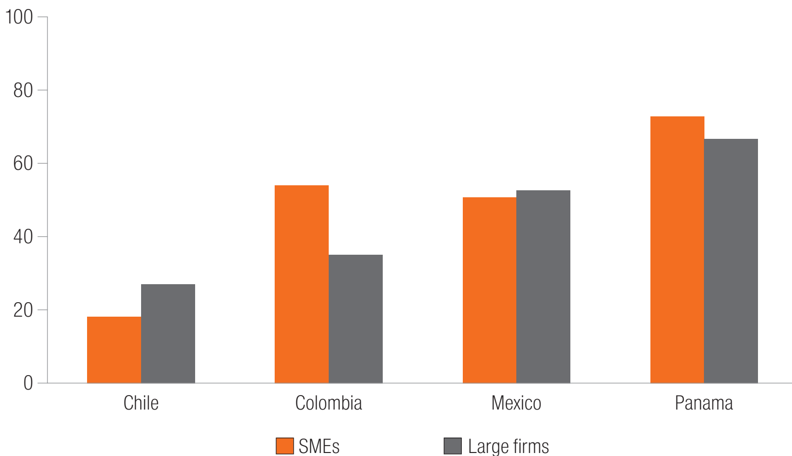
[10] This would occur if, for example, country D attempted to export cars to country C only to be re-exported to country A under preferential tariffs in the A-C FTA.

country whose trade agreements have less restrictive RoO. The result can be a "hub-and-spoke" model of trade that impedes the growth of regional value chains and scale economies at the regional level. Given their importance for trade in intermediates and production sharing, highly restrictive or divergent rules of origin in LAC are particularly pernicious to regional trade and the formation of regional value chains.

While they may seem abstract, these issues matter for firms' bottom line, as *Bridging* makes clear. According to survey data presented in the report, between 50 and 75 percent of SMEs in Colombia, Mexico, and Panama consider that the cost savings from addressing rules of origin divergence would be "high" or "very high" (see Figure 10) These findings are backed up by numerous econometric studies showing that restrictive rules of origin in FTAs undermine aggregate trade flows between partners.

How can LAC countries bring down trade costs associated with overlapping agreements? Several options exist in theory. The first and most preferable would be deep liberalization at the multilateral level, which would subsume the current trade regimes in the region into one unified, global set of rules. While the most economically efficient, it is also probably the least practical alternative given the slow pace of multilateral trade negotiations.

Figure 10 ■ Percentage of Firms Stating Cost Savings from Cumulation across Their Country's RTAs Would Be "High" or "Very High," by Country and Size of Firm



Source: Bridging Regional Trade Agreements in the Americas.

A second option would be to "multilaterlize" regional trade agreements (RTAs), by incorporating non-members and harmonizing the rules in existing RTAs to reduce discrepancies. For LAC, this path would lead towards a region-wide integration agreement with one coherent set of rules, similar to the Free Trade Area of the Americas initiative of the early 2000s. Again, such a project would face considerable political obstacles, despite the gains in economic efficiency it would surely bring.

The final option, and in our view the most strategic one, is to build bridges among existing RTAs in the region. The idea here is to proceed step by step, harmonizing the rules among RTAs that involve mutual partners and working to implement cumulation of production—a critical concept that allows more products with foreign inputs to qualify for preferential access under RTAs. Instead of expending political capital on ambitious regional agreements that may never materialize, this approach would build on existing, hard-won agreements and work towards the same end point: a regional trade architecture supported by a coherent set of rules.

Is such a strategy feasible? An analysis of the region's current RTAs suggests that market access provisions and rules of origin (the two disciplines where rule convergence can have the greatest impact) are characterized by a high degree of liberalization and contain similar rules, making the potential for convergence among LAC's RTAs greater. In terms of market access, nearly all tariff lines (around 90 percent) are scheduled to be fully liberalized within 10 years of implementation in the average RTA (see Figure 11). While exceptions do exist—agricultural products are subject to slow liberalization in many agreements—the overall level of tariff liberalization in most RTAs provides fertile ground for convergence on market access.

Rules of origin display more variation across agreements and product groups. According to indices developed previously by the authors,[11] RoO in LAC's regional agreements range from quite restrictive to very liberal, based on a scale of restrictiveness that measures the degree of transformation of a product required for originating status.[12] Restrictions

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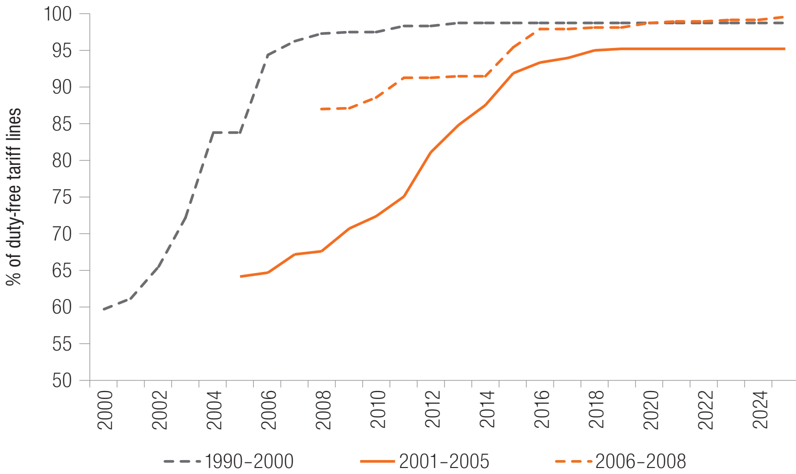
[11] See Estevadeordal, Harris, and Suominem (2004) "Harmonizing Preferential Origin Regimes around the World." In R. Baldwin and P. Low (eds.), *Multilateralizing Regionalism: Challenges for the Global Trading System*. Cambridge: Cambridge University Press.

