TOO FAR TO EXPORT
Domestic Transport Costs and Regional Export Disparities in Latin America and the Caribbean

Coordinated by Mauricio Mesquita Moreira
With Juan Blyde, Christian Volpe, and Danielken Molina

Special Report on Integration and Trade

Executive Summary

IDB
Inter-American Development Bank

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>> Prologue

From the start, the IDB's trade and integration research agenda has focused on helping countries in Latin America and the Caribbean (LAC) develop policies and institutions for multipolar trade strategies based on unilateral, preferential, and multilateral liberalizations.

The agenda's early priorities reflected the legacy of the import substitution years, which left the region with high tariffs as well as a deep mistrust in the potential of trade and integration to promote growth. Against this background, we directed our resources mainly to providing theoretical and empirical support for the fledgling unilateral and preferential initiatives that were taking root around the region.

As open regionalism gained momentum, leading to the proverbial "spaghetti bowl," we shifted much of our efforts to explaining its costs—particularly those arising from mechanisms such as rules of origin—and to proposing solutions to minimize them, including enlarging and harmonizing the existing agreements; this was the subject of our 2009 flagship report *Bridging Regional Trade Agreements in the Americas*.

The demands brought by the proximity of the Doha Round completed this cycle, in which most of our attention was devoted to the so-called traditional trade costs. Then, as negotiations for the Round unfolded, we became increasingly aware that the region's trade agenda had to expand beyond the traditional issues to include "the other" trade costs—transport and logistics, information barriers, and customs procedures.

At least three good reasons justify this shift in emphasis. First, unilateral and preferential liberalizations had reduced tariffs to a fraction of what they were in the early 1990s. Second, the emergence of

Asia—whose seismic impact on LAC was the subject of a number our recent research reports (see *The Emergence of China*, 2006; *India: Latin America's Next Big Thing*, 2010 and *Shaping the Future*, 2012)—has pushed the region towards a specialization in transport-intensive goods, both commodities and time-sensitive manufacturing goods. And, third, the increasing fragmentation of world production and the development of international value chains (the subject of our next flagship report) have placed a premium on timelier and less expensive ways of shipping parts and components abroad.

This perception led to our first research foray on these issues, *Unclogging the Arteries* (2008), which showed that international freight costs are far and away the most important obstacle to trade, and that effective policies to address these costs are likely to offer the best returns in terms of both volume and diversification of trade.

This was followed by *Odyssey in International Markets* (2010), a report on information costs and the role played by export promotion agencies in which we carefully evaluated the myriad of programs offered by these agencies and provided a reliable road map for what works and what does not.

Too Far to Export, this present report, fits into this research effort aimed at broadening the region's trade agenda. The report revisits the issue of transport costs, this time with the mission of closing an important knowledge gap left by *Unclogging the Arteries*: the domestic transport costs to export. LAC's exporters face not only high costs to send their goods abroad, but also to ship them from factories, mines, and farms to the ports of exit. These domestic costs are particularly damaging to the less developed and more remote areas, which as a result often forgo valuable export opportunities.

This distributive dimension of trade costs is often overlooked by policymakers and researchers alike. But as the report shows, its implications can hardly be overstated. Bringing down domestic transport costs will ensure that LAC makes the most of its vast export opportunities and that gains from trade are more evenly spread within the countries. It is as much an economic as it is a political economy issue. Governments can hardly maintain support for free trade if benefits are concentrated in small, wealthy areas of the countries, as is presently the case in most, if not all, countries in the region. *Too Far to Export*, armed with hard-won data, argues that less costly access to domestic ports can go a long way in achieving trade equity.

Antoni Estevadeordal
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>> Executive Summary

In Punta Arenas, Chile, at South America's southern tip, beer producers wishing to sell abroad must ship their product by truck to the port of San Antonio, in the country's central region, a distance of more than 1,800 miles. In Pucallpa, capital of Peru's low- income department of Ucayali in the Selva region, exporters of wood products must ship their goods to the port of Callao, in Lima, over 466 miles of often unpaved roads that wind through the Andes, sometimes at elevations higher than 13,000 feet.

