INTEGRATION AND TRADE

This report is a timely reminder that a proper understanding of the relative influence of different cost factors—including the distinction between policy and nonpolicy sources of cost—is vital to a competent analysis of trade competitiveness. The fact that transport costs are in general significantly higher than tariffs should give us pause for thought, as should many other findings in this excellent and detailed report on transport costs in the LAC region. The IDB should be congratulated for such painstaking and valuable work.

Patrick Low, Director of Economic Research and Statistics, WTO Secretariat

Unclogging the Arteries shows why developing countries must quickly expand their initial focus on reducing tariffs to also address the high transport costs that can obstruct these flows. Its rich combination of facts, analysis, and case studies will help policymakers promote a healthy regional and global integration everywhere.

Indermit Gill, Director, World Development Report 2009, Reshaping Economic Geography, World Bank

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Washington, D.C. 20577
www.iadb.org

David Rockefeller Center
for Latin American Studies
Harvard University

Distributed by
Harvard University Press

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978-1-59782-074-5
ISBN 1-59782-074-1
90000
9 781597 820745

IDB Unclogging the Arteries DRCLAS HARVARD

Unclogging the Arteries

The Impact of Transport Costs on Latin American and Caribbean Trade

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Christian Volpe
Juan S. Blyde

Special Report on Integration and Trade

Inter-American Development Bank

David Rockefeller Center for Latin American Studies
Harvard University

Chapter 4

The Reality on the Ground: Case Studies of Ecuador, Brazil, Argentina and Mexico

This report has so far been mainly about statistical significance. We have tried to use the best data and models available to show that nowadays transport costs have surpassed tariff and non-tariff barriers to become the major obstacle to the region's trade, except for a few well-known exceptions, particularly in agriculture. Even though this is the scientific approach when one is trying to settle what is essentially an empirical argument, relying just on fairly aggregated data and regressions might have the unwanted side effect of alienating the reader, particularly the non-technical reader, who may fail to see the connection between an abstract, quantitative analysis and the so-called real issues on the ground.

To protect ourselves against this side effect, in this chapter we report on four country studies—Ecuador, Brazil, Argentina and Mexico—which try to illustrate at the product level what the issues discussed so far mean for people in the region trying to trade goods across borders. As with case studies in general, ours suffer from what economists call a selection bias. That is, the cases were not selected randomly. Rather, the selection reflected a combination of demand (i.e. our intent to illustrate the role of transport costs in the trade of both natural resources and manufactured goods) and supply (the availability of specialists and data on a particular time, country and product) factors.

Our main concern here, though, is not with statistical significance, but with providing the reader with an opportunity to see, in very concrete, everyday-life terms, how transport costs interact with countries' comparative advantages to block or provide opportunities to trade. The case studies themselves are not intended as formal statistical exercises, but as an eclectic attempt to tell a realistic story about the impact of transport costs on trade, using information ranging from interviews with representatives of firms and sector associations to more traditional trade data. We will focus on their more significant findings, leaving the reader the option of consulting the background papers of this report (see references) for the full version of these studies.

Ecuador: A Time-Sensitive Story about Cut Flowers[68]

Cut flowers are perhaps one of the best examples of how transport costs and comparative advantages interact to generate valuable export opportunities for LAC. Cut flowers fit perfectly with the definition of time-sensitive goods discussed in Chapter 1. According to industry estimates, roses, for instance, can last up to 14 days after harvesting if handled properly. Assuming a modest retail shelf life expectancy of seven days, any shipping time that goes beyond seven days (including both domestic and international transportation) imposes a heavy depreciation cost to traders. So, proximity is definitely an advantage. Beyond being time sensitive, cut flowers are also labor intensive, given that the harvest cannot be fully mechanized, and natural resource intensive, since the quality and availability of land, as well as the characteristics of the climate, are key factors for the success of the industry.

These characteristics, coupled with recent development in air transportation and refrigeration, have opened opportunities for trade, particularly for North-South trade, in a fast growing world market whose size is estimated between US$40 and US$60 billion annually, 80 percent of which is concentrated in the United States (15 percent) and the EU (65 percent). The search for land and cheaper labor to cater for this large and growing demand has been forcing production to move south to developing countries in Asia, Africa and in LAC. As proximity would indicate, the U.S. market has been the focus of the region's exports. In 2005, approximately 82 percent of U.S. imports of cut flowers originated in the Western

[68] This section was adapted from Vega (2008).

Hemisphere, with Colombia and Ecuador accounting, respectively, for 59 and 18 percent of the total.

The story of Ecuador's success in this industry is marked, on the one hand, by a perfect match between product characteristics and the country's factor endowments, and on the other, by a constant effort to overcome the difficulties created by the country's precarious infrastructure. The climate (an altitude higher than 2,000 meters above sea level in the equatorial zone), the availability of rich volcanic soils, low labor costs and the relative proximity to the United States served as a perfect platform for floriculture to develop. Yet, the shortcomings of Ecuador's infrastructure, as well as the failures to acquire the necessary expertise, meant that the development of the industry was a lengthy and tortuous process.

Ecuador's first attempt to export fresh flowers occurred between 1963 and 1977, but success was limited given the poor air transportation links to the U.S. market, a lack of technical know-how, and an absence of related industries.[69] The industry was revitalized in 1983, and in the two decades that followed, the area of cultivated flowers grew to approximately 5,000 hectares, 60 percent of which was occupied by roses (Expoflores).[70] Between 1997 and 2006, exports grew by 12 percent a year from $131 million to $436 million (Figure 4.1). Cut flower exports are now the country's third largest non-oil source of foreign currency, only behind bananas and shrimp.[71]

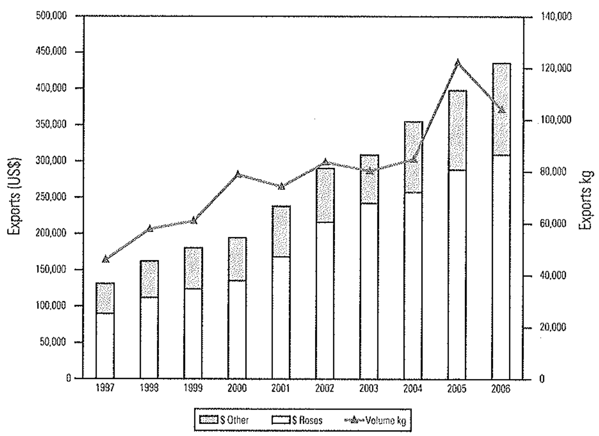
As shown in Table 4.1, the bulk of Ecuador's fresh flower exports goes to the United States, which accounts for 58 percent of total sales or 63 percent of the total volume. Russia is the second most important market, but lags well behind the United States.

[69] Until Ecuatoriana de Aviación, Ecuador's national carrier, scheduled a weekly flight in 1990, producers had to wait for unoccupied cargo space on passenger planes to transport their products (Arbeláez, Meléndez and León 2007).