[12] The index for RoO restrictiveness, following Estevadeordal's observation rule, takes a value from 1 to 7 depending on the degree of transformation of the product required by rules of origin.

Figure 11 ■ Duty-Free Treatment in LAC RTAs



Source: Bridging Regional Trade Agreements in the Americas.

are highest in agriculture and textiles, suggesting that the same political factors that lead to high tariffs in those sectors are at play in rules of origins too. Despite the considerable diversity, in certain sectors RoO vary only marginally across different RTAs, suggesting a strategy of sector-level agreements to harmonize rules of origin could bear fruit. The gains from such a strategy, if successful, would likely outweigh those from signing new agreements.

Convergence would help better exploit existing integration initiatives. A more coherent set of regional trade rules would undoubtedly boost intraregional trade, help attract investment, and spur regional value chains. Failing to address the spaghetti bowl problem, meanwhile, puts the region at a disadvantage in a world where goods increasingly cross borders multiple times in the production process. A potential model for regulatory convergence has recently emerged in the Pacific Alliance, a regional integration initiative among Chile, Colombia, Mexico, Peru that started in 2012. Critically, the Alliance countries all had preexisting FTAs among them, and much of the work on regulatory issues has focused on achieving rules convergence to facilitate the flow of goods, including intermediate goods, among the members (see Box 2).

Box 2 ■ The Pacific Alliance: A Model for Regulatory Convergence

In 2012 the governments of Chile, Colombia, Mexico, and Peru established the Pacific Alliance (AP in Spanish), a regional integration bloc with the goal of facilitating the free movement of goods, services, people, and capital among the member countries. The Alliance has since made considerable progress on both traditional trade policy issues, where the countries are working towards full liberalization of all tariff lines, and deep integration issues such as financial integration, including the formation of a common stock exchange, and the elimination of visas to facilitate movement of people. The AP is also exploring a visa program to promote a more integrated labor market and educational exchanges.

A key feature of the Pacific Alliance is that the four members all had existing bilateral FTAs with each other before launching the regional project. The fact that each country pair was linked through a bilateral FTA allowed AP negotiators to make fast progress by focusing their efforts on deepening trade liberalization, harmonizing rules and regulations in areas already covered by the existing agreements. The AP thus provides an ideal forum to address the issue of regulatory overlap discussed in *Bridging*, especially as it relates to cross-border production chains, which is a major goal of the AP.

On rules of origin, AP countries completed negotiations on the harmonization of their existing FTAs, agreeing to a common rules-of-origin regime for the entire AP space. In addition, the members reached an agreement on cumulation of origin among their four economies, meaning that exporters can treat inputs from other AP countries as national inputs, an initiative with great potential to stimulate co-production among AP countries. These provisions were included in the Trade Protocol signed in February 2014. Member countries also agreed on provisions to harmonize rules on trade in services, cross-border investment, technical barriers to trade, and public procurement. Another important element of the AP process has been the active participation of the private sector through the Pacific Alliance Business Council, which has allowed business leaders to help craft technical proposals on regulatory harmonization and convergence, ensuring that the approach to these issues incorporates the perspective of their end users. The Business Council has also identified additional priority areas for the private sector, which include innovation and entrepreneurship, financial integration, logistics competitiveness, trade facilitation, and government procurement, among others.

The IDB has provided technical and financial support to the Pacific Alliance since its inception. Through the Integration and Trade Sector (INT), the Bank has supported the work of the Alliance from high-level summits to the technical working groups charged with developing and monitoring implementation of the AP agenda. INT has provided technical inputs to inform discussion of key issues and support the implementation of agreements. The Sector has also worked directly with the AP Business Council to promote its active engagement in the AP process. The IDB has played the role of honest broker, providing a forum where all members can exchange information and best practices, and engage in multilateral discussions. In addition, the Bank's support for Alliance countries in technical areas such as trade facilitation, financial integration, innovation, entrepreneurship, SMEs, provides assurance that these tools will be compatible across countries.

Trade Facilitation

We have seen how information and regulatory costs affect firms' opportunities in foreign markets. Even after a firm identifies a promising export opportunity, however, taking advantage of it requires moving its product

from the point of production to its destination market quickly and reliably. For LAC firms, this is often easier said than done. One potential barrier arises at the border between countries, where goods must be tracked and cleared by customs authorities.

Customs authorities are the public agencies charged with ensuring firms have complied with relevant trade-related regulations and duties. They therefore perform a critical role in the oversight and accounting for global trade, but they can also increase the time required for products to arrive at their destination. This matters because timeliness is an increasingly important determinate of global trade patterns. In particular, the ability of a firm to consistently ensure timely delivery of its products to foreign markets is critical to its export competitiveness. The importance of time has grown with the rise of global value chains, discussed above, and more flexible production practices, whereby firms avoid holding inventories and constantly calibrate production levels to new market information, which requires the ability to very quickly replenish inputs. The same logic applies in the retail sector, where companies want to respond immediately to changing demand. Lengthy and unpredictable transit times therefore pose a major barrier to firms' participation in cross-border trade in this fast-paced environment.

The ability of customs agencies to process goods in a timely fashion, without compromising their oversight duties, is therefore critical to a country's trade competitiveness. In LAC, there is evidence that inefficient customs processes represent an important trade barrier. Firms often complain of long border delays and cumbersome bureaucratic processes. In response to these perceptions, governments in the region have implemented a number of trade facilitation measures aimed at increasing customs' efficiency, including single windows for foreign trade (VUCE in Spanish), which allow firms to submit all relevant information on trade transactions required to comply with regulations in place through one electronic platform and Authorized Economic Operator (AEO) programs, whereby firms meeting a set of security requirements receive a certification that facilitates international trade operations through faster clearance processes and priority attention by customs agencies (see Box 4).

