Chile

TRADE AND INTEGRATION SECTOR NOTE[1]

Technical Note

SUMMARY AND CONCLUSIONS

What are the main issues in Chile's trade and integration agenda? This note sought to argue that Chile's agenda does not lend itself to that traditional kind of policy advice usually given throughout Latin America. Protection is low and uniform, institutions that govern trade policy are strong and well protected from capture by special interest groups and the country has put a lot of effort in opening markets in the region and abroad.

The important issues that come out of the analysis are to a great extent, "second generational". That is, challenges and opportunities that emerges when a country clears the table of the most distortive polices and institutions that mediates its exchanges with the rest of world. And what are those issues? Export diversification, the country's regions access to trade, completion of the "multidimensional" trade strategy and transport costs.

Whereas there is no doubt that Chile has made progress in diversifying its exports away from copper, concentration is still high even when compared to other resource intensive countries. Why this should be cause for concern? There are two sets of arguments related to the gains of diversification per se and the risks of specialization on natural resources. The first set speaks of the gains from higher and less volatile exports earnings, knowledge spillovers and better terms of trade. The second set speaks of the risks of Dutch Disease, truncated technological development, high volatility and weak institutions.

"...to minimize the risks of an export portfolio highly concentrated on natural resources, it seems clear that Chile has at least two main constraints that are likely to be biding for whatever type of diversification policy it may pursue: education and science and technology."

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Banco Interamericano de Desarrollo

Whereas the jury is still very much out on the empirical validity of the arguments-- particularly on the natural resource curse-- the bulk of the evidence available suggests that Chile would be well advised to consider carefully the risks of its current pattern of specialization and to reassess the cost and benefits of policy intervention.

To acknowledge the need to deepen diversification beyond the levels achieved by markets forces is, however, just the first, and in many ways, easiest step. Thornier questions arise when one tries to confront the issues of how to do it and in which direction. The comparison with countries such as Australia suggests that Chile still have room to diversify within its low-risk, natural resource-intensive "cone of diversification", which would require more of the limited type of government intervention that country has successfully experienced so far.

Yet, if Chile wants to minimize the risks of a export portfolio highly concentrated on natural resources, this would involve moving resources towards products in the "high risk" cone, which, in turn, asks for more government action in dealing with market failures stemming from externalities or missing markets. Whatever strategy the country may pursue, it seems clear that Chile has at least two main constraints that are likely to be biding for whatever type of diversification policy it may pursue: education and science and technology.

These constraints would be particularly relevant if the government, as it has already indicated, decides to invest in high-tech services. Chile's current comparative advantages in services are not obvious and are not revealed by the data. Yet the country's prospect in this area could be greatly improved if it removes the anti-export bias embedded in the regulatory framework, liberalizes imports of services and, above all, addresses the limitations of the human capital stock.

On the regional issue, it seems clear that Chile's export-led growth in the last two decades was not evenly distributed across the regions. True, regional disparities have fallen, but their level remains unduly high, particularly in terms of access to trade. Factor endowments are, no doubt, part of the explanation, yet there are other relevant variables such as the adequacy of the infrastructure, the regions' remoteness and the price bands--one of the rare distortions left in Chile's trade policy. Better infrastructure that reduce transaction costs within and between regions should have a positive impact in the capacity of the regions to export. Likewise, the removal of the price bands are likely to favor the search for new tradable products, which, in turn, might give a boost to growth in the less privileged regions.

On Chile's "multidimensional" trade strategy, Asia is clearly the missing link in the country's wide net of preferential agreements. PTA's with Asia offer: the most dynamic markets in the world, above-average market access gains, factor-endowment complementarity, opportunities to diversify exports and lower risks of trade diversion across preferential partners. Even though the focus on Asia seems to be justified, the limits of the "additive regionalism" are evident. The Doha Round offers the benefits of a broader and first-best solution to the distortions and "spaghetti-bowl" costs associated with regionalism and, above all, a valuable opportunity to reduce subsidies and ensure market access in agriculture, particularly, in the non-traditional sector, which has been one of the mains drivers of Chile's export growth.

Obstacles to trade, though, go beyond policy barriers created by tariffs, NTBs and subsidies. They include a number of other issues, such as transportation, information, legal and regulatory costs. Since Chile has made substantial progress in bringing policy barriers down, these other trade costs are bound to gain prominence, particularly those related to transport given the country's peculiar geography. The evidence available confirms this presumption, suggesting that transport costs are these days a more important obstacle to Chile's trade than tariffs, with the exception of a few Asian markets.

It follows, then, that the country has a lot to gain in terms of trade from sustaining, and even increasing, the relatively high levels of infrastructure investment of the last decades. This seems particularly important for trade with LAC, which has been offering Chile more opportunities to diversify its exports and which depends to a considerable extent on land transportation, one of the weakest points of Chile's infrastructure. In the light, though, of externalities and coordination requirements, lower transportation costs to and from LAC hinges not only on the country's willingness to invest, but also on a concerted effort by all partners in the region.

All the areas singled out in this note--export diversification, regional access to trade, the multidimensional agenda and transport costs--seem offer good opportunities for the Bank's support. These areas are no strangers to the Bank. For instance, a brief examination of IDB's portfolio reveals four loans and two technical cooperations that are related to those issues. The four loans are in the areas of innovation, services, regional development and institutional strengthening. The technical cooperations are in the areas of regional development and export promotion.

These valuable experiences call for a through examination of their results and effectiveness in order to guide the Banks' future operations in these areas. It is noteworthy, though, that, of all areas discussed this note, only transport costs is not the object of an IDB operation. Given the Bank's large experience in infrastructure projects and the on-going IIRSA initiative, which includes the MERCOSUR-Chile axis, there seems to be a valuable window of opportunity there for the IDB to strengthen its support for Chile's trade and integration.

INTRODUCTION

When it comes to trade and integration policies, Chile seems to be approaching "the end of the story". The pioneer of trade liberalization in Latin America and the Caribbean (LAC) has probably gone far beyond any other developing country, be that in Latin America, Asia or Africa, in opening up its economy to trade and investment, with, perhaps, the exception of Hong-Kong in its days as a British colony. The journey to free trade, which began in 1974, was not without setbacks, but Chile's trade policies these days are as close to textbook recommendations as they can get. The country applies a uniform tariff of 6 percent (which can only be changed by Congress), with very few exceptions (e.g. sugar, wheat and seed oil), non-tariff barriers are negligible, the exchange rate regime is flexible and customs valuation is in line with the WTO recommendations (WTO 2003, Fischer 2004 and Saez 2005).

In a slight departure from standard free trade polices, the country has also taken integration one step forward by signing up free trade agreements with most countries in the Americas and Europe, and is on its way to do same with countries in Asia. As of 2004, 66 percent of Chile's exports were carried out through preferential agreements and the effective trade weighted tariff had been brought down to 2.4 percent (DIRECON 2005 and Servicio Nacional de Aduanas). The liberal approach was also extended to the capital account, and in particular to foreign direct investment (FDI). The investment legislation grants national treatment to foreigners with only a few exceptions and Chile has bilateral investment agreements with more than 60 countries. The country is also a member of a number of international organizations and signatory of a number of treaties related to the settlement of investment disputes.

This drive towards free trade and investment has brought impressive results. Trade as a percentage of GDP has jumped from 29 percent in 1973 to 69 percent in 2004; exports of goods, evenly spread across the globe, grew at an annual average of 6 percent, above the LAC's average of 4.6 percent, and were the main driver behind of an annual average GDP growth of 4.4 percent (2.9 percent

for LAC) (WDI).[2] The liberal policies were also very successful in attracting large inflows of FDI, although heavily concentrated in the mining sector, and, as of 2003, Chile's stock of FDI as a percentage of GDP was the highest in LAC (UNCTAD 2005).

Against this background, one wonders if there is much left on Chile's trade and integration agenda. In fact, when compared to most Latin American countries, Chile's agenda looks short. Yet, this agenda still carries a number of issues that are likely to play an important role in consolidating the gains from integration and, therefore, deserve a thorough consideration. There are at least four issues that fit this description: export diversification, regional distribution of integration gains, completion of the "multidimensional" trade strategy and transport costs. This paper looks into these issues and makes an attempt to identify the challenge and opportunities they may bring to the Chilean government in the years ahead. The paper is divided into five sections, excluding this introduction.