[70] Expoflores, Ecuador's Association of Producers and Exporters of Fresh-Cut Flowers, represents about 70 percent of producers.

[71] According to Ecuador's Export and Investment Promotion Corporation statistics, non-oil exports represented $5.18 billion in 2006.

Figure 4.1. Ecuador's Exports of Fresh Flowers (1997–2006)



Source: Comtrade

Apart from endowments and proximity, Ecuador's cut flower exports have been benefiting from a preferential access to the U.S. market (zero tariffs), granted initially by the Andean Trade Preferences Act (ATPA) ratified in 1991 and later on extended by the Andean Trade Preferences and Drug

Table 4.1. Destination of Ecuador's Exports of Fresh Flowers (2006)

Destination	kg	$ FOB[1]	$ FOB[1] per kg	% kg	% FOB[1]
United States	65,606	254,041	3.87	63	58
Russia	12,535	59,094	4.71	12	14
Netherlands	11,014	48,115	4.37	11	11
Spain	1,863	10,940	5.87	2	3
Canada	2,483	10,803	4.35	2	2
Germany	1,752	9,021	5.15	2	2
Italy	1,537	7,960	5.18	1	2
Switzerland	1,267	6,188	4.88	1	1
Japan	517	5,283	10.23	0	1
Chile	808	3,215	3.98	1	1
Argentina	269	972	3.61	0	0
Other	4,513	20,211	4.48	4	5
Total	104,164	435,843	4.18	100	100

[1] Free on board prices.

Source: Comtrade

Eradication Act (ATPDEA) (2002). The ATPDEA was supposed to expire in June 2007, but was extended by the U.S. Congress until December 2008. Before 1991, exports of flowers were penalized with tariffs ranging from 6.4 to 6.8 percent.

Supply chain—As mentioned before, cut flowers are perishable goods; therefore, the success and the risks of the industry depend on how well integrated the different parts of the supply chain are to guarantee a delivery of a product whose quality is time sensitive. A full description of the supply chain of this industry can be found in Vega (2008). Here we simply show in Table 4.2 the length of time in different parts of the supply chain in order to provide the reader with an assessment of where the risk may be.

The table was completed using published information and complemented by a questionnaire sent to the individuals responsible for operations at major cargo agencies in Quito. As can be seen, there is a substantial variation and, therefore, uncertainty in shipping times. From the moment of harvest until the time the product arrives at the U.S. retailer, the trip can take anywhere from 44½ hours to almost 13 days.

The condition and quality of each part of the supply chain not only affect the shipping time of the product but also its transport costs. Two aspects of the supply chain that could be particularly important in this

Table 4.2. Potential to Affect Quality throughout the Supply Chain

Process	Time	Potential to Affect Quality
Post-Harvest on Farm, Ecuador	4–8 hours	Medium
Storage on Farm	12–72 hours	Low–Medium
Transportation to Cargo Agencies	1–6 hours	Medium
Storage at Cargo Agency	4 hours	Low
Palletizing, Quito	6 hours	Medium–High
Customs Clearance, Quito	0.5 hours	Low
Loading to Aircraft, Quito	1–2 hours	Medium–High
Flight UIO-MIA Nonstop	4 hours	High
Customs Clearance, Miami	4–12 hours	Low
Depalletizing, Miami	2–4 hours	High
Storage at Cargo Agency, Miami	4–72 hours	Low–Medium
Transportation to U.S. Retailer	2 hours–5 days	Medium

Source: Vega (2008).

respect are Ecuador's airport infrastructure and the degree of competition in the airline industry.

Airport Infrastructure—UIO, Quito's international airport, is located inside the city limits at about 2,814 meters above sea level and is open between 5:45 a.m. and 1:00 a.m. everyday. However, during the high season for perishables, it operates 24 hours a day. The airport has a single runway, which is 3,120 meters long. A new Quito airport is scheduled to open in 2009 and is being built in a valley 24 kilometers west of the city at 2,400 meters above sea level.

There are three major constraints affecting exports of perishables from Ecuador. First, because of the altitude, only short- to medium-range aircraft can land. For the same reasons, aircraft cannot take off fully loaded.[72] Second, there is only a limited size area for refrigerated storage, about 7,000 square meters. During high season, the area fills very rapidly, and it is not uncommon to see boxes of flowers stored on the airport's tarmac. Third, the fee structure at Ecuadorian airports has a major impact on the cost of transporting perishables. As Table 4.3 illustrates, at $2,221, UIO landing and other fees for an aircraft weighing 150 metric tons are the highest in Latin America.

Airlines—Right from the early days of the industry, guaranteeing cargo space on passenger flights has been a major problem. It was not until 1990 that the now defunct state-owned carrier *Ecuatoriana de Aviación* began to operate aircraft exclusively for cargo. Today, only a handful

Table 4.3. Estimated Landing and Other Fees at Selected Airports (March 2007)

Country	Airport Code	Landing Fees ($)	Other Fees ($)	Total ($)
Ecuador	UIO	1,661	560	2,221
Ecuador	GYE	952	305	1,257
Colombia	BOG	1,075	84	1,159
Costa Rica	SJO	60	427	487
Guatemala	GUA	40	112	152

Source: International Air Transport Association (IATA), Ecuador.

[72] A Boeing 757 jumbo jet, although suitable for operating out of UIO, is capable of transporting only up to 6,000 boxes when taking off at an altitude of 600 meters or less.

of carriers offer routes from Ecuador to the United States and Europe. In recent years integrated cargo carriers have become more important in Ecuador. An industry survey of airlines reveals that in 2005, cargo-only carriers such as Lan Cargo, Martin Air, Arrow Air, Cargolux, Tampa Cargo, and UPS together transported almost 79 percent of cargo out of Ecuador. During the peak season, firms also resort to the use of chartered cargo aircraft to overcome the transport capacity constraints.

Transport costs—A frequent claim of Ecuadorian fresh flower producers is that transportation costs are higher in Ecuador than in other countries, which significantly reduces competitiveness. The arguments supporting this contention are often anecdotal based on the "asking price" rate a freight forwarder is most likely to quote. Compared with their Colombian counterparts, producers assert that the freight rate from Ecuador is US$1.60 per kilogram, while in Colombia it is US$0.96. By contrast, IATA statistics indicate a freight rate somewhere in the middle between $1.31 and $1.38 per kilogram. Additional industry estimates suggest that transportation costs of Ecuadorian flower exports account for as much as 25 percent of the wholesale unit price of a stem in the United States and 33 percent in Europe.

To check the accuracy of these estimates, we use data from the U.S. Bureau of Census and we focus on roses, Ecuador's main flower export.[73] Table 4.4 presents the results from 2006. To control for seasonal effects, we look at freight costs in two months: February, when, due to the "Valentine day effect," demand is at its highest in the year, and August, when sales are closer to the monthly average. As can be seen, Ecuador's freight costs, measured on a per value basis, are 50 to 60 percent higher than Colombia's, a difference which cannot be explained by distance alone. The distance from Quito's to Miami's airport (1786 miles) is 17 percent higher than from Bogotá's to Miami's airport (1520 miles). Assuming an elasticity of freight to distance of approximately 0.17 (See Chapter 2, Table 2.B.4), this difference would translate into freight costs that are 2.9 percent higher,

[73] U.S. Harmonized System, 0603110060: "roses, fresh, suitable for bouquets or for ornamental purposes, not elsewhere specified or included (NESOI)."

