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CONTENT

P RESENTATION	1
----------------------	---

A RTICLES	5
------------------	---

<i>Trade Policy for Natural Resources: What are the issues?</i>	7
<i>Michele Ruta & Anthony J. Venables</i>	

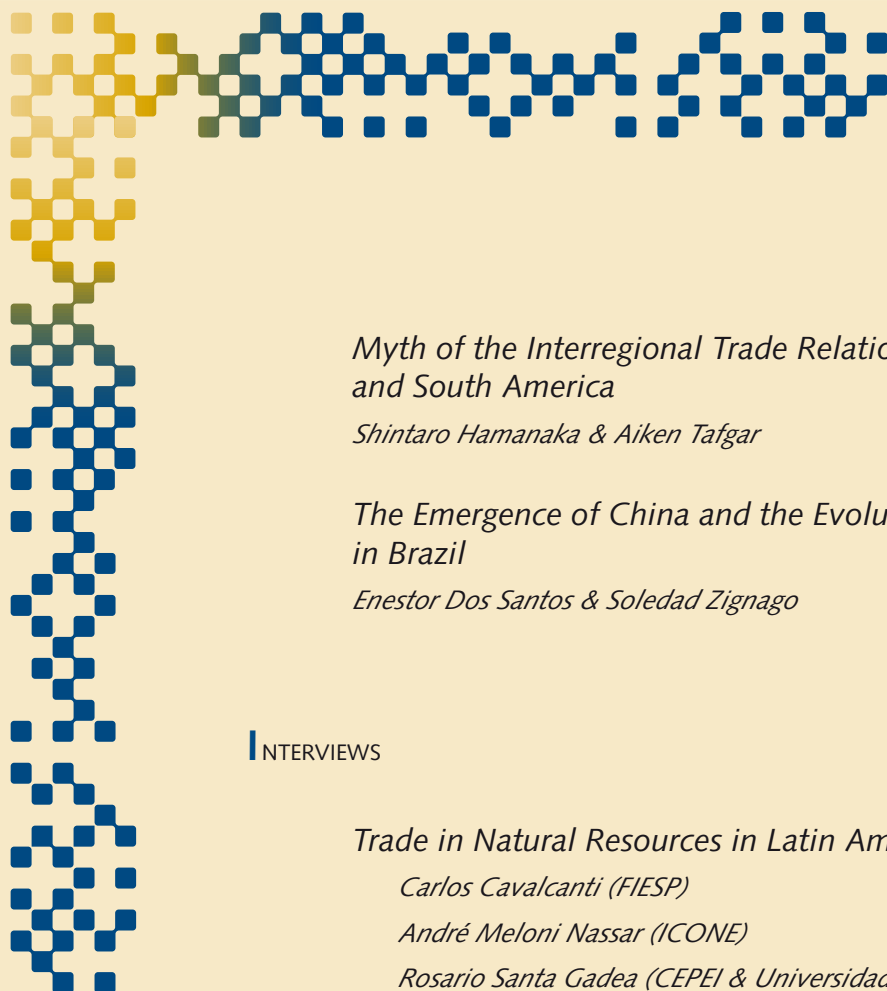
<i>The Political Economy of Natural Resources in South America</i>	17
<i>Guillermo Rozenwurcel & Sebastián Katz</i>	

<i>Latin America and the Exportation of Agricultural Natural Resources</i>	35
<i>Martín Piñeiro & Eduardo Bianchi</i>	

<i>Copper Mining and its Impact on Chile's Development</i>	45
<i>José Pablo Arellano</i>	

A RTICLES FROM THE CALL FOR PAPERS	59
-------------------------------------------	----

<i>Foreign Investment in Agriculture and High Commodity Prices: A Contribution to Understanding MERCOSUR's Present Challenge</i>	61
<i>Nicolás Marcelo Perrone</i>	



*Myth of the Interregional Trade Relationship between East Asia
and South America* 69

Shintaro Hamanaka & Aiken Tafgar

*The Emergence of China and the Evolution of International Trade
in Brazil* 83

Enestor Dos Santos & Soledad Zignago

INTERVIEWS 103

Trade in Natural Resources in Latin America

Carlos Cavalcanti (FIESP) 105

André Meloni Nassar (ICONE) 111

Rosario Santa Gadea (CEPEI & Universidad del Pacífico) 115

STATISTICS 123

NOTES & COMMENTS 135

Exports through Postal Services: Three Levels of Analysis 137

Vanina Messere

BOOKS AND ARTICLES REVIEWS 141

Economic and Trade Relations between China and Latin America 143

Gala Gómez Minujín

PRESENTATION

The last decade has seen a significant increase in the exports of several Latin American and Caribbean countries to destinations within and beyond the region. The increase in trade links has not, however, been accompanied by a proportional increase in reciprocal investments among the trading partners. This precludes making the most of clear advantages, including the possibility of diversifying and upgrading trade links by overcoming trade barriers imposed by distance and cultural differences, and by the greater availability of capital and knowledge flowing to recipient countries. In these countries, there is the additional creation of new jobs and the mitigation of the social costs generated by mismatches in labor markets that are the result of trade and integration among sometimes widely differing trading partners.

It is also worth remembering that the increase in trade ties and the behavior of investors show important differences among Latin American and Caribbean subregions alike, and also in relation to the rest of the world. From the region's point of view, these differences are reflected in various different patterns of specialization and modalities of international integration, each of which opens up real and, above all, potential spaces for cooperation and mutual learning. The most dynamic in the last decade has been the export of resource-intensive goods, with low -albeit variable- degrees of processing.

In essence, this pattern of trade relations links several South American economies with Asia and, especially, China. So far, as we have said, reciprocal investments among trading partners do not reach significant amounts. In the South American countries, there have been some attempts at partnership agreements between local companies that exploit these resources and foreign partners, as well as various investment proposals to improve export infrastructure -mainly in power, roads, railways, and ports. In countries of destination, South American investments have been geared to supporting the internationalization of some of their companies, enhancing their marketing channels and networks, and starting up so far minor added-value operations.

Within this framework, the purpose of this 35th issue of the *Integration & Trade Journal* is to reflect on the Latin American and Caribbean countries' various patterns of specialization and modalities of international integration, with especial emphasis on countries whose exports are, for the reasons stated above, based on natural resources. The basic idea has been to bring together works that address these recent developments from a variety of approaches and on various levels of analysis.

The first section is comprised of four articles by experts from various institutional and professional backgrounds, reflecting some of the region's major international integration issues and dilemmas surrounding the export of resource-intensive goods and services. The article by *Michele Ruta & Anthony Venables* highlights several issues of trade in natural resources from a predominantly global perspective. The authors open by

pointing out that natural resources represent 20% of global trade and are characterized by price volatility, the generation of high income whose distribution depends on world prices, and the force of significant fiscal and contractual relations between national governments and international companies seeking to explore and exploit these resources. These features create incentives for governments to adopt policies seeking to alter the terms of exchange and redistribute income in the national economy. The authors argue that these interventionist policies are frequently distorting and generate inefficiencies related to investment attraction, and exploration and production licensing. In the interests of more fluid international trade and greater mobility of investments, they stress the need for export restrictions and other national taxation policies measures to be included within the disciplines of the World Trade Organization (WTO).

The second article, by *Guillermo Rozenwurcel & Sebastián Katz*, examines the dilemmas of the South American countries' economic policy through this century's high commodity prices. The fact that this increase is unusually widespread, intense, and prolonged leads the authors to reflect how best to manage the economic boom of recent years and, in particular, to examine the challenges to institutions and governance that this entails for countries rich in natural resources. With this in mind, they analyze the behavior of the region's countries in terms of the degree of social cohesion and inclusion of their public policies, and their long-term economic, social, and environmental sustainability. The authors conclude that, although progress is being made compared to past decades, the South American countries are still faced with the challenge of designing and implementing public policies that are inclusive and sustainable over time, and that allow them to make the most of the favorable terms of trade expected in the coming years.

The question of why countries rich in natural resources have lagged behind in their development is the analytical focus of the article by *Martín Piñeiro & Eduardo Bianchi*. The authors review the so-called "resource curse," with an emphasis on international agricultural trade and its impact on Latin America and the Caribbean. With a view to examining the new opportunities for the region's international integration, the authors describe the endowment of natural agricultural resources and analyze the current shape of world markets. On the basis of this analysis, they suggest a need for new strategies and public policies to take advantage of the international context in the current upswing and so increase agriculture's contribution to the countries' economic development. They note that governments should be aiming toward a productive structure with the ability to generate more added value, and to promote social and fiscal policies that help to distribute the benefits from the exportation of these resources. Both policy orientations, conclude Piñeiro & Bianchi, are essential for more balanced economic and social development.

The fourth article, by *José Pablo Arellano*, looks at the role of copper in the economic development of Chile. It opens with a review of the evolution of copper's production, export, and contribution to tax revenues, both in the public company CODELCO, and in private companies at home and abroad. It also highlights the institutional system designed to handle traditional fluctuations in the copper price and the measures to curb the appreciation of local currency. However, the analysis focuses on how to maximize the contribution of this non-renewable natural resource to other sources of

wealth that outlive it. The author argues that the country has a unique opportunity to form a productive cluster and attract investment in “para-mining” activities (e.g. productive and technological services). With this in mind, the author suggests promoting competitiveness in order to bring the planned investment projects to fruition, to maintain the fiscal policy adopted to stabilize price fluctuations and save part of the income from the boom, and to emulate best international practice in training qualified and specialized human resources, and in promoting facilitating public goods (a shared vision for the sector, and models of associativity and cooperation over standards, regulations, and the opening-up of markets).

The second section contains works selected from *Integration & Trade's* regular Call for Papers. On this occasion, the objective was to deepen knowledge about the many facets of the development, recent trends, and future prospects of exports and investments in the region. From the various contributions received three papers were selected that give an insight into other angles of the debate over the region's economic performance and international integration.

First, *Nicolás Perrone's* contribution explores the potential behavior of foreign investment toward agriculture in MERCOSUR in the current context of high primary goods prices from that origin. The author's main argument is that there is very possibly a convergence of interests among national and international actors that gears foreign investments to the expansion of primary production, rather than the development of new processing and distribution activities, except in certain activities geared to the regional market. Governments may even adopt a tolerant position to this due to the particular interaction of the public and private incentives that Perrone analyzes.

Second, the paper by *Shintaro Hamanaka & Aiken Tafgar* provides an insight into the dynamics of interregional trade between East Asia and South America. The authors point out that the increase in trade between the two regions is not as promising as it seems at first sight, and that South America shows several weaknesses in its trade with East Asia. According to Hamanaka & Tafgar, increased trade between the two regions is due largely to the emergence of China and its extraordinary demand for imports in a small number of primary products. In the other direction, exports from East Asia to South America, based mainly on products from China, are far more diversified.

Last, the contribution by *Enestor Dos Santos & Soledad Zignago* analyzes the impact on Brazilian trade of China's expansion, by studying trade flows, comparative advantages, and trade complementarities between the two powers. The article challenges the view that China's emergence on the international stage would lead to the deindustrialization of Brazilian exports. Dos Santos & Zignago contend that Brazil and China complement each other in trade, despite their competition over certain manufactured products. Indeed, according to the authors and contrary to many people's expectations, Brazil has increased its share in markets of higher-quality, high-technology goods.

The articles and papers in this issue of *Integration & Trade* are complemented by interviews with actors involved in regional trade and investment issues to provide a more practical and applied view of recent events in the region. Among other matters, interviewees are asked about South American countries' competitiveness, prospects,

and main challenges for sustainable development, and about the role of the private sector and the main investment initiatives. Appearing in this section are *Carlos Cavalcanti*, Director of the Infrastructure Department at the São Paulo State Federation of Industries (FIESP); *André Nassar*, Director General of the Institute for International Trade Negotiations (ICONE); and *Rosario Santa Gadea*, Executive Secretary of the Peruvian Center for International Studies (CEPEI). Finally, Issue 35 of *Integration & Trade* also includes the usual sections on Statistics, Notes, and Publications Reviews. ♦

EDITORIAL COMMITTEE
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Articles

TRADE POLICY FOR NATURAL RESOURCES: WHAT ARE THE ISSUES?*

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Natural resources account for 20 per cent of global merchandise trade, and have a number of distinctive features. Prices are volatile; resources dominate many countries' exports, and are of vital importance for importers. They carry large rents, the distribution of which depends on world prices. Development and production of extractive resources often requires the participation of multinational corporations in contractual and fiscal relationships with local governments. There are major incentives for active policy yet, since policy is often implemented through export restrictions and through domestic tax instruments, it is largely outside WTO disciplines. This paper investigates the incentives and means by which governments can use policy to alter their international terms of trade, to redistribute rents within the national economy, and to encourage resource processing industry. It is argued that the policy equilibrium is inefficient, leading to a wide dispersion of international prices, highlighted in examples such as fuel subsidies and taxes, and restrictions on food exports. There is a need to bring export restrictions within WTO disciplines and also to use international agreements to supplement bilateral investment treaties in providing an environment supportive of high levels of investment in the sector.

* This paper is based on Ruta & Venables (2012). All views expressed are those of the authors. Thanks to the Editorial Committee for useful comments.

INTRODUCTION

Natural resources account for 20 per cent of global merchandise trade.¹ Trade in natural resources is essential both for producing countries, and to provide inputs to production in resource scarce economies. Many producers are excessively dependent on natural resources for export earnings: 21 countries have more than 80 per cent of their exports in natural resources, and for 9 out of those 21 countries natural resources account for more than 50 per cent of their gross domestic product (GDP) (IMF, 2007). For importing countries, trade in natural resources is vital because they lack domestic supplies of these essential inputs to production. The world economy as a whole is hugely affected by trade in natural resources as prices of commodities impact on macroeconomic performance.

Natural resources have many distinctive features that shape trade and trade policies in the sector. Uneven geographical distribution of resources means that production is highly concentrated in some countries, with major implications for their growth and development prospects. The prices of resources are notoriously volatile, with implications for both importers and exporters. Exhaustible resources generally carry large rents the international division of which depends on world prices, these in turn influenced by policies in exporting and importing countries. Within countries, policy is used to manipulate prices both as a way of distributing rents and in order to influence the location of resource using sectors. Furthermore, because of high technological and capital requirements, production often involves foreign direct investments (FDI); since subsoil resources are typically state-owned these entail complex relationships between domestic governments and foreign firms.

This paper suggests that these features of trade in natural resources, coupled with the fact that many of the trade policies in the sector are outside the disciplines of the World Trade Organization (WTO), lead to inefficient outcomes. There is a need to pay more attention to these issues and think harder about ways of reforming trade policy and institutions. The article offers a succinct survey of the literature on resource trade and trade policy and is organized as follows. The

next section reviews some important stylized facts of trade in natural resources. The next two focus on trade policy and long-run contracts in resource sectors respectively. Both these sections highlight inefficiencies and policy reform.

TRADE IN RESOURCES: QUANTITIES AND PRICES

Throughout the past century there has been a long-run expansion of resource trade as a result of industrialization, population growth, falling transportation costs, and the discovery of new resource supplies. In the ten years preceding the global financial crisis the dollar value of world exports of natural resources increased more than six-fold due both to rising prices and larger volumes imported, particularly by emerging countries such as China (30 per cent annual average increase between 2000 and 2008), India (25 per cent), Singapore (22 per cent), and Korea (17 per cent). The largest exporters are Russia, Saudi Arabia, Canada and USA, with other countries in the Americas lagging in absolute values, but more dependent as a share of their economies.

The dominant position of natural resources in the economy is a problem for many countries, and *Table 1* gives data for the most resource dependent economies in the Americas. High levels of dependency are apparent, with extractive industries accounting for more than half of exports in five countries, and more than one-third of fiscal revenues in six. (For comparison, in the Middle East, Africa, and Russia natural resources are respectively 74, 73, and 70 per cent of exports).

The potential gains from trade are evident, since resources are probably the area in which endowment based theories of trade are most directly applicable (e.g. Kemp and Long, 1984). Nevertheless, there are many sources of concern. A number of authors look at the interaction of resource trade with imperfections in the domestic economy, particularly insecure property rights. Trade may then accelerate depletion, unless offset by steps to improve management (Copeland & Taylor, 2009). The problems associated with the dominant position of resource in many economies are extensively discussed in the 'resource curse' literature (see van der Ploeg & Venables, 2012 for a recent survey). They include the 'Dutch disease' phenomenon of an appreciated exchange rate with adverse consequences for other tradable sectors: the corrosive effects of large

¹ Our discussion and data will focus on non-renewable resources, making reference where appropriate to agriculture and other renewables.

Table 1**RESOURCE DEPENDENCY IN THE AMERICAS**

	Bolivia	Chile	Colombia	Ecuador	Guyana	Mexico	Peru	Trinidad & Tobago	Venezuela
Extractive Ind. Rents <i>per capita</i> (US\$ 2008)	607	2,151	695	1,268	n.a.*	1,068	532	11,484	3,471
Extractive Ind. Exports: % total exports (2007-2009)	63.5	55.7	23.9	55.0*	42.0*	15.8	32.9	87.0	81.2
Extractive Ind. Revenue: % total public revenues (2007-2009)	70.0	22.7**	n.a.	49.0	27.0*	35.6	25.0	57.8	46.3

Notes: * IMF (2012), average values 2006-2010. ** Arellano (2011) estimates this to be 46% of government revenue in 2007. The data reported here draw on IMF article IV consultations. IMF (2010) reports that, near the peak of the resource boom in 2007, CODELCO provided 17.8 of government revenue and other 'mining related' taxes providing 14.1%. These numbers fell to 12.6% and 7.8% in 2010.

Source: Barma *et al.* (2012), IMF (2010), IMF (2012), Arellano (2011).

rents on institutions and governance in some countries: and the difficulties created by the high level of volatility of resource prices and revenues.

An issue of particular concern is resource price volatility, which has reached new heights in recent years. Fuel prices, for example, jumped 234 per cent between 2003 and 2008, whereas mining and food prices rose 178 per cent and 120 per cent, respectively. The asymmetric impact of price fluctuations on different countries makes the consequences particularly severe. There are many potential causes of price volatility. Low price elasticities mean that relatively small supply or demand shocks can translate into large price changes. Hamilton (2008, 2009) estimates that the short-run price elasticity of demand for oil is in the range of 0.05-0.3, while the long-run elasticity is between 0.2 and 0.9. On the supply side, the market is complicated by several factors: monopoly power of suppliers, the non-renewable nature of the resources, and long lead times on expanding capacity. For exhaustible resources that carry a large amount of rent, the long run price is not anchored by any notion of long run marginal costs. A hotly debated cause of price instability is speculation in futures markets, although trades in the futures market will raise prices in the spot market only if the commodity is held back for future delivery rather than sold currently. Changes in inventories are sensitive to

the expectations of traders. For example, if a positive shock to demand is expected to be transient then inventory adjustment will reduce variance of prices, as inventories are run down to meet current demand. However, if a positive shock is perceived to be a shock to the rate of growth of demand then inventory adjustment will amplify the shock as inventories are built up in order to move supply to the future (Dvir & Rogoff, 2009).

In sum, there are many reasons to expect a high degree of volatility in resource prices. However, the emerging consensus (Kilian & Murphy 2011, and Allsopp & Fattouh 2011) surrounding the price increases of recent years is that they are not primarily due to speculation, but are driven by shocks to fundamentals, combined with low demand and supply elasticities and with some national policy responses (see TRADE POLICY EQUILIBRIUM below).

TRADE POLICY: MOTIVES AND OUTCOMES

Trade in natural resources is largely outside the effective reach and disciplines of the WTO. There are several reasons for this. First, the focus of the WTO is on trade policy toward imports, while

the restrictions on natural resources are mostly on the export side. For example, whereas import tariffs are bound by the rate agreed in countries' schedules of commitment, exports generally face no such restrictions (exceptions being the protocols of accession of certain new members such as China). Moreover, the uneven geographical distribution of resource deposits makes some countries export a very high proportion of their production and others import the totality of their consumption. In these circumstances trade taxes and domestic taxes are essentially equivalent; paradoxically, the very fact that resources are so heavily traded places them outside trade disciplines.

There are two sorts of motivation for active trade policy, one to do with altering world prices and the terms of trade (the 'optimal tariff' argument) and the other to do with altering relative prices within the economy, both in order to redistribute income and to change incentives and encourage activity in protected sectors of the economy. We organise material in the remainder of this section around these two motivations.

TRADE RESTRICTIONS, CARTELS, AND THE TERMS OF TRADE

For a large enough producer -or producer cartel- export taxes (or equivalent quantity restrictions) may increase the world price of the good and thereby redistribute rent toward the producer country. Many primary-commodity cartels have attempted this terms-of-trade manipulation; most such attempts have been unsuccessful (see Teece *et al.*, 1993; Radetzki, 2008).

The most-studied resource cartel is Organization of the Petroleum Exporting Countries (OPEC), but little consensus has emerged on its impact. There are numerous econometric studies, but these are hampered by the fact that OPEC's influence is likely to have varied through time, and by the lack of data on key variables such as cost. Econometric studies fall into two types, one estimating the impact of OPEC on price and the other looking for other aspects of cartel behavior. Early price studies found evidence of collusive behavior, particularly for the period up to 1983 (see Griffin, 1985), although little effect for later periods. A recent study (Almoguera *et al.*, 2011) identifies periods in which OPEC behavior is and is not collusive (using both a measure based on comparison of quota and actual output and a measure using

econometrically estimated break points). Collusion holds for approximately one-third of the period, and during collusive periods prices are significantly higher (with a predicted increase of 69% over non-collusion) and OPEC production lower (by 11%). Behavior is estimated to be consistent with Cournot competition with a competitive fringe and so is much less collusive than a full cartel. An alternative econometric approach looks at other aspects of behavior such as whether output changes by different countries are correlated, an indicator of collusion. Smith (2005) concludes that "*OPEC is much more than a noncooperative oligopoly, but less than a frictionless cartel (i.e. multiplant monopoly)*". Econometric studies need to be assessed in conjunction with commentary by industry experts. In the view of Smith (2009), OPEC has failed to cut production from existing oil wells, except in the period from 1973 to 1975 (and, unintentionally, following the Iranian revolution in 1979). But it has succeeded in restricting the growth of capacity and development of new fields, thus contributing to current high prices and a situation in which high-extraction-cost non-OPEC oil is beginning to replace low-extraction-cost oil from undeveloped OPEC reserves.

For exhaustible resources such as oil, policies that change the international terms of trade in the short run may also be accompanied by changes in the intertemporal terms of trade. Because the resource is exhaustible, extracting less today means extracting more at some later date; a higher price now is therefore likely to be associated with a lower price in future. The benchmark model for thinking about this is Hotelling (1931), in which the equilibrium of profit maximizing price-taking producers has unit rent (price minus unit extraction cost) rising at the rate of interest. This condition comes from the fact that producers must be indifferent between the return from holding the resource in the ground (the expected increase in the value of the resource) and the return on other assets. Although the rate of interest sets the *change* in the price, the *level* of the price path must be such that cumulative demand for the resource leads to its eventual complete depletion.² Replacing price-taking behavior by a cartel with market power means that, in this argument, price is replaced

² The cartel would like to commit to lower supply at all dates, but this is not credible. Profit maximising decisions at future dates mean that full depletion will take place.

by marginal revenue. If demand is isoelastic and the power of the cartel is constant, then marginal revenue is a constant proportion of price, so the cartel extraction path is identical to the perfectly competitive one. The optimal use of cartel power is therefore to do nothing; the value of higher prices today is exactly offset by the present value of lower prices in the future. If the *ratio* of marginal revenue to price changes through time, then it is profit maximizing for the cartel to restrict supply in periods in which the demand elasticity is relatively low, such as when the cartel is taking a large share of the market or when there are few substitutes available. This leads to a presumption that a newly formed cartel will raise the price, shifting production to the future. These arguments become less clear-cut when other factors -for example, the discovery of new sources of supply, the development of substitutes, and the divergent interests of cartel members- are factored into the analysis. But there remains the fundamental point that a limited total supply of a resource sets the level of the price path, so attempts to manipulate the price can have short-run effects but may have little effect on long-run average prices.

If exporters have the ability, and perhaps the incentive, to manipulate world prices and the terms of trade, what about importers? Import tariffs on natural resources are generally extremely low but, for countries with little or no domestic production, a domestic tax is equivalent to an import tariff. This means that trade policy objectives can be met without recourse to import tariffs and consequently without falling under WTO disciplines. While import tariffs are low, domestic taxes on some imported resources are high. In fuels and hydrocarbons domestic taxation is often extremely high, vastly in excess of taxes plus tariffs in other tradable sectors. In many European countries more than 50% of the retail price of gasoline is taxation (2009 data in Allsopp & Fattouh, 2011). Of course, there are many reasons for this high rate of taxation, including congestion, environmental externalities, and fuel's importance as a source of revenue (deriving from ease of tax collection and the low price elasticity of demand). However, the terms-of-trade argument may be one factor underlying these high rates. Given the low elasticity of supply of hydrocarbons, a concerted tax increase by oil importers would be borne almost entirely by oil producers. The international distribution of rents is therefore determined by importers' control of demand, as well as by exporters' control of supply.

DOMESTIC PRICES, INCENTIVES AND RENT DISTRIBUTION

Trade policy and industrial protection

The second effect of trade policy is to change relative prices within the domestic economy, and this can be used to protect or establish sectors of activity. Such import substituting protection is one of the main motivations for import tariffs, and one of the reasons why WTO rules focus on import tariffs rather than export taxes. However, natural resource deposits are internationally immobile, so these production shifting arguments do not apply to the resource sector itself. They do however apply to internationally mobile downstream activities that use the resource. The policy instrument here is a tax on exports of the resource, this driving down the domestic price of the resource and thereby encouraging domestic sectors that use the resource as an input. This creates a production relocation effect of export policy analogous to that created by import-substituting protection on other goods. While second-best arguments such as infant industry protection, the need for export diversification of a resource-rich economy, or strategic arguments (as with rare earths) can be used to justify the use of this strategy, there are several drawbacks (Piermartini, 2004). Similarly to all other forms of subsidies, export taxes may encourage the development of inefficient industries. Moreover, by substituting foreign with domestic demand, an export tax has an ambiguous effect on the exhaustion of the resource. For instance, high export taxes on forestry products led to growth of industries that used timber inefficiently and probably contributed to over-logging in Indonesia in the 1990s (WTO, 2010).

While export taxes are widely used, the efficacy of these instruments for the development of higher value-added activities may be limited by several factors. If demand for the primary commodity is highly inelastic, for instance because of capacity constraints in the processing industry, then the drop in the domestic price of the resource will have little impact on the development of the downstream activity. A second caveat is that low domestic commodity prices provide a disincentive for technology upgrading in processing sectors, which may harm the long-run competitiveness of the industry. Available empirical evidence suggests that these concerns may be relevant in practice. Hudson & Ethridge (1999) study the effect of taxes on raw cotton export in Pakistan between 1988 and 1995

on the development of the downstream cotton yarn industry. Their simulation results show that, while the policy was effective in reducing exports of the primary commodity, the resulting drop in the domestic price of raw cotton had a limited impact on the expansion of the processing industry. A case study of Indonesia's log export restrictions and the development of its plywood industry raise similar questions on the efficacy of export policy as a tool of downstream production relocation (Thee, 2009). Hence, the reason for the popularity of these measures may depend more on the ease of their applicability relative to other instruments than their effectiveness as a development tool.

Just as resource exporters may seek to attract downstream activities by using resource export taxes, so resource importers may seek to attract these activities by offering tariff protection for resource using sectors. The phenomenon of offering higher protection for processed resources than for raw ones is known as tariff escalation. While nominal tariff rates are low, rates on processed products are often more than twice as high as rates on raw materials. For example, raw forestry products face an average rate of 0.57% when entering developed countries, whereas their processed counterparts are taxed at a rate of 1.91%. Furthermore, sectors in which tariff escalation is sizable typically involve activities that have a high share of resource inputs (and low share of value added) in gross output so that effective protection rates are high even if nominal rates are low. There are several reasons why tariff escalation in developed countries matters. First, as Corden (1966, p. 229) puts it, "*an escalated structure biases trade in favor of raw materials against processed products*". Second, advanced economies represent the biggest market for developing resource-rich countries. Hence, tariff escalation lowers the ability of the latter to diversify their export base.

Trade policy, government revenue and income distribution

Resource revenues are an important source of government revenue, as indicated in [Table 1](#). A variety of different tax instruments are used to collect these revenues including direct government ownership of resource production and tax regimes involving royalties, production sharing agreements and corporate taxes. What is the role of trade taxes in raising revenue in a resource rich economy?

The first point to note is that trade taxes (that discriminate between foreign and domestic economic agents) are generally inefficient, with export taxes reducing the domestic price of the resource below its world price. A case for using them arises if other tax instruments are, for some reason, unavailable. Thus, in agriculture, it may be practically or politically difficult to tax land (the first-best policy), in which case export taxes may be a second-best policy for the government to use to ensure that rents accrue to the public sector rather than private landowners. Agricultural export taxes have been widely employed in order to have this revenue raising effect. The distortionary effect has been massive, as exemplified by the experience of the African marketing boards (Jones, 1987). Agricultural export taxes in Argentina have also had a significant negative effect on output (Nogues, 2008).

The second point concerns the general equilibrium impact of trade policy in resource dependent economies. To see the argument, suppose that the government is the producer and owner of the resource and all output is exported at fixed world price. Evidently an export tax then raises no (net) revenue; it is simply one part of government taxing another part of government. What about an import tariff? In the case in which the natural resource is the only source of export revenue, then an import tariff raises no (net) revenue either. Import tariffs are equivalent to export taxes (a property known as Lerner symmetry) because, in equilibrium, a reduction in imports will always be matched by a reduction in exports. It therefore follows that in the above-described situation in which export taxes have no real effect, neither do import tariffs. The tariff places revenue in the government's trade tax account, but leads to an increase in the domestic price level that erodes the real value of its resource revenues by an equal amount. (For a more precise and general statement of this see Collier & Venables, 2010). Governments of resource-dependent economies are often urged to diversify their revenue base by developing alternative tax bases, including trade taxes. However, the argument above suggests that this may be a misdirected policy and that, in resource-exporting economies, the revenue argument for trade taxes may be weak. Trade tax revenues are illusory, as they merely shift real revenues between government accounts.

The final point concerns the effect of trade taxes on keeping down prices for domestic final consumers of the resource. The clearest example is export taxes on fuel, equivalent to fuel subsidies since they reduce the

domestic price relative to the world price. These are costly and lead to very large scale economic inefficiencies; however, the political economy case for oil exporters to use such policies can be strong, particularly in societies in which citizens see no other benefit from their resource wealth. The scale of such subsidies on petroleum has been estimated to be some US\$250 billion per annum (pa) (Coady *et al.* 2010). Coady *et al.* suggest that tax-inclusive subsidies, calculated as the subsidy relative to a situation in which a 30-cent-per-liter gasoline tax is imposed, amount to US\$720 billion pa or 1.0% of global GDP. Export restrictions -including export taxes, prohibitions, and quotas- have also been widely used to keep down the price of food, particularly in response to world price spikes (see Bouet & Laborde, 2010; Anderson & Martin, 2011; and Headey, 2011, among others). In the period from 2008-2010, approximately 85 new restrictions were implemented in this sector, covering a significant share of world trade. For food staples such as wheat and rice, shares of world trade covered by export restrictions reached 14% and 35%, respectively (Giordani *et al.*, 2012). Although the intent of governments may well be to offset consumers' losses in the face of high and increasing world food prices, export restrictions are often ineffective in insulating domestic markets (Ivanic *et al.*, 2011) and were a major factor exacerbating the volatility of world food prices.

TRADE POLICY EQUILIBRIUM

The preceding sections show that there are a number of motives for both exporters and importers of natural resources to use policy to restrict trade. For exporters, export taxes or restrictions tend to raise the world price and reduce the domestic price of the resource; for importers trade or domestic taxes tend to reduce the world price and raise the domestic price. Both are trade reducing (the lower domestic price reducing exporters' supply, and the higher domestic price reducing importers' demand). This is negative sum game of the type that the WTO expressly seeks to prevent in most sectors. But in the natural resource sector the instruments are export restrictions and domestic tax policy, so are outside WTO disciplines.

It is hard to estimate the size of the inefficiencies involved, but there are pointers to it being large. One context is food markets where, in response to an increase in prices, exporters have used export restrictions to keep down prices for domestic consumers. However, precisely because of the export restrictions, the world price goes

up even more. In response to that, exporters will impose even higher restrictions, which, in turn, exacerbate the situation creating a vicious cycle. Giordani *et al.*, (2012) suggest that, if exporters had refrained from imposing restrictions, food prices would have on average been 13 per cent lower in the period 2008-2010.

Another context is the market for fuels. Cross-country variation in consumers' marginal valuation of gasoline is more than 2:1 within the OECD and more than 4:1 if some oil producers are included (e.g. Malaysia and Indonesia). Rough calculations indicate that dispersion in fuel prices generates a deadweight loss that could amount to more than 20 per cent of the value of consumption. These numbers are an order of magnitude larger than relative price differentials due to tariffs on manufactures.

Similar to the process of tariff de-escalation, it should be possible to reach a mutually beneficial deal where trade policy is wound down in a manner that leaves the distribution of rents unaffected while reducing efficiency losses. This requires actions by both importers and exporters. The asymmetric character of the WTO agreements (between export and import policy and between domestic and trade measures), however, limits the ability of countries to escape inefficiencies in natural resource trade. For instance, whereas countries can commit to reduce tariff escalation through bindings at the WTO, export taxes cannot be negotiated. Similarly, as a number of trade and domestic instruments can be close substitutes in natural resource sectors, regulating only one of the equivalent measures is insufficient to achieve undistorted trade in natural resources. Extending the regulation of export and domestic measures in the WTO is, therefore, an essential part in improving efficiency in international trade in natural resources.

LONG-RUN CONTRACTS IN RESOURCE TRADE

Extraction of natural resources frequently takes place under long-term contracts between governments of resource rich economies and the private sector, often multinational firms. This investment has features that make it quite distinctive from FDI in other sectors. One is that government plays a major role, since it generally owns the subsoil assets. Contracts to extract these assets vary widely, ranging from service contracts (the investor is paid a fee per unit

for resource extracted), through production sharing arrangements (output is shared between government and the investor) to royalty and income tax regimes in which taxes are paid on output (a royalty) and on corporate profits, perhaps at a sector specific rate. The second distinctive feature is that projects are often long-lived and require large upfront investments which are (perhaps literally) sunk; a mine or oil well cannot be dismantled and moved to another location in the event of the project failing. Projects also involve high levels of uncertainty about geology, technology, prices and political risk. These features can give rise to two major sorts of inefficiencies, one to do with attracting investors, and the other to do with the allocation of licenses to investors.

The combination of large sunk investments and contracting with a sovereign creates a severe 'hold-up' problem for investors. That is, they cannot be sure that once investments have been sunk, the government will not change the rules of the game. This is a major deterrent to investment, and all parties could be better off if government could commit to not change the rules. However, making credible commitments -given likely future political pressures- is hard to achieve. In addition to this, even if investors are forthcoming, there remains the problem of how to allocate contracts and licences to competing investors. Although it is possible to conduct transparent allocations, for example through auctions, high degrees of uncertainty lower risk-averse investors' willingness to pay and thereby lower the prices that governments can receive. In practice, allocations are often done through non-transparent discretionary process and may therefore fail to secure the most efficient investor or the highest returns to society.

Similarly to credibility problems in tariff setting, the holdup problem in resource trade can be mitigated if countries have access to a commitment technology -such as an internationalization of contract enforcement. The current contract enforcement system (i.e. bilateral investment treaties, recourse to foreign courts, and arbitration arrangements) face two important shortcomings. Firstly, there are differences in bargaining power, which often result in lower gains for resource-rich countries (Guzman, 1998). Second, the extent to which the holdup problem is solved depends on the credibility of the arbitration system. A solution could be to expand the role of the WTO in the enforcement of resource extraction agreements to give governments ways to commit themselves to fiscal and contractual terms (Collier & Venables 2010).

The process for allocating resource extraction rights should be based on the principles of openness, transparency, and non-discrimination. Efficient allocation of contracts requires a process akin to the Most Favoured Nation (MFN) principle of the WTO to avoid discriminatory treatment. Countering corruption in international contracts has been widely recognized but only addressed in an ad hoc fashion (e.g. the Extractive Industries Transparency Initiatives and Pan-OECD anti-bribery legislation). However, there is a need for a more systematic international approach. For example, OECD anti-bribery legislation could also be a requirement associated to WTO membership.

CONCLUDING COMMENTS

Trade in natural resources receives little attention from the mainstream academic trade literature or from formal WTO processes. Yet there are good reasons to think that trade policy in the sector is used in a highly distorting way, and also that there are major inefficiencies associated with attracting investment and allocating exploration and production licenses. As with other aspects of trade policy, international coordination of policy is needed to unwind these inefficiencies. There is a case for bringing export policy into WTO disciplines, and using the WTO or other international bodies to provide transparent and robust commitment technologies for countries seeking to host investments in the resource sector.◆

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THE POLITICAL ECONOMY OF NATURAL RESOURCES IN SOUTH AMERICA

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Since the beginning of this century, the remarkable and prolonged commodity price boom has brought about a drastic change in the regional macroeconomic scenario. This was correlated with the changing nature of the dilemmas faced by the economic policy. For most South American economies, the central macroeconomic issue, unlike what had happened in the last quarter of the previous century, no longer was how to deal with the foreign exchange shortage but how to deal with the external boom. There is no doubt that natural resources have a number of peculiar characteristics. But just as there are countries for which their abundance is a "curse", there are others for which this represents a "blessing", revealing that the problem does not lie in these peculiarities but in the way in which each society manages to organize their exploitation.

INTRODUCTION

In resource-rich countries with fragile institutions and little participation of civil society, the context is potentially favorable for their societies to become trapped in a vicious circle of resource dependence, institutional weakness, and devalued citizenship. This prospect -which is not contingent on nature but on political economy- is the curse that affects numerous societies. The huge dilemma is, therefore,

how to prevent dependence on natural resources from becoming an obstacle to the development of institutional conditions that facilitate their sustainable exploitation in the collective interest.

Taking into account the complex political economy involved in the management of natural resources, this paper has a twofold purpose: on the one hand, to discuss the nature of the institutional and governance challenges inherent in such management, and on the other hand, to

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assess its possible impacts on the economic performance of the region from a long-term perspective.

To pursue this goal, the paper is structured in six sections. The first one discusses the political economy rationale underlying the “resource curse”. Section 2 analyzes how the dynamics of resource-dependent economies may give rise to multiple balances. Based on this idea of multiple balances, section 3 presents a classification that identifies four different types of sociopolitical regimes among resource-abundant countries. The fourth section examines the performance of some archetypical South American economies during the recent bonanza periods, while the fifth section describes each of them on the basis of the typology presented in the third section. The last section offers the conclusions.

NATURAL RESOURCES: A CURSE OR A BLESSING? POLITICAL ECONOMY IS CRUCIAL

The price boom of the last ten-year period represents an extraordinary piece of news for the South American economies. On the one hand, with the remarkable ease of the traditional foreign currency shortages in these economies, the macroeconomic performance of the region experienced an immediate significant improvement, the growth rate far exceeding that of the previous two decades. On the other hand, this marked improvement in the terms of trade opens up for the countries of the region an exceptional window of opportunity that has to be, however, properly seized.

Managing this bonanza poses serious challenges at numerous levels. In particular, policymakers are required to devote their best efforts to creating suitable incentives to channel the increasing resources available towards the investments needed to diversify the economic structure, integrate vast population sectors into the workforce, and increase the potential growth rate of the economies. This is especially relevant when considering that the current favorable international conditions, though persisting for some time, are not bound to remain *sine die*.

Will the countries in the region be able to tap into this opportunity to transform this bonanza into sustainable development? The answer is not univocal, as it will largely depend on each country's capacity to make the

most of natural resource revenues with an inclusive and long-term approach.

As it is well known, wealth in any society comprises several types of capital, one of them being natural capital. The assets that make up this form of capital are not man-made, although it should be borne in mind that their quality and capacity for creating goods and services (and therefore their value as productive inputs) are affected by human activity.¹ Therefore, all the other types of capital stocks being available, the more abundant the stock of natural resources, the richer the country at any point in time.