Despite growing attention to these issues, our understanding of the nature and magnitude of the trade costs arising from customs delays is quite elementary. Commonly-used indices such as WB Doing Business and WEF indices are a useful starting point, but they provide only an imperfect and incomplete estimate of time required to clear customs and

the associated costs. A full understanding of the nature of the problem would necessitate more detailed, disaggregated information on how long different products require to clear customs, the variance in the length of these delays (predictability of shipping times being a key concern for firms), and the underlying factors driving these trends.

The Integration and Trade Sector's forthcoming flagship report, *Out of the Border Labyrinth: Assessing the Impact of Trade Facilitation Initiatives in Latin America and the Caribbean*, attempts to fill this knowledge gap by systematically analyzing the dimensions and magnitude of customs-related trade costs in LAC and the impact of measures to reduce them. This research product draws on original and highly-detailed transaction-level data from eight customs authorities in LAC, as well as in-depth interviews with customs officials from LAC and outside the region.

This report, which will be published in 2016, includes the following components. First, it provides an institutional portrait of the region's customs authorities, covering their organizational structures, human and financial resources, and monitoring and evaluation systems, among other topics. This section also compares LAC's customs authorities to their Asian, European, and North American counterparts along these dimensions. Next, the report presents the results of impact evaluations of trade facilitation initiatives in LAC countries, including single windows, the use of risk management systems, and international transit of merchandise (TIM)—as well as how such initiatives interact with other trade policies.

The rich data and econometric techniques used in *Out of the Border Labyrinth* allow for the identification of the causal effects of customs procedures and various trade facilitation measures on firms' imports and exports. The studies also produce evidence on how these effects vary for different product groups and different types of firms. The results of this project will therefore have immediate relevance to policymakers in LAC and will help inform INT's operational work with customs agencies throughout the region, which includes financial and technical support for numerous trade facilitation initiatives (see Box 3).

Transportation

Of course, moving goods from the point of production to export destinations imposes a number of costs on firms, well beyond those incurred at

Box 3 ■ Single Windows and Authorized Economic Operators: Accelerating Trade through Smarter Processes

Customs processes represent a critical node in the link between exporters and importers. While customs authorities play a key role in ensuring efficient controls of goods crossing borders, lengthy customs procedures can undermine firms' competitiveness, especially in the context of global value chains discussed in *Synchronized Factories*. In response to these challenges, customs authorities throughout LAC have implemented Single Windows for Foreign Trade (VUCE in Spanish) and Authorized Economic Operator (AEO) programs, along with other trade facilitation and security measures, with the objective of promoting efficient customs operations while ensuring the security of trade operations.

Single Windows systems are integrated platforms that allow firms to access electronically the necessary information, procedures, and services needed to navigate customs and other border control agencies' processes in place. These systems thus streamline export, import and transit processes and simplify procedures for exporters and importers, facilitating the flow of goods across borders and reducing the time required to comply with rules and regulations.

Another key trade facilitation tool are Authorized Economic Operator (AEO) programs, whereby firms meeting a set of security requirements receive a certification that facilitates trade operations through faster clearance processes and priority attention by customs agencies. To date, eleven countries in LAC—Argentina, Bolivia, Brazil, Colombia, Costa Rica, the Dominican Republic, Guatemala, Jamaica, Mexico, Peru, and Uruguay—have AEO programs in place and are certifying companies as secure trade operators.

The IDB has been an active partner in LAC governments' trade facilitation and security efforts, providing financial and technical support for VUCE and AEO programs and helping ensure that the technology, processes, and supporting institutions are state of the art. These operations have mobilized financing from two multi-donor trust funds, the Aid for Trade Thematic Fund (AfT Fund, whose contributors are Canada, Chile, Switzerland, and the United Kingdom) and the Regional Infrastructure Integration Fund (RIIF, whose donors are Canada, Colombia, Mexico, Spain, and the United States), which are dedicated to supporting the region's trade integration agenda. Other donors such as Fondo General de España (FGE) from Spain, the Japanese Special Fund (JSF), and the Korean Trust Fund have also contributed.

The impact of trade facilitation measures can increase significantly to the extent that countries in the region coordinate their efforts. For example, cooperation can allow for interoperability of single windows, which enables customs authorities to exchange and process information quickly by linking, both technologically and administratively, single window systems in the region. Similarly, countries with AEO programs have the potential to mutually recognize the safe and secure operator status or certificate awarded by partner countries, expanding the opportunities and benefits for certified firms. The IDB, through its close work with customs authorities across LAC, is well-positioned to foster such cooperation. For example, the Bank sponsors the *Red VUCE* (VUCE Network), which connects officials involved in single window systems from 21 countries in LAC, and has launched a pilot Regional Public Goods project, with IDB support, to allow the interoperability of single windows in the region. The IDB is also an observer member of the AEO Regional Strategy for the Americas, sponsoring meetings and initiatives across the LAC region as well as negotiations for AEO mutual recognition agreements with LAC's trading partners. Both of these initiatives have been supported by an extensive capacity building program, including virtual courses on AEO and Single Window that have certified, respectively, 170 and 456 trade officials through online tutored courses.

the border alone. This is especially true in LAC, where firms must contend with deteriorating infrastructure and inefficient transport services that can lead to high freight tariffs and costly delays.

