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TRADE AND THE INTERNATIONAL ORGANIZATION OF PRODUCTION

Prospects for Latin America and the Caribbean

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INTRODUCTION

While geographic separation of activities involved in producing a good or a service across two or more countries is not new, in recent decades the world economy has witnessed an unprecedented intensification of this phenomenon. The resulting international organization of production

has substantially increased interdependencies among economies around the globe and has translated into a fast growing trade in intermediate inputs and services (Yeats, 2001; Hummels, Ishii & Yi, 2001; UNCTAD, 2004). Unsurprisingly, such a development has attracted the attention of researchers, businessmen, and policymakers alike, who have not spared names to describe it, including international production

fragmentation, offshoring, global value chains, international production networks, slicing the value added chain (Krugman, 1995), disintegration of production (Feenstra, 1998), delocalization (Leamer, 1996) or the great unbundling (Baldwin, 2006).

From the point of view of developing countries, increased international production fragmentation provides opportunities to engage in international trade transactions that were virtually not available before. In particular, this fragmentation process allows those countries to become part of an ever finer international division of labor, whereby they enter into cross-border production sharing networks by participating in just one (or a few) facet(s) of the activities involved in producing a final good. In contrast, in absence of such vertical specialization, emerging economies would have to master entire production processes in order to become viable competitors in world markets.

The fact that international production fragmentation may provide developing countries with new opportunities to diversify their trade can be particularly important for Latin America and the Caribbean (LAC) as the region's export-base is still highly concentrated in natural-resource-intensive sectors, which has even intensified during the last decade with the emergence of China. Further, according to the existing literature, participation of firms in international supply chains is likely to be associated with additional benefits, including gains from knowledge spillovers or from larger financial resources emanating from the network. Given their relevance, it is clear that these new trends deserve close examination. In this sense, two relevant questions arise: What are the main drivers of fragmentation and sourcing of production abroad? What policies countries can follow to increase their participation in cross-border production sharing?

A "FRAGMENTED" THEORETICAL GUIDE

Unfortunately, there is no unified theory encompassing all dimensions of international production fragmentation. Instead, the literature consists on various theoretical frameworks that focus on different aspects of this phenomenon, such as general equilibrium accountings of the implications for trade, wages and productivity (Yi, 2003; Grossman & Rossi-Hansberg, 2008; Jones & Kierkowski, 2001),

analyses that primarily look at multinational activities (Helpman, 1984; Helpman & Krugman, 1985), and theories that are concerned with who retains the control of the unbundled production (Antras, 2003; Antras & Helpman, 2008).

Nevertheless, intrinsic to most of these frameworks is the common notion that firms tend to separate the production process into various blocks and relocate them to remote places with different location advantages as long as the additional costs of coordinating these remotely located blocks plus the costs of moving these inputs around are lower than the saved costs arising from the fragmentation process *per se*. There is then certainly no coincidence in that world production has been continuously spliced and diced into separate fragments in recent decades, as the costs of coordinating production blocks in remote places have significantly declined due to improvements in both communications technologies (e.g., faxes, e-mail, videoconferencing, etc.) and transportation quality and speed of delivery over this period (Hummels, 2007).

The process of international fragmentation of production is, of course, not limited to the offshoring of inputs and components, but it is also related to services. International fragmentation can get right into the factory and can take the form of outsourcing of one particular production stage, but also of one particular department, or a job. Indeed, what is new about these finer levels of fragmentation is that the type of job or task that is offshored may well be a task that exists in a wide range of sectors. For example, data-entry maybe offshored by labor-intensive sectors and also by capital-intensive sectors. This renders particularly difficult to classify the potential winners and losers from this type of international competitive pressures according to the sector in which they work, as it is typically done in standard trade models (Antras & Helpman, 2008). Nevertheless, what is clear is that the international fragmentation of production refers to blocks of production and also to services, a feature that undoubtedly has important consequences for LAC.

Based on all these, it is natural to ask where LAC stands regarding all these issues? Figures shown in the *data section* of this journal reveal that LAC's participation in this type of production sharing is low, particular when compared to Asia. The burning questions that arise then are: (i) what are the factors deterring LAC countries participation in global and

regional production networks; and (ii) what are the prospects of the region to deepen the region's insertion into global supply chains.

This issue of the *Integration & Trade Journal* is precisely devoted to examine the determinants and implications of the international fragmentation of production from the point of view of LAC. Through a series of contributions from experts in the field, many important aspects of the region's participation in globally integrated value chains are carefully analyzed and discussed. The common and ultimate objective is to foster further policy debate in the region on this increasingly important topic.

FEATURED CONTRIBUTIONS

The first article by Sascha O. Becker and Karolina Ekholm thoroughly reviews the literature on international production fragmentation, including many contributions that examine its driving forces as well as those that explore its economic consequences. Based on this initial account, the authors provide a stimulating discussion on policy issues in which education and job mobility play critical roles.

The second article by Lurong Chen and Philippe De Lombaerde embarks directly into statistical analyses to present a picture of Latin American involvement in regional cross-border production sharing. In so doing, the authors compare the situation of Latin America with that of East Asia, a region well-known for its engagement in regional production networks. The results confirm some of the existing presumptions among economists and practitioners, such that intra-regional economic interdependence in Latin America is not as strong as in East Asia or that the composition of intra-regional trade is highly different between the two regions with that of East Asia more biased towards manufactured parts and components. Nevertheless, when looking at the dynamics over time, the authors interestingly find that LAC is slowly diminishing the gap with respect to this type of intra-regional trade. Lastly the authors present their thoughts about possible strategies to improve the prospects of regional production sharing in LAC.

The article by Manuel Flores and Marcel Vaillant takes the empirical analysis to the product level in order to

examine at a great detail the patterns of specialization in various countries of LAC and how they are connected to participation in international production networks. Using recently developed techniques that measure the level of sophistication of a country's export basket, the authors find that LAC generally exhibits low levels of export sophistication typically associated with commodities and natural-resource intensive goods.¹ There are, however, significant differences among LAC economies. Thus, countries such as Brazil, Mexico, and Argentina show higher than average levels of export sophistication. The authors' tracking of countries' export baskets over time yields interesting results. For example, Costa Rica, Colombia, Peru and Uruguay, appear to have high levels of sophistication precisely in the goods that they started to export competitively in recent periods. The authors link these incipient changes in specialization trends to increasing participation in global value chains.

As mentioned before, the process of international fragmentation of production is not limited to the offshoring of inputs and components, but it is also related to services. Indeed, part of the unbundling has spread from factories to offices with the result being the offshoring of many service-sector jobs (Amiti & Wei, 2005). In the fourth article of this issue, Andrés López, Andrés Niembro and Daniela Ramos tackle the subject of service offshoring in LAC. After assessing the prospects of exporting services from Latin America, the authors stress that public policies are likely to play a key role in going forward, particularly to attract investment, boost the export of services, and reach a stable insertion into global value chains that can generate spillovers and linkages to other parts of the economy.

In summary, these articles aim to provide valuable information for policymakers, practitioners and specialists in the region on a phenomenon that is changing the worldwide patterns of trade and investment. ♦

¹ The level of sophistication of a good is related to the number of countries specializing in the production of the goods as well as some characteristics of the countries, like their income. See Hausmann & Hidalgo (2009).

REFERENCES

- AMITI, M. & S. J. WEI. 2005. "Fear of Service Outsourcing: Is it Justified?", *Economic Policy*, 20.
- ANTRAS, P. 2003. "Firms, Contracts, and Trade Structure". *Quarterly Journal of Economics*, 118.
- & E. HELPMAN. 2008. "Contractual Frictions and Global Sourcing", in: Helpman, E., D. Marin & T. Verdier (eds), *The Organization of Firms in a Global Economy*. Cambridge, MA: Harvard University Press.
- BALDWIN, RICHARD. 2006. "Globalization: The Great Unbundling(s)", report prepared for the Finnish Prime Minister's Office (in context of EU Presidency 2006).
- FEENSTRA, ROBERT. 1998. "Integration of Trade and Disintegration of Production in the Global Economy", *Journal of Economic Perspectives*, 2(4).
- GROSSMAN, G. M. & R. ROSSI-HANSBERG. 2008. "Trading Tasks: A Simple Theory of Offshoring", *American Economic Review*, 98.
- HAUSMANN, R. & HIDALGO C. 2009. "The Building Blocks of Economic Complexity", *PNAS*, 106(26).
- HELPMAN, E. 1984. "A Simple Theory of International Trade with Multinational Corporations", *Journal of Political Economy*, 92.
- & P. KRUGMAN. 1985. *Market Structure and Foreign Trade*. Cambridge, MA: MIT Press.
- HUMMELS, D. 2007. "Transportation Costs and International Trade in the Second Era of Globalization", *Journal of Economic Perspectives*. 21(3).
- ; JUN ISHII & KEI-MU YI. 2001. "The Nature and Growth of Vertical Specialization in World Trade", *Journal of International Economics*, 54(1).
- JONES, R. W. & H. KIERKOWSKI. 2001. "Globalization and the Consequences of International Fragmentation", in: R. Dornbusch (ed.) *Money, Capital Mobility and Trade: Essays in Honor of Robert A. Mundell*. Cambridge, MA: MIT Press.
- KRUGMAN, PAUL. 1995. "Growing World Trade: Causes and Consequences", *Brooking Papers on Economic Activity*, 1.
- LEAMER, EDWARD E. 1996. "In Search of Stolper-Samuelson Effects on U.S. Wages", NBER Working Paper 5427.
- UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT (UNCTAD). 2004. *World Investment Report, The Shift Towards Services*. United Nations.
- YEAT, ALEXANDER. 2001. "Just How Big is Global Production Sharing", in: Sven W. Arndt & Henryk Kierzkowski (Eds.), *Fragmentation: New Production Patterns in the World Economy*. Oxford: Oxford University Press.
- YI, K-M. 2003. "Can Vertical Specialization Explain the Growth of World Trade", *Journal of Political Economy* 111.



