Coming to Terms with Logistics Costs

Transport and logistics costs are high in the LAC region. On a macro-level, the World Bank has estimated LAC logistics costs as a percent of GDP as between 16 and 26 percent compared to the OECD benchmark of about 9 percent. At the national level, average logistics costs represent a share of product value between 18 and 32 percent, compared again with 9 percent for the OECD. These costs represent a greater barrier to trade than import tariffs and make up a larger part of the delivered cost of food products. In fact, while food import tariffs are heterogeneous across countries and food groups, on average, ad valorem rates have decreased in the region from 2005 to 2008 and currently range from 3 to 12 percent of product value. On the other hand, with respect to transport and logistics costs, the international maritime and road haulage components alone can total about 20 percent of the FOB value of goods if combined. By the time products are transferred, handled, stored and distributed domestically, the logistics component of the delivered good is often more than 50 percent of the final price to consumers.

Research conducted for this paper shows that the Caribbean, a net food importing sub-region that appears to have particularly high logistics costs, also has the highest import tariffs, punishing its consumers twice. In 2008, import tariffs across all food groups averaged about 16 percent for Caribbean countries, compared to 11 percent for Central American countries and 5 percent for South America. On a weighted average basis, import tariffs on all food groups have decreased with the exception of dairy, which have increased from 2006 to 2008. Such growth has been driven by the Caribbean countries (primarily Barbados, Dominica, and St. Vincent and the Grenadines) and by Mexico. This situation is particularly worrisome given that in addition to higher import tariffs, the shipping structures of the Caribbean islands provides for very little direct service and low connectivity, which research has shown leads to higher ocean freight rates. Regression analysis has shown that if a country can “double” its centrality within the global shipping network, transport costs would decrease by over 15 percent.

At a regional level, the impact of transport and logistics costs on the final price of food products

becomes even more relevant when taking into consideration that in 2006, more than 71 million tons of food products with a value of over $US21 billion were imported into the countries of South America and Mexico. Of this sum, a little over a third was comprised of intra-regional trade. The remainder, well over 50 million tons of food products, is imported per year into LAC from outside of the region. The majority of those food products arrives by ocean shipping and is thus subjected to every step of a logistics chain, including maritime transport, port transfers, customs clearance and inspection, warehousing, modal transfers, domestic rail, trucking and/or barge shipping and final distribution. These steps typically add 30 to 100 percent onto the price of delivered goods, and in exceptional cases—such as fruit imports to the Caribbean islands—may triple the cost of a product from the time it leaves its home of origin to the time it arrives at market.

There is great heterogeneity in the way in which LAC countries are impacted by these logistics and transport costs, depending on the relative shares of different types of food imports. An analysis of the breakdown in food types suggests that for net importers of food, costs associated with refrigerated cargo capacity and services are the critical bottlenecks, as meat, fish, and dairy represent the largest share of all food imports by value (26 percent). On the other hand, for LAC countries that are net exporters of food, bulk storage, handling and transporting are the primary concerns, as, on a weightedaverage basis, dry bulk items constitute by far the biggest share of food imports at 31 percent by value. Thus, the data suggests that the island countries of the OECS, for example, should work on reducing the cost of refrigerated containerized traffic (herein referred to as “reefer”). Peru, Brazil, Bolivia and Colombia, on the other hand, would benefit from improvements in the importing and distribution process for dry bulk goods.

Regardless of the shifting prices of staple commodities in global markets, a large portion of foods by volume are low value goods and thus highly sensitive to international and domestic transport, warehousing and transfer costs. In fact, in recent years international and domestic shipping costs have risen and fallen along with commodity prices, leaving the impact of logistics costs on food prices relatively constant.

In other words, the “burden” (share of freight rates as FOB cost for food) for both maritime and trucking elements of costs remained relatively constant as the delivered price of food rose. As ocean rates doubled from 2002 to 2007, the maritime burden fell only by 1 percent. As trucking rates increased by 50 percent over the same period, the land burden rose by one half of percent.