Table 4.4. Transportation Costs of Roses from Selected Countries to the United States (2006)

Country	Distance to Main Entry U.S. Airport (Statute Miles)	February				August			
		Shipments		Freight		Shipments		Freight	
		Quantity (000 kg)	Price[1] ($/kg)	$/kg[2]	% of Price[3]	Quantity (000 kg)	Price[1] ($/kg)	$/kg[2]	% of Price[3]
Colombia	1,506	8,483	4.51	0.898	20	2,836	4.10	0.895	22
Ecuador	1,787	3,519	4.23	1.350	32	1,278	3.74	1.227	33
Guatemala	1,017	204	4.19	0.468	11	40	4.51	0.866	19
Netherlands	4,120	63	4.49	0.984	22	n/a	n/a	n/a	n/a
Kenya	7,947	33	3.46	2.746	79	3	3.53	3.030	86
Costa Rica	1,117	2	5.51	1.093	20	3	6.53	1.707	26
Israel	5,677	1	3.41	2.294	67	n/a	n/a	n/a	n/a

[1] Shipment prices equal to FOB value divided by quantity.
[2] Freight expenditures divided by the quantity shipped.
[3] Ad valorem freight expenditures.

Source: U.S. Census Bureau Foreign Trade Division Monthly Statistics.

well below the figures implied by Table 4.4. Ecuador's freight costs are also 45 percent higher than those of the Netherlands on a per value basis, even though the distance between the Amsterdam Airport and New York's JFK (the closest distribution center to the Netherlands, 3653 miles) is roughly twice that from Quito's to Miami's airport.

Ecuador's high transport cost is also suggested by the results of a regression exercise, using data for rose imports to the United States from 2000 to 2006. Controlling for differences in weight to values (or unit prices) across importers and for year and monthly effects, Ecuador's transport costs are estimated to be 15 percent higher than Colombia's and 8 percent higher than those of the Netherlands, a result that can hardly be explained on the basis of distance alone.[74]

Some of the most likely factors behind Ecuador's high transport costs were already hinted at by the previous analysis of the industry's logistic chain. That is, limited and costly airport infrastructure—including the lack of refrigeration facilities—limited competition for cargo services, and great variation and uncertainty of shipping times. Other possible sources

[74] See Vega (2008) for model specification and complete results.

of higher costs may be related to the smaller scale of Ecuador exports compared to Colombia and the Netherlands, the fee structure at Ecuadorian airports, and the substantial imbalance sustained by Ecuador in its trade with the United States, also known as the "peak load problem." When the demand for transportation services is unidirectional, freight rates are simply higher as the shipper pays for forgone capacity on either the inbound or outbound flight. When the trade imbalance is strongly positive (more exports than imports) as is the case of Ecuador, transportation costs for exports tend to be higher than for imports.

The way ahead—It seems clear from the analysis above that one can hardly overestimate the importance of transport costs for an industry such as cut flowers in Ecuador. A trade policy that focuses only on traditional, policy related trade costs would be missing the bulk of the barriers to trade and would be undercutting the country's opportunities abroad. That is particularly the case of Ecuador's exports to the United States, where a sequence of unilateral preference initiatives have eliminated tariff for Ecuador's products.

It is true that those preferences are temporary. They look particularly fragile amid the current adverse political climate to trade agreements both in the United States and in Ecuador. Yet, as important as those preferences are—particularly in the face of strong competition coming from extremely labor-intensive countries such as China—even if they were eliminated in a worst-case scenario, tariffs would remain well below freight expenditures. As mentioned earlier, tariffs before the ATPA was granted were below 7 percent, whereas our estimates in Table 4.4 put the average ad valorem freight costs at 32 to 33 percent. As we discussed in Chapter 1, if the time costs of shipping delays were included, it is more than likely that shipping costs would double, reinforcing their role as the major obstacle to Ecuador's flower exports.

Producers on the ground seem to have identified a sensible policy agenda to reduce these costs (Expoflores 2007). It speaks of more investment in airport infrastructure, and of more competition between airports and airlines, particularly through deregulation of the aviation sector. Therefore, a more balanced trade agenda that incorporates not only policy-related trade costs but also transport costs is likely to generate higher payoffs in terms of export opportunities.

Brazil: A Story of Rent Losses in Soy Exports[75]

In Chapter 1 we talked about the characteristics and requirements of LAC's comparative advantages carrying enough weight to put transport costs among the very top public policy priorities. This is arguably nowhere more evident than in the exploitation of natural resources and we can argue, in turn, that this is nowhere more evident than in soy production in Brazil.

Brazil is the world's second largest producer and exporter of soybean, after the United States. According to the United States Department of Agriculture (USDA), production in the United States reached a record 87 million tons in 2006, but the 2007 U.S. harvest is projected to be only 71 million tons.[76] Brazil's soybean output was 55 million tons in 2006 and is forecast to reach 58 million in 2007.[77] Given the potential for expanding its planted area, Brazil is expected to surpass the United States as the world's largest exporter of soybean in the future. China has been the largest importer of soybean, taking 43 percent of Brazil's export volume,[78] followed by the European Union (15 countries) with 40 percent.

Production costs—Production and land costs are much lower in the Center-West of Brazil than in the United States. Table 4.5 reveals that the farm values of one ton of soybean in this region of Brazil were indeed much lower than in the south of the country, and in the areas of Minneapolis and Davenport in the United States in the fourth quarter of 2005 and in the first quarter of 2006. On the other hand, the farm values of soybean in the south of Brazil are at about the same levels as in the United States.

The largest soybean producing and exporting area is located in the Center-West of Brazil. This area is quite a long way from the coast and comprises the states of Mato Grosso, just south of the boundaries of the Amazon rain forest, Mato Grosso do Sul, Goiás, and Distrito Federal, in the so-called Cerrado region. As has been shown, this is also the lowest-cost soybean producing area in Brazil. In 2006, 14 million tons of soybean were moved from these states to Brazilian ports for export. This was almost 60 percent of that region's output. The soybean transported to the ports from Mato Grosso only totaled approximately 10 million tons in the same year.