However, it is clear that, from a dynamic standpoint, no society can increase its wealth in a sustained manner by accumulating natural capital.²

Consequently, it should come as no surprise that natural capital is relatively more important for developing than for developed countries: it accounts for 26% of the total wealth in low-income countries and 13% in middle-income countries, but only 2% in industrial countries (World Bank, 2006).

History provides many examples of countries rich in natural resources that have fueled their economic boom by tapping into their natural capital, and today they are developed countries or are stepping forward in that direction. In fact, three of the wealthiest countries in the world -Norway, New Zealand and Canada- are among the richest ones in natural resources. Australia, the United States, and the Scandinavian countries are other relevant examples.

¹ Natural capital is defined as renewable if it is restocked through natural processes (for example, land, water, or forests), or as non-renewable if it cannot be replaced at a pace at least comparable to its rate of extraction (such as fossil fuels or mineral deposits). Therefore, if natural resources are harvested respecting the limits imposed by their natural growth rate, renewable natural capital may continue giving yields for an infinite period of time. Instead, the harvesting of non-renewable natural resources is necessarily finite.

² In the case of non-renewable resources, even if they can be replenished through the discovery of new sources, their very nature imposes insurmountable constraints to the process and, in fact, the productive use of such resources will lead, sooner or later, to their depletion. On the contrary, renewable resources may be used productively with no risk of depletion; however, they cannot restock themselves infinitely and are bound to run out if harvested unsustainably.

Judging by these experiences, the alleged *curse* associated with large resource endowments does not seem at all inevitable, and may even be offset by good governance (Mehlum & Torvik, 2006). However, it cannot be ignored that many resource-abundant countries do not manage to make the most of their natural capital and remain as low-income countries, with high rates of poverty, corruption, and conflict.

Such diverging experiences suggest that in order to understand the role played by political, institutional and governance aspects, it is necessary to analyze each case in its specific historical context. In fact, key decisions concerning the generation, taxation and mobilization of natural resource revenues cannot be understood unless consideration is given to the relative power and interests of the social actors involved, as well as to the ownership system and the State capacities prevailing in each case.

Natural resources have peculiar characteristics that distinguish them from other forms of capital. But it seems evident that the problem does not lie in the peculiarities of these assets themselves but in the way each society organizes their utilization.

Hence, in order to be prosperous and more affluent, resource-abundant societies have to use the resources wisely. This involves, on the one hand, investing part of the yield derived from the extraction and use of non-renewable capital in “transforming” it into other forms of physical capital (machines, equipment, infrastructure) or social capital (human, institutional, intangible assets) and, on the other hand, protecting renewable resources by not engaging in overexploitation.

The central issue is not, therefore, of a technical-productive but of a political economy nature: how to socially manage the high magnitude and volatility of extraordinary natural resource rents. There are two inherent risks: an intertemporal short-sighted use of resources and of their revenues, and a biased distribution of the latter, favoring the elites. This is why for governance mechanisms and policies adopted to be workable, they should take into account the diverse range of interests and resources of the actors involved, as well as be adjusted to the specific characteristics of these resources and of the institutional framework concerned.

In countries heavily dependent on natural resources, with fragile institutional frameworks and little participation of civil society, the context is potentially favorable for the most politically and economically

powerful social groups to hold on to the control of such resources and use their associated rents to thwart any attempt at strengthening civil society or improving institutional quality and State capacities. Societies like these will predictably become trapped in a vicious circle of resource dependence, institutional weakness, and devalued citizenship.

NATURAL RESOURCES AND INSTITUTIONS: THE EXISTENCE OF MULTIPLE BALANCES

As it is well known, boom periods, when they are long enough, may “poison” institutions, reduce room for fiscal policy maneuvering, and weaken State bureaucracy, especially when the boom takes place in already weak institutional contexts. Some natural resource exploitation methods (large plantations, mining sites, large farming estates) may adapt themselves to institutionally less demanding contractual settings, consolidating a “poor” balance and a low rate of growth. Such forms of vertically integrated organizations demand almost no interaction with domestic suppliers or customers, do not encourage the creation of chains or networks, produce little spillover effects, and do not require much institutional improvement. Given these initial conditions, the passage from a “poor” to a “good” balance cannot be made with merely marginal changes; a discrete jump has to be made.

Many countries certainly get trapped in poor balances. When this happens, the tax arena is where disputes over revenues are settled. Such disputes give rise to a political dynamic that tends to reinforce fiscal volatility: in prosperous periods, recurring expenditure (salaries, pensions, transfers or other current expenditure) typically rise above real possibilities for a long-term horizon, but when the cycle reverses it becomes too costly, politically speaking, to cut down on spending. This makes public expenditure follow a stop-go pattern, but it also increases volatility for non-recurring items, especially investment and social spending, with negative intertemporal and distributive effects.

Ultimately, the central issue is how to reach sustainable revenue-sharing arrangements, and what share of total revenue should be used for consumption and what for reserves. The key to answer these questions lies in defining and implementing effective rules of game to ensure strict compliance with such arrangements.

Otherwise, strong incentives for inequitable distribution and dissipation of revenue will appear on the scene.

This takes place because the substantial revenue yielded by natural resources is a highly valuable “booty” for government officials and their allies. Seizing a significant share of the booty can increase not only individual enrichment but also the probability of retaining power by the discretionary use of a large revenue share for purposes of clientelism (patronage) that are contrary to the general interest.

Furthermore, this context induces general rent-seeking behaviors, i.e. attempts by different social groups with some power for collective action to cut themselves a slice of the cake.³ Incentives to clientelism and rent seeking are usually bigger if taxes and revenues fluctuate, in which case the procyclicality of fiscal policy and the inevitable increase in public spending will escalate further.

Therefore, without an institutional framework to ensure the adequate management of public finance and a well-designed, robust social security network to compensate the losers, demands for equality may render it almost politically unmanageable to implement the best decisions from the efficiency point of view, which in this case would mean allowing domestic prices to be aligned with foreign prices (World Bank, 2010).

In other words, regardless of citizens’ intertemporal preferences and authorities’ assessments of and attitudes to risks, institutional framework deficiencies may lead to the adoption of a “populist” style (see below the typology of resource-abundant countries).

RESOURCE-ABUNDANT COUNTRIES: A TYPOLOGY

Based on the above discussion, countries that are rich in natural resources can be classified according to a typology based on two dimensions (Barma *et al.*, 2012): (1) the degree of long-term economic, social and environmental sustainability of their use (the intertemporal dimension), and (2) the degree of social

inclusion and cohesion that characterizes ex ante policy design (the equality criterion).⁴

It is to be expected that the greater the intertemporal sustainability, the greater the credibility of the actors involved (the government in the first place), the more frequent the compliance of negotiated agreements, the more effective the default penalties, the sounder the institutional framework, the stronger the capacity of State bureaucracy, the less rooted the practice of clientelism, and the less fragmented the political party structures.

Similarly, social inclusion and cohesion are expected to be greater as long as common interests prevail over individual ones and the diverging points of view of all social actors are taken more and more into account, i.e. as long as power concentration, the executive power’s autonomy and discretionary decision making are reduced.

Combining both variables -and on the basis of Barma *et al.* (2012)-, four “ideal” types of social-political regimes can be identified: (1) *predatory* (limited inclusiveness and cohesion, and simultaneously intertemporal short-sightedness); (2) *hegemonic* (limited inclusiveness and cohesion, but combined with a long-term sustainable strategy); (3) *populist* (greater inclusiveness and cohesion combined with intertemporal short-sightedness); and (4) *integrated* (promoting intertemporal inclusive and sustainable policies).⁵

What type each economy is will depend, in a complex interaction, on the nature and values of its political leadership and the preferences revealed by society itself through different mechanisms. Although this typology enables us to characterize the situation of any resource-abundant country at any point in time, countries may naturally change their category with the passing of time. Even though from the perspective of the common good, it is desirable that all countries evolve towards increasingly inclusive and sustainable policy systems, nothing prevents them from stagnating

³ For further information on these topics, see Alesina *et al.* (2008), Talvi & Vegh (2005), Katz & Rozenwurcel (2010), Katz (2007), Sinnott *et al.* (2010), and Chua (1995).

⁴ This clarification is important because the equality criterion is considered here in terms of the preferences of those who set the political direction and not necessarily of the ex post results of implemented policies. If not, both variables could be deemed not entirely independent.

⁵ For further details regarding this typology, see the unabridged version of this article (Albrieru *et al.*, 2012).

or even going backwards to less inclusive or more short-sighted regimes. To be successful, any strategy for change devised to boost a transition to a more inclusive and sustainable system should have a clear diagnosis of the starting conditions to which such strategy will be applied and should define a series of technically fitting as well as politically feasible reforms.

The performance of some archetypical South American economies during the recent bonanza is analyzed below, for which purpose the above-listed typology is used to characterize each of them.

SOUTH AMERICAN PERFORMANCE DURING THE RECENT BONANZA: STYLIZED FACTS IN THE REGION TO ILLUSTRATE SOME ARCHETYPICAL CASES

Unlike previous episodes often caused by supply factors in specific markets, on this occasion the boom in international commodity prices has been widespread, affecting energy, metals, and food products. When measured in real terms, the International Monetary Fund (IMF) commodity price index is today at a level similar to the highest records in the 1970s. In fact, in the case of energy products, prior to the transitory decline in 2008 as a result of the global recession, their relative price (which grew nearly three times since the beginning of the new century) had reached its historical peaks. Basic metal prices evolved similarly, growing three times in a five-year period, although in this case the starting point was the historical lows of the end of the 1990s. Somewhat less impressive, although possibly indicating a break of the trend line from the situation of the last decades, was the evolution of international food prices, which increased about 50% in real terms since the first years of the last decade (although they are still far from the relative maximum levels reached in the 1970s).

In their capacity as net commodity exporters, South American economies have been clear beneficiaries of this process. It is true that export patterns have started to diversify (for example, in the 1970s, average regional gross commodity exports accounted for 70% of total exports, whereas today they account for 60%, approximately). But this has taken place in the context of more liberalized economies. Thus, even in a more diversified regional setting, commodity exports have

substantially increased their share of the GDP in the last decades (from less than 10% in 1970 to a share somewhere in the region of 15% today).⁶

This entails that the rise in the relative price of these products has had a very remarkable impact on the domestic fronts. In principle, there are different ways of measuring the magnitude of this favorable shock. Some of them only capture the initial (so to speak, purely “static”) effects of the gains from net price increases; others seek to capture some of the dynamically “induced” effects as a response to the initial impact (in particular, the increases in the volumes exported as a response to positive price signals from the international market).

The most traditional indicator among the “static” ones measures the terms of trade variation (as the imports relative price *vis-à-vis* their unit value increases, each exported unit can “buy” a larger number of foreign products). However, this indicator disregards the aggregate effect resulting from taking into account the total number of units exported by the country.

To take this into account, it is necessary to multiply the gains per unit by the total net export volume at the time the favorable shock takes place. One way of doing this is to calculate, as it is usually done with national accounts, “the terms of trade gains”. This “adjusted” calculation of terms-of-trade variations, in weighting the exported and imported volumes, tries to capture the magnitude of the “revenue effect” induced by changes in foreign trade prices.

Of course, in addition to the “price effects” caused by terms-of-trade variations, the gains obtained by each economy will depend on their response to the demand for more volume as well. During the last decade, the purchasing power (measured as import volumes) of South American external sales grew enormously. This increase in the purchasing power was caused by factors with different degrees of “exogeneity”: just as it was necessary an elastic response from the export supply, it is equally true that an increase in the external demand due to the boom in world commodity trade was a

⁶ In addition, if imports of this type of goods are deducted, the share of net commodity exports of an “average” South American country grew from 6% to more than 10% of the GDP in the same period.

Table 1

MAGNITUDE OF THE TERMS OF TRADE GAINS
2002-2008

Indicator	Argentina	Brazil	Chile	Ecuador	Peru	Venezuela
Term of trade (annual % variation)	3.7	4.1	8.2	6.1	5.8	20.3
Purchasing power of exports (annual % variation)	12.1	11.6	15.2	14.2	15.0	21.6
ToT gains (annual average, % of the GDP)	3.9	1.0	11.7	5.5	3.5	26.3

Source: Prepared by the authors based on ECLAC and World Bank data.

crucial ingredient to the favorable exogenous shock received by each South American economy.

Table 1 above shows the different measurements of such favorable piece of news for a selected set of six South American economies, grouped according to the type of commodity that best characterizes the international specialization of each country (energy, basic metals or food products).⁷ As can be clearly seen, the magnitude of the gains obtained by the different economies of the region was very dissimilar and depended not only on the type of specialization product but also on the relative weight of internationally traded quantities.

Given the magnitude of the shock, a relevant question is how the different countries of the sample reacted

to the renewed bonanza enjoyed by the region. In particular, due to the history of high aggregate volatility and the procyclical nature of the macroeconomic policies adopted in the past by the region, it is interesting to analyze the way in which national authorities have responded this time to the shock.

As it is well known, hydrocarbon and mining production have traditionally been, through different mechanisms (such as taxes, royalties, or equity interests), a significant source of fiscal revenues for several countries of the region. The history of public revenue dependence on commodities is long and can be traced back to colonial times. However, with the decline in international commodity prices in the 1980s, the resulting reduction in primary sector taxation, and the privatization of mining sectors in several countries of the region, fiscal revenues were temporarily not contingent on the ups and downs of international trade in commodities.

Nevertheless, this dependence seems to have remarkably reappeared on the scene in the last decade. In the case of oil economies, the share of taxes imposed on the sector in total fiscal revenues reached an average of almost 30% (accounting for 8% of the GDP) in the first five-year period of the new century.⁸ Among the countries sampled, these figures reach almost 50% of total fiscal revenues (16% of the

⁷ We have somewhat arbitrarily chosen two "representative" economies for each commodity type: Chile and Peru as net exporters of basic metals (with net commodity exports of 20% and 10% of the GDP, respectively); Ecuador and Venezuela for energy commodities (with net commodity exports of about 15% of the GDP in both cases); and, finally, Argentina and Brazil as exporters of food products (with net exports of slightly over 5% of the GDP for the former and a bit lower for the latter). Although Brazil has a clearly diversified export pattern, its commodity exports have experienced a qualitative leap in the last decade, increasing their weight in total exports by more than 10 percentage points (p.p.) and accounting for more than 40% of the total (in fact, according to this measurement, Argentina has today a more diversified exports basket than Brazil, although this results from ignoring that agricultural manufactures such as soybean pellets and oils -indeed very important for Argentina- are also commodities). On the other hand, in the last three decades, the leading South American economy has been substantially reducing its dependence on energy imports, almost reaching self-sufficiency. If the recently discovered off-shore petroleum reservoirs start operating, commodities are bound to exert an increasingly important influence on the macroeconomic evolution of Brazil.

⁸ It should be noted, however, that when internationally compared, this fiscal dependence on hydrocarbons is far from being especially high. Thus, in the Middle East and North Africa, oil production yields more than 70% of fiscal revenues (accounting for more than 30% of the GDP). All data are taken from Sinnott (2009).

GDP) in the case of Venezuela, and 26% (7% of the GDP) in the case of Ecuador. As for metals -which in the mining countries of the region accounted for 45% of exports in the 2000-2005 period, a percentage similar to hydrocarbon exports-, fiscal dependence was somewhat lower: 9.4% of total fiscal revenue (2.2% of the GDP) came from taxes on the mining sector in the case of Chile, a percentage similar to that in Peru (about 13% of the total, accounting for some 2% of the GDP).⁹ The reintroduction of withholding taxes on exports (particularly, agricultural) in Argentina and the increase in food production -and its related direct and indirect taxes- in the case of Brazil also helped bring tax policies closer to the evolution of the primary sector.

It is a well proven fact that, as a result of relatively inelastic supply and demand -at least in the short run-, commodity prices become particularly volatile (Sinnott *et al.*, 2010). The exploitation of mineral resources requires high initial investment levels and is characterized by uncertain returns which, in many cases, make it difficult to get a rapid supply response to sudden price changes. On the other hand, as these inputs are highly sensitive to the evolution of economic cycles, the lack of clear substitutes in the short term determines a low price sensitivity to demand when economic activity expands. This is especially conspicuous in the case of hydrocarbons, exposed to higher volatility than the other commodity categories (see IMF, 2011). Although food supply and demand behave rather differently from other commodities (they are less sensitive to the economic cycle, their shocks are more persistent, and food supply is basically renewable, having no marked indivisibility), the truth is that some agricultural product categories are also characterized by a strong volatility.

The high volatility inherent in commodity prices has important aggregate consequences. On the one hand, such variability is a significant source of uncertainty and may affect investment decisions and, hence, economic performance in the long run. The problem worsens in economies with a less diversified production structure and an export basket highly

concentrated in this kind of products, as is the case of most South American countries.

On the other hand, a high fiscal dependence on commodity revenues may tend to exacerbate, through different channels, the negative effects caused on the entire economic activity due to international price volatility. This may arise because the stages of revenue growth are propitious for different social groups to press authorities to increase spending. Thus, instead of using this revenue increase to mitigate aggregate fluctuations, tax authorities will tend to entangle macroeconomic management, thus acting as a motor that propels aggregate economic shocks.

Hence, this behavior introduces an exogenous source of volatility to public finance and reinforces traditional channels through which procyclical spending usually responds to the stages of revenue growth.

Several empirical studies have detected a strong positive association pattern between fiscal policy responses and business cycle movements in our region (see Sinnott, 2009). In effect, the stages of fiscal revenue growth are usually associated with the build-up of recurrent expenditures that are difficult to reverse in "bad times;" when there is no access to compensatory financing in voluntary credit markets, this forces to cut down on more flexible areas of the budget or on areas that are politically less costly in the short run (typically, public investment).

This can be partly verified in the countries sampled when observing the higher volatility (estimated as the standard deviation from the trend) of public revenues from commodity production/exports *vis-à-vis* other sources (see [Table 2](#)). As shown, in all cases the variability of commodity-reliant revenues is far greater than that of other fiscal revenues (this is particularly remarkable in the cases of Chile and Argentina).

Taking this into account, it is interesting now to explore whether in the recent commodity price boom cycle, fiscal management was in line with the political economy factors pointed out by the literature on this topic.

Several previous works sought to characterize fiscal response during the boom of the last decade (see IMF, 2008; Izquierdo & Talvi, 2008; Ocampo, 2011, among others). The dominant conclusion is that, even though the countries' responses have been quite varied and their tax collection has constantly increased during

⁹ This is due to a relatively low tax burden compared to international standards, resulting from the policy approaches used in both countries to promote the development of the sector. Instead, in the Sub-Saharan Africa's economies, where metal exports account for 60% of total exports, hydrocarbon revenues account for more than 20% of total tax receipts (see Sinnott, 2009).

Table 2**FISCAL REVENUE VOLATILITY**

1990-2010, in percentage

	Argentina	Chile	Ecuador	Peru	Venezuela
Commodities revenues	33.1	20.4	18.6	11.0	21.3
Revenues from other sources	5.9	4.6	7.0	5.9	12.8

Source: Prepared by the authors based on ECLAC data.

favorable cycles, some lessons have been learned from the past and the management of public finance has shown, in general, distinct improvement.

In particular, much headway has been made in the field of fiscal institutions. With a history of recurrent budgetary imbalances and frequent sovereign debt crises, several economies of the region adopted, in the course of the last decade, fiscal accountability laws and rules-based budgetary frameworks with a view to ensuring public finance sustainability. In most cases, such rules consisted in setting quantitative goals for primary fiscal balance (deficit ceilings, balanced budgets or surplus targets), credit ceiling and/or limits to spending increases. Thus, these institutions are mainly focused on ensuring a stable debt ratio. However, with the only exception of Chile -where the structural balance target adjusts the fiscal balance by the cyclical components of commodity prices and economic activity-, in no other case were the rules designed to ensure a countercyclical behavior of tax authorities.¹⁰

However, the new fiscal frameworks, despite their deficiencies, have made it possible to administer commodity revenues more efficiently in this cycle and, overall, have contributed to improve the performance

of public accounts. In general, fiscal behavior was more cautious than in previous cyclical boom periods. As shown in *Table 3* below, the countries of the sample experienced an overall improvement of their fiscal balances and, in some cases, accumulated significant financial surpluses.

Although the accumulation of extraordinary resources in savings funds was far from being the rule,¹¹ it should be mentioned that, in certain cases, some public debts were cancelled.¹² In a context of high growth rates, this led to an important reduction in the debt ratio. In addition, as mentioned before, improved fiscal performance enabled the authorities of several South American economies to have more room for political maneuvering to deal with the global financial crisis as compared with past times.

¹¹ As already mentioned, in some cases countercyclical stabilization funds and/or savings funds financed by natural resource revenues were created. In our sample, this was implemented in Chile, Ecuador and Argentina. But, as also stated, except for the former, these funds are not effective or have accumulated only small amounts. Outside the sample, the only relevant case is Trinidad and Tobago, which during the cyclical price peak in 2008, had accumulated resources accounting for 12% of its GDP (as Chile did).

¹² An important portion of debt reduction savings were allocated to foreign debt cancellation. This was possible, partly, because central banks implemented active policies for foreign reserve accumulation. However, not in all cases the cancellation of foreign debt with foreign reserves meant necessarily a complete net debt reduction. On some occasions, the "purchase" of foreign currency was made possible by borrowing from monetary authorities (causing therefore a change in the composition of creditors of the national Treasury). Therefore, although domestic finances are then stronger to address any adverse external event, an anti-crisis self-insurance through reserve accumulation is not always the perfect substitute for a genuine debt reduction process.

¹⁰ Taking into account the lessons drawn from the recent crisis, the IMF (2011; 2012) has been insisting in its latest reports on the need to discuss a set of "second-generation" fiscal rules. The purpose of such rules would be to combine "credibility" with "flexibility" by: (a) incorporating escape clauses to respond to sizable disruptive events, and (b) defining a mid-term framework to dismantle discretionary incentive policies implemented in the face of such events. Following the examples of Australia and New Zealand, this approach advocates the need for "limited" discretionary power based on robust institutional arrangements rather than on rigid numerical targets that may push fiscal policymakers to resort to the "automatic pilot" mode.

Table 3**PRIMARY FISCAL BALANCE, FINANCIAL BALANCE AND PUBLIC DEBT**

Percentage

Fiscal Indicators		Argentina	Brazil	Chile	Ecuador	Peru	Venezuela
Primary fiscal balance	2003	2.1	2.3	0.7	2.5	0.3	0.3
	2008	2.8	2.4	4.8	0.3	3.6	0.1
	% var. of GDP	0.7	0.1	4.1	-2.2	3.3	-0.2
Financial balance	2003	0.2	-4.3	-0.5	-0.4	-1.7	-4.4
	2008	0.7	-1.2	4.3	-1.1	2.2	-1.2
	% var. of GDP	0.4	3.1	4.8	-0.7	3.9	3.2
Public debt	2003	138.2	34.4	13.0	46.2	43.4	46.3
	2008	48.5	29.8	5.2	22.9	24.1	14.2
	% var. of GDP	-89.7	-4.6	-7.8	-23.2	-19.3	-32.1

Source: Prepared by the authors based on ECLAC data.

But this cannot be overestimated: the balance is mixed and not all the economies seem to have behaved in the same way regarding the fiscal management of the favorable external shock. This is clear when the impact of cyclical factors is removed from the fiscal balance observed in each case, and the fiscal “structural” (or “cyclically adjusted”) balance is then calculated.¹³

Table 4 compares the evolution of the fiscal balance observed and the “cyclically adjusted” balance for each country during the expansive phase prior to the global financial crisis (between the valley and the cyclical peak). The table shows the “underlying” fiscal dynamic in every country sampled, regardless of any positive influence of the price and quantity

cyclical factors. One way of doing this is to calculate the difference in the fiscal evolution described by the observed and the structural balances. In doing this calculation, it becomes clear that fiscal evolution has had very dissimilar behaviors. The most outstanding case is, undoubtedly, that of Venezuela, where there is a difference of some 6 p.p. of the GDP between the fiscal dynamic observed and the underlying behavior shown by the indicator. But the difference is also important in the cases of Argentina and Ecuador (around three percentage points of the GDP) and, to a lesser extent, of Chile.¹⁴ Finally, Peru and Brazil show the smallest differences when the primary balance is adjusted by the macroeconomic cycle and commodity price impacts (although Brazil shows some deterioration in the structural balance somewhere in the region of a half-percentage point of the GDP).

Of course, these behavioral variations may simultaneously reflect a different assessment and perception of the nature of the shock as well as a different attitude towards risk, on the part of authorities as well as of other relevant social actors in each country.

¹³ In the attempt to cancel out the effect of the so-called “automatic stabilizers”, such indicator seeks to identify the underlying factors in fiscal evolution (i.e. the most permanent factors affecting public revenue and expenditure, and the most discretionary fiscal decisions). In particular, tax revenues are adjusted by the impact of the macroeconomic cycle, and non-tax revenues by the impact of “temporary” profits from international prices. Even though expenditure commitments tied to the economic cycle (i.e. unemployment benefits) do not play a major role in Latin America, the literature tends to assume that all expenditure is “structural” (see Vladkova-Hollar & Zettelmeyer, 2008). Furthermore, estimations are made on the basis of the primary balance (i.e. excluding interest), so as to exclude inertial or contractual commitments and focus on the variables under a more direct control of the authorities. The adjustment by “quantity” and by “price” is very similar to the calculation methodology that guides the structural balance rule in Chile.

¹⁴ However, it should be noted that, while in the last case the structural balance shows an improvement of over 2 p.p. of the GDP along the cycle, the underlying fiscal dynamic in the other two cases shows an important deterioration (especially Ecuador, where the structural balance deteriorates by 9 p.p. of the GDP, despite economic expansion).

Table 4**EVOLUTION OF PRIMARY AND STRUCTURAL FISCAL BALANCES**

Percentage

	Argentina			Brazil			Chile		
	2003	2008	Var.	2003	2008	Var.	2003	2008	Var.
Primary balance (% of GDP)	1.51	2.78	1.27	2.19	2.37	0.18	-0.07	4.79	4.86
Structural balance (% of GDP)	3.96	1.91	-2.05	0.93	0.48	-0.46	0.67	3.28	2.60
Difference (Primary - Struct. balance variation)			3.32			0.64			2.26
	Ecuador			Peru			Venezuela		
	2000	2008	Var.	2001	2008	Var.	2002	2008	Var.
Primary balance (% of GDP)	6.32	0.34	-5.98	-0.84	3.55	4.39	0.63	0.11	-0.52
Structural balance (% of GDP)	4.18	-4.62	-8.80	-0.24	2.36	2.59	1.21	-4.66	-5.87
Difference (Primary - Struct. balance variation)			2.82			1.80			5.35

Source: Prepared by the authors based on ECLAC and World Bank data.

As usual, in a context of uncertainty, the interpretation of a piece of news (in this case, positive) entails two different types of risks, which cannot necessarily be avoided at the same time: in this case, one would be to erroneously take a merely temporary shock as a structural one, and the other, to take as temporary some apparently more permanent gains.¹⁵

What the most reasonable attitude to adopt is will depend, of course, on numerous factors and issues that are idiosyncratically inherent to each country, such as the absolute levels of wealth (and, hence, whether there are buffer stocks to make up for the undesired consequences of misperception), the access to financial sources in the face of adverse circumstances, the degree of inequality in income distribution, the size of cyclical fluctuations of the economy, and the nature

of the stochastic process governing the behavior of commodity prices.¹⁶

Judging by the historical background of the region, its performance is not very laudable in this sense. In past experiences, the Latin American countries often made the mistake of adapting permanently to settings that turned out to be temporary. This did not only occur with the short-lived return of the *belle époque* in the interwar period, but also, later on, in the short periods of favorable terms of trade or wide availability of foreign financing. These cycles were the core of what was later known as “the macroeconomics of populism” (Dornbusch & Edwards, 1992): periods of short-lived booms that contributed to finance spending binges, which ended up pretty badly.

Given the serious mistakes of the past in boom management, it would be important for the region to adopt a basic principle of caution: to “reverse the burden of proof” and act as if all positive shocks

¹⁵ An extensive econometric literature has explored the possible existence of secular trends in commodity prices (and empirically tested the validity of the Prebisch-Singer thesis on the secular decline in Latin American terms of trade). Although a visual inspection may suggest the existence of long-term declining trends, strict econometric tests applied to sufficiently long series challenge the assumption that commodity prices follow a distinct trend. In any case, all this suggests that it is very complicated to identify the nature of the shocks and distinguish whether they are permanent or temporary innovations (see Sinnott *et al.*, 2010; Byrne *et al.*, 2010; Cuddington *et al.*, 2007; Ahumada & Cornejo, 2011).

¹⁶ In general, according to empirical consensus, this is a random walk process, with several structural breaks and no distinct long-run trend. Moreover, the general viewpoint is that if there is any trend at all, its value is irrelevant *vis-à-vis* its variance (Cashin & Mc Demott, 2002).

were temporary (and as if all negative shocks were permanent) “until proven otherwise”.

Moreover, if the stochastic process governing the evolution of commodity prices follows a random walk, as suggested by the empirical evidence, the direction or magnitude of future price variations would be, strictly speaking, unpredictable. This has very significant consequences for policy design, as this renders it unadvisable to interpret any change as permanent.

As already stated, not all the economies in our sample seem to have behaved consistently with -or interpreted in the same way- the shock. One way to prove this is to build a simple indicator of fiscal behavior (*indicador sencillo de la conducta fiscal* - ISCF) whereby it would be possible to capture how much of the additional resources derived from the price boom (and its related economic activity) was spent and how much was saved or invested. In line with the permanent income hypothesis, additional fiscal revenues from positive shocks considered temporary by fiscal authorities should be fully saved. On the contrary, innovations in revenue flows taken as permanent should induce permanent changes in current expenditure (or in other income sources), with no counterpart in primary fiscal savings (primary balance net of capital expenditure).

Such indicator, which will measure (in percentage points of the GDP) the ratio between changes in primary current expenditure (i.e. net of capital expenses and interest) and changes in fiscal revenues, will reveal how each country has apparently interpreted the shock.

The values obtained with this indicator for each economy of our sample are shown in the table below. As can be observed, the fiscal behavior of the six economies analyzed has been very different.¹⁷ At one extreme, hydrocarbon exporters (Venezuela and Ecuador, in this order) tended to allocate the largest share of revenue increase to current expenditure, which means that they seem to have interpreted the favorable shock as clearly “permanent”. At the other extreme, the metal-intensive economies (Peru and Chile) seem to have interpreted the shock as “temporary”, instead, as they tended to save almost the total fiscal revenue

increase (or even more in the case of Peru). A halfway position was adopted by Brazil and Argentina, which tended to save almost half of the revenue increase (Table 5).¹⁸

Of course, it can be stated that it is not outright evident that the State is always the one that has to save the “extraordinary” resources derived from a favorable shock, if it is temporary. In fact, in numerous circumstances households themselves are likely to be more accurately aware of the opportunities available to increase their human capital endowment. Thus, when misinformation affects the quality of public decision-making, it might be better that the tax authority makes transfers (to be recorded as current expenditure) to finance households’ investment/saving decisions.

Anyway, it should be admitted that this will not be necessarily like that in most cases. First, many investments in physical and reproductive capital require a minimum scale for State allocation to be deemed convenient. Second, if all the “gains” are transferred to the private sector, there might be collective action problems and underinvestment in public goods having high social profitability and positive externalities. Therefore, it cannot be anticipated, without a careful analysis, what the appropriate institutional arrangement is, and this will probably depend on time and place circumstances (see Ostrom, 2009). Finally, if spending in physical and human capital is to be encouraged among those with difficulties in accessing credit -taking into account the different marginal propensities to spend by income group as well-, it is also important to analyze who the beneficiaries of such cash transfers are.

Nor is it evident what the optimal social use of greater fiscal savings should be. For example, as discussed in a previous section, it will be necessary that after extracting

¹⁸ It is necessary to mention that, as these are aggregate data, the indicator may give only a rough idea of the amount actually saved by each country. Current expenditure, as it is well known, include expenses that, from the economic standpoint, should be taken as investment (for example, a significant portion of education and health care expenses, which are in fact allocated to human capital accumulation). Limited data at this aggregation level prevent us from calculating savings more accurately, although they are likely to be downward biased. However, the data reported here refer exclusively to central administrations, so that if part of the current expenditure (and tax collection) is executed at subnational government levels or through extrabudgetary mechanisms (trust funds, State-owned companies, etc.), the indicator will capture inaccurately (in this case, probably overestimating) actual fiscal savings.

¹⁷ Although with some differences, the values obtained with our indicator are essentially consistent with the exercise carried out by Sinnott (2009) about the sensitivity of fiscal revenues and expenditure to commodity price fluctuations.

Table 5**SIMPLE INDICATOR OF FISCAL BEHAVIOR**

Percentage

	Argentina			Brazil			Chile		
	2002	2008	Var.	2003	2008	Var.	2003	2008	Var.
Current primary expenditure (% of GDP)	11.95	14.35	2.39	15.09	16.52	1.44	16.72	16.89	0.17
Total revenues (% of GDP)	14.17	19.38	5.21	20.92	23.57	2.65	20.67	25.49	4.82
ISCF (Primary exp./Total revenue var.)			45.98			54.20			3.59
	Ecuador			Peru			Venezuela		
	2000	2008	Var.	2004	2008	Var.	2003	2008	Var.
Current primary expenditure (% of GDP)	9.60	14.18	4.59	12.56	12.21	-0.35	17.36	18.72	1.36
Total revenues (% of GDP)	19.96	25.46	5.50	14.93	18.12	3.19	23.38	24.87	1.48
ISCF (Primary exp./Total revenue var.)			83.44			-10.89			91.75

Source: Prepared by the authors based on ECLAC and World Bank data.

the mineral resources (a stock of non-renewable natural wealth), they should be “transformed” into other forms of capital. Under certain assumptions, the Hartwick’s rule (1977) establishes that the optimal intertemporal use that can be made of the rents from this type of wealth is to invest them in alternative assets (physical or human capital, or even financial assets).

What considerations determine the composition of a wealth portfolio in any given economy? It is hard to say a priori. However, such composition can be assumed to depend, once again, on specific time and place circumstances inherent in each economy.

Thus, it seems difficult to sustain that a demographically “young” society with a very inequitable income distribution should pay the same attention to inter-generational considerations as a “mature” society with a relatively more homogeneous income distribution should (for example, Norway, which has set up an inter-generational fund to meet future retirement needs). Instead, the goal of cyclical stabilization -like policies to mitigate high exchange-rate appreciation, diversify idiosyncratic risk or modernize infrastructure- may be a priority for highly volatile and little diversified economies. Furthermore, it is natural that public spending policies in this kind of society characterized by high inequality levels seek to prioritize immediate social justice, as it seems to have been the case in several economies of the region, which,

in the last period, devised reasonably significant cash transfer programs.¹⁹ Obviously, the optimal investment portfolio will differ strongly in every case.

AN EMPTY PIGEONHOLE

From the analysis of the previous sections, it follows that, when the influence of cyclical factors is removed from policy results, the performance of the South American economies sampled in the management of the favorable piece of news has proved to be quite varied. In a context where more consideration is given to the macroeconomic stability conditions, in the last decade there has been a tendency to pay much more attention than in the past to the need to avoid external imbalance and its potential worsening due to financial weakness. A significant fact, as already mentioned, is that the region managed to avoid financial crises, despite the magnitude of the external shock caused by the global

¹⁹ Not always have these cash transfer policies been properly targeted; this fact, together with each country’s starting point in terms of distribution and our view of the preferences of each society, has influenced our classification of the different regional experiences with regard to the equality dimension (social sustainability). See the next section and for further details, the unabridged version of this paper (Albrieu *et al.*, 2012).

crisis. On the other hand, the commitment assumed at the time of the debt crisis to a more orderly fiscal and monetary management was, in general, reaffirmed. It has also been said here that policymakers have had, by regional standards, a relatively more ample margin for maneuvering in both areas.

Nevertheless, different experiences, especially with regard to the treatment given to the nature and persistence of the positive shock, coexist. As it has been argued, this diversity of approaches is the result not only of different judgments but of different (intertemporal and equality) preferences and risk perceptions held in each case.

With the purpose of offering a brief summary of the main results achieved, the six economies under study have been classified according to the typology presented above. The criterion used combines our opinion about the “quality” of macroeconomic management -i.e. how sustainably and equitably the positive piece of news has been managed- with objective indicators of the degree of inclusion and development of each society.²⁰ This criterion seeks to identify in which of the four quadrants of our diagram is each of the economies sampled, and to give our view as to in what direction each country has been moving in the last period (*Figure 1*).

Looking at the diagram, it is clear that, in our opinion, not all the countries of the sample made headway in both spheres (or in one of them), and that those who did are still quite far from the “desirable” region, characterized by equally sustainable and inclusive policies (and balances). Judging by the performance observed during the recent bonanza, this quadrant is still an empty pigeonhole among the countries of the region that are rich in natural resources.

FINAL CONSIDERATIONS

South American countries are faced once again with the challenge of having to manage the external bonanza caused by a commodity price boom, which this time is unusually widespread, intense, and

long-lasting. To do this successfully, it is necessary, on the one hand, to address the effects of the Dutch disease on the short-run cyclical dynamics and, on the other hand, to avoid overexploitation of renewable resources and ensure the transformation of consumed non-renewable capital into other forms of capital, saving and investing correctly the extraordinary rents yielded by the boom.

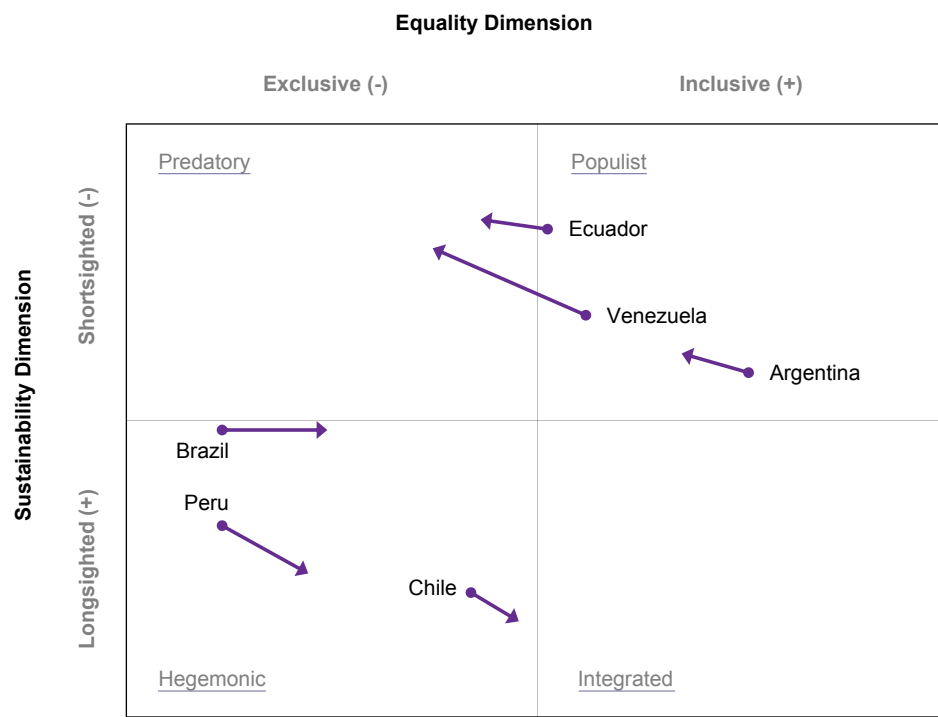
To counteract the “Dutch disease”, it is fundamental to adopt consistent macroeconomic -monetary, exchange-rate, and tax- policies designed to mitigate exchange-rate volatility (particularly, the risk of excessive real currency appreciation). At the same time, although their effects will not be immediate, it is necessary to complement anticyclical policies with more structural production-stimulating policies intended to increase productivity and competitiveness in tradable sectors not directly tied to commodity production.

In particular, it is desirable that the tax policy should pursue a structural goal (cyclical factors removed) and provide for some stabilization mechanism with clear rules as to how and how much to save as well as to how to establish (and adjust, wherever necessary) benchmark prices. Of course, broadening the tax base, improving tax administration, and even resorting to hedging mechanisms available in the financial market in order to reduce fiscal revenue volatility are all initiatives that will contribute to enlarging the fiscal space and strengthening the capacity to smooth the cycle.

In any case, the institutional mechanisms used to administer rents form part of a complex equation. In principle, in addition to addressing a short-run objective, i.e. cyclical stabilization, they should also address a long-term objective, i.e. accumulation. Stabilization funds made up of liquid, solid assets are the most adequate instruments to meet the short-term objective; sovereign funds, made up of a range of more diversified and risky assets, are best suited for the long-term one.