Section I looks at export diversification and discusses its implications and policy options. Section II takes up the issue of trade and regional disparities. Section III discusses the fine-tuning and completion of both the preferential and multilateral arms of the country's trade strategy. The fourth and final section looks beyond the conventional tariff and non tariff-barriers to trade, focusing on the role of transport costs.

EXPORT DIVERSIFICATION

As with many other issues in economics, the assessment of Chile's export performance, particularly with respect to diversification, suffers from the "glass-half-full-glass-half-empty" syndrome. Some analysts are very enthusiastic about the growth and diversification of Chile's exports (e g. Alvarez and Crespi 2000 and Fischer 2004), others acknowledge the export growth has been robust, but play down the scope of diversification, arguing that Chilean sales abroad continue to rely heavily on natural resources (e. g. Ffrench-Davis 2002 and Larrain, Sachs and Warner 1999).

The data suggest that there are reasons for both enthusiasm and concern. Chile's export growth since opening the economy in 1973, and particularly after adopting a flexible exchange rate regime in the early eighties, does look robust. As shown in Figure 1, Chile's exports of goods in 1973-2003 grew at annual average rate of 6 percent, which puts the country ahead not only of LAC, but also of other successful resource intensive countries such as Australia and Finland. Yet, a comparison with the usual suspects-the East Asians-suggests that, although robust, Chile's performance lags well behind those of countries such as Korea and resource-intensive Malaysia.

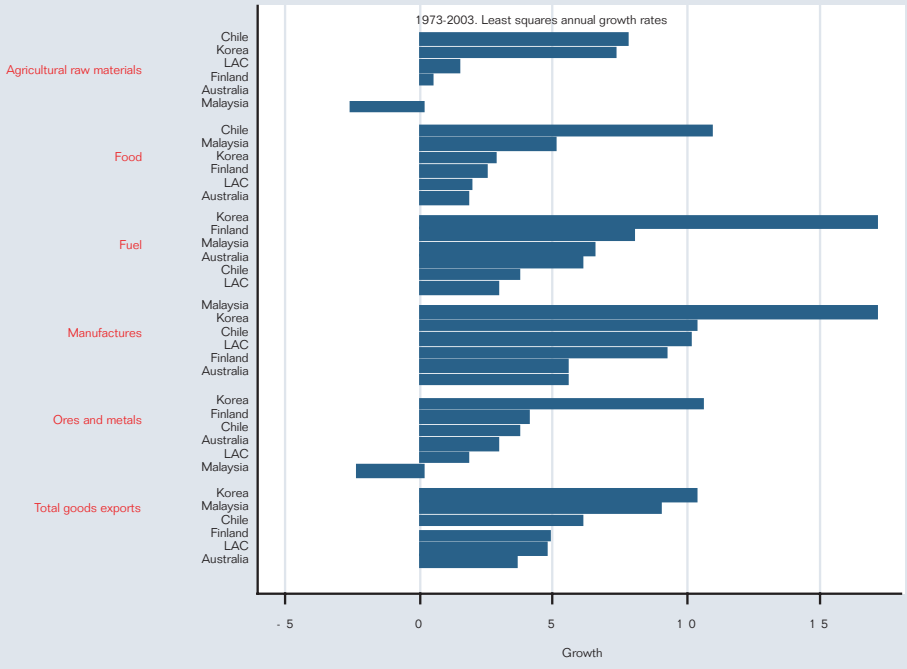
Figure 1 also shows a breakdown of goods exports by categories. It is evident that the country did extremely well in *food* and *agricultural* raw material and put up a strong performance in *manufactures*, comparable to Korea's, although not as good as Malaysia's. These figures, though, are partly explained by the fact that exports in all three categories started from a very small base. In 1973, *food, agricultural raw material and manufactures* accounted for only 3, 3.7 and 3.6 percent, respectively, of goods exports, which in, turn, accounted for only 8 percent of GDP. This limited base explains why, despite the robust growth of these categories, the less dynamic part of Chile's exports-*fuel and ores and metals*-still accounted for 46% of total goods exports in 2003.

Figure 2 shows how the composition of Chile's exports has evolved in the last two decades, aggregating products by factor intensity.[3] The biggest inroad into a more diversified export structure was

[2] As of 2004, the mains markets of Chile's exports were: European Union (25%), Asian newly industrialized countries (20%), Latin America (18%), US (15%) and Japan (12%).

[3] See Lall (2000) for details of the classification.

Figure 1: Export Growth by Categories: Chile and Selected Countries



Source: Comtrade Categories defined as in WDI

made through gains in agriculture and forestry-based manufacturing (from 10 percent in 1983 to 21 percent in 2003). There were some gains in the non-resource categories of manufacturing (low, medium and high tech manufacturing), but their share remains small (9.4 percent in 2003). Primary products, dominated by cooper, continues to have the lion's share of Chile's exports (67 percent in 2003) and if all resource-based categories are lumped together (primary products and agriculture/forestry and mining-based manufacturing), they still accounts for 91 percent of all exports.

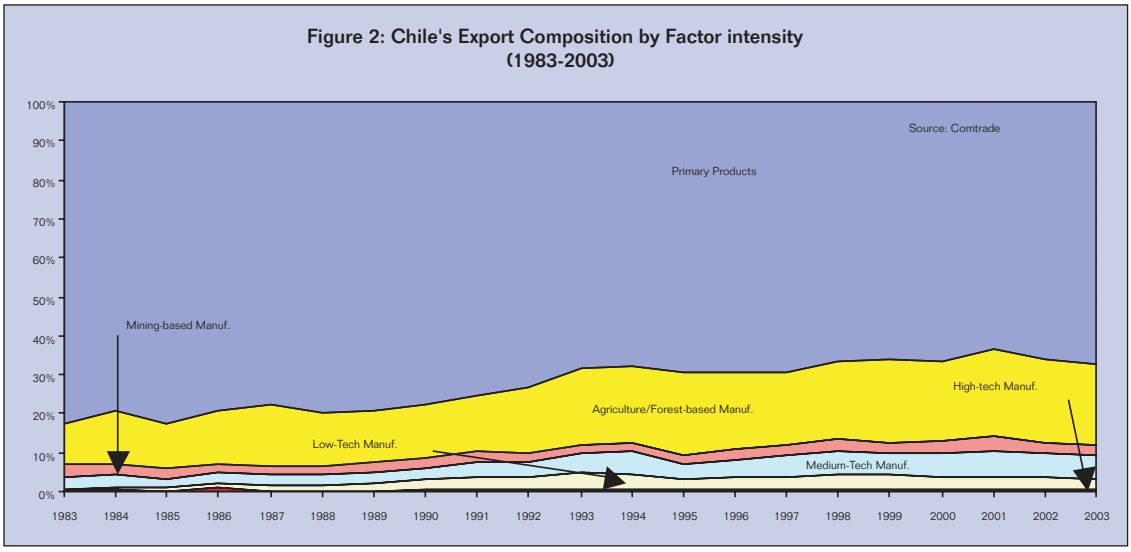
The comparison with other resource-intensive countries in Asia and elsewhere underscores the limits of this process of diversification. Figures 3 and 4 shows the cases of Malaysia and Australia. Malaysia clearly illustrates how far a country can go in diversifying its exports, despite the limitations of its initial resource endowment. When judged by this country's standards, Chile's performance looks clearly disappointing. The picture is more favorable when the comparison is with Australia, but even then Chile appears as having a considerable catching up to do. The scope of Australia's diversification into non-resource manufacturing has been far larger than that of Chile. Non-resource manufacturing accounted for 28 percent of total exports in 2003 against 9.4 percent in Chile. Moreover, even within resource intensive sectors, Australia offers a far more diversified range of products than Chile, who despite considerable progress in reducing "copper dependency", still depends on this product for roughly 40% percent of its exports.[4] True, one can argue that Australia has a far bigger and richer economy than Chile and that diversification has been linked to size and income (Acemoglu and Zilibotti 1997). Yet, one can also argue that part of the explanation behind Australia's wealth was its ability to diversify away from commodities such as wool (see Gillitizer and Kearns 2005).