Two supply chain analyses conducted for this study illustrate that transport and logistics costs

can be punishing not only on low value goods- such as wheat, but also on high value goods, such as pineapples. The first analysis, tracking pineapple imports from Costa Rica to St. Lucia via Miami as a regional consolidation center, suggests that distance is not a central driver of costs and that a country's connectivity in the cost structure of its imports should be highlighted when tackling logistics and transportation costs. The analysis shows that the producer price of the pineapple itself represents only about 10 percent of the final delivered price, while transport costs related to land and ocean transportation and handling account for 43 percent. In addition, storage, warehousing, consolidation and the retail and wholesale profits together represent another 33 percent, half of which is also logistics. Ocean shipping represents a particularly large part of the transport costs: 3.5 times as much as the producer price for the pineapple itself. Yet, this is not a function of distance, as the ocean shipping leg from Miami to St. Lucia is an order of magnitude more costly than the leg from Costa Rica to Miami, although the trip to St. Lucia is shorter.

The second supply chain analysis, which tracks a kilogram of wheat from the time it leaves the Port of Vancouver, Canada until it arrives at the mills of Ecuador, confirms these conclusions, suggesting that distance, along with market size, is less likely to drive transport costs than infrastructure quality and competition among transport providers. The analysis shows that once the wheat cargo is unloaded in Ecuador, the cost of domestic transportation to Quito is minimal due mainly to the high degree of competition in the Quito market and the availability of good roads linking the coast and the capital city. However, when the price of wheat flour to other cities is assessed, domestic transportation costs are more significant. The delivered cost to a city such as Ambato further adds another 20 to 25 percent onto the cost of the product. The large price difference is mostly explained by the quality of the road infrastructure and the ability of trucks to make a return trip within a day when traveling to and from Quito.

Additionally, the analysis suggests that the manner of transport does seem to matter if it can capture scale economies. The distance from Canada to Ecuador is many thousands of nautical kilometers while the distance from the port at Manta to the mill in Quevedo is only 171 kilometers. Yet, somehow, shipping a kilogram of wheat from Vancouver to Manta costs less than half of the cost of trucking that same kilo of grain from Manta to Quevedo. If competing modes of transportation are available, agglomeration of cargo may mean economies of scale. This fact becomes important in discussing competition in domestic shipping.

Maritime Transport

According to econometric modelling carried out for this paper, food prices are sensitive to maritime transport costs. The analysis suggests that ocean shipping rates do seem to affect the price of commodities; specifically corn, soybean and wheat are shown to be affected by maritime shipping costs. For each increase of 10 percent of the bulk shipping index, the estimated impact on commodity prices is in the order of 1.5 percent.

These costs, namely ocean shipping freight rates, and in turn, the delivered price of commodities, are affected by a variety of different factors, including port infrastructure endowment, efficiency levels, inter-port connectivity, degree of private sector participation, and competition among service providers. Increases in port infrastructure endowment and efficiency have resulted in faster turnaround times for vessels, faster cargo throughput, and quicker amortization of investment costs for port investors.

Improvements in port efficiency have also reduced the costs incurred by cargo-owners and consignees, as delays, storage, warehousing, inventory, and demurrage charges can be avoided. With respect to the degree of competition among service providers, it has been shown that around two fifths of the variance of the freight rate can be explained by the number of carriers operating on the given route, and that the number of liner shipping companies providing direct services between pairs of countries has a stronger impact on the freight rate than does distance.

Another important factor influencing ocean shipping costs lies in the kinds and size of vessels calling a port. “Gearless vessels”, those that do not need to have their own cranes, call ports that have sufficient equipment to load and unload the vessel efficiently.

On the other hand, “geared vessels”, or those ships that carry their own cranes on board, call smaller ports that cannot provide their own equipment. Not only do “geared vessels” experience a depreciation of equipment, but take up valuable space and use fuel and other costs (such as

maintenance and operations) to be transported around the seas. In 2008, the charge per ton of containerized good was about 15 percent higher for the geared vessels, assuming the same sizes. The size of the vessels calling each port, however, has an even greater impact on the cost per containerized cargo being shipped. In 2008, containerized cargo travelling on a 200-299 TEU capacity geared vessel paid more than twice as much on average as cargo travelling on a geared vessel of 1000 to 1299 TEUs.

The difference has grown since 2001 as larger and more efficient vessels have entered the market.

Customs Clearance and Border Crossings

Regression analysis conducted for this paper reveals that delays in customs clearance in LAC increase transport costs by between 4 and 12 percent. That is, if time for customs clearance could be halved, transport costs could be reduced by that same percentage. This finding is consistent with LAC firm perception surveys from Investment Climate Surveys, Doing Business Surveys and the Logistics Performance Index (LPI): in terms of customs efficiency and organization, the LPI's first dimension, LAC as a region in the 2007 survey received a score of only 2.5 out of 5.