Exporters of metal products in Villavicencio, in the Meta Department, located in the center of Colombia, usually have to ship their products to the port of Cartagena, located on the Atlantic coast, at a distance of little more than 1,100 kilometers, a journey that takes more than 18 hours. In Mexico, exporters of powdered milk in Chiapa de Corzo, in the southern state of Chiapas have to ship their products to ports on the Pacific and Gulf of Mexico, on average 671 miles away, which often must cross mountain passes at elevations up to 7,400 feet and endure congested roads in the central region of the country.

Similarly in Brazil, long and costly shipments are also part of the challenge faced by soy exporters in the municipality of Sapezal in the Central West state of Mato Grosso. Most of their products are shipped through the congested port of Santos in the Southeast, 1,400 miles away.

These stories might be considered extreme and anecdotal, but unfortunately they largely reflect the reality confronted by most firms located in regions far from the main urban agglomerations and ports in Latin America and the Caribbean (LAC). Firms with the resources and skills to produce goods in high demand by regional or world markets face high domestic transport costs that erode their gains, literally along the road. Or they refrain from exporting altogether.

Why should governments care?

This report is a part of an ongoing effort to increase LAC policymakers' understanding of the trade consequences of high transport costs. It follows the publication five years ago of *Unclogging the Arteries: The Impact of Transport Costs on Latin America and Caribbean Trade*.[1]

Unclogging shed considerable light on the consequences of LAC's high international freight costs, but it dealt with just part of the problem. Data constraints meant that the other key component of the logistic chain—domestic transport costs—had to be left out of the analysis. As the examples cited above suggest, this component is essential for grasping the overall dimension of the problem.

This study makes a concerted attempt to fill this knowledge gap on the domestic side of transport costs, despite the continued existence of severe data constraints. Once we step inside international borders, we immediately see that the impact of shipping costs goes beyond the level and diversification of a country's exports. They also matter for determining which subnational region gets the chance to leverage trade to drive economic growth.

A story of high concentration where transports costs are low

Any serious analysis of the trade consequences of domestic transport costs faces formidable empirical, theoretical, and policy challenges. We set out to meet these challenges by building an unprecedented database of the

[1] Mesquita Moreira, M., C. Volpe and J. Blyde, (2008). *Unclogging the Arteries: The Impact of Transport Costs on Latin American and Caribbean Trade*, Special Report on Integration and Trade. Washington, DC: Inter-American Development Bank

municipal origin and domestic shipping costs of exports for five of the largest and most representative countries in the region: Brazil, Chile, Colombia, Mexico, and Peru, whose case studies are the subject of the five chapters of this report.

The data leaves no doubt about the high subnational concentration of exports, which is readily seen in the maps of the left-hand column of Figure 1. Concentration tends to be even higher at municipal levels, where generally only a minority of firms in relatively small and wealthy areas of the countries manages to export (Table 1).

The data also suggests that these high levels of concentration are inversely correlated with domestic transport costs to export. A first glimpse of this relationship can be seen in Figure 1, where the maps in the right-hand column show how domestic ad valorem freight rates to export vary within countries. A quick comparison with the export concentration maps shows that the areas with the highest costs are those with the lowest shares of the countries' exports.

The magnitude of these costs is in itself revealing, but in less intuitive ways. On average the costs are generally low, ranging from 3.4 percent in Chile to 5.5 percent in Brazil, but with a significant variation across countries and municipalities. These low averages can give rise to misleading interpretations as to their relevance. It is important to note that we are just looking at operational costs, leaving aside the markup charged by cargo providers. This markup can be particularly steep in remote regions where there is little or no competition. We are also leaving aside other important components of logistic costs such as warehousing or route congestion, which are particularly significant at the port of exit for most LAC countries.

But, perhaps more important is the fact that what we can observe in the data is already the result of transport costs in action. Since we can only work with the universe of current exporters, we are missing those municipalities that could be exporting, but do not because transport costs are prohibitive; this seems to be case in remote and peripheral regions. These averages, therefore, are biased towards municipalities with immediate access to the ports, which have the lowest costs in the countries.

