

IIRSA Economic Fundamentals.

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Abstract

In October 2000, the 12 countries of South America launched the Initiative for Integration of Regional Infrastructure in South America (IIRSA), a multinational, multisectoral and multidisciplinary initiative, whose main objective is to develop the region's infrastructure within a context of environmental sustainability. Supported by the IDB, the Andean Development Corporation, and the Financial Fund for the Development of the River Plate Basin, the Initiative is based on a hub strategy and its action plan calls for (a) strengthening national investment planning and coordination among countries, (b) standardizing and harmonizing regulatory and institutional aspects and (c) developing a portfolio of projects that encourage private sector participation and innovative financing schemes. This paper revisits IIRSA's economic fundamentals, looking at the motivation behind regional integration, the importance of transport versus policy related trade costs, and the likely impact of the initiative on regional disparities and growth.

Introduction

In October 2000, the 12 countries of South America launched an unprecedented multinational, multisectoral and multidisciplinary initiative, whose main objective is to develop the region's infrastructure within a context of environmental sustainability. Supported by the IDB, the Andean Development Corporation, and the Financial Fund for the Development of the River Plate Basin, the Initiative for Integration of Regional Infrastructure in South America (IIRSA) is based on a hub strategy and its action plan calls for (a) strengthening national investment planning and coordination among countries, (b) standardizing and harmonizing regulatory and institutional aspects and (c) developing a portfolio of projects that encourage private sector participation and innovative financing schemes. Four years after its launching, IIRSA is getting to a critical stage. The 12 countries involved agreed on focusing on 348 consensual projects, which amount to US\$ 38 billion. Among those projects, 31 will be implemented until 2010, amounting to US\$6.4 billion.

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The challenges of this major investment drive can hardly be underestimated and severely tests the countries' ability to coordinate their efforts, to reconcile their national and regional agendas and, above all, to raise and allocate resources within a scenario of high debt, low savings and tight fiscal constraints. Multilateral institutions involved, particularly the IDB, will be also under pressure to devise new and more flexible financial instruments that can be instrumental in overcoming fiscal and operational hurdles. All these challenges suggest that the time is ripe for revisiting the economic fundamentals of IIRSA. What is the rationale behind the initiative? What are the likely impacts on trade and growth? What are the risks? If anything, IIRSA's success will hinge on the governments and multilateral institutions' ability to offer sound and coherent answers to these questions. This document aims to be instrumental in this effort.

This document divided into 5 sections, including this introduction. It begins with a look at the case for regional integration, particularly, for south-south integration, which is IIRSA's *raison d'etre*. It then moves on to discuss the relative importance of infrastructure and policy-related trade costs. Section 3 covers the impacts of infrastructure on regional disparities and the links between infrastructure and growth. The final section sums up the main arguments and discusses the rationale behind government intervention in infrastructure.

I- The Rationale for South-South Integration and the role of IIRSA.

The case for IIRSA goes beyond the need for infrastructure and is part of a broader case for South-South integration as a tool to promote higher productivity, equity and growth. As it is well known, Latin America and the Caribbean (LAC), in a quest to resume sustainable growth, have embarked on a comprehensive process of trade liberalization since the 1990s, which involved unilateral, multilateral and regional initiatives (IDB 2002). The rationale behind the regional initiatives is to (a) move faster than it would be possible in complex multilateral negotiations, (b) avoid the asymmetries of market access involved in unilateral liberalizations and (c) gather size and experience to maximize the benefits and minimize the costs of worldwide integration.

Even though both the North-South and South-South agreements that have been proliferating in the region serve these objectives, the latter, given the implicit lower asymmetries of size and technology, involve lower risks of major import dislocations for the smaller, less developed partners. One can then argue that, apart from geopolitical considerations and the standard gains

from trade, the main motivation behind South-South agreements is to achieve greater integration while overcoming some of the disadvantages of small size and technology.

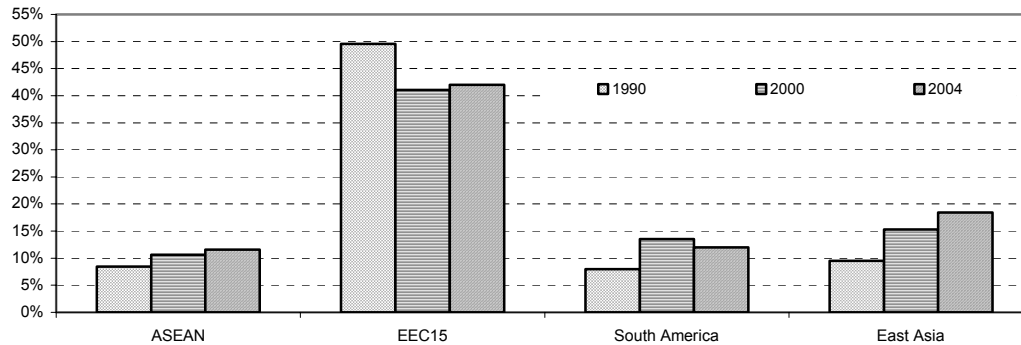
In a world economy where economies of scale are rife, by getting together, these countries could offer their firms an enlarged domestic market, helping them to compete against their considerable larger and more knowledgeable counterparts in the developed world. A larger domestic market would help not only by increasing local firms' production runs, which would reduce average costs and expedite learning, but also by creating the conditions for the development of a broader network of suppliers. The point here is that the division of labor depends on the size of the market. Given that most intermediate good industries have economies of scale, their development depend on production runs achieving a minimum scale, which in turn, depend on the size of the market. Therefore, large markets are bound to have more local suppliers whose interaction and proximity with final good producers tends to generate higher productivity and lower costs.

This motivation, though, cannot be translated into something meaningful if the flow of goods and services are hampered by high trade costs driven either by lingering tariff and non-tariff barriers or by a precarious infrastructure. The more so because South-South agreements in the region, even as ambitious as the one envisaged by the South American Community of Nations (SACN), tend to form markets that are still small *vis-à-vis* countries and trade blocs in the North or even in developing Asia. For instance, the GDP of the SACN, which would integrate the whole South America, is just 9 percent of that of the US and roughly 70% of China's GDP (WDI 2003 data). The corollary of this limitation is that agreements of this type cannot afford to live with imperfect free trade zones or a precarious infrastructure. High trade costs can render the scale gains irrelevant.

Evidence available suggests that, despite considerable progress made in the last decade, intraregional trade in South America is still relatively low. It rose from 8 percent in 1990 to 14 percent in 1998, only to fall to 12 percent in 2004, after a number of crises in Brazil, Argentina and Venezuela. To put these figures into perspective (Figure 1), in 2004, intraregional trade in the EU-15 was 42 percent and in East Asia, 18 percent, despite the low number of formal trade agreements in the latter region. These figures suggest that South-South agreements in South America are still far from realizing all the potential scale gains from deeper integration and this seems to be rooted in two main gaps. The first one is institutional. Sub-regional blocs such as Mercosur and the Andean Community are still imperfect free trade zones (see INTAL Sub-Regional Integration Reports) and imperfect custom unions and only recently (October 2004) a limited trade agreement between the two sub-regions came into force. The second gap is in

infrastructure. The region suffers from a substantial deficit of infrastructure, which, in conjunction with other trade costs imposed by tariff and non-tariff barriers, conspires to limit trade flows.

Figure 1 - Intraregional Trade 1990-2004 (% of total trade)

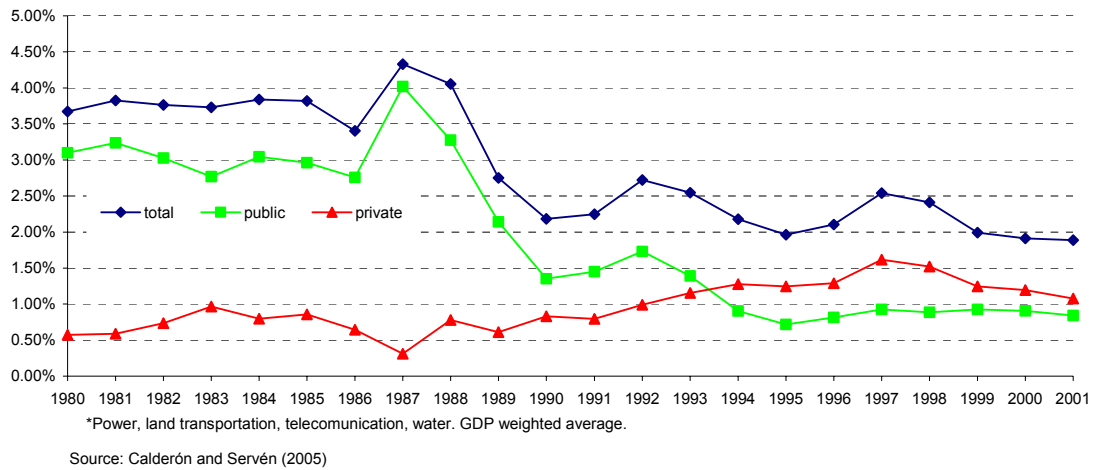


Note: East Asia includes South Korea, Taiwan, Japan and China.
Source: COMTRADE.

It is exactly in this second gap that initiatives such as IIRSA can play a major role. For both historical and geographical reasons, infrastructure has always been a major impediment to intraregional trade in South America. During the colonial days, natural resource exploitation and legal impediments restricted trade mainly to Europe and this was reflected in the infrastructure then built, which served mainly extraregional trade. The fact that the colonies were separated by the Andes and by the Amazon forest was not helpful either. This picture suffered little change in the first century after independence since most economies in the region remained specialized in natural resources, with little to trade among them. Industrialization by import substitution in the second half of the last century changed the economic structure and therefore, the opportunities to trade, yet the protectionism implicit in the inward looking strategy, despite the rhetoric of regional integration, left little chance for closer trade ties and, therefore, little incentive to invest in intraregional infrastructure.