Articles

INTERNATIONAL FRAGMENTATION OF PRODUCTION: ITS EFFECTS ON THE LABOUR MARKET

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The paper gives an overview of the literature on the effects of international fragmentation of production on the labour market. This literature has mostly focused on the issue of how increased fragmentation of production affects relative wages between skilled and unskilled workers in developed countries. However, in order to fully understand the consequences of this phenomenon, many other issues need to be studied, such as the effects on productivity, resource allocation and equilibrium unemployment. It is also important to understand the underlying driving forces behind the phenomenon. The paper gives an account of the studies that have been made of these issues to date and discusses possible avenues for further research.

INTRODUCTION

When David Ricardo wrote his seminal treatise on the benefits of trade in the early 19th century, international trade was widely viewed as the exchange of finished goods for finished goods. In Ricardo's famous example, British apparel was exchanged for Portuguese wine and the analysis based on the idea that factories bring together local workers

and machinery for production and part of the output is then shipped to other countries in exchange for foreign final goods.

Today the international organization of production looks very different. Producers and service providers outsource intermediate services across borders, and manufacturers bring together workers and electronic equipment at a distance (see e.g. Feenstra, 2010).

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Unfinished materials and semi-finished intermediates are shipped abroad for processing so that the components of a finished good may have crossed country borders many times before a good gets to its ultimate consumer. The organization of production can be described as one of “vertical specialization” – there is specialization across countries on different stages of the production of a final good rather than on the production of different final goods (Hummels *et al.*, 2001; Yi, 2003).

To give an example of the extent to which production can be fragmented let us consider an iPod. Linden *et al.* (2009) estimated that the hard-drive, produced by the Japanese company Toshiba in affiliates located in China, accounted for 51% of the cost of all parts. The display module and display driver, produced in Japan, accounted for 16% of the cost. Another 2% were accounted for by inputs supplied by Samsung from Korea. The final assembly, accounting for 3% of the input cost, were carried out by a Taiwanese company in a plant in China. The source of 20% of inputs could not be determined at all, which left 9% of input costs to be supplied by US firms. However, these firms partly produced their inputs in Singapore and Taiwan.

The phenomenon “offshoring”, typically defined as the relocation of particular business processes abroad, was debated extensively a few years ago.¹ It seemed to give an additional dimension to the more general trend towards increased globalization – a dimension that more clearly than others seemed to threaten the jobs in the advanced economies in North America and Europe.

The financial crisis and severe downturn in the advanced economies in its aftermath has to some extent shifted focus away from offshoring – in a sense making it clear that there are other perhaps more acute threats to jobs in the advanced economies – but as even the Western economies recover fully from this crisis, the debate about the consequences of globalization for employment and earnings are likely to resume.

The main focus in the debate has been on jobs and wages in the advanced economies. Does increased

vertical specialization and offshoring of particular processes such as back office services reduce the demand for labor leading to increased unemployment and lower real wages? But there are other important questions to ask regarding the consequences of this trend. What are the welfare effects; for the world as a whole, for the countries from which processes are offshored and for the receiving countries? How does it affect income distribution? How does it affect the way wages are determined? Does it lead to reduced bargaining power for trade unions thereby perhaps increasing equilibrium employment rather than decreasing it?

There are many important questions to answer for researchers working on international trade. Some of them have been analyzed carefully, but many still remain to be addressed. In this article we will give an overview of what has been done to date in this area and point to areas where we see scope for more careful research. Our perspective will mainly be that of the challenges faced by advanced economies in the face of an increased fragmentation of production, since that has been the primary focus of the research literature. However, we will also touch upon issues related to the consequences of offshoring in receiving countries.

DRIVING FORCES BEHIND FRAGMENTATION OF PRODUCTION

Before discussing the research on the consequences of an increased international fragmentation of production, let us briefly discuss its driving forces. When a firm considers sourcing an input from abroad rather than from the domestic economy, two factors are of critical importance: the relative production costs in different locations and the cost associated with shipping and coordinating production abroad. An important driving force behind the increased fragmentation of production is the reduction in the latter cost, i.e. the cost associated with bringing a foreign-sourced input to a domestic production site. The IT revolution with its advances in information and communication technology has been particularly important since it has significantly lowered the cost of organizing complex activities across countries. Prominent theoretical papers (e.g. Antràs, 2003; Antràs and Helpman, 2004; Antràs and Helpman, 2008) stress the role of contracting in firms’ decisions both to source components at arm’s

¹ In the early literature the term “international outsourcing” was often used (e.g. Feenstra and Hanson, 1996). However, since “outsourcing” can be a purely domestic phenomenon unrelated to globalization it created some confusion. In more recent literature, the term “offshoring” seems to be the favored one.

length versus in-house and to locate production abroad versus at home.²

Another way of viewing the costs associated with bringing a foreign-sourced input to a domestic production site is as the benefits of co-locating the different production stages. In part, such benefits are determined by the purely technological aspect of the activity and its relationship with other production stages. As shown by Baldwin and Venables (2010), successive reductions in trade and coordination costs may lead to different and sometimes quite complex production patterns depending on the exact technological nature of the production processes.

There are of course other factors besides production and trade costs that may affect the firms' location choices.³ Proximity to customers and differences in various institutions and regulations are factors that are likely to play a role. In fact, we know from the empirical literature on the determinants of affiliate production within multinational enterprises (MNEs) that market size is of crucial importance (e.g. Carr *et al.*, 2001). This importance is confirmed by studies of location choice by MNEs (e.g. Head and Mayer, 2004; Becker *et al.*, 2005). The importance of market size and the proximity to customers also shows up clearly in the pattern of a country's most important destinations for foreign direct investment (FDI), since it typically includes the large advanced economies. This means that while the debate about offshoring and globalization has focused on the transfer of activities to low-wage economies such as China and India, for most countries the main recipients of their firms' foreign investments are the United States, Germany, United Kingdom, etc.

ECONOMIC CONSEQUENCES OF FRAGMENTATION OF PRODUCTION

So what are the likely consequences of an increased international fragmentation of production then? The answer to this question obviously depends on the exact nature of the fragmentation considered. To a certain extent, we would expect trade in intermediate inputs to bring the exact same gains from trade as trade in final goods: gains from specialization according to comparative advantage, gains from a better utilization of economies of scale, gains from an increased access to variety regarding product specification and possibly pro-competitive gains from lowered markups.

At the same time, there is no general presumption that the outcome would be welfare maximizing. When separate firms make independent location decisions in the presence of co-location benefits, the outcome may very well be inefficient since these benefits create externalities. One input provider simply does not take into account how its location decision affects the costs of another input provider (see e.g. Baldwin and Venables, 2010).

A fair amount of space has been devoted to discussing the consequences of offshoring for employment and wages. Again, by drawing a parallel to the standard results for trade in final goods, one would expect the Stolper-Samuelson result to be at play; real and relative returns of factors in abundant supply in the advanced economies should tend to increase, while the opposite should hold for scarce factors. Assuming that skilled labor is the abundant factor in the advanced economies, this translates into the hypothesis that offshoring leads to an increased skill premium – a hypothesis that fits in well with the observation that skill premiums seem to have gone up in many advanced economies lately. On the other hand, it seems to have gone up in several developing countries as well, which casts some doubt on the relevance of the Stolper-Samuelson result in this context.⁴

A well-cited theoretical analysis of the effect of offshoring on the relative wage between skilled and unskilled workers has been developed by Grossman and Rossi-Hansberg (2008). They make clear that there

² Empirically, these theories have been taken to the data by Bernard, Jensen, Redding and Schott (2010); Nunn and Treffer (2008); and Corcos, Irac, Mion and Verdier (2009).

³ Baldwin (2010) discusses the political economy of unilateral tariff reductions by developing countries, which in turn influence firms' location and sourcing choices.

⁴ For a relatively recent survey of research on relative wages and their link to globalization in developing countries, see Goldberg and Pavcnik (2007).

are other effects at work besides the Stolper-Samuelson mechanism. The perhaps most important is what they call a “productivity” effect, which results from the cost-savings incurred by a firm that offshores some of its activities. These cost-savings make production more profitable, thus leading to an expansion of overall activities. If offshoring takes place primarily in sectors that use unskilled labor relatively intensively, the outcome may in fact be that the relative wage of the unskilled workers increases instead of decreases (see also Baldwin and Robert-Nicoud, 2010).⁵

An important possible effect of reduced shipping and coordination costs leading to an increased fragmentation of production is that it may affect the way wages are determined in the labor market. It seems natural to assume that when firms’ alternatives in terms of possible locations for input production expand, their bargaining power *vis-à-vis* workers are strengthened. For the outcome in the labor market this would tend to lower real wages, thereby inducing firms to employ more workers.