The ports of Santos and Paranaguá accounted for 28 and 16 percent, respectively, of the soybean exported from Brazil in 2006. The ports of Rio Grande (RS) and São Francisco do Sul (SC) accounted for 14 and 12 percent, respectively. Considering that trucks account for about 60 percent of general cargo transport in Brazil, and bearing in mind that 75 percent of exports of soybean take place in the months from April to September and 40 percent in the three months from May to July, it is possible to have an idea of the traffic flow generated by exports of this crop on already very busy roads crossing the states of São Paulo and Paraná. Assuming that exports of soybean departing from the ports of Manaus (1584 tons) and Santarém (954 tons) are originally from the state of Mato Grosso, it is possible to estimate that about 7.3 million tons of soybean had to be transported along approximately 2200 km from this state only to the ports of Santos and Paranaguá in 2006.[79]

[75] This section was adapted from Batista (2008), which includes not only soy, but also a case study of agricultural mechanical appliances.

[76] See Feed & Grain (2007). The primary source is USDA's World Agricultural Outlook Board (WAOB). http://www.usda.gov/oce/commodity/.

[77] Companhia Nacional de Abastecimento (2007).

[78] Exports in tons from 2004 to 2006.

Table 4.5. Farm Values of Soybean in Brazil and in the United States ($/ton)

Country	4th Qtr 2005	1st Qtr 2006
Brazil		
North Mato Grosso (Center-West)	174.28	157.86
Southeast Mato Grosso (Center-West)	174.28	157.86
South Goiás (Center-West)	184.89	180.71
North Center Paraná	214.81	206.88
Northwest Rio Grande do Sul	206.36	202.56
United States		
Minneapolis, MN	207.11	202.34
Davenport, IA	207.60	204.78

Source: USDA, *Brazil Soybean Transportation*, a quarterly publication of the transportation and marketing programs, Transportation Services Branch, August 10, 2006, www.ams.usda.gov/tmdtsb/grain.

[79] It is possible to estimate roughly the number of truck journeys used to transport soybean from Mato Grosso to the ports of Santos and Paranaguá in 2006. Given that a truck carries on average 35 tons of soybean, 927 truck journeys per day were necessary in the months from May to July, and 811 trucks per day in April, August and September.

Table 4.6. Transportation Costs from Farms to Ports ($/ton)

	North of Mato Grosso to Paranaguá	Minneapolis to the Gulf	Davenport to the Gulf
	by truck	by truck and barge	by truck and barge
1st Qtr 2005	69.96	7.58 + 8.42 = 26.00	7.58 + 18.16 = 25.74
2nd Qtr 2005	79.07	7.82 + 8.93 = 26.75	7.82 + 14.67 = 22.49
3rd Qtr 2005	80.67	8.90 + 28.88 = 37.78	8.90 + 23.63 = 32.53
4th Qtr 2005	80.86	10.06 + 36.71 = 46.77	10.06 + 30.91 = 40.97
1st Qtr 2006	84.65	9.42 + 25.38 = 34.80	9.42 + 21.42 = 30.84

Source: USDA, *Brazil Soybean Transportation,* a quarterly publication of the transportation and marketing programs, Transportation Services Branch, August 10, 2006, www.ams.usda.gov/tmdtsb/grain.

Domestic freight costs—Table 4.6 clearly reveals that the transportation costs from the cheapest producing area in Brazil to the main port in Paraná by truck are much higher than the cost of bringing down the soybean produced around Minneapolis and Davenport by truck and barge, along the Mississippi River, to the Gulf ports in the United States.

The high cost of transportation from farms in Mato Grosso to the port of Paranaguá is partly because of the long distance, but also due to the lack of intermodal competition. In Mato Grosso, the rail system is almost nonexistent. As a result, grains have to be moved by trucks either directly to ports or to railway or waterway transfer terminals far away from the farms in the north of the state. The high cost of transporting soybean by trucks is exacerbated by the poor condition of the roads. In point of fact, both the highways from the north of the state to the transfer terminal of the Madeira River in Porto Velho (RO) (BR-364) and to the Amazon River Port of Santarém-Para (BR-163) are still unpaved.[80] Although paving these roads is said to be a major federal government priority, environmental restrictions and lack of funds have been inhibiting this project.

On the other hand, more than half of the U.S. soybean exports traverse some portion of the Mississippi River System. Bulk transportation costs for barges do not increase the farm price that much of American

[80] ". . . only 12% of the 999,857 miles of Brazilian roads are paved. The condition of the paved roads varies across the country, with half the paved roads ranging from passable to very bad," Boletim Estatístico, Confederação Nacional do Transporte, December 2005.

Table 4.7. Soybean Costs at Ports in Brazil and in the United States ($/ton)

Country	4th Qtr 2005	1st Qtr 2006
Brazil		
Rio Grande from Northwest RS	219.56 (6%)	216.10 (6%)
Santos from South Goiás	227.45 (19%)	223.20 (19%)
Paranaguá from North Center Paraná	236.06 (9%)	226.29 (9%)
Paranaguá from North Mato Grosso	255.14 (32%)	242.51 (35%)
United States		
Gulf of Mexico from Davenport, IA	248.57 (16.5%)	235.62 (13%)
Gulf of Mexico from Minneapolis, MN	253.88 (18%)	237.14(15%)

Note: The share of domestic transportation in soybean costs at the port is shown in parentheses.

Source: USDA, *Brazil Soybean Transportation,* a quarterly publication of the transportation and marketing programs, Transportation Services Branch, August 10, 2006, www.ams.usda.gov/tmdtsb/grain.

soybean.[81] Indeed, transportation costs, including trucks and barges, from Minneapolis and Davenport were between 13 and 18 percent of the Gulf price, whereas the truck costs from north of Mato Grosso were between 32 and 35 percent of the price at Paranaguá.[82]

Table 4.7 adds the farm values, shown in Table 4.5, to the domestic transportation costs from the main areas of production to the main ports of soybean export, shown in Table 4.6. It is clear that the cost of transporting soybean to the port of Paranaguá more than erodes the farm cost advantage of the cheapest producing area of Brazil. Minneapolis and Davenport soybean at the Gulf ports was cheaper than the soybean from the north of Mato Grosso at the Paranaguá port in 2005/2006.

However, the costs of soybean at the ports of Rio Grande, Paranaguá, and Santos from the northwest of Rio Grande do Sul, north center of Paraná, and south of Goiás, respectively, were lower than at the Gulf ports of the United States. Transportation costs were decisive for this price

[81] According to the USDA, the Mississippi barge transportation rates can be further reduced through a modernization of the locks on the river system, avoiding splitting of tows, and thus allowing cuts in transit times (Mark Ash, Janet Livezey, and Erik Dohlman, *Soybean Backgrounder,* Electronic Outlook Report from the Economic Research Service, USDA, OCS-2006-01, April 2006).

[82] The soybean price at Paranaguá is used by traders as the general reference price for the Brazilian soybean premium compared to Chicago stock exchange prices.

Table 4.8. Ocean Freight Rates for Shipping Soybean ($/Metric Ton)

From	To Shanghai	To Hamburg	
	2006	2005	2006
	1st Qtr	4th Qtr	1st Qtr
Santos	50.13	56.73	39.51
Paranaguá	49.13	55.73	38.51
Rio Grande	48.63	55.23	37.06
Gulf of Mexico	35.71	22.81	19.53

Source: USDA, *Brazil Soybean Transportation,* a quarterly publication of the transportation and marketing programs, Transportation Services Branch, August 10, 2006, www.ams.usda.gov/tmdtsb/grain.

advantage, as they accounted for only 6 percent, 9 percent, and 19 percent of soybean costs at the ports of Rio Grande, Paranaguá, and Santos, respectively, in 2005–2006.