The crisis of the import substitution strategy in the early 1980s and the ensuing trade liberalization opened new opportunities for regional integration and the boom in intraregional trade that followed exposed very clearly the bottlenecks in infrastructure. Yet, the fiscal consequences of the crisis, which are still felt these days, imposed tight budget constraints for most regional governments, and left little room for public investment in infrastructure. These fiscal constraints alongside efficiency considerations led the region to privatize utilities, ports and

Figure 2: South America Investment in Infrastructure* (% GDP): 1980-2001.

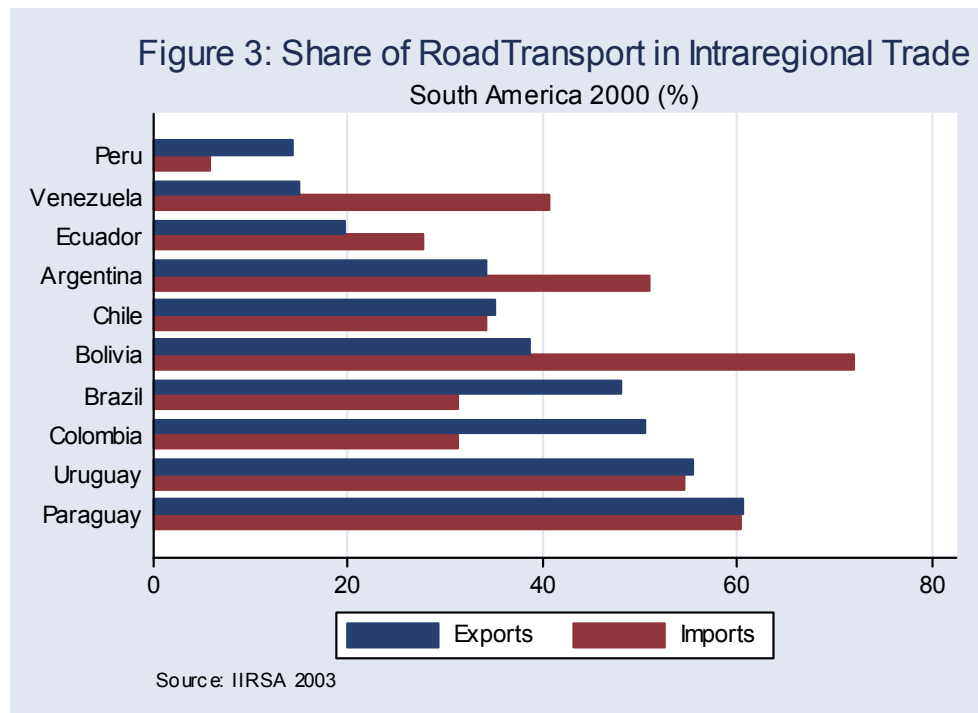


roads in a bid to attract private investment. Privatization did improve efficiency in most countries (see e.g. Chong 2004 and World Bank 2004) and boosted private investment particularly in telecommunications, but, as shown in Figure 2, this was not enough to compensate the drastic and overall fall in public investment.¹ The limited flow of private investment is likely to be rooted in many circumstantial causes such as the region’s macroeconomic volatility, regulatory missteps and a deteriorating global market for private financing of infrastructure assets. Yet, given the importance of externalities in infrastructure projects (see Prud’homme, 2004), particularly in those that involve several countries, it is hardly surprising that the private sector did not make up for the public investment retrenchment.

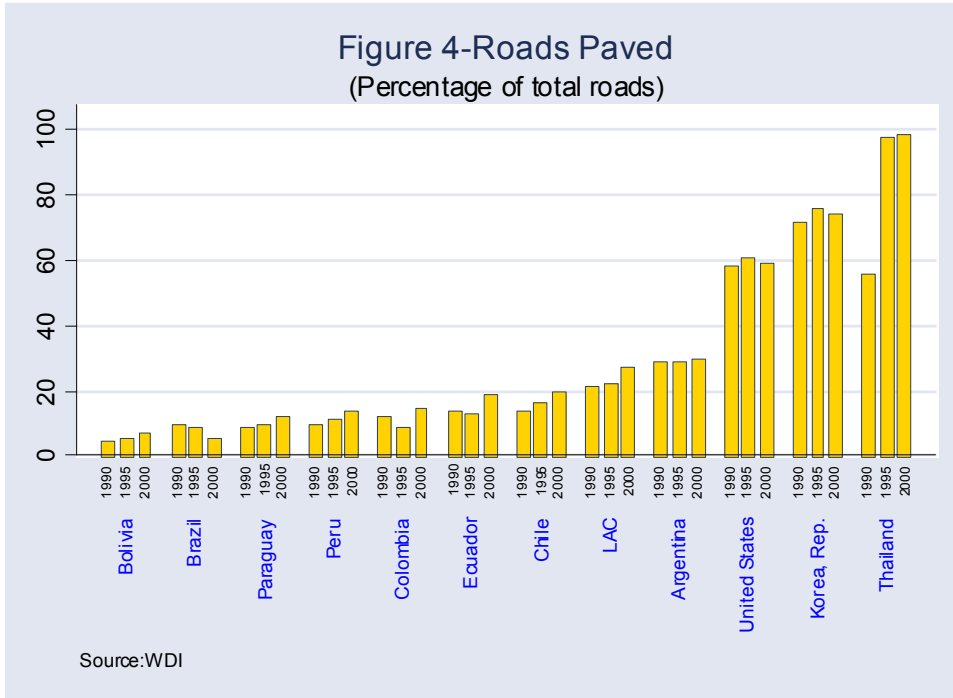
Whatever the causes, the fact is that the underinvestment of the last two decades has aggravated the region’s infrastructure deficit, further undermining both the quality and availability of the infrastructure services. As show in Calderon and Servén (2003), whereas in 1980 most countries in the region had infrastructure stocks (telephones, roads and electricity) above the “international norm”, i.e., above what would be predicted by their per capita income, the situation was mainly reversed in 2000 (with the exception of telecommunications), with the majority of countries having stocks below the “norm”. Transport, a key element of trade costs, is exactly where the situation is more difficult. For instance, in road transport, which accounts for the bulk of intraregional trade for most South American countries (see Figure 3), the region lags well behind East Asia and the industrial countries (see Figure 4). In maritime freight, things do not look good either. Table 1 shows that transit times through Brazil’s ports (i.e. the total time needed for cargo to pass through the port, from ship call to port exit gate) are well above those in developing Asia.

Table 1 - Port Transit Times Compared (days)				
	Brazil	China	India	Malaysia
Imports:				
Average	13.8	7.5	10.4	3.4
Longest	32.4	12.2	21.6	7.4
Exports:				
Average	8.4	5.5	5.1	2.6
Longest	16.9	8.1	9.3	5.1

Source: World Bank, Investment Climate Assessments 2004



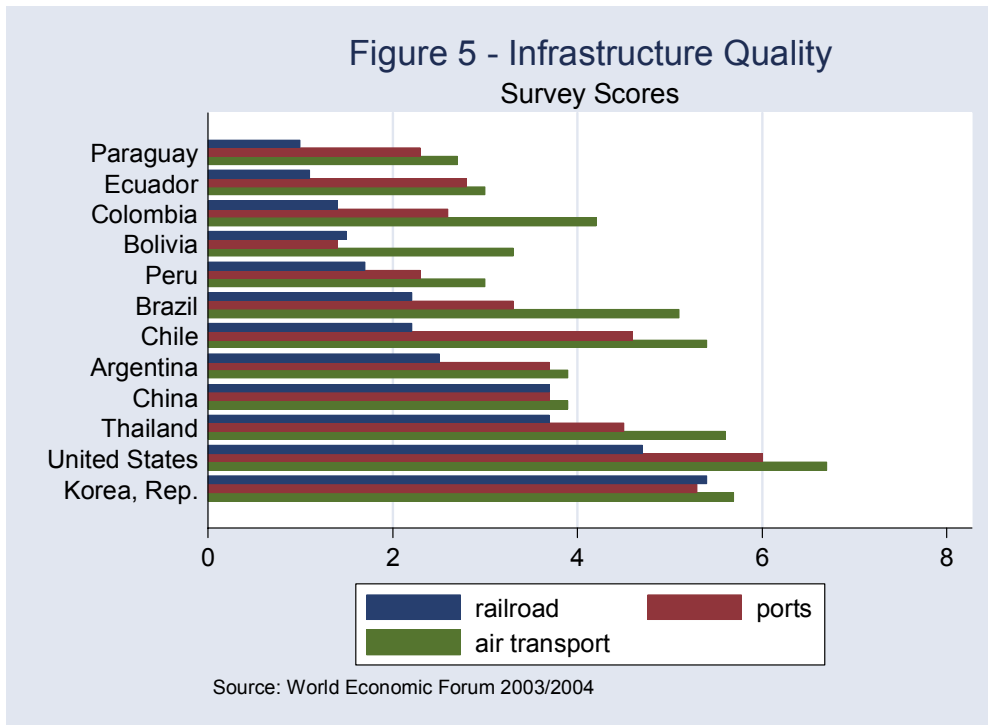
¹ Colombia and Chile are the only exceptions to this trend.