A number of recent theoretical studies of international trade explicitly model the labor market as one in which searching and matching frictions together with wage bargaining produce equilibria with unemployment (e.g. Helpman and Itzhaki, 2009; Helpman *et al.* 2010). There are, however, few studies focusing explicitly on how offshoring and the fragmentation of production might affect long-run unemployment (an exception is Mitra and Ranjan, 2007). The main impression from this literature, which is very much in its infancy, is that the effect of falling trade costs on long-run unemployment depends on the specific nature of the sectors involved and the institutions of the countries affected.

A point made in the papers by Helpman and co-authors is that increased trade as a result of falling trade costs may lead to increased long-run unemployment in spite of welfare gains if the country has a comparative advantage in producing in sectors characterized by high search and matching frictions. This could for instance be the case if the country has relatively flexible labor markets. Countries with institutions creating more rigid labor markets, on

the other hand, may experience less negative effects on the rate of unemployment because sectors exhibiting high equilibrium unemployment are less likely to expand.

In contrast to this result, a common line of reasoning found in other papers is that increased globalization is likely to increase unemployment more in countries with rigid labor markets because wages of laid-off workers adjust less. This line of reasoning was put forward by Krugman (1995), building on earlier work by Brecher (1974), and several subsequent papers have followed suit (e.g. Davis, 1998; Sinn, 2006, 2007; EEAG, 2005; Seidel, 2007).

Turning to the empirical evidence on offshoring, there is no clear-cut support for the hypothesis that it increases productivity through cost reductions (e.g. Görg and Stephan, 2002; Kimura, 2002; Görg and Hanley, 2004). Amiti and Wei (2005), however, do find that about 15% of the increase in productivity in US manufacturing between 1995 and 2001 could be explained by offshoring of intermediate inputs and services. It should be noted that it is very difficult to define the counterfactual in these types of studies. Offshoring may be a response to a tougher competitive situation and may have a positive effect on the market share and survival rate of the firm, in spite of the absence of any measurable productivity increases.

Research by Ebenstein *et al.* (2009) shows that the effects of US offshoring in the 1990s on employment were relatively small. While offshoring to low-income countries had a negative effect on manufacturing employment, offshoring to high-income countries had a positive effect. Overall, the effect was positive because the effect of offshoring to high-income countries predominated. The effect on wages, on the other hand, seems to have been substantial. By focusing on occupations the authors find larger effects than documented in previous studies.⁶ At the occupational level, an increase in imports of one percentage point is estimated to have been associated with a reduction in the real wage by 0.25 percentage point. While certain occupations such as teachers were not affected at all by

⁵ For empirical studies investigating the relationship between fragmentation of production and the relative demand for skilled labor, see e.g. Feenstra and Hanson (1999), Slaughter (2000), Head and Ries (2002), Becker *et al.* (2009).

⁶ It is difficult to estimate the effect on wages within an industry since workers can move between industries. But it is possible to estimate the effect for certain especially affected occupations since it is more difficult to change occupation than industry.

increased import competition, other occupations such as workers within shoe manufacturing experienced an increase in import competition by as much as 40 percentage points. These results suggest that increased fragmentation of production affects different types of occupations very differently.

A relatively large literature tries to explain differences in unemployment between OECD countries, focusing mainly on differences in labor market institutions, such as replacement rates in unemployment insurance, the degree of unionization, and the coverage of collective agreements, but also to some extent on differences in the degree of product market regulation (e.g. Bertola *et al.*, 2001; Nicoletti and Scarpetta, 2005; Griffith *et al.* 2007; Bassanini and Duval, 2006). The effect of increased globalization of production has not been addressed directly, but deregulation of product markets, where tariff reductions and the removal of other trade barriers constitute an important part, can be interpreted as a measure of the degree of globalization. According to the available research, such deregulations have had a substantial lowering effect on unemployment the last 10-15 years. This suggests that overall globalization has had a positive effect on the long-run level of employment.

More recent research by Becker and Muendler (2008) at the level of the individual worker shows that German MNEs that expand abroad keep more jobs at home than firms that do not expand abroad. This result may seem somewhat paradoxical since a foreign expansion of an MNE is often expected to occur at the expense of domestic operations. But an explanation is that these firms may be able to capture larger market shares because of their foreign expansion and are therefore more likely to increase the demand for workers also at home. Muendler and Becker (2010) find that German MNEs react to wage differentials both when they establish new activities abroad and when they expand existing activities, suggesting that they indeed do substitute foreign for domestic workers as a result of wage differentials.

Several papers have tried to explain the counterintuitive result that developing countries being typically the recipients of offshoring also tend to have experienced increased relative wages of skilled workers (see e.g. Goldberg and Pavcnik, 2007). A well-cited paper is the one by Feenstra and Hanson (1997) where they show that activities offshored from the US to Mexico seem to have been relatively

intensive in unskilled labor from the perspective of the US, but relatively skill intensive from the perspective of Mexico.⁷

POLICY ISSUES (AND WHAT WE NEED TO FIND OUT TO ADDRESS THEM)

In many of the advanced economies the issue of how to best deal with the challenges created by increased globalization has been high on the political agenda. The typical response at a political level is to emphasize the need for more and better education and more flexible labor and product markets. These are all areas where reform is likely to contribute to an increased growth potential and an improved ability to adjust to structural changes and are as such easy to endorse. However, it is important to realize that endorsing such reform may be a good idea completely independent of the degree of globalization and of fragmentation of production. A high growth potential and a high degree of adaptability to shocks are desirable feature of any economy, at any stage and in any circumstance. The economy is constantly exposed to shocks of various kind; increased competition from abroad, technical change, macroeconomic shocks like oil price shocks. These shocks lead to turnover in the labor market. Some jobs disappear, others are created. The better the ability of the economy to create new jobs and quickly absorb idle workers into these jobs, the lower the costs associated with structural adjustment.

There may be reasons to believe that increased globalization exposes the economy to more and larger shocks and that it therefore has become more important to pursue a policy conducive to growth potential and the ability to adjust quickly compared with a couple of decades ago. At the same time, it is not necessarily the case that globalization leads to more and larger shocks. Many of the disturbances that an economy experiences are domestically generated and there are arguments for why globalization might in fact reduce the extent of such disturbances. Be that as it may, it is not necessary to have a view on this issue to be in favor of reforms that strengthen the growth potential and adaptability of the economy.

⁷ See also Hsieh and Woo (2005).

Yet, there are a few issues that are specific to the increased fragmentation of production where a discussion on the appropriate policy response is warranted. One such issue is whether increased offshoring from advanced economies leads to a shrinking manufacturing sector and, if so, what are the consequences for the economy. Another issue is whether particular groups in the labor market are carrying an unjustly large burden in the adjustment brought about by increased globalization.

Let us begin by discussing the first of these two issues. The advanced economies are still sometimes inappropriately referred to as industrialized countries – inappropriately since most of them have been experiencing a shrinking industrial sector for quite some time. Many of these economies are more appropriately referred to as service economies. Has increased globalization and fragmentation of production contributed to this development? Most likely. Is this something that should be counteracted? Is it important for the long-run growth prospects of an economy that pure industrial activities take place within the country's borders? These are tougher questions to answer.

Many of the services produced in connection with the manufacturing of industrial products are relatively sophisticated and typically carried out by highly skilled and highly educated labor. This is the case for instance regarding product development, design, economic and legal advice and marketing. In principle, it may be more important to have one type of activity located at home than another if the activity in question is associated with positive externalities. If the activity generates knowledge that spills over to other firms or if it contributes to the creation of a local market for highly specialized labor, then it may very well be desirable to capture as much as possible of this activity from a national welfare point of view.

Is manufacturing production associated with positive externalities? Is the actual production associated with greater externalities than the business services that are carried out in connection with this production? The view that it is important to promote domestic manufacturing production is often based on a worry that a shrinking manufacturing sector might lead to a worse innovation climate. But innovations in services may be just as important as in manufacturing.

The truth is that we do not know all that much about the relative size and significance of externalities in

manufacturing versus services. It is inherently difficult to study externalities since they are side effects that seldom leave traces behind. There is ample support for the existence of externalities contributing to the creation of regional clusters of activities. But whether these externalities are stronger in certain activities compared to other, thereby justifying the promotion of certain activities at the expense of other activities, is still an open question.⁸ It would be useful with more empirical research on the size of externalities in different activities, but it may be unrealistic to think that we will at some point have enough evidence to choose certain activities on the basis of their larger externalities. A general conclusion that can be drawn, however, is that any policy involving the promotion of a particular type of activity should be based on a careful analysis of the relative size of any positive externalities associated with the activity compared with what alternative activities are likely to bring. Of course, the expected benefits of such policies also have to be weighed against the associated costs.