In general, high transport costs raise the cost of exporting, reducing firms' ability to sell their products abroad and possibly excluding potential exporters from foreign markets altogether. Poor transportation systems do not just increase freight costs, they also make them more volatile, adding an element of uncertainty that puts firms at a distinct disadvantage in a global economy that demands reliability and just-in-time delivery. Yet despite their obvious importance, transport costs have long been overlooked. Until recently, economists rarely studied their effect on trade flows, nor did policymakers consider the condition of roads, ports, and railways as part of the trade agenda.

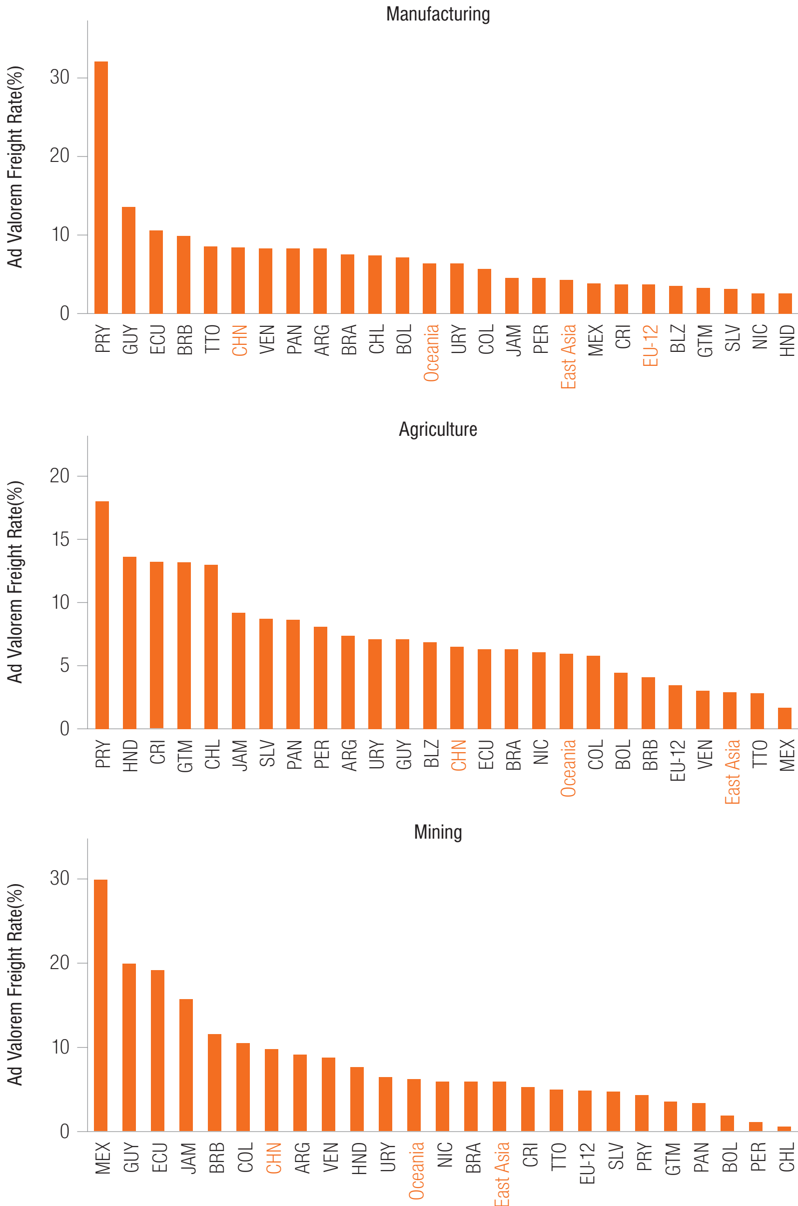
Two INT flagship reports have shown that outlook to be a major oversight. *Unclogging the Arteries* (2008) and *Too Far to Export* (2013) provide systematic evidence on the causes and consequences of transportation costs for the region's trade flows. Drawing on original datasets, the reports make clear that these costs likely represent the single most important trade barrier for many firms in the region.

A rigorous analysis of transportation costs requires first breaking them down into different components. An initial step is to distinguish between the international component—the cost to ship from the port of exit in the exporting country to the port of entry in the destination country—and the domestic component—the cost from the point of production to the port of exit.

International transport costs are the subject of *Unclogging*, one of the first works to systematically assess the impact of transportation costs on trade in Latin America and the Caribbean. The report found that transport costs represent a major obstacle to LAC's imports and exports, exceeding tariff rates on an ad valorem basis for nearly every country in the region. Using U.S. import data, we found that despite their geographical advantage, exporters in many LAC countries face higher ad valorem ocean and air freight rates to the United States for manufacturing, agricultural, and mining products than their counterparts in East Asia, Oceana, and the EU-12 (see Figure 12).[13]

[13] The EU-12 are Belgium, Germany, Denmark, Spain, France, UK, Greece, Ireland, Italy, Luxembourg, Netherlands, and Portugal.

Figure 12 ■ Ocean Freight Expenditures as a Share of Exports to the U.S. LAC and Selected Regions. 2006



Source: Unclogging the Arteries: The Impact of Transport Costs on Latin American and Caribbean Trade.
Note: Goods categories follow WTO-SITC classification.
Freight includes insurance.

In some cases, the contrast is stark. For example, East Asia faces *ad valorem* costs of around 3 percent to ship agricultural products to the United States by sea, while closer LAC countries such as Honduras, Costa Rica, Chile, and Guatemala and Paraguay faced costs well in excess of 10 percent. LAC's disadvantage in air freight is even more drastic. Shockingly, every LAC country faces higher air shipping costs to the United States than East Asia for agricultural products.

Why do LAC exporters face such high transport costs? The answer is not as obvious as one might think: there are many potential drivers of transport costs, and it is important to pinpoint the precise causes before drawing policy conclusions. Distance is clearly one important factor, but it need not be decisive as the comparison of LAC and East Asia underscores. Product composition also matters, as products with a high weight-to-value ratio—such as raw materials and commodities—are more affected by transport costs.