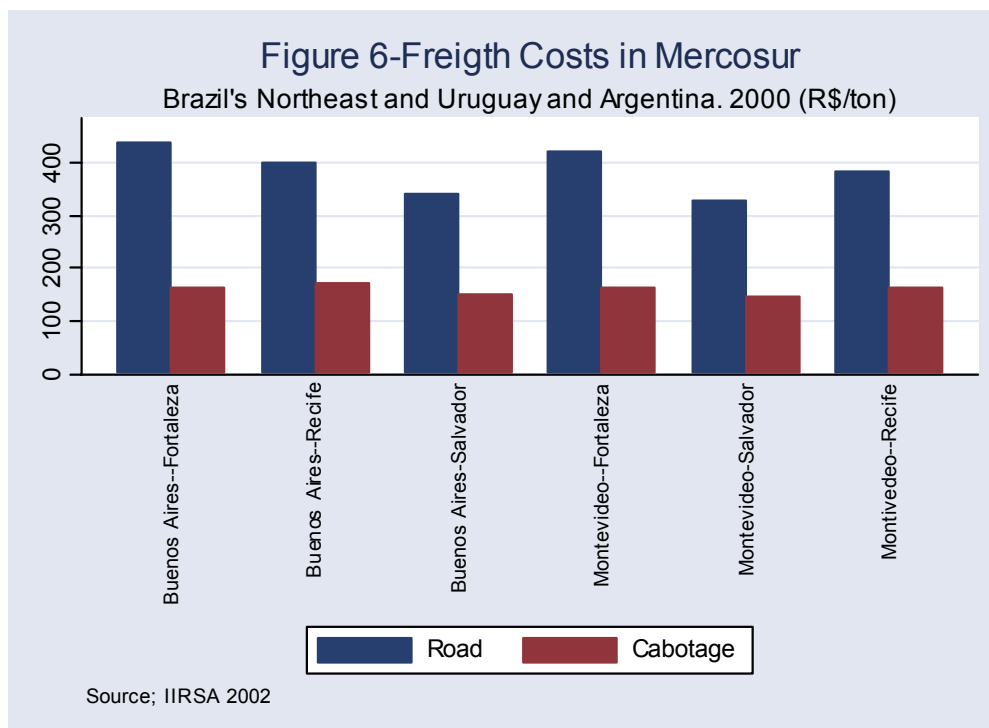


This worrying picture is also captured by the quality indicators of the Global Competitiveness Report (2003/2004, Figure 5), where, rail and ports, which generally represent the two most cost efficient modes of transportation, performing badly in all countries of the region (roads are not part of the survey).

The quality and efficiency problems are compounded by South America's choice of transport modes. As Batista da Silva (1996, p. 19) put it "in emphasizing roads over rail, river and costal logistics systems, these countries have selected the most expensive as well as the least environmental friendly option for their infrastructure system. " In Brazil, for instance, where roads respond for more than 90 percent of transport costs, avoidable logistic costs by means of a more cost-effective use of multimodal transport, "were adding more than US\$ 1.2 billion per year to the costs of external trade and at least US\$ 1.3 billion per year to the costs of domestic interregional trade in corridors with available rail services" (World Bank 2004 P.18).

In Argentina, the excessive costs of a road-based transport system can be gauged by estimates, which, in 1999, put road, rail and fluvial freight at respectively at US\$ 13, US\$10.5 and US\$ 5 per ton (Thomson et al 2003). Estimates for truck and maritime freights between Brazil's northeast and Uruguay and Argentina (Figure 6) also suggest that by fostering multimodal transport, IIRSA can help the region not only to fill the infrastructure gap, but also make sure that this gap is filled in a more cost-effective faction.



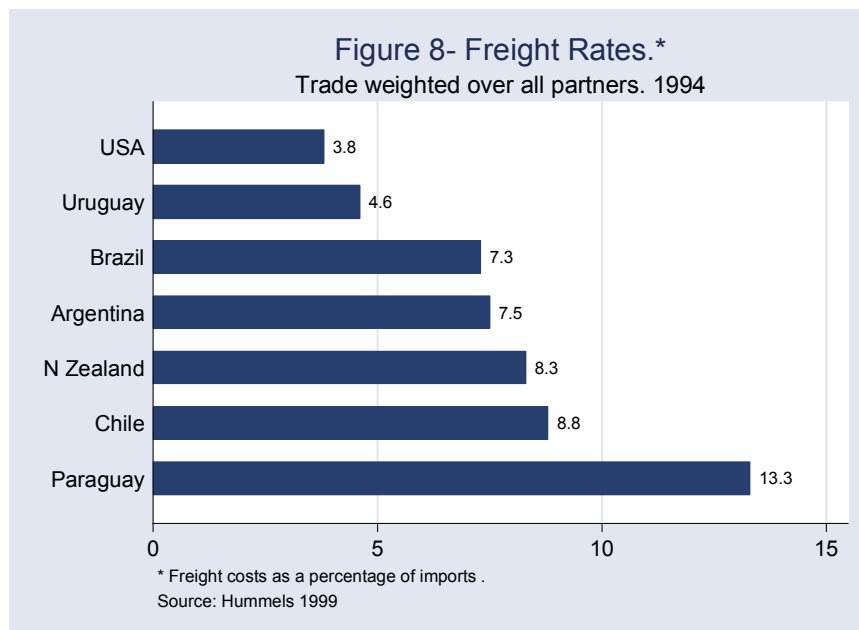


The importance of overcoming South America’s infrastructure deficit and eliminating its bias towards extraregional trade and road transportation goes beyond maximizing the benefits of integration. It can also play an important role in minimizing the risks that are common to South-South integration. In a group of countries with similar technology and resource endowments, integration can lead to the agglomeration of economic activities and, therefore, to an uneven distribution of benefits. Even though agglomeration can boost efficiency and raise income levels for the region as whole, a sharp increase in regional disparities can lead to a political backlash, which, in turn, can halt or even reverse the process of integration. These politically undesirable effects can be mitigated by the use of fiscal and financial incentives, but above all by making sure that all countries in the region have good access to infrastructure. Section 3 discusses this issue in more detail.

Section II- Infrastructure and policy-related trade costs.

South America’s move towards multilateral, unilateral and preferential trade liberalization has gone a long way towards bringing down policy-related trade costs such as tariff and non-tariff measures (IDB 2002). Even though this process has fallen well short of creating a fully-fledged free trade zone in the region, the precarious conditions of the infrastructure suggest that the progress towards reducing transport costs has been far more modest. In fact, one can argue that

countries may have more to gain from supporting an initiative such as IIRSA, than from perfecting their preferential trade agreements. That is, governments may be well advised to move away from an integration strategy that has so far been almost exclusively based on formal trade agreements, to a strategy that reflects more accurately the importance of the obstacles that lie, literally, on the ground. But how important are transport costs? To what extent they reflect deficiencies in the infrastructure as opposed to distance? How they measure up against tariff and non-tariff costs?



These are all very important empirical questions and to answer them rigorously would involve time and data requirements that are well beyond the scope of this document. It is possible, though, with the help of the literature and readily available data, to have a rough estimate of the orders of magnitude involved. Hummels (1999), for instance, estimates freight costs for all trade partners of Chile and Mercosur countries, using 1994 import data from ALADI. As the author warns, it is somewhat tricky to compare freight rates across countries because of difference in valuation, and it is certainly even more complicated to use them to draw conclusions about the quality of the infrastructure because of differences in geography and direction, scale and patterns of trade. Yet, the results are useful to pinpoint an order of magnitude for transport costs and, as it can be seen (Figure 8), it ranges from 4.6 percent in Uruguay to 13.3 percent in landlocked Paraguay, with Brazil and Argentina occupying the middle ground.

Amjadi and Winters (1997), using the same ALADI database, but including insurance in their calculations, look at transport among Mercosur countries plus Chile and between these countries and the rest of the world (Table 2). The advantages of proximity are evident in the lower transports costs of intraregional versus extra-regional trade, and, as in Hummel's paper, Paraguay appears with the highest transport costs in the subregion, be that in the intra or extrarregional trade

Table 2--Average Transportation Costs on Imports to Mercosur Countries and Chile, 1993* (%)

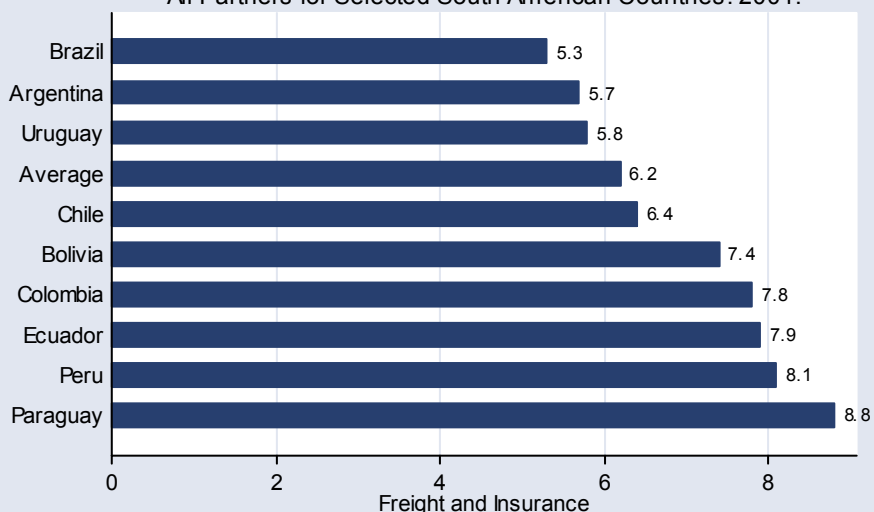
Exporter	Argentina	Brazil	Paraguay	Uruguay	Chile
Mercosur	6.2	5.6	10.8	2.6	8.9
Rest of the World (except Chile)	12.3	12.2	22.7	14.0	12.7
Argentina	-	6	12.2	2.4	8.3
Brazil	6.7	-		3.3	9.2
Paraguay	6.3	2.6	-	4.9	10.9
Uruguay	4.6	6.2	16.2	-	16.1
Chile	8.1	10.7	14.5	8.0	-
Europe	11.3	12.4	18.8	12.5	13.2
US-Canada	14.5	15.4	23.8	12.1	12.5
Asia	16.8	19.3	25.5	16.2	14.9

* Freight Rates as a percentage of Imports. Weighted averages using imports from Mercosur as weights. Includes Insurance
Source: Amjadi and Winters 1997.