Turning to the question whether particular groups in the labor market bear a disproportionately large burden for the adjustment to increased globalization, we begin by noting that the answer depends not only on the effect of globalization on the relative demand for different types of workers but also on what system is in place to deal with the temporary unemployment and need for adjustment that follows structural adjustment. We do not have sufficient evidence to clearly single out particular groups as those losing out from an increased fragmentation of production. In particular, while there are many studies estimating the impact at the level of firm or sector, few empirical studies have even attempted to get at the economy-wide effects on relative demand and relative wages.

Still, education seems to be generally an important factor determining to what extent a worker is affected negatively by offshoring, even if other aspects of the job matter as well. If it were possible to assume on good grounds that increased fragmentation of production mainly hurts workers with low education

⁸ Glaeser (2011) suggests that cities dominated by a few manufacturing firms, like Detroit, have experienced a concentration of relatively low-skill routine activities which are at a higher risk of disappearing due to technical progress. In contrast, other cities have focused on high-skilled activities mostly in the services sector with positive externalities that make such cities thrive.

it would be natural to reduce the burden for these well-defined groups by some form of benefits. But if education is not necessarily the most relevant factor by which globalization affects the domestic labor market, increased fragmentation of production may have consequences that create new challenges for policy.

Snowder *et al.* (2009) expect that the relevance of the level of education will diminish over time while the nature of the tasks carried out will become more important. However, the issue of how offshoring affects and is affected by the tasks carried out is debated. Becker *et al.* (2009) find that within German MNEs education is at least as important as the nature of tasks carried out to predict how offshoring affects relative labor demand. Workers with relatively high education can be expected to do better in the labor market, possibly because the high education makes it easier for them to change jobs and take on more demanding tasks.

The policy-makers' focus on the need for more and better education when responding to the challenges created by increased globalization may very well be justified. Education still seems to be the best insurance for the individual against a bad outcome in the labor market.⁹ To pursue policies promoting particular occupations and/or activities are however less well justified. It is simply not possible to foresee what the next threat against domestic jobs is going to be. For this reason, it is more appropriate to pursue policies that facilitate worker mobility while leaving it to the individual workers to find out which type of jobs suits them best.◆

⁹ Nelson and Phelps (1966) argued that "probably education is especially important to those functions requiring adaptation to change" and Schultz (1975) viewed education as a key factor in dealing with disequilibria.

REFERENCES

- AMITI, MARY AND SHANG-JIN WEI. 2005. "Fear of Service Outsourcing: Is it Justified?" *Economic Policy*, 20, pp. 308-348.
- ANTRÁS, POL. 2003. "Firms, Contracts, and Trade Structure", *The Quarterly Journal of Economics*, 118(4): 1375-1418.
- AND ELHANAN HELPMAN. 2004. "Global Sourcing", *Journal of Political Economy*, 112(3): 552-580.
- . 2008. "Contractual frictions and global sourcing", in: Helpman, E.; D. Marin and T. Verdier (eds.), *The Organization of Firms in a Global Economy*. Cambridge, MA: Harvard University Press, pp.9-54.
- BALDWIN, RICHARD. 2010. "Unilateral Tariff Liberalisation", NBER Working Paper, 16600. Cambridge, MA.
- AND FREDERIC ROBERT-NICOUD. 2010. "Trade-in-goods and trade-in-tasks: An Integrating Framework", NBER Working Paper, 15882. Cambridge, MA.
- BALDWIN, RICHARD AND ANTHONY VENABLES. 2010. "Relocating the Value Chain: Offshoring and Agglomeration in the Global Economy", NBER Working Paper, 16611. Cambridge, MA.
- BASSANINI, ANDREA AND ROMAIN DUVAL. 2006. "Employment Patterns in OECD Countries: Reassessing the Role of Policies and Institutions", OECD Social, Employment and Migration Working Papers, 35. Paris.
- BECKER, SASCHA O. AND MARC-ANDREAS MUENDLER. 2008. "The Effect of FDI on Job Security", *The B. E. Journal of Economic Analysis & Policy*, 8(1) (Advances), Article 8.

----- AND KAROLINA EKHOLM. 2009. "Offshoring and the Onshore Composition of Tasks and Skills", CEPR Discussion Paper, 7391. London.

----- AND ROBERT JÄCKLE. 2005. "Location Choice and Employment Decisions: A Comparison of German and Swedish Multinationals", *Review of World Economics*, 141 (4): 693-731.

BERNARD, ANDREW B.; J. BRADFORD JENSEN; STEPHEN J. REDDING AND PETER K. SCHOTT. 2010. "Intrafirm Trade and Product Contractibility", *American Economic Review*, 100(2): 444-448.

BERTOLA, GIUSEPPE; TITO BOERI AND GIUSEPPE NICOLETTI. 2001. *Welfare and Employment in a United Europe*, MIT Press.

BRECHER, RICHARD A. 1974. "Minimum Wage Rates and the Pure Theory of International Trade", *Quarterly Journal of Economics* 88, pp. 98-116.

CARR, DAVID L.; JAMES R. MARKUSEN AND KEITH E. MASKUS. 2001. "Estimating the Knowledge-Capital Model of the Multinational Enterprise", *American Economic Review* 91(3): 693-708.

CORCOS, GREGORY; DELPHINE IRAC; GIORDANO MION AND THIERRY VERDIER. 2009. "The Determinants of Intra-Firm Trade", CEPR Discussion Paper, 7530. London.

DAVIS, DONALD R. 1998. "Does European Unemployment Prop Up American Wages? National Labour Markets and Global Trade", *American Economic Review* 88, pp. 478-494.

EBENSTEIN, AVRAHAM; ANN HARRISON; MARGARET MCMILLAN AND SHANNON PHILLIPS. 2009. "Estimating the Impact of Trade and Offshoring on American Workers Using the Current Population Surveys", NBER Working Paper, 15107. Cambridge, MA.

EUROPEAN ECONOMIC ADVISORY GROUP - EEAG. 2005. "Report on the European Economy 2005 by the EEAG at CESifo (L. Calmfors, G. Corsetti, S. Honkapohja, J. Kay, W. Leibfritz, G. Saint-Paul, H.-W. Sinn and X. Vives)". Munich. March.

FEENSTRA, ROBERT C. 2010. *Offshoring in the Global Economy: Microeconomic Structure and Macroeconomic Implications*. Cambridge, Mass.: MIT Press.

----- AND GORDON H. HANSON. 1996. "Foreign Investment, Outsourcing, and Relative Wages", in: Feenstra, R. C., G. M. Grossman, and D. A. Irwin (eds.), *The Political Economy of Trade Policy*. Cambridge MA: MIT Press, pp. 89-127.

-----, 1997. "Foreign direct investment and relative wages: Evidence from Mexico's maquiladoras", *Journal of International Economics*, 42, pp. 371-393.

-----, 1999. "The Impact of Outsourcing and High-Technology Capital on Wages: Estimates for the United States, 1979-1990", *Quarterly Journal of Economics*, 114(3): 907-940.

GLAESER, EDWARD. 2011. *Triumph of the City: How Our Greatest Invention Makes Us Richer, Smarter, Greener, Healthier, and Happier*. Penguin Press.

GOLDBERG, PINELOPI K. AND NINA PAVCNİK. 2007. "Distributional Effects of Globalization in Developing Countries", *Journal of Economic Literature*, 45, pp. 39-82.

GÖRG, HOLGER AND AOIFE HANLEY. 2004. "Does Outsourcing Increase Profitability?", *Economic and Social Review*, 35(3): 267-288.

GÖRZIG, BERND AND ANDREAS STEPHAN. 2002. "Outsourcing and Firm-Level Performance", DIW Discussion Paper, 309, Berlin: DIW.

GRIFFITH, RACHEL, RUPERT HARRISON AND GARETH MACARTNEY. 2007. "Product Market Reforms, Labour Market Institutions and Unemployment", *Economic Journal*, 117(519): C142-C166.

GROSSMAN, GENE M. AND ESTEBAN ROSSI-HANSBERG. 2008. "Trading Tasks: A Simple Theory of Offshoring", *American Economic Review*, 98(5), 1978-1997.

HEAD AND MAYER. 2004. "Market Potential and the Location of Japanese Investment in the European Union", *The Review of Economics and Statistics*, 86(4): 959-972.

HEAD, KEITH AND JOHN RIES. 2002. "Offshore Production and Skill Upgrading by Japanese Manufacturing Firms", *Journal of International Economics*, 58(1): 81-105.

HELPMAN, ELHANAN AND OLEG ITSKHOKI. 2010. "Labor Market Rigidities, Trade and Unemployment", *Review of Economic Studies*, 77(3): 1100-1137.

----- AND STEPHEN REDDING. 2010. "Inequality and Unemployment in a Global Economy", *Econometrica*, 78(4): 1239-1283.

HSIEH, CHANG-TAI AND KEONG T. WOO. 2005. "The Impact of Outsourcing to China on Hong-Kong's Labor Market", *American Economic Review*, 95, pp. 1673-87.

HUMMELS, DAVID; JUN ISHII AND KEI-MU YI. 2001. "The nature and growth of vertical specialization in world trade", *Journal of International Economics*, 54(1): 75-96.