International freight costs—Brazil's competitive position in soybean exports is further deteriorated once ocean freight rates are taken into account, as the examples of freight rates from Brazil and from the United States to Shanghai (China) and Hamburg (Germany) in Table 4.8 clearly illustrate.

Ocean freight rates for transporting soybean from Brazil depend, among other things, on the export volumes of soybean and iron ore. The availability of vessels tends to increase, relative to the volume of soybean exports, as exports of iron ore decline, reducing the freight rates.

Table 4.9 shows soybean costs from Brazil and from the United States in Shanghai and in Hamburg. Note that the shares of transportation costs in landed costs both in Shanghai and in Hamburg tend to be higher for soybean from Brazil than from the United States, especially for soybean produced in the Center-West region of Brazil.

Examining the market shares of Brazil and the United States in imports of soybean in different countries, it seems that Brazil is more competitive than the United States in European countries and became more competitive in China in 2006 (Table 4.10). On the other hand, the United States is still more competitive in Japan and totally dominates the import markets of Canada and Mexico. Ocean freight costs still maintain

Table 4.9. Landed Costs and Shares of Transportation Costs ($/Ton in the 1st Qtr 2006)

To	Shanghai	Share	Hamburg	Share
From Brazil				
Northwest Rio Grande do Sul-Rio Grande	264.73	(23%)	253.16	(20%)
South Goiás-Santos	273.33	(34%)	262.71	(31%)
North Center Paraná-Paranaguá	275.42	(25%)	264.79	(22%)
North Mato Grosso-Paranaguá	291.64	(46%)	281.02	(44%)
From the United States				
Davenport-Gulf	271.33	(25%)	255.15	(20%)
Minneapolis-Gulf	272.85	(26%)	256.67	(21%)

Note: The share of transportation costs in landed costs is shown in parentheses.

Source: Brazil Soybean Transportation, USDA August 10, 2006.

Table 4.10. Market Shares of Brazil and the U.S. in Selected Importing Countries

	Importers						
Exporters	China		Japan		Germany		Netherlands
	2005	2006	2005	2006	2005	2006	2005
Brazil	30%	41%	13%	9%	59%	51%	71%
United States	42%	35%	75%	80%	28%	36%	18%

Based on imports by countries of HS 120100.
Source: Comtrade, United Nations.

U.S. soybeans' competitive standing in neighboring countries, Mexico and Canada, where the United States supplies between 98 and 100 percent of these countries' soybean imports.

Tariffs—Soybean imports enter countries of the European Union, Japan, and Taiwan free of import tariffs. China charges an MFN tariff between 0 and 3 percent[83] (average 2.4 percent according to UNCTAD), but Brazilian soybean pays no import tariff. Mexico imports free of import tax from February 1 to July 31, but charges 15 percent MFN tariff from August 1 to January 31. Brazil and Mexico's trade agreement (ACE 53) gives

[83] These tariffs refer to the group of products classified at the 6-digit level of the Harmonized System (HS 120100).

a preference of 80 percent of the Mexican tariff to Brazil. Chile and Peru have an ad valorem MFN tariff of 8 percent and 4 percent, respectively.

The case of the Caramuru Group—The Caramuru Group is a large exporter and manufacturer of soybean in Brazil, processing 3500 tons of this grain per day, producing lethicin (900 tons/month), soy oil (600 tons/day) and biodiesel (300 tons/day). It is also a corn manufacturer, processing 2054 tons of this grain per day, and operates grain-handling facilities such as storage facilities for 1.6 million tons, facilities for load transfer at an intermodal railway-waterway terminal in Pederneiras (SP), on the banks of the Tietê and Paraná Rivers, a waterway terminal in Anhembi (SP), and port terminals in Tubarão (ES) and Santos (SP). It employs 2150 workers.

Because trade costs vary enormously according to the area of production, we focus here on trade costs associated with production in the north of the state of Mato Grosso, which is the greatest and lowest-cost producing area. In the state of Mato Grosso, production is concentrated in the area around the city of Sorriso. From this area, there are alternative routes to transport this crop to a port for export. For example, grains are carried by trucks (as the rail system is almost nonexistent in Mato Grosso): (i) directly to the ports of Santos (SP), Paranaguá (PR), or Santarém (PA); (ii) to Porto Velho (RO), then on barges to the port of Itacoatiara (AM); (iii) to the railway terminal in Alto Araguaia in the south of the state of Mato Grosso, near the border with the states of Goiás and Mato Grosso do Sul, and from there to the port of Santos on railway; or (iv) to the railway terminal in Maringa, in the state of Paraná, and from there to the port of Paranaguá on railway. All these routes are quite expensive, as transport costs account for about one-third of the FOB price of the product, whatever the selected route.

Once the soybean reaches a port in Brazil, it is necessary to add the costs of stocking, loading and unloading, and all the legal rates at the port of embarkation. The port of Santos was selected, since it is the largest exporter of Brazilian soybean.[84] At the port of Santos the product stays on

[84] Paranaguá used to be the top Brazil soybean export port, but lost its leadership to Santos when it banned genetically modified soy passing through the port from October 2003 to April 2006.

Table 4.11. Trade Costs from Brazil to China: Sorriso-Shanghai, 2007

	US$/Ton	% of Farm Price
Farm Price	206.00	100.0
Transport to Santos	101.59	49.3
Port Costs	7.00	3.4
Transport to China	50.00	24.3
Other Costs*	3.10	1.5
TOTAL	367.69	178.5

* Legal, contracts, and information costs.

average seven days. The Caramuru Group estimates that these port costs total US$7.00/ton in Santos.

The cost from Santos to China is US$50 per ton (of which 90 percent is for the freight and 10 percent for insurance) and sixty tons of soybeans are embarked per vessel. The distance is 18,734 km and the average time is 37 days. There are no regular lines, so transportation is taken by tramp ships. Among other things, freight costs depend on the export volume of other commodities, especially iron ore in this case. But the main structural problem appears to be the low levels of dry cargo imports to fill bulk carriers on the way to Brazil. This seems to raise significantly Brazil's ocean freight rates for grains. Table 4.11 sums up all these costs. It should be noted that trade costs are equivalent to 178.5 percent of the farm price.