Thomson, Sanchez and Bull (2003) using import data from an ECLAC database have also tried to measure transport costs in South America, but covering a more recent year--2001. Their results

Figure 9-Freight and Insurance Costs as a % of Imports

All Partners for Selected South American Countries. 2001.



Source: Thomson et al. 2003

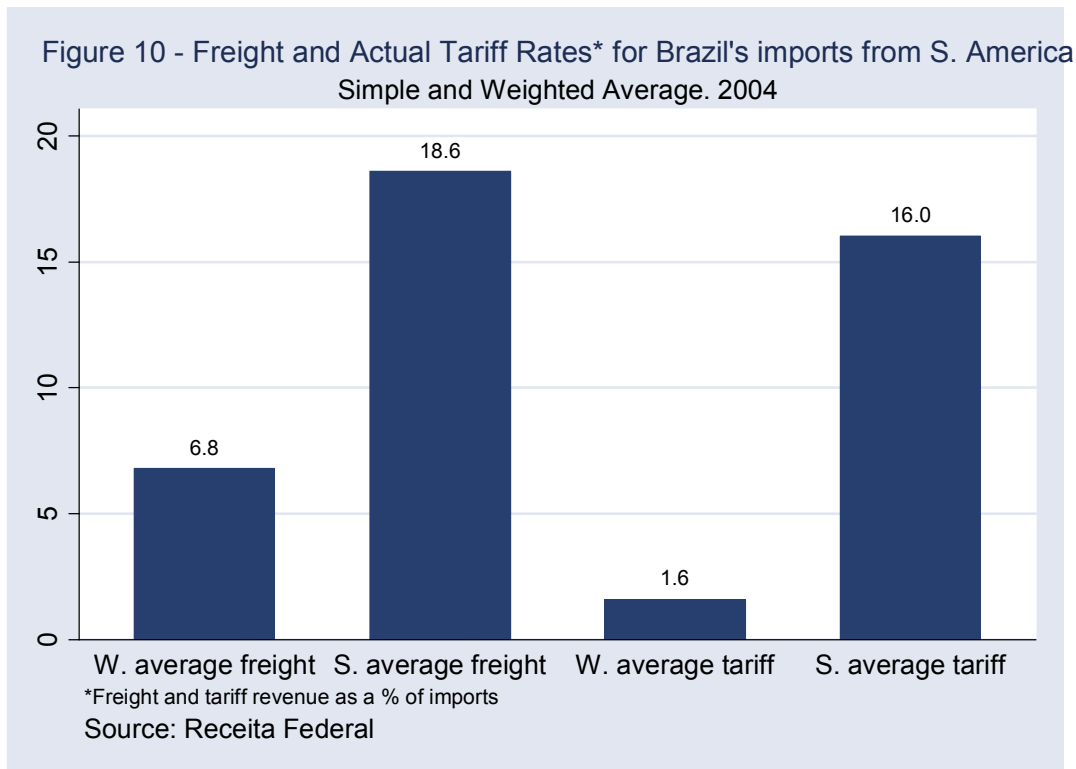
(see Figure 9) are in the same ballpark as Hummel's, but they generally suggest somewhat lower freight expenses, particularly because, unlike Hummel's, they include insurance costs. It is also worth noting that in all studies Paraguay came out as the country with the highest freight costs and seems to be paying a higher price for being landlocked than Bolivia. For the other countries, the ranking changes significantly, but Uruguay remains among the countries with the lowest freight costs.

Other studies such as Micco and Perez (2001) and Clark, Dollar and Micco (2004) use trade mirror data to calculate freight costs, an approach that, as the authors themselves acknowledge, is plagued by differences in concept and measurement.² The results, though, are not that much different from Hummel's and Thomson et al.'s (2003). In their calculations freight cost represented 5.25 percent of world imports, whereas for Latin America and Latin America excluding Mexico (whose results are affected by the proximity with the US) the same figure would stand at 7 and 8.3 percent, respectively (compared to 8 percent for Asia and 11.5 percent for Africa).

These figures, with perhaps the exception of Paraguay, may seem low, yet there are a number of issues that suggest that they are underestimating the magnitude and impact of transport costs. First, as Hummel's (op, cit p.5) put it "aggregate freight expenditures are low because import choices are made to minimize transport costs." This is supported by the fact that trade weighted freight rates are usually at the low end of a wide range of observed rates. Second, even if trade weighted rates are taken at their face value, they tend to be higher than the preferential tariffs applied for most of South American intraregional trade. And third, econometric estimates suggest that trade flows are in fact quite sensitive to changes in transport costs. For instance, Limao and Venables (2001) found that a 10-percentage point increase in transport costs typically reduces trade volumes by approximately 20 percent. Likewise Clark, Dollar and Micco (op. cit.) estimated that a reduction in country inefficiencies associated to transport costs from the 25th to 75th percentiles (the higher the percentile the greater is the efficiency) imply an increase in bilateral trade of around 25 percent.

² Trade mirror data use import (CIF) and export (FOB) values to calculate freight rates.

A closer look at freight and tariff data for the largest country in the region—Brazil—reinforces some of these points. The data is from Brazil’s Internal Revenue Service (Receita Federal) and covers imports from all South American countries that are members of ALADI.³ Data includes freight and insurances charges (separately), mode of transport and port of entry. Apart from geography, and trade pattern and volume, the data reflects infrastructure conditions in both Brazil and its South American partners.

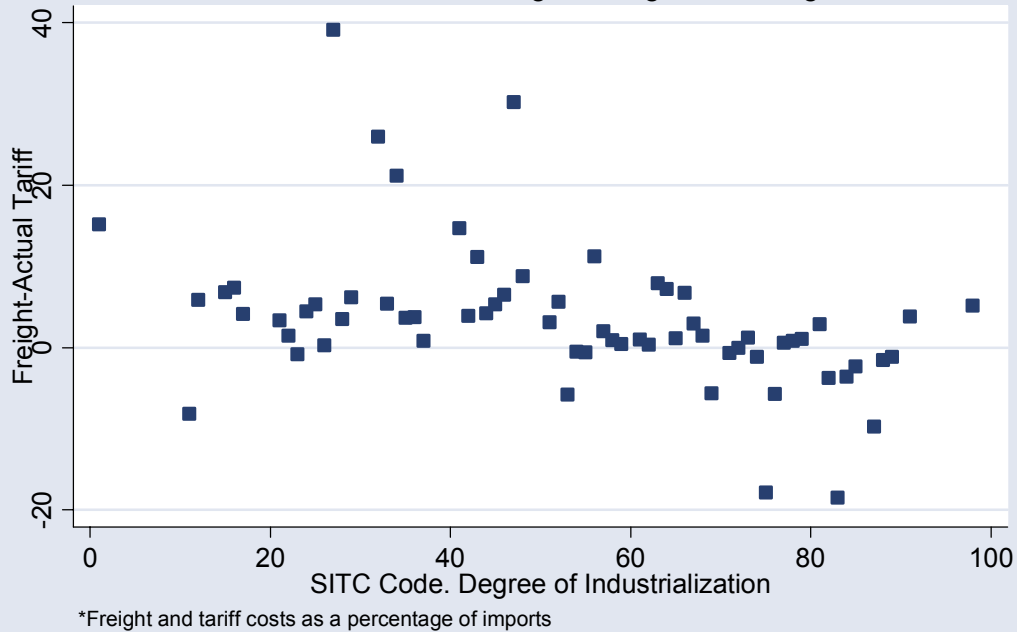


As can be seen in Figure 10, the weighted average freight rate is 6.8 percent, but the simple average jumps to 18.6, underscoring the argument made above that trade weighted freight rates tend to underestimate transport costs, being the result of a cost minimizing exercise. It is also evident that freight rates are higher than actual tariff rates (tariff revenue divided by the value of imports), particularly when weights (FOB import value) are used. As in the case of transport costs, the difference between the weighted and simple tariffs reflects not only comparative advantages, but also changes in trade flows imposed by trade costs--in this case protection. The high simple average tariff is a powerful reminder of the limits of trade liberalization in the region, but the fact that freight rates are higher corroborates the point made earlier that transport

³ Argentina, Paraguay, Uruguay, Bolivia, Chile, Colombia, Peru, Venezuela and Ecuador.

Figure 11-Difference Between Freight and Actual Tariff Rates*.

Brazil 2004. SITC 2 digits. Weighted Average

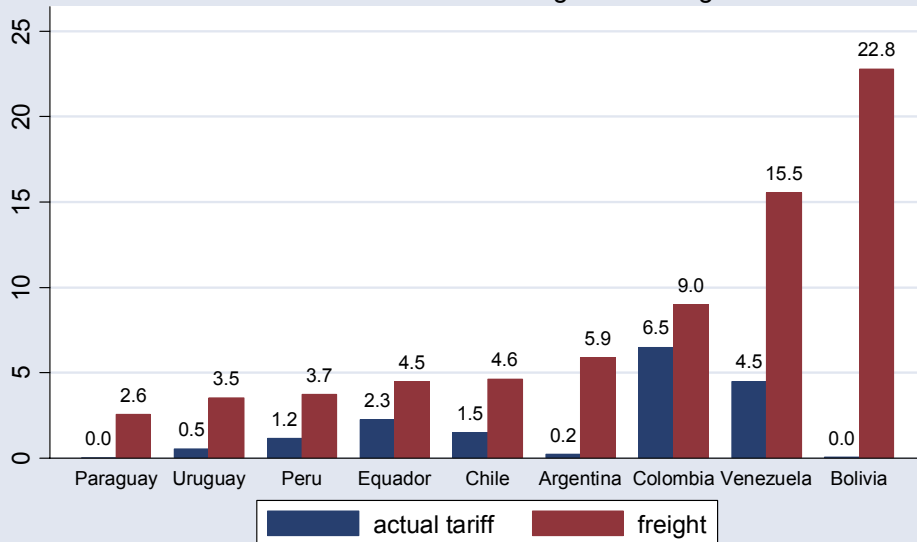


cost these days are a bigger impediment to trade than trade policies, and therefore, one needs a more balance approached to integration.