KIMURA, FUKUNARI. 2002. "Subcontracting and the Performance of Small and Medium Firms in Japan", *Small Business Economics*, 18(1-3): 163-75.

KRUGMAN, PAUL. 1995. "Growing World Trade: Causes and Consequences", *Brookings Papers on Economic Activity*, 26(1995-1): 327-362.

LINDEN, GREG; KENNETH KRAEMER AND JASON DEDRICK. 2009. "Who Captures Value in a Global Innovation System: The Case of Apple's iPod", *Communications of the ACM*, 52(3): 140-144.

MITRA, DEVASHISH AND PRIYA RANJAN. 2007. "Offshoring and Unemployment", NBER Working Paper, 13149. Cambridge, MA.

MUENDLER, MARC-ANDREAS AND SASCHA O. BECKER. 2010. "Margins of Multinational Labor Substitution", *American Economic Review*, 100(5): 1999-2030.

NELSON, RICHARD R., AND EDMUND S. PHELPS. 1966. "Investment in Humans, Technological Diffusion, and Economic Growth." *American Economic Review*, 56(2): 69-75.

NICOLETTI, GIUSEPPE AND STEFANO SCARPETTA. 2005. "Product Market Reforms and Employment in OECD Countries", OECD Economic Working Paper, 472. Paris: OECD.

NUNN, N. AND D. TREFLER. 2008. "The Boundaries of the Multinational Firm: An Empirical Analysis", in: Elhanan Helpman, Dalia Marin and Thierry Verdier (eds.), *The Organization of Firms in the Global Economy*. Cambridge, MA: Harvard University Press, pp. 55-83.

SCHULTZ, THEODORE W. 1975. "The Value of the Ability to Deal with Disequilibria", *Journal of Economic Literature*, 13(3): 827-846.

SEIDEL, TOBIAS. 2007. "The Impact of Globalisation with Rigid Labour Markets", PhD thesis, University of Munich.

SINN, HANS-WERNER. 2006. "The Pathological Export Boom and the Bazaar Effect. How to Solve the German Puzzle", *World Economy* 29(9): 1157-75.

----- . 2007. *Can Germany Be Saved? The Malaise of the World's First Welfare State*. Cambridge, MA: MIT Press.

SLAUGHTER, MATTHEW. 2000. "Production Transfer within Multinational Enterprises and American Wages", *Journal of International Economics*, 50(2): 449-472.

SNOWER, DENNIS J.; ALESSIO J. G. BROWN AND CHRISTIAN MERKL. 2009. "Globalization and the Welfare State: A Review of Hans-Werner Sinn's *Can Germany Be Saved?*", *Journal of Economic Literature*, 47(1): 136-158.

YI, KEI-MU. 2003. "Can Vertical Specialization Explain the Growth of World Trade?", *Journal of Political Economy*, 111(1): 52-102.

REGIONAL PRODUCTION SHARING NETWORKS AND HUB-NESS IN LATIN AMERICA AND EAST ASIA: A LONG-TERM PERSPECTIVE

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This article takes the East Asian experience as the starting point for an analysis of the dynamics of regional production sharing in Latin America and the Caribbean (LAC). Two characteristics of the Asian production network are focused upon: (i) the intensity of intra-regional trade and, more specifically, trade in manufactures and their parts and components, and (ii) the hierarchical organization of the production network around "hubs". With respect to intra-regional trade, the authors find that by-and-large the importance of this category of trade in total trade is broadly comparable, but the differences between the two regions become visible when looking at the composition of trade. Trade in manufactured products, in general, and manufactured parts and components, in particular, is clearly more important within East Asia although the gap seems to be slowly diminishing since the early 2000s. With respect to hub-ness, the authors observe that the rise of China has fundamentally changed the picture by positioning itself as a second hub in the region, with strong links to Japan. By contrast, the relative importance of the two candidate hubs in LAC (Mexico and Brazil) in intra-regional trade is still more modest, the level of mutual interdependence is low, and they are overshadowed by the US economy.

INTRODUCTION

The importance of intra-regional trade in East Asia in the post WW II era has broadly followed a U-shape (Agarwala *et al.*, 1994, pp. 22-23). While initially trade with the US and Europe grew faster than intra-regional trade, from the 1970s onwards the importance of intra-regional trade has been growing. This was related to the development of an intensive regional production sharing network, which has been considered as one of the core characteristics of the

"Asian way" of regional economic integration.¹ Many emerging East Asian economies started their post-war economic growth by participating in internationally

¹ Production sharing can be defined as "the internationalization of a manufacturing process in which several countries participate in different stages of a specific good's fabrication" (Ng and Yeats, 2001).

fragmented production of manufactures.² It took some Asian economies only few decades to achieve a level of industrialization which used to cost some advanced economies more than a century. As globalization has further unbundled production to be separated geographically and chronologically, more and more “formerly national production processes have been unbundled and dispersed to the lowest cost location in East Asia” (Baldwin, 2006). This mirrors the expansion of international trade of intermediate goods and services, particularly in a regional context. Moreover, as countries are competing for outsourced tasks from advanced economies, the emergence of “factory Asia” has been fostering competitive unilateral liberalization. The market engines behind the process of regional integration in East Asia are mainly powered by the *de facto* cross-border production linkages among individual economies. Rather than being based on political design or on an agreed blueprint, the formation of Asian regionalism and the process of Asian industrialization have been bottom-up processes following a “wild-geese-flying” pattern (“*Ganko Keitai*”) (Akamatsu, 1962),³ which considers the Asian economies as “a comparatively small [wild-geese-flying] group with Japan taking the lead”. This model has explained well the trend of sequential industrialization in the region supported by the development of a dense network of trade and investment linkages from the late 1950s to the mid-1980s, and the role therein of primary and secondary hubs (Japan, South Korea, Singapore...)⁴

² There is by now an abundant literature on international production fragmentation and related concepts. Although empirical observations of (aspects of) the phenomenon date back to the 1960s, the most important and systematic contributions were published from the 1990s onwards. See e.g. Jones and Kierzkowski (1990, 2001), Feenstra (1998), Yi (1999), and Ng and Yeats (2001).

³ When arranging East Asian “wild geese” into a four-tiered formation, one may regard Japan as the lead goose, followed by the four Asian NIEs (the second tier), the four main ASEAN countries (the third tier), and finally other developing economies such as China and Vietnam. International trade and investment are the key linkages among them.

⁴ For an insightful account of the development of Japan's postwar economy, see for example, Uchino (1978). On the role of the US in Japan's economic development, downplayed in Akamatsu's model, see Ozawa (2003). Even today, the regional economy is still highly dependent on that of the US. The share of the trade deficits in the US that came from East Asian economies continued to increase up until 1992 when it reached the peak at about 48%. It declined gradually afterward and stayed at a level slightly less than 40% in the 2000s. The region's total trade surplus with the US was over US\$1 trillion in 2005, which was equivalent to over one-tenth of the latter's annual GDP.

The purpose of this article is to take the East Asian experience as the starting point for an analysis of the dynamics of regional production sharing in Latin America and the Caribbean (LAC), and thus to provide useful information to policy-makers in the latter region, both at the national and regional levels. We will thereby focus on two characteristics of the Asian production network: (i) the intensity of intra-regional trade and, more specifically, trade in manufactures and their parts and components, and (ii) the hierarchical organization of the production network around “hubs”. Compared to most of the available studies, our analysis will take a longer-term perspective and look at the evolution over two decades.

After presenting a brief literature review of production sharing in LAC in section two, intra-regional trade intensities will be looked at and compared in section three. Measures of “hub-ness” will be presented in section four, and be followed by the concluding section.

INTERNATIONAL PRODUCTION SHARING IN LATIN AMERICA

From the literature on international trade in LAC in the 1970s and 1980s, at least two aspects can be retained that are relevant in this context. One is the awareness of the importance of intra-industry trade (IIT) in intra-regional commercial exchanges, which can be an indication of the presence of production sharing. It was shown, for example, that intra-regional IIT was relatively more important than extra-regional IIT in the cases of the Central American Common Market (CACM) and the Latin American Free Trade Association (LAFTA) (Balassa, 1979).

A second aspect concerns the understanding of the role of the US in trade relations with LAC. The US can be considered as the most active promoter of production sharing worldwide (Ventura Días and Durán Lima, 2001a, pp. 18-20; 2001b, pp. 18-22), thanks to a synergetic combination of pro-active strategies of its multinational companies and targeted trade policies. The trade effects of its customs provisions that allowed the duty-free “re-entry” of US components after assembling or processing abroad were already well understood, even if they went beyond the intentions of the legislator (as with the effect on US exports of parts and components; see Grunwald and Flamm, 1985, p. 14), and even if the assessments did not (yet) imply a full

conceptual understanding of production fragmentation/sharing.⁵ A firm link was not necessarily established neither with the empirical observation that the US –on average– had higher IIT indexes in its north-south trade than other industrialized countries (Tharakan, 1981), although it constituted another important piece of the puzzle, taking into account that these figures were very much influenced by US-Mexican trade.