According to Caramuru, trade costs could be reduced through investments in the transportation infrastructure. The supply of railway services is low in the existing lines. Much has to be done to improve the efficiency of the railways. The Brazilian railway system carries 21 billion tons per kilometer-year, compared to 2700 billion tons in the United States, and the average speed of trains for load transportation in Brazil is still 25 km per hour, compared to 64 km per hour in the United States.[85] Extending the railway lines into Mato Grosso would help to reduce transportation costs,

[85] Associação Nacional de Transportes Ferroviários and CIA *World Factbook*; both were primary sources quoted in Veja, Veja.com., Edicão 2020, August 8, 2007: http://veja.abril.com.br/080807/p_084.shtm.

but not the efficiency of the system. The Paranaíba-Tietê-Paraná waterways could also be improved through investments in protecting bridge pillars and in dredging the rivers to allow larger vessels. Unpaved highways ought to be paved, paved highways ought to be kept in good condition, but toll roads are expensive for transporting grains. Ocean freight rates could be reduced through investments in harbor dredging that could allow larger ships into the ports.

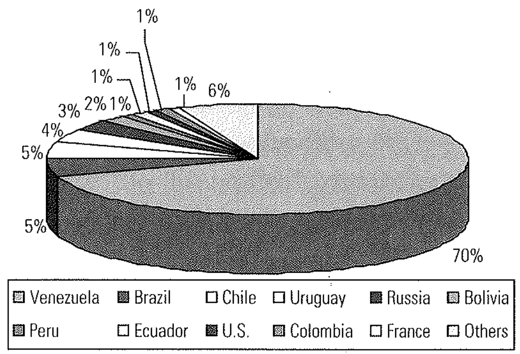
Beyond traditional trade policy—All in all, when transporting goods to ports eats away as much as 49 percent of the producers' revenue and when overall costs (internal and external) of delivering goods to one of the producers' major clients is as high as 79 percent of the producers' price, one can be sure that there is something wrong about a trade policy that focuses only on traditional market access, the more so when tariffs are well below the ad valorem transport costs of even the most efficient routes. As argued in Chapter 1, natural resource goods are intrinsically transport intensive because they are "heavy goods." In this context, an inefficient and dysfunctional logistic chain can cause as much havoc to the opportunities to trade and their related gains as the type of protectionist regimes that were common in LAC until the late 1980s.

Argentina: A Story of New Opportunities in Farm Equipment Facing Transport Constraints[86]

Argentina's farm equipment industry has been experiencing a revival in the last four years, driven by the commodity boom, the currency devaluation and the economy's fast recovery. Sales of tractors, seeders, combine harvesters and miscellaneous agricultural appliances grew at an annual average rate of 19 percent in 2002–2006, reaching US$346 million in 2006. Exports have also been brisk, growing by 19 percent annually in the same period. As can be seen in Figure 4.2, Venezuela accounts for the bulk of Argentina's farm equipment exports, followed well behind by Brazil, Chile and Uruguay.

[86] This section was adapted from Sicra (2008), which includes not only farm equipment, but also a case study of powdered milk.

Figure 4.2. Direction of Argentinean Exports of Farm Equipment, US$ (2007)*



* January to July.
Source: Sistema Informático María (SIM) on line de la Aduana Argentina. http://www.afip.gov.ar/aduana/sim/.

Venezuela's preeminence as a market is explained to a great extent by the signing of a number of bilateral agreements between the Venezuelan and Argentinean governments, whereby the former sells oil in exchange for a number of previously agreed Argentinean products, which range from agricultural to capital goods, including farm equipment. The first agreement was signed in 2004, but it was only in 2005 that farm equipment was included in the exchange list.[87] In the latest version of the agreement, signed in 2007, Venezuela committed to buy US$155 million worth of equipment, approximately 30 percent of the industry's sales.

It didn't take long, though, for this fast growth of exports to test the limits of Argentina's transport infrastructure. The logistic difficulties of the farm equipment firms became clear in a series of interviews with exporters, business associations, freight forwarders and civil servants.

[87] Convenio Integral de Cooperación entre la República Argentina y la República Bolivariana de Venezuela, April 6, 2004. Farm equipment was included by the Acuerdo Complementario al Convenio Básico sobre Cooperación Económica, Industrial, Tecnológica y Comercial en el Área de Provisión de Implementos y Maquinaria Agrícola entre la República Argentina y la República Bolivariana de Venezuela; Brasilia, September 29, 2005. See Sicra (2008) for more details.

Shipping capacity—According to the interviews, farm equipment exporters face a shortage of cargo capacity, which is particularly acute in the case of exports to Venezuela, a market with no tradition of farm equipment exports. Exporters to this Andean country struggle to find space available in commercial lines, which do not offer a direct route between the two countries. Large, self-propelled equipment such as tractors and harvesters face even more difficulties since car companies take all the cargo space available in specialized, "roll-on/roll-off" ships.

These problems were ameliorated to a large extent by an opportune initiative led by CFMA (Cámara de Fabricantes de Maquinaria Agrícola), the farm equipment business association, which has prompted exporters to consolidate their cargo and to negotiate jointly the chartering of a number of ships, which has not only alleviated the cargo restrictions, but also contributed to lowering freight costs to an average of 8 percent of the CIF value of exports.

Another hurdle that exporters have to face is the availability and costs of containers. Shipping companies usually rent containers, but the substantial growth of Argentina's exports has led to a shortage in certain periods of the year, with exporters scrambling to find an alternative supply. This affects not only exports to Venezuela, but also to other destinations such as Colombia and Europe. In the case of Venezuela, though, exporters face extra costs since the companies that rent containers are reluctant to leave them in this country, an exporter of bulk products. Exporters are consequently forced to pay the extra cost of shipping containers to ports with greater traffic such as Houston.

Port capacity—Buenos Aires, for reasons related to its location, the depth of its cargo berths and available infrastructure, is the busiest port in Argentina, a characteristic that has been accentuated by the recent export boom. Exporters complain about issues that are typical of port congestion such as an increase in loading times, difficulties in road access to the port, the high tariffs of its services and the lack of available facilities to store and consolidate the cargo. In the specific case of Venezuela, CFMA has also found a way to alleviate these constraints by moving shipping operations

to Puerto de Zárate, located in the north of Buenos Aires province. This port is smaller than Buenos Aires, but is closer to the factories and CFMA was able to negotiate the services at a lower rate.

Customs delays—Overland shipping to neighboring countries such as Bolivia, Uruguay and Chile faces some difficulties in terms of the availability of container trucks, but the more pressing problem is the delays at the border crossings, which are seen as particularly acute in the case of Chile (weather-related closings) and Uruguay (blockades imposed by what has become known as the "*papelera* conflict").[88] A common problem that is viewed as affecting shipping to all countries is the delays caused, on the one hand, by the usual lack of documentation of shippers that want to cross the border, and, on the other, by the perceived inefficiencies of the customs work, including the duplicity of controls on both sides of the border.

The costs to export—To have a more precise estimate of the trade costs that affect producers of farm equipment in Argentina, we look at a sample of ocean shipments of four types of equipment to Mexico and Venezuela. Two of them (disc harrows and seeders for direct seeding) are shipped in containers and the other two (tractors and harvesters) are shipped in the ship's cargo area. We also look at the shipment of tractors overland to Chile.