As for the long term, the main challenge is to maintain savings and investment rates that should prevent the decline in total capital stock. This is a pending issue for the countries of the region. To achieve this goal, it is necessary to invest a great share of the rents from the use of natural resources in other forms of physical and human capital. However, how much and how to invest is not a decision that can be made based on rules

²⁰ See the Human Development Index (HDI) drawn by the United Nations Development Programme (UNDP).

Figure 1

validly applicable in all times and places, regardless of the economic, political and social context in place.

In particular, the objective of accumulation should be balanced with equality and social cohesion goals, which require allocating resources to social policies associated with inequality and poverty reduction. A serious impediment to match both objectives, which is common to many countries of the region, is the significant and ill-designed energy and food subsidies, which act regressively, unproductively and with very little transparency.

Productivity improvements are certainly necessary for the sustainability of growth in all developing economies. But they are even more necessary in resource-abundant economies to counteract the risk that the exchange-rate appreciation caused by temporary booms have permanent effects on tradable sectors that would be economically viable if the real exchange rate were closer to the long-term balance.

The range of policies with a potential to create incentives for productivity increase is very wide and varies from trade policy and foreign direct investment (FDI) promotion to investments in physical and social infrastructure and regulatory and institutional improvements. But, in this assortment, policies specifically focused on business development and innovation strategies play a crucial role that should not be underestimated (Rozenwurcel & Bezchinsky, 2011).

Instead, what should be avoided is discriminating against sectors that are directly or indirectly resource-intensive to pursue a diversification underpinned by the "shield" for internationally non-competitive manufacturing sectors, which involves persistently depreciated exchange rates, excessive subsidies or high trade protection levels. Missed opportunities due to excesses committed in the Latin American history of import substitution industrialization suggest that any developing strategy contrary to the country's

comparative advantages will eventually turn out to be both inefficient and unsustainable.

On the contrary, the history of many countries rich in natural resources that are currently collecting high revenues shows that commodity sectors, combined with substantial investments in human capital and the creation of an elaborate network for knowledge dissemination purposes, may act as a successful launch pad for an “evolutionary” diversification of the production structure.

The recurrence of boom and decline cycles associated with the exploitation of natural resources is not an inevitable fate for the countries of our region. But in order to avoid such fate and tap into the present opportunity opened up by the global economy, knowing what policies to adopt is not enough. It is necessary that such policies form part of a feasible strategy towards development and institutional change. The challenge is not merely a technical one. Building a social coalition to support this strategy is, in the first place, a political task. ♦

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LATIN AMERICA AND THE EXPORTATION OF AGRICULTURAL NATURAL RESOURCES

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The debate on development strategies in Latin America has been strongly influenced by two concepts in the literature of economics: first, by the hypothesis that a rich natural resource endowment can negatively affect development ("the natural resource curse"), and second, the empirical evidence pointing to a constant decline in the agricultural terms of trade. A look at the literature suggests that the "natural resource curse" hypothesis does not hold water and that, on the contrary, with sound policies for the use of the economic surplus, natural resources are indeed associated with development. Recent empirical evidence and an evaluation of the structural conditions of world agriculture suggest that prices of the main agricultural goods will remain high, thus ensuring favorable terms of trade for net food exporting countries. Latin America has an extraordinary agricultural natural resource endowment. If this is to be effectively exploited, it is necessary to elaborate new development strategies and innovative trade policies that will enable the region to insert itself effectively in international trade and attain to a productive structure with more added value. Last, it is also necessary to have fiscal and social policies in place that distribute any benefits and help to build a balanced economic structure.

INTRODUCTION

The role of natural resources in economic development has featured in specialists' debates almost since the birth of economics as a profession. One of the facts that has attracted most attention has been the existence of countries rich in primary goods, but that have lagged behind in development. This apparently intricate issue, which even seems to defy common sense, has led certain authors to conclude that there must be something inherent in the production of primary goods that is detrimental to an economy's prospects for growth. This seemingly disconcerting state of affairs has been labeled the "natural resource curse."¹ Several of the countries in the Latin American region fall under this behavior: in spite of their being characterized by their natural wealth, they have not experienced growth comparable to that of countries that have already attained high levels of income.²

With specific regard to agricultural products, Latin American agriculture has seen significant growth in output and productivity over the last two decades.³ The world economy has also seen major changes in food and agriculture that have led to a reassessment of agricultural natural resources. After several decades during which the price of food dropped in real terms to create an illusion of falling agricultural prices and constantly declining terms of trade for agricultural exporting countries, the situation altered significantly in the 1990s. A number of factors, such as economic growth, urbanization, and income distribution policies in emerging countries, created an increase in

global demand for food and a considerable increase in food prices.⁴

The new international demand for food creates huge opportunities and challenges for Latin America. It is against such a backdrop that one questions the validity of the conditions that have led certain economists to postulate the existence of a "natural resource curse". Likewise, understanding and adapting to the new conditions of international demand is a necessary condition in defining new public strategies and policies that will help develop the agricultural sector and increase its contribution to economic growth in the region.

The first section argues that the prevailing conditions and thinking in previous decades, which gave the exploitation of natural resources a secondary role, should be revised. The next describes Latin America's endowment of agricultural natural resources, and the third describes the new global market geography and the region's potential for international insertion. The fourth section sets out the dilemmas and challenges regarding the strategy and policies needed to increase the agricultural sector's contributions to Latin American development. And the last section outlines the main conclusions.

AGRICULTURE AS A DEVELOPMENT PILLAR

Empirical studies that have looked at the relationship between economic growth and the proportion of basic commodity over total exports, or over gross domestic product (GDP), have found a negative impact of natural resources on economic growth, which has been dubbed the "natural resource curse".⁵ The high number of resource-rich and income-poor countries seemed to confirm these findings.

¹ For the purposes of this work, agricultural products are included in the definition of natural resources. For a discussion of the definitions and essential characteristics of natural resources, see WTO (2010).

² The production of natural resources is highly heterogeneous in countries in the region: its most populous and economically large countries -namely Mexico and the Southern Cone nations- tend to be net exporters of primary goods, whereas the smallest and least populous -most of them in Central America and the Caribbean- tend to be net importers of these goods.

³ Although agriculture in Latin America grew over the period 1960-1990 at similar rates to the global average, it underwent major structural changes in the 1990s with the emergence of new forms of organizing production. These changes, which are significant in the Southern Cone countries and, to an extent, in some other countries, such as Peru and Costa Rica, opened up the way for technological innovation and greater productive dynamism.

⁴ There is intense international debate over whether stepping up the use of agricultural commodities in financial contracts has been behind price rises. The evidence available suggests that price levels are defined by the relationship between supply and demand. However, it also seems to suggest that the financialization of agricultural markets has been a contributory factor in the extreme price volatility of the last five years.

⁵ Sachs & Warner (1995, 1997) have helped define this concept with two highly influential articles.

More recent econometric studies have questioned these findings, especially the use in empirical works of the proportion of primary goods exports over total exports or GDP as a benchmark for the abundance of natural resources. It has been suggested that these econometric exercises have “endogeneity problems”: in other words, there is no way to tell whether countries have been unable to grow because they are so dependent on primary goods, or whether they are so dependent on primary goods because they have been unable to grow in other sectors. Similarly, using other indicators for the abundance of natural resources, their negative relationship to growth disappears or even appears as significantly positive.⁶ Parallel to this empirical questioning, another group of studies has considered the various different arguments that have tried to explain the “natural resource curse”.

THE VALIDITY OF THE “NATURAL RESOURCE CURSE”

The main hypotheses put forward to explain the “natural resource curse” have been the downward trend and volatility of international primary goods prices, the cyclical expansion of the non-tradable sector through “Dutch disease” and the displacement of the manufacturing sector, and the problems arising from the interaction between the extraordinary gains from the production of these goods and a country’s institutions.⁷

In the 1950s, Prebisch and Singer argued that agricultural goods prices show a long-term downward trend compared to manufactured products. With declining terms of trade, countries that specialize in their production may thus lag behind in growth terms compared with countries that are more dependent on manufacturing output. The Prebisch-Singer hypothesis was important in the history of the region because it provided an intellectual justification for the strategy of

import substitution industrialization adopted by many of the region’s countries between the 1950s and the 1970s, before the crisis of the 1980s drove them to abandon it in favor of externally-oriented policies. While recent studies that have used sophisticated econometric techniques at longer-term price series than those used by Prebisch and Singer find little evidence to support this hypothesis, the changes in global demand for food over the past few years (addressed in the next point) justify the argument that we are dealing with new terms of trade and that these are increasing, not decreasing, with respect to manufactured products.⁸

Although the weight of the most recent evidence seems to suggest that, all factors considered, the “natural resource curse” does not exist, there are nevertheless a few factors that may exert a negative influence. It seems true -in the short term at least- that international primary goods prices are highly volatile because supply and demand of these goods is relatively inelastic. Fluctuations in the price indexes for each of the major groups of primary goods are far greater than, for example, those of the unit value indices for manufactured products. With the price volatility come increased uncertainty and risk in the economy as a whole, and this can discourage investment. When it is accompanied by the appreciation of the real exchange rate during primary goods booms, it can also promote the concentration of export baskets, which can, in turn, aggravate the adverse effects of price volatility in the economy. In conjunction with high fiscal dependence on extraordinary gains from primary goods, export concentration also brings instability in government income and difficulties in macroeconomic management. Another legitimate concern regarding the extraction of natural resources is that, if the income is not reinvested in human capital or some other productive capital, the real existence of wealth in the economy will diminish over time. Last, the existence of extraordinary gains, especially when appropriated by concentrated groups, can lead to inadequate governance, and undermine the long-term development of sound institutions and growth.

The production of primary goods is not intrinsically inferior to others in terms of its potential for higher added value as the quality of the output improves,

⁶ See, for example, the above works by the World Bank (2010).

⁷ Abundant natural resources produce high economic rents, with two main effects on an economy’s incentive structure: the inflow of foreign currency raises the real exchange rate (RER) and pushes up the price of non-tradables relative to tradables; on the other hand, it increases the resource’s production yields relative to manufactured goods, reducing the incentive to invest in producing those goods and thereby generating a production and export structure focused on the natural resource. These dynamics are generally known as “Dutch disease”. Recent work on Dutch disease in South America can be found in Albrieu, López, & Rozenwurcel (2011).

⁸ On the econometric studies that found scant evidence for the Prebisch-Singer argument, see Balagtas & Holt (2009); Lederman & Maloney (2006), and Cuddington, Ludema & Jayasuriya (2007).

with positive economic spillover effects and social externalities or the development of upward and downward links in the production chain. Steps can also be taken to mitigate the effects of Dutch disease and diversify an economy's production structure. From a strategic viewpoint, two main goals of fiscal policy in countries dependent on primary goods are to ease public expenditure in the short term in response to income volatility in these goods, and to achieve optimal wealth management in the long term. A third key goal is to reduce income volatility by diversifying the tax base. Isolating the cost of boom and crisis cycles of income from primary goods ideally requires the use of a cyclically adjusted fiscal goal combined with a stabilization fund to oblige the accumulation of savings when there are extraordinary gains in primary goods, which can then be used to stabilize spending in times of crisis for these goods. A stabilization fund can thus play a key role in stabilizing spending and also contribute to the more effective working of countercyclical fiscal policy.

Recent works contend that both econometric exercises and case histories show that the "primary natural resource curse" -if it indeed exists- is neither strong nor inevitable. The predominant evidence points to a wealth of natural resources on average neither disproportionately undermining or promoting economic growth. However, even if this "curse" does not exist, there is concern over the risks that can be created particularly by the effects on macroeconomic stability, aggravated by export concentration. This suggests two major intervention points to break the potentially negative chain of causality between dependence on primary goods and growth: namely, to diversify production and properly administer government income, channeling savings from agriculture to nontraditional sectors.

THE INTERNATIONAL CONTEXT: THE NEW TERMS OF TRADE

In the case of agricultural natural resources, which are of particular importance for Latin America, it is important to look at one components of the interpretive hypotheses used, namely, the deterioration in terms of trade.

An analysis of the evolution of prices of the major agriculture commodities shows that, despite some periods characterized by high prices and considerable volatility, the trend in agricultural commodity prices

has been one of clear decline. This trend and the consequent deterioration in the terms of trade for agricultural exporting countries -a common situation for most Latin American countries- created the image that potential of agricultural output to contribute to the economic development and well-being of countries in the region was limited. This trend began to reverse, however, in the late 1990s and, over the last ten years, the prices of the major food products rose significantly, reaching record levels in 2007 and 2008. Though prices did fall in 2009, they have since remained high and appear to go on being so for some time to come.

It is also important to remember that the world has undergone extraordinary transformations in the past two decades, and these have outlined a new situation for agricultural production, demand, and prices. On the one hand, there has been a sharp rise in the demand for food since the late 1990s, not only in quantitative caloric terms, but also in terms of the amounts and diversification of diets. Driven by population and economic growth, improved income distribution and urbanization in the developing world, and particularly in a smaller number of the so-called emerging countries, world demand for food has expanded significantly. The growth in demand is expected to continue in the near future, with the United Nations Food and Agriculture Organization (FAO) estimating that, by the year 2050, it will be necessary to produce around 60% more food to meet projected demand.

This expansion of global demand has been accompanied by a significant shift in food patterns, with a steady rise in the consumption of animal proteins, vegetable oils, and, to a lesser extent, sugar. These shifts in consumption patterns put additional pressure on natural resources, because the new composition of demand uses a large amount of natural resources per consumption unit. On the other hand, the higher increases in the demand for food are and will continue to be located in both South and East Asia, and partially in sub-Saharan Africa. This relocation of international demand will have major impacts on the characteristics of international trade. Last, an additional element to take into account when analyzing demand for agricultural goods and projections about their prices is the increasing use of alternative agricultural natural resources (e.g. biofuels), which put additional pressure on international prices.

On the side of the world supply of agricultural products, though it is likely that technological

advances, in particular biotechnology, will continue to generate significant innovations to increase output and productivity, there are also new restrictions conditioning it. Agricultural natural resources are starting to be economically increasingly scarce: in other words, the advance of the agricultural frontier must occur on environmentally less productive soils, farther away from the centers of consumption and in more fragile ecosystems with higher risks of deterioration. This will lead to higher production costs. Similarly, the availability of water for irrigation is more and more limited. These productive and environmental restrictions will make it increasingly difficult for the global food supply to keep pace with the rapid and continuous expansion of demand.

Greater world demand will thus continue to rise in the immediate future, with continued high prices and high volatility. Projections by international bodies show similar price levels, or levels above those of 2007 and 2008. Although the behavior of international consumption could be affected in the short and medium term by the economic and financial crisis -as yet unresolved, particularly in Europe- the extremely low price elasticity of demand for food allows us to suppose that, unless the economic crisis deepens and extends over time, its impact on world demand for food will not be significant.

LATIN AMERICA, AGRICULTURAL NATURAL RESOURCES, AND INVESTMENT

Latin America has a highly significant endowment of agricultural natural resources, both in an absolute sense and relative to other regions of the world. This resource endowment, however, varies greatly from country to country, and it is necessary to keep this heterogeneity in mind when evaluating each country's potential productive capacity, and consequently its strategies and policies for the rural sector.

In terms of agricultural land, the region has arable reserves estimated at 576 million hectares, equivalent to 29% of its territory. These figures make Latin America the region with the largest arable reserves in relation to total population.

In terms of water resources, Latin America receives 29% of precipitation and represents a third of the

world's renewable water resources. These resources represent a *per capita* potable water endowment almost four times above the global average. It should be kept in mind that the production of food and vegetable fibers requires high water consumption. Producing the food required for one person requires about 5,000 liters of water, about 500 times higher than average direct water consumption. This makes agriculture the main consumer of freshwater, using around 75% of total water consumption. As with arable land, subregional and country differences in terms of the availability of fresh water are considerable.

This endowment of the main natural resources needed for agricultural production gives the region highly significant comparative advantages, especially in the Southern Cone countries and others with untapped agricultural potential, such as Colombia and Nicaragua. It is important to remember that, if we compare Latin America's endowment to the developed countries' endowment for each natural resource, the most favorable *ratio* for the region is the availability of arable land.

Consequently, the region's agricultural endowment, above all in relation to population, is extraordinarily favorable. Only a few of its countries have a land-population *ratio* below the global average. An intelligent use of this natural capital would increase and consolidate its position as a food and other agricultural products producing and exporting region, and would boost the contributions the rural sector has and is making to economic and social development. However, tapping natural resources will require significant investment in communications and transportation infrastructure, and a policy that includes major investments in science, technology, and innovation.

FOOD DEMAND AND TRADING PARTNERS

International trade in agricultural products over the last decade has undergone significant changes. On the one hand, it has expanded rapidly in both volumes and values, albeit not as much as it would have done in the absence of many countries' protectionist policies, especially the developed countries. In spite of these policies, the value of agricultural trade between 1980 and 2010 rose by 360% as a result of high growth rates at global level before the recent economic

and financial crisis.⁹ The origin and destination of trade has also significantly changed. The expansion of demand has been concentrated in the less developed countries and some emerging countries with high population densities (e.g. China, India, and Mexico), with an estimated 80% of the increase in food demand from these countries in the next ten years. While China and India will be the major individual sources of this demand, around 50% of the increase in demand will come from other emerging countries.

Similarly, food and agriculture exports are being concentrated in developing countries with a good endowment of natural resources, such as the Southern Cone countries, certain Eastern European countries, and a few Asian countries (e.g. Indonesia and Thailand). This has lessened the importance of the countries of the Organization for Economic Cooperation and Development (OECD) as net food exporters. This reorientation of food demand and supply creates shifts in trade flows and geographic concentration in certain products. What is more, some of the countries that are major new players in agricultural trade have trading structures with strong government influence and/or participation. On the other hand, while there has been increasing openness in international trade, regional and bilateral agreements have emerged in recent years that have probably been more important than multilateral agreements.¹⁰ Last, the growing importance of intrafirm trade and private standards has established a new role and a new importance for the private sector as a regulator of the conditions under which international agricultural trade is carried out.

These new conditions for international agricultural trade create new opportunities and challenges for Latin America. The expansion of trade creates new opportunities for production and export to many countries in the region. At the same time, it raises a series of new challenges that need to be prepared for through flexible trade and productive policies appropriate to each country's particular conditions.

⁹ The total value of trade grew by 640% in the same period.

¹⁰ These regional and bilateral agreements emerged in the framework of the deadlock at the Doha Round and have been observed mainly in new markets. Many of these agreements have moved forward in areas covered by the WTO, or entirely new areas.

The projections for economic growth and agricultural demand suggest a marked increase in net food demand from Asia and, consequently, a decline in the importance of United States and Europe, which have been the major markets for Latin American agricultural exports. However, this trend is not homogeneous across the region; the growing importance of the Asian market will be especially important for the Southern Cone countries and, to a lesser extent, for countries overlooking the Pacific with the largest agricultural capacity. In the case of Central America, the North American Free Trade Agreement (NAFTA) market (Canada, Mexico, and United States) will remain the main destination for Latin America's agricultural exports.

The growing importance of Asian countries and, to a lesser extent, other emerging economies, has a series of aspects that are useful to analyze in relation to the Latin American countries' trade policies. First is an active trade policy to develop trade links with the major new players in international agricultural trade. This requires a consistent long-term strategy that takes into consideration the cultural patterns and institutional organization of these countries' external trade. It is, therefore, important to highlight the strong intervention of the State, including country-country agreements in international trade, and in particular in agricultural products.

Second, demand in these countries is concentrated in very low added value primary products. The composition of agricultural exports from Southern Cone countries to India and China is proof of this. While this is a problem that also exists in relation to European and, to some extent, US markets, as a result of the tariff escalation policy applied to protect their food and agriculture industries, the expansion of the Indian and Chinese markets will not make this problem go away. What is more, the growing importance of other emerging countries across Africa, Asia, and Latin America could generate market niches for higher added value products. Export trade policy will have to nurture the capability of placing this type of product. The search for solutions to this problem may require an emphasis on the use of various different instruments. In the case of the developed countries, it may be necessary to strike agreements with the large agroindustrial companies in order to be able to export products in partnership. In the case of Asian countries,

it will probably be necessary to make agroindustrial investments there in order to overcome existing local market access restrictions and to help develop the demand for more sophisticated food products with greater added value.¹¹

OPPORTUNITIES AND STRATEGY: LIMITS AND REQUIREMENTS

The international and regional context described shows that Latin America faces very different conditions to those of the past, especially in relation to the role, opportunities, and challenges facing its agriculture and rural sector over the coming decade. New strategies and policies are needed to take advantage of the opportunities offered by the international context and thus increase agriculture's contributions to economic development.

Against such a background, we must keep in mind that agricultural produce does not exclusively consist of foodstuffs. Alternatives for adding value onto agricultural raw materials are increasingly emerging (e.g. biofuels, plastic and metal substitutes, and pharmaceutical derivatives). Additionally, services provided by ecosystems (e.g. carbon capture) could be considered agricultural products. Agricultural and rural development strategies should, therefore, optimize the combination of products if they are to enhance agriculture's impact on growth.

On the other hand, the economic benefits of an expansion in agricultural production are not homogeneous across different social sectors. The economic sectors linked to agricultural production will be the main beneficiaries. This unequal distribution of benefits has to be corrected through fiscal and social policies in order to ensure better income distribution, social and political sustainability of development, and food security for each country's population.

Regarding the new scenario in international trade, the shift in the relative importance of the trading partners discussed in the previous section will require fresh international integration strategies and trade policies. The region is also faced with the major challenge of finding trade and productive strategies and policies to enhance the added value of agricultural exports and increase the multiplier effect of agricultural production on the generation of economic activity and employment.

Similarly, policy frameworks, strategies, and sectoral policies will have to comprehensively incorporate the changes taking place in the structure and behavior of global food systems. This process is highly significant in Latin America, where the economic concentration and transnationalization of the food and agriculture systems are obvious facts of life. This will have major consequences for income distribution across the various actors in the production chains, but will across countries.

Agriculture is also becoming increasingly complex in terms of the amount and variety of products and the means of their production. However, agriculture's defining feature is that it is based on the use of natural resources, the amount of which is economically limited, and their use must incorporate the concept of sustainability. Therefore, this challenge, which was being resolved with some success through the interrelated impact of the expansion of the agricultural frontier and technological innovation, will in the future be increasingly dependent on technology. The Latin American countries will require significant efforts in research and innovation in order to sustain their comparative advantages in agricultural production.

Last, it will be vital to develop a framework of governance that binds society's various different interests and enables the building of the institutional framework and long-term policies needed to address the challenges identified.

CONCLUSIONS

The aim of this work has been to review the so-called "natural resource curse" in the light of the recent economic literature and, in particular, of the changes in the global demand for food and

¹¹ Greater internationalization of agroindustrial companies requires a high level of concentration of industry and a significant financial capacity. BNDES-financed Brazil provides a good illustration.

international agricultural trade, as well as their impacts in Latin America. It has also discussed the region's agricultural endowment, and outlined policy proposals to maximize agriculture's contributions to our countries' economic development.

As we have discussed in the preceding pages, there are good reasons to think that possessing wealth in natural resources does not affect a country's growth. Diversifying output and the export basket, and properly managing the extraordinary income derived from exploiting these resources do seem to be necessary conditions to this end.

Moreover, in the last decade, growth in the emerging countries' demand for food has established a new situation in the international price of the main agricultural outputs and, therefore, a new trajectory for these prices in relation to manufactured goods. The structural conditions, on both the demand and supply sides, suggest that there are "new terms of trade," this time favorable to countries in the region, and that these will hold for some considerable time yet. Against this background, the region's agricultural endowment is extremely favorable when it comes to making the most of the new global scenario, and an intelligent use of natural capital will, therefore, enable our countries to improve and consolidate their positions as food producers and exporters. With this in mind, policies must be designed and the necessary investments provided with incentives in order to develop all possible activities to optimize any economic flows that may sustainably derive from agricultural natural resources.

The changes occurring in international agricultural trade, which reflect the structural increase in food demand, also require our countries to draw up suitable trade policies. It will be necessary to explore various different strategies in order to enable Latin American countries to develop long-term relationships with the new players and to export higher added value products. Clearly, benefits from the new international scenario will not be the same if the region exports agricultural commodities as if it manages to progress in these goods' value chains, create linkages, and achieve economic spillovers and positive externalities.

Last, it will be crucial to establish a policy to correct the uneven distribution of benefits, which will initially fall on the shoulders of the owners of the agricultural natural resources. Fiscal and social policies will be needed to ensure fair income distribution and food

security right across each country's population. It will also be necessary to tackle the dilemma of reconciling the most immediate demands with public policy needs in productive development, innovation, and human capital accumulation. Likewise, as well as making the most of agricultural natural resources, it will be imperative for each country in the region to seek an appropriate balance in its productive structure, so that it is capable of generating employment and economic activity to accommodate all its economically active populations, not just that linked to the production of agricultural goods and foodstuffs. ♦

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COPPER MINING AND ITS IMPACT ON CHILE'S DEVELOPMENT

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Copper mining has become key in the Chilean economy because of its expansion, which began in the late 1980's, and its recent price boom. This article documents this expansion and explains how copper has contributed to the country's development. We study the multiplying effect of copper and we explore how to boost it and accelerate its contribution to development. The conclusions drawn here are also significant for countries where mining and the exploitation of other natural resources have fueled price booms.

ECONOMIC IMPACT OF COPPER: TRADITIONAL CHANNELS

Over the last 25 years, the mining industry -copper mining in particular- has undergone a significant change in the Chilean economy for several reasons. On the one hand, there was an increase in investment and production in the late 1980's. On the other hand, in early 2004 prices started to rise, and since 2006 this upward trend has been reinforced by the super price cycle, only interrupted during the 2008-2009 crisis. This combination of factors has made the copper gross domestic product (GDP) or added value, less than US\$ 3 billion a year up to 1994, exceed US\$

30 billion a year since 2006.¹ Annual export rates used to average US\$ 3.8 billion up to 1994, and today they are estimated at over US\$ 40 billion. See [Figure 1](#).

As [Figure 2](#) shows, the value added to GDP by copper went from less than 6% in 2002 to over 13% since 2005. [Figure 2](#) also shows that the copper share in the export of goods increased from about 35% during the 1990's and until 2003 to over 55% as of 2006.²

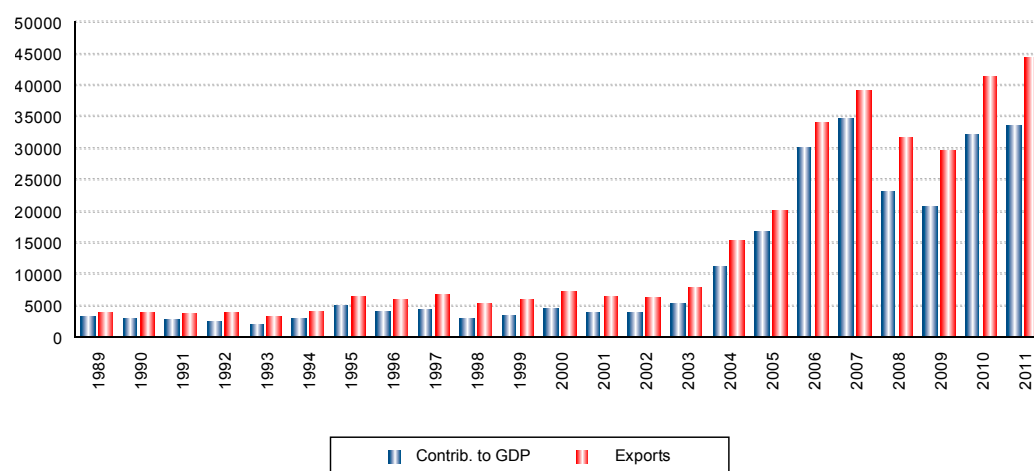
¹ Annual GDP in pesos expressed in dollars based on each year's exchange rate.

² When expressed as a percentage of the export of goods and services, these figures fall to around 5%.

Figure 1

COPPER MINING CONTRIBUTION TO CHILE'S GDP AND EXPORTS, 1989-2011

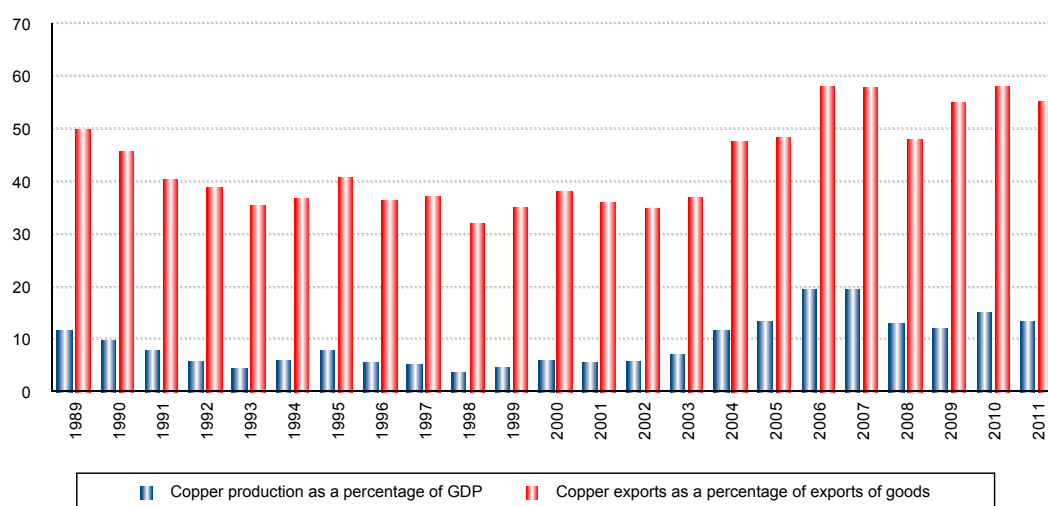
US\$ current millions



Source: National Accounts and Balance of Payments, Central Bank of Chile (BCCh).

Figure 2

COPPER AS A PERCENTAGE OF CHILE'S GDP AND EXPORTS OF GOODS, 1989-2011

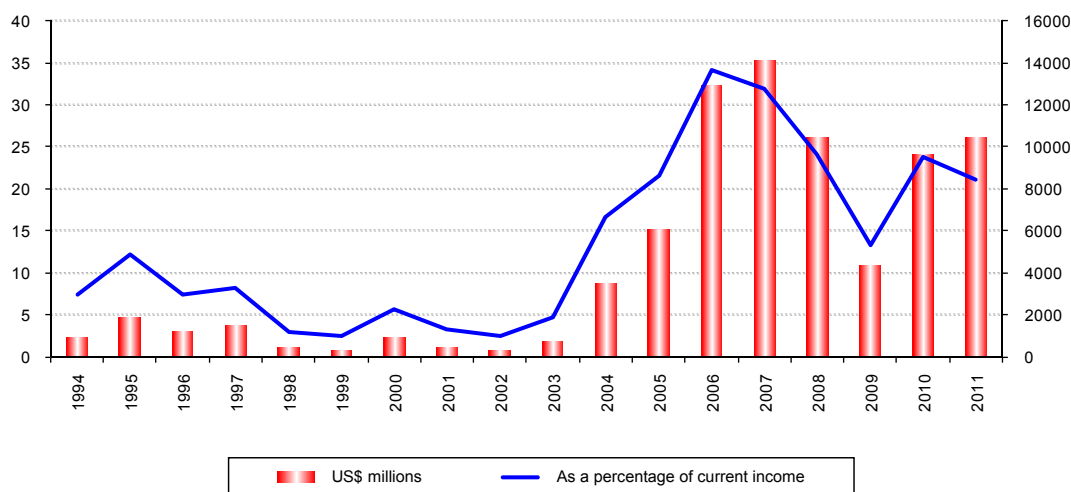


Source: National Accounts and Balance of Payments, Central Bank of Chile (BCCh).

Figure 3

CONTRIBUTIONS TO THE STATE BY CODELCO AND LARGE-SCALE MINING, 1994-2011

Percentage of current income and US\$ millions



Source: Statement of Central Government Operations, DIPRES.

Interestingly, during the 1950's, 1960's and up to 1974, copper exports were even more significant, amounting to more than 65% of the return on exports -peaking 75% in some years-, even though both copper production and prices were considerably lower than today. Nowadays, copper plays a less significant role in exports as compared to the decades previous to 1974, although production is much bigger and prices are higher. This phenomenon results from the high diversification of the export basket and a restructuring process of foreign trade and production spurred by the country's opening up and a new form of international insertion, which began in the mid 1970's.

Private firms have been responsible for most of the expansion of production and export rates in the country since the 1990's. Even though CODELCO's production increased by 50% in the last 20 years, its share in the total production fell from 60% to a little over 30%, and its share in exports dropped from 68% to 37% of total exports.

Traditionally, copper has also contributed heavily to the Chilean economy by helping to fund the national

budget with the taxes levied on it and the dividends the State receives from CODELCO.³ Figure 3 shows how copper annual contributions rose from less than US\$ 1 billion up to 2003 to more than US\$ 10 billion as from 2006. The average contribution of copper as a percentage of the national current revenue went from 5.7% between 1994 and 2003 to 24.8% in 2006-2011; see Figure 3.

As regards employment, mining -particularly copper mining- has little to contribute because of the activity being capital-intensive. Copper mining directly employs barely over 50,000 people, corresponding to no more than 0.7% of the country's total employment rate. In the last 25 years, mining companies have increasingly outsourced their activities. If contract workers are taken into account, employment rates may triple; however, copper only adds up to about 2% of national rates.

³ CODELCO is a state owned company, created after Chile nationalized its major copper companies in 1971, and it is a leading copper producer in the world.

Modern copper production is highly capital-intensive with considerable sunk costs and long production and investment recovery periods, thus limiting its direct impact on employment and development.

Copper has traditionally made a significant contribution to the country's development via export income and government revenue, as a strong supporting factor which was even more significant when exports were not diversified. In terms of production and employment, copper mining has had a less considerable impact, despite the production increase in the 1990's and the price boom, which made an unprecedented contribution to the GDP.⁴

Despite the central role of copper production, its contribution to development has not always been positive, and sometimes it has even been considered the cause of serious difficulties. In the past, copper price cycles impacted adversely on the economy producing macroeconomic instability and exchange rate uncertainty. As a result, export generating capacity was hindered and there was employment instability and inflation. Fortunately, in the last 25 years this instability has been reduced, despite the volatility of copper price, thanks to the policies described below.

MANAGING COPPER PRICE VOLATILITY

Figure 4 presents copper prices in the London stock exchange, revealing its well-documented volatility.

Copper volatility has a strong impact on its income generating capacity and its contribution to the treasury. The profits contributed by CODELCO and private large-scale mining to the government have fluctuated in the last 20 years, ranging from 2.5% to 34% of current income -see *Figure 3*. When prices were high, the State would increase spending, which was extremely difficult to reduce when copper prices and tax revenues went down, thus causing budget deficits. In 1987, a copper

stabilization fund was created as part of a structural balance policy, later on extended to molybdenum.

This policy established that government spending was to be tied to long-term copper prices.⁵ This new fiscal policy combined with a flexible exchange rate and an inflation-targeting monetary regime has created a macroeconomic policy which has helped to stabilize copper-led external cycles. This new framework not only has lessened the impact of copper price cycles, but it has also helped to create countercyclical policies.

The country has learnt its lesson from previous crises; hence, a consensus has been reached and institutions have been strengthened to mitigate the impact of volatility. This significant progress proved successful during the last international financial crisis.⁶ The country's fiscal policy (not its exchange policy) also managed to weather the Asian crisis in the late 1990's.

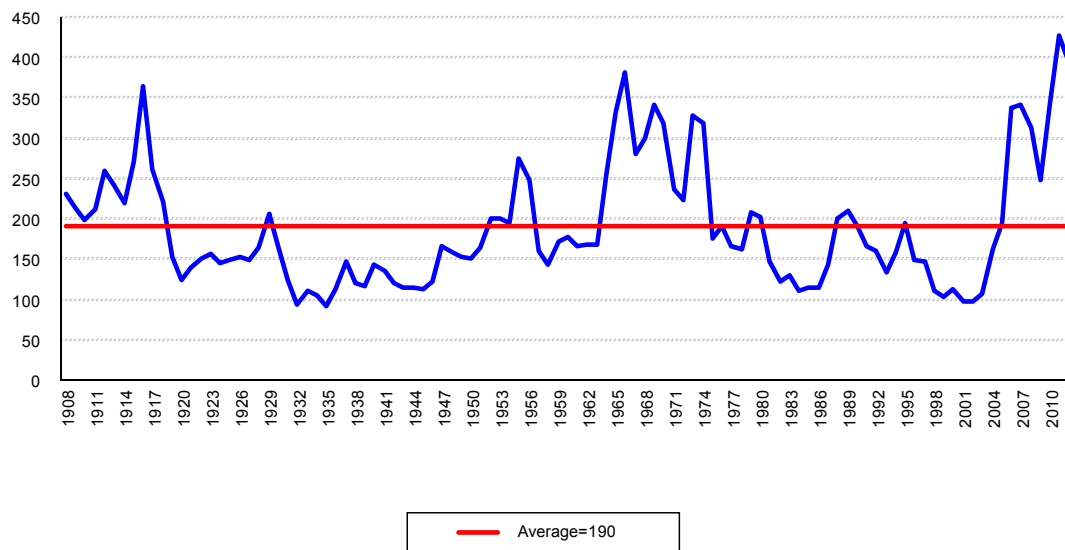
In this new scenario, the impact of copper mining on development is much more considerable, because the crises precipitated by copper price volatility have been successfully handled.⁷ However, reducing the impact of this volatility on the fiscal budget has been easier than softening its impact on the competitiveness of other tradable goods, exports and export substitutes. Exchange rate appreciation resulting from copper price highs affects profits from tradable goods, which bears particular relevance for miners with lower profitability. Less volatility is key to export diversification. Exchange rate instability, especially combined with periods of marked exchange rate appreciation, may pull the industry out of the market or prevent them from increasing their scale and market share, thus hindering development in the export industry sector (by impacting on air transport development, brands, phytosanitary protection, specialized human resources, among others). Countercyclical fiscal policy has played

⁴ For a good analysis of the important role of copper mining in the country's development in past decades see Ffrench Davis & Tironi (1974), and Meller (2002), particularly the chapter on "Chilean copper and mining policy".

⁵ For a description of the stabilization fund, see Arellano (2005), Estudios Públicos; and Velasco *et al.* (2010).

⁶ See the presentation given by the Governor of the Central Bank of Chile, De Gregorio (2008), when this major crisis began in March.

⁷ The impact of copper price fluctuations is not only inevitable but also necessary. Miners adjust their production and strive to be attuned to copper price. In the case of small-scale mining, stabilizing mechanisms were developed through *Empresa Nacional de Minería* (ENAMI) to help small-scale miners adjust gradually to the new conditions.

Figure 4**COPPER HISTORICAL PRICES EXPRESSED IN US CENTS PER POUND, C/LB 2010, 1908-2010**

Source: CODELCO.

a fundamental role to achieve this exchange rate stability, even though exchange parity is usually more appreciated during price booms.

Fiscal policy contributes to exchange rate stability, because the treasury increases its savings during copper price booms, limiting the demand on non-tradable goods and preventing exchange rate appreciation that would result if savings were not increased. Since these savings are invested abroad, they put no pressure on the currency supply in the local exchange market. Private companies' profits after payment of taxes do not put pressure on the exchange market either, because these are mainly profits turned into remittances instead of reinvestment.

This fiscal policy tied to the long-term copper price, together with a mechanism of funds invested abroad and a flexible exchange rate, have given rise to less

volatility and appreciation of the exchange parity as compared to regularly implemented policies.

Now that instability and its damaging consequences have been overcome, Chile can focus on maximizing the impact of mining on development.

CHILE'S SHARE IN THE WORLD MARKET

Nowadays, Chile produces 35% of world copper. Never was this market share as high during the 20th century. Indeed, up to 1990 the country's share in world copper production averaged 13%; in the 1990's this average was 20%, reaching 35% in the first decade of the 21st century; see [Table 1](#). This share is not only extremely large but it is also more than

four times bigger than that of global major miners, like Peru, China, USA, and Australia.