The issue of product rather than sector variety can be better measured by concentration indices such as

[4] The average in the last three years (2002-04) was 41 percent

the Herfindahl-Hirschman index (HHI) or by using the concepts such as the "extensive margin" suggested by Hummels and Klenow (2002).[5] The former is presented in Figure 5 for world exports at the five-digit level, a measure perhaps too aggregate to capture all the nuances of product variety, but the one possible given the data classification constraints. The message that comes out is very clear and, by now, familiar: Chile has made progress, but still has a considerable export variety gap even when compared with other resource intensive countries. This very same message is also evident in Figure 7, where at a much more disaggregated, and therefore, accurate level of analysis-but restricted to the US market- the very same gap appears: Chile's extensive margin, i.e., the percentage of products imported by the US that are exported by the country, has been increasing, but remains well below other resource intensive countries. The difference with respect to Australia is particularly impressive.

Figure 2: Chile's Export Composition by Factor intensity (1983-2003)



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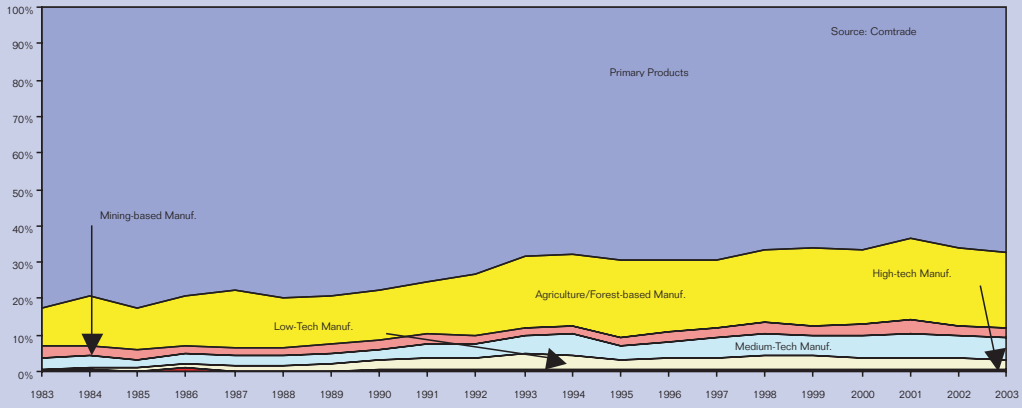


[5] The extensive margin is the result of the decomposition of a country's market share in a particular market as the product of the intensive and extensive margin. The former measures the country 's share of, say, the US market, in those products in which it exports. The latter measures the fraction of US market that occurs in those products that the country exports.

Figure 3: Malaysia Export Composition by Factor intensity (1982-2003)

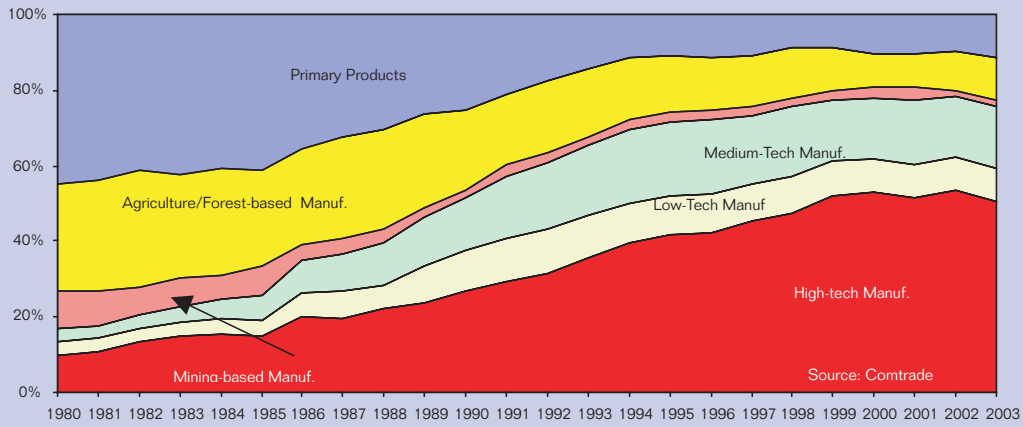


Figure 4: Australia's Export Composition by Factor intensity (1980-2003)

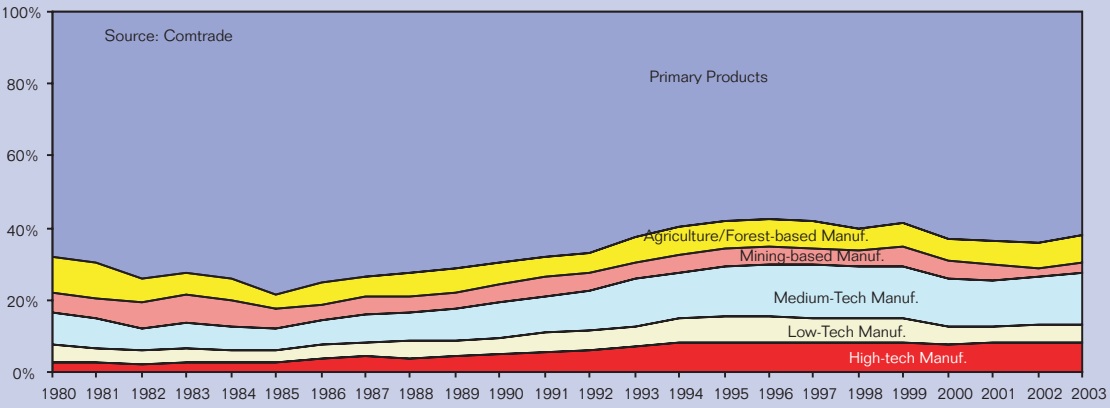
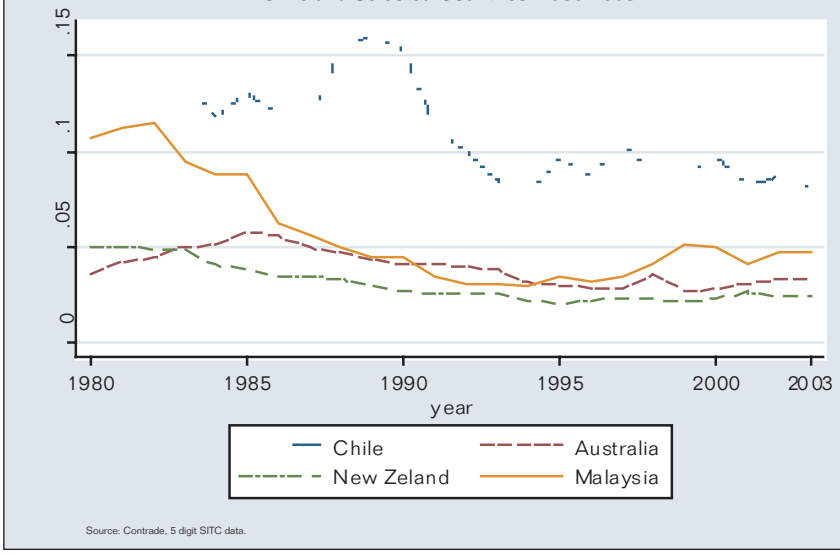
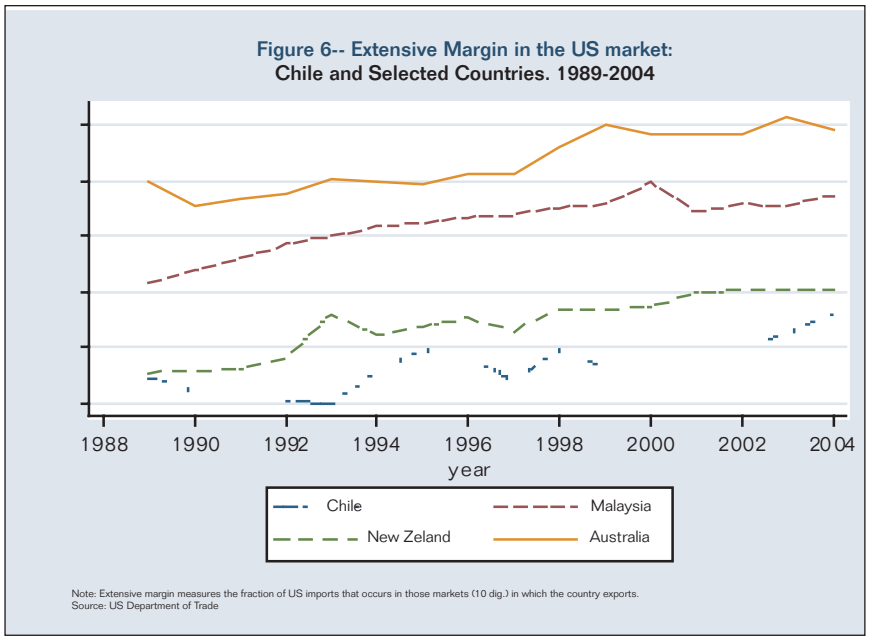