Table 4.12 presents the trade cost estimates for the joint shipment of the four products to Mexico and Venezuela, totaling US$219,000 (FOB). The methodology and the disaggregated data are available in Sicra (2008). As can be seen, transport costs, including domestic and international freight, amount to 10.6 percent of the CIF value, the bulk of it explained by the ocean freight. Other trade costs related to ports, documents and customs amount to 3.8 percent. Overall, the costs to export reach 14.4 percent of the CIF value in a context where traditional policy-related trade costs

[88] Since December 2004, Argentinean activists opposed to the construction of paper mills across the border in Uruguay have intermittently blocked the bridge that joins the two countries.

Table 4.12. Average Trade Costs of Exporting Farm Equipment to Venezuela and Mexico, Ocean Shipping (2007)

Costs	US$	% FOB Price	% CIF Price
Factory Price	219,000	95.3	85.6
Inland Freight	2,200	1.0	0.9
Cargo Consolidation at Port	2,180	0.9	0.8
Customs	400	0.2	0.2
Documents Required by Importer	800	0.3	0.3
Importer's Inspection	640	0.3	0.2
Port Expenses	753	0.3	0.3
Maritime Agency	1,488	0.6	0.6
Letter of Credit	561	0.2	0.2
Other Expenses	1,870	0.8	0.7
Subtotal FOB	229,892	100.0	89.8
Insurance	1,122	0	0.4
Freight	24,950	0	9.7
Total CIF	255,964	0	100.0

Source: Sicra (2008).

are zero or very close to zero. In the case of land freight (Table 4.13), transport costs, as expected, are considerably lower (5 percent of the CIF value) reflecting, inter alia, the shorter distance to Chile. When added to the other export expenses, trade costs amount to 8.6 percent of the CIF value, not as high as in ocean shipping to Mexico and Venezuela, but, again, a magnitude that dwarfs tariffs and non-tariff barriers.[89]

Overall, Argentina's case study draws attention to at least three often forgotten and important issues. First, the export of new products to new markets often involve logistic requirements that can play a key role in consolidating and expanding the initial gains. Second, private sector associations, as was the case of CAFMA, can play a key role in overcoming logistic constraints, with response times that can be far superior to that of governments. Finally, as shown in the other cases and throughout the chapters of this report, non-policy trade costs, particularly transport costs, tend to be a much more important obstacle to trade than tariffs and non-tariff barriers, the more so when it comes to trade within the region.

[89] ALADI data for 2005 puts the weighted ad valorem tariffs (HS 87012020) at 0.04 percent.

Table 4.13. Trade Costs of Exporting Farm Equipment to Chile, Overland Shipping (2007)

Costs	US$	% FOB Price	% CIF Price
Factory Price	45,000	95.88	91.3
Inland Freight	450	0.96	0.9
Cargo Consolidation at Port	500	1.07	1.0
Customs	100	0.21	0.2
Documents Required by Importer	200	0.43	0.4
Importer's Inspection	160	0.34	0.3
Letter of Credit	115	0.25	0.2
Other Expenses	410	0.87	0.8
Subtotal FOB	46,935	100.00	95.3
Insurance	230	0	0.5
Cost of Customs Delays	150	0.3	0.3
International Freight	1,950	0	4.0
Total CIF	**49,265**	0	100.0

Source: Sicra (2008).

Mexico: A Story about Textiles, Competition, Proximity and Delays at the Border[90]

This case study focuses on one of the leading Mexican textile firms, which has its plants in the central area of the country. Firm Y, whose real name is omitted here because of a confidentiality agreement, is vertically integrated, producing linen, other fabrics and apparel. It employs approximately 10,000 workers and began to export in 1986. Currently, it exports 50 percent of its output, half indirectly through *maquiladoras*, to the United States. The other half is exported directly to South America (40 percent, mainly to Colombia), to the United States (40 percent) and Europe (20 percent, mainly to France and Spain). The firm has plans to expand its exports to Central America, by becoming a regional supplier of textiles to *maquiladoras* throughout the region.[91]

With this profile, firm Y has long, first-hand experience with both importing and shipping goods abroad, from and to different markets, and

[90] This section is an edited and shortened version of Dussel Peters (2008), which includes not only textiles (denim), but also case studies of cotton and two pharmaceutical products.

[91] See Cárdenas Castro and Dussel Peters (2007).

a clear view of the costs and times involved. We focus on the firm's logistic chain when importing its main input—cotton—and exporting one of its main products—denim.

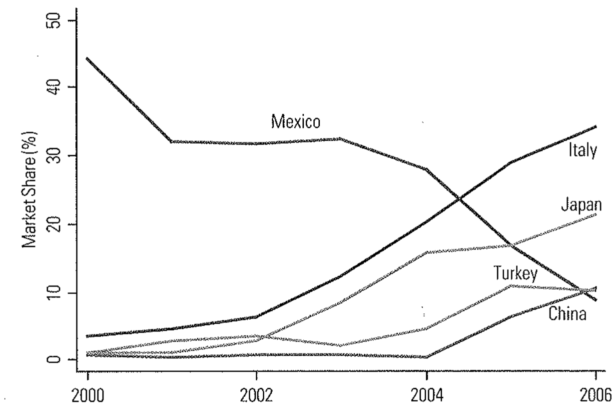
Importing cotton—Mexico is a major importer of cotton, most of it from the United States. In 2006, the country imported US$490 million, 99 percent of which came from the United States. Firm Y is one of the main direct importers of the product and, after assessing a number of options, has decided to take responsibility for its transportation from Nuevo Laredo, Texas, to its plants in central Mexico.[92]

The firm has an annual purchasing program, updated every month, for the types of cotton it needs and, one week before receiving the product, it starts the procedures to clear customs and for having the right type of transportation available (tractor trailers). From the moment the cotton arrives in Nuevo Laredo to its delivery in Central Mexico, it takes, on average, 2 to 6 days. Up to 84 percent of the time is spent on customs procedures, including phytosanitary inspections in the United States and Mexico and fumigation in Mexico. Actual transportation takes only one day. Leaving time costs aside, the whole process increases the price of the product by approximately 6 percent, 77 percent of which is explained by freight expenditures and the rest by the customs requirements.

Firm Y has also explored alternatives such as rail freight, which, given the relatively high weight and volume of the product, could mean lower costs. In practice, though, rail transportation turns out to be more expensive and more time consuming due to the limitations of Mexico's rail infrastructure. The closest cargo transfer station to Y's factories is 80 km away, requiring further additional land transportation that would increase transport time to five days. The company has also explored different scenarios to reduce non-transport trade costs, looking particularly at the duplication of phytosanitary controls at the border. The most favorable scenario would be to eliminate all Mexico's phytosanitary controls, leaving only the U.S. inspection in place. This would reduce overall trade costs by 16 percent and would reduce the time spent at the border to just one day.

[92] More specifically, the imported cotton is defined as cotton without nuggets, HS 520100.