Another factor is import and export volumes. Scale economies in the transport sector mean that the per-unit cost of transporting a product decreases with the number of units shipped. In addition, when a ship or plane must travel empty in one direction due to trade imbalances, freight costs tend to rise as the shipper must pay for foregone capacity on one leg of the journey. Greater competition in the transportation services industries alleviates transport costs by bringing down freight rates. In LAC, however, transport firms often enjoy considerable market power, in some cases due to regulations that create barriers to entry. The efficiency of a country's ports is another factor that bears directly on transport costs and could explain LAC's high costs given the region's poor performance on standard indices of port infrastructure. Finally, the use of shipping containers (in the case of maritime transport) allows for large cost reductions in shipping.

As this discussion suggests, diagnosing the region's high transport costs requires parsing out the precise drivers among many potential candidates. We performed an econometric analysis to do just that, based on comparison of transport costs to the US for 11 LAC countries with those of the Netherlands. Overall, the LAC countries' exports to the US face on average 70 percent higher transport costs. The single biggest factor behind this result is weight-to-value ratio, which explains 72 percent of the divergence, suggesting that the region's commodity-intensive export composition makes transport costs especially burdensome. Less efficient

ports also made a major contribution to the region's higher transport costs, accounting for 33 percent of the total.

The results suggest two clear policy implications. First, diversifying exports away from raw materials, a longstanding goal in the region, would bring the additional benefit of reducing the burden of transport costs on LAC's trade. Secondly, more efficient port infrastructure (both air and maritime) should be a primary concern for policymakers looking to boost trade. The challenge here is not simply to build more and better physical infrastructure but also to improve the efficiency of related services such as hauling, tugging, cargo handling, and pilotage that greatly impact how quickly vessels move in and out of ports.

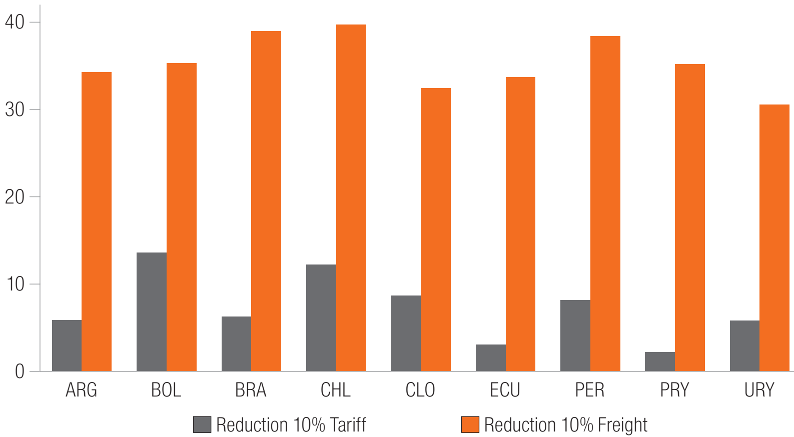
These interventions might be desirable in principle, but governments should make decisions based on cost-benefit analysis. They therefore need to know the likely impact of different policy interventions on trade flows. We examined this question by comparing the predicted effect of lower transport costs and lower tariff rates on LAC's total intraregional exports and export diversification.

The results clearly underscore the overall message of this report: the region has much more to gain from addressing transport costs than tariffs. For the nine countries studied (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Peru, Paraguay, and Uruguay) a 10 percent reduction in *ad valorem* freight costs would lead to an increase in intraregional exports of between 30 and 40 percent across all sectors. An equivalent reduction in tariff rates would yield export gains of less than 10 percent on average (see Figure 13). Bringing down transport costs would also lead to greater gains in terms of export diversification. A 10 percent reduction increases the number of products exported by an average of 25 across the nine countries, compared with an increase of fewer than 10 for a similar reduction in tariff rates.

Unclogging covers the international dimension of transport costs, which, while critical, does not include the costs incurred by firms in moving their goods from the production site to ports of exit. Given the woeful state of infrastructure in many parts of LAC, this component of transport costs likely presents a major barrier to trade, but its actual impact had been difficult to assess due to lack of data on domestic freight rates or transport times.

INT's 2013 flagship report, *Too Far to Export*, represents the first attempt to measure the effect of domestic transport costs on exports in

Figure 13 ■ Reductions in Transport Costs and Tariffs and Median Response of Sectoral Exports



Source: Unclogging the Arteries: The Impact of Transport Costs on Latin American and Caribbean Trade.

LAC. This endeavor required building an original dataset on exports' municipality of origin and employing creative econometric strategies to estimate transport costs based on geo-referenced data of countries' road networks.

The report found the following. First, each country studied—Brazil, Chile, Colombia, Mexico, and Peru—displays a very high spatial concentration of exports. A few regions—those with the lowest cost to transport goods to ports of exit—dominate each country's exports. These findings confirm the intuition of a strong inverse correlation between export performance and domestic transport costs.

The next step was to quantify domestic transport costs. Given the lack of data on actual freight rates, this required estimating the *ad valorem* cost of transporting goods from a municipality to the closest port of exit based on the time cost of traversing the road or rail networks available in each region. On average, we found the magnitude of *ad valorem* transport costs across municipalities to be relatively low, ranging from 3.4 percent in Chile to 5.5 percent in Brazil. However, these figures mask great variation among counties and municipalities, which contributes to major regional disparities in export participation.