Figure 5- Export Concentration in the World Markets
Chile and Selected Countries. 1980-2003



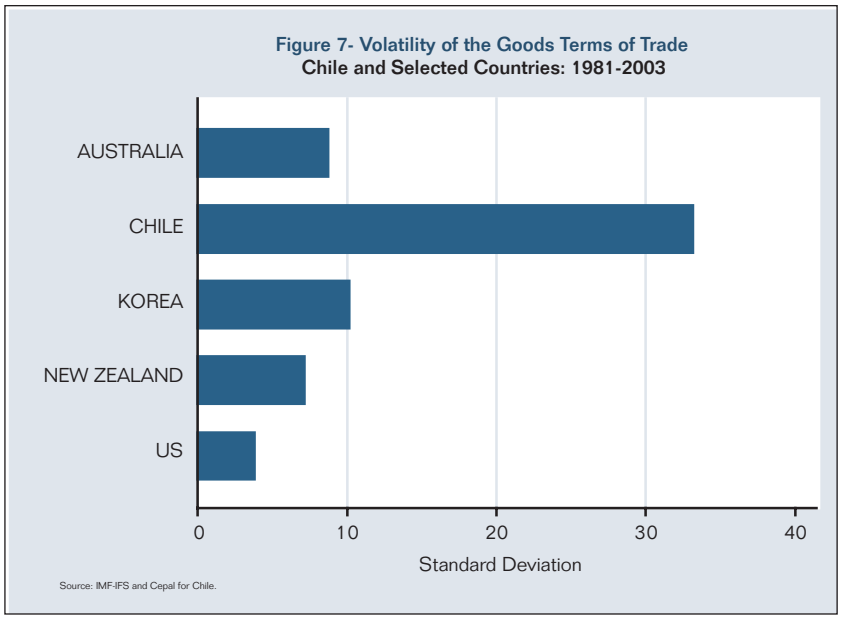
Source: Contrade, 5 digit SITC data.



1. Why diversification matters?

This evidence begs an important question: So what? Why the Chilean government should be worried? Why export variety matters? The literature speaks of two sets of reasons. The first set covers the type of arguments that justify diversification per se. The arguments in this case are at least four. The most intuitive and arguably the most solid is the *portfolio* effect, which states that export diversification helps to protect countries from sector specific shocks and their deleterious effects on export revenue income and growth. A second argument is based on the assumption that consumers everywhere have a love for variety and, therefore, countries that diversify are more likely to export more (see e.g. Funke and Ruhwedel 2001). Terms of trade effects are at the heart of the third argument, which is reminiscent of Bhagwati's (1958) immiserizing growth insight. That is, countries that expand their exports based only on a limited number of products risk driving down prices of these products, worsening their terms of trade (see e.g. Hummels and Klenow 2002). Finally, the fourth argument tries to establish a direct link between export variety and growth, having as a channel the gains in productivity arising from either learning by exporting or a better resource allocation (see e.g. Agosin 2005, Feenstra and Kee 2004).

The portfolio effect has the most compelling empirical evidence so far. As can be seen in Figure 7, Chile's high copper dependency seems to translate into an equally high volatility of its terms-of-trade, whose effects on income are well summed up by Caballero (2002 p.7): "There is a very high correlation between Chile's business cycle and shocks to its terms-of-trade. This correlation is not observed in other commodity dependent economies with more developed financial markets such as Australia and Norway". The point about financial markets is well taken, yet one wonders if less volatile terms-of-trade, achieved as result of more diversified exports, would not play an important role in developing the financial instruments needed to smooth the shocks. That seems to be the path followed by Australia (see Gillitizer and Kearns op. cit.).



Evidence supporting the other arguments is mixed and in part reflects the ambition of their propositions. Yet, there are number of interesting and revealing results which point in the direction of a casual relationship between diversification, per capita income and export and GDP growth (See, e.g. Imbs and Wacziarg 2003, Hummels and Klenow 2002, Lederman and Maloney 2003, Agosin op cit and Funke and Ruhwedel op cit).

The second set of arguments pro-diversification is related to the so-called natural resource curse. The policy recommendation here is very clear: countries aiming for sustainable growth should not only diversify, but diversify away from natural resources. This case is built on economic and institutional grounds. The former dwell on the low labor and skill content of natural resource activities (Leamer, Maul, Rodriguez, and Schott 1999 and Blum and Leamer 2004), the risk of Dutch Disease (Corden 1984) and the high price-volatility of natural resource intensive goods (e.g. Larrain, Sachs and Warner op cit). The institutional arguments are based on the idea that the rents accruing from natural resource activities promote weak institutions that eventually undermines development and growth (Ross 2001 and Isham, Woolcock, Pritchett and Busby 2003).

The jury is still very much out on the empirical validity of the natural resource curse. There are evidence pro (Sachs and Warner 1995, 1997, Stijns 2003, Gylfason 2001 Gylfason and Zoega 2002, Easterly and Levine 2003 and Isham, Woolcock, Pritchett and Busby op cit.) and against (Lederman and Maloney 2003, Manzano and Rigobon's 2001, Alexeev and Conrad 2005) its relevance, which suggests that governments should be on the look-out for possible "symptoms" until more conclusive evidence is unearthed.

2. What strategy to follow?

When seen through the light of these arguments and evidence, Chile's pattern of specialization invites, at the very least, a careful consideration about the risks involved and the cost and benefits of policy intervention. The more so, because copper is a non-renewable resource and, according to some estimates, reserves could be exhausted well before 2020 (Larrain, Sachs and Warner, op. cit.). True, one can still argue, as Villafuerte (2004) does, that Chile have not shown the most obvious and acute symptoms of the natural resource curse, notably the crowding out of other tradable sectors by copper exports and signs of increasing institutional weak-

ness (quite the contrary). Yet, even analysts with this more optimist perspective acknowledge that diversification has been "slow", the technological content of exports "still not very high" and "there would seem to be benefits from developing new comparative advantages" (Villafuerte op cit p. 72 , 78, 77, respectively)

The booming demand and the rising prices for copper in the world markets, driven particularly by the breakneck growth of China and by the limited pipeline of new mining projects worldwide (Grupo Mexico 2005), do not make a conducive environment upon which an earnest discussion about diversification could be carried out. Yet, it is exactly at periods of boom that risks such as the Dutch Disease are particularly high. The sharp upturn seen in 2004 (Figure 5) in the copper share of Chile's total exports might only be temporary, but might also be the onset of a tendency which might costs Chile dear in term of future growth.

To acknowledge the need to deepen diversification beyond the levels achieved by markets forces is, however, just the first, and in many ways, easiest step. Thornier questions arise when one tries to confront the issues of how to do it and in which direction. Even if one accepts the evidence that natural resources hurt growth, that does not necessarily mean that the country should turn its back to these activities. The realities and constraints of a country's endowment cannot be ignored without risking undermining resource allocation and diminishing welfare.

One way to look at this issue is to think of a trade-off between short-term welfare and long-term growth. Some people would argue that prices bring enough information for firms and consumers to maximize their welfare intertemporaly, i.e., to incorporate the future in their decisions about the present. Yet, in a world were information is not always complete and externalities are often relevant, myopic behavior, herd mentality and socially inefficient private decisions are something to reckon with. Governments, though, don't have all the information either and are vulnerable to special interest groups, so a hasty intervention to shore up the future with resources of the present might end up comprising both.

The diversification dilemma confronting governments such as Chile's can, perhaps, be better understood with the help of "cones of diversification" (see Leamer 1984). One could argue that Chile's diversification so far has been restricted to products that are within its cone of diversification, i.e., a set of goods whose factor requirements-- intensive in natural resources and low in R&D-reflects very closely Chile's current factor endowment. Given the obvious comparative advantages, the risk of diversification was low and required little government intervention, although one can argue that, both in the case of salmon and forestry, public policy was an important catalyst (see Agosin 1999).