Chile's production share in total global copper exports is even bigger than its share in world production, averaging almost 40% in the last 12 years.⁸

Table 1

**GLOBAL AND CHILEAN PRODUCTION
OF MINE COPPER, 1950-2009**

Year	Average World Production (Thousand MT)	Average Production Chile (Thousand MT)	Average Chile's Share (%)
1950-1955	2,786.2	385,1	13.8
1956-1960	3,681.2	502,1	13.7
1961-1965	4,699.6	587,9	12.5
1966-1970	5,625.8	664,5	11.9
1971-1975	7,199.7	778,2	10.8
1976-1980	7,856.8	1,044.8	13.3
1981-1985	8,191.9	1,245.5	15.2
1986-1990	8,761.6	1,493.6	17.0
1991-1995	9,557.6	2,102.2	21.9
1996-2000	12,171.6	3,837.6	31.4
2001-2005	14,185.5	4,991.4	35.2
2006-2009	15,571.8	5,408.8	34.7

Source: WBMS (2012), world production.

Chile's share in global copper reserves is 30%; therefore, the country is likely to keep being the world leader in coming decades. See [Figure 5](#).

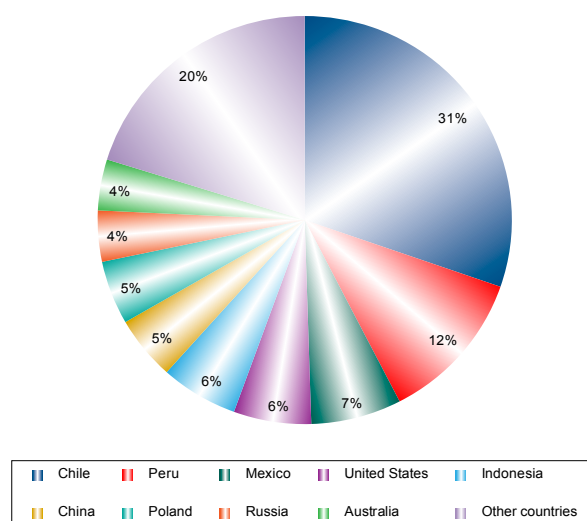
On the basis of these reserves, there are investment projects for the period 2012-2020 most recently estimated at over US\$ 80 billion (COCHILCO, 2012b). This data indicates that, as to production, Chile is expected to keep being the world leader in the next 20 to 30 years. If all projects in this portfolio are carried

out,⁹ by 2020 copper production will have doubled the 2012 projections.

This situation opens up an unprecedented opportunity for the country to engage in other copper-specific initiatives and to attract investment in mining-related activities and businesses that cater for the needs of domestic and foreign mining by leveraging this large market share.

Figure 5

GLOBAL COOPER RESERVES



Source: USGS (2010).

Besides, Chile is strategically close to other copper producers. In fact, 43% of production takes place in Latin America, where 48% of global copper reserves are situated (Australia, one of the country's major competitors, lacks this geographical advantage).

Competitiveness is to be assessed by value chains. In so doing, it can be noted that part of the production

⁸ COCHILCO (2012a) and WBMS (2011, 2012).

⁹ In this portfolio, 38.5% of projects are under construction, 21.7% are in the prefeasibility phase and the rest are undergoing a feasibility review.

chain of mining-related products has to be located near mining sites. However, this is not true for manufacturing, offering a location advantage that may contribute to value chain development. We have to leverage this part of the chain with a view to seeking valuable opportunities to develop upstream. Focusing on the profit-generating part of the chain may result in less incentive to develop other parts. Consequently, a long-term vision of development opportunities is paramount.

Chile is the world's leading producer not only because of its mineral wealth -this would not be enough- but also because it is one of the most attractive and competitive places for mining. Political risk is low because institutions are robust; there is good domestic and export-oriented transport infrastructure; there is reliable -though costly- energy supply; and the necessary services and inputs are available to make modern mining efficient and competitive.

The country must preserve and enhance this important basis by protecting its institutions, and maintaining infrastructure and inputs.

Even though Chile has an important share in the global production and/or reserves of molybdenum, nitrates, silver, potassium, and lithium, this share does not parallel the country's undisputed leadership in copper mining.¹⁰

This leadership in the copper market coincides with a price boom period which, based on the general consensus, will extend over the next decade. According to current data, the high price trend of the last six years is projected to continue, with only a brief interruption due to the international financial crisis.

Based on the increased demand produced by the rapid growth of emerging countries, headed by China, there is consensus that copper prices will remain high. These economies are growing at an unprecedented rate and their growth is most intensive in the use of raw materials, like copper. Urbanization and industrialization demand metals, such as copper, as opposed to later stages of development when growth is service-intensive.

During the first decade of the 21st century, China's demand for copper accounted for more than 60% of world consumption, which is estimated to double in the next 25 years because of the demand from emerging countries.¹¹ However, it is difficult to meet this heavy demand. Overall, the average quantity of ore in the mining projects has dropped in the last 30 years and it will continue this way in the next decade. New discoveries involve deeper deposits with a complex mineral composition.

In the future, a larger proportion of production will take place in the countries with higher risk levels; high prices disrupt production and make it more difficult to meet planned production schedules.

Taking into account all these factors, production projections estimate that current operations and planned investment will barely exceed current levels in 10 years. Most growth will derive from new mining projects in areas with a higher level of risk and projects will have to cope with tight schedules in difficult scenarios.

Because of all this, there is agreement that in the next decade prices, though volatile, will remain high. This is a good opportunity for producers, like Chile, to turn this price boom into a development factor and long-lasting wealth.

BOOSTING THE COPPER MULTIPLYING EFFECT ON DEVELOPMENT

As copper is a non-renewable resource, it is fundamental to make the most of its exploitation to create other sources of wealth that outlive copper. We need to save part of this non-renewable natural wealth and invest it so as to create other forms of wealth. Taking advantage of investment and production in the mining sector is necessary to enhance production capacity in other mining-related activities. The most successful countries have managed to turn mineral resources into long-lasting sources of development.

¹¹ Part of the copper demand from China is for exports and is, therefore, replacing the demand other countries used to generate; these countries have substituted Chinese exports for their own manufacturing.

¹⁰ See Anderson (2011).

Proposals to extend copper contribution to the country's development have traditionally been based on vertical integration, i.e. extension of production beyond copper concentrates to include refinery production and, hopefully, manufacturing from copper. These are capital- and energy-intensive industrial activities, with limited profitability and a need for large-scale production to become competitive.

In the last 20 years, both production and exports of refined and concentrate copper have increased, concentrates increasing more rapidly. Between the early 1990's and 2011, production and export of refined copper in tons rose 2.5 times, and concentrates 3.1 times, now representing about a third of total exports.

Manufacturing from copper has also increased from less than US\$ 150 million until 2003 to over US\$ 700 million nowadays. This merely represents 2.5% of the country's copper exports. Chile is the world's leading mine copper producer with more than 33% production in the last 10 years, accounting for more than 36% of global exports; however, its share in manufactured copper is marginal.

Copper manufacturing is capital -and energy-intensive, which makes the country less competitive. Consequently, Chile needs to foster other activities to generate competitive advantage on the basis of copper mining. Mining counts on a wide range of services and inputs, or mining-related activities, to create a productive cluster. These activities require less capital and produce far-reaching multiplying effects on employment, particularly as regards high skill jobs in knowledge-intensive services, such as those required in the fields of engineering or technology.

Today, thanks to the new advances in technology the country is in a better position to develop an industry that provides services for local mining and export services for global mining. The main technological change is implemented in business organization within different industries -particularly mining-, which now focus on their core business and outsource all other activities.

In the early 1990's, one out of every 7 workers in mining companies was a contract worker; today, this proportion is 10 to 7, with contract workers providing on-site services to outsourcers. This new organization in mining companies has given rise to numerous companies with expertise in supplying services; as

these companies grow and become more competitive, they can export their services.

BHP Billiton has over 3,000 suppliers located in Chile, 40% of which derive more than half of their revenues from mining. CODELCO has more than 4,800 suppliers; 4,300 are located in the country.

This new scenario differs radically from the past, when mining was organized like an enclave: self-sufficient mining companies with their workers living in camps. Connections with foreign countries were also restricted to imported inputs and mineral exports with little multiplying effect on the domestic economy. Nowadays, physical connectivity and information and communication technologies pave the way for constant connectivity between mines and their facilities, their teams and people anywhere. The production chain has changed so substantially that the country can now reconsider the opportunities for productive development that mining offers.

Furthermore, the growing complexity of mining and its new requirements pose new challenges and give ample room for development in the fields of technology and specialized service provision.

Knowledge-intensive services (Urzua, 2007) provide the country with new opportunities for development, because they are highly specialized and demand constant innovation and new technologies to seek new and more efficient solutions to the problems posed by mining projects and operations.

Innovation in technology and services is not exclusive to mining and it can usually be extended to other markets as well, particularly those that employ similar technologies, as is the case of the natural resource exploitation industry.

Several countries have managed to achieve development on the basis of their natural resources, in particular mining. In some of these countries, like Finland and Sweden, mineral resources have almost been depleted or have minor significance. Both countries used to be major producers and, for a long time, they provided Europe with metals. However, mining is not significant in their economies any longer -less than 0.3% of their current GDP- despite their past central role. In Finland, for instance, the Otokumpu copper mine was almost depleted in the 1980's. Interestingly, both countries are still engaged in mining

activities through industries that supply equipment and services to global producers. Major Finnish and Swedish companies are well-known worldwide and among Chile's producers: ABB, AtlasCopco, Sandvik, SKF and Volvo from Sweden; Metso and Outotec from Finland. Metso employs more than 27,000 experts around the world, and it is not only focused on mining but also on offering solutions to the forestry and energy sectors. Outotec employs more than 3,000 experts. These are companies which grew thanks to domestic mining, turning into global enterprises, with other sources of income; they generate thousands of quality jobs and invest in research and development. Although Sweden and Finland's share in global mining is marginal, they have a 50% share in the production of flash smelting furnaces, and more than 60% share in rock drilling machinery and SAG mills.¹²

Other countries, like USA and Canada, have developed other mining-related industries, such as the mining machinery production and engineering services sectors, and are still leaders in their sectors. With respect to oil, Australia and Norway have focused their exports on natural resources, achieving remarkable success in establishing companies that provide services and technology for the mining industry.

According to the latest estimates (Shann, 2012), the growth of the cluster that supports mining and investment in Australia -including construction, manufacturing, and services- exceeds 15% a year, and its production has grown to represent 8% of the GDP in 2011-2012. At least 122 companies listed on the Australian Securities Exchange have substantial mining service revenues, 20 of which are among the top 150 firms in market capitalization.¹³

Chile has increasingly been developing this type of mining service industry. Historically, the aim was to replace the import of inputs and services.¹⁴ In the second half of the 20th century, the percentage of national inputs

rose from less than 25% in the 1950's to almost 60% by the end of the century. In the 1980's and 1990's, major mining projects requested foreign engineering, whereas in the last 15 years Chile has supplied most engineering. The activity of engineering companies -measured in person-hours- increased by 20% between 1992 and 2003, and by 115% between 2003 and 2011. These engineering services provided to the mining industry have by far enjoyed the highest growth rates, amounting to more than 50% of total growth in 2011. Between 2001 and 2011, mining suppliers' exports increased from US\$ 5 to 300 million. Engineering service exports went from almost US\$ 10 million to over 200 million in 2011.¹⁵ Growth is even more noteworthy if we take into account that the country has substituted domestic supply for service imports.

However, Chile's mining export rates should be much higher compared to Australia, USA, or Canada because of the relative size of its mining sector. There are excellent growth opportunities for the exports of products and services that supply the mining sector. If Chile reached the same rate of mining-related exports as a percentage of mining exports like Canada, its revenues would grow ten times the current level.

Considering that several countries have achieved development by leveraging their natural resources, Chile could profit from this opportunity and what it has already achieved. How can the country accelerate and maximize its mining multiplying effect on national development? What public policies can support an activity that has to be necessarily in the hands of private companies?

To recapitulate, first the country has to underpin the conditions that have favored mining development in the last 25 years. A big challenge is materializing existing investment projects. It is necessary to maintain competitiveness with a view to responding to new challenges, which are beyond the scope of this paper. Secondly, Chile has to keep in place both its macroeconomic policy and, particularly, its fiscal policy, because these have helped the country to stabilize price fluctuations and save part of the revenues from the price boom. Doing so will lay the foundation for harnessing mining multiplying effects.

¹² Pentti Noras, Director International Relations Geological Survey of Finland (GTK).

¹³ Shann (2012), Appendix 2 presents a list of these companies with their estimated revenue.

¹⁴ From the 1950's to the mid 1970's, the economy was opened to imports and international trade policies seeking to promote this replacement, with varying results. See Ffrench Davis & Tironi (1974), "Integración de la gran minería a la economía nacional: el rol de las políticas públicas".

¹⁵ Association of Consulting Engineers (AIC), based on data from Customs Service.

At the same time, training human resources is essential, because without a qualified labor force it is impossible to achieve a knowledge-intensive industry. It is precisely the difference in qualification that accounts for the success of those countries which have managed to multiply the impact of mining on development.

In this respect, it is interesting to compare Chile with USA. It is estimated that in the second half of the 19th century, both countries had similar copper mining technology. However, in the early 20th century Chile lagged behind USA, and the new large-scale mining projects in Chuquibambilla and El Teniente were carried out by American capitals and technology. During most of the 20th century, USA took Chile's place as the world's leading copper producer.

In the late 19th century and early 20th century, the United States placed great emphasis on high-school education, and eventually became the world leader in high-school and higher education. Mass, full-time secondary and higher education based on practical and scientific academic training helped United States to gain considerable advantage over European models of the time.¹⁶

Mining engineer training was one of the most important of several educational advances. In 1916, a census in USA identified 7,500 mining engineers with both domestic and foreign experience.¹⁷ In contrast, Chile had about 100 mining engineers in the same period, even though up to the 1880's Chile's copper production surpassed American production.

Still today, not enough students are enrolled in technology-related courses of study, namely mining, metallurgy and geology. Recently, large-scale mining companies requested *Fundación Chile* to conduct a study (2011) on the need for human resources for the period 2011-2020; the study concluded that the gaps (or projected deficits) in qualified labor force is, probably, the biggest challenge facing Chile's development of large-scale mining for 2011-2020. Mining and contracting companies in the large-scale mining industry are estimated to need about 53% more human resources between 2012 and 2020, only taking into account extraction, processing, and maintenance.

An additional 20% would be needed if retirement were considered. When looking at projected graduation rates, a clear deficit can be noted in certain fields.

In order to multiply the impact on development of the exploitation of mineral resources, Chile must achieve the highest level of excellence in one or two Chilean consortia of universities, where the best local and foreign students become specialized. These programs can be run jointly with any of the best world centers in the field. Likewise, more students have to be trained and specialized in mining and mining-related activities, because they will become the basis for productive and technological development in the mining and mining-related sectors.

Not only does the government have a role to play in education, but it must also contribute the public and semi-public goods that facilitate development in these areas. Firstly, it must foster dialogue among stakeholders so that they build the "sector's vision". The vision entails a prospective analysis for the next fifteen to twenty years whereby the mining sector reviews the challenges ahead and identifies opportunities. Here, miners contribute investment prospects, service needs, and the main technological challenges; authorities determine regulatory problems; input producers provide their expertise and knowledge of foreign suppliers; universities offer projections in terms of human resource training and technological capabilities, among others. What is most important about this vision, apart from its predictive value, is the discussion and development process. Therefore, we need the active participation of relevant stakeholders to begin dialogue, and to create the collaboration and coordination initiatives and networks resulting from a shared vision. Creating a sectoral vision is common practice among the countries which have been most successful in developing a mining-related industry.¹⁸

The government can also contribute standards. For example, there are numerous details in supply procedures applied by producers which can be agreed upon to make the process more efficient and help suppliers, thus contributing to their development.

¹⁶ See, for instance, Goldin (2000).

¹⁷ See the interesting work by Wright & Czelusta (2002).

¹⁸ Some examples can be found in the documents that describe the sector's vision. In Sweden, the 2009 report presents the country's strategy and international initiative (Raw Materials Group, 2009). In Australia, the latest document is *Vision 2040*, in Mason *et al.* (2011).

Information can be shared and updated with respect to investment schedules and their needs, which is extremely valuable for suppliers.

Since Information and Communication Technologies (ICTs) play an increasingly important role in mining, it is necessary to have standards shared by the mining industry and technology suppliers. Chile can become a leader in defining these standards together with other markets in the region.¹⁹

Partnership and cooperation serve to set common standards, overcome regulatory hindrances to exports, facilitate transport, and open new markets, among others. These are costly efforts, with slow-paced results, if made by developing companies; however, a collaborative approach reduces costs and increases revenues. The government can play a decisive role in helping the industry to set those standards, another public good for the industry.

With respect to technology and knowledge, the government, by means of its programs to support technological development, and universities must create this partnership to meet the sector's needs. A shared vision in the sector is fundamental to guide research efforts. For an example, see the work carried out in Australia by the Commonwealth Scientific and Industrial Research Organization (CSIRO), which has been working non-stop during the last decades on developing one of its priority areas, i.e. the mining industry and its related services.²⁰ Chile has been making increasing efforts and providing ever-increasing resources -still insufficient compared to other countries'-, but these efforts are unfortunately fragmented and, therefore, less relevant and effective. Several universities are making individual efforts instead of collaborative ones. Chile has little technological and scientific capacity compared to the most successful and advanced countries. Instead of acknowledging this reality and working together, there is excessive competition and fragmentation among

universities, which prevent them from developing large-scale and long-term projects, necessary for obtaining relevant results. Human resource training undergoes the same problem.

In the first decade of the 21st century, some initiatives were undertaken to develop the so-called mining cluster. Some of these included studies aimed at diagnosing the state of the cluster and its potential, and at finding ways to foster it.²¹ These studies contribute valuable information for diagnosis and propose some courses of action. During this period, policies were fostered and CORFO's contribution and the promotion efforts made by the Ministry of Mining stand out.²²

Despite the contribution made by said efforts, there is no major initiative promoting cluster development or mining-related industry. A shared vision has not been shaped yet, nor are there coordination efforts and long-lasting partnerships among stakeholders. Some initiatives are valuable but isolated. Chile is not taking full advantage of the potential of the mining-related industry, whose buoyancy may help the country to benefit from extraordinary market conditions.

To sum up, Chile's mining industry has a potential multiplying impact on development never seen before. By promoting cooperation and partnership the country can speed up this impact and boost its magnitude. ♦

¹⁹ In Chile, CODELCO is an important leader in information and communication technologies thanks to its professional team, its technology companies, and a policy sustained for more than ten years. For information about Digital CODELCO, see http://www.codelco.com/codelco-digital/prontus_codelco/2011-03-03/160022.html. CODELCO, together with Freeport and the University of Chile, is working on a project aimed at setting these standards (Standard Object for Mining Industries - SOMI).

²⁰ CSIRO prepares a document with the sector's vision defining its priorities: *Mineral Down Under National Research Flagship*.

²¹ Some of the most relevant studies were those conducted by the Chilean Copper Commission, COCHILCO (2001), (2007), and (2010a); Meller & Lima (2003); Boston Consulting Group (2007); Universidad Católica, DICTUC, & Centro de Minería (2007), and Innova-CORFO (2009).

²² The National Strategic Council of the Mining Cluster was created; see the public account by the Ministry of Mining in January 2010, http://www.innovamineria.cl/archivos/Cuenta_Publica_Ministerio_Mineria.pdf. See the presentations by the Undersecretary of the Ministry of Mining and CORFO's Vicepresident, April 2011. <http://www.corfo.cl/sala-de-prensa/noticias/abril-2011/corfo-y-ministerio-de-mineria-lanzan-programa-para-proveedores-de-la-mineria>.

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Articles from the Call for Papers

FOREIGN INVESTMENT IN AGRICULTURE AND HIGH COMMODITY PRICES: A CONTRIBUTION TO UNDERSTANDING MERCOSUR'S PRESENT CHALLENGE

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The aim of this article is to analyse the main incentives for foreign investment in agriculture in the four original Southern Common Market (MERCOSUR) countries. This study constitutes a contribution to the debate about the effects of the present high agricultural commodity prices. Although there is substantial scholarly research on trade patterns, dependency and Dutch Disease, there is a much less understanding of the connection between commodity prices and foreign investment. The goal of this article is to provide some starting points to understand this dynamic. This paper argues that the incentives of domestic and international actors are aligned to investing more capital into commodity farming activities. Particularly, in this scenario of high prices. In this sense, it submits that there are limited probabilities that foreigners will get involved in food processing or distributing activities, except for projects seeking to serve the regional market or very specific sectors. In addition, although the MERCOSUR governments may have an interest in curbing a potential excess in commodity farming (to prevent dependency or a Dutch Disease), the paper explains why the interaction of private and public incentives shifts government attitudes to self-indulgence.

INTRODUCTION

The agricultural commodity boom shapes the economic scenario in the four original MERCOSUR countries. The high prices of soya, corn and other export commodities have affected the pattern and value of their international trade. These countries show an increasing specialization in agricultural commodities, most of which are exported outside Latin America. In addition, as a result of such high prices, they have

been enjoying consistent trade account surpluses in recent years (Gayá & Michalczewsky, 2011, pp. 42-47). However, this scenario of alleged bonanza may become a short-term trap. This international trade pattern might eventually lead to dependency or to the Dutch Disease phenomenon (Gallagher, 2010, pp. 5-6; Kosacoff & Campanario, 2007, p. 17). In brief, these countries may undergo an appreciation of their currency and a subsequent loss of competitiveness of their high-value exports. This would only exacerbate

their dependency on commodity exports. As in the past, many commentators expect commodity prices to return to lower levels. This would put immediate pressure on the exporting countries' external balances (Kosacoff & Campanario, 2007, p. 17).

Although there is substantial scholarly research on trade patterns, dependency and Dutch Disease, the connection between commodity prices and foreign investment is much less understood. The aim of this article is to provide some starting points to help understand these dynamics. The arguments exposed here are built upon the eclectic paradigm of foreign investment and multinational corporation activity, which in its most recent form, requires focusing on international business, political economy and institutions (Dunning & Lundan, 2008, pp. 116-144; Boddewyn, 1988, pp. 342-346; Gilpin, 2001, pp. 278-304). Business strategy, state incentives and market structure are essential elements to conduct an adequate analysis of the links between the agricultural sector and foreign investment. All other things being equal, the evidence suggests that a rise in agricultural prices will mainly attract to MERCOSUR resource-seeking foreign investments (FAO, 2011; Piñeiro & Villarreal, 2012). This means that most foreign capital flows into agriculture are ultimately aimed at exporting commodities or speculating with prices. In my view, the incentives of domestic and international actors are intended to promote the investment of more capital in commodity farming activities, particularly in this scenario of high prices. In line with this, foreigners are very unlikely to devote themselves to processing or distributing activities, unless these projects seek to serve the regional market or very specific sectors. Moreover, although the MERCOSUR governments may have an interest in curbing a potential excess in commodity farming (to prevent dependency or the Dutch Disease), this paper will explain why the interaction of private and public incentives leads governments to adopt attitudes of self-indulgence.

THE ACTORS' INCENTIVES

The reasoning here draws from the private and public incentives at the domestic and international level. In this context, state-owned firms qualify as private actors when they pursue profits, and as public actors when their goal is to guarantee food supply at the domestic level.

DOMESTIC AGRICULTURAL SECTOR

Argentina, Brazil, Paraguay and Uruguay show, to different extents, high levels of agricultural land concentration (FAO, 2011). Two groups share the control of the land. First, the traditional elites of landowners who have historically controlled very large establishments in many regions of MERCOSUR. Although these elites had more power in the past, they are still important economic and political players. Exporting sectors in developing countries have considerable leverage over the political sphere. Their strength lies in the fact that they control essential resources of the economy, and also in their close ties with foreign players, normally from more powerful countries (Shadlen, 2008, p. 14). In fact, no MERCOSUR country has passed any serious rural reform, and, arguably, the power of the agricultural elite has increased during the present commodity boom.

Second, in the last ten years, a new agribusiness sector has emerged together with the soya and corn booms. This sector is financially sophisticated and does not necessarily rely on land ownership. Its influence on the commodity markets is very important and is characterized by its ability to attract and channel domestic and international funds to gain control over large areas of land (sometimes through contract farming) for the production of export commodities. For this reason, the ownership structure of these agricultural investment funds is rather opaque, hiding domestic, regional and foreign investors (Piñeiro & Villarreal, 2012, pp. 4-14; FAO, 2011, pp. 14-17; 86-87). As a key player in the exports field, the political influence of this sector is also relevant.

Overall, these actors can be viewed as having little or no interest in any policy intended to upgrade to food processing and distribution. In fact, such an attempt might put their export business at risk. On the contrary, they show an open support for free trade and policies oriented to assuring and opening new markets for their commodities (Shadlen, 2008, p. 2). Reasonably, any rise in agricultural commodity prices strengthens the bargaining power of these actors. In addition, higher prices mean further incentives to concentrate more land and improve large-scale techniques. As a result of their international connections, it can be said that foreign actors play a key role in these initiatives. Thus, local groups develop an interest in flexible regulations to attract foreign capital (Colombres, 2011; Ávila, 2011). The influence of this domestic-foreign coalition

has recently become evident in the four original MERCOSUR countries. In Argentina, these groups united forces to block an increase in export tariffs. In Paraguay, groups of large landowners, many of whom are foreigners, have managed to gain control over more land, displacing indigenous populations. In Uruguay, the agricultural establishment has blocked several initiatives to restrict land acquisition by foreigners. Finally, in Brazil, the agricultural lobby is gaining more and more power in Congress, where its representatives are promoting a law to repeal the limitations to foreign land ownership.

THE DOMESTIC PUBLIC SECTOR

In the 1990s, Argentina, Brazil, Paraguay and Uruguay implemented free trade reforms, thus dismantling the system in place protecting some domestic industries and concentrating back on their traditional exports, i.e. agricultural commodities (Bonnal *et al.*, 2003, pp. 5-8). These neo-liberal projects failed to different extents, and the political sectors that had promoted these measures lost the elections taking place in the 2000s. Paradoxically, the center-left administrations that took office in these countries have been favored by an unprecedented increase in the price of such agricultural commodities. As a result, these governments have enjoyed trade account surpluses, which are being spent in infrastructure and social projects. In addition, in the context of the global crisis, the original MERCOSUR countries continue to benefit from relatively sound macroeconomic positions. In this way, except for the recent episode in Paraguay, the other three administrations have been either re-elected or the governing party has prevailed in the following elections.

Regardless of the actual destination of the funds, which is beyond the scope of this paper, these administrations have little incentive to put the source of these trade surpluses at risk. Despite the political discourse against foreign dependency, the present governments may be falling into some self-indulgence (Kosacoff & Campanario, 2007, p. 17; Moreno, 2012). First, this attitude is consistent with the short-term nature of political incentives. Many of the present social and infrastructure policies depend, although to a different extent according to each MERCOSUR member country, on agricultural exports. Second, any attempt to upgrade the commodity model threatens the existing economic bonanza. On the one hand, the domestic agricultural sector would resist these

reforms. On the other, the international scenario poses obstacles to a shift to higher-value food activities (see THE INTERNATIONAL PRIVATE SECTOR and THE INTERNATIONAL PUBLIC SECTOR below).

In this regard, the MERCOSUR countries tend to limit their international demands for the free trade of their agricultural commodities (*The China Post*, 2011; Laens & Terra, 2006, p. 1). This behavior is consistent with their real possibilities in a multilevel scenario, where they need to negotiate with their domestic agricultural sector, multinational corporations and other states (Putnam, 1988; Strange, 1992). The MERCOSUR countries are more likely to get a tariff reduction on wheat or cotton than the dismantlement of the tariff escalation structure. Therefore, during a commodity boom, the most profitable exporting opportunities are most likely to open up in highly demanded commodities, as it presently occurs with soya and corn. For all these reasons, the MERCOSUR governments are not expected to take serious measures to curb the exacerbation of commodity farming. As elaborated further on, the only exception to this general attitude could be the imposition of limitations on foreign land acquisition.

THE INTERNATIONAL PRIVATE SECTOR

The private sector cannot be considered monolithically, as its actors have different short- and long-term incentives. For this reason, the international private sector should be broken down into multinational businesses and international speculators. First, in relation to the multinational food sector, the evidence shows that most global food firms come from and have stronger ties with developed countries, although there are competitive global commodity companies from developing countries as well (UNCTAD, 2009, p. 124). In MERCOSUR, the only truly global food firm is JBS (meat and poultry), while Brazil Foods has only a regional presence (IMAP, 2010, Annex A). The size of these firms cannot be compared to large global corporations such as Nestlé or Kraft. These conglomerates control most of the global food production chain (farming, processing and distribution). In addition, supermarkets from developed nations are gaining authority and control over the food chain. Overall, this control means that the MERCOSUR businesses need to integrate into the global chain, and this generally occurs at the farming stages (UNCTAD, 2009, p. 107). In this structure, multinational firms and supermarkets have the incentive to secure their supply

of commodities in the most convenient location. These actors may follow strategies of direct investment or other forms of involvement, such as joint ventures or long-term supply contracts, but in most cases their objective is to farm or acquire commodities that will be exported for processing and distribution in a different location. Additionally, these foreign firms make investments aimed at capturing the local markets (market-seeking investment) and, depending on their size, the MERCOSUR countries are potentially good locations for these undertakings.

Second, the increasing prices of agricultural commodities and land attract international speculators, whose investment plans aim at making short-term gains. In a global economy in crisis, where it is difficult to find good business opportunities, it is reasonable that speculators should try to invest in agricultural land when food prices show an upward trend. In addition, these actors are unlikely to invest in any form of medium-term activity. In fact, speculators want to maintain as much freedom as possible to relocate their funds quickly. For this reason, they will exert pressure to reduce state regulation to a minimum.

Finally, due to their increasing influence in the commodity and food industry, the role and incentives of biotechnology firms are worth mentioning. In general, these large multinational corporations, such as Monsanto and Nidera, develop products to improve large-scale commodity farming. In this way, there is a natural alliance between large landowners, agribusiness groups, and biotechnology firms. Although these actors battle one another on some concrete issues, such as property rights, policies regarding genetically modified organisms are a paradigmatic example of their concurrent interests. Overall, biotechnology firms have a concurrent interest with traditional landowners and agribusiness groups in supporting “La República Unida de la Soja” (Newell, 2009, pp. 56-57).

THE INTERNATIONAL PUBLIC SECTOR

Historically, states have shown an interest in controlling the foreign natural resources required to supply their processing sector and cover their food supply needs. In addition, they have evidenced an incentive to promote processing and distribution activities domestically. Thus, from the perspective of the farming country, the behavior of foreign governments could be divided into two broad

categories. The first one involves the establishment of barriers to imports of semi-final and final goods (e.g. pork or soya oil) with the purpose of promoting processing activities domestically (i.e. cattle feeding and oil production). Mainly, these barriers are tariff escalation and phytosanitary regulations. The first mechanism encourages the foreign producer (or subsidiary) to export the commodity, and the local firm to import and elaborate the product locally. As opposed to a flat tariff, which would have more neutral effects, an escalating tariff rises as the value added to the product increases. This promotes an international division of labor between farming and processing countries (Tabb, 2008, p. 7). See below examples from the tariff structures for soya of the European Union and China.

TARIFF STRUCTURE FOR SOYA OF THE EUROPEAN UNION AND CHINA

MFN Tariff (<i>ad valorem</i> %)	EU	China
Soya beans	0	0
Soya bean oil, crude	3.2-6.4 ^{a/}	9
Soya bean oil, other than crude	5.1-9.6 ^{b/}	9
Oil-cake & other solid residues from soya beans	0	5

Notes: ^{a/} In the case of the EU, there are two different tariffs rates, depending on whether the product is “for technical or industrial uses”.^{b/} The same observation applies (see note above).

Source: Based on data from Market Access Map, INTRACEN.

In a scenario of rising food prices, this international division of labor would shift available capital to MERCOSUR only with the purpose of increasing farming activities. On the contrary, the capital interested in food processing and distribution would flow to firms and countries that control and pursue these activities. This would include the MERCOSUR countries only for the purpose of serving these markets. Second, phytosanitary standards may constitute another reason to prefer processing activities to be carried out domestically. Although the WTO implemented a specific agreement related to food standards (SPS Agreement), this mechanism has not brought enough certainty to producers in developing countries (Das, 2008, pp. 1016-1017). Obstacles range from long administrative proceedings to changes introduced for

pseudo-protectionist purposes (Alonso Díaz, 2009, p. 182). In this way, processing agricultural commodities for export to foreign markets is a risky business.

With regard to the second category, governments have a very reasonable interest in guaranteeing food supply, a rationale that is particularly relevant in food importing countries, such as Japan, South Korea and the Arab nations. Although many of these countries began to buy agricultural land or secure their food supply before the 2008 crisis, the scarcity experienced during such period sparked an intense wave of state-driven acquisitions (Piñeiro & Villarreal, 2012; FAO, 2011). This attitude ran parallel to the export ban applied by some farming countries (e.g. Brazil banned rice exports in 2008). It may be argued that a scenario of increasing prices anticipates potential supply shocks, and importing countries would reasonably perceive this as a signal to take adequate measures. Thus far, their strategies have been to acquire land or enter into supply agreements directly or through state-owned firms. In both cases, they are aimed at farming agricultural commodities with a view to exporting them back to their respective home country. These investments would have limited or no interest in undertaking processing activities in the host country.

HIGH COMMODITY PRICES AND FOREIGN INVESTMENTS IN AGRICULTURE

The objective of domestic agricultural sectors and the incentives of private and public international actors indicate that any increase in the price of agricultural commodities would attract more capital to farming activities. This, in turn, would lead to an expansion of the arable surface and a shift to export commodities. The argument is valid for both domestic and foreign capital. However, the interest of foreign actors in commodity farming tends to be more homogenous, due to their general set of incentives. Conversely, some domestic players may have opposing views on rising concentration and dependency issues. Increasing inflows of foreign capital, for instance, would have an effect on the exchange rate of the local currency, increasing the chances of the Dutch Disease phenomenon. Therefore, it is reasonable to expect a struggle between different private actors

and the public sector regarding foreign investment in agriculture and commodity exports. On the one hand, the agribusiness lobby will favor the expansion of large-scale agriculture, the attraction of foreign capital, and keeping regulations to a minimum. On the other hand, other economic sectors, particularly the manufacturing and processing sectors, would advocate measures to maintain their international competitiveness.

Arguably, the importance of agricultural exports would increase the power of the agribusiness lobby, and domestic governments would remain skeptical about disturbing a good economic situation that is greatly instrumental to many of their immediate political goals. Although the influence of agricultural commodity prices in the good performance of the region is open to debate, the relevance of this factor cannot be disregarded. For Argentina, Paraguay and Uruguay, it is a main source of foreign currency. This does not mean that domestic private and public sectors will not struggle for the distribution of this “extra” benefit; Argentina is a good example of this tension. However, in spite of the voices advocating an upgrade to food processing activities (Ordóñez *et al.*, 2004; Cincunegui, 2010), a scenario of high agricultural commodity prices in MERCOSUR constitutes, in my view, a difficult context for implementing private or public strategies to promote such food processing activities. Foreign investment flows would continue pushing to fund farming activities, unless they are subject to restrictions or limitations. And if direct investments were restricted, other forms of involvement would emerge unless governments modify the incentives currently in force.

However, contrary to the description of the domestic public behavior above, it could be argued that the governments of the four original MERCOSUR countries have considered implementing -and Argentina and Brazil have already implemented- limitations to land acquisition by foreigners. This position contradicts the self-indulgence argument stated before, proving that domestic public efforts are made to curb increasing concentration and dependency on agricultural commodities. This argument is dealt with in the next section, although some reservations are put forward as to the real rationale behind the recently adopted restrictions. In any case, these efforts are not enough to prevent other forms of foreign involvement in commodity farming.

RESTRICTIONS ON THE FOREIGN ACQUISITION OF AGRICULTURAL LAND

In 2010 and 2011, respectively, Brazil and Argentina imposed some restrictions on the foreign acquisition of agricultural land (Perrone, 2012). During this period, the Uruguayan government tried to pass a law introducing such limitations, but the initiative was blocked in Congress. In Paraguay, the issue has been on the agenda, but no serious attempt was made to establish some restrictions. The adoption of these measures confirms the perception that higher agricultural commodity prices attract foreign investment to farming activities, although it may cast some doubt on the previous discussion regarding domestic public incentives. What is clear, although it may require some explanation, is that states cannot be treated as a black box with a single clear-cut interest. In this context, my argument is that we should not expect domestic public sectors to pose any serious obstacle to the present large-scale agricultural model (including foreign involvement). As far as the restrictions on foreign land ownership are concerned, there are two reasons to support this claim.

First, the measures implemented in both Brazil and Argentina were not aimed at curbing concentration and dependency. The main justification for them is the national sovereignty issue (FAO, 2011, p. 32). In Brazil, the debate about whether Brazilian corporations under foreign control should be comprised by the limitations established by a law of 1971 related to sovereignty and national interest issues (Parecer CGU/AGU number 01/2008-RVJ). The government never mentioned the excessive concentration on export commodities or the increasing dependency as the justifications for reintroducing these limitations. In this way, the political debate concentrated on sovereignty issues rather than on curtailing the development of agribusiness (Hage *et al.*, 2012). Something similar occurred in Argentina, where neither the government nor the opposition sectors referred to the negative sides of an excessive reliance on export commodities (FAO, 2011, p. 29). In both countries, the political debate concentrated on how much land foreign individuals and corporations had acquired (Perrone, 2012). On the one hand, it is possible to see a connection between foreign acquisitions and the exacerbation of a commodity-dependent economy. On the other hand, however, these restrictions seem to be directed at foreign control and not at curbing the excesses of the present agricultural model.

Second, restrictions only target the foreign acquisition of land, disregarding the large range of other possibilities open to foreign actors to participate in commodity farming activities. Although this could be identified as a weakness of these limitations rather than as a signal of self-indulgence, several Argentine provincial governments have entered into large-scale agreements with other countries or foreign state-owned companies (Río Negro, Chaco). These are explicit government decisions that commit vast areas of land to farming export commodities, such as soya, for long periods of time (Piñeiro & Villarreal, 2012, pp. 6-7).

Conversely, the opposition to the restrictions on foreign land ownership confirms the incentives of the domestic agricultural sector. In the four countries, these groups have taken a position against these limitations (Perrone, 2012). And in Paraguay and Uruguay, foreign investors have played an important role in blocking these attempts. Many of the foreign actors involved are in fact agribusiness groups from Argentina and Brazil, which manage regional and international funds. Finally, the Brazilian National Congress has recently started to debate, upon the request of agribusiness representatives, a possible repeal to the restrictions to acquire agricultural land applicable to Brazilian corporations under foreign control (Macedo, 2012).

CONCLUSION

This article aims at analyzing the behavior of foreign investment in agriculture in the four original MERCOSUR countries. This study purports to be a contribution to the debate about the effects of the high agricultural commodity prices. The possibility of attaining sustainable development through export commodities remains open to debate. This article does not take a particular position on this issue. However, the analysis presented here may help continue reflecting on this question, and if the answer were positive, even help design the best policies to attain sustainable development through agricultural commodity exports. The evidence suggests that, in a scenario of high prices, most foreign investment flows into agriculture would lead to a greater concentration of large-scale commodity farming. It has been argued that this is consistent with the incentives of international and domestic actors. As long as these incentives

remain in place, substantial foreign involvement is not to be expected in food production and distributing activities. The only exceptions are market-seeking or specific sector investment opportunities. In the short run, nothing indicates a change in this trend. Thus, foreign investment inflows may increase dependency levels and the risk of Dutch Disease contagion. On the one hand, government actors may have an interest

in curbing these excesses, but on the other hand, incentives show that the MERCOSUR governments are not willing to pass any relevant measure in this regard. Indeed, an analysis of the recent restrictions on foreign land acquisitions has confirmed that these policies are not intended to tackle these concerns. ♦

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MYTH OF THE INTERREGIONAL TRADE RELATIONSHIP BETWEEN EAST ASIA AND SOUTH AMERICA

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There seems to be a general consensus that trade between East Asia and South America has been increasingly important. However, we know little about the actual dynamic development of this interregional trade. This paper examines whether the trend of East Asia-South America trade is a general phenomenon or a country-specific/product-specific issue and whether the increase in trade values has a solid basis in terms of product diversification and/or price/quantity effects. While South America has a trade surplus with East Asia, overall, detailed by-country and by-product analyses of interregional trade reveal several potential weaknesses that South America has with regard to trade with East Asia. Our research findings are: (i) the increase in trade between the two regions can be, mainly, explained by the increase of China's trade with South America; (ii) the increase of China's import from South America is limited to a few number of commodities; (iii) the increase of East Asia's imports from South America is, partly, due to commodity price increase; (iv) China started to export various types of electronics and machinery products to South America. Overall, East Asia's export to South America seems to have promising growth than South America's export to East Asia.