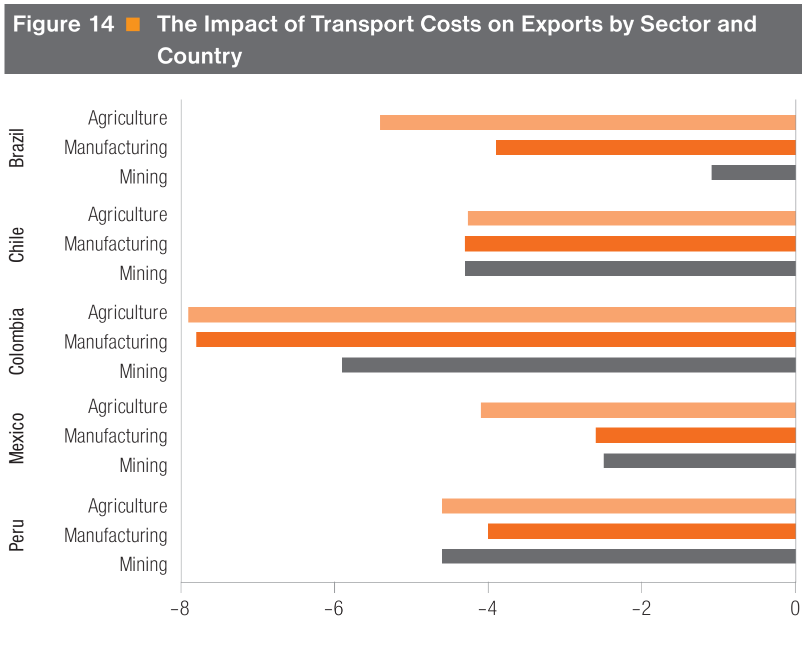
In addition, the estimates do not include any price mark-ups charged by transport service providers, which could be considerable given the

relative lack of competition in LAC's transport sectors, something that is especially true of more remote, peripheral regions. Finally, many municipalities are likely to be priced-out of export markets entirely due to high transport costs. These costs, of course, cannot be observed, as we only have data from realized municipal exports.

What is the impact of these costs on trade? Using an econometric model to isolate the effect of domestic transport costs on municipal export performance, we found that every country would enjoy a considerable increase in exports by lowering transport costs. Colombia had the most to gain, as a 1 percent reduction in ad valorem transport costs would increase agriculture and manufacturing exports by an estimated 8 percent, with mining exports increasing nearly 6 percent. Even at the low end of the spectrum, Mexico would still see gains of 4 percent in agricultural exports with a similar reduction in domestic transport costs (see Figure 14).

To make the analysis more concrete for policymakers, the report also estimates the impact on trade of implementing specific infrastructure projects. As expected, it is precisely those regions that currently trade

Figure 14 ■ The Impact of Transport Costs on Exports by Sector and Country



Source: Too Far to Export: Domestic Transport Costs and Regional Export Disparities in Latin America and the Caribbean.
Note: Results are statistically significant at 1%.For Chile and Peru, agriculture and mining share the same coefficient as they were jointly estimated.

the least that would see the greatest gains. In Peru, for example, we found that building new paved roads would have the greatest impact on the remote Selva and Sierra departments, which currently export very little. For these peripheral regions, domestic transport costs would drop between 15 and 40 percent, leading to a 10 to 23 percent gain in exports. Brazil's National Logistics Plan, which encompasses major railway and waterways projects as well as improvements in road quality, would deliver the largest gains to the remote North and Central-West regions, where transport costs would decline by around 30 percent and exports would increase by an average of 12.5 percent. This analysis suggests a straightforward policy recommendation that existing infrastructure plans should be implemented in full—especially those targeting remote regions.

However, two counter-arguments to this conclusion are worth considering. The first challenges the estimation strategy by arguing that export potential determines the allocation of infrastructure, not the other way around. We attempted to account for this possibility of reverse causation through a variety of methods, including using the 2010 Chilean earthquake as a natural experiment and employing Peru's Inca roads networks as an instrument for current infrastructure endowments. Our results suggest that the reverse causality story is not driving the findings discussed above.

A second argument holds that the current concentration of exports in a small number of hubs with dense transport networks is actually an efficient outcome. We would argue, however, that the positive agglomeration effects of such concentration have long since been outweighed by the negative impact of congestion in major urban areas such as Sao Paulo and Mexico City. In fact, the absence of infrastructure connections to peripheral regions has likely been a hindrance to the natural dispersion of economic activity that should occur after a certain level of concentration is reached.

Still, LAC governments face numerous obstacles in making well-intentioned infrastructure plans a reality. For one, the region's historic under-investment in infrastructure means the to-do list of projects is quite long in many countries, setting up difficult choices between relieving congestion in commercial hubs and building new links to peripheral areas. The region's traditional bias towards roads over rail and inland waterways has also created a lock-in effect, making it difficult to diversify even when alternatives to roads would be cheaper in the long run.

On a similar note, infrastructure programs in LAC often suffer from a lack of strategic planning. The result is a failure to identify and prioritize the highest-impact projects and to envision infrastructure as part and parcel of trade and economic integration initiatives. Capacity constraints in the public sector play a role here, as public agencies have in some cases not been up to the admittedly complex task of designing, evaluating, and executing investment projects in this area. Private sector investment has also been disappointing and has in some cases been held back by nationalistic policies that restrict foreign participation in infrastructure sectors.

Both *Unclogging* and *Too Far to Export* aim to reorient policymakers' thinking about the nexus between transportation infrastructure and trade. We have seen positive signs in the proliferation of national logistics plans and increasing discussion of transportation costs in the trade policy agenda. As the discussion above suggests, however, effectively addressing the complex and diverse issues surrounding transport costs will require a sustained effort on the part of governments in the region. Doing so, as we have seen, will be critical to spreading the benefits of integration (both regional and global) more broadly throughout LAC countries.