The comparison with countries such as Australia suggests that Chile's may still have a long way to go in finding new products within is cone of diversification, yet the relatively limited size of its territory and natural resource endowment on a per capita basis may prove otherwise. Australia's territory and the amount of pasture, cropland and forest per capita exceed Chile's by a factor of 10 and 7, respectively (WDI and Antweiler and Trefler 2002). In any event, if Chile wants to minimize the risks of a export portfolio highly concentrated on natural resources, this would involve moving resources towards products in the "high risk" cone, whose factor requirement are at odds with Chile's current endowment and where externalities (e.g. technological spillovers) or missing markets (e.g. underdeveloped capital markets) are likely to be more important binding constraints. The benefits would be a more stable terms-of-trade, greater potential for export growth and diversification and, given the higher technological content of these goods, a greater scope for productivity and overall economic growth. The risks would be resource misallocation, rent seeking and welfare losses.

The further away from the low risk cone, the higher

are the risks and how much risk a country is prepared to take depends ultimately on the preference of politicians and policy makers. East Asians adopted high-risk polices, involving high degree of government interventions which eventually paid off. It could have easily gone wrong if it were not for the endowments and institutions that supported these policies (Word Bank 1993). Chile may prefer a more conservative strategy with less government intervention that will probably achieve a degree of diversification narrower than that of the East Asians--perhaps closer to Australia's and New Zealand's-but that will not risk major resource misallocations and would not put democratic institutions at risk. Ultimately, that is for Chile's politicians, policy makers and citizens to decide.

Whatever strategy they may pursue, though, it seems to be clear that Chile has biding constraints in at least three of the main fundamentals of any diversification policy, particularly if the aim is to produce goods and services with higher technological content, as announced recently by the Chilean government (Grupo de Acción Digital 2004). Analysts are almost unanimous in portraying Chile's education skills and investments in science and technology (S&T) as lagging well behind those of East Asians and successful resource-intensive countries (see e.g. World Bank 2003, Eyzaguirre, Marcel, Rodriguez and Tokman 2005). There are also signs that, despite the sophistication of the country's capital markets, Chile's small and medium firms-a potential source of new processes and products-are credit constrained (Sirtaine 2006).

It is worth noting, though, that the fact that education and S&T figure among the main constraints is in itself a powerful remainder of the limits and risks of natural resource specialization. As economists like to say, these constraints are possibly "endogenous", i.e. investment has been low in these areas precisely because, as Leamer et al. suggested, there has been little demand for it from natural resource activities. If that is the case, the key for a successful diversification policy may lie on breaking this "vicious" circle whereby there is not much investment in education and S&T because there is little demand for it, and there is little investment in non-resource intensive activities because the educational and technological endowments do not generate comparative advantages.

The Chilean government and politicians seems to subscribe, at least in part, to this view when they introduced in June 2005 an specific tax to mining activities to fund innovation.[6] How exactly these resources are going to be used is still a matter for debate and the options range from sector specific incentives to more neutral horizontal schemes (see Larrain 2005 for a R&D tax exemption proposal). The specifics of a diversification or innovation policy is beyond the scope of this paper, yet it seems clear that this initiative addresses exactly the type of concerns expressed in this note, i.e., that Chile, given in current pattern of specialization, should not leave export diversification to market forces alone.

3. Are services an option?

The debate on export diversification has been traditionally focused on goods, but progress made in information and communication technologies throughout the nineties and the emergence of countries such India as major exporters of information services (US$ 8 billion in 2002) have made policy makers consider the service sector, particularly high tech services, an important vehicle to expand and diversify exports. Chile's policy makers are no exception.

Chile's exports of services amounted to $5.8 billion in 2004, which represents more than 3 times the exports recorded at the beginning of the 1990s. Although remarkable, this dynamism has barely been enough to keep up with the growth in the exports of goods. In fact, the ratio of exports of services to total exports of goods and services

6 Diario Oficial, Ley N° 20.026, 16 de junio, 2005

remained on average close to 18% throughout this period, but at times when the exports of goods surged dramatically -like in 2004- this ratio felt to lower levels (15% in 2004). Out of the four main service categories of the Balance of Payments- transportation, travel, insurance and other services- - exports of transportation services have recorded the largest expansion, accounting in 2004 for 56% of total service exports.

Does Chile have a comparative advantage in services? Judging by data on the country's revealed comparative advantage, that does not seem to be the case. Table 1, for example, shows that Chile has a comparative advantage in goods and, by the same token, a comparative disadvantage in services. The question then is: does Chile's comparative disadvantage in services imply that there is a limitation to the possibility of diversifying exports via services? In principle, no. To begin, the index of revealed comparative advantage is an imperfect measure of competitiveness because is affected by trade barriers faced in other markets. Also, having a comparative disadvantage in services as a whole does not necessarily mean having disadvantages in all sub-categories. More importantly, however, is the fact that countries are able to develop comparative advantages in services with time. Indeed, there are certain policies that Chile could follow to foster its trade in services.

Table 1. Revealed comparative advantage of Chilean exports, 1990-2002

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Goods	1.028	1.021	1.031	1.004	1.016	1.035	1.032	1.030	1.017	1.031	1.031	1.027	1.021
Services	0.889	0.921	0.886	0.986	0.939	0.860	0.875	0.882	0.936	0.883	0.876	0.896	0.920
Transportation	1.343	1.353	1.475	1.521	1.593	1.294	1.772	1.837	2.066	2.115	2.113	2.273	2.186
Travel	0.809	0.949	0.822	0.964	0.846	0.725	0.702	0.796	0.843	0.657	0.563	0.570	0.648
Other services	0.677	0.654	0.615	0.717	0.655	0.725	0.546	0.476	0.472	0.452	0.496	0.473	0.531

Source: own calculations based on IMF Balance of Payments Statistics

One policy is related to the removal of the potential anti-export bias embedded in the regulatory framework of the country. The intangibility of service trade normally imposes a challenge to formalize these transactions in many countries leaving a large bulk of services in the informality and making many exporters lose potential benefits. A similar problem arises in terms of the financial needs as several bank's requirements -in terms of guarantees in physical assets- do not correspond to the structure or the organizational scheme of several service industries. This hampers their access to adequate financing. The "Catastro de Barreras Internas a las Exportaciones 2000" provides some evidence indicating that the business community has been facing some of these obstacles. Therefore, Chile should evaluate and address this potential anti-export bias that their exporters might be facing.

Second, several indicators show that although the liberalization of trade in services has advanced well in many areas, more work remains possible in the opening of certain markets. For example, measures of restrictions constructed by McGuire, Schuele and Smith (2000) -for maritime services- and by Nguyen-Hong (2000) -for professional services- indicate that Chile's restrictions are high relative to other countries. In both cases, foreign suppliers encounter particular stringent barriers but also they face a large degree of discrimination relative to their domestic counterparts. The liberalization of the Chilean service sector, in general, is relevant because as services are used as inputs to other sectors, their inefficient provision may lower competitiveness and decrease the likelihood to export successfully. Indeed, calculations with the Chilean input-output matrix indicate that the use of services as an intermediate input is

more important for the service sector itself than for any other sector. Liberalizing the remaining restrictions on trade in services in Chile, then, should improve the capacity of the Chilean service providers to export more.

The barriers that Chilean exports of services face in other markets are also important. The "Catastro sobre Barreras Externas al Comercio 2004", for example, reported that within the region, the Chilean exports encounter obstacles in various types of services: professional services in Argentina, Brazil and Colombia; transportation services in Argentina and Colombia; communication services in Colombia, and commercial presence (in general) in Bolivia and Brazil. With respect to the US, the Chilean exports face barriers particularly on maritime services. Chile has signed preferential trade agreements with all these countries, therefore, it is on its interest to analyze whether greater market access can be granted within the provisions, or by deepening the scope, of these agreements.