Figure 11 gives an overview of the differences between freight and tariffs across commodities at the 2 digit SITC level, ordered roughly by their degree of industrialization. The results show that freight rates are higher than tariff rates for most sectors, but the difference tends to decline as one moves from less to more industrialized goods. The fact that commodities have higher transport costs is not something specific to South America or to Brazil, but the tariff escalation that

Figure 12-Freight and Actual Tariff as a % of Imports to Brazil.

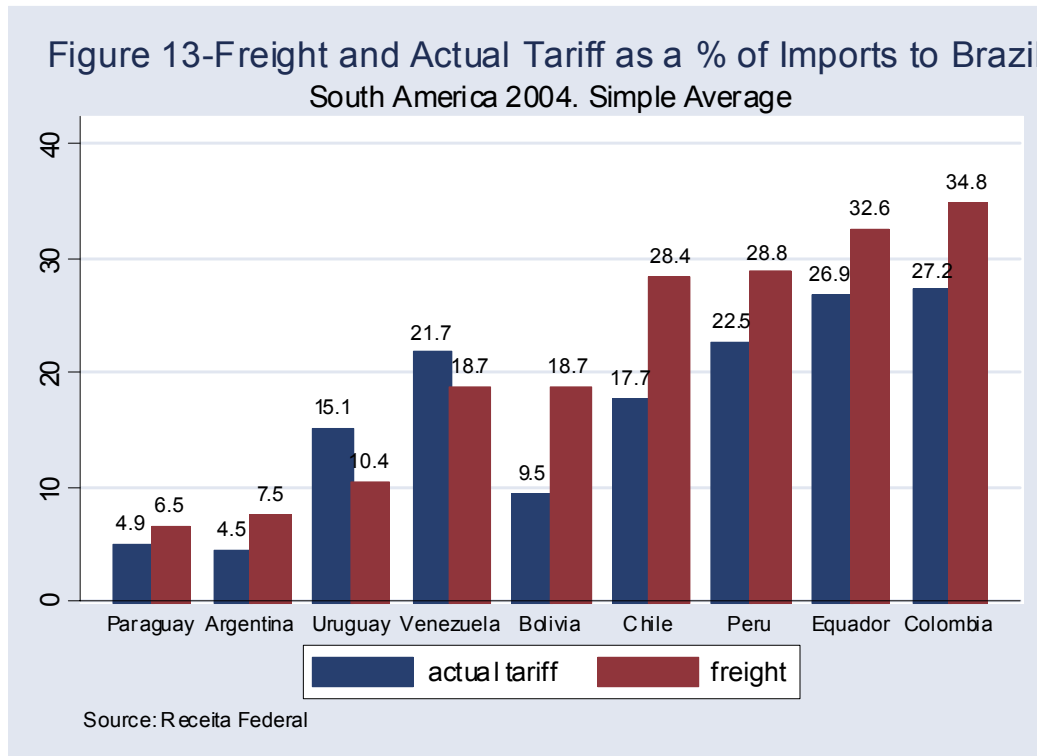
South America 2004. Weighted Average



Source: Receita Federal

characterizes Brazil's tariff schedule, and Mercosur common external tariff for that matter, also plays a relevant part in this declining trend.

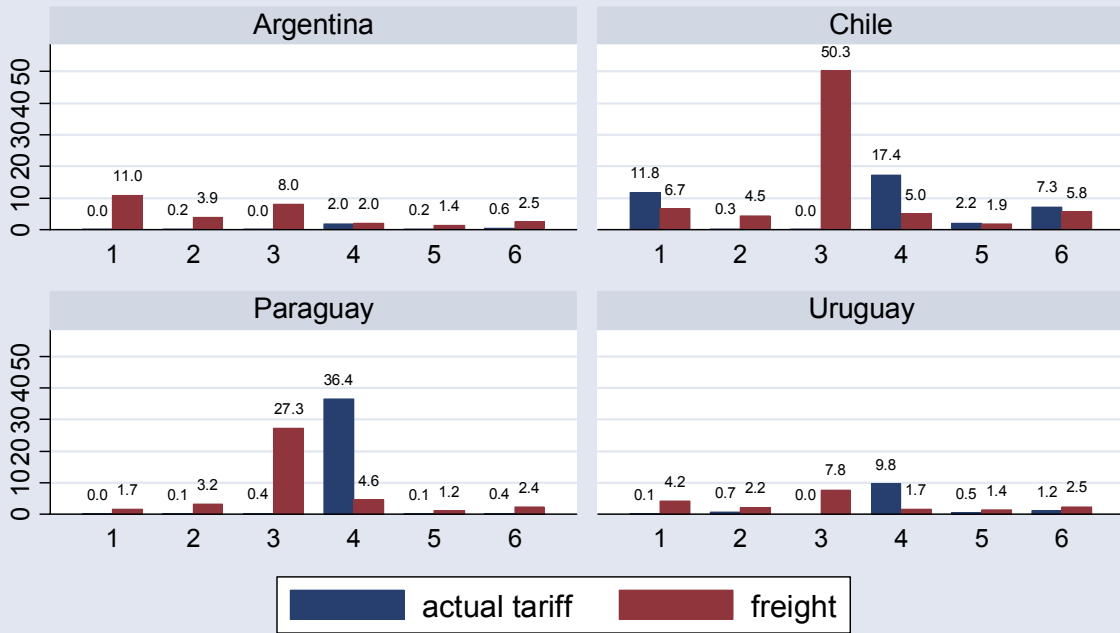
Figure 12 and 13 look at freight and tariff rates across countries. As mentioned earlier, it is difficult to compare freight rates across countries because of differences in geography and trade patterns, but the results confirm the dominance of transport over trade policy costs for all the countries in the region. This dominance is particularly high in the case of Bolivia, Venezuela and



Argentina, but, again, the results change significantly when the weights are dropped. In this case, transport costs remain dominant for all countries except for Uruguay (despite Mercosur!) and Venezuela, but both transport and tariff costs are much higher suggesting there is a good deal of work to be done in both fronts, even in the more integrated Mercosur.

In other to reduce the influence of different patterns of trade in the cross-country results, Figures 14 to 17 examine freight and tariff rates by broad economic categories. Figure 14 look at Mercosur plus Chile and show that for Mercosur countries both freight and tariff rates, when weighted by imports (Figure 14), are low by any standards, but it also shows that freight rates are the dominant cost for all category of goods except for capital goods in Paraguay and Uruguay. Since these countries are not significant producers of capital goods, these tariff peaks probably reflect inputs that do not comply with Mercosur's rules of origin restrictions. For not being a full

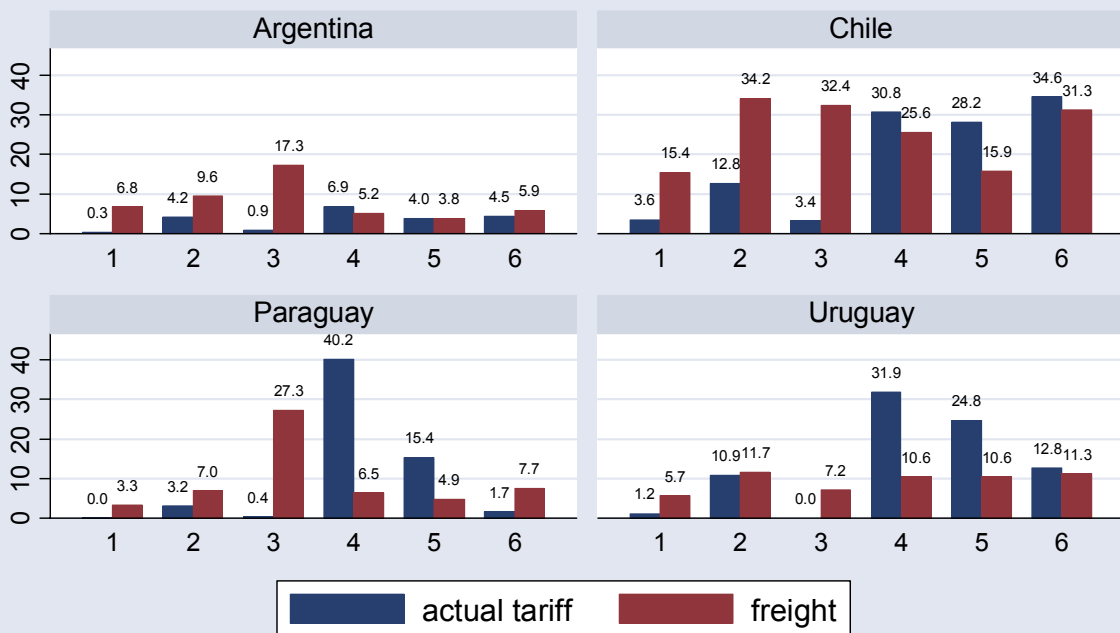
Figure 14- Freight and Actual Tariffs as a % of Imports to Brazil
Merscosur&Chile. Trade weighted



Source: Receita Federal.

Note: 1=Food 2=Industrial supplies 3=Fuels 4=Capital goods 5=Transport equip. 6=Consumer goods

Figure 15- Freight and Actual Tariffs as a % of Imports to Brazil
Merscosur&Chile. Simple average



Source: Receita Federal.