The IDB has long been active in this area, helping finance national transport projects, supporting cross-border infrastructure projects and regional integration corridors (see Box 4), and providing technical support for the development of national-level integration strategies through cooperation between INT and the Bank's Infrastructure Division. The goal is to identify the best opportunities to leverage infrastructure investment to enhance LAC's economic integration.

Box 4 ■ Corridors and Borders: Infrastructure for Regional Connectivity

Improving physical connectivity in LAC requires countries to invest in upgrading their national infrastructure. However, the actions of individual governments alone will not be sufficient without a concerted effort to ensure that each country's transportation infrastructure is well-integrated with its neighbors. The IDB has developed two key mechanisms to ensure that investments in infrastructure translate into a more integrated region.

The first are regional integration corridors, which aim to develop cross-border networks of roads, bridges, and railways, connected by efficient border crossings, in strategic sub-regions of LAC. One important example is the Pacific Corridor in Central America, a multi-country trade and transport initiative that combines major investments in transport infrastructure with projects to upgrade border facilities and implement trade facilitation measures. The project, which is being carried out in the context of the Mesoamerica Project, encompasses over US$ 2.2 billion of investment in the improvement, maintenance, and operation of approximately 2,213 kilometers of highways.

Once completed, the Pacific Corridor will have a major impact on the connectivity of the seven countries involved—Mexico, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, and Panama. The road route from Puebla, Mexico to Panama, which currently carries 95% of land-based trade in the sub-region, will be shortened by 200 km and the travel time reduced from 190 to 54 hours. In addition to providing financial support and technical assistance, the IDB plays a key coordination role in the Pacific Corridor, helping countries overcome the coordination and transaction costs that often complicate cross-border infrastructure projects. In the case of the Pacific Corridor, the Bank coordinates the operation of a management unit that oversees the project's implementation.

Another key component of the Bank's operations to support physical regional integration are border projects, which provide financial and technical support to enhance countries' border infrastructure and administration. These projects include the provision of new equipment to modernize border facilities, upgrades to the technology and management practices used to process and track goods, and measures to improve security by enhancing the capacity of customs agencies to detect illicit goods. In several cases, these projects have involved both countries sharing a border crossing. For example, the IDB has worked with the governments of Costa Rica and Panama to improve the Paso Canoas border crossing between the two countries through investments in physical infrastructure, technologies to manage and share information, and coordination between the two authorities. As part of the project, the IDB first performed a diagnostic and then designed an operational scheme for an Integrated Control Center at Paso Canoas in order to facilitate the management of cargos and customs processes on the border. The Bank is preparing a loan to Nicaragua for similar investments in its border crossings with Costa Rica.

The components of this Central American trade facilitation strategy are thus being implemented at additional border crossings, responding to demand from governments and supported by the Bank's Integration and Trade Capacity Building program, which has certified 485 customs and trade facilitation and security officials since 2012.

>> The New Agenda: Implications for Trade Policy in LAC 3

Our research suggests a straightforward policy conclusion: the region's trade agenda needs to encompass a broader range of issues than traditional FTAs. While tariff reduction is still needed in certain sectors, by far the largest gains from trade will come from addressing information gaps, improving transportation infrastructure, implementing trade facilitation measures, and harmonizing existing FTAs. These tasks are critical if LAC is to thrive in a global economy characterized by the fragmentation of production and trade in intermediate goods.

How should the region take on this broad agenda? Some of the necessary policies can be implemented unilaterally by governments in the region. This is especially true for behind-the-border transportation costs and export promotion activities. Others would be addressed most efficiently through cooperation. There are opportunities, for example, to enhance the impact of trade facilitation through cross-border initiatives that draw on cooperation between customs agencies, as seen in IDB-supported border projects. Single windows for foreign trade and Authorized Economic Operator programs have a greater impact when there is inter-operability and mutual recognition of these systems among countries in the region (see Box 3 and Box 4).

In the realm of physical infrastructure, cross-border cooperation is necessary for investments at the national level to yield the greatest possible dividends for regional connectivity. The IIRSA initiative in South America and the Pacific Corridor, which connects southern Mexico and Central America, provide examples of infrastructure planning at the regional level.

Of course, the goal of harmonizing existing FTAs in disciplines such as rules of origin in order to bring down compliance costs and stimulate regional co-production necessarily entails cooperation among various parties.

The importance of cooperation suggests that some of the trade costs discussed in this report would be best addressed in the context of formal integration agreements. In fact, we have already seen a move in this direction in LAC. Many of the FTAs signed by countries in the region since the mid-2000s include provisions on issues such as trade facilitation, cooperation between customs authorities, and logistics and transportation services. These agreements thus provide an institutional framework to deepen efforts on these new agenda items.

The Pacific Alliance (AP in Spanish), a regional integration project among Chile, Colombia, Mexico, and Peru established in 2012, demonstrates the potential for trade agreements to go beyond the traditional agenda and directly address LAC's most pressing barriers to trade. The AP members already had existing bilateral FTAs among them, so they were able to move quickly to eliminate nearly all remaining tariffs. Subsequent work has been aimed at harmonizing the market access rules among all trading partners, including convergence of rules of origin, in line with the recommendations in *Bridging*. The AP also provides a forum for countries to pursue cooperation in trade facilitation and even in trade promotion, where the AP has opened joint export promotion offices in several countries.

Short of such comprehensive integration projects, however, there are opportunities for countries to proceed on a smaller scale, reaching targeted agreements in functional areas such as trade facilitation, cross-border infrastructure projects, or trade promotion. Cooperation is therefore one cross-cutting theme that can enhance policy efforts to address LAC's most urgent trade costs.