INTRODUCTION

Foreign trade is one of the main contributors to the economic progress of a country or region. At the same time, trade can be an engine of economic growth on the one hand, and it can be a vehicle to spread economic crises, on the other. With the importance of trade, recent literature has

emphasized trade integration within a region (intra-regional trade integration).¹ This paper looks at another dimension -the potential of trade between two regions (interregional trade integration). Given the significant

¹ For the case of intra-regional trade integration in East Asia, see Hamanaka (2012).

differences in factor endowments, interregional trade has a huge potential for growth despite the geographical distance between the two regions. This also implies that interregional trade constrained by distance can increase significantly when transport costs decline (ADB, IDB & ADBI, 2012, p. 22).

This paper analyzes the interregional trade between East Asia and South America. We can easily assume that this interregional trade has had a dynamic change because East Asia is becoming the center of the world's economic growth and South America is very rich in natural resources. However, recent studies suggest that the interregional trade between East Asia and South America has several inherent weaknesses, which can be called an "asymmetric relation" (see, for example, Jenkins, 2012). Such weaknesses include: the significance of East Asia to South America and the insignificance of South America to East Asia; the fact that East Asia's exports are manufactured products while South America's exports are primary commodities; and the variety of East Asia's export items *versus* the concentration of South America's export items. Overall, this paper examines whether the trend of interregional trade is a general phenomenon or a country-specific/product-specific issue and whether the increase in interregional trade has a solid basis in terms of product diversification and price/quantity effects, bearing the "asymmetric relation" in mind.

This paper is structured as follows. The first section assesses the importance of the two regions to each other, using measures such as trade growth, interregional trade shares and trade bias. It also examines whether trade between the two regions is becoming stronger or weaker. The next section compares two key East Asian countries' (China's and Japan's) trade with South America, covering a product-level analysis in terms of both value and quantity. Finally, the Summary, considers policy implications based on the above findings.

In this paper, we mainly analyze interregional trade in the last decade, since East Asia-South America trade started to increase significantly after 2000, which was triggered by the rise of China (Whalley & Medianu, 2010). East Asia refers to eight countries -China, Japan, Korea, Thailand, Singapore, Malaysia, Indonesia and the Philippines. South America includes ten countries -Brazil, Chile, Argentina, Peru, Paraguay, Venezuela, Uruguay, Colombia, Bolivia and Ecuador. South America rather than Latin America is used because the principal focus is on countries in the South American

continent. Mexico is excluded because East Asia's trade with Mexico is different in nature from its trade with the South American countries, as Mexico is a member of the North American Free Trade Agreement (NAFTA).

THE RECENT DEVELOPMENT OF TRADE TIES BETWEEN THE TWO REGIONS

Trade between the two regions increased in 2001-2011 despite the disruption caused by the global crisis in 2009 (*Figure 1*). Furthermore, it is observed that the imports of each region are larger than their exports, which is partly due to transport costs. Considering that distance entails large transport costs, it is reasonable to assume that South America's exports to East Asia (East Asia's imports from South America) are larger than East Asia's exports to South America (South America's imports from East Asia). However, as we will see later, this South American trade surplus with East Asia does not imply that the interregional trade is favorable to South America, because the increase in South American exports is mainly due to commodity price inflation.

Since the increase in trade is a worldwide phenomenon, we analyze the apparent development of interregional trade in terms of shares. From the East Asian perspective, trade shares reveal that trade with South America has become more important but seems very small relative to East Asia's trade with the world (*Table 1*). What is interesting is that South America appears to be significant to East Asia in terms of imports more than exports. From the South American perspective, on the other hand, trade shares reveal that trade with East Asia is increasing and not negligible (*Table 2*). Moreover, the significance of East Asia to South America appears to be in terms of both exports and imports.

Moreover, it is observed that interregional trade between East Asia and South America is dominated by a few number of countries (*Table 3*). In East Asia, Japan was the dominant trader with South America until overtaken by China recently. In South America, Brazil is, by far, the dominant player, followed by Chile.

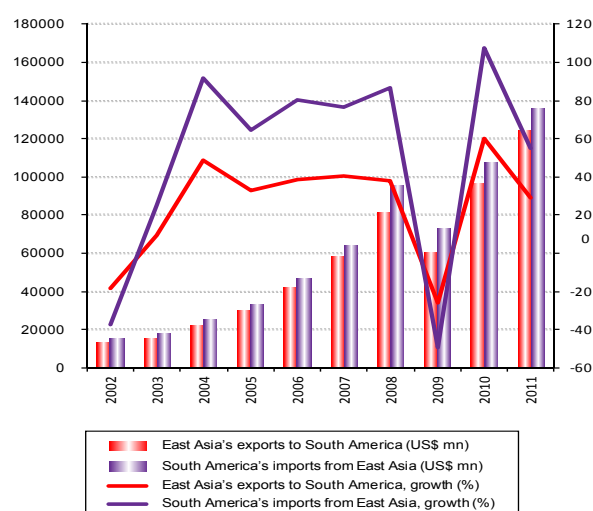
The increase in interregional shares, particularly in the share of trade with East Asia in the total trade of any country or region, could be a worldwide phenomenon. Almost all countries in the world have started to trade heavily with East Asia, especially with China, so that

Figure 1

INTERREGIONAL TRADE

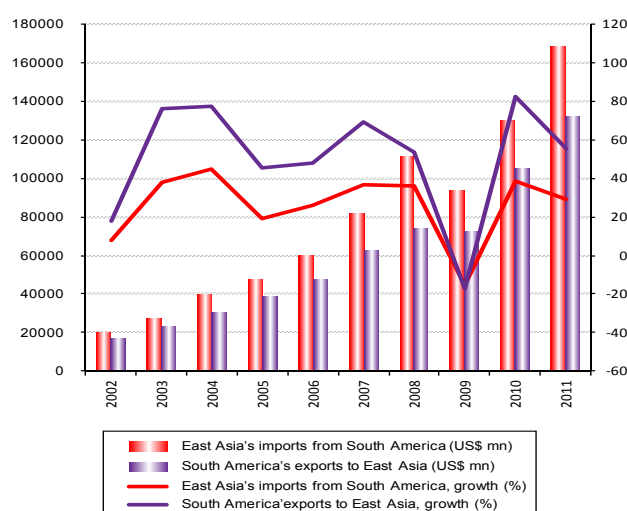
TRADE FROM EAST ASIA TO SOUTH AMERICA

US\$ millions and percentage



TRADE FROM SOUTH AMERICA TO EAST ASIA

US\$ millions and percentage



Source: UN Comtrade.

Table 1

EAST ASIAN PERSPECTIVE ON INTERREGIONAL TRADE

Percentage

	Share of export to South America		Share of import from South America		Interregional Trade Share [(Trade with South America)/Trade with the World]*100	
	2001	2011	2001	2011	2001	2011
China	1.5	3.9	2.4	5.9	1.9	4.9
Indonesia	0.9	1.4	1	2.3	0.9	1.8
Japan	1.4	1.7	1.9	3.3	1.6	2.5
Korea	2.5	3.6	1.9	2.9	2.2	3.3
Malaysia	0.4	0.8	0.8	1.9	0.6	1.3
Philippines	0.2	0.6	0.8	1.4	0.5	1
Singapore	0.4	0.5	0.4	1.7	0.4	1.1
Thailand	0.7	2.1	1.4	1.6	1	1.9
Total East Asia	1.3	2.7	1.7	4	1.5	3.3

Source: Authors' calculations using UN Comtrade data.

Table 2**SOUTH AMERICAN PERSPECTIVE ON INTERREGIONAL TRADE**

Percentage

	Share of Exports to East Asia		Share of Imports from East Asia		Interregional Trade Share [(Trade with East Asia)/Trade with the World]*100	
	2001	2011	2001	2011	2001	2011
Argentina	10.4	14.4	13.7	21.5	11.8	17.8
Bolivia	1.1	14.3	10.7	22.2	6.2	17.9
Brazil	10.3	27	13.6	26.3	11.9	26.7
Chile	22.3	41.1	15.1	26.3	19	34
Colombia	2.2	5.7	12	21.8	7.2	13.5
Ecuador	8.3	2.8	16.3	24	12.6	13.8
Paraguay	4.7	3.2	19.5	36.3	14.9	26
Peru	16	24.9	15.9	26.7	16	25.7
Uruguay	9.7	n.a.	8.6	n.a.	9	n.a.
Venezuela	1.3	15.6	10.3	16.2	4.8	16.2
<i>Total South America</i>	9.7	23.4	13.4	24.6	11.5	24

Note: n.a. means no data available.

Source: Authors' calculations using UN Comtrade data.

Table 3**KEY TRADERS IN EAST ASIA AND SOUTH AMERICA**

Country's Trade Share in East Asia's Total Trade with South America (East Asia's Statistics)					Country's Trade Share in South America's Total Trade with East Asia (South America's Statistics)				
Country	2001		2011		Country	2001		2011	
	Value	Share	Value	Share		Value	Share	Value	Share
China	9,706	29.7	177,553	60.6	Argentina	5,533	16.2	28,609	10.7
Japan	12,178	37.3	41,885	14.3	Bolivia	191	0.6	3,007	1.1
Korea	6,454	19.8	35,567	12.1	Brazil	13,519	39.6	128,721	48.1
Indonesia	803	2.5	6,885	2.4	Chile	6,617	19.4	53,186	19.9
Malaysia	938	2.9	5,425	1.9	Colombia	1,803	5.3	15,112	5.7
Philippines	359	1.1	1,151	0.4	Ecuador	1,257	3.7	6,447	2.4
Singapore	933	2.9	8,451	2.9	Paraguay	471	1.4	4,642	1.7
Thailand	1,299	4	8,520	2.9	Peru	2,258	6.6	21,454	8
					Uruguay	462	1.4		
					Venezuela	2,009	5.9	6,409	2.4
<i>Total East Asia</i>	32,669	100	285,438	100	<i>Total South America</i>	34,121	100	267,587	100

Source: Authors' calculations using UN Comtrade data.

Table 4

INTERREGIONAL TRADE BIAS

	2001	2011
East Asia's Trade with South America (US\$ mn) [A]	35,528	292,959
East Asia's Trade with the World (US\$ mn) [B]	2,632,134	9,514,355
South America's Trade with East Asia (US\$ mn) [C]	34,121	267,587
South America's Trade with World (US\$ mn) [D]	298,066	1,115,356
World Trade (US\$ mn) [E]	11,932,010	29,254,922
South America's Share in East Asia (A/B*100) [F]	1.4%	3.1%
East Asia's Share in South America (C/D*100) [G]	11.5%	24%
South America's Share in World (D/E*100) [H]	2.5%	3.8%
East Asia's Share in World (B/E*100) [I]	22.1%	32.5%
East Asia's Bias to South America = F/H	0.5	0.8
South America's Bias to East Asia = G/I	0.5	0.7

Source: Authors' calculations using UN Comtrade data.

South America's increasing trade with East Asia may not be an exception. Thus, the trade bias is analyzed, as defined below (see Plummer *et al.*, 2010). The trade bias index measures the "relative" significance of a partner country or region from the perspective of a certain country or region. If the index is equal to 1 (neutral), then the members or countries or regions under consideration do not have any bias towards trading among themselves or with outsiders. If the index is higher than 1, then the countries or regions under consideration have a bias towards trading among themselves. If the index is lower than 1, then the countries or regions under consideration have a bias towards trading with outsiders.²

$$\text{Regional Bias} = \frac{\frac{\text{Region of Origin's Trade with Region of Destination}}{\text{Region of Origin's Trade with the World}}}{\frac{\text{Region of Destination's Trade with the World}^*}{\text{Total World Trade}}}$$

Note: * Theoretically, we should use "World's Trade with South America". However, for the ease of collecting data, we will, instead, use "South America's trade with the World", which is the mirror of the former.

Using the above equation, the results show that both East Asia and South America have experienced a similar development in their trade bias towards each other in the last decade (see Table 4). The two regions used to have a negative bias towards each other (the bias index is much lower than 1.0), which means that both prefer to trade with outsiders. However, this negative trade bias declined in 2011, which means that interregional trade is becoming more neutral (less negatively biased).

EAST ASIA'S TRADE TIES WITH SOUTH AMERICA: CHINA AND JAPAN COMPARED

This section focuses on the trade of two major countries in East Asia -China and Japan- with South America's major traders -Brazil and Chile.

² For example, let's assume that Country A's share in China's total trade is 2%. It cannot be argued whether 2% is large or small. The question is the importance of Country A in world trade. If country A's share in world trade is 2%, then the trade bias is 1 and, therefore, China's trade towards Country A has no regional bias (neutral). If Country A's share in world trade is 1% (4%), then China's trade towards Country A has a positive (negative) bias (its intensity is 0.5 and 2.0, respectively).

Japan used to be the largest trader with South America in the past. However, this trend has dramatically changed, with China emerging as the dominant trader (*Table 3*). China's and Japan's trade with Brazil and Chile is examined, covering a product-level analysis in terms of both value and quantity.

The following discussion will focus on the trade bias and the trade of China and Japan with Brazil and Chile at product level. The bias of trade is given below:

$$\text{Regional Bias} = \frac{\frac{\text{China's/Japan's Trade with Brazil/Chile}}{\text{China's/Japan's Trade with the World}}}{\frac{\text{Brazil's/Chile's Trade with the World}}{\text{Total World Trade}}}$$

IMPORTS: CHINA VS. JAPAN

Though the shares of China's and Japan's imports from South America are small relative to their imports from the world, the bias index indicates an apparent strengthening of trade relationship (*Table 5*). The bias index shows that China had no bias towards importing from Brazil in the past, but this index increased significantly in 2011. The import bias from Chile has also increased. The fact that this bias is higher than

2.0 implies that China's imports from South America have a strong positive bias. In the case of Japan, on the other hand, the bias towards importing from Brazil has not changed much in the last decade, and the bias of imports from Chile has even declined, despite the fact that commodity prices have increased during the same period, which could have pushed the bias higher. As we will see later, the reason is that though the import values of both China and Japan have risen due to an increase in commodity prices, China's import volumes have increased more than Japan's.

Table 6 lists China's major imports from Brazil as indicated by the shares (%). These items are mostly mineral products, vegetable products, base metals and foodstuffs. Overall, 70-90% of China's imports from the two countries consist of HS 12, HS 26, and HS 74. Imports from Brazil are mostly HS 26 and HS 12. The largest imports of China from Brazil are HS 260111 under HS 26 and HS 120100 under HS 12. On the other hand, China's imports from Chile are mostly HS 74 and HS 26, nearly all of them being HS 740311 and HS 260300. It is observed that a large portion of China's imports from Brazil and Chile is limited to a few number of 6-digit items. Furthermore, these items are primary commodities (mainly natural resources and agricultural products). While some argue that trade with China would bring an opportunity for South America to diversify export items (Calle, 2010), this has not materialized so far.

Table 5

ASIA'S IMPORT BIAS TOWARDS BRAZIL AND CHILE

Asia's Side Data

	Share and Bias		Brazil	Chile
China	Share of China's Imports from South America in China's Total Imports from the World (%)	2001	1	0.5
		2011	3	1.2
	Import Bias	2001	1.1	2
		2011	2.1	2.5
Japan	Share of Japan's Imports from South America in Japan's Total Imports from the World (%)	2001	0.7	0.7
		2011	1.5	1.1
	Import Bias	2001	0.8	2.6
		2011	1.0	2.4

Source: Authors' calculations using UN Comtrade data.

Table 6

CHINA'S MAJOR IMPORT ITEMS FROM BRAZIL AND CHILE

China's Side Data

		Value		%	Volume	
		US\$ mn			Kg mn	
		2001	2011	(2011)	2001	2011
Brazil	26 Ores, slag and ash	762	26,157	49.9		
	260111 Iron ores and concentrates, other than roasted iron pyrites, non-agglomerated	540	23,935	45.7	19,691	134,164
	260112 Iron ores and concentrates, other than not iron pyrites, agglomerated	205	1,822	3.5	4,844	8,538
	12 Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit...	620	11,791	22.5		
	120100 Soya beans	620	11,790	22.5	3,160	20,622
	27 Mineral fuels, mineral oils and products of their distillation...	0.0	4,885	9.3		
	47 Pulp of wood or of other fibrous cellulosic material recovered [...] paper...	149	1,824	3.5		
	17 Sugars and sugar confectionery	24	1,268	2.4		
Chile	74 Copper and articles thereof	564	12,610	61.3		
	740311 Refined copper cathodes and sections of cathodes, unwrought	529	11,219	54.5	320	1,264
	740200 Unrefined copper; copper anodes for electrolytic refining	28	1,216	5.9	17	123
	26 Ores, slag and ash	326	5,532	26.9		
	260300 Copper ores and concentrates	311	3,743	18.2	694	1,427
	260111 Iron ores and concentrates, other than roasted iron pyrites, non-agglomerated	6	1,391	6.8	190	7,695
	47 Pulp of wood or of other fibrous cellulosic material recovered [...] paper...	243	998	4.9		
	08 Edible fruit and nuts; peel of citrus fruit or melons	22	452	2.2		
	23 Residues and wastes from the food industries; [...] animal fodder	57	199	1		

Note: % = (China's imports of the product from each South American country in 2011 / China's total imports from each South American country in 2011) * 100.

Source: Authors' calculations using UN Comtrade data.

In the case of Japan, the dominant imports from South America are HS 02, HS 03 and HS 26 (Table 7). About 67% of the imports from Brazil are HS 26 and HS 02. The majority of these imports are classified under HS 260111, HS 260112 and HS 020714. Around 76% of Japan's imports from Chile are HS 26 and HS 03, which consist mainly of HS 260300, HS 261310, HS 030310 and HS 030420.

It is evident that China's and Japan's imports from South America are concentrated on a limited number of 6-digit items and that both have been affected by the increase in commodity prices. The difference between the two countries is that China's imports volumes increased more than Japan's. The mechanism by which China's imports from Brazil and Chile have risen implies an inflationary phenomenon in addition

Table 7**JAPAN'S MAJOR IMPORT ITEMS FROM BRAZIL AND CHILE****Japan's Side Data**

		Value			Volume	
		US\$ mn		%	Kg mn	
		2001	2011	(2011)	2001	2011
Brazil	26 Ores, slag and ash		6,826	53.8		
	260111 Iron ores and concentrates, other than roasted iron pyrites, non-agglomerated	584	5,275	41.6	21,975	29,301
	260112 Iron ores and concentrates, other than not iron pyrites, agglomerated	113	1,520	12	2,821	7,363
	02 Meat and edible meat offal		1,481	11.7		
	020714 Of fowls, cuts and offal, frozen	150	1,463	11.6	104	408
	020712 Of fowls [...], cut and offal, not cut...	7	11	0.1	5	5
	09 Coffee, tea, maté and spices		619	4.9		
	76 Aluminum and articles thereof		559	4.4		
	72 Iron and steel		461	3.6		
Chile	26 Ores, slag and ash		5,875	59.8		
	260300 Copper ores and concentrates	767	5,030	51.2	1,781	2,084
	261310 Molybdenum ores and concentrates, roasted	38	458	4.7	12	22
	03 Fish and crustaceans, mollusks and other aquatic invertebrates		1,521	15.5		
	030310 Pacific salmon [...], frozen, [whole]	238	568	5.8	86	94
	030420 Fish fillets [...], frozen	120	537	5.5	24	49
	74 Copper and articles thereof		759	7.7		
	44 Wood and articles of wood; wood charcoal		726	7.4		
	02 Meat and edible meat offal		215	2.2		

Note: % = (Japan's imports of the product from each South American country in 2011 / Japan's total imports from each South American country in 2011)*100.

Source: Authors' calculations using UN Comtrade data.

to a large increase in volume. To illustrate this, while the value of HS 120100 imports of China from Brazil increased by nearly twenty times in the last decade, their volume increased by seven times. Likewise, HS 260111 imports from Brazil increased by around forty-four times in terms of value but seven times in terms of volume. In the case of China's imports from Chile, HS 740311 imports increased by around twenty-one times in terms of value, but four times in terms of volume. On the other hand, the increase in Japan's imports from Brazil and Chile can be, mainly, explained by the increase in commodity prices. HS 260111 imports from Brazil rose

by only 33% in terms of volume, though they increased by nine times in terms of value. Likewise, HS 260300 imports from Chile increased by only 17% in terms of volume, though they rose by seven times in terms of value. These observations imply that if commodity prices had been stable, the value of Japan's imports from South America would not have increased very much.

EXPORTS: CHINA VS. JAPAN

Though the shares of China's and Japan's exports to South America are small relative to their exports

Table 8**ASIA'S EXPORT BIAS TOWARDS BRAZIL AND CHILE****Asia's Side Data**

	Share and Bias		Brazil	Chile
China	Share of China's Exports to South America in China's Total Exports to the World (%)	2001	0.5	0.3
		2011	1.7	0.6
	Export Bias	2001	0.5	1
		2011	1	1
Japan	Share of Japan's Exports to South America in Japan's Total Exports to the World (%)	2001	0.6	0.1
		2011	0.8	0.3
	Export Bias	2001	0.6	0.4
		2011	0.4	0.5

Source: Authors' calculations using UN Comtrade data.

to the world, there seems to be a strengthening of their trade relationship as indicated by the bias index (*Table 8*). China had a negative bias towards Brazil in the past; then it became neutral in 2011. In the case of Chile, the bias has not changed significantly. Since China's export bias towards both countries was nearly 1.0 in 2011, it can be said that China exports to South American countries just like it would to other countries, unlike in 2001, when it preferred to trade with partners other than Brazil and Chile. In the case of Japan, on the other hand, the bias index towards both Brazil and Chile remained small and has not changed very much during the last decade. Japan's export bias towards the two countries remains lower than 1.0, which means that Japan has a negative bias towards them. It can, therefore, be argued that while exporting to South America is becoming more important for China, it remains insignificant for Japan.

Table 9 lists China's major exports to Brazil and Chile. Around 30-50% of China's exports to these two countries consist of HS 84, HS 85 and HS 87. In its exports to Chile, apparel-related items (HS 61 and HS 62) are dominant as well. It is observed that unlike the case of imports from South America, China's exports are not concentrated on a few 6-digit items. China's largest export item under HS 85 is HS 851790, which accounts for only around 10% of the entire HS 85 group. The largest export item under HS 84 is HS 847330, which accounts for only 12% of this 2-digit group. In the case of China's exports

to Chile, the largest item under HS 85 is HS 852520, which accounts for 25%. Moreover, Chinese exports to South America have become more diverse with the addition of new traded items in 2011. For example, in the case of China's exports to Chile, newly exported items in 2011 were HS 848180, HS 845011, HS 852812, HS 870322 and HS 870210. Overall, various types of electric appliances such as air conditioners, radio and television apparatus, and washing machines are exported by China to South America.

Table 10 lists Japan's major exports to Brazil and Chile. As shown by the shares, the most dominant Japanese exports to these two countries are HS 84 and HS 87. It is observed that the concentration of exports on HS 84 and HS 87 is clearer in the case of Japan than in the case of China. The concentration of exports on a limited number of 6-digit items is very evident in the case of Japan. In particular, HS 870323 and other automobile-related parts are critically important export items for Japan, though the country also exports intermediate products, including machinery.

SUMMARY

There seems to be a general consensus that trade between East Asia and South America is becoming more important. In this paper, we consider whether the trend of interregional trade is a general

Table 9

CHINA'S MAJOR EXPORT ITEMS TO BRAZIL AND CHILE

China's Side Data

	Major Items based on 2011 Shares	Value			Volume		
		US\$ mn		% (2011)	mn (Kg or #)		Note
		2001	2011		2001	2011	
Brazil	85 Electrical machinery and equipment...	365	7,462	23.4			
	851790 Parts of line telephone/telegraph equipment, n.e.s.	8	815	2.6	0.7	9	Kg
	854230 Monolithic integrated circuits	0.3	668	2.1	0	0.3	#
	852990 Parts for radio/TV transmit/receive equipment, n.e.s.	22	456	1.4	0.1	33	Kg
	851780 Electrical apparatus for line telephony	0	430	1.4	0	n.a.	#
	84 Nuclear reactors, boilers, machinery...	191	5,889	18.5			
	847330 Parts and accessories of data processing equipment, n.e.s.	38	726	2.3	11	32	Kg
	841510 Air conditioning machines , [...] window or wall types, self-contained...	1	270	0.9	0.2	25	#
	847130 Portable digital data processing machines	0	245	0.8	0	1	#
	90 Optical, photo, graphic, [...] medical [...] apparatus	31	2,023	6.4			
	87 Vehicles other than railway or tramway rolling stock...	18	1,601	5			
	870322 Automobiles [...], with spark-ignition [...] engine of a capacity exceeding 1,000 cc but not exceeding 1,500 cc	0	332	1.0	0	38	#
	871419 Parts and accessories [...] of motorcycle, except saddles	3	142	0.4	1	31	Kg
	870323 Automobiles [...], with spark-ignition [...] engine of a capacity exceeding 1,500 cc but not exceeding 3,000 cc	0	136	0.4	0	13	#
	29 Organic chemicals	100	1,425	4.5			
Chile	85 Electrical machinery and equipment...	89	1,563	14.5			
	852520 Transmit/receive apparatus for radio, TV...	0	391	3.6	0	1	#
	852812 Color television receivers	3.4	226	2.1	n.a.	7	#
	851780 Electrical apparatus for line telephony...	0	117	1.1	0	n.a.	#
	84 Nuclear reactors, boilers, machinery...	52	1,281	11.8			
	847130 Portable digital data processing machines	0	425	3.9	0	2	#
	848180 Taps, cocks, valves and similar appliances, n.e.s.	7	65	0.6	0.6	7	Kg
	847160 Input or output units whether or not containing storage units...	17	51	0.5	0.6	1	#
	61 Articles of apparel and clothing accessories, knitted or crocheted	95	1,153	10.7			
	62 Articles of apparel and clothing accessories, not knitted or crocheted	126	945	8.74			
	87 Vehicles other than railway or tramway rolling stock...	17	716	6.6			
	870322 Automobiles [...], with spark-ignition [...] engine of a capacity exceeding 1,000 cc but not exceeding 1,500 cc	0	174	1.6	0	20	#
	870210 Diesel-powered buses	0	75	0.7	0	9	#
	871120 Motorcycles [...], with spark-ignition [...] engine of a capacity exceeding 50 cc but not exceeding 250 cc	0.3	63	0.6	0	4	#

Note: n.a. means no data available.

Source: Authors' calculations using UN Comtrade data.

Table 10

JAPAN'S MAJOR EXPORT ITEMS TO BRAZIL AND CHILE

Japan's Side Data

	Major Items based on 2011 Shares	Value			Volume		
		US\$ mn		% (2011)	mn (Kg or #)		Note
		2001	2011		2001	2011	
Brazil	84 Nuclear reactors, boilers, machinery...	716	1,970	31.8			
	840991 Parts for spark-ignition engines except aircraft	64	248	4	3	8	Kg
	847989 Machines and mechanical appliances, n.e.s.	33	131	2.1	0.6	1	#
	87 Vehicles other than railway or tramway rolling stock...	389	1,587	25.6			
	870323 Automobiles [...], with spark-ignition [...] engine of a capacity exceeding 1,500 cc but not exceeding 3,000 cc	68	517	8.3	n.a.	48	#
	870840 Transmissions for motor vehicles	27	222	3.6	2	12	Kg
	85 Electrical machinery and equipment...	581	624				
	90 Optical, photo, graphic, [...] medical [...] apparatus	206	329	5.3			
	40 Rubber and articles thereof	47	273	4.4			
Chile	87 Vehicles other than railway or tramway rolling stock...	241	1,039	44.3			
	870323 Automobiles [...], with spark-ignition [...] engine of a capacity exceeding 1,500 cc but not exceeding 3,000 cc	83	468	20	n.a.	44	#
	870322 Automobiles [...], with spark-ignition [...] engine of a capacity exceeding 1,000 cc but not exceeding 1,500 cc	19	209	8.9	n.a.	24	#
	27 Mineral fuels, mineral oils and products of their distillation...	0.8	582	24.8			
	271000 Petroleum oils and oils obtained from bituminous materials, other than crude...	0	582	24.8	0	624	Kg
	271220 Paraffin wax containing by weight less than 0.75% of oil	0	0.2	0	0	0.1	Kg
	84 Nuclear reactors, boilers, machinery...	56	295	12.6			
	842952 Mechanical shovels [and] excavators [...] with a 360° revolving superstructure	4	54	2.3	2	8	#
	842720 Self-propelled works trucks, non-electric	5	43	1.8	2	8	#
	40 Rubber and articles thereof	47	169	7.2			
90 Optical, photo, graphic, [...] medical [...] apparatus	17	56	2.4				

Notes: n.a. means no data available. % = (Japan's exports of the product to each South American country in 2011 / Japan's total exports to each South American country in 2011)*100.

Source: Authors' calculations using UN Comtrade data.

phenomenon or a country-specific/product-specific issue and whether the increase of interregional trade has a solid basis in terms of commodity diversification and price/quantity effects. We found that: (i) the increase in interregional trade between the two regions can be, mainly explained by the increase in China's trade with South America; (ii) the increase in China's imports from South America is limited to a few number of commodities; (iii) the increase in East Asia's commodity imports from South America is, partly, due to the commodity price increase; (iv) China has started to export various types of electronic and machinery products to South America.

The comparison of China's and Japan's trade with South America is interesting. While Japan was the largest trader with South America a decade ago, now China is the largest trader. The majority of China's imports from South America are primary commodities; around 70% of Chinese imports from Brazil are iron ores (HS 260111) and soya beans (HS 120100), and around 80% of Chinese imports from Chile are copper ores (HS 260300) and copper cathodes (HS 740311). China's commodity imports have significantly increased, which is due to a rise in both volume and price. Furthermore, while Japan's commodity imports have also increased in terms of value, their rise in volume has been small, which implies that if commodity prices had been stable, the value of Japan's imports from South America would not have increased. Thus, South America's exports to East Asia are extremely vulnerable to commodity price fluctuations (Koleski, 2011). In the case of East Asia's exports to South America, which are primarily represented by China, items are diverse. China has recently started to export to Brazil and Chile various types of electrical appliances, such as air conditioners, radio and television apparatus, and washing machines, which may have a negative influence in domestic production in the future, as suggested by Rosales (2012). On the other hand, Japan's export items are less diverse, consisting mainly of automobiles and intermediate products.

If we look at the aggregate level, one may feel that interregional trade between East Asia and South America is increasing. However, the cross-country and cross-product analysis in this paper reveals several important features of such interregional trade. First, while East Asia's imports from South America (South America's exports to East Asia) are larger than East Asia's exports to South America (South America's imports from East Asia), East Asia's import items are

limited to a small number of commodities. Moreover, the recent increase in commodity import values is, partly, due to commodity price increase. Thus, South America's exports may decline sharply in terms of value when commodity prices decline. Second, China has recently started to export various types of electrical appliances to South America. Since Chinese products are penetrating South American markets very well, this trend may continue for a while. Thus, East Asia's (China's) exports are expected to grow steadily. Even though South America temporarily enjoys trade surplus *vis-à-vis* East Asia, East Asia's (China's) exports to South America are expected to grow steadily rather than South America's exports to East Asia, which are vulnerable to commodity price fluctuations. Overall, East Asia's exports to South America seem to have a more promising growth than South America's exports to East Asia. ♦

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THE EMERGENCE OF CHINA AND THE EVOLUTION OF INTERNATIONAL TRADE IN BRAZIL

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We take advantage of a novel dataset that incorporates the technological content of each product and its quality to unveil some features of Brazil-China's trade flows and challenge the view that the emergence of China would imply the deindustrialization of Brazilian exports. We show that Brazil increasingly exports to China products with lower technological content and increasingly imports products with higher technological content. The quality dimension of the dataset reveals that both countries export to each other basically low-quality goods. We show that from 1994 to 2007 the number of products in which the two countries have comparative advantage declined and that both countries increased their advantage in the products in which they already had advantage in 1994 and lost advantage in the sectors in which they had small advantage in producing by then. Brazilian exports of commodities increased significantly due to the emergence of Asian countries. However, Brazilian exports of high technological content and high quality increased more than the average and more than low technological and low quality exports. Overall, the emergence of China has been supporting a displacement of Brazilian exports not only towards natural-based products but also to goods with higher quality and higher technological content.

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INTRODUCTION

China's market share in the world output jumped from 5.3% in 1994 to 10.8% in 2007. In the same period, the share of Chinese exports in world exports expanded even more, from 5.8% in 1994 to 12.7% thirteen years later. The weight of China in global imports also expanded in this period, from 6.5% in 1994 to 8.5% in 2007. These figures illustrate the well-known unveiling of the Chinese economy in the last years.

The emergence of China as a giant global player in trade markets has been generating opportunities and challenges for economies all over the world. It has also been a source of excitement and concern for policy makers. In addition, China's growth has been stimulating a vast literature on the impact that China could have on other regions.

Only a few years ago, Brazil and China barely had any bilateral trade transactions. The internal market orientation of both economies prevented them from searching for other opportunities far away. The opening process promoted in both countries and their recent economic developments have, however, changed their economies. This change has been followed by a boom in the bilateral trade between the two countries and has stimulated a more general economic integration. China is today one of Brazil's main trade partners.

Just as it has been observed in other countries, both policy makers and economists have been analyzing the effects that China could have on Brazil. On the one hand, Brazil's comparative advantage in the production of primary products and the increasing Chinese appetite for commodities are seen by most as a good example of the opportunities opened up for Brazil (see, for example, Blázquez-Lidoy *et al.* 2004, and Devlin *et al.*, 2005). On the other hand, the constant expansion of Chinese exports has been treated mostly as an example of how the emergence of China might threaten Brazil's industry as well as its exports of manufactured goods (see, for example, Lall & Weiss, 2004; Mesquita Moreira, 2007, and Devlin *et al.*, 2005).

This paper explores the impact that the Chinese trade expansion has had on the Brazilian international trade. To pursue this objective, apart from the standard

trade data (Comtrade and CHELEM)¹, we have also used product-level trade data (BACI)² in order to consider both the technological content of exported goods as well as their quality. Therefore, in addition to studying trade performance, analyzing comparative advantages, and examining trade complementarity in terms of the classical trade classification (i.e. trade data disaggregated by region and by sector), this paper analyzes trade flows, comparative advantages and trade complementarity issues taking into account the quality and technological component of the exported products. By incorporating these dimensions, one can take into account the increasingly important intra-industry international trade and explicitly recognize that there can be competition within one product group in a process of vertical differentiation and quality upgrading.

The technological dimension of trade flows follows Lall (2000b), according to whom five groups can be created based on the technological content of products: high technology (HT), medium technology (MT), lower technology (LT), resource-based products (RB) and primary products (PP). The first four groups -HT, MT, LT and RB- fall within the classical manufactures category, while PP corresponds to the non-manufactures group.

On the other hand, to incorporate the quality dimension, each bilateral flow was classified into three quality segments (L: low, M: medium, or H: high) by comparing its unit value with the world distribution of unit values of the product, following the Fontagné *et al.* (2008) methodology.³ The quality dimension is orthogonal to the traditional product classification, i.e. any product can be classified as L, M or H regardless of its characteristics or technological content.

Using, therefore, a standard and new dataset on international trade, this paper unveils some basic features

¹ CHELEM is based on Comtrade data and provides reconciled bilateral trade values since 1967, disaggregated at the sectoral level (de Saint-Vaulry, 2008).

² BACI is based on Comtrade data and provides reconciled bilateral values and quantities at the Harmonized System 6-digit level, allowing the computation of proper unit values for all countries in the world (Gaulier & Zignago, 2010).

³ Hallak (2006) confirms the theoretical prediction that rich countries tend to import relatively more from countries that produce high-quality goods. Hallak & Schott (2011) develop a method for decomposing countries' observed export prices into unobserved quality versus quality-adjusted price components.

of the bilateral trade flows between Brazil and China. As expected, the growing dynamism of Brazil-China trade relationships builds on the exports from Brazil to China of commodities and on the exports of manufactured products from China to Brazil, suggesting that the two countries have complementary trade structures. Looking at the technological dimension of our dataset, it is also observed that this complementarity is once more evident as Brazil (increasingly) exports products with lower technological content to China and (increasingly) imports goods with higher technological content. In addition, the quality dimension of the data is used to show that both countries export to each other basically low-quality goods. This suggests that the degree of competition between these countries could be higher than suggested by both sector and technological data, although this is not necessarily true as low-quality trade could be taking place in different sectors.

Next, it is more formally examined whether Brazil and China compete in the international market by computing an index related to the degree of similarity between the exports of both countries. It is thus proved that the overlapping between Brazilian and Chinese total exports is limited, both in absolute terms and also in comparison to other regions.

The calculation of both the comparative advantage and complementarity/competition indicators confirms that the degree of competition between the two countries is relatively small. Among other results, it is shown that the number of products in which the two countries have a comparative advantage has declined in the last years. Furthermore, in the last years both countries have increased their comparative advantage in the products in which they already had an advantage in 1994 and lost ground in the sectors in which they had only a few advantages in 1994.

This last evidence, as well as the fact that these countries compete in some manufactures sectors, raises the issue of whether the emergence of China can create a shift of Brazilian exports towards natural-based goods and, thus, lead to a deindustrialization process. Available data analyzed in this paper shows that in the last years Brazilian exports of commodities have increased significantly due to the emergence of Asian countries. We show, however, that in the last years Brazilian exports of high technological content and high quality have increased more than the average and more than low-technology and low-quality exports. Overall, the emergence of China has been supporting

a shift of Brazilian exports not only towards natural-based products but also to goods of higher quality and higher technological content. This weakens the view that the emergence of China would lead to the deindustrialization of Brazilian external sales.

This paper wishes to contribute to the existing literature on the issue by unveiling some new features of the evolution of Brazilian trade flows in the period between 1994 and 2007, by showing, through the use of a set of different indicators and dimensions of trade data, that Brazil and China exhibit trade complementarities in both absolute and relative terms, and finally, by challenging the view that the emergence of China would involve the deindustrialization of Brazilian exports.

The following section examines the performance of aggregate bilateral flows between Brazil and China as well as the structure of this bilateral flow by product, technological content and quality. THE SIMILARITY BETWEEN THE BRAZILIAN AND CHINESE EXPORT STRUCTURES reports the results related to the similarity index that account for the degree of overlapping between Chinese and Brazilian overall exports. The next heading includes a series of exercises to check what the comparative advantages of each country are and how complementary their trade structures prove to be. Before submitting the conclusions of the paper, the last section explores how the market share of Brazilian exports has evolved since 1994. The goal of this research is to see whether the recent evolution of Brazilian exports confirms the view that the emergence of China would involve the deindustrialization of Brazilian exports.

BRAZIL-CHINA TRADE FLOWS

AN OVERVIEW OF AGGREGATE TRADE FLOWS

Trade flows between Brazil and China increased by more than 20% per year from 1994 to 2007 (*Figure 1*). The total trade flow between these two countries amounted to US\$ 1.8 billion in 1994. Thirteen years later, this flow reached US\$ 25 billion.⁴

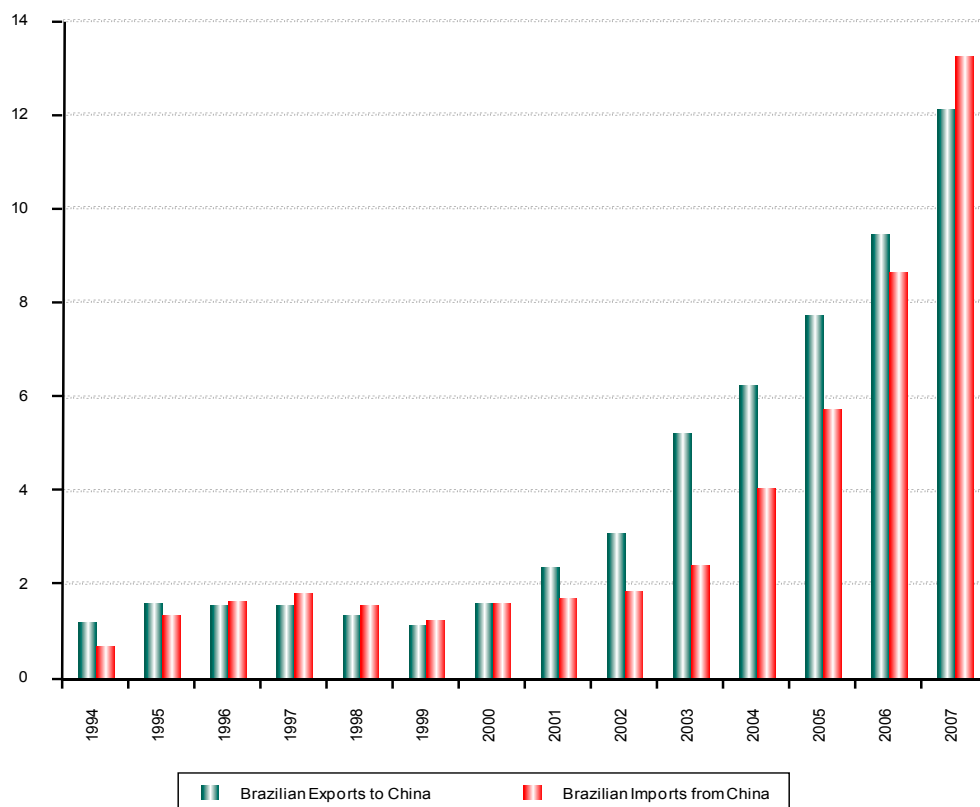
The economic emergence of both countries, especially of China, plays an important role in explaining the boom

⁴ Trade data in this section have been extracted from the United Nations Comtrade database.