FIGURE 1 ■ Spatial Distribution of Exports and Ad Valorem Transport Costs to Export: Brazil, Mexico, Colombia, Peru, and Chile

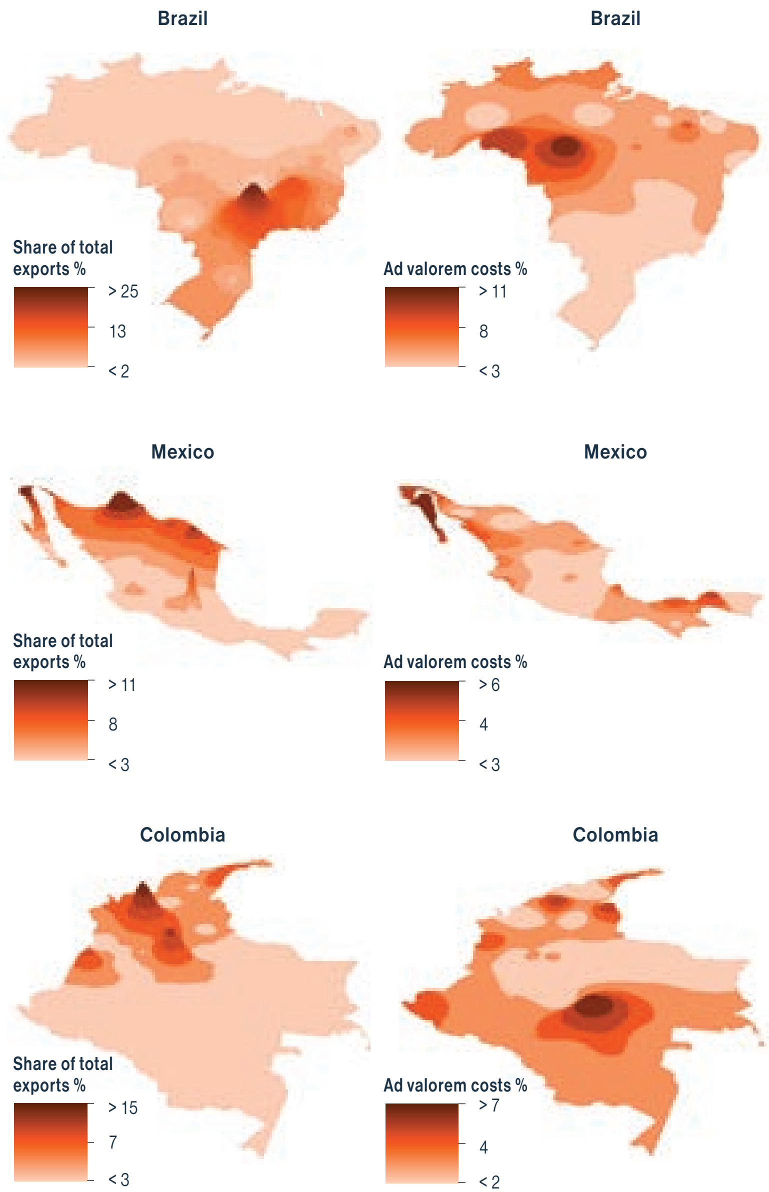

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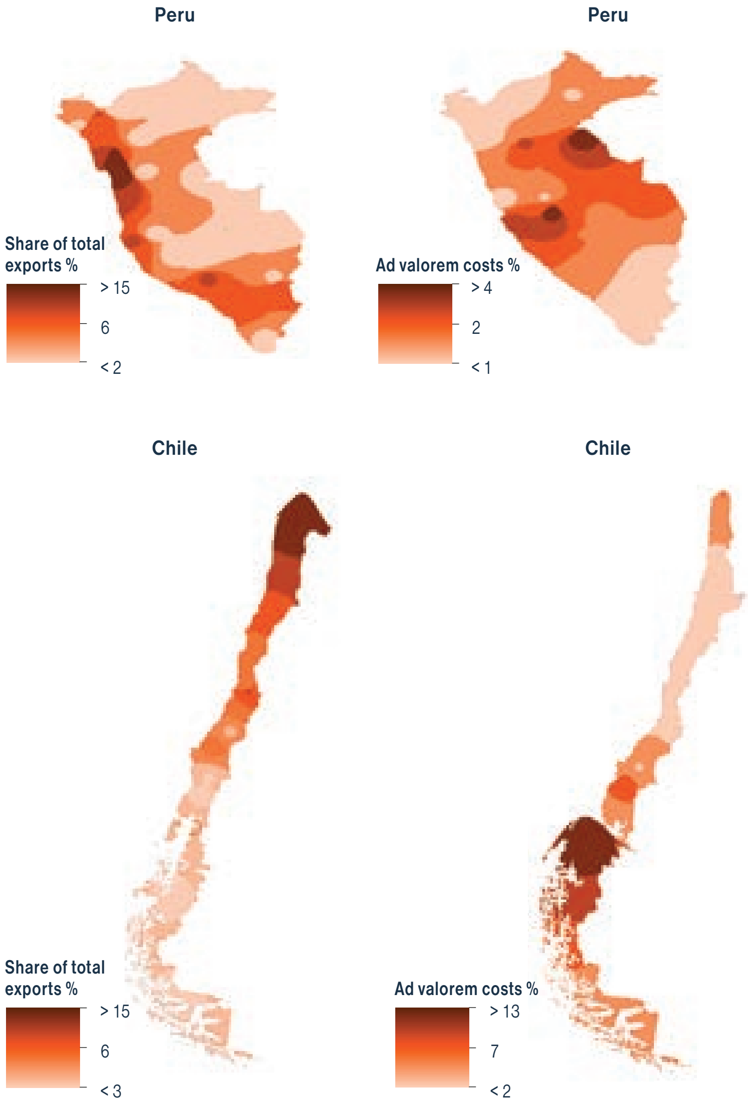
FIGURE 1 ■ Spatial Distribution of Exports and Ad Valorem Transport Costs to Export: Brazil, Mexico, Colombia, Peru... (*continued*)



Source: Own estimates based on the countries' customs data and transport surveys.
Note: This figure shows contour maps of the spatial distribution of exports, based on the state's (or administrative unit equivalent) share of total exports, and their ad valorem transport costs to export. Each elevation (hue) represents a different level of export share or ad valorem costs. Data