Note: 1=Food 2=Industrial supplies 3=Fuels 4=Capital goods 5=Transport equip. 6=Consumer goods

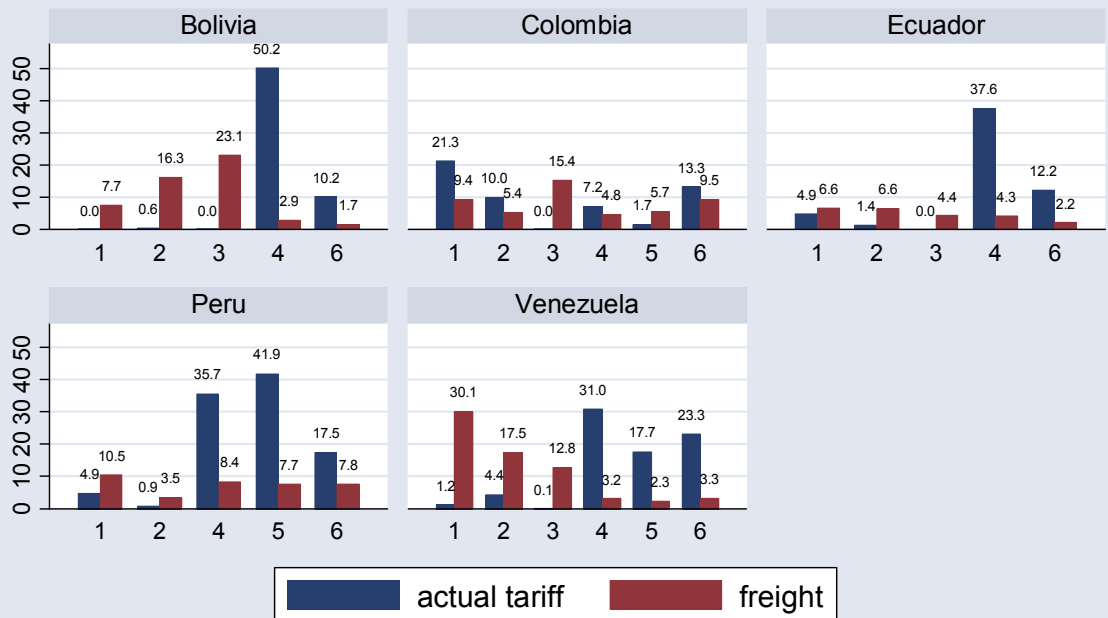
member of Mercosur, Chile has higher tariff costs which top freight costs in most categories apart from industrial supplies and fuels. The simple averages, shown in Figure 15, reveal a somewhat different picture for the subregion, where both freight and tariff rates are higher, reaching a level which seems to be excessive by international standards, particularly given the countries' proximity and integration process. Tariff rates tend to be the dominant trade cost for capital, transport and consumer goods.

In the case of the Andean Community (Figures 16 and 17), distance, Brazil's tariff escalation and the lack of a fully implemented trade agreement seem to play a strong part in a scenario where most countries have higher tariff than transport costs in capital goods, transport equipment and consumer goods, even when weights are used. Unlike Mercosur where the most promising integration gains seems to be in reducing transport costs, with the Andean community the agenda appears to be more balanced, with further trade liberalization also promising sizeable gains.

To gather further insights on transport costs in the region, Figures 18 to 20 look at freight costs by transport mode across Brazil's South American trade partners. Figure 18 reveals the transport mix by country. Road transportation plays a major roll in imports coming from Mercosur countries and Chile, particularly in Uruguay and Paraguay where it responds for more than 60 percent of total imports. Maritime freight is also important, particularly for goods coming from Argentina and Chile, but the shares of the other modes are very limited despite the geographical (fluvial) and cost advantages. In imports coming from the Andean Community, maritime freight is by far the dominant mode of transportation, with air transport coming as a distant second. The exception is Bolivia, which exports mainly natural gas to Brazil via a pipeline and is landlocked. The predominance of maritime transport in the Andean Community is not surprising giving the distances between these countries and Brazil's major markets, yet one wonders if the lack of infrastructure is not also holding back other modes of transportations, particularly with regard to trade with Brazil's North and Central regions.

Figure 19 goes one step further and compares freight costs by transport mode and broad economic categories (BEC) for imports coming from Mercosur and Chile. As expected, airfreight tends to be the most expensive transport alternative for most categories and for most countries, whereas road freight is the cheapest. Yet it is worth noting that there is no clear inverse correlation between transport mode shares of total imports and freight costs (see Figure 21).

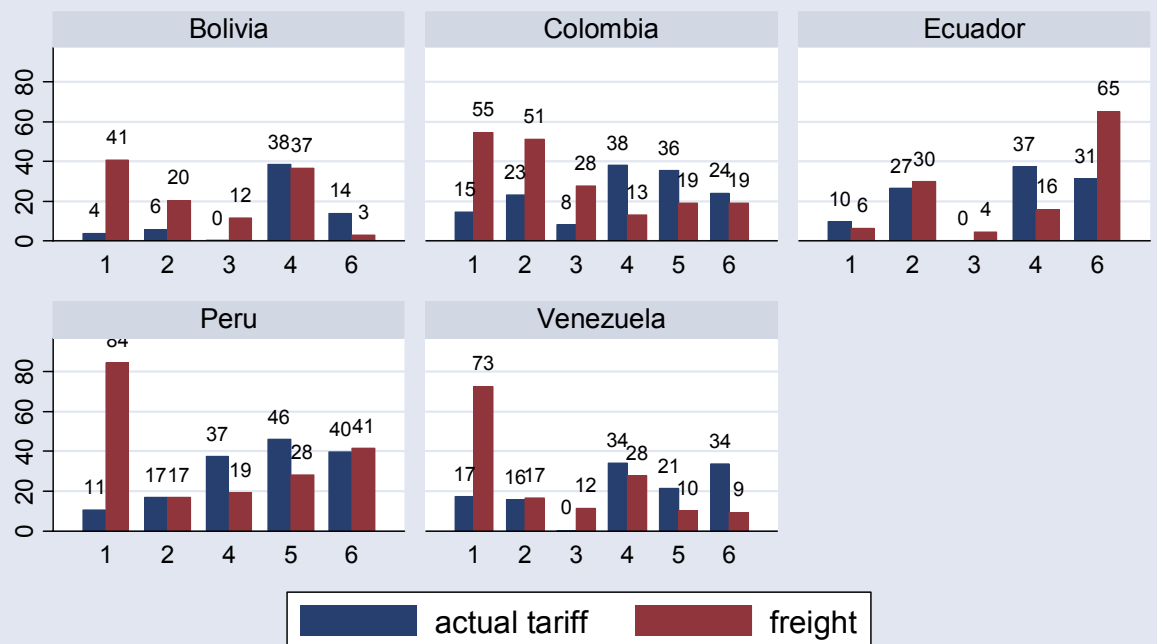
Figure 16- Freight and Actual Tariffs as a % of Imports to Brazil
Andean Community. Trade weighted



Source: Receita Federal.

Note: 1=Food 2=Industrial supplies 3=Fuels 4=Capital goods 5=Transport equip. 6=Consumer goods

Figure 17- Freight and Actual Tariffs as a % of Imports to Brazil
Andean Community. Simple average



Source: Receita Federal.

Note: 1=Food 2=Industrial supplies 3=Fuels 4=Capital goods 5=Transport equip. 6=Consumer goods

For instance, in the case of Argentina, maritime freight accounts for 64 percent of total imports of food and yet its average freight rate is just a fraction cheaper than airfreight, which accounts for less than 1 percent of shipments. Likewise, even though rail freight appears to be the cheapest alternative for importing food, it accounts for only 1 percent of total imports. Given that there are a number of variable that cannot be observed (e.g. quality and duration of the shipment), it would be inappropriate to draw strong conclusions, yet one of the reasons behind these results might be a transport cost minimization constrained by the lack of appropriate infrastructure.