Figure 1

INTERNATIONAL TRADE BETWEEN BRAZIL AND CHINA

In US\$ billions



Source: Authors' computations using Comtrade.

of their bilateral trade. In addition, both countries have experienced an economic opening process in which tariffs have been cut and non-tariff measures have become less common.

The growth of the trade flow between Brazil and China was impressive not only in absolute terms (*Figure 2*). Brazilian exports to China as a share of Brazil's total exports surged from 2.7% in 1994 to 7.5% in 2007. China was the origin of only 1.8% of Brazilian imports in 1994, but this figure expanded to 11.0% in 2007. These figures clearly show the current importance that China has for Brazil. Instead, Brazil's importance for Chinese foreign trade is still small, despite its recent evolution. In 1994, Brazil accounted

for 0.43% of total Chinese imports and an insignificant 0.24% of total Chinese exports. In 2007, these figures increased to 0.84% and 0.91% respectively.

THE STRUCTURE OF BILATERAL TRADE FLOWS: A LOOK AT A MORE DISAGGREGATED LEVEL

Brazil exports to China basically commodities and imports manufactures (*Table 1 and Table 2*). Sixty-two percent of Brazilian exports to China in 2007 fell in the "crude materials" group, which includes products such as soybeans and iron ore. Although Brazilian exports to China are highly concentrated on commodities,

Figure 2

SHARE IN TOTAL EXPORTS AND IMPORTS

In %



Source: Authors' computations using Comtrade.

Table 1

MAIN BRAZILIAN EXPORTS TO CHINA IN 2007

SITC Code	Sectors	% of total exports	Yearly % (1994-2007)
3	Mineral fuels	7	36
2	Crude materials	62	35
0	Food and live animals	8	18
6	Manufactured goods	12	10
	Others:	11	
1	Beverages and tobacco		33
7	Machinery and transport eq.		17
5	Chemicals		15
8	Miscellaneous manufactures		13
4	Animal and vegetables oils and fats		-2

Source: Authors' computations using Comtrade information. Sectors considered here are those of the top level of the Standard International Trade Classification.

Table 2

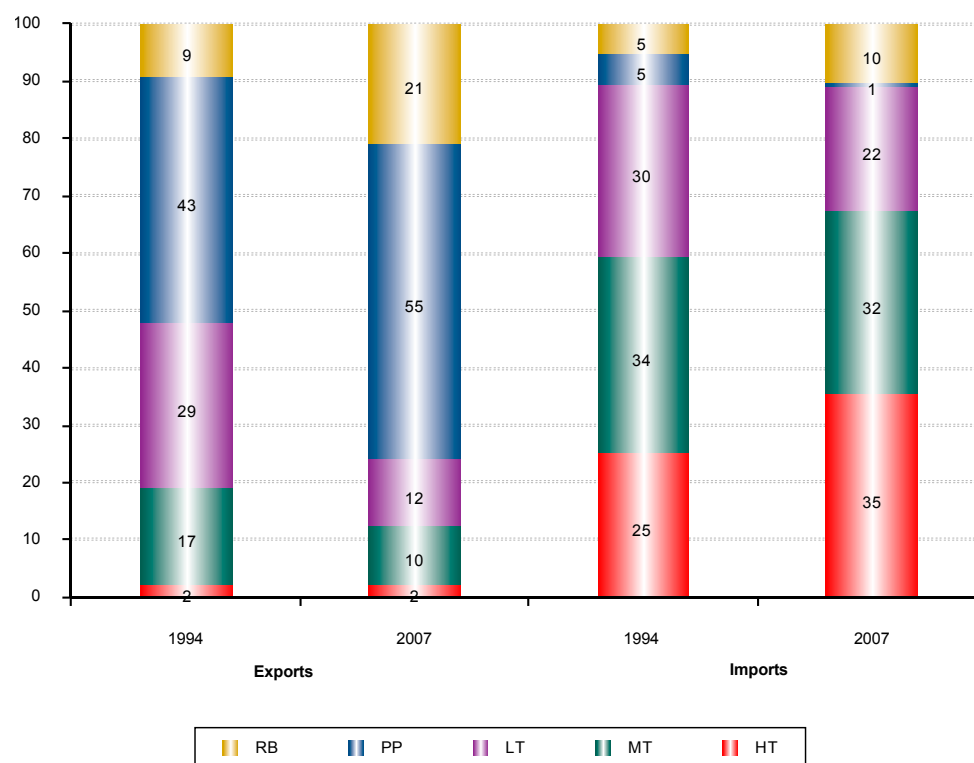
MAIN CHINESE EXPORTS TO BRAZIL IN 2007

SITC Code	Sectors	% of total exports	Yearly % (1994-2007)
5	Chemicals	11	32
6	Manufactured goods	15	31
7	Machinery and transport eq.	55	28
8	Miscellaneous manufactures	16	21
	Others	3	
2	Crude materials		17
3	Mineral fuels		14
0	Food and live animals		7
1	Beverages and tobacco		0
4	Animal and vegetables oils and fats		-8

Source: Authors' computations using Comtrade information.

Figure 3**BRAZILIAN TRADE WITH CHINA BY TECHNOLOGY-CONTENT**

Share of total exports, in %



Source: Authors' computations using BACI.

Brazil also exports manufactured goods to China.⁵ "Manufactured goods" constitute, in fact, the second category in the list of products exported to China. The exports of this group of products, however, are among those which expanded less between 1994 and 2007 (10% per year).

China's main exports to Brazil are "machinery and transport equipment", "miscellaneous manufactures" and "manufactured goods". The three groups combined represented 86% of the Brazilian imports from China in 2007. The most dynamic Chinese exports to Brazil in the 1994-2007 period were "chemicals", "manufactured

goods" and "machinery and transport equipment". The less dynamic groups were, in the other extreme, "food and live animals", "beverages and tobacco" and "animal and vegetable oils and fats".⁶

If trade data are analyzed by Broad Economic Categories (BEC), it is observed that, in the 1994-2007 period, Brazilian imports of capital and intermediate goods from China expanded more than the imports of consumer goods. More specifically, Brazil's imports of intermediate goods grew by 517% in the period under analysis and the imports of capital goods expanded

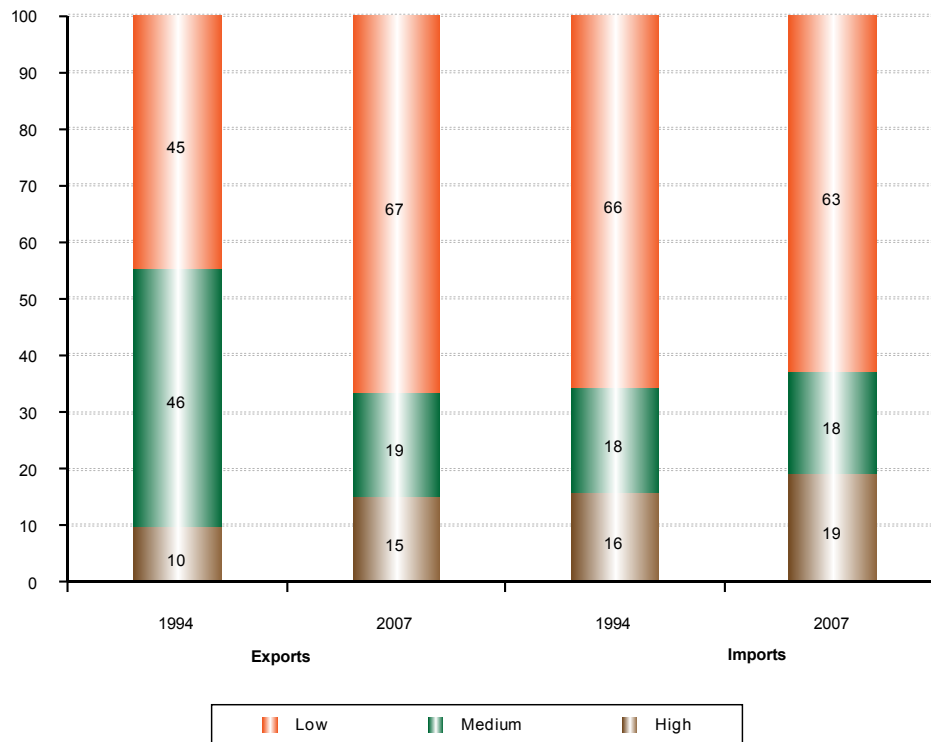
⁵ The Comtrade one-digit classification is used. There are ten groups of products, as shown in the table presented in the Annex.

⁶ The one-digit classification displays a more general picture of the trade relationship between Brazil and China. See the Annex for 2-digit and 4-digit data.

Figure 4

BRAZILIAN TRADE WITH CHINA BY QUALITY SEGMENT

Share of total exports, in %



Source: Authors' computations using BACI.

1200%, while the imports of consumer goods increased 308% in the same period.

Using the technological-content classification, the main change in Brazilian exports from 1994 to 2007 is the expansion of both the RB and PP groups, offset by a decline in the MT and LT groups, as can be observed in [Figure 3](#). The HT group remained virtually unchanged.

Regarding Brazilian imports from China, the most important change between 1994 and 2007 was the expansion of the HT group, as shown in the [Figure 3](#). The RB group also grew in 2007. On the other hand, the PP and LT groups were the main losers in the period.

These changes are in line with the claim (which will be formally analyzed below) that Brazil has comparative

advantages in the production of non-manufactured products, while China has advantages in the production of manufactured goods.

Looking at the change in the composition of trade flows with respect to the quality of the product, it is observed that the share of low-quality products (i.e. products with a low unit value) in Brazil's exports increased significantly from 45% to 67% *vis-à-vis* its total exports to China ([Figure 4](#)). The share of medium-quality goods declined drastically while the share of high-quality products rose from 10% to 15% between 1994 and 2007.

The quality composition of Brazilian imports from China remained practically unchanged in the period analyzed. The imports of low-quality goods in 2007

Table 3**SIMILARITY OF EXPORT STRUCTURES AT THE PRODUCT LEVEL**

1994								
	Asia (ex-China)	Brazil	China	Europe	Mexico	LATAM (ex-Mexico)	Rest of the World	USA
Asia (ex-China)	-	-	-	-	-	-	-	-
Brazil	0.14	-	-	-	-	-	-	-
China	0.26	0.18	-	-	-	-	-	-
Europe	0.12	0.21	0.19	-	-	-	-	-
Mexico	0.18	0.22	0.28	0.20	-	-	-	-
LATAM (ex-Mexico)	0.08	0.12	0.10	0.07	0.09	-	-	-
Rest of the World	0.06	0.07	0.08	0.06	0.06	0.05	-	-
USA	0.21	0.29	0.30	0.29	0.36	0.09	0.08	-
1997								
	Asia (ex-China)	Brazil	China	Europe	Mexico	LATAM (ex-Mexico)	Rest of the World	USA
Asia (ex-China)	-	-	-	-	-	-	-	-
Brazil	0.17	-	-	-	-	-	-	-
China	0.29	0.19	-	-	-	-	-	-
Europe	0.17	0.23	0.25	-	-	-	-	-
Mexico	0.21	0.26	0.33	0.28	-	-	-	-
LATAM (ex-Mexico)	0.09	0.13	0.10	0.09	0.11	-	-	-
Rest of the World	0.08	0.09	0.10	0.09	0.09	0.06	-	-
USA	0.24	0.35	0.35	0.36	0.40	0.12	0.11	-

Source: Authors' computations using BACI.

represented the largest share of Brazil's total imports from China. Therefore, on the one hand, the export and import structures are clearly complementary regarding the technological content while, on the other hand, most of the trade flow between Brazil and China falls within the same low-quality category.

THE SIMILARITY BETWEEN THE BRAZILIAN AND CHINESE EXPORT STRUCTURES

For a more precise assessment of the degree of competition between Brazil and China, an analysis was made to see to which extent the exports of both countries overlapped. Following Mulder *et al.* (2009), a similarity index ranging from 0 to 1 was

computed, with 0 meaning no overlapping at all (i.e. competition between the exports of Brazil and China is non-existent or very low) and 1 meaning perfect overlapping (i.e. competition is very high).

The similarity index of Brazilian and Chinese export structures at the product level remained relatively stable at low levels from 1994 to 2007, which indicates that the products that Brazil exports are not very similar to those exported by China (Table 3). More precisely, the similarity index was equal to 0.18 in 1994 and to 0.19 in 2007.

Although the overlapping between Brazilian and Chinese exports is more significant than between Latin America (excluding Mexico) and China, for example, the Brazil-China overlapping is much lower than the

overlapping between Brazil and some of its main trade partners. It is also lower than the overlapping between China and these regions. In other words, the overlapping of Brazilian and Chinese exports is relatively small *vis-à-vis* the overlapping that these two countries have with Mexico, USA and Europe. This, therefore, shows that competition between Brazil and China is restricted to a relatively limited number of sectors.

ASSESSING COMPARATIVE ADVANTAGES AND THE DEGREE OF TRADE COMPETITION

The analyses in the previous sections suggest that Brazil has comparative advantages in the production of commodities while China in the production of manufactures. This section will formally examine the products in which Brazil and China have comparative advantages.

To this end, the revealed comparative advantage indicator drawn from the CHELEM database has been used to compare the net exports of each product against the total exports of the country weighted by the market share of the product in world trade.⁷ By construction, a positive value for a certain product implies a specialization and therefore a comparative advantage (the higher the advantage, the higher the value). Accordingly, a negative value implies a lack of comparative advantages. All indexes sum up to 0.

Table 4 shows that the main sectors in which Brazil exhibits comparative advantages are the commodity-related sectors, which were, actually, the ones having trade advantages already in 1994. However, during these 13 years the country strengthened its advantages in these sectors. On the other hand, the country intensified its disadvantages in the sectors that were already less competitive in 1994.

An increase in the dispersion of comparative advantages should be expected given the opening process that Brazil went through in the period under analysis (Figure 5a). The same type of evidence -i.e. a greater dispersion of comparative advantages among sectors- is found when analyzing the Chinese case (Figure 5b). The opening of the Chinese economy

Table 4

REVEALED COMPARATIVE ADVANTAGE From ISIC Classification

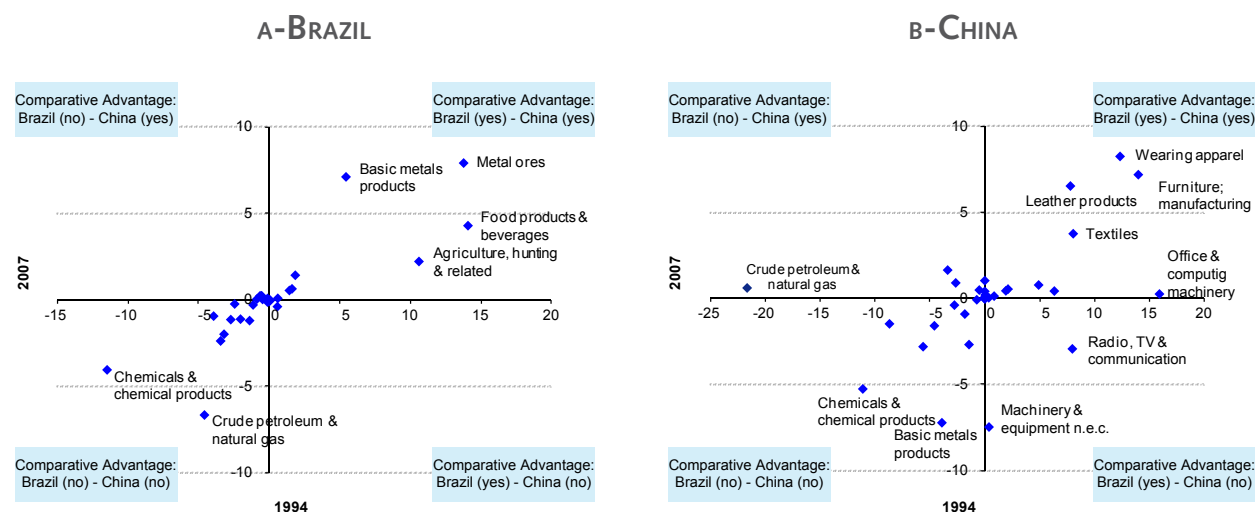
ISIC	Product	2007	1994
15	Food products and beverages	14.1	4.4
13	Metal ores	13.8	8.0
1	Agriculture, hunting & related	10.6	2.3
27	Basic metals products	5.4	7.2
19	Leather products	1.8	1.5
21	Paper and paper products	1.6	0.7
20	Wood & pr. exc. furnit.; straw	1.4	0.6
26	Other non-metallic mineral pr.	0.6	0.2
34	Motor vehicles and trailers	0.6	-0.3
16	Tobacco products	0.1	0.1
40	Electricity, gas and steam	0.0	0.0
93	Other service activities	0.0	0.0
12	Uranium and thorium ores	0.0	0.0
74	Other business activities	0.0	0.0
37	Recycling	0.0	0.0
2	Forestry, logging & rel. act.	0.0	0.0
92	Leisure, cultural & sport pr.	0.0	0.0
5	Fish, prod. of fish hatcheries	0.0	0.0
14	Other mining and quarrying pr.	-0.1	0.1
22	Publishing, printing & reprod.	-0.1	-0.1
36	Furniture; manufacturing n.e.c	-0.1	0.1
18	Wearing apparel; fur	-0.5	0.1
28	Fabr. metal pr. exc. machin.	-0.5	0.3
17	Textiles	-0.7	0.3
25	Rubber and plastics products	-0.9	0.1
31	Electr. machinery & apparatus	-1.1	-0.2
10	Coal, lignite and peat	-1.4	-1.1
30	Office and computing machinery	-2.0	-1.0
35	Other transport equipment	-2.5	-0.2
33	Medical & precision instr.	-2.7	-1.1
23	Coke, refined petr. pr., nucl.	-3.2	-1.9
32	Radio, TV and communication	-3.4	-2.3
29	Machinery and equipment n.e.c.	-3.9	-0.9
11	Crude petroleum & natural gas	-4.6	-6.6
24	Chemicals & chemical products	-11.5	-4.0
TT	Total	0.0	0.0

Source: CHELEM.

⁷ For this purpose, the CHELEM trade data and its provided indicators were used. See de Saint Vaulry (2008) for details and formulas.

Figure 5

DISPERSION OF REVEALED COMPARATIVE ADVANTAGE, 1994 vs. 2007



Source: CHELEM.

is likely to be the main driver of this movement. In the case of China, however, the sectors with higher comparative advantages are the manufacture-related sectors. On the other hand, its lack of advantages in the production of resource-based sectors is clear enough.

The number of sectors in which both countries have comparative advantages has declined since 1994, as shown in the Figure 6: in the Figure 6b for the year 2007, it is clear that the number of sectors in the “yes-yes” zone is lower than in the Figure 6a for 1994. The number of sectors in the “yes-no” zones is much higher in 2007 than in 1994, suggesting a high and increasing level of complementarity.

Taking advantage of the technological dimension of the dataset, the revealed comparative advantage indicator based on technology groups (instead of sectors or products) was calculated. According to the results shown in Table 5, Brazil has advantages in the PP and RB segments, and secondarily in LT products. The data for China confirms its complementarity with Brazil, as they indicate that China has advantages in the production of manufactures (LT and HT) and disadvantages in the RB and PP groups. These data

also show that, despite this general complementarity, Brazil and China compete in the LT market.

Finally, in order to measure the overall degree of complementarity between Brazil and China, two indicators deemed standard in the international trade literature were used.

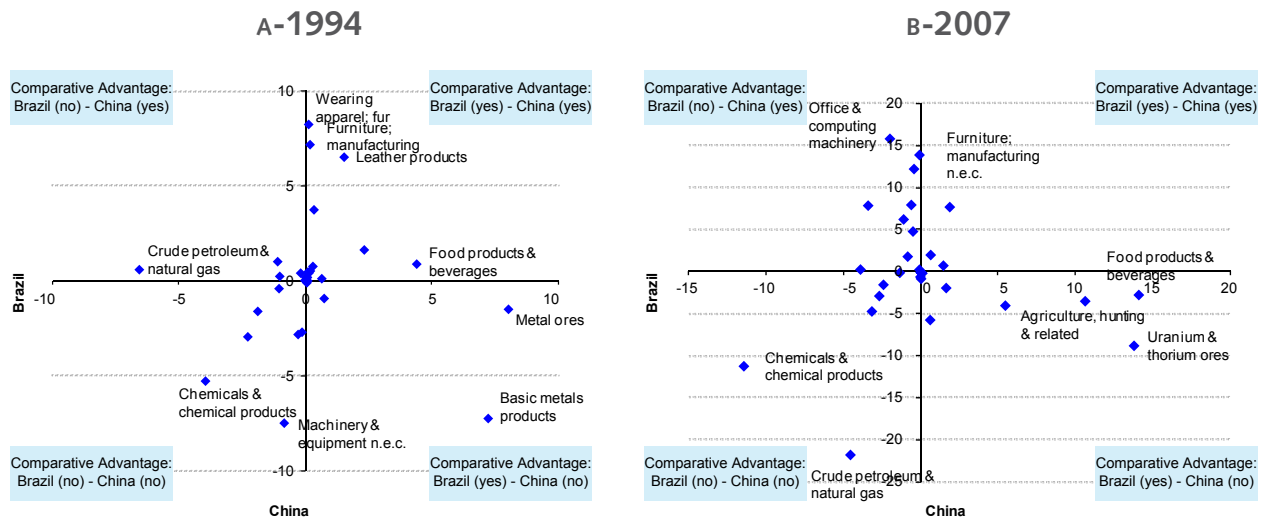
The first indicator is known as the “coefficient of specialization” and ranges from 0 to 1, 1 meaning that there is no complementarity between the overall exports of both countries and 0 that there is a perfect complementarity between the overall exports of the countries under analysis (see Blásquez-Lidoy *et al.*, 2004).

In the case of trade between Brazil and China, this indicator was 0.27 in 2007, confirming that the degree of complementarity between the two countries is high. The same indicator was 0.25 in 1997.

The second indicator analyzed is the complementarity index, which compares the export profile of a given country against the import profile of another country. It tends to 0 when one country does not export the same products imported by the other. It is higher

Figure 6

BRAZIL AND CHINA: DISPERSION OF REVEALED COMPARATIVE ADVANTAGE BY PRODUCTS



Source: CHELEM.

Table 5

REVEALED COMPARATIVE ADVANTAGE
By Technological Content*

Technology	1994	2007
Primary Products	1.20	14.25
Resource-Based	3.15	13.64
Low-Tech	10.17	5.12
Mid-Tech	-4.55	-12.40
High-Tech	-6.25	-12.84

Note: *Services are not included in the table. The comparative advantage index for services was -7.77 in 2007 and -3.72 in 1997 for Brazil and -9.98 in 2007 and 2.36 in 1997 for China.

Source: Authors' computations using BACI.

than 1 when there is complementarity between a country's exports and the other country's imports. This complementarity is, therefore, larger when the trade complementarity index is higher (see Anderson & Nordheim, 1993).

In 2007, the complementarity index between Brazil and China was 1.14, showing that these countries

are commercially complementary. This is the same result as the one reached with the coefficient of specialization analysis.

THE MARKET SHARE OF BRAZILIAN EXPORTS:
HOW DYNAMIC WERE BRAZILIAN EXPORTS DURING
THE EMERGENCE OF CHINA?

As suggested by previous literature and also by some of the evidence presented in this paper, although there is a general complementarity between their trade structures, Brazil and China compete in a set of manufactured products. Both the stimulus that China represents for Brazilian exports of commodities and the competition that the Asian country exerts in the market of manufactured products raise concerns regarding an excessive specialization of Brazil's exports in commodities as well as the deindustrialization of its external sales. To verify if this has actually happened in the last years, the performance of Brazilian exports in foreign markets was analyzed. In pursuing this objective, the technological and quality dimensions of our data were used.

Table 6

BRAZIL: SHARE OF BRAZILIAN EXPORTS IN FOREIGN MARKETS
By Technology Content

Technology	Year	Share of Total Exports	Asia (ex-China)	China	Europe	Mexico	LATAM (ex-Mexico)	Rest of the World	USA	Total
HT	1994	2.40	0.05	0.06	0.12	0.74	3.19	0.10	0.33	0.21
	2007	2.48	0.03	0.05	0.24	1.13	8.58	0.49	0.83	0.48
MT	1994	16.72	0.77	0.25	0.31	2.23	9.05	0.55	1.25	0.92
	2007	9.97	0.62	0.27	0.43	2.90	12.59	0.53	1.20	1.00
LT	1994	28.64	0.60	0.60	0.46	1.23	10.51	0.50	1.90	0.99
	2007	11.60	0.31	0.73	0.44	1.15	9.80	0.41	1.10	0.77
PP	1994	43.14	1.66	1.05	4.40	0.83	7.16	2.21	4.04	3.26
	2007	55.29	3.46	9.38	4.86	0.59	8.78	6.56	3.39	5.24
RB	1994	9.09	1.97	1.89	1.27	1.66	11.48	1.53	2.57	1.85
	2007	20.67	1.08	1.11	1.30	2.01	12.90	2.23	2.59	1.84

Source: Authors' computations using BACI.

The total share of Brazilian exports in global markets increased timidly from 1.11% in 1994 to 1.21% in 2007. By regions, the share of exports to USA, Europe and Asia (excluding China) declined, while the share of Brazilian total exports to Latin America, China and the Rest of the World expanded.⁸

Analyzing the technological dimension of the data, the share of Brazilian PP exports in the world market expanded from 3.26% to 5.24% in the 1994-2007 period, mainly due to an expansion of the share of Brazilian PP exports in China's market (this share increased from 1.05% to 9.38%, *Table 6*). Although there was a significant expansion of the volumes exported, the higher price of primary products could also be a driver of this growth. Brazilian HT exports also expanded significantly their share in the global market, although they still remain at small levels. More precisely, the share of HT exports in the global market more than doubled, increasing from 0.21% in 1994 to 0.48% in 2007. Moreover, an expansion was also

observed in the most important markets for Brazilian exports, namely Europe, Latin America and United States.⁹ Regarding other technological groups, MT and RB shares in world markets remained basically stable, while the share of LT exports dropped the most, from 0.99% in 1994 to 0.77% in 2007.

Therefore, the main evidence derived from the analysis of the technological dimension of Brazilian trade from 1994 to 2007 is that the PP and HT groups have been gaining ground in international markets, while LT exports have been losing market share. The exports of PP to China are clearly behind the overall expansion observed in the PP group (incentives provided by increasing commodity prices are also a driver for this result, but to some extent the upward commodity prices trend seems also to be a consequence of China's emergence). The expansion of HT and the weakening of LT external sales seem to be related to the fierce competition of Chinese LT products, which could have helped shift Brazilian exports towards more

⁸ See the Annex for more data on this issue.

⁹ See the Annex for more information on Brazilian exports by destination.

Table 7**BRAZIL: SHARE OF BRAZILIAN EXPORTS IN FOREIGN MARKETS****By Quality Segment**

Quality	Year	Share of Total Exports	Asia (ex-China)	China	Europe	Mexico	LATAM (ex-Mexico)	Rest of the World	USA	Total
High	1994	10	0.51	0.23	0.53	1.76	7.01	0.47	0.87	0.69
	2007	15	0.35	0.43	0.59	2.50	8.86	0.72	0.76	0.80
Medium	1994	46	1.39	0.89	0.85	1.45	7.85	0.86	1.41	1.21
	2007	19	0.65	0.37	0.95	1.29	13.09	1.32	1.53	1.28
Low	1994	45	0.95	0.51	1.23	1.62	10.62	1.12	2.65	1.66
	2007	67	0.99	1.70	0.94	2.53	11.73	1.42	1.66	1.60

Source: Authors' computations using BACI.

technological groups. Anyway, this shift towards more technological exports contradicts what is suggested by other publications.

With respect to the quality dimension of exports, in the 1994-2007 period Brazilian external sales of high-quality (H) products expanded from 18% to 21% while the exports of medium-quality (M) goods remained stable at 38% and the share of low-quality (L) goods in Brazilian exports dropped to 42%.

The market share of H exports expanded the most among the quality groups in the period analyzed. In 1994, the share of Brazilian H exports in foreign markets was equal to 0.69%, and in 2007 this figure rose to 0.80% (*Table 7*). The share of M exports in foreign markets expanded less in the same period, from 1.21% to 1.28%. On the other hand, L exports lost ground in global markets. In 1994, the market share of Brazilian L exports was 1.66%, and in 2007, it declined to 1.6%.

This general evidence of an increase in the market share of high-quality products and of a decline in the market share of low-quality products was also observed in Latin America, Europe and USA.

This result is in line with the evidence that emerged from the analysis of the technological dimension. From 1994 until 2007, as China emerged as a giant player in international trade markets, Brazil managed

to significantly increase its share of products of more technological content and higher quality in the global market. On the other hand, low-technology and low-quality goods lost ground in global markets. It is worth noting that this shift towards more technological and higher quality products took place especially in the markets that are key for Brazilian exports, namely Europe, Latin America and USA. This weakens the view that the emergence of China would imply the deindustrialization of Brazilian exports, and also highlights the importance of conducting further research on the impact of China on Brazil.¹⁰

FINAL COMMENTS

In recent years, Brazil and China have undergone an economic integration process based on the opening of their economies, the strength of their domestic demand, and their complementary factor endowments. Despite some competition in the production of

¹⁰ The analysis of whether the expansion in the market share of Brazilian exports between 1994 and 2007 was driven mainly by a growth in volumes or by an increase in prices is a matter left for future research. The results obtained in this paper could also be determined by the price effect rather than only by the quantity effect.

some manufactured products, Brazil and China are commercially complementary in general terms.

Brazil has benefited largely from this complementarity as its exports of commodities to China have accounted for the expansion of Brazilian total exports. Increasing imports from China, on the other hand, could have helped increase the competitiveness of Brazilian exports due to a price effect, as the imports of intermediate and capital goods from China were more dynamic in the last years than the imports of consumer goods. Finally -contrary to what was expected by many-, Brazil was able to increase its market share of high technological content and high-quality products.

This last piece of evidence shows that concerns regarding the deindustrialization of Brazilian exports were probably exaggerated. Excessively negative were also the concerns about a potential shift of FDI flows from many emerging countries -including Brazil- to China. The evidence accumulated in the last years indicates that China was able to attract large capital flows without diverting capital flows away from Brazil. Although in the future this evidence should not take the attention away from the challenges raised by this type of economic integration, it should help us prevent over-alarmist reactions to other economic integration processes that may take place in the future. ♦

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ANNEX

Table A.1**BRAZILIAN MAIN EXPORTS TO CHINA IN 2007**

SITC Code	Sectors	Value US\$ million	Yearly % (1994-2007)
06	Sugar and sugar preparations, honey	329	13
08	Animal feed stuff	3,850	28
12	Tobacco and tobacco manufactures	731	19
25	Pulp and waste paper	840	93
27	Crude fertilizers	2,832	-
33	Petroleum and petroleum products	211	3
42	Fixed vegetables fats and oils	425	27
51	Organic chemicals	331	5
68	Non-ferrous metals	275	30
78	Road vehicles	801	18
0123	Poultry, meat and offal	446	9
1212	Tobacco, wholly or partly stemmed/stripped	275	24
2222	Soya beans	2.832	-
2515	Chem, wood pulp	387	10
2815	Iron ores and concentrates, not agglomerated	3.125	11
2816	Iron ore agglomerates	591	9
3330	Crude petroleum	840	-
4211	Soya bean oil	328	53
6114	Bovine and equine leather	713	6
6726	Semi-finish iron and steel	100	36

Source: Authors' computations using Comtrade information.

Table A.2**CHINESE MAIN EXPORTS TO BRAZIL IN 2007**

SITC Code	Products	Value US\$ million	Yearly % (1994-2007)
51	Organic chemicals	517	17
65	Textile yarn, fabric, etc.	722	18
67	Iron and steel	446	44
69	Metals manufactures	378	21
74	General industrial machinery	721	18
75	Office machines and ADP machines	1	31
76	Telecommunication and sound record machines	2	18
77	Electrical machinery	2	23
87	Scientific equipment	642	29
89	Miscellaneous manufactured goods	618	11
3250	Coke of Coal	211	6
5629	Fertilizers	216	-
7527	Storage units	235	-
7599	Data process. mch	495	31
7649	Telecommun. equipt.	1	26
7638	Sound,video recording	326	41
7712	Electrical power mach.	217	26
7764	Electronic microcircuits	374	27
7781	Batteries, accumulators	213	32
8719	Liquid crystal devices and lasers	524	33

Source: Authors' computations using Comtrade information.

Table A.3**BRAZIL: SHARE OF BRAZILIAN EXPORTS IN FOREIGN MARKETS****By Broad Stage Classification**

Quality	Year	Share of Total Exports	Asia (ex-China)	China	Europe	Mexico	LATAM (ex-Mexico)	Rest of the World	USA	Total
Consumption	1994	21	0.5	0.2	0.6	0.6	6.7	0.6	1.3	0.8
	2007	22	0.7	0.9	0.5	3.1	9.8	1.5	0.6	1.0
Investment	1994	56	1.2	0.8	0.8	1.7	12.2	0.8	1.7	1.3
	2007	50	0.6	0.5	0.8	1.5	13.2	1.0	2.0	1.2
Capital	1994	11	0.1	0.1	0.2	2.0	5.8	0.5	0.7	0.6
	2007	16	0.3	0.1	0.4	2.4	10.0	0.8	1.2	1.0
Primary	1994	12	1.6	0.2	4.6	0.9	4.8	1.7	5.9	3.2
	2007	12	2.4	6.5	5.2	0.7	6.4	2.9	4.6	4.3

Source: Authors' computations using BACI.

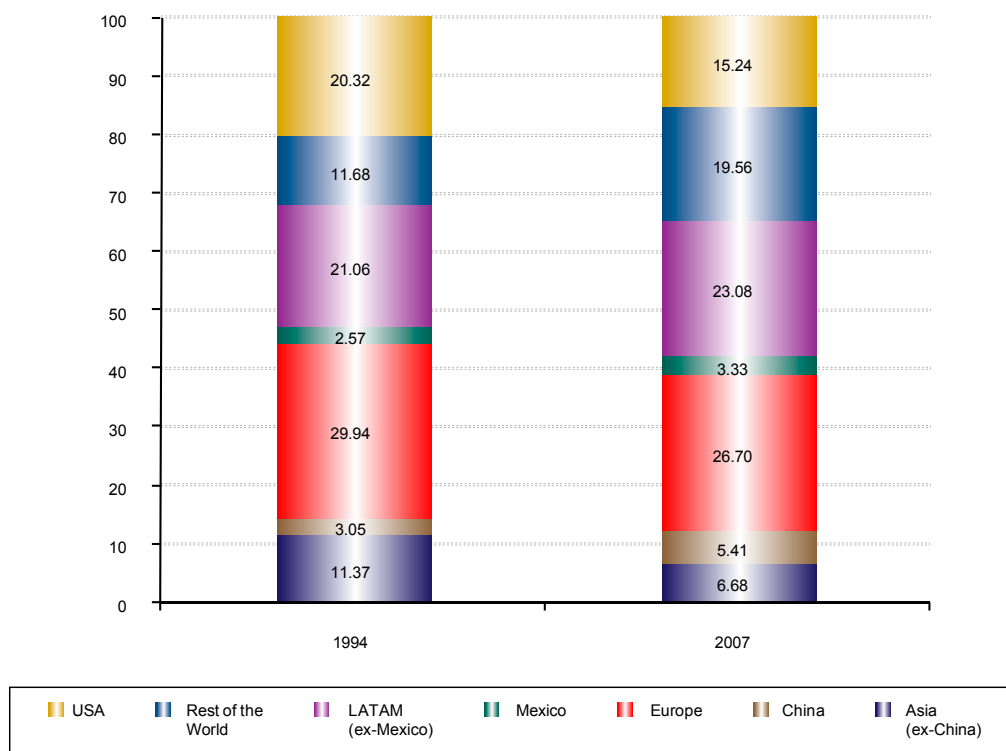
Table A.4**CHINA: SHARE OF CHINESE EXPORTS IN FOREIGN MARKETS****By Broad Stage Classification**

Quality	Year	Asia (ex-China)	Brazil	Europe	Mexico	LATAM (ex-Mexico)	Rest of the World	USA	Total
Consumption	1994	18.1	4.4	5.4	3.4	11.3	8.7	14.4	11.4
	2007	32.9	13.6	9.2	12.7	16.0	13.4	22.0	15.5
Investment	1994	5.8	2.0	1.2	0.6	2.2	3.3	3.1	3.7
	2007	19.5	10.4	5.1	8.3	9.3	9.7	12.7	10.1
Capital	1994	3.7	1.5	1.5	0.6	1.1	1.8	4.4	3.2
	2007	26.4	17.7	12.0	17.1	10.4	12.8	27.2	17.0
Primary	1994	8.5	0.3	1.4	0.4	0.3	3.1	1.8	4.0
	2007	6.2	0.9	1.4	0.7	0.5	2.6	3.7	3.0

Source: Authors' computations using BACI.

Figure A.1

BRAZILIAN EXPORTS - BY REGION
Share of total exports, in %



Source: BACI.

Table A.5**CHINA: SHARE OF CHINESE EXPORTS IN FOREIGN MARKETS****By Technology Content**

Quality	Year	Asia (ex-China)	Brazil	Europe	Mexico	LATAM (ex-Mexico)	Rest of the World	USA	Total
HT	1994	4.95	2.88	2.05	0.92	2.26	3.29	5.00	4.50
	2007	24.19	19.71	12.40	21.86	15.07	15.24	26.06	18.33
MT	1994	4.56	1.83	1.26	0.77	2.25	2.14	2.79	2.96
	2007	19.02	8.52	4.37	5.93	8.04	7.83	10.79	8.25
LT	1994	22.39	8.80	7.62	2.70	15.78	13.01	22.82	16.03
	2007	42.70	24.37	15.02	13.76	23.43	23.50	36.71	24.54
PP	1994	10.23	1.02	1.32	0.39	0.96	3.62	2.57	4.24
	2007	10.78	1.79	1.77	1.44	1.23	3.18	5.55	4.01
RB	1994	7.29	0.63	0.76	0.37	0.72	2.70	1.72	2.84
	2007	14.95	7.05	2.52	3.50	6.74	6.79	7.01	5.96

Source: Authors' computations using BACI.

Table A.6**CHINA: SHARE OF CHINESE EXPORTS IN FOREIGN MARKETS****By Quality Segment**

Quality	Year	Asia	Brazil	Europe	Mexico	LATAM (ex-Mexico)	Rest of the World	USA	Total
High	1994	3.4	0.8	1.1	0.8	0.7	1.6	1.9	1.8
	2007	12.0	6.8	3.5	8.0	7.3	6.5	6.0	5.7
Medium	1994	10.0	1.2	2.5	0.8	2.0	2.9	5.3	4.6
	2007	22.3	8.7	6.6	9.9	9.8	11.0	22.2	14.1
Low	1994	12.7	4.5	4.1	1.4	6.9	8.1	16.5	10.9
	2007	32.1	18.3	13.4	13.2	14.4	15.0	22.2	18.2

Source: Authors' computations using BACI.