Institutional strengthening and capacity building in the public sector will also be critical. Whereas the initial wave of liberalizing trade policy reforms essentially meant "less" government, policies such as export promotion, transportation planning, and trade facilitation require a proactive public sector that takes on new tasks. Addressing these issues in the framework of a holistic trade policy requires government agencies to be strategic, technically proficient, and able to coordinate effectively among themselves.

The efforts of the public sector should, however, take place in close consultation with the private sector. Public-private collaboration is critical

for understanding the most important constraints on firms' ability to trade and devising well-targeted policies. Regular, institutionalized channels for interaction with the private sector would facilitate flexible and effective policymaking that responds to the fast-changing nature of trade.

A final point has to do with the political economy of trade agreements. Without underestimating the potential for political tensions in any policy area, the new agenda is less about removing politically sensitive and sector-specific trade protections and more about technical upgrades to transport infrastructure, border crossings, and customs procedures. Importantly, these measures can be implemented regardless of a country's level of tariff liberalization and therefore need not be held back by diverging views on traditional trade policy issues in the region.

>> Conclusions 4

Trade liberalization has transformed LAC's economies, leaving the region more integrated with the global economy than at any time since at least the Great Depression. This integration has brought undeniable benefits in the form of growing export earnings, competitiveness gains from exposure to international competition, access to low cost inputs, and greater variety of consumer products.

However, a variety of indicators suggest LAC could take better advantage of the opportunities presented by economic integration. Compared with other regions, LAC countries tend to export lower-value added commodities and have less-diversified exports. The region's participation in global value chains, which are redefining the pattern and structure of global trade, is limited. LAC also lags behind when it comes to SME's role in international trade and displays strong territorial disparities—a small handful of localities within LAC countries dominate exports. The bottom line is that trade in LAC has yet to reach its full potential as a driver of growth and development.

What is holding the region back? Unlike in the past, the main culprit today is no longer inordinately high tariffs. Instead, a new set of costs arising from information constraints, poor transportation networks, regulatory overlap, and logistical bottlenecks present the most formidable barriers to trade. Our analysis has shown that these costs have an especially strong effect on exporters of non-traditional products, on smaller firms, and on less developed and remote regions. They are also highly relevant for firms seeking to integrate into global value chains. It is therefore not much of a stretch to conclude that the most pressing concerns surrounding the region's trade performance—lack of diversification, weak involvement in global value chains, low participation of SMEs, and regional disparities—are

directly linked to the trade costs that have been the subject of INT's core research agenda since 2008.

None of this is meant to imply, however, that we should close the book on the "traditional" trade agenda. The reemergence of protectionist tendencies in some LAC countries underscores the importance of continuing to emphasize the gains from low tariff barriers, even as countries embrace a more expansive agenda addressing non-traditional trade costs. Nor do we believe that the topics discussed in this report represent an exhaustive account of the issues facing LAC in the realm of international trade and integration.

As the global trade environment evolves, the INT research agenda is set to tackle new issues. With respect to the region's growing ties with Asia, we want to understand how firms have adjusted to the challenge posed by Asian competition. Has the rise of China induced LAC firms to increase productivity? What are the prospects for the region's export competitiveness in China as this relationship matures and China's economy evolves? Which policy mechanisms would help LAC firms add value to their exports to Asia? Another emerging issue is the nexus between trade and the environment. It is important to understand the likely implications for carbon emissions of new trade patterns as both LAC and its partners put growing priority on combating climate change. In each case, our research agenda will continue to be both methodologically rigorous and practical minded. The goal will be, as in the past, to generate concrete, evidence-based direct policy recommendations to help countries in the region maximize the development gains from trade integration.

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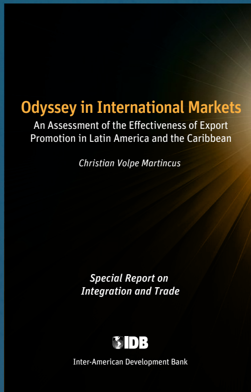

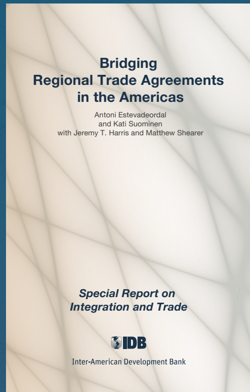

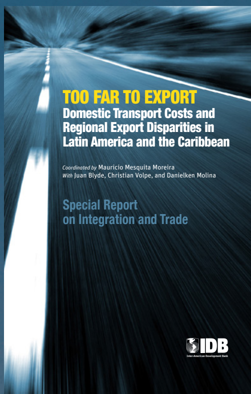

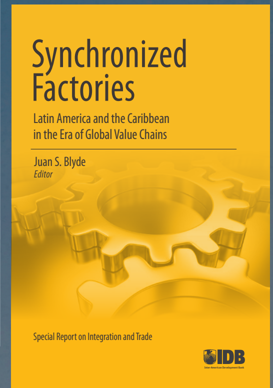

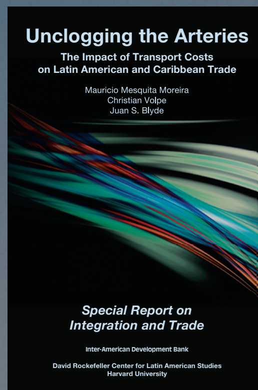

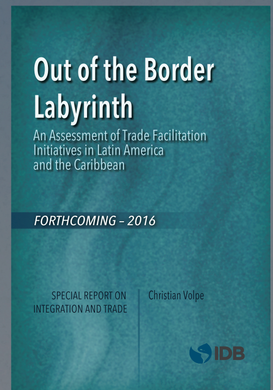

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