From the 1990s onwards, one can see more and more country-level analyses of international production sharing in LAC countries, based on the new insights and conceptual frameworks available. The case that has drawn most attention is Mexico, where the *maquiladora* industry's share in total exports jumped from around 30% in 1990 to around 50% in 2000 (ECLAC, 2000) and where the regional production sharing networks are mostly confined to NAFTA (Fung *et al.*, 2009). The Mexican case has also been contrasted with the Brazilian case, where industrialization was found to be more dependent on the domestic market (and less on the US market), where manufactured exports showed –in general– less dynamism, and where less symmetry was found between exports and imports (Ventura Días and Durán Lima, 2001a, pp. 21-22). In Brazil, imported inputs have also been growing but they stayed at lower levels than in Mexico. The case of Brazilian aircraft industry was also used to point to variations in the international integration of both economies. This industry is an example of an industry where the value chain is coordinated and high value added service activities are located in Brazil, combined with an active outsourcing of parts and components. By contrast, in Mexican *maquiladora* industry, decision-making centres are usually in the US while lower value added assembly and production of parts takes place in Mexico (Ventura Días and Durán Lima, 2001a, pp. 21-22).

More recently, country-level analyses have widened their scope beyond these two countries. The message that seems to come out of these studies is that whereas general international insertion levels in the region are relatively low, the LAC region is a heterogeneous region. Kosakoff *et al.* (2008) and Calfat *et al.* (2008) seem to suggest that, on the one hand, some countries in Central America and the Caribbean started to emulate the Mexican model (based on cheap labour) and managed to participate in certain global value

chains through low value added activities, embedded in a north-south trade logic.⁶ Costa Rica is an exception in this sub-region and has (together with Mexico) managed to enter specific value chains with higher technology contents. On the other hand, countries like Argentina, Chile and some Andean countries, in the slipstream of Brazil, have based a (moderate) insertion in international value chains on the presence of natural resources, sometimes a considerable domestic market, and growing south-south trade.

However, cross-regional comparative work on production sharing generally concludes that the formation of international (regional) production networks in the Americas still lags considerably behind East Asia, and that trade flows of parts and components is relatively limited (Kimura and Ando, 2005; Athukorala and Yamashita, 2006; Calfat *et al.*, 2008; Athukorala, 2010). Kimura and Ando (2005) point to higher MFN tariffs, higher service link costs and the lacking critical mass of agglomeration as explanatory factors. They also point to relatively low levels of US (and Japanese) FDI in manufacturing industries, and to a less dense FDI presence in LAC in the sense of a lack of active foreign SMEs who play a crucial role in the construction of vertical production networks. In addition, foreign affiliates tend to show less “industry switching” in LAC than in East Asia (Kimura and Ando, 2005, pp. 12-15, pp. 21-22).⁷ Fung *et al.* (2009) point to lesser comparative advantage in exporting parts and components for LAC compared to East Asia.

COMPARING INTRA-REGIONAL TRADE SHARES AND STRUCTURES

When comparing intra-regional trade shares based on total trade flows, East Asia and the Americas show comparable figures

⁶ On the socio-economic impacts of this kind of international insertion see, for example, Feenstra and Hanson (1995) on Mexico, Jansen *et al.* (2007) on Central America, Calfat and Rivas (2008) on Guatemala, and de Hoyos *et al.* (2008) on Honduras.

⁷ “Industry switching” refers to patterns whereby foreign affiliates start to produce different products than the mother company, instead of producing similar products or limiting themselves to commercial activities.

⁵ For early references, see e.g. Finger (1975, 1976).

Table 1**INTRA-REGIONAL TRADE SHARES AND INTRA-REGIONAL TRADE INTENSITIES IN EAST ASIA AND LAC**

	East Asia	Latin America and Caribbean	Americas ¹	ASEAN	MERCOUR	NAFTA
Intra-Regional Trade Intensity Index						
1990	2.0	4.6	2.1	3.6	9.5	2.0
2000	2.1	2.2	2.1	3.7	15.4	2.0
2007	2.0	3.3	2.5	4.3	11.1	2.5
Intra-Regional Trade Share						
1990	42.5	11.6	42.3	17.1	11.3	37.5
2000	51.0	10.3	50.5	22.6	20.8	46.4
2007	52.7	13.0	45.7	24.9	16.4	41.0

Note: ^{1/} Including Latin American and Caribbean countries plus the US and Canada.

Source: RIKS online database (<http://www.cris.unu.edu/riks/web/>), data retrieved on January 10, 2011.

(around 50%) (*Table 1*).⁸ However, the indicator is considerably lower for LAC because of the importance of the US market for most LAC countries. The figures for sub-regional integration agreements show that the levels for MERCOSUR are slightly lower than for ASEAN (both around 20%). The figures for NAFTA are considerably higher (40%). As it is well-known, the intra-regional trade share indicator has a number of deficiencies (Iapadre, 2010; Iapadre and Plummer, 2011), among others the problematic cross-regional comparability because of its dependence on the size of the region. The trade intensity index corrects for the

latter variable and shows therefore a different picture.⁹ Both LAC and the Americas now show higher figures than East Asia, and MERCOSUR shows higher figures than ASEAN. In other words, generally speaking, intra-regional trade seems not to be more important in East Asia than in the Americas. Differences between the two regions are to be found when looking at the structure of intra-regional trade.

When looking at trade patterns based on the standard product groups defined in HS 1988/92 (the Harmonized Commodity Description and Coding System), capital goods have clearly increased their importance in East

⁸ The intra-regional trade share (*ITS*) is defined as the percentage share of intra-regional trade in the region's total trade (regional total imports plus regional total exports): $ITS_{i,t} = IT_{i,t} / T_{i,t} * 100$; where: $IT_{i,t}$ denotes regions i 's intra-regional trade in year t , and $T_{i,t}$ denotes region i 's total trade in year t (i.e. i 's total imports plus total exports). The value of this indicator ranges between 0 and 100.

⁹ The intra-regional trade intensity index (*ITII*) is defined as the ratio of the intra-regional trade share (cfr. supra) to the region's share in the world's total trade: $ITII_{i,t} = (IT_{i,t} / T_{i,t}) / (T_{i,t} / T_{w,t})$; where $T_{w,t}$ denotes the world's total trade in year t (i.e. world's total imports plus total exports). The value of this indicator ranges between 0 (no intra-regional trade) and $T_{w,t} / T_{i,t}$ (no extra-regional trade). The value is equal to 1 if the region's weight in its own trade is equal to its weight in world trade.

Asia's international trade portfolio (*Table 2*).¹⁰ The share of capital goods in total intra-regional trade increased from 40 per cent in the 1990s to about 50 per cent in the 2000s, which goes hand-in-hand with the possibilities to implement fragmentation production technologies and the intensification of production sharing. On the other side, in order to support the expansion of its production capacity, "factory Asia" demands more raw materials inputs. On average, one third of its extra-regional imports fell in this category. In 2008, over 85 per cent of East Asia's imports of raw material were sourced from outside the region, of which about 10 per cent was supplied by Latin America.

Raw materials are still the main export products for many Latin American nations.¹¹ This category accounted for over 30 per cent of its total extra-regional exports during the period between 2000 and 2008. Also with respect to intra-regional trade in 2008, raw materials were more important than capital goods. Compared to East Asia, where only 5 per cent of products circulating within the region were raw materials, in LAC intra-regional trade of raw materials accounted for one-fifth of its total intra-regional trade in value terms.¹²

¹⁰ In this paper, East Asia refers to the ten ASEAN member states plus China, Japan, Korea, Hong Kong SAR and Taiwan, China. This is similar to the common "ASEAN plus three" definition but taking the "big China" into account. The standard product groups defined in HS 1988/92 allow us to quickly grasp the trade patterns in East Asia and Latin America. Similar standard product groups can also be found in the other two HS classifications and the four SITC classifications. Most UN member states report trade data according to the HS classification. Compared to HS-1996 (data available from 1996) and HS-2007 (data available from 2007), HS-1988/92 classification (data available from 1988) covers the entire time series under study (1988-2008). In this context all the trade data are retrieved based on the HS-1988/92 classification. Alternative product groupings, such as the ones defined by the Classification by Broad Economic Categories, are also relevant. But since the data based on BEC are available from 2007 onwards, the use of product groups in BEC requires extra work in terms of data conversion. Due to space constraints, this will not be further explored here.

¹¹ Based on IMF's definition, in this paper LAC is composed of 32 countries: Antigua and Barbuda, Argentina, The Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, and Venezuela.

¹² Based on statistics of 2008.

The close connection between production sharing and economic growth was evident when observing the successive waves of industrialization in East Asia in the post-war era. Production sharing networks in East Asia were found in various industries, particularly in sectors of machinery and transportation equipment which are characterized by multi-layered vertical production/distribution (Ng and Yeats, 2003; Ando *et al.*, 2006).

Table 3 therefore illustrates the growth of machinery exports in two regions. It shows that in the 2000s the average level of the world's annual trade in parts and components was 1.3 times higher than in the 1990s. In 2008, East Asia accounted for 40 per cent of the world's total exports of machinery parts and components. However, it can also be observed that exports from LAC increased even faster than those from East Asia, although their global market share is very small compared to that of East Asia.