Figure 4.3. Market Share of the U.S. Imports of Denim, Mexico and Selected Countries



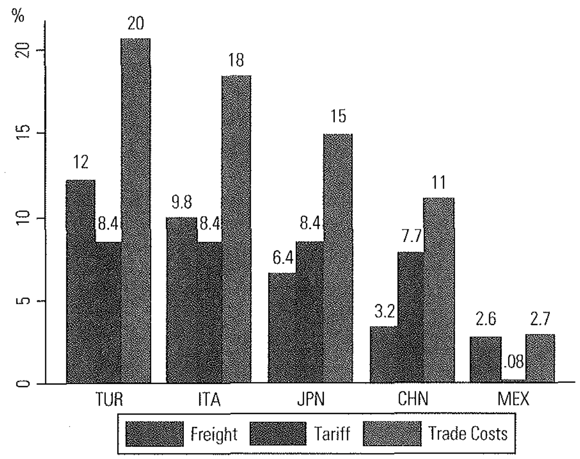
Note: Denim is defined as HS 520942.
Source: U.S. Census Bureau.

Exporting denim—Since the implementation of NAFTA, Mexico has become a major supplier to the United States of denim, a type of cotton textile known for its use in blue jeans and other clothing. Taking advantage of the combination of proximity, low labor costs and low tariffs, Mexico's share of the U.S. market jumped from negligible to a peak of 50 percent in 1999. Since then, however, it has been declining steadily, losing ground, on the one hand, to high-quality (high unit price) producers such as Italy and Japan, and, on the other, to low-cost producers such as China and Turkey (see Figure 4.3).

Mexico's loss of market share is taking place despite the relatively low trade costs of its exports to the United States. As shown in Figure 4.4, Mexico faces tariffs that are close to 7 percentage points lower than Turkey's and China's and has also substantially lower freight costs than all other competitors, except for China, whose transport costs, despite the difference in proximity and similarity of unit prices, are not that much higher than Mexico's. Overall, though, China's trade costs are four times that of Mexico.

Notwithstanding this inhospitable competitive environment, firm Y's performance in this product does not appear to have been affected.

Figure 4.4. Trade Costs of Denim Exports to the U.S., Mexico and Selected Countries (2006)



Note: Trade costs are tariff plus freight. Denim is defined as HS 520942.
Source: U.S. Census Bureau.

With decades of export experience to the United States, Europe and Latin America, denim exports of firm Y have shown healthy growth and its output grew by approximately 40 percent in 2007.

Table 4.14 shows the cost and time involved in exporting firm Y's denim to the United States (Uvalde, Texas). As with importing cotton,

Table 4.14. Trade Costs of Exporting Denim to the U.S., Road Transportation

Costs	% of Total Costs	Costs per Truck (US$)	Time
Transport Costs to the Border	34.2	632.74	
Customs Fees and Paperwork	11.3	209.74	18 Hours
Total Costs on Mexico's Side	45.6	842.48	
Customs Fees and Paperwork	13.0	240.00	1 to 3 Days
Transport Costs (Laredo-Uvalde, TX)	41.4	766.00	7 Hours
Total Costs on the U.S. Side	54.4	1,006.00	
Total Costs "Door to Door"	100.0	1,848.48	3 to 4 Days
Total Costs per Yard		0.08	
Door-to-Door Price per Yard		2.14	

Source: Interview with firm Y in 2007.

most of the time involved in the operation is spent on customs procedures. Freight accounts, on average, for 25 percent of the time, but for 75 percent of the costs. Overall, trade costs account for 3.7 percent of the delivery price; an estimate that looks modest, but that does not include the time costs arising, for instance, from delays at the border.

Using Hummels and Schaur's time cost estimates discussed in Chapter 1, each day spent at the border imposes a cost to denim exports that is equivalent to an ad valorem tariff of 0.8 percent. A three-day delay at the border—a figure that according to firm Y is not uncommon—increases ad valorem trade costs by 2.4 percentage points. If we add the time spent in transportation, the total time cost would amount to 3.2 percent, taking overall trade costs to 6.9 percent of the delivery price. In an industry where, as shown, competitive pressures are hard to underestimate and whose profit margins, according to firm Y, are between 6 to 8 percent, non-policy trade costs look far from negligible, particularly in a scenario where tariffs are already zero or close to zero.

Taken as a whole, this case study tells a cautionary tale about the importance of non-policy trade costs for countries where proximity, interacting with local endowments, plays a key role in their comparative and competitive advantages. The signing of NAFTA brought a sharp reduction in the policy trade costs of Mexico's exports to the U.S. market, which combined with proximity and low labor costs, opened vast export opportunities in labor-intensive, time-sensitive goods such as denim. After an initial export boom, though, the new realities of the world market were quickly brought into play. Faced with strong competition from extremely labor-abundant, low-transport-cost countries such as China and by technologically sophisticated countries such as Japan, Mexico's share of denim imports to the United States began to decline rapidly.

In such a scenario, where every advantage counts, proximity plays a vital, strategic role. As discussed earlier, this is not only about the geographical distance between countries, but also about the time taken to cover this distance. The story of firm Y shows that there are important actions that Mexico can take to maximize this advantage, particularly with regard to border delays. It also draws attention to the fact that in a world where production is increasingly fragmented, governments should pay attention to the trade costs of both exporting and importing goods. Firm Y's costs to import cotton are as high as 19 percent, even though the product is coming from the neighboring United States. These high costs end up compromising the competitiveness of downstream products such as denim and here the story is not only about border delays, but also about the limitation of Mexico's rail infrastructure. Gone are the days when promoting exports was only about market access.

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CHAPTER 5

Conclusions: Expanding the Integration Agenda beyond Tariffs

This report is about refocusing LAC's trade agenda. It is about bringing the long neglected non-policy trade costs to the center stage of the policy debate. Trade policy in the region has been traditionally focused on removing tariffs and non-tariff barriers. There is little doubt that these barriers were "the elephant in LAC's living room" in the late 1980s and the emphasis on their removal was not only warranted but also inexorable, given the prevailing political incentives and the constraints in terms of administrative resources.

However, one troubling legacy of this liberalization *juggernaut* was the neglect of other, less visible, and therefore politically unattractive, costs that matter a great deal for trade. All the issues that are generally known as "trade facilitation" were squeezed out of the region's trade agenda, particularly those related to transportation costs.

We argue in this report that if this neglect was not too costly in the late 1980s, because of the sheer magnitude of the policy barriers, it has rapidly become so in the last two decades. A combination of factors has given transportation costs an unprecedented strategic importance to the region: the very success of the trade reforms—which has drastically altered the relative importance of policy versus non-policy barriers—and the rapid transformations of the world economy, above all the growing fragmentation of production and time sensitiveness of trade and the emergence of vastly labor-intensive and resource-scarce economies.

The strength of this argument is evident when we explore a large dataset on freight and tariffs in LAC and in the United States. In Chapter 1, we show, first, that for most LAC countries transport costs are significantly higher than tariffs, for both import and exports and especially for