for Brazil is from 2010; Mexico, 2012; Colombia, 2006; Peru, 2009 and Chile, 2008. See country chapters for details on the underlying data.

Table 1. Selected Indicators of Municipalities that Export

	Number and Share of all Municipalities	Share of the Country's Area (%)	Top Ten's Share of All Exports (%)
Brazil (2010)	1,055 (19%)	27	55
Chile (2008)	242 (69%)	57	74
Colombia (2006)	269 (24%)	11	73
Mexico (2012)	969 (39%)	69	68
Peru (2009)	451 (24.5%)	36	45

Source: Authors' estimates based on the countries' customs data. See country chapters for details.
Note: This comparison suffers from the variation in the size of municipalities. It should be viewed as a first approximation.

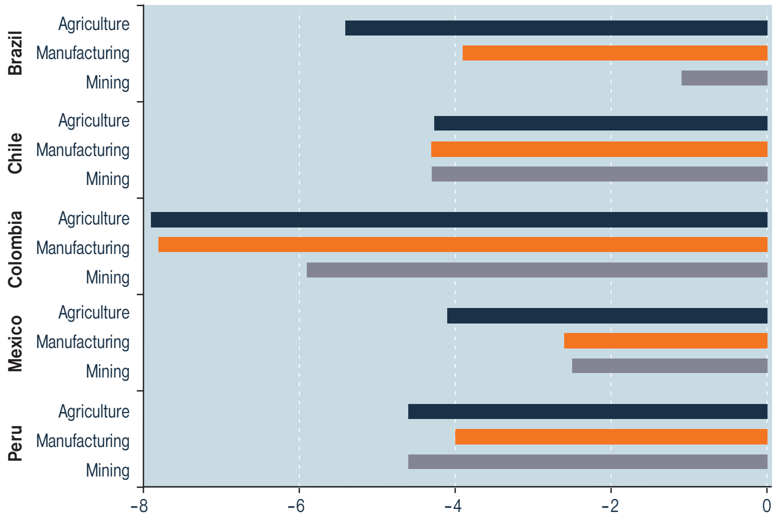
What is the impact on exports after all?