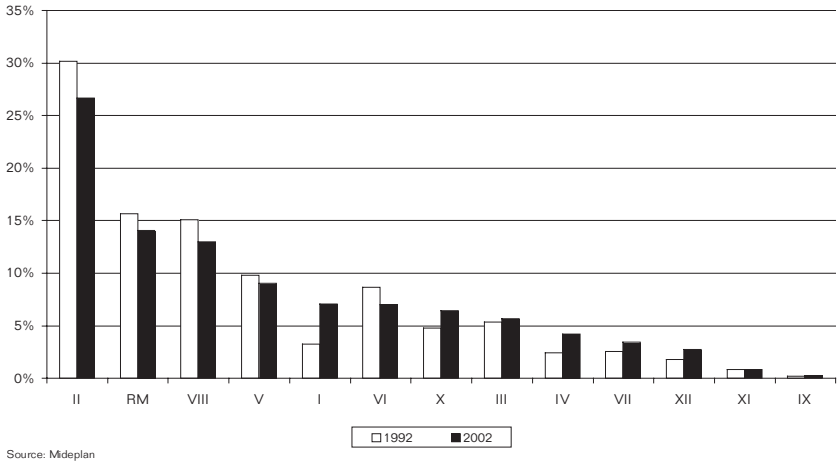
Finally, the prospects of exporting services cannot be decoupled from the country's factor endowments. Empirical evidence show that differences in factor endowments go a long way in explaining patterns of trade in services across countries and that relative abundance in physical capital is important for exporting such services like transportation or communications services while relative abundance in human capital is important for exporting services like insurance, professional or technical services (Sapir and Lutz, 1981). The case of India's software industry which was able to boom partly because of a pre-existing large stock of highly qualified scientists and engineers accumulated over many years supports these findings.

Whether Chile can become a global player in providing information services or other high-tech services depends to a large extent on the adequacy of the country's pool of specialized human capital. There is evidence, however, that the stock of human capital dedicated to S&T in Chile is not very large relative to international standards (World Bank, 2005; Eyzaguirre, Marcel, Rodriguez and Tokman 2005). Therefore, Chile's likelihood to exhibit strong comparative advantages, particularly in high-tech services, will require addressing the limitations of its human capital stock.

TRADE AND REGIONAL DISPARITIES

A large body of evidence shows that Chile's strategy of market liberalization, trade opening, and other structural transformations during the past twenty years led to a period of high and sustained growth (Gallego and Loayza, 2000; Morandé and Vergara, 1997). Although there is a consensus of the strong dynamism experienced by the country, there is also a perception that this dynamism has not been equal across regions. True, regional disparities have fallen, but their level remains unduly high, particularly in terms of access to trade (see Figure 8). It seems clear that Chile's export-led growth in the last two decades was not evenly distributed across the regions.

Figure 8. Regional Share in Total Exports



Source: Mideplan

Simple correlations indicate that a positive and significant relationship exists between the level of internationalization of a region and its level of income. More sophisticated evidence also show that an increase of 10% in the level of regional exports induces, on average, an increase in the level of regional GDP of 2% even after controlling for endogeneity problems and biases induced by the fact that exports are part of GDP (see Pardo and Meller, 2002).

Faced with this evidence, it is natural to ask what regions could do, if anything, to improve their insertion into the global markets? After all, Chile's trade barriers are already very low and the potential of the regions to export are largely determined by their endowments. But as factor endowments are part of the explanation, there are also other relevant variables such as the adequacy of the infrastructure which may influence the capacity of a region to successfully export to other markets.

The role of public infrastructure in fostering industrial activity is in the heart of this argument. In principle, public infrastructure could spark economic activity within a region by reducing the transaction costs between its suppliers, producers and consumers (see for example, Martin and Rogers, 1995, and Martin, 1999 for theoretical models). Improved infrastructure can also lower the transaction costs between regions which is particularly important for regions that are isolated from the rest of the country. Accordingly, physical capital in infrastructure may foster regional export growth because of its capacity to lower transaction costs within the region -triggering development- and between regions -improving connectivity among them and with the rest of the world.

In order to explore more carefully the relationship between regional infrastructure and exports, we estimated export demand functions at the regional level and include a measure of the region's stock of physical capital in infrastructure which is constructed with data from the effective public investment on infrastructure, by region, taken from MIDEPLAN. More specifically, the equation makes the exports of region i (EXPi) depend on the weighted sum of the GDP's of its main importing partners (GDPi), its multilateral real exchange rate (RERi), and the region's capital stock of public infrastructure (INFRi).[7]

We run a panel regression and include regional dummies to control for regional aspects (other than infrastructure) that could influence the exports of the region. The estimation covers the period 1990-2000. The results are as follows:

$$\log(EXPi) = 1.33*\log(GDPi) + 0.20*\log(RERi) + 0.37*\log(INFRi)$$
$$(2.94) \qquad (1.15) \qquad (4.19)$$

where the numbers in parentheses are the *t*-statistics[8].

The coefficients for the GDP and RER variables show the expected signs and fall close to normal

7 The main importing partners included in this analysis are: Argentina, Belgium, Bolivia, Brazil, Canada, China, Colombia, Ecuador, France, Germany, India, Indonesia, Italy, Japan, Mexico, Netherlands, Peru, Korea, Spain, Switzerland, Turkey, United Kingdom, United States and Venezuela. Together, they import almost 80% of Chile's total exports. The weights consists on the shares of the exports of region i to each of these countries. These weights are used in the construction of the GDP and RER variables. The GDPs of the importing partners are taken from the WDI of the World Bank. The GDPs are PPP-comparable. The RERs are CPI-based. The CPI indexes are taken from the IFS of the IMF. A depreciation rate of 4% was used to construct the capital stocks in infrastructure. ADF and Phillips-Perron tests indicate that all the EXP, GDP and INFR series have a unit root. Johansen tests indicate the existence of at least one cointegrating vector for each region

8 The R2 of the regression is equal to 0.98 which is not uncommon for export demand estimations in which the variables are integrated of order 1. The ADF test for this panel regression is equal to -8.93 which shows the presence of cointegration among the variables. The regression is also run with the dependent variables lagged 1, 2 and 3 periods to control for endogeneity problems. The size and the significance of the estimated coefficient do not change when the variables are lagged.

values (although the coefficient for the real exchange rate is not significantly different from zero). More importantly, the coefficient for the stock of physical capital is positive and significant supporting the argument that physical capital in infrastructure is important for the regions to export as it may lower transaction costs within the region, between regions and with the rest of the world.

Chile's price bands

Geography, though, is not the only factor mediating the impact of trade on regional development in Chile. In one of the few distortions left in trade policy, a price band system is used for wheat, wheat flour, and sugar, which ultimately affects resource allocation across regions.

The stabilization system was not design as a regional policy and, by nature, protects all producers without any particular targeting. However, most of the beneficiaries in Chile are concentrated in three regions (VIII, IX and X), some of which, as seen before, are among the poorest and least trade integrated regions in Chile. This sort of intervention, however, is not only costly, but is likely to perpetuate or even widen the trade and income gap across the regions. It is clear that the occasional gain in terms of income and employment has not been enough to close the income gap vis-à-vis the other wealthier regions and that the incentives the system provides work against the search for new products and comparative advantages that ultimately could provide a sustainable source of economic growth.

Certainly, removing the price band would generate short-term losses that are geographically concentrated. But compensation to the affected regions, including subsidies to facilitate the transition to alternative crops, could make the removal of the system more politically feasible. In fact, given the regional component of the price band, future modifications of the system including potential compensation for their impacts might be better framed within the government's plans of regional development

PREFERENTIAL AGREEMENTS: COMPLETING THE CIRCLE

Chile's most conspicuous departure from a classic, textbook strategy of integration has been its aggressive approach towards signing preferential trade agreements across the globe. Government officials describe this approach as a "multidimensional trade strategy" (e.g. Rosales 2004), which would combine the best of unilateral, multilateral and preferential trade liberalizations. Others called it "additive regionalism", defined as a process of "sequentially negotiating free trade agreements with all significant trade partners" (Harrison, Rutherford and Tar 2003, p. 1).

A comprehensive evaluation of the impacts of Chile's preferential agreements has yet to be done, in part because this is an on going strategy and some of the more important agreements, such as the ones with the European Union (effective in 2003) and the US (effective in 2004), are still in their initial stages of implementation. Yet, the evidence available suggests that gains, though modest in general, have been outweighing the costs (Harrison, Rutherford and Tar's op cit and Chumacero, Fuentes and Schmidt-Hebbel 2004).

Whatever their exact costs and benefits are, trade agreements already accounts for most of Chile's trade. In the first semester of 2005, effective preferential trade agreements (PTAs) accounted for 65 percent of total Chile's exports and 78 percent of total imports. Out of the 35 percent of exports carried out outside effective PTAs, Japan, China and India account for 24 percent. In this context, not only "additive regionalism" seems to be a fait a compli, but it is also clear that Asia is the missing link of the "multidimensional" strategy.