In 1988, the shares of intra-regional exports in total exports of machinery and transportation equipments in East Asia and Latin America were 25 and 20 per cent respectively. The intra-regional trade share in East Asia kept increasing afterwards, except in 1997 and 1998 during the Asian financial crisis; while in Latin America, the intra-regional trade share was declining until 2002 to 2003, only after which it started to climb, thus reflecting the incidence of the macro-economic crises in the respective regions. In 2008, intra-regional exports accounted for 19.3 per cent of the total exports of machinery and transportation equipment, almost the same as two decades ago (*Figure 1a*). This means that, with stabilizing Asian figures, LAC is slowly reducing the (still existing) gap.

As Athukorala (2010, p. 18) observed, "high intra-regional trade shares [in East Asia] reported in recent studies largely reflect rapidly expanding intra-regional trade in components". And when looking at machinery parts and components, one indeed sees that intra-regional trade expanded steadily from 1990 to 2008 (*Figure 1b*). Trade increased by 14 times, and its intra-regional share rose from 38 per cent in 1990 to 49 per cent in 2008. In 1990, a large portion of machinery parts and components exports came from Japan and NIEs-4, which together accounted for three quarters of all intra-regional trade in machinery parts

Table 2**THE COMPOSITION OF INTERNATIONAL TRADE, EAST ASIA AND LATIN AMERICA**

	1990-1999		2000-2008	
	Exports	Imports	Exports	Imports
East Asia				
Total Trade (US\$ billion)*	907.2	907.3	2322.7	2264.6
Raw materials (% share)	4.2	16.6	3.7	18.4
Intermediate goods (% share)	18.0	24.7	18.2	21.3
Consumer goods (% share)	29.9	22.0	28.7	19.7
Capital goods (% share)	44.5	34.6	46.2	39.1
Intra-regional Trade (US\$ billion)*	407.5	447.9	1123.4	1250.9
Raw materials (% share)	6.6	7.7	4.9	5.3
Intermediate goods (% share)	24.9	24.7	22.8	21.8
Consumer goods (% share)	24.2	26.5	21.5	22.3
Capital goods (% share)	41.4	38.7	48.1	48.9
Extra-regional Trade (US\$ billion)*	499.7	459.4	1199.4	1013.7
Raw materials (% share)	2.3	25.2	2.5	34.6
Intermediate goods (% share)	12.3	24.8	14.0	20.8
Consumer goods (% share)	34.6	17.7	35.5	16.5
Capital goods (% share)	47.0	30.6	44.3	27.0
Latin America				
Total Trade (US\$ billion)*	184.6	197.5	509.7	490.5
Raw materials (% share)	26.6	9.0	28.6	8.5
Intermediate goods (% share)	24.3	23.7	21.0	22.8
Consumer goods (% share)	26.9	26.8	24.2	28.9
Capital goods (% share)	19.3	36.3	22.1	36.2
Intra-regional Trade (US\$ billion)*	33.0	32.4	84.5	89.1
Raw materials (% share)	17.8	18.4	17.9	16.5
Intermediate goods (% share)	29.2	30.8	28.0	28.1
Consumer goods (% share)	33.9	32.2	34.8	35.5
Capital goods (% share)	18.2	17.0	18.0	18.1
Extra-regional Trade (US\$ billion)*	151.6	165.1	425.2	401.5
Raw materials (% share)	28.5	7.2	30.8	6.8
Intermediate goods (% share)	23.2	22.3	19.6	21.6
Consumer goods (% share)	25.4	25.7	22.1	27.4
Capital goods (% share)	19.6	40.1	22.9	40.2

Note: * Yearly averages.

Source: UNCOMTRADE database, HS1988/92 classification. Data retrieved on December 27, 2010.

Table 3

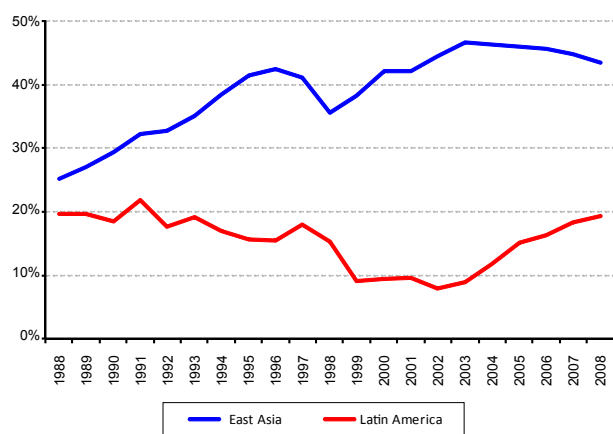
THE GROWTH OF MACHINERY EXPORTS: EAST ASIA AND LATIN AMERICA
US\$ Billion

	Total non-oil Exports (1)	Exports of Machinery and Transportation Equipments (2)	Exports of Parts and Components (3)	(3)/(2) %	(3)/(1) %
World					
1990-1999, Average	3931.1	1692.0	533.7	31.5	13.6
2000-2008, Average	6868.6	2920.9	934.9	33.5	13.6
% changes	116.6	120.5	127.6		
East Asia					
1990-1999, Average	961.9	519.4	151.9	29.2	15.8
2000-2008, Average	2199.6	1211.7	375.2	32.6	17.1
% changes	186.2	199.0	218.8		
Latin America					
1990-1999, Average	170.3	53.1	15.4	29.0	9.0
2000-2008, Average	418.5	151.2	48.8	33.3	11.7
% changes	260.0	428.2	490.7		

Source: UNCOMTRADE database, SITC Rev.2 Classification. Data retrieved on January 5, 2011.

Figure 1a

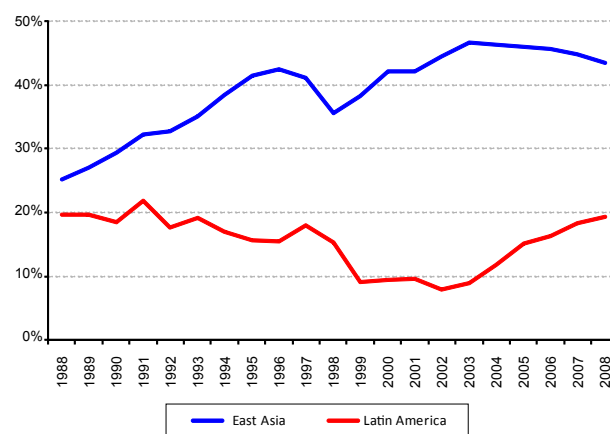
**SHARE OF INTRA-REGIONAL EXPORTS AS PERCENTAGE
OF THE REGION'S TOTAL EXPORTS OF MACHINERY AND
TRANSPORTATION EQUIPMENTS, 1988-2008**



Source: Authors' calculation based on UNCOMTRADE database.

Figure 1b

**SHARE OF INTRA-REGIONAL EXPORTS AS PERCENTAGE
OF THE REGION'S TOTAL EXPORTS OF MACHINERY PARTS
AND COMPONENTS, 1988-2008**



and components.¹³ Since then, exports from China and ASEAN-4 grew more rapidly than those of Japan.¹⁴ Their participation reached 46 per cent in 2008. China¹⁵ and Japan accounted for 33 and 22 per cent, respectively, of total intra-regional exports of parts and components.

The evolution of the intra-regional trade shares for machinery parts and components in Latin America also shows a U-shape between 1990 and 2008. The figures show that since 2003, intra-regional trade has quickly regained its share of total exports of machinery and transportation equipments. Thus, although the LAC levels are still well below the East Asian levels, since 2003 LAC is again slowly diminishing the gap. The figures show further the high concentration of exports in the top three -- Brazil, Mexico and Argentina account for 92 per cent of intra-regional exports of parts and components in 2008. It is also worthwhile to mention that Mexico's exports expanded by 35 times over the past two decades. Accordingly, its share in intra-regional trade jumped from 8 per cent in 1990 to 20 per cent in 2008.

COMPARING REGIONAL HUB-NESS

The rise of China and Vietnam has at least partially broken the flying-geese formation. Factory Asia is now constructed on a multi-dimensional, multi-layered basis. Helped by the rapid development in the service sector, production is now highly-fragmented and spread out across the region, which creates more space for each individual economy to play its role in the international industrial value chains. Further, technological progress in transportation and trade liberalization has significantly reduced the cost of international trade. The distance effect on trade is diminishing. As a result of the facilitation of intra-regional movements of intermediate goods, services and production factors, economic activities may tend to concentrate on one or few "core" market(s) that is/

are open and big enough to lead the growth and then irradiate the development to the rest of the region via trade and investment.

Although hub-and-spoke arrangements can be considered as sub-optimal for organizing trade relations as they favour industry in the hub nation at the expense of industry in the spoke nations, analyses on the Americas and Europe found political economy forces that tend to support this pattern of bilateralism.¹⁶ In the case of East Asia, the desire to be a regional hub and the fear to be falling into "spoke traps" have also shaped regional integration. Baldwin (2004) proposes the following formula to measure hub-ness:

$$HM_{AB} = EX_{AB} * (1 - IM_{AB})$$

where HM_{AB} measures the "hub-ness" of nation B from nation A 's point of view.¹⁷ EX_{AB} shows exports from A to B as a share of A 's total exports, and IM_{AB} is B 's imports from A as a share of its total imports. The value of the hub-ness measure ranges from 0 to 1. The closer the value to 1, the deeper the dependence of A 's exports on B 's market.