I N T E R V I E W S



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- **2008 saw the onset of the most serious financial and economic crisis since the Great Depression, with its epicenter in the developed countries. Since 2010, we have been witnessing the so-called euro crisis, which has so far mainly hit Southern Europe. This period of crisis has affected economic and financial relations around the globe. How do you view the situation in South America?**

South America is living through an important moment in its history. In spite of the 2008 global financial crisis, South America has seen the rapid recovery of its economies. In the period between 2003 and 2010, the growth in the per capita Gross Domestic Product (GDP) in the region was over 24%. This growth is reflected in the region's average Human Development Index (HDI), classified by the United Nations in 2011 as high.

But, when it comes to investments in infrastructure, the picture is very different. Whereas investments in the sector over the period 1980 to 1985 accounted for 4% of GDP, in 2007 and 2008 the number dropped to 2.3%, when we should be investing 5% to 6% of GDP in the region to ensure quality infrastructure.

South America has got over its foreign debt and now has US\$750 billion in reserves that can be used as collateral to finance private sector infrastructure projects.

- **Do you think the economic boom of the 2000s and the ability to withstand international crises will be last features? What are the region's strengths and challenges?**

Brazil has steered its way through the 2008 financial crisis with fairly comfort by keeping to sound macroeconomic fundamentals and benefiting from the high commodity prices in the years leading up to the crisis.

Today the situation is different: the Chinese economy is gradually slowing and the developed countries are showing no outward signs of recovery.

We can't just rely on the foreign appetite for commodities to maintain sustainable growth. Microeconomic reforms should be implemented so that not just Brazil but South America as a whole has greater dynamism and confidence to tackle the challenges looming on the horizon. We have to think long term and, for that reason, it is vital to think about regional integration. Infrastructure is a crucial issue if the region is to achieve greater competitiveness, but for that to be feasible, it's necessary to balance political differences and candidly seek to achieve common goals.

- **In recent years, a number of factors have clearly shown to be determinants for economies' systemic competitiveness. What importance do you allocate to a country's physical infrastructure in this respect, and likewise to regional connectivity and infrastructure integration?**

Infrastructure investments are a key element in South America's economic and social development. If you have the right infrastructure you have a direct reflection of the degree of competitiveness, which increases productivity and reduces production costs in economic goods.

Greater infrastructure integration in the region will also contribute to social development, allow the connection of less developed areas with the main economic activities and offers people new opportunities. What's more, investments in infrastructure sectors, like basic sanitation, transport, energy, and telecommunications, have positive effects on people's health and education.

The continent's physical infrastructure is still inadequate. There are almost no rail connections in the continent and investments are thin on the ground. The road system is predominantly used for freight, but it is not competitive and is a major emitter of greenhouse gases. There are no Atlantic-Pacific logistics that benefits from the huge potential of navigable waterways in the north of the continent, nor the great rail potential in the center and south.

South America is facing a far more sophisticated agenda. We need an infrastructure that will bring down logistics costs across the continent and make our products more competitive. We need to reduce bureaucracy and increase efficiency at border crossings, and free transit across the continent.

- **In recent years, the Union of South American Nations (UNASUR) has, among other issues, been actively involved with the development and integration of regional infrastructure. How do you view UNASUR's actions in this field?**

Aware of these and many other obstacles, the South American Infrastructure and Planning Council (COSIPLAN), made up of infrastructure ministers from the twelve governments

of UNASUR, adopted its first Integration Priority Project Agenda (API), in Brasilia, Brazil, November 2011. The API coordinates eight hubs to promote South American physical integration, through 31 infrastructure projects, divided into 88 individual projects totaling over US\$21 billion in new investments.

In the first few months of this year, the São Paulo State Federation of Industries (FIESP) visited the governments of almost all South American countries. With the support of COSIPLAN, UNASUR, and Brazilian embassies, FIESP has updated and standardized the data for all these projects through a common methodology, compiled in *8 South American Infrastructure Integration Hubs*, launched at the “8 Integration Hubs South America Infrastructure Forum” at FIESP headquarters in April 2012.

The Forum brought together representatives of twelve governments, development banks, construction companies, contractors, and investors across South America. It was organized by the Brazilian private sector in close collaboration with Paraguay's *Pro Tempore* Presidency of COSIPLAN, and the UNASUR General Secretariat, and the Brazilian government through its Foreign Affairs, Transport, and Planning Ministries.

One of FIESP's main goals has been to disseminate COSIPLAN's project portfolio, while bringing public officials closer to the private sector.

Furthermore, with the Brazilian government and the Inter-American Development Bank (IDB), we have recently supported UNASUR's initiative for the construction of the South American Intercontinental Optical Ring with a video launched at the 4th FIESP Telecommunications Seminar.

- **You stress the importance of UNASUR's project portfolio, which contains national and plurinational projects, and requires joint decision making and the coordination of actions between governments and private actors from various different countries. What, in your view, is the added value of regional action in this field?**

I understand that the implementation of that project agenda is essential for regional development. The importance of the API is not restricted to a specific country, but to the continent as a whole.

This integration project agenda forms the basis of a solid projection for the Southern countries in the international context. We need to develop the region's competitiveness and minimize logistics costs, while enhancing the dynamism of interregional trade, and seeking cohesion and consensus with the external alignment.

It isn't an easy task, but we have to be perseverant and pragmatic in working toward future benefits.

- **In 2011, after a major intergovernmental cooperation effort, the twelve South American countries agreed a Strategic Action Plan (PAE) and an Integration Priority Project Agenda (API), comprising 31 structured projects (88 individual projects). What initiatives would you highlight as most significant?**

Of the API projects, I would pick the construction of three bioceanic corridors to connect the continent via infrastructure corridors: to the north by waterway, and to the center and south by rail, connecting the Atlantic and Pacific Oceans quickly and safely.

I would also draw attention to the proposal to build the optical ring and to the focus on greater energy integration, in order to consolidate unification of the continent.

Apart from physical integration, the idea of the South American optical ring is a strategic project involving the participation of development agencies, and each country's public and private initiatives.

The aim is to build border networks that to date have no connections, such as between Peru and Brazil. This would stimulate regional integration and consolidate the countries' sovereignty.

To give you an idea, at present, an e-mail sent between neighboring cities in Brazil and Peru travels to United States via cables in the Atlantic Ocean, and then back down across the Pacific to Peru -a journey of 8,000 km. for a distance of only 300 km. It's impossible to speak of sovereignty and integration.

With the completion of the optical ring, regional data traffic will no longer need to be diverted via United States, and will cut costs and increase speed and security.

- **Given the importance of these initiatives, why delay the implementation of certain investments? Is the private sector in a position to carry these projects forward?**

It's important to understand the complexity of these projects. Each country has its own specificities, laws, and interests.

The sector's institutional arrangement needs to be redrawn; it is vital for entities to work together toward the effective implementation of the region's long-term strategic planning.

Private initiative must play a central role in this process so that, through concessions and public-private partnerships (PPPs), projects could be executed faster and more efficiently.

In this way, the creation of a common regulatory framework for the different infrastructure sectors would give the region a secure and favorable environment to attract private investment.

Bureaucracy is, unfortunately, delaying the dynamics of this process, but greater political coordination among the region's governments would be beneficial to add and group common interests and overcome existing obstacles.

The physical integration of transport infrastructure in South America emerges as a viable solution to the major logistics challenges.

South American countries can no longer be considered as separate.

- **What do you think of the recent infrastructure measures announced by President Dilma Rousseff?**

The US\$66 billion road and rail concession package demonstrates a sea change in economic management, handing the private sector the role of allocating the necessary resources, and of bringing in technological innovations and a more efficient management model for these segments. This initiative directs the private sector toward implementing what it demonstrably does best and puts the government in its proper role, which is to plan, regulate, and monitor.

The sector's institutional organization was in need of being redrawn: it is essential for the authorities to work together toward the effective implementation of a long-term strategic planning system. This was the government's aim with the creation of the Planning and Logistics Company (*Empresa de Planejamento e Logística* - EPL), which must structure a plan to provide a rationale for investments and synergy in the various different project. This company follows in the footsteps of the Energy Research Company (*Empresa de Pesquisa Energética* - EPE), a major coordinator of public and private initiatives.

In spite of the obstacles, Brazil has real opportunities to balance and diversify its transport network across the various different project, by combining competitive prices, low emissions, and logistic rationality. Its extensive coastline and large number of navigable rivers, for example, allow for a substantial expansion of transportation by waterways. The rail modality, which represents just 25% of the freight handled in the country, will be comprehensively restructured and great potential for growth can be expected with the new system. It will be down to EPL to have an effective driving role so that, through efficient planning, Brazil can strive toward excellence in logistics.

The US\$66 billion, 60% of which are planned for the next five years, reflect the government's assertive positioning regarding the current status of the country's infrastructure. It's now imperative to bring continuity to the process with flexibility and transparency, while focusing on efficiently meeting the deadlines.

Another important point to be highlighted that positively affects the competitiveness of domestic products is the tariff cuts in the electricity sector announced by President Dilma Rousseff September 11. FIESP has been working tirelessly for a year and a half toward bringing down energy prices through the *Fair Price Energy* campaign. According to studies carried out by FIESP's Infrastructure Department and submitted to the government over the last year, electricity bills will be cut by 20% with the elimination of the amortization of investments. The government recently announced the elimination of tax on energy in order to bring down the cost of energy bills. The cut will be 16.2% for home and small business consumers, and 28% for industries on the high voltage grid. The average cut will be 20.2%.

FIESP's next steps will be to analyze the Government's methodology for executing the cut and to check whether the announced discount really will bring about a rational energy price for all. The calculations will be announced at public hearings and extensively discussed with society at large in order to ensure the transparency of the process.

However, the right thing for FIESP to do would be to obey the constitution and hold the tendering for concessions that are running out in order to ensure fair prices dictated by the competition in each specific case.

- **South America has considerable renewable and non-renewable energy resources, and has a combination of countries with energy surpluses and deficits. In your opinion what is the role of energy integration in the future of South America, both in terms of economic and social development, and the protection of the environment?**

In energy, South America is making progress in the use of renewable sources for energy production, and there are prospects of further improvements in this indicator over the coming decades.

Almost 60% of electricity production comes from clean, renewable resources -primarily hydroelectric- responsible for 56% of the total generated, and contributing just 6 kg. of CO₂ per unit of energy.

The region has vast hydroelectric potential, which must be the basis for the expansion of its electrical power systems. Only 23% of the region's potential has been tapped so far.

FIESP feels that the world's water resources must be extensively exploited with hydroelectric plants, considering their very low level of greenhouse gas emissions, once environmental and social compensation actions are guaranteed.

Energy integration is an important stepping stone to the efficient use of resources, with the exploration of lower-cost energy resources and complementarity across electrical systems. It provides regional development, greater energy security, and the diversification of energy sources and economies of scale.

For FIESP, the private sector has a leading role in achieving the goal of the concrete integration of South America. With this in mind, I have, at IDB's invitation, given presentations in various countries -most recently Peru- in order to highlight the importance of developing close joint work between public officials and the private sector, thereby speeding up the timetable for these works and enhancing the competitiveness of countries in the region.

* Books: *Brazil: Advancing Future Energy* (2009), *Mercados Energéticos en Américas y el Caribe* (2010), *Mercados Energéticos en África* (2011), and, more recently: *8 ejes de integración de la infraestructura de América del Sur*. Articles published in: *Valor Económico*, "La opción multilateral" (2008), "De Copenhague a Ginebra" (2009), "Brasil, EE.UU y la agenda comercial necesaria" (2011), and "Diálogo de Mudos" (2012); and *Brasil Económico*, "El Ministro y el Barón" (2010)

ANDRÉ MELONI NASSAR (ICONE)



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- **What main agri-food products do agro-industries produce?**

Brazil's agriculture is considerably diversified. Brazil ranks number three in the world exports of agricultural products. Number one is sugar, coffee, and broiler and beef meat. Indeed, Brazil is a leader exporter of such commodities, and ranks second in exports of soybeans. [Click appendix, slide 1.](#)

- **What are the development projections for these products in the medium and long-term? How are products distributed between the domestic and the export markets? What dynamics of expansion is foreseen for these products?**

In answer to both questions, Brazil will play a major role in export growth of agricultural commodities. In the last few years, Brazilian growth has been above the world average. According to [Outlook Brazil 2022 - Agribusiness Projections](#) (a study conducted jointly by ICONE and the Federation of Industries in the State of São Paulo (FIESP), and released this year), between 2002 and 2011, the world annual growth of beef meat accounted for 2.3% as compared to Brazil's 5.1%. These projections anticipate a world growth of 2.5% and a Brazilian growth of 4.3%, between 2012 and 2022. Similar results are expected for Brazilian production of broiler meat.

As to soybean, Brazilian performance has also been satisfactory: between 2002 and 2011 annual growth amounted to 7.8% as compared to 6.5% world growth in the same period. Between 2012 and 2022, the world is projected to grow by 1.8%, whereas Brazil's growth projections are estimated at 3.6%. As regards corn, its expansion was 20.7% in Brazil, and

2.3% in the rest of the world in 2002-2011; however, these growth projections are expected to converge in future years.

Growth in the Brazilian sugar market was also positive -8.2% as compared to a world rate of 2.8%- between 2002 and 2011. Projections estimate world growth at 1.4% and Brazilian growth at 2.2% for coming years.

Grain production is expected to increase by 30% between 2011 and 2022.

These commodities may be broken down as follows:

	Export Market (in %)	Domestic Market (in %)
Soybean	45	55
Corn	16	84
Sugarcane	72	28
Rice		100
Cotton	50	50
Broiler meat	31	59
Pork	17	83
Beef	15	85

The gross domestic product (GDP) of the analyzed sectors is estimated to grow 42%, thus amounting to R\$578.3 billion instead of R\$408.3 billion. This R\$169.9 billion rise will contribute 6% of the projected growth of Brazilian total GDP from 2010 to 2022.

- **How has internationalization of some Brazilian businesses helped them to increase their share in the global economy?**

The agribusiness sector with the highest rate of internationalization (Brazilian firms abroad) was the meat sector, mainly beef and broiler meat. In beef meat production, the strategy consisted in buying firms abroad to produce locally, as done by JBS and Marfrig. In the case of broiler meat, offices were opened up and a logistics structure was created abroad to act as a Brazilian export platform, as BR Foods did.

- **What foreign direct investment (FDI) initiatives have been undertaken to develop some of the agri-food industry segments?**

Foreign industries also invest in Brazilian agri-industries, mainly in dairy products, juice, coffee and sugarcane. Soybean traders, for instance, are foreign firms except for Grupo Maggi and cooperatives. Likewise, foreign pension funds invest in agriculture, and land use projects.

- **Which innovations in terms of products and processes have most significantly contributed to the expansion and diversification of Brazilian agribusiness?**

Brazil largely incorporated technology in agriculture. The expansion of production was due to a rise in productivity resulting from the use of technology. In 1996-1997, for instance, the

production of grains and oilseed amounted to 47 million tons and it reached 157 million tons in 2011-2012, the expansion of no other sector being as considerable. [Click appendix, slide 2.](#)

The total factor productivity (capital, labour, and product) demonstrates the efficient use of resources, and productivity gains result from greater efficiency in production. Between 1990 and 1999, Brazil was second only to China; between 2000 and 2007, Brazil was the country with the highest total factor productivity, which clearly shows the benefits of using technology. [Click appendix, slide 3.](#)

Brazil's innovation surpasses other countries': it has implemented techniques to improve soil quality, such as those used to grow grains in the *Cerrado* region (arid and low-fertility soil), where several seeds were also evaluated and adjusted to weather conditions; it has implemented no till farming, in which stubble is left on the soil's surface; and it has adopted an innovative approach to the integration of chains -broiler an pork with grains.

- **How has Brazil managed to articulate these extremely dynamic processes with environmental protection in order to achieve sustainable development?**

In Brazil, the productive sector recognizes the impact of agriculture on the environment. The country has quickly adopted techniques, like no-till farming, to make production more efficient and environmentally friendly. For example, nitrogen is no longer used in soybean production, because biological nitrogen fixation was found contributing substantially to CO₂ emissions reduction. Crop rotation is also a far more common practice nowadays. Brazil promotes discussions over the importance of boosting agricultural productivity without extending cultivated land. The country possesses a legal framework -for example, the Forest Code- which, though difficult to comply with, regulates agriculture to turn it more sustainable. Watershed management is increasingly under debate in Brazil, and several studies are being undertaken on environmental impact and solutions to mitigate it. Brazil is the leader in large-scale, high-efficiency agriculture, and it is at the forefront of sustainability certification standards for soybean, sugarcane, and cotton.

* He created and coordinated the Brazilian Land Use Model (BLUM), developed by ICONE. He has been responsible for international relations with ICONE's partners and sponsors: associations, businesses, Federal Government agencies -especially the Ministries of Foreign Relations, Agriculture, Industry and Trade, Economy-, and non-governmental organizations. He is also in charge of communication and is the main opinion maker at ICONE. He has published more than 50 articles in the State of São Paulo newspaper, all of them focused on key issues concerning Brazilian agribusiness. He has been a visiting scholar at the School of Foreign Services, Georgetown University (Washington, USA).



ROSARIO SANTA GADEA (CEPEI & UNIVERSIDAD DEL PACÍFICO)

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- **What is your view on the international integration of Peru today? What are the main constraints today and the priorities for tomorrow?**

Peru has attained a robust macroeconomic performance in the last ten years. This is a necessary basis for our country to reach out to the world. Without it, we would not be able to attract both domestic and foreign investment, nor would it be reasonable to hope to improve our export competitiveness and diversify our export supply and destination markets.

According to data from the Ministry of Economy and Finance (MEF) of Peru,¹ the Gross Domestic Product (GDP) has grown threefold in the last decade, and the average inflation has been the lowest in Latin America. Our public debt, as a percentage of the GDP, has been brought down to less than half, accounting for 21.2% of the GDP in 2011, and Peru has accumulated Net International Reserves (NIR) of nearly a third of its GDP. At the same time, the country has reaffirmed its commitment to fiscal responsibility, as reflected in the 2011 economic balance sheet of the General Government (including operations of the three levels of Government: national, regional and local) which was 1.8% of the GDP. In addition, the country's total export value has grown sevenfold in this period, while the net inflows of Foreign Direct Investment (FDI) have been increasing yearly, from US\$ 0.8 billion in 2000

¹ Castilla, Luis Miguel. (Minister of Economy and Finance), presentations delivered at different forums: "Perú: Perspectivas Económicas y Sociales". January 2012; *II International Seminar "Perspectives for Development: Public Finance and Development in Latin America"*, University of the Pacific and Development Bank of Latin America (CAF), May 2012; "Estado Actual y Retos a Futuro de la Economía Peruana", *XVII International Symposium*, University of the Pacific and the Peruvian Center for International Studies (CEPEI), October 24, 2012; *Opening Lecture* from the Latin America and Caribbean Economic Association (LACEA), University of the Pacific, November 1, 2012.

to US\$ 8.1 billion in 2011. In 2011, FDI accounted for 4.7% of the GDP, outperforming Colombia, Brazil and Mexico.²

Another positive aspect is that, between 2001 and 2010, Peru's average annual growth rate was higher than in the three previous decades. Today's growth rate is over 6%; therefore, the country has one of the fastest-growing economies in the world. An important factor is that almost half of this growth may be accounted for by Peru's increased productivity.³

Thus, Peru has had a sound and sustained macroeconomic management, has implemented an economic policy aimed at opening up to the world, and has strived to create an investment-friendly climate for domestic and foreign private capital. In fact, during this period, Peru has been raised to investment grade by the main risk rating agencies. However, there is no room for self-complacency, as the country still needs to tackle major challenges on different fronts.

Even though we have managed to substantially increase GDP *per capita* (equivalent to US\$ 10,062 at purchasing parity power -PPP- 2011) and to significantly lower the poverty monetary rate (55% at the beginning of the decade *vis-à-vis* 28% in 2011), the social gap in the country is huge; therefore, it is imperative that the benefits of globalization reach out to the majority of the population, both rural and urban, within a decentralized development framework, with regard to which there is still much to be done. Narrowing and eventually bridging the infrastructure gap, particularly in the field of transportation, is a pending task in terms of the connectivity required to bring more products from the inland regions to the national and global markets under competitive conditions. The investment gap in public utility infrastructure estimated for the 2012-2021 period amounts to almost US\$ 88 billion, i.e. 33% of the GDP, the most important sectors being energy (38%), transportation (24%), and telecommunications (22%).⁴

One challenge related to the above is the competitiveness of the economy. The *Global Competitiveness Report 2012-2013* issued by the World Economic Forum, which ranks 144 countries, reveals that only four South American countries are above the average: Chile (ranked 33rd), Brazil (48th), Peru (61st), and Colombia (69th). Peru has made much headway, moving up in the ranking by 25 positions in the last five years, given that in the 2007-2008 assessment, Peru ranked 86th (of a total of 131 countries). However, we are still only halfway at the global level and there is still a long way to go in terms of competitiveness and of productivity as well.

Another important element relates to our condition as an exporter of natural resources. Peru is one of the most important mineral producers in the world (ranking 6th in gold production in 2011 and 2nd in silver, copper and zinc production).⁵ Mining investment and production have increased significantly in the last years. For example, considering the investments already made, the production volume of copper is expected to double in five years. In addition to the projects underway, an important portfolio of new mining projects has been announced for the coming years. One of the major challenges associated with the development of the mining

² Proinversión. 2012. "¿Por qué Invertir en el Perú?". November 8, 2012.

³ Economy and Business Development Institute (IEDEP) of the Lima Chamber of Commerce. 2012. *Crecimiento con Inclusión: Ruta al Primer Mundo. Cuatro Desafíos del Quinquenio 2011-2016*, 3(3). Lima. April.

⁴ Association for the Promotion of National Infrastructure (AFIN). 2012. "Por un Perú Integrado: Plan Nacional de Infraestructura 2012-2021", written by the Research Center of the University of the Pacific (CIUP) and the Institute of Regulations and Finance, Graduate School of Business (ESAN University). Lima. October.

⁵ Castilla, Luis Miguel. 2012. "Importancia de la Minería en el Desarrollo Peruano", *10th International Gold Symposium - 2nd Silver Forum*. Lima. May.

sector in Peru is how to attain social and environmental sustainability in this activity through the socioeconomic development of the area of influence of the projects concerned and the implementation of effective policies designed to mitigate environmental impacts, which will help relieve any social conflict that may arise in relation to this sectoral activity.

Another challenge ahead is how to lessen the high exposure of exports to external shocks derived from commodity price fluctuations, due to the share of mining in total exports (around 60% of the total Peruvian export value in 2011). Efforts to diversify our exports and make higher-added value products gain a more significant share is a task yet to be accomplished. In this regard, Peru made progress in the last decade, but more is still needed.

Due to the remarkable boom of commodities, non-traditional goods lost relative ground in total exports -from 31% in 2001 to 22% in 2011. However, they did grow by 468% in value during such period, showing the progress attained. Moreover, the number of tariff items exported grew from 3,531 to 4,493 between 2000 and 2011. In addition, the number of exporters rose from 3,855 to 6,773 in the same period.⁶ This is because, among other reasons, Peru has managed to make the most of the opportunities opened up by trade agreements, as discussed below. No doubt, the country should hold on this policy.

Similarly, it is necessary to recognize the importance and get the best benefits possible of the widely available natural resources of Peru. Several developed countries have made good use of their abundant natural resources to benefit their population. The suggestion put forward by the Peruvian Ministry of Economy and Finance with regard to learning from the experience of Australia, Canada, Norway, and New Zealand in successfully managing their natural resources seems quite interesting. This is because these economies are dependent on their commodities -which account for a large share of their total exports (77%, 44%, 84%, and 73%, respectively, in 2009)- but have a much higher GDP *per capita* than Peru (measured in 2011 PPP terms): Norway (US\$ 53.5 thousand); Australia and Canada (US\$ 40 thousand each); and New Zealand (US\$ 27.7 thousand).⁷ Consequently, there is ample room to learn from the lessons of these countries in the interest of Peru.

- **In the last years, Peru has followed a very active trade policy by entering into agreements with several countries and extra-regional markets, especially in the Pacific area. Even though this strategy can be accounted for in the light of the main export products of Peru, what is the progress made and what are the challenges ahead with regard to the development of non-traditional products with higher-added value?**

At present, around 90% of our foreign trade is covered under some trade agreement (95% on the export side and 90% on the import side) -a clear sign of how dynamic the trade agreement negotiation policy has been in the case of Peru. As of October 2012, the trade agreement network established with other countries can be outlined as follows:⁸

- Agreements in force: North America (the United States, Canada and Mexico), Asia Pacific (China, Singapore, South Korea, Japan and Thailand), Europe (EFTA), Central

⁶ Torres Paz, Luis. (Director of the Export and Tourism Promotion Board - PROMPERU). 2012. "Evolución de las Exportaciones: Perú 2000-2011", *Forum on the Challenges of Export Promotion in the 21st Century*. Lima: University of the Pacific. June.

⁷ Castilla, *op. cit.* May 2012.

⁸ Silva Martinot, José Luis. (Minister of Foreign Trade and Tourism). 2012. "Acuerdos Comerciales y Desarrollo del Comercio Exterior como Herramientas para el Crecimiento con Inclusión Social". Geneva. October 24, 2012.

America and the Caribbean (Cuba and Panama), South America (Chile, the Andean Community - CAN, and the Southern Common Market - MERCOSUR).

- Agreements signed and soon to come into force: Europe (the European Union), Central America (Costa Rica and Guatemala), South America (Venezuela).
- Agreements under negotiation: Central America (El Salvador and Honduras); the Pacific Alliance (Mexico, Chile and Colombia), with Costa Rica and Panama participating as observers; the Trans-Pacific Partnership (TPP) (Australia, Brunei, Chile, New Zealand, Singapore, the United States, Malaysia, Vietnam, Mexico, Canada).

The Pacific region is certainly a priority for our future development, but the country has entered into a wide range of negotiations with trade partners in different parts of the world. This is significant because if we had signed a free trade agreement with only one important partner rather than with all the others, trade-diverting effects could have been caused, when in fact the goal pursued is to create new trade opportunities, gaining access to as many foreign markets as possible.

Furthermore, the importance of these agreements lies in the fact that they open up new export opportunities on a sustainable basis rather than under temporary schemes, as were the systems of trade preferences used with the United States and the European Union. In addition, trade agreements serve as an anchor to a series of important economic reforms being introduced in the country with the purpose of strengthening its opening up policy. It should also be noted that the signing of trade agreements attracts investment flows into the country, which are expected to enlarge and improve its export base in the medium or long run.

Some aspects in the Peruvian foreign trade evolution that have taken place in the last decade are worthy of note, not only to show how dynamic they are, but also because there have been changes in the relative importance of our destination markets. The United States has lost its first position to China, as a result of an increase in the exports of Peruvian commodities to China during the decade. However, when non-traditional exports are analyzed, the US market is still our main destination market (23 % of such total exports), hence the importance of the FTA with the United States.

It is significant that the second destination market for Peruvian non-traditional goods is formed by the South American countries, mainly Venezuela (9% of the export value of these products in 2011), Colombia (8%), Ecuador and Chile (6% each).⁹ Therefore, Peru's neighboring countries are of the utmost importance when non-traditional exports are assessed. Some analysts have even proposed that the Andean Community has become a platform to facilitate the export of more sophisticated industrial products with higher value added. Exporting first to the Andean Community would help countries gain more competitive markets, such as the United States and the European Union, some time later. This so-called platform effect is perhaps turning the Andean market into a domain for upgrading and diversifying our non-traditional exports.¹⁰

⁹ Source: Own calculations based on SUNAT data.

¹⁰ Zevallos, Héctor y Fernando González Vigil. 2011. *Efecto Plataforma de la Comunidad Andina en las exportaciones manufactureras del Perú y de Colombia a los Estados Unidos y la Unión Europea*. Lima: University of the Pacific. December.

This, of course, does not mean that there is no need to renew our regional integration approach, as 40 years since its creation and after several “close integration” plans (to evolve from the free trade area to the customs union to the common market), the Andean Community is far from having achieved its goals. More pragmatic approaches are required when the economic models or visions of the countries do not match one another, and this involves bringing ambitions closer to feasibility and practicality. In the field of trade, this would be the equivalent of pursuing a free trade area.

In this regard, the Pacific Alliance is a good example of a renewal of approaches. Its importance is mainly related to the Peruvian goal of gaining competitiveness for its economic integration into the Pacific Basin, the dynamic area of the 21st century. In other words, this is not an intraregional approach (to reach the markets that form part of the Alliance) but one aiming at third parties (to reach out to the Pacific). On the other hand, this approach is not rooted in the concept of vicinity, as most Latin American integration schemes, but in coming closer to countries with more open economies and with economic policies deemed more compatible.¹¹

Finally, Peru is faced with a challenge concerning the sectoral composition of its non-traditional exports. In 2011, two thirds of them came from the agricultural (28%), textile (20%), chemical (16%), and fishing (10%) sectors.¹² Although it would be necessary to go deeper in the analysis to identify major products and industrial sectors, at first sight it might be said that the composition of our non-traditional exports is associated, basically, with sectors with a lower technological content.

An analysis at the South American level points in this direction. If the South American non-primary product exports are divided by their technological content, then in 2010 about 60% of such products were resource-based and an additional 18% were labor-intensive.¹³ Therefore, the challenge for non-traditional exports is to move up in the technological and innovation ladder -a challenge that is not only Peruvian but South American.

- **Does the importance attached by Peru to its relations with Asia Pacific mean that the importance attached to its trade and strategic relations with other Latin American countries -particularly with the South American countries- is declining?**

That is definitively not so. As already stated, the policy of opening up to the world involves having multiple options available and, within this context, Latin America, and South America in particular, is one of the important areas for the external relations of Peru. On the other hand, the Pacific Alliance, which I have already mentioned, is a good example of the search for synergies between an intraregional complementation and cooperation strategy and the relations with Asia Pacific.

We also believe that the relationship between Peru and Brazil is a case in point in this approach, since the strategic importance of the integration between both countries does not only lie in their reciprocal markets and their relation as neighbors, but also in the desire to gain

¹¹ García Belaunde, José Antonio. 2011. “Arquitectura de una Diplomacia para la Integración”, Ministry of Foreign Relations of Peru 2006-2011. Lima.

¹² Source: SUNAT and MINCETUR.

¹³ Caputi Lélis, Marcos Tadeu. (Coordinator of the Trade and Competitive Intelligence Unit of the Brazilian Trade and Investment Promotion Agency - ApexBrasil). 2012. “Perspectivas Comerciales para América del Sur”, *Forum on the Challenges of Export Promotion in the 21st Century*. Lima: University of the Pacific. June.

competitiveness to reach the Asia Pacific region. This case is, therefore, associated with the South American physical integration issue and, particularly, with the integration between Peru and Brazil as the main actors in the central region of the South American subcontinent.¹⁴ We will come back to this.

The importance of Latin America, in particular of South America, in Peru's economic relations can be shown with some figures. A third of our imports comes from Latin America, which is the destination of 18% of our exports. Of the whole Latin America, South America is the most significant portion, with a share of 26% on the import side and of 15% on the export side, according to 2011 data. If we look at the individual countries, our most important partners can be easily inferred.

Chile has been the main destination market for our exports within South America throughout a decade, accounting for 29% of the South American total in 2011, while Brazil and Colombia rank second and third, respectively. On the side of imports, Brazil has become our leading South American supplier (25% of the regional total in 2011), doubling its share *vis-à-vis* 2001.¹⁵ As for our FDI stock, these three countries again are among the most important economic partners of Peru. Thus, the ranking of the first seven investors in Peru as of 2011, as a share of total FDI stock, is as follows: Spain and the United Kingdom come in the first place (20% each); the United States ranks second (14%); the Netherlands come in the third position (7%), followed by the three South American countries already mentioned -Chile (6%), and Colombia and Brazil (5% each).¹⁶

Therefore, a net of investment and trade relations is being interwoven with Chile, Colombia and Brazil, which deserves to be analyzed in the future. It would also be interesting to observe how Peruvian FDI has performed in these countries. There are, of course, other significant trade partners for Peru in South America (Venezuela, for exports; Argentina, for imports; and Ecuador, for both).

In the political sphere, it is worth mentioning as well that Peru has been actively participating in the Union of South American Nations (UNASUR), currently holding its Presidency Pro Tempore. The "strategic alliance" between Peru and Brazil, forged in 2003 and embodied in the Presidential Statement of that year, has played a key role in the creation of the South American Community of Nations, in 2004, in the city of Cusco, and later evolved into the establishment of UNASUR, created in Brasilia in 2008.

- **What is the importance of the physical integration of South America? What physical integration projects currently underway have, in your opinion, a more significant strategic impact and relevance for Peru?**

The importance of the physical integration of South America should be viewed from the perspective of its impact on both the domestic level and on the integration of South America into the global world.

¹⁴ Santa Gadea, Rosario (editor). 2012. *Integración Física Sudamericana Diez Años Después: Impacto e Implementación en el Perú*. Lima: IDB/CEPEI/University of the Pacific. March.

¹⁵ Source: Own calculations based on SUNAT, in: Santa Gadea, Rosario. 2012. "Integración Física entre Brasil y Perú: Balance de una Década y Repercusiones para el Desarrollo Regional y las Relaciones Recíprocas", paper presented at the *Conference on Regional Reactions to the Rise of Brazil. Latin America and the Shifting Sands of Global Power*. Canberra: Australian National Centre for Latin American Studies (ANCLAS), the Australian National University (ANU). September 2012.

¹⁶ Source: Own calculations based on Proinversión, in: Santa Gadea, *op. cit.* September.

Concerning the former, the goal of social inclusion in our countries involves creating the conditions for rendering the South American inland areas -the poorest ones- economically feasible, and physical integration certainly contributes to this goal. This does not only concern the integration of border areas but of broader regions as well.

In the case of the road connections between Peru and Brazil currently being built, the strategic vision underpinning these projects is in line with building macro-regions in Peru that should have a geographically “transversal” nature and be economically viable due to their access to the Pacific and connections with Brazil. According to this approach, our goal is not trade alone but development. In fact, the Andean and Amazon highlands, the areas on the “other side” of the Andes, are the least developed in Peru in relative terms. The purpose is to link these areas to the national dynamics, and to connect them with the Pacific and the rest of the continent (particularly with Brazil). This approach does not challenge the country’s integration into the world; on the contrary, it is a road to attain this goal.

Thus, the Integration and Development Hubs (*Ejes de Integración y Desarrollo* - EIDs), devised a decade ago within the framework of the Initiative for the Integration of Regional Infrastructure in South America (IIRSA), not only are spaces to attain South American integration, but also -or perhaps essentially- act as *national integration* instruments for Peru. Therefore, the South American physical integration issue leads eventually to the management of infrastructure within the framework of territorial planning for development.¹⁷

Furthermore, Peru has worked on the South American physical integration issue assuming that the country can gain competitiveness in reaching out to the Pacific thanks to the possibilities of connectivity opened up by its own physical integration with Brazil. As for this second dimension, it is important to evaluate, from a realistic point of view, what chances Peru has of becoming a transit platform for the goods that Brazil sends to and receives from Asia and, based on this, to define what is yet to be done in addition to building the necessary infrastructure.

In this regard, some recent research works have carried out some measurements in relation to the (IIRSA Sur) Interoceanic Highway built by Peru to connect with Brazil. Similar though more preliminary estimations have also been made with regard to the Amazon Hub (IIRSA Norte), seeking a multimodal connection with the free trade zone of Manaus, in Brazil. The preliminary results indicate that, *under the present conditions*, exports to Asia through the Pacific from Porto Velho, Brazil, would be US\$ 34 per ton cheaper than through the Atlantic, although the operations through the Matarani port, in the south of Peru, would take 11.5 days longer. In the north, if transportation costs in 20-foot containers are compared, the difference would be US\$ 200 and 9 days less through the Pacific, from Manaus in Brazil through the port of Paita, in the north of Peru, *vis-à-vis* the traditional route through the Atlantic (but, as the logistics cost of the land-river stretch between Manaus and Paita should be added, this may offset the difference).¹⁸

The conclusion is that these are not very significant differences to justify a change in the short run in the traditional route of exports from Brazil to Asia, i.e. to shift from the Atlantic to the Pacific. The main reason is the connectivity difference between the Atlantic and Pacific

¹⁷ Farromeque, Rafael. 2012. “Costos Logísticos y Desarrollo de Plataformas Logísticas en los Ejes IIRSA”, in: Santa Gadea, *op. cit.* March.

¹⁸ Barceló, Marcel. 2012. “Conectividad de América del Sur con Asia-Pacífico y Potencial Competitivo de las Rutas Interoceánicas,” in: Santa Gadea, *op. cit.* March.

coastline services in South America. There is much more connectivity in the Atlantic than in the Pacific ports. Therefore, there is much to be done in the logistics field, particularly to use the Pacific ports. As for the logistics costs, Latin America is well above the world average.

In brief, physical integration is essential in any efforts to improve the elements that lead to the competitiveness of the South American economies, because there is a direct relationship between competitiveness and infrastructure quality. But this is not the only aspect to consider, as this opens up the door to many others, namely: trade facilitation; investment promotion and climate; logistics services and platforms development; ports and airports modernization with a view to the establishment of regional hubs; export diversification; and incentives to the creation of production chains so that regional trade should not be restricted to finished goods only, among others. In sum, it is necessary to strive for competitiveness from a systemic perspective.

There are sufficient grounds to think that the relations between Peru and Brazil will continue expanding and will last in time, as they are built on solid foundations. But Peru must also continue deploying, with both vision and firmness, its own strategies to penetrate the Brazilian market in a decentralized manner, seeking at the same time that the non-tariff barriers still in place in Brazil be reduced. In parallel to this, it is necessary to continue striving for increasing our logistics competitiveness with regard to the Pacific Basin, enhancing Peru's central geographic location in South America through, among other items, the physical integration with Brazil.

Transversal connections between Peru and Brazil -the so-called IIRSA Norte, IIRSA Centro and IIRSA Sur- are solid evidence of a logic of a South American eastern-western interconnection. The estimated investment in these connections preliminarily amounts to some US\$ 5.5 billion for Peru, including roads, sea and river ports, logistics centers and waterways. The main projects are already underway.



÷	4	0	6	3	4	9	6	9	±	0
6	6	\$	3	0	=	4	0	1	9	8
4	0	6	2	<	1	9	Σ	6	1	4
8	5	0	β	7	\$	0	8	∞	7	6
0	∞	1	3	0	5	6	9	6	3	0

S T A T I S T I C S

6	4	x	%	1	0		1	4	0	5
>	6	6	4	6	∞	3	×	5	<	∞
9	3	0	0	%	7	9	1	2	7	4
1	1	×	5	6	3	4	>	3	0	6
9	9	2	+	1	0	β	1	6	1	3
0	£	0	9	8	α	0	5	5	×	1
1	6	0	7	2	6	2	6	1	2	9
Σ	7	8	0	±	4	9	<	9	0	£

TRADE IN NATURAL RESOURCES IN LATIN AMERICA

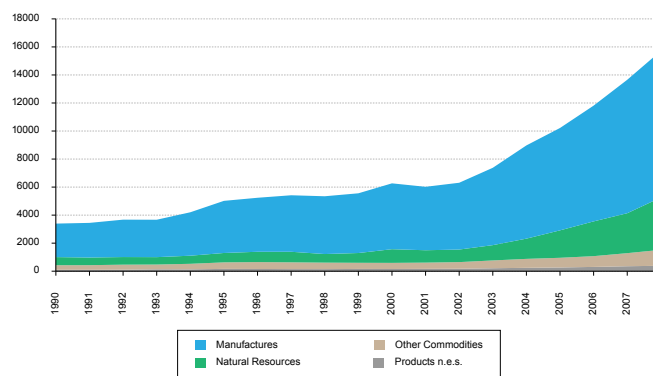
SELECTED INDICATORS

Figure 1 shows that total exports of goods jumped from US\$ 5.3 to US\$ 15.7 billion between 1990 and 2008, with an average annual growth rate of 12%. During this period, exports of natural resources increased by 20% on average, whereas the average annual growth rate of manufactures was 10%. Despite the sharp spike in trade in natural resources during the period under analysis, manufactured goods still accounted for the bulk of world exports in 2008 (66.5%).