Even the most PTA-skeptic analyst would agree that PTAs with countries in Asia would offer important benefits, particularly given that Chile has already invested substantial resources in building a wide network of preferential agreements. There are at least four solid reasons for that:

(a) Asia, led by China, is the fastest growing market in the world, and, even without a formal agreement, is already the most dynamic market for Chilean exports (exports to Japan, India and China jumped by 68 percent in 2004, whereas total exports grew by 52 percent);
(b) The level of protection (notably of non-tariff barriers-NTB) in these markets is generally higher than that of the US and European markets. For instance, Chile's Economy Ministry calculates in 12 percent the tariff faced by exporters in China in 2002, but considers NTBs in agriculture, including tariff-quotas and sanitary and phytosanitary measures, the most important obstacles to trade (Minstério de Economia 2004 and Gobierno de Chile 2004);
(c) Countries such as Japan and China, in contrast to Chile, are scarce in natural resources offering substantial opportunities to trade;
(d) As a consequence of (b) and (c), Chile's exports to Asia are considerably more concentrated than its exports to the rest of world. The share of copper in exports to Asia's main markets are considerably higher than those to markets elsewhere. It ranges from 50 percent in Japan to 80 percent in China to 95 percent in India (2004, Comtrade). As Gobierno de Chile (2004) put it, the challenge is not only to expand the value of exports to Asia, but also the number of products exported. More diversified exports to these markets would alleviate Chile's problems and risks associate with the still relatively high concentration level of its exports.
(e) The Asian PTAs offer not only market access, but also efficiency gains since they would lower preferences to all other preferential trade partners and therefore reduce risks of trade diversion.

The Chilean government seems to be well aware of these potential benefits and has already signed agreements with South Korea, New Zealand, Singapore and Brunei (P4). Moreover, it has just concluded negotiations with China, and is negotiating at different levels with Japan, India, Russia and Australia.

Even though Asia deserves to be a the top of Chile's preferential agenda, there are also other issues that are worth considering such as the Free Trade Area of the Americas (FTAA). It is clear that market-access gains in this case may be small given the country's extensive network of the PTAs in the region. Moreover, exporters are bound to suffer a cut in their preferences. The FTAA, though, is a good opportunity for Chile to reduce the variance of its effectives rates of protection and, therefore, improve resource allocation. The FTAA is also a good opportunity to tackle the so-called spaghetti-bowl costs, allowing countries in the hemisphere to harmonize and simplify issues such as customs procedures and rules of origins and to bring in new issues in the agenda such as services and investment.

Finally, it also important for the Chilean government not to loose sight of the limits of the "additive regionalism" and to reinforce, via its membership of the Cairns and G-20 groups, the multilateral dimension of the "multidimensional" strategy. The Doha Round offers Chile the benefits of a broader and first-best solution to the distortions and "spaghetti-bowl" costs associated with regionalism and, above all, a valuable opportunity to reduce subsidies and ensure market access in agriculture, particularly, in the non-traditional sector, which has been one of the mains drivers of Chile's export growth.

Given the systemic character of the negotiations involving agricultural subsidies and taking into account Chile's already low levels of protection and limited domestic market, advances in agriculture on the basis of PTA's alone are bound to be limited. This limitation is evident is the agreements Chile has already negotiated where, more often than not, agricultural products are classified as "sensitive products" and have tariff phase-outs which go for ten or more years. The agreement just negotiated with China seems to be a case in point, with important, non-traditional goods such as fresh salmon, grapes and apples facing a phase-out schedule of ten years (Ministerio de Relaciones Exteriores, press release, November 1, 2005).

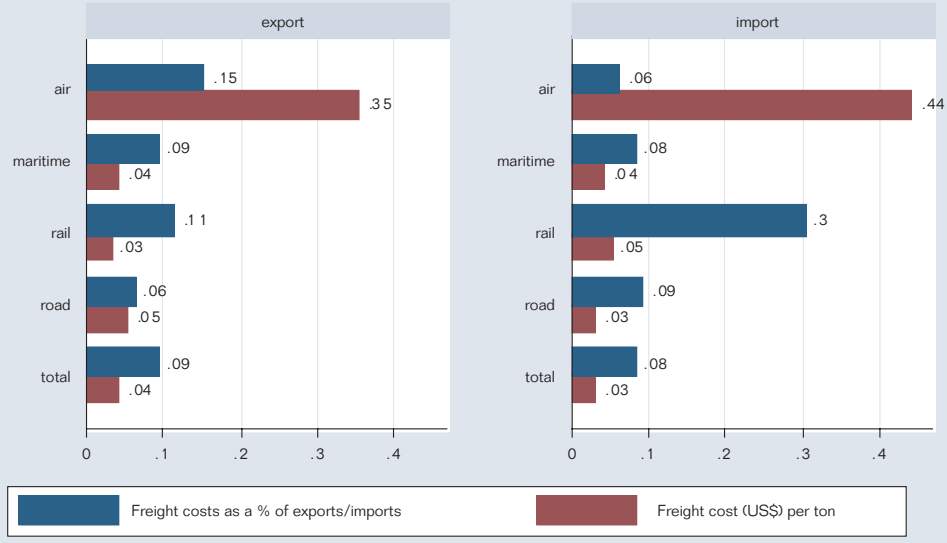
TRADE AND TRANSPORT COSTS

As discussed in the previous sections, Chile has gone a long way towards reducing trade costs by bringing down its tariffs unilaterally and by signing preferential trade agreements all over the globe. Even though there are still markets to be open at home and abroad, transport costs are likely to be today one of the main barrier to expansion of Chile's trade. In a world where policy induced trade barriers are being dismantled rapidly, transport costs are assuming a prominent role everywhere, but Chile's peculiar geography-significant barriers to neighboring countries and the long distance to the major markets in the Northern Hemisphere-coupled with a decreasing but still significant infrastructure "deficit", give transport costs an even greater strategic importance.

But what exactly is the magnitude of transport costs in Chile? How they measure up against tariff and non-tariff costs? To what extent they reflect deficiencies in the infrastructure as opposed to distance? 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. Thomson, Sanchez and Bull's (2003) estimates for 2001, for instance, put Chile's average freight and insurance costs for all trade partners in 6.4 percent of the value of imports, a figure very close to the South American average.

Directmar (2003) offers the most recent data on Chile's transport costs, for both imports and exports by mode. As it can be seen in Figure 9, total freight costs range from 8 (exports) to 9 (imports) percent. As expected, transport costs vary widely across modes, reflecting not only actual cost differences, but also differences in the composition and direction of trade flows. Once differences in weight are controlled for (by calculating the costs per ton exported/imported), the usual ranking emerges with airfreight being the most expensive mode. One would also expect maritime freight to be the least costly, but differences in distance cloud the data, particular because almost all trade flows by rail and road are originated from or destined to neighboring countries. For instance, in 2000, roughly 55 percent of imports and 25 percent of exports to LAC were carried out by rail or road. Yet, the share of this mode for trade flows outside the region was negligible (ECLAC-BTI).

Figure 9 - Chile's Freight Costs
All partners. 2002

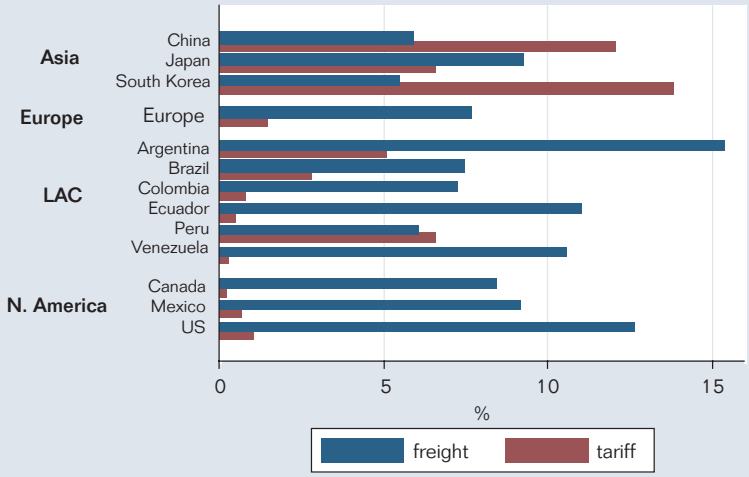


Graphs by flows
Source: Directmar

These figures for transport costs in Chile and other countries may seem low, yet there are a number of issues that suggest that their magnitude and impact are being underestimated. First, as Hummels (1999) 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, as shown below, tend to be higher than average tariffs, particularly in the case of Chile given the weight of preferential tariffs. And third, econometric estimates suggest that trade flows are in fact quite sensitive to changes in transport costs (Limao and Venables 2001 and Clark, Dollar and Micco 2004).