This inverse relationship between exports and domestic transport costs suggests that policies tailored to lower these costs are likely to have a significant impact on exports. However, more than simple correlations are needed to make a precise estimate of this impact given the many factors at play other than transport costs. These factors include comparative advantages, to government intervention, to historical accidents.

We sought to isolate the role played by transport costs by estimating an equation that relates municipal exports at the product level with their ad valorem transport costs to the customs of exit, while controlling for the influence of factors that might also affect exports.

The results, shown in Figure 2, confirm the inverse correlation of transport costs with level of exports and point to an economically and statistically significant impact in all five countries studied. Colombia emerges as the country with the most to gain from improvements in transport infrastructure and services: a 1 percent reduction in ad valorem transport costs can increase exports by as much as 7.9 percent in agriculture, 7.8 percent in manufacturing, and 5.9 percent in mining. But even Mexico, where average impact across sectors was the lowest, would see substantial gains through improved transport, particularly in agriculture, where a 1 percent drop in transport costs could produce a 4 percent increase in exports.

FIGURE 2 ■ The Impact of Transport Costs on Exports by Sector and Country



Source: Author's calculations.
Note: Results are statistically significant at 1%.For Chile and Peru, agriculture and mining share the same coefficient as they were jointly estimated.See the technical appendices of the countries' respective chapters for details.

Bringing the discussion closer to actual policies

To move this discussion closer to the world of policymaking, we used these estimates to simulate the impact on exports of straightforward measures to lower domestic transport, some of which are already being implemented by governments in the region. In Brazil and Peru, we combined government projects to expand the transport networks with ad hoc measures to improve their quality. In Mexico, we focused on the investment projects of the country's 2007–2012 road program. In Colombia and Chile, we simulated a regional cost convergence to a benchmark defined by the municipalities with the lowest transport costs.

The overwhelming message that emerges from these exercises is that policies to minimize domestic shipping costs can be particularly powerful in reshaping the sub-national distribution of exports and spreading the gains of trade more evenly. In Peru, for instance, we estimate that building new paved roads has the most impact on the Selva and Sierra departments, which are among those that export the least. These paved roads would reduce domestic shipping costs 15–40 percent and increase exports 10–23 percent.

In Brazil, implementation of the National Logistic Plan's major railway and waterways projects and an overall improvement in road quality are estimated to benefit disproportionally the country's remote agricultural and mining regions, particularly in the North and Central-West. These investments would reduce average domestic shipping costs in these areas by 30 percent and would boost exports by an average of 12.5 percent.

In Mexico, even though the 100 strategic projects of the road program do not particularly seem to target the peripheral regions, some of these region's states, particularly in the South, appear among the greatest beneficiaries.

In Colombia, a countrywide convergence in domestic transport costs to the level enjoyed by a department such as Magdalena in the North—whose costs are among the lowest 25 percent in the country—would have the most impact in the remote and poorer regions. Among the most to gain are municipalities in the Southeast, where exports would increase on average 10–45 percent.

Finally there is Chile, where a countrywide convergence in domestic transport costs to the level of Santiago—one of the lowest of the country—would produce dramatic transport cost savings in the most remote and least export-oriented regions of up to 80 percent and increases in exports of up to 40 percent.