Figure 1

WORLD MERCHANDISE EXPORTS BY PRODUCT, 1990-2008

In billion US\$



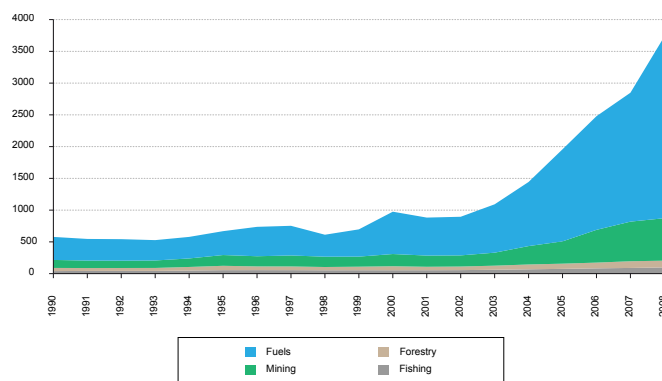
Note: It should be made clear that the WTO World Trade Report 2010 defines natural resources as "stocks of materials that exist in the natural environment that are both scarce and economically useful in production or consumption, either in their raw state or after a minimal amount of processing." The report identifies the product groups that are counted as natural resources in trade data: fish, forestry products, fuels, ores and other minerals, and non-ferrous metals. Agricultural products are not classified as natural resources for two main reasons: first, their production requires other natural resources as inputs, particularly land and water but also various types of fertilizers; second, agricultural products are cultivated rather than extracted from the natural environment.

Source: WTO World Trade Report 2010.

Figure 2 shows the value in US dollars of world exports of natural resources between 1990 and 2008, which grew by more than six times -from US\$ 613 million to US\$ 3.7 billion, in part thanks to the steady increase in commodity prices.

Figure 2

WORLD NATURAL RESOURCES EXPORTS BY PRODUCT, 1990-2008

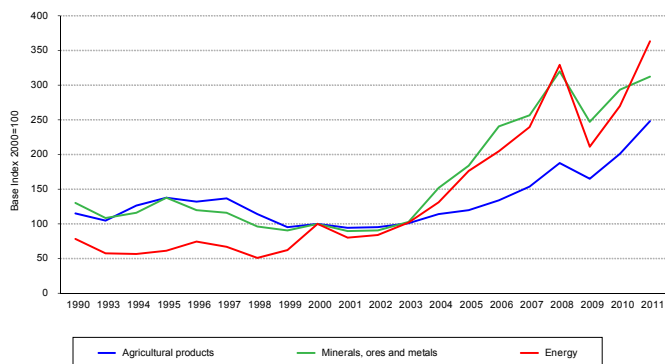


Source: WTO World Trade Report 2010.

Figure 3 shows the dramatic increase in the price of commodities since 2003. After a period of relative stability during the 1990s, the prices of agricultural products, minerals, ores and metals, and energy products experienced a marked increase from 2003 until the world financial crisis of 2008-2009. After a sharp drop in 2009, prices shoot up again, with prices of energy and agricultural products reaching their peak in 2011.

Figure 3

EVOLUTION OF COMMODITY PRICES, 1990-2011



Source: ECLAC.

Table 1 shows how the uneven distribution of natural resources across countries makes export patterns differ substantially from one region to another. In some regions (the Middle East, Africa, the Commonwealth of Independent States - CIS), natural resources account for a considerable share of their exports of goods, while in others (Asia, Europe, North America), exports are more diversified. The cases of South and Central America are halfway in the middle, since natural resources make up an important but not a dominant share of their total exports, although there are differences between both regions.

Table 1

NATURAL RESOURCES EXPORTS BY REGION, 2008

	Value	Share in Total Merchandise Exports
World	3855.4	25
Middle East	758.7	74
Africa	406	73
Commonwealth of Independent States (CIS) ^{a/}	489.7	70
South and Central America	281.3	47
North America	397.8	20
Asia	630.4	14
Europe	891.5	14

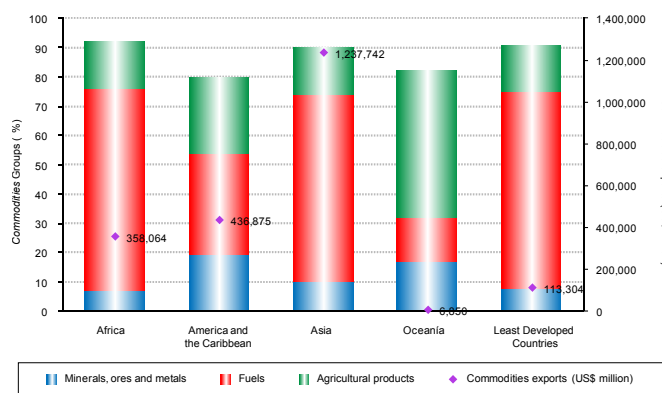
Notes: This table uses the broad definition of natural resources to include all agricultural raw materials rather than just forestry products. ^{a/} The Commonwealth of Independent States (CIS) comprises Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, Uzbekistan.

Source: WTO World Trade Report 2010.

Figure 4 shows the exports of natural resources by region, broken down by product group. In 2009-2010, fuels ranked first among the natural resources exported by all the regions analyzed, except Oceania. In Latin America and the Caribbean (LAC), total commodity exports amounted to US\$ 436,875 million, with fuels representing 35%, minerals, ores and metals, 26%, and agricultural products, 19%.

Figure 4

COMPOSITION OF COMMODITY EXPORTS BY REGION, 2009-2010 AVERAGE



Note: The breakdown in percentages does not add up to 100 per cent due to statistical discrepancies.

Source: The State of Commodity Dependence 2012, UNCTAD.

The Herfindahl-Hirschmann index is a measure of the degree of export concentration. This index ranges from 0 to 1, with the highest value indicating the maximum concentration (*Table 2*).

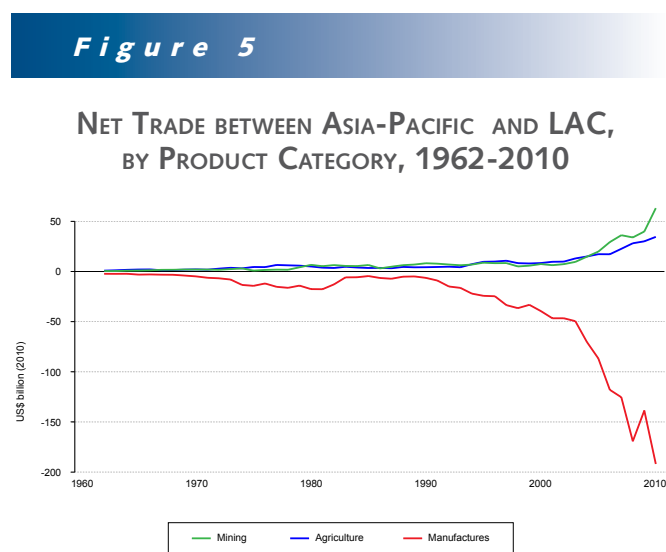
Table 2

**COMMODITY EXPORTS IN MEXICO, CENTRAL AND SOUTH AMERICA AND
EXPORT CONCENTRATION *RATIO* BY COUNTRIES**

	Commodity Exports 2009-2010 (US\$ million)	Commodity Exports 2009-2010 (% of total merchandise exports)	Commodity Exports 2009-2010 (% of GDP)	Export Concentration <i>Ratio</i>	
				2000	2010
Mexico	65674	25	7	0.1370	0.1483
Central America					
Belize	190	76	14	0.3678	0.4167
Costa Rica	2473	29	8	0.2702	0.3499
El Salvador	1188	29	6	0.2116	0.2204
Guatemala	4621	59	12	0.1842	0.1441
Honduras	2466	47	16	0.2927	0.2245
Nicaragua	1037	64	16	0.2511	0.1957
Panama	1009	9	4	0.2547	0.1863
South America					
Argentina	40966	67	12	0.1370	0.1458
Bolivia	5289	93	29	0.1908	0.4136
Brazil	109276	63	6	0.0881	0.1526
Chile	54756	89	30	0.2886	0.3976
Colombia	27542	76	11	0.2946	0.3413
Ecuador	14185	91	23	0.4501	0.492
Guyana	813	94	38	0.3566	0.3678
Paraguay	3439	89	21	0.3298	0.3904
Peru	27361	89	19	0.2262	0.2783
Suriname	1345	96	43	0.5297	0.5017
Uruguay	4461	74	12	0.1705	0.2004
Venezuela	54944	91	15	0.6054	0.6315

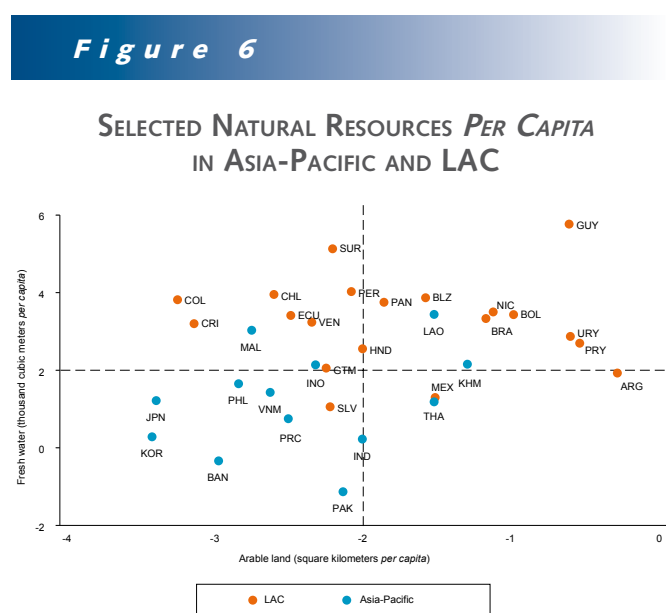
Source: *The State of Commodity Dependence 2012*, UNCTAD.

Figure 5 shows the net trade between LAC and Asia by product category. The exponential growth of bilateral trade is due to the increasing surplus of manufactured goods in Asia and the increasing surplus of agricultural and mining products in LAC.



Source: *Shaping the Future of the Asia and the Pacific-Latin America and the Caribbean Relationship*, IDB.

Figure 6 shows the per capita land and water stocks in both regions. These resources are crucial for the agricultural sector. While the largest and more dynamic economies in Asia fall in the quadrant of little water and land, many LAC countries are located in the "best" quadrant (abundant water and land) or are faced with shortages of only one of the resources (land).



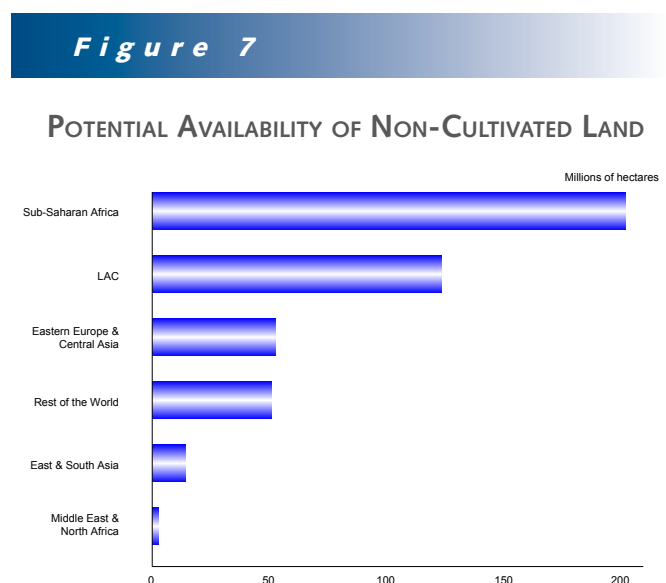
Source: *Shaping the Future of the Asia and the Pacific-Latin America and the Caribbean Relationship*, IDB.

Table 3**TOTAL AREA AND AGRICULTURAL AREA BY COUNTRY**

	Total Area (km ²), 2009	Agricultural Area (% of total area), 2009
Mexico	1964380	52
Central America		
Belize	22970	7
Costa Rica	51100	35
El Salvador	21040	73
Guatemala	108890	40
Honduras	112490	28
Nicaragua	130370	39
Panama	75420	30
South America		
Argentina	2780400	51
Bolivia	1098580	34
Brazil	8514880	31
Chile	756100	21
Colombia	1141750	37
Ecuador	256370	29
Guyana	214970	8
Paraguay	406750	51
Peru	1.28522	17
Suriname	163820	-
Uruguay	176220	84
Venezuela	912050	23

Source: *The State of Commodity Dependence 2012*, UNCTAD.

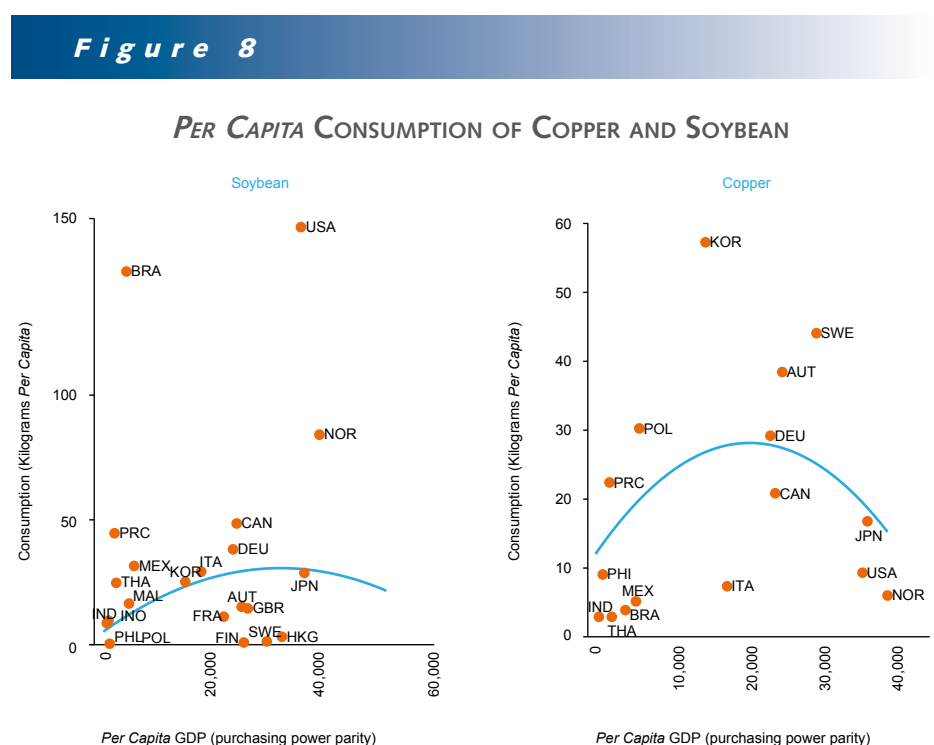
Figure 7 takes into account land availability for agricultural expansion, thus revealing the huge gap between LAC and East and South Asia, where the fastest growth rates occur.



Note: Non-cultivated land has a great agricultural and ecological potential, with a population density of less than 25 inhabitants per square kilometer.

Source: *Shaping the Future of the Asia and the Pacific-Latin America and the Caribbean Relationship*, IDB.

Figure 8 illustrates the ratio between per capita consumption and income of two major commodities exported by LAC to Asia: copper and soybean. As shown in the figure, it will take decades for some economies, such as the People's Republic of China and India, to reach the critical point. Until then, the large emerging economies of Asia will continue absorbing an increasing volume of commodities, i.e. far more than what would be estimated if only the growth of the Gross Domestic Product (GDP) were taken into account.



Source: *Shaping the Future of the Asia and the Pacific-Latin America and the Caribbean Relationship*, IDB.

Table 4 shows the average import tariffs imposed in Asia and Latin America. Each region's exports to the world are used to weight the effects of protectionism on the current bilateral trade flows. It is evident that agriculture, one of the most dynamic and promising sectors in the relationship between Asia-Pacific and LAC, is the most protected one, especially in South Asia. Manufactures are also faced with major barriers, particularly on the LAC side, although tariffs are not as high as in the agricultural sector. In this regard, one of the most perverse distortions is the so-called tariff escalation, whereby tariffs are directly proportional to the degree of product processing.

Table 4

IMPORT DUTIES ON INTER-REGIONAL TRADE, SELECTED ECONOMIES, 2009

In %

Asian Tariffs on LAC Imports									
Sector	ASEAN			East Asia			South Asia		
	The Caribbean	Central America	South America	The Caribbean	Central America	South America	The Caribbean	Central America	South America
Mining	0.3	2	1.2	0.5	2.2	1	7.7	4.4	3.7
Agriculture	17.4	12.7	6.8	16	9.7	8.8	37.6	55.1	21.4
Manufactures	5.1	8.3	7.1	4.8	6	4.9	11.1	16.6	12.8
LAC Tariffs on Asian Imports									
Sector	The Caribbean			Central America			South America		
	ASEAN	East Asia	South Asia	ASEAN	East Asia	South Asia	ASEAN	East Asia	South Asia
Mining	7.5	4.7	6.4	4.1	5.2	4	5.8	5.6	4.3
Agriculture	15.9	13.4	16.5	10.5	12.6	14.4	11	11.2	14.2
Manufactures	10.2	11.3	16.8	5.9	7.4	9.8	8	10.8	15.2

Nota: Average tariffs are calculated at a country level first, and are then weighted by the trading partners' exports to the world. Subregional figures are simple country averages.

Source: *Shaping the Future of the Asia and the Pacific-Latin America and the Caribbean Relationship*, IDB.

FEATURED PUBLICATION



This report presents an analysis of recent trade and integration developments in Latin America and the Caribbean (LAC). It draws on databases developed by the Integration and Trade Sector of the Inter-American Development Bank (IDB) available through the IDB Information System on Trade and Integration. Section 1 provides a statistical overview of trade performance and trade policies in LAC, with a focus on the recent developments since the financial crisis. It concludes that in 2011 LAC's exports made a significant recovery to exceed pre-crisis levels, reaching over \$1 trillion, but with varying results across countries. Overall export growth is expected to moderate significantly in 2012 as a consequence of the recession in some Euro Zone countries, the lack of dynamism in the external demand of the United States, and a moderation of growth in China. Section 2 provides country profiles summarizing the latest developments in the trade performance of each of the 26 IDB borrowing members. Section 3 contains Free Trade Agreement profiles summarizing selected trade and integration agreements in force among LAC countries and their trading partners. Section 4 is an appendix that includes definitions, sources, metadata, and methodological notes. The annex provides detailed country tables with time series data at a disaggregated level.

INTER-AMERICAN DEVELOPMENT BANK (IDB). 2012. *Trade and Integration Monitor 2012: Trade Performance and Policies after the Crisis*. Washington, DC: IDB. September.

INFORMATION SYSTEM ON INTEGRATION & TRADE: INTradeBID

A comprehensive online gateway bringing together information on integration and trade in Latin America and the Caribbean. The system includes in-depth data on trade agreements, detailed statistics on imports and exports, and indicators that measure the structure and performance of trade. The scope of the databases and their level of detail make INTradeBID a unique resource for the region.

INTradeBID is made up of the following databases, among other modules:

- *Rules of origin, tariff reduction, and tariff rate quotas* provided for in trade agreements, including a series of query and analysis tools.
- *Legal integration instruments (LII)*, a compilation of regulatory texts, comments, and follow-up on the legal obligations assumed in the Latin American and Caribbean integration processes.
- *DATAINTAL*, a database with highly disaggregated trade data that completes a homogeneous series on trade in the hemisphere, which begins in 1992 and encompasses 32 countries (Latin America and the Caribbean, the United States and Canada).

INTradeBID is managed by a team within the Integration and Trade Sector, of which INTAL is a part.

NOTES & COMMENTS

Exports through Postal Services: Three Levels of Analysis

Publication in English and Spanish

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BRANDI, JUAN PEDRO. 2012. "Exports through Postal Services: Three Levels of Analysis", in: *Integration & Trade Journal*, 16(34): 17-24. Buenos Aires: IDB-INTAL. January-June.

El proyecto "Exportaciones por Envíos Postales para MIPyMEs" se ha constituido en una novedosa herramienta para la promoción de exportaciones y de exportadores, señala Juan Pedro Brandi en el artículo de la referencia.

Si bien el objetivo de dicho documento no es evaluar el éxito o fracaso del proyecto, sino conceptualizarlo como un instrumento innovador en el ámbito del comercio exterior, resulta imposible apartarse de los resultados para comprobar su impacto. De hecho, Brandi nos presenta algunos indicadores al año 2008,

que si los actualizamos a fechas recientes, refuerzan aún más la idea central del artículo y avalan, en gran parte, los tres niveles de análisis propuestos por el autor. Veamos algunos ejemplos, mirados a la luz de la madurez del proyecto en cada caso y de las características demográficas y geográficas de cada país (*Cuadro 1*).

Con estos datos a la vista, me concentraré ahora en algunas consideraciones especiales respecto a cada enfoque de análisis propuesto por Brandi.

Cuadro 1

	Brasil	Perú	Uruguay ^{a/ c/}	Colombia ^{a/ c/}	Ecuador ^{a/ c/}
Fecha de lanzamiento	Noviembre 2000	Julio 2007	Marzo 2009	Diciembre 2009	Octubre 2011
Total exportado desde lanzamiento (US\$)	1.791.649.780 (a julio 2012)	8.831.816 (a marzo 2012)	206.373	668.050	500.000
N° de envíos	1.737.069 (a julio 2012)	25.212 (a marzo 2012)	900	1.236 (a julio 2012)	3.000
N° de países destino ^{b/}	202 (2011)	116	46	61	61
Destinos principales	Estados Unidos, Argentina, Chile, México, Alemania (2011)	Estados Unidos, Australia, Gran Bretaña, Canadá, Francia	Europa, Estados Unidos, MERCOSUR, Chile	Estados Unidos, México, Chile, Costa Rica, Panamá	Estados Unidos, Canadá
Productos principales	Piezas de vehículos; interruptores, conectores eléctricos; otras obras de caucho; tornillos otros artefactos de hierro; partes y accesorios de vehículos (2011)	Bisutería; productos naturales; prendas de vestir; joyería; insectos disecados	Artesanías; prendas de lana e hilados; libros; piedras amatistas	Prendas de vestir; fajas quirúrgicas; moldeadoras y productos biológicos y naturales	Sombreros de paja toquilla; chifles; artículos de cuero; bisutería en tagua
N° de empresas que han utilizado el servicio	Cerca de 25.000	1.904 (a diciembre 2011)	50	314	108
Cobertura (N° de oficinas del correo con el servicio/ N° total de oficinas)	12.132/12.132	56 / 166	43/64	200/200	70/70 ^{d/}

Notas: a/ Valores aproximados. b/ El servicio se encuentra disponible para el envío de productos a 200 países destino aproximadamente. c/ Datos a mediados de 2012. d/ Oficinas propias de Correos de Ecuador.

Fuente: Ministerio de Comunicaciones de Brasil, PROMPERU, Correo del Uruguay, Dirección Nacional de Planeación de Colombia, Ministerio de Industrias y Productividad de Ecuador.

En relación al primer nivel, el aspecto internacional, efectivamente el proyecto abarata los costos de “descubrimiento” como indica el autor, especialmente en los casos de primeras experiencias exportadoras debido a la sencillez y bajo costo del servicio que repercute en los costos de exportación para una empresa y en las necesidades de infraestructura y/o logística requeridas normalmente para este proceso. A título ilustrativo se puede citar un caso donde los costos administrativos se han reducido desde el 16% hasta el 1% del valor de la mercadería gracias al uso del Exporta Fácil; en otro, por ejemplo, un trámite de exportación que demoraba 5 horas en forma presencial ahora puede hacerse en 15 minutos y en línea. Por otro lado, el servicio posibilita exportar en cantidades reducidas sin necesidad de llenar un contenedor, obstáculo que era habitual para los pequeños exportadores.

Por lo tanto, el Exporta Fácil permite que empresas, sobre todo pequeñas y medianas, que ni podían pensar en exportar por las barreras burocráticas y de costos que enfrentaban, hoy asuman el reto de hacerlo ya no vivido como una experiencia tediosa, sino como una oportunidad de apertura que sin dudar mejorará su capacidad competitiva, con las implicancias que ello acarrea para el patrón de especialización de cada uno de los países. En este sentido, cabe destacar a modo de ejemplo, que en Perú el 85% de las empresas que utilizan el servicio exportan por primera vez, tendencia que se repite en los restantes países y que corrobora esta parte del análisis.

Sin embargo, el hecho que el proyecto, en el año 2004, haya sido seleccionado por los 12 gobiernos suramericanos miembros de la Iniciativa para la

Integración de la Infraestructura Regional Suramericana (IIRSA) como uno de los 31 proyectos estratégicos, no garantiza que se vaya a implementar en dichos países generando igualdad de condiciones para todos los productores como señala el autor.

La experiencia nos ha demostrado que su implementación dependerá, en primer lugar, del interés de los gobiernos en adoptarlo como un proyecto país y no de una entidad en particular. En segundo lugar, pero no menos importante, se deben considerar las condiciones mínimas para su implantación en cada uno de los países teniendo en cuenta factores de mercado (oferta y demanda), institucionales, normativos, y financieros que actúan, en muchos casos, como limitante para su expansión y que ponen de manifiesto las razones por la cuales se está progresando en función de las necesidades y circunstancias que se van presentando.

Hasta el momento, además de los cinco países suramericanos indicados en el [Cuadro 1](#) que cuentan con el servicio en marcha, se han hecho trabajos para el desarrollo del proyecto con distinto grado de avance en otros cuatro.

Un dato relevante a destacar es que en noviembre de 2011, los países miembros del Consejo Suramericano de Infraestructura y Planeamiento (COSIPLAN) perteneciente a UNASUR y en el cual IIRSA es su foro técnico, han decidido modificar el nombre del proyecto de “Exportaciones por Envíos Postales para MIPyMEs” por “Integración Comercial por Envíos Postales para MIPyMEs” de manera de poder contemplar los dos flujos de comercio exterior de los países de la región. Por otro lado, también, han incorporado el Proyecto en su Plan de Acción Estratégico 2012-2022, lo que revela la predisposición de seguir avanzando en la materia.

Resulta importante mencionar que la incorporación del proyecto en la Agenda de Implementación Consensuada (AIC) de IIRSA le ha dado una visibilidad tal que en la actualidad le está permitiendo trascender más allá del subcontinente suramericano. Tal es así, que el tema dio lugar a un acuerdo de cooperación entre Brasil (país donde se ha originado Exporta Fácil) y la Unión Postal Universal (UPU) para desarrollar una metodología que permita la difusión del proyecto en países de otras regiones del mundo. De hecho, varios países, en diferentes continentes, ya han manifestado su intención de implementarlo.

Aquí vale la pena recordar que hasta el momento, la cooperación horizontal entre países (presencial y a distancia) ha sido clave para la transferencia de conocimientos y experiencias en la adaptación del modelo a sus propias realidades locales. No obstante, si bien la oferta de técnicos especialistas en la materia va aumentando a medida que se implementa en nuevos países, aún sigue siendo acotada. Por lo tanto, el desarrollo de esta metodología permitirá multiplicar la capacidad de expansión del proyecto superando así la limitación de recursos humanos capacitados.

En síntesis, la ampliación del Exporta Fácil a otros países interesados generará un círculo virtuoso para fortalecer la cadena de valor no sólo en lo que respecta a la logística de salida sino también en la logística de entrada, estimulando de esta manera la integración comercial en sus dos sentidos vía la infraestructura postal.

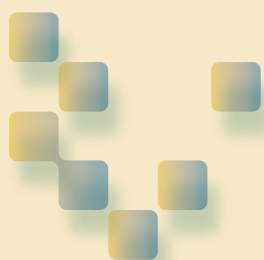
En relación al segundo nivel de análisis propuesto por Brandi, el aspecto regional, tampoco quedan dudas, por los indicadores expuestos, acerca del grado de cobertura (capilaridad) reflejado en el nivel de penetración de la red postal que llega incluso a zonas remotas de cada uno de los países. Mediante esta característica del proyecto, queda desmitificado así el concepto que sólo pueden exportar quienes se encuentren en zonas no periféricas.

Como puede desprenderse, el Exporta Fácil actúa con un “efecto dominó”, que moviliza variables quizás con un impacto a nivel nacional, a nivel operador postal y a nivel empresario MIPyME más importante que la contribución a la balanza comercial. Se trata, por ejemplo, del desarrollo social y económico en las regiones en las que esas MIPyMEs exportadoras están inmersas. Y es aquí donde llegamos al tercer nivel de análisis propuesto por Brandi, la empresa. La alternativa de vender sus productos en el mercado internacional exige capacitación por parte de la organización, aumento del valor agregado de la producción, evolución educacional de sus empleados, genera puestos de trabajo e ingresos para la población local, fomenta la consolidación de una cultura exportadora, el acceso a internet y la disminución de la brecha digital y favorece la formalización de empresas, entre otros. De esta manera, se incentiva el desarrollo de toda la comunidad. A estos beneficios se añaden los resultados, que la implantación colectiva de un proyecto de exportaciones desarrollado como

parte de la infraestructura postal de cada país puede proporcionar al sector postal regional.

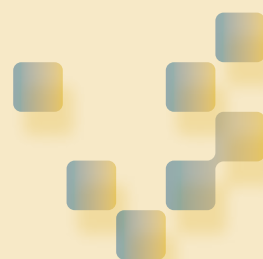
En suma, este proyecto es muy rico para ser analizado desde varias aristas. No debe perderse de vista que implica una política de gobierno que actúa en lo operativo y en lo normativo. El esfuerzo mayor no es financiero, sino que está dado por la suma de una firme voluntad de los gobiernos y de la capacidad institucional para articular regulaciones,

procedimientos e intereses de los diferentes actores involucrados en el proceso. A esta altura, el proyecto ya ha demostrado sus numerosas bondades y también sus limitaciones. Por ello, aprovechando los logros alcanzados, los obstáculos identificados y las lecciones aprendidas, el desafío radica en continuar difundiendo, ampliando y capitalizando esta experiencia novedosa para fomentar el acceso a los mercados internacionales de los pequeños y medianos empresarios de cada uno de nuestros países. ♦



Books and Articles

Reviews



ECONOMIC AND TRADE RELATIONS BETWEEN CHINA AND LATIN AMERICA

Publications only in Spanish

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BITTENCOURT GUSTAVO (COORD.). 2012. *El impacto de China en América Latina: comercio e inversiones*. MercoNet Series N° 20. Montevideo: Red MERCOSUR. February.

ROSALES, OSVALDO & MIKIO KUWAYAMA. 2012. *China y América Latina y el Caribe. Hacia una relación económica y comercial estratégica*. Santiago de Chile: ECLAC.

LATIN AMERICAN AND CARIBBEAN ECONOMIC SYSTEM (SELA). 2012. *Las relaciones entre China y América Latina y el Caribe en la actual coyuntura económica mundial*. Caracas: SELA. September.

La importancia creciente de China en el contexto mundial y particularmente en América Latina ha motivado la publicación de interesantes documentos que analizan las relaciones económicas y comerciales entre ambos. En particular, dos fenómenos interconectados han llevado a plantearse la necesidad de repensar los vínculos Sur-Sur. Por un lado, el fuerte impacto de la crisis económica mundial en las economías industrializadas y la noción de que éstas experimentarán en los próximos años menores tasas de crecimiento y mayor desempleo. Por otro, el rápido y sostenido crecimiento económico de muchas economías en desarrollo, y en especial, el rol de China como principal motor del crecimiento mundial durante la crisis. Frente a ello, los tres documentos aquí reseñados tienen por objetivo reflexionar sobre cómo deben posicionarse los países de América Latina y el

Caribe (ALC) frente a una nueva estructura económica mundial, donde China ha emergido como un actor preponderante. Los trabajos analizan el impacto de China sobre el comercio y la inversión de los países de la región, y plantean estrategias a seguir para aprovechar al máximo las oportunidades que se presentan y hacer frente a los nuevos desafíos.

Como punto de partida, los trabajos aquí reseñados examinan el creciente peso de China en la economía internacional durante las últimas tres décadas. En especial analizan cómo su robusto desempeño frente a la peor crisis de la histórica económica mundial desde 1929 posicionó al país como un actor clave en el comercio y el mercado financiero global. Al respecto, el informe del SELA dedica buena parte a analizar el impacto de la crisis financiera y económica

en China y el accionar del gobierno chino para hacer frente a la misma. Además, estudia cómo las políticas y medidas contra-cíclicas chinas impactaron sobre el resto del mundo y sobre América Latina en particular. En este sentido, el efecto positivo de China en las exportaciones de materias primas provenientes de la región ha sido crítico para apuntalar el crecimiento en el contexto de crisis global. Por otra parte, el trabajo de Red MERCOSUR presenta un diagnóstico de cómo la emergencia de China ha afectado el comercio exterior y la IED que reciben los países latinoamericanos. Por su parte, el trabajo de CEPAL reúne un análisis completo sobre los vínculos de comercio e inversión entre ALC y Asia- Pacífico y enfatiza la necesidad de institucionalizar el diálogo político entre las dos regiones.

Continuando con el análisis del comercio entre China y ALC los trabajos señalan la fuerte expansión del mismo durante la última década. China es hoy un socio comercial indispensable para la región, si bien existen importantes diferencias entre los países. Es un mercado de exportación clave para Cuba, Chile, Perú, Brasil, Costa Rica, y Argentina. También es el tercer país entre los principales orígenes de las importaciones de ALC, con un valor que representa el 13% de las importaciones totales de la subregión (Rosales y Kuwayama, 2012, pág. 78). Los trabajos concuerdan en caracterizar al comercio con China como inter-industrial en donde la región exporta productos básicos y manufacturas basadas en recursos naturales, e importa manufacturas de diversa intensidad tecnológica. Esto genera dos preocupaciones principales en los países de ALC. Por un lado, esta naturaleza de comercio entre la región y China, casi exclusivamente inter-industrial, plantea el riesgo de una “reprimarización” del patrón exportador de la región, que va en detrimento de la diversificación exportadora y la incorporación de mayor tecnología y conocimiento. CEPAL señala que pese al aumento de las tasas de rentabilidad de los sectores exportadores durante la última década, la ausencia de políticas activas de fomento productivo determinó que se incrementaran las brechas con los países considerados en la frontera productiva. Por otro, el aumento de las importaciones chinas en la región genera preocupación por la competitividad de las industrias nacionales. En particular existe un creciente déficit comercial de México y Centroamérica con China por la competencia con las manufacturas chinas y otras economías asiáticas en los mercados internos y

externos (y en particular, estadounidense).¹ Frente a estos problemas, la región tiene el doble desafío de lograr el máximo aprovechamiento de las ventajas comparativas de sus recursos naturales, y por otro, diversificar su producción y exportar a China productos con mayor valor agregado, evitando de esta manera el establecimiento de una relación que refuerce el vínculo centro-periferia.

Respecto a la inversión extranjera directa (IED) china, los documentos coinciden en señalar que la misma se concentra casi exclusivamente en los paraísos fiscales de la región, mientras que en otros sectores han sido menores a las esperadas.² En particular, el trabajo de la Red MERCOSUR realiza un detallado análisis de las principales políticas de China respecto a la IED hacia el país y hacia el exterior, y evalúa su impacto en las economías latinoamericanas. En los casos en que grandes empresas chinas han comenzado a operar en la región, éstas se han dirigido principalmente a los sectores relacionados con los recursos naturales (cobre, petróleo, mineral de hierro, y el complejo industrial de la soja) así como a algunos sectores manufactureros (automotriz, telecomunicaciones y turismo). En cuanto a los países individuales para la IED china, Brasil es el más atractivo, seguido de Perú, y de Venezuela, en el período 2006-2010 y en un segundo nivel aparecen México, Ecuador y Chile (SELA, 2012, pág. 29). Por otra parte, las inversiones latinoamericanas en China han ido en aumento si bien la mayoría también

¹ Como señala el trabajo de Red MERCOSUR, los países con una estructura exportadora más similares a la China, como México y Centroamérica, han sido los más amenazados por las importaciones chinas. Otros países como Argentina y Brasil, si bien se han visto afectados por el significativo aumento de las importaciones lograron, gracias a condiciones externas favorables para sus *commodities* junto a políticas de demanda expansivas, crear condiciones para cierta recuperación de la producción industrial en comparación a la década de 1990. (Bittencourt, 2012, pág. 32)

² Durante el período 2006-2010 las Islas Caimán y las Vírgenes Británicas absorbieron en promedio el 95% de los flujos de IED procedentes de China, y el 92% de la inversión acumulada a fines de 2010 (SELA, 2012, pág. 29)

proceden de paraísos fiscales.³ Según la CEPAL, el escaso nivel de IED entre China y ALC tiene que ver con la diferente especialización productiva y comercial que presentan las economías entre sí. Se argumenta que por el contrario, China presenta grandes flujos de inversión con el resto de los países asiáticos en donde se observa un fuerte comercio intra-industrial, basado en la complementariedad de los procesos productivos y comerciales de los sectores manufactureros de los distintos países. Rosales y Kuwayama plantean que para que las corrientes de inversión birregionales sean mayores, es necesario que ALC busque insertarse en redes de cadena de suministro con Asia-Pacífico mediante el establecimiento de asociaciones comerciales y de inversión, y de acuerdos comerciales.

Frente a los desafíos enfrentados por los países latinoamericanos en estas áreas, los tres documentos enfatizan que la región debe plantear una estrategia coordinada y de largo plazo de inserción en Asia-Pacífico. Es claro que la relación económica entre China y América Latina se ha incrementado notablemente en las últimas décadas, y seguirá incrementándose en el futuro cercano. Sin embargo, a diferencia de China, que ha establecido su estrategia de corto y largo plazo *vis à vis* la región (en el Libro Blanco divulgado por la Cancillería China en noviembre de 2008), ALC carece de una visión política de conjunto hacia China. Como señala el SELA, los gobiernos de la región deben colaborar entre sí para tener, por lo menos, una visión compartida del significado de China en el desarrollo futuro de la región. De manera similar, la CEPAL afirma que la relación entre China y América Latina ha alcanzado el punto de madurez suficiente madura como para dar un salto de calidad, avanzando hacia un vínculo estratégico que proporcione beneficios mutuos.

Para ello, y tomando como conclusiones alguno de los lineamientos planteados por los trabajos reseñados podría pensarse que una estrategia de relación económica y comercial con China debería incluir cuatro

elementos principales: en primer lugar, es necesaria una estrategia más coordinada entre países o grupos de países ya que hasta el momento los esfuerzos de vinculación con China han sido conducidos a través de canales exclusivamente bilaterales. Los gobiernos de la región deben avanzar en una agenda regional de comercio, inversión, infraestructura e intercambio tecnológico, entre otros aspectos, que pueda motivar un acercamiento estratégico con Asia, y con China en particular. Por supuesto, esto implica tener la flexibilidad suficiente para abarcar las diferentes relaciones que se plantean entre las distintas subregiones de ALC en su vinculación con Asia, y en especial las diferencias entre México y Centroamérica, por un lado, y América del Sur, por otro. Segundo, en el área comercial, la firma de acuerdos comerciales entre los países de la región y Asia es fundamental también para superar los altos niveles arancelarios que se aplican a algunos productos agrícolas y a manufacturas basadas en recursos naturales, donde la región tiene mayores ventajas comparativas. Tercero, respecto a la inversión se propone que los gobiernos tengan un rol más activo en detectar los proyectos de infraestructura y de energía donde la inversión china es más necesaria. Esto generaría también externalidades positivas para el propio proceso de integración regional latinoamericano. Por último, ALC debería apuntar sus esfuerzos a identificar las complementariedades con Asia y buscar incorporarse en sus cadenas de valor, para lo cual se necesita avanzar en la gestación de alianzas empresariales birregionales de comercio e inversión.

En síntesis, la lectura de estos tres documentos brinda un panorama vasto y complementario sobre la relación económica y comercial entre China y América Latina. Los trabajos permiten tener una visión de conjunto sobre la forma en que se perfila el nuevo contexto mundial para las próximas décadas y alertan sobre la impostergable necesidad de que los países de la región definan una estrategia de largo plazo que permita aprovechar al máximo las ventajas del nuevo escenario. ♦

³ Como señala la CEPAL, Aunque América Latina y el Caribe es el segundo mayor emisor de IED hacia China, casi la totalidad de las inversiones proceden de tres países: las Islas Vírgenes Británicas (80%), las Islas Caimán (14%) y Barbados (5%). La IED originada durante el período 2007-2008 desde países destacados como el Brasil, la Argentina, Chile, México y el Perú ha sido mínima. (Rosales y Kuwayama, 2012, pág. 117).





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