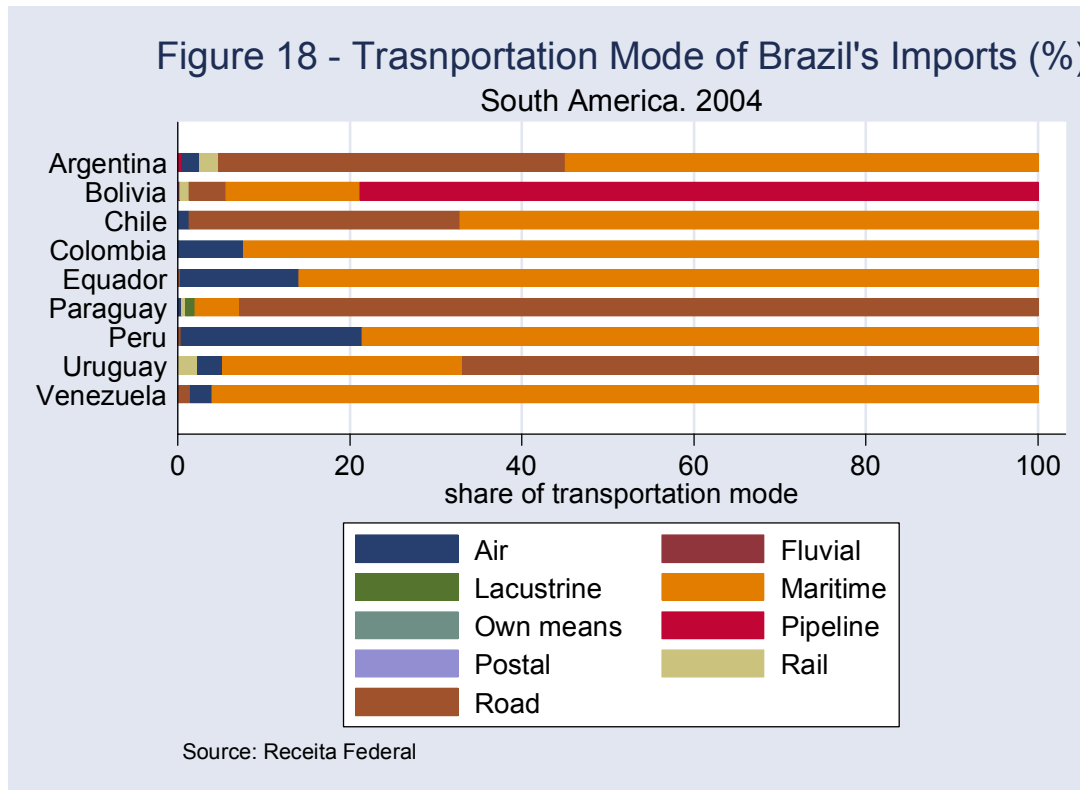
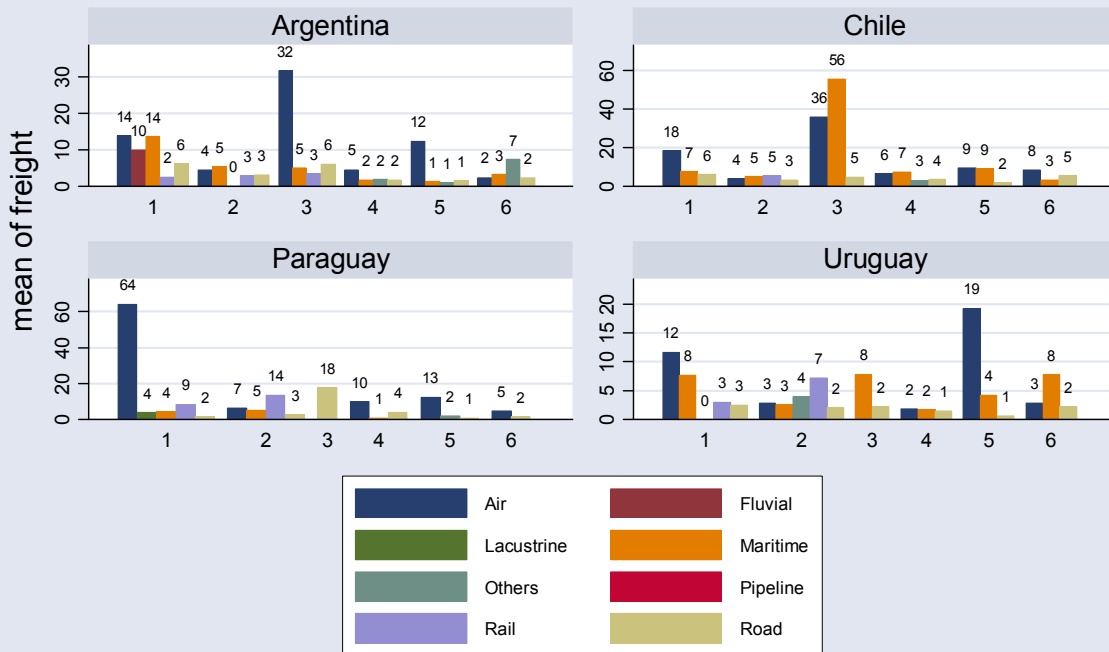


Figure 20 presents the facts for the Andean community and the same patterns emerge, with clear signs that there might be room for lower transport costs with improvements in the infrastructure and with the selection of a more costs effective transport mix (Figure 21).

In sum, partial estimates of transport and tariff costs in South America, taking Brazil as a hub, reveal that the former are in general higher than the latter. Clearly, there still work to be done in terms of reducing tariffs, particularly in manufacturing trade and in trade between Mercosur and the Andean Community, but the estimates do not warrant an exclusive focus on trade agreements. A more balanced approach, which takes into account the importance of transport costs, is more likely to produce a deeper integration. When taken at face value, transport costs

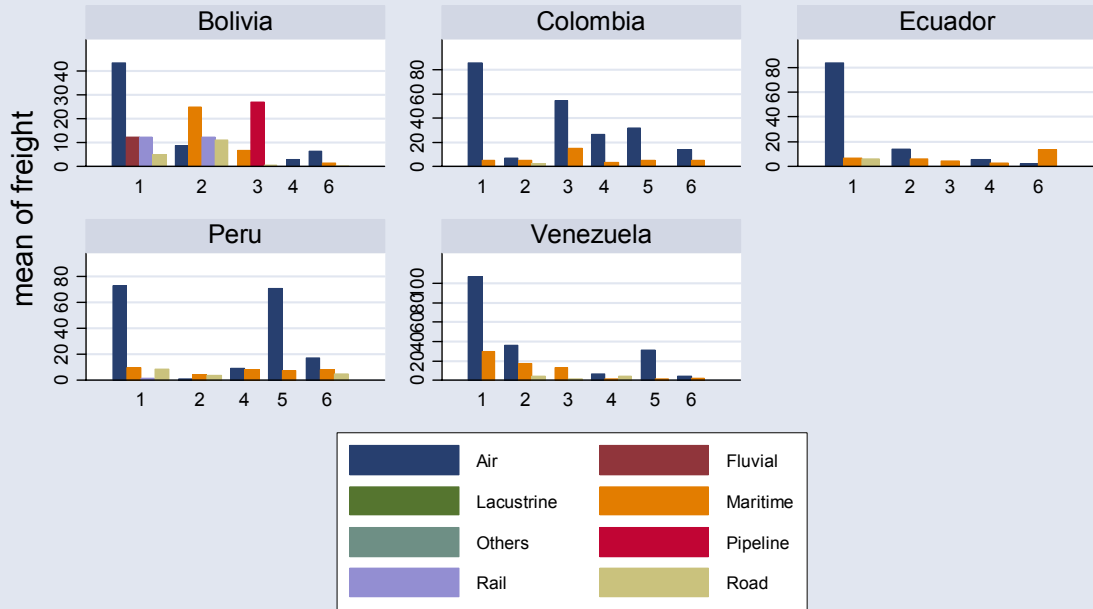
seem relatively small, yet their actual impact is much higher because observed data already reflects an attempt by the private sector to minimize those costs.

Freight Rates of Brazil's Imports by Transport Mode
Figure 19- Mercosur and Chile. 2004 (%)



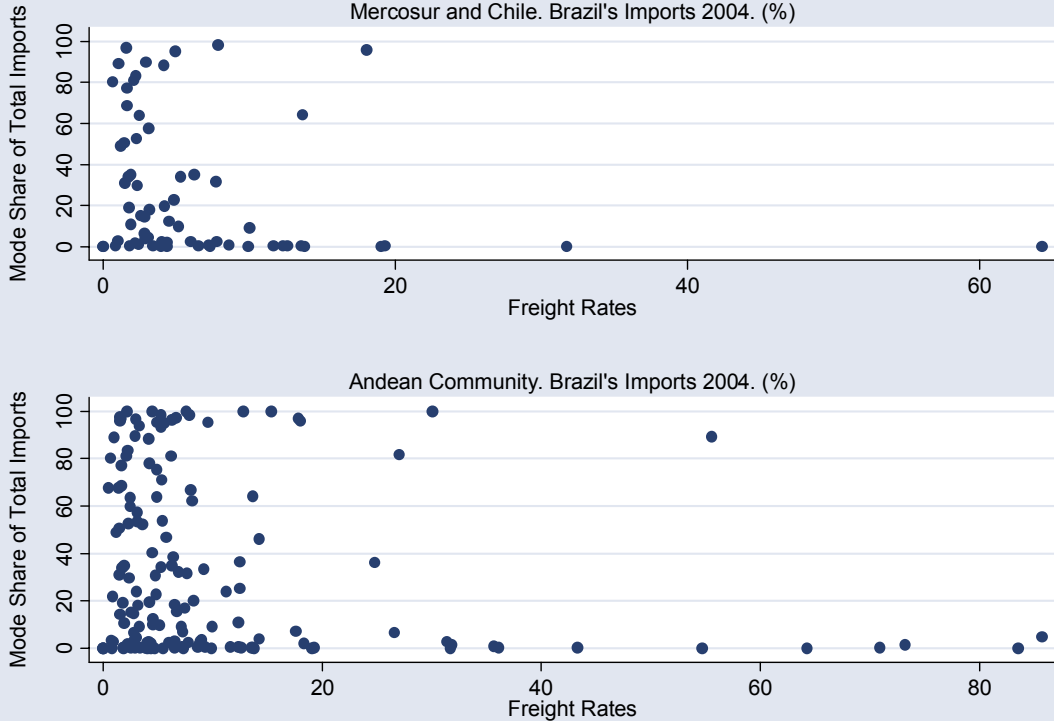
Note: 1=Food 2=Industrial supplies 3=Fuels 4=Capital goods 5=Transport equip. 6=Consumer goods

Figure 20-Freight Rates of Brazil's Imports by Transport Mode and BEC Andean Community. Trade weighted. 2004 (%)



Note:1=Food 2=Industrial supplies 3=Fuels 4=Capital goods 5=Transport equip. 6=Consumer goods
Source:Receita Federal

Figure 21-Correlation Between Freight Rates and Transportation Modes. Mercosur and Chile. Brazil's Imports 2004. (%)



Section III-The impact of IIRSA on regional disparities and growth.

IIRSA's primary goal is to develop South America's infrastructure and deepen regional integration. Yet one cannot lose sight of the initiative's impact on the countries' ultimate goals to reduce regional disparities and promote sustainable growth. This section takes stock of the links between infrastructure, regional development and growth, reviewing the theoretical and empirical literature.

The regional issue- Starting with regional development, it is well known that Latin America, in general, and South America, in particular, have serious regional disparities, with some of them being aggravated by trade liberalization. In Mexico, for instance, the benefits of NAFTA were mainly felt in the Northern border region, which helped to increase the income gap vis-à-vis the South (Chiquiar 2005) and in Brazil, Mercosur has mainly benefited the South and Southeast regions, with little impact in the other, less privileged areas of the country (Haddad, Dominguez and Perobelli 2002). It is also clear that exports in most countries are heavily concentrated on particular regions, a pattern that is not conducive to a smooth distribution of integration gains. In Chile, for instance, 3 out of 13 regions (Antofagasta, Metropolitana and Bío Bío) account for more than 50 percent of total exports.