Addressing the obvious: easier said than done

This report can be plausibly accused of stating the obvious, but hopefully not in incomprehensible terms—a charge usually levied at economists. It is certainly obvious to LAC exporters on the ground that transport costs these days are a much more important impediment to their business abroad than the proverbial tariff and non-tariff barriers. You just have to ask firms in Punta Arenas, Pucalpa, Villavicencio, Chiapa de Corso, or Sapezal. However, individual exporters can rarely see the forest for the trees, and this perception has been slow to translate into policy action. This translation also hinges critically on good data and, unfortunately, there has not been a systematic effort in the region to collect information and rigorously assess the trade implication of transport costs. This is where this report, and *Unclogging* before it, endeavored to make a contribution.

Nevertheless, it would be naïve to think that filling the data gap and raising awareness of the trade consequences of high transport costs will be sufficient to prompt governments into more effective action. For instance, since *Unclogging* was published five years ago, there have been promising signs that LAC policymakers are starting to look beyond trade agreements. Still, progress in reducing transport costs continues to be painfully slow.

Why so slow? Overall, it can be said that in the countries studied, the major issue is underinvestment, particularly in cheaper and alternative modes of transportation such as rail and waterways. The reason for such underinvestment is not only budget constraints, but choices made in public spending priorities and the problem of institutional and regulatory weaknesses.

Even though budget constraints are part of this story, it is does not seem to be the only or even the dominant cause for underinvestment, particularly considering the improvements in the region's fiscal condition in the last decade. In some countries, for instance, there are legitimate questions to be asked about public spending priorities given the substantial resources being devoted to what can be generally described as "industrial policy," whose effectiveness to boost exports or address regional inequalities is questionable at best.

There are also strong signs that most countries are struggling to implement their investment programs, as in Brazil, Mexico, Peru, and Colombia. The unifying theme seems to be that public institutions face difficulties in designing, evaluating, and executing investments in transportation. Part of this weakness reflects centuries of neglect, but certainly aggravated by the ravages of the fiscal crisis of the 1980s that led to a severe brain drain in the public sector. In some cases, decentralization of transport investments to local governments without the necessary institutional resources added to the problem.

These institutional limitations also undermine the development of a regulatory framework capable of leveraging private sector investments. To be sure, all countries in our sample managed to attract substantial private sector investment in road and rail concessions, with Chile leading the way. Yet in most cases, they are far from exploiting the full potential of private sector involvement. A number of challenges stand in the way, including lack of independence, technical expertise, and coordination among regulatory agencies; poorly designed contracts that lead to constant renegotiations; and misguided nationalistic policies that prevent foreign companies from competing in badly need services such as cabotage or air cargo.

Overall, there seems to be no shortage of good diagnostics for the transport impediment the region faces in boosting its exports. The challenge seems to lie on attracting enough financial, institutional and managerial resources to address this issue. By offering estimates of domestic transport costs and their impact on regional export disparities, we hope to make clear to policymakers what is already intuitively obvious to exporters on the ground: that investing these resources in lowering transport costs can bring substantial trade gains while helping to mitigate long-standing subnational disparities.

“This book, using modern technique, reports the potential social returns accruing from greater, and integrated, investment in internal transportation. Latin America put its faith in highways in post World War II emphasis upon import substitution and domestic industrialization. Railroads and development of port facilities were secondary. Now, with demonstrated primary sector export capability over the last decade, it is not too late to remedy this error, and by so doing, to attack the high internal degree of income inequality found in most countries. Policy matters, and this coherent IDB study hopefully will have a positive influence on national decisions”.

Albert Fishlow, Professor Emeritus at both University of California, Berkeley and Columbia University. Former Paul Volcker Chair in International Economics at the Council of Foreign Relations.

“This study greatly advances our knowledge of the impact of domestic transport costs on trade performance and the regional distribution of export production. It is an outstanding example of readable, rigorous research that generates important policy insights. I hope it will be read and acted upon by Latin American policymakers, and that it will stimulate similar data collection efforts in other regions, thereby filling an important gap in our understanding of trade costs”.

Bernard Hoekman, Director, Global Economics Program, European University Institute and former Director, International Trade Department , World Bank.

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