Table 4 presents a matrix with hub-ness measures between the East Asian economies based on the average bilateral trade flows of machinery products between 2005 and 2008 similar to the one that Baldwin (2004) created.¹⁸ We combined two criteria (and cut-off points) to select the hub-nations:

¹³ NIEs-4 includes South Korea, Hong Kong SAR, Singapore and Taiwan, China.

¹⁴ ASEAN-4 includes Thailand, Malaysia, the Philippines and Indonesia.

¹⁵ The rise of exports from China is partly at the cost of the decline of exports from Hong Kong SAR and Taiwan, China, which together accounted for only 5.6 per cent of intra-regional exports of parts and components in 2008, compared to 16.3 per cent in 1990.

¹⁶ See for example, Wonnacott (1975), Wonnacott and Wonnacott (1996) on the Americas, and Baldwin (1994) on Europe. On the development of the new regionalism in LAC and the role of the US -- as the primary hub- therein, see De Lombaerde and Garay (2008).

¹⁷ An alternative approach to hub-ness would be by applying social network analysis (SNA) to international trade flows, and calculating measures of (intra-regional) trade density and centrality. Although this approach is certainly promising for future research, its value added for our purposes would be rather limited. For applications of SNA to regional trade and/or investment, see e.g. Roth and Dakhli (2000), De Benedictis and Tajoli (2008), Iapadre and Tironi (2009), Iapadre and Plummer (2011).

¹⁸ Baldwin's (2004) calculations are based on total trade flows. Machinery products are defined here as the group of machinery and transport equipment (group code: 7) in the Harmonized Commodity Description and Coding System 1988/92 (HS1988/92). The raw data was retrieved on December 27, 2010 from UN COMTRADE database via the World Bank WITS platform.

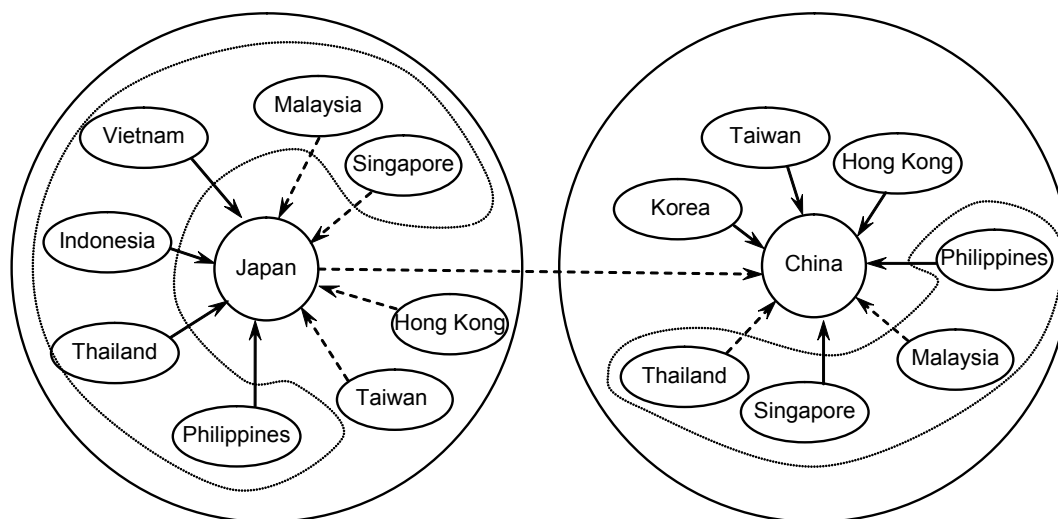
Table 4

EAST ASIAN HUB-NESS MEASURES (%, 2005-2008)

	U.S.	U.S. (1991- 1994)	EU	EU (1991- 1994)	Japan	China	Hong Kong, China	Taiwan, China	Korea, Rep.	Singapore	Indonesia	Malaysia	Philippines	Thailand	Vietnam
Japan	20.8	21.9	14.5	17.9		9.4	4.1	3.4	3.7	2.5	1.0	1.7	1.0	2.2	0.5
China	16.4	15.0	17.8	10.2	4.9		10.7	1.7	2.9	2.7	0.8	1.3	0.5	0.8	0.5
Hong Kong, China	15.0	19.7	19.2	14.7	6.6	28.3		3.2	2.9	6.3	0.2	3.1	1.6	1.5	0.2
Taiwan, China	15.6	29.0	14.5	20.8	7.4	15.4	15.7		3.7	4.6	0.6	2.5	1.9	1.9	0.7
Korea, Rep.	13.9	26.9	17.8	16.9	4.3	14.7	5.2	2.9		3.4	0.6	1.6	1.0	0.8	0.6
Singapore	11.8	26.2	10.4	18.8	5.2	10.6	10.2	4.0	4.5		7.7	12.4	1.7	3.8	0.9
Cambodia	0.4	n.a. ¹	46.1	n.a. ¹	1.6	0.3	0.5	0.5	0.2	25.6	0.4	0.3	0.1	5.8	11.3
Brunei	3.3	n.a. ¹	9.0	n.a. ¹	0.7	0.4	0.9	0.0	0.0	48.6	0.1	24.8	0.1	0.7	0.0
Indonesia	9.4	25.7	11.8	15.9	12.9	3.2	3.1	1.1	1.5	26.2		5.4	2.1	4.8	1.6
Malaysia	25.4	29.1	15.0	16.1	5.9	6.8	6.9	2.1	1.6	13.8	1.3		1.0	4.3	0.6
Philippines	14.1	40.1	19.3	16.3	14.5	12.2	11.5	4.4	3.2	6.6	0.8	5.8		2.5	0.3
Thailand	12.6	25.5	14.9	14.2	11.4	8.5	6.2	2.4	1.7	7.3	3.0	5.0	2.2		1.3
Vietnam	11.8	n.a. ¹	12.5	n.a. ¹	30.3	4.7	3.7	1.8	2.3	3.7	0.9	1.7	4.6	8.7	

Note: ¹ data not available for the time period.

Source: Authors' calculation based on UNCOMTRADE data (bilateral trade flows are an average of 2005-2008, unless indicated otherwise).

Figure 2**AN "EAST ASIAN BICYCLE", 2005-2008**

Notes: — Illustrates the value of Hub-ness measure larger than or equal to 10 per cent.
 - - - - - Illustrates the value of Hub-ness measure larger than 5 per cent but smaller than 10 per cent.

- If $HM_{AB} \geq 5\%$, then B could be a potential hub for to A ; accordingly, A is called a potential spoke to B ;
- The sum of internal trade (trade among B and all its potential spokes) should account for at least 20 per cent of the total intra-regional trade.

The result reaffirms Baldwin's (2004) argument that both Japan and China naturally emerge as hubs, and that regional trade liberalization may give birth to an "East Asian Bicycle", as demonstrated by [Figure 2](#).

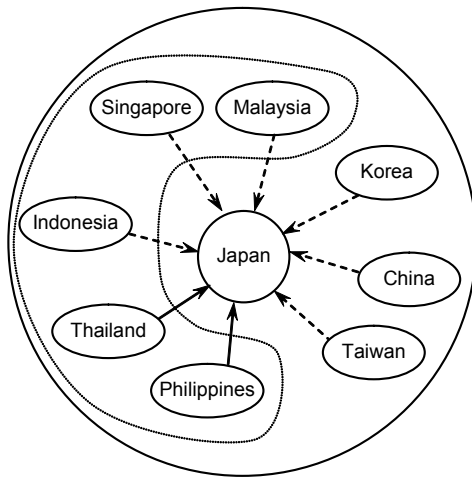
Basically, the "East Asian Bicycle" is composed of a "Chinese wheel" and a "Japanese wheel" – the former consists of China, the four NIEs, plus Malaysia, Philippines and Thailand; while the latter contains Japan, ASEAN-5 plus Singapore, Hong Kong SAR and Taiwan, China.¹⁹ There is an overlap of the spoke

economies. Their economies got influenced by both hub nations. Relatively speaking, the four NIEs are linked closer to the Chinese market; while ASEAN-5 rely more on the Japanese market.

Within the Chinese wheel, the general connections between the hub and spokes, and that between each individual spoke markets are stronger than the ones existing within the Japanese wheel. Two-fifths of total intra-regional trade on parts and components occurred within the Chinese wheel in 2008, while three times this amount occurred within the Japanese wheel. Over one-eighth of intra-regionally traded parts and components were directly exchanged between Japan and China, mirroring strong economic ties between the two hub nations.

The rise of China explains the birth of the "East Asian bicycle". As [Figure 3](#) illustrates, in the early 1990s, Japan was the only dominant market and the core of the regional production sharing network. Bilateral trade between Japan and other East Asian economies accounted for more than 60 per cent of total intra-regional trade. At that time other East Asian economies relied unilaterally on the Japanese market.

¹⁹ ASEAN-5 refers to Malaysia, Indonesia, Philippines, Thailand and Vietnam. To simplify, the analysis here ignores the four small ASEAN member states: Brunei