A closer look at freight and tariff data for Chile's exports illustrates and reinforces the first two points. Figure 10 compares maritime freight and (applied) tariff costs incurred by Chileans exporters in Asia, Europe, LAC and North America. It is evident that freights are considerably higher than tariff costs with the exception of China and South Korea in Asia and Peru in LAC. This gap is bound to be even larger since the tariff data shown (mostly for 2000) does not reflect the impact of more recent trade agreements such as those with the US (2003) and South Korea (2003). True, in the case of LAC just to look at maritime freight alone might distort the picture, especially with regard to neighboring countries, since, as mentioned earlier, 25 percent of Chile's exports are land-based. Detailed export freight data for the other modes is not available, but ECLAC-BIT data on import freight suggests (assuming that the different composition between exports and imports does not play a major role) that land freights costs, with a few exceptions, are lower than maritime freight costs, but the difference is not big enough the reverse the conclusions suggested by Figure 10.

Figure 10 - Maritime Freight and Tariff for Chile's Exports

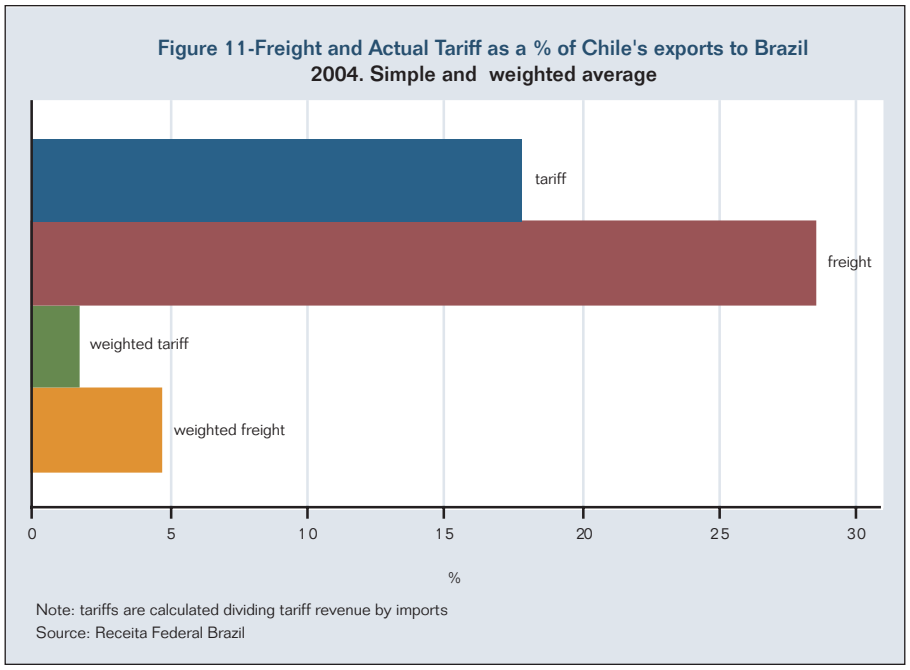


Note: Data on freight is for 2002. Tariff data is for 2000 except for Brazil (2002) Ecuador (2001) and Peru (2002)

Source: Directmar (2003) and Ministerio de Economia (2004)

Detailed data covering Chile's exports to Brazil in 2004 (4.5 percent of total exports), allow for more insights into the relative importance of transport and tariff costs. The data, shown in Figure 11, confirms the dominance of freight over tariff and underscores the point made earlier about the extent to which the market minimizes transport costs: trades weighted are much lower than simple average freight costs. The weighted average suggests a transport cost of just under 5 percent, whereas the simple average points 29 percent--perhaps a more realistic estimate of the importance of transport cost for trade between the two countries.

Though somewhat patchy, this body of evidence seems to be robust enough to support the message that transport costs are these days a more important obstacle to Chile's trade than the traditional tariff barriers, with the exception of a few (though important) Asian markets. True, this evidence does not include non-tariff barriers, which in some markets, particularly in agricultural goods, can be prohibitive. Yet, at the very least, it can be argued that the growing importance of transport costs call into question the almost exclusive attention being given to formal trade agreements, at the expense of the infrastructure components of trade costs.

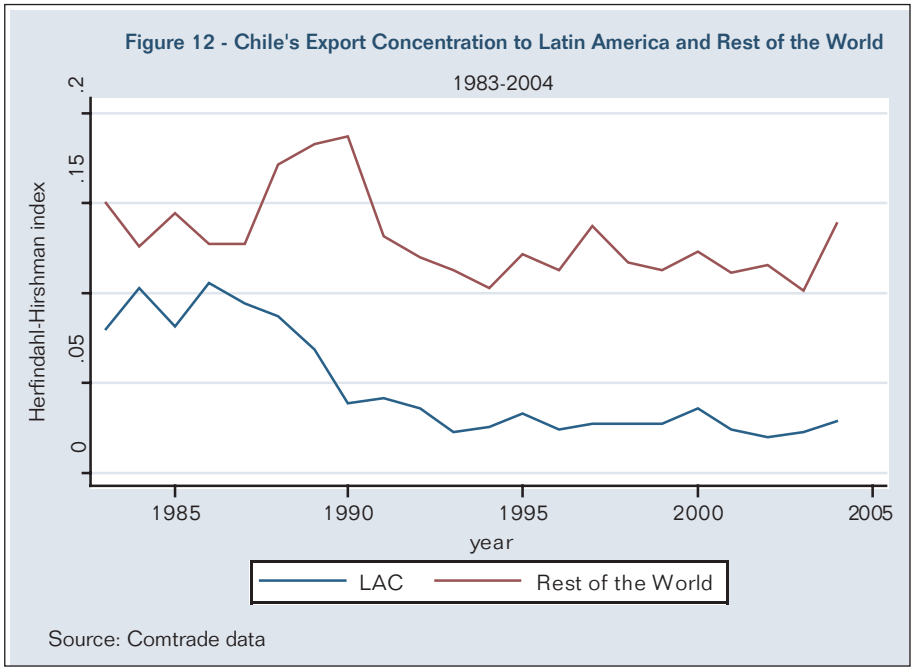


If this argument is accepted, the more immediate and logical policy implication would be to have investment in transport as a key part of Chile's policies to expand and diversify its trade. Not that Chile has not been investing in this area. In fact, Chile's has been a the top of the ranking of investments in infrastructure in LAC, having invest 5.6 percent of the GDP in 1996-2001, a level well above region's average of 2.2 percent. Yet a number of indicators suggest that Chile still has a substantial infrastructure "deficit", particularly in land transportation, when East Asia is used as a benchmark (Calderon and Servén 2004).

A more rigorous diagnosis of Chile's transport infrastructure would require more quantitative and qualitative information about the capacity and efficiency of all modes of transportation, which, unfortunately, is not available. But assuming that land transportation is really the soft spot of Chile's transport costs, this has important policy implications for both trade with LAC and the country's perspective to diversify its exports. For instance, despite the proximity, transport costs are more likely to be hurting Chile's trade with the region than with the rest of the world. There are at least three good reasons for that: first, as mentioned earlier and unlike other regions, a substantial part of Chile's trade with LAC uses land transportation; second, Chile's main transport weaknesses appear to lie exactly in this mode; and third, Chile's problems are compounded by the poor infrastructure conditions of its Latin American partners, whose traditionally inefficient services and whose historical bias against intraregional trade became even worse after decades of underinvestment.

Given that LAC has been playing an important role in the process of diversification of Chile's

exports, and given that, as discussed before, export concentration in Chile is still very high, the gains of lower transports costs are bound to be substantial. As can be seen in Figure 12, Chile's exports to the region, whose share of total exports jumped from 13 percent in the early 1980s to 20 percent in the early 2000s, is not only more diversified but diversification has increased faster than elsewhere.



It is worth noting, though, that lower transport costs between Chile and LAC depend not only on the country's willingness to invest, but also on a concerted effort by all countries in the region to improve the infrastructure that serves intra-regional trade. Issues of coordination and externalities, which affect the development of infrastructure across borders, are not going to be solved by a country alone. Cross country initiatives such as the Integration of Regional Infrastructure in South America (IIRSA), which takes a regional approach to the problem, are more likely to be successful. ■

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