Economic theory, particularly from an economic geography point of view, acknowledges the risk of a negative impact of integration, regional or otherwise, on regional disparities. For instance, Venables (2005) points out four mechanisms through which integration may lead to a widening regional income gap: (a) trade liberalization may promote factor price divergence by lowering the returns of human and physical capital and promoting capital flight in some regions; (b) the costs and benefits of trade diversion in preferential liberalizations may be unevenly distributed, imposing income losses for the more disadvantaged regions; (c) "locations with good market access will tend to attract firms, and this can be a cause of disparity" (p.3); and, (d) because of cumulative causation mechanisms, associated with economies of agglomeration, regional integration may lead to concentration of activity on established centers. Note that these forces may drive not only within-country, but also between-countries disparities.

One could argue that increases in regional disparities triggered by integration are part of a process that makes the whole economy more efficient. Spatial concentration of industries may lead to externalities due to technological spillovers, labor market pooling and input sharing, raising overall productivity. If labor is free to move, there might be adjustment costs, but the country or the region as a whole will be better off.

The problem with this argument is threefold: it overlooks the difficulties of the political economy of integration—political forces of the constituencies or countries that loose activities are not likely to be so high minded as to think just in terms of the overall welfare. Second, in South America, spatial changes brought about by integration take place in an environment already marked by high level of disparities both within and between countries, so, if, indeed, integration deepens these disparities, it can make an already uneasy political situation unsustainable, endangering not only integration, but also the social stability of the region. This risk is all the more relevant because most agreements in the region do not allow for free movement of labor. Finally, the all too common mega-cities in the region suggest that there may be little to gain by further concentrating economic activities. In fact, given the extreme problems of congestion, pollution and housing shortage of South American mega-cities, concentration seem to have gone beyond the socially optimal level, i.e., beyond the level that would maximize agglomeration economies.

It seems justified, then, that South American policymakers take the risks of greater spatial inequality very seriously and consider the policy options available to prevent it altogether or avoid its consequences. Unfortunately there are very few policy experiences to draw relevant lessons. The most relevant case is that of the European Union, where governments have taken a very proactive stance to promote economic convergence, mainly via the use grants to the less developed regions and countries. The results so far has been mixed. Between-country disparities were drastically reduced, but it is not clear what was the role played by the so-called structural and cohesion funds (see Sapir 2003). Moreover, within-country disparities had a noticeable increase (Puga 2002).

There seems to be, though, a growing consensus among analysts that investment in infrastructure may be a powerful tool to, at the very minimum, level the regions and countries' access to the gains of trade. Venables (op cit), for one, argues that disparities are more likely to develop at intermediate levels of integration. That is, a situation where trade costs are not high enough to prevent trade altogether, but are high enough to stop countries from reaping the full benefits of integration. The *rationale* is that low trade costs increase the number of tradable goods, giving regions and countries more options to allocate their resources efficiently and export.

If that is really the case—more empirical research is needed to corroborate this argument—increasing and leveling the stock and the quality of South America's infrastructure can make a significant contribution to mitigate regional disparities. As discussed in the previous section, transport costs seem to be today, for most of South America, higher or as high as tariff costs. This point is also underscored by Behrens (2004), whose theoretical simulations suggest that

transportation infrastructure “plays a crucial role in determining whether economic integration leads to more or less inequality within a country” (p.4).

Both Venables and Behrens raise, however, an important caveat. Lower transport costs, as in the case of tariffs, may also widen disparities, since it makes easier to supply several markets from just one location and may encourage skilled labor to leave. Yet, judging by experiences such as that of Mexico with NAFTA and Brazil with Mercosur, where proximity (i.e. low transport costs) made the difference in terms of regional impacts, one could argue that a well developed infrastructure may not be sufficient to ensure a smooth distribution of integration gains, but it clear seems to be a necessary condition. More to the point, its positive impact may be assured by other policy initiatives involving fiscal and financial incentives designed to trigger development in the less privileged regions.

Growth links- As two analysts put it “that infrastructure accumulation may promote growth is hardly news for developing country policymakers” (Calderón and Servén 2004b). This seems to be particularly the case for Latin American policymakers, who are experiencing firsthand the devastating impact of growing infrastructure bottlenecks, the product of decades of declining investment (see Section I). But what is the theory behind this intuition?

The literature discusses a number of channels through which investment in infrastructure may promote growth, among them: (a) cost reduction of intermediate inputs (e.g. transport, electricity and water), raising profitability, investment and therefore growth; (b) higher productivity of labor (e.g., better health, less time in non-productive activities, better access to information) and capital (allowing e.g. the use of electrical machinery) (Kessides, 1993); (c) trade-related gains fueled by lower transport costs; and (d) market enlargement effects, which raise productivity via greater competition, specialization and economies of scale (Prud’homme, 2004).

All these channels are relevant motivations for an initiative such as IIRSA, but it is in market enlargement that it can make a distinct contribution. By repairing a historical infrastructure bias against intraregional trade and therefore creating the conditions for an integrated market in South America, IIRSA can make a contribution to growth that would go beyond any other national infrastructure project in the region. But how large can this contribution be?

A precise answer to this question is beyond the scope of this document, but there is a growing empirical literature that suggests that the impact of infrastructure on growth can be fairly large. For instance, Calderón and Servén (2003) argue that the “infrastructure slowdown” of the last

two decades would account for as much as one third of the difference in growth performance between East Asia and Latin America. Calderón and Servén (2004b) also suggest a substantial growth payoff from infrastructure development. Their estimates reveal, for instance, that if a country such as Peru were to raise its infrastructure to the level of Costa Rica (the leader in the region), its growth rate would rise by a hefty 3.5 percentage points. Other studies for other regions also point to a high rate of return for infrastructure investment, although estimates vary widely (see e.g. Gramlich 1994). Note that since these estimates are all done at the national level, they do not take into account the potential market enlargement effects of a regional initiative such as IIRSA.

True, these results have to be taken with a pinch of salt because of methodological and data issues (See, e.g., Prud'homme 2004). For instance, there are the simultaneity (growth can lead to infrastructure investment and vice-versa), valuation (how to input value to infrastructure stocks) and usage (what matters is not the stock available, used by most studies, but how much it is been used) problems, which researchers try to control for, but have not been able, so far, to completely eliminate possible distortions. These difficulties in measurement suggest that caution should be exercised in interpreting this literature, but infrastructure bottlenecks in South America are so evident and pressing that the relative weakness of the empirical results seems to take little away from the case for a “big push” in infrastructure, particularly at the regional level.

To argue that IIRSA is likely to have a substantial growth payoff does not imply arguing that any project would generate high returns or that investments in infrastructure should be pursued at any cost. The general need for infrastructure neither exempt projects from being submitted to a rigorous cost benefit analysis, nor exempt countries from respecting their fiscal, macroeconomic and environmental constraints.⁴ Countries should look for sustainable ways to fund and finance their infrastructure, otherwise the costs in terms of macroeconomic imbalances, as the region knows all too well, would clearly outweigh any potential growth benefits. That is perhaps IIRSA's major challenge: to reconcile badly needed infrastructure investments with South America's hard pressing fiscal and financial constraints.

Final Remarks

IIRSA is an unprecedented multi-billion dollar regional initiative, which aims to develop infrastructure in South America. The economic motivation is clear and goes beyond the standard case for infrastructure. IIRSA is part of strategy to promote South-South integration as a means to

⁴ See Tanzi (2005) for the risks of ignoring those constraints.

reap the growth benefits of worldwide integration, while overcoming some of the disadvantages of small size and technology. Within this strategy, IIRSA is set to play a major role in creating a fully integrated regional market, ensuring that the potential scale and learning gains from deeper integration are fully realized and not held back by high trade costs, rooted in a faulty or even inexistent infrastructure.

The importance of this role is underlined by the poor conditions of infrastructure in the region, whose never so satisfactory services and whose historical bias against intraregional trade became even worse after decades of underinvestment. Estimates of transport and tariff costs in South America reveal that the former are in general higher than the latter, and even though they seem relatively small, the potential gains implicit in their reduction tends to be much higher. This is because the observed data already reflects an attempt by the private sector to minimize those costs. The growing importance of transport costs call into question the emphasis that has been given so far to formal trade agreements at the expense of the infrastructure components of trade costs.

IIRSA's role in developing an integrated South American market has also important direct implications for regional development and growth. There seems to be a growing consensus among analysts that infrastructure may be a powerful tool to reduce regional disparities or, at the very least, to prevent trade from aggravate them. Likewise, a number of empirical studies suggest that the growth payoff from investment in infrastructure, particularly in the South America, tend to be high, a key result for a region which have been, with a few exceptions, struggling to resume a path of sustainable growth.

IIRSA also makes an important point in terms of the importance of bringing the state back to coordinate, fund and finance investments in infrastructure. Even though the privatization of utilities have brought substantial benefits to sectors such as telecommunications, it seems clear that technological changes have neither eliminated the public good nature of most infrastructure services, nor dealt with externalities in their production and use. The slump in the overall investment in infrastructure in the last decades seems to corroborate this point, although one has also to factor in the volatile macroeconomic environment that prevailed in most South America. Bringing the state back, though, is easier said than done, particularly due to the stringent fiscal constraints that affect the region. Public and private partnerships (PPP) seems to be a interesting way to reconcile the need for state coordination and intervention with its lack of funds and its management limitations. Chile's successful experience for instance illustrates this point. Yet, the contractual intricacies of the PPPs (Harris 2004) and sheer amount of resources needed to meet

IIRSA ambitious goals call for more direct government involvement. It is up then to the governments to meet this challenge and to find a way to channel resources into an initiative which may be risky but that offers the perspective of a high growth payoff.

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