Furthermore, the analysis of border crossing and customs to freight rates suggests that the existence of a direct land access of any type reduces transport costs by around 6 percent. Moreover, a doubling of the number of border crossings could reduce transport costs by another 6 percent. These border crossing burdens affect food prices given the importance of intra-regional trade in primary staples such as grains and beef.

Regression analyses show that “over” costs from inefficiencies in the logistics chain, particularly at border crossings, represent around 20 percent of the total costs incurred in the

import of Paraguayan soy beans into Brazil and beef into Chile.

Inland Transportation: Roads and Trucks

Road transport is responsible for handling 38 percent of all food imports into South America in terms of value. It is also responsible for nearly all domestic movements and for a significant share of inputs to food exports—particularly in Central America and Mexico. Given this fact, the lack of road maintenance is emerging as the greatest threat to the affordable and reliable delivery of basic goods in LAC, even for the region's more advanced economies, such as Brazil and Costa Rica. The possibility of addressing this problem through the alternative use of railroads is limited. In Argentina, for example, the railroad's relative share in transporting cereals and oilseed to Rosario fell from 20 percent in 1998 to 15 percent in 2004. It has been estimated that in the case of this particular traffic alone, rail participation could be increased from 30 percent, with a consequent saving in freight costs per ton.

Finally, the efficiency of a country's trucking sector plays a role in its overallimport cost structure. Trucking regulation, in particular, presents a paradoxical problem for many governments: costly if they do, costly if they don't. Shippers argue that tougher rules and enforcement related to weight restrictions, overloading, truck quality and safety will immediately increase transport costs which will be passed on to consumers.

While it is true that transport regulations lead to costs which can be estimated, it is also true that the lack of regulation and/or enforcement of trucking regulations creates costs, although these are indirect and take time to manifest themselves. Typically, smaller producers and local agriculture traders are the most heavily affected by dilapidated roads and failures in trucking regulation, while large shippers using the main highways and trade corridors between large cities and ports are less affected.

Warehousing, Storage, and Inventory Costs

High inventory costs are an important logistics bottleneck for the region, in turn, driving up the cost of delivered products. For LAC businesses, the World Bank calculates that inventory costs equal 35 percent of GDP, compared to only 15 percent of GDP for businesses in the United States. This can be explained by the fact that, beyond the roads themselves, the storage networks of many of the region's countries are substandard, warehouses lack competition and effective instruments for financing inventories, and the rates of storage space rental are higher in LAC compared to other regions. Moreover, there is an increasing lack of sufficient warehousing capacity in the agricultural sector, which has been proven to be particularly costly for small shippers.

The need for additional storage capacity is also a consequence of the shortage of efficient intermodal transfer terminals. According to estimates, Brazil's warehousing shortage alone is currently about 40 million tons per year. If Brazil were to double its number of intermodal transfer terminals from the current 250, the total inventory and warehousing costs could be reduced by as much as US$1 billion per year. viii

Policy Guidance

While the costs of logistics services seem to lie in the hands of the private sector, LAC government actions and inactions have an important influence on the logistics burden. Following are some areas for potential action:

• Maritime Transport

- Focus on investments, operational efficiency and landside linkages for greater connectivity

- Anticipate growth and invest in landside and waterside capacity

- Introduce spatial planning into the notion of port location and expansion

- Encourage consolidation or coordination of small private operators

- Use competition authority to investigate vertical and horizontal integration issues

• Customs Clearance and Border Crossings

- Improve clearances/inspections through better cross-border collaboration and coordination between phytosanitary and customs services

- Set export clearance times as the standard for import clearance times

- Simplify customs declarations forms, procedures and clearance

- Use risk-based selectivity process for inspections

- Harmonize customs standards for sub-regions

- Reduce fines for minor documentation errors

• Inland Transportation: Roads and Trucks

- Focus on speed and ease of travel, competition in service provision and access and capacity of transfer and storage facilities

- Improve road quality, keeping in mind that the present value of maintaining a road regularly is an order of magnitude less than rehabilitating it once every ten

years

- Strengthen trucking regulations and enforcements

- Facilitate the development of ample storage, warehousing, and transfer facilities

- Strengthen logistics planning based upon more sophisticated freight flow

modeling

Fuente: Banco Mundial

Documento completo en://goo.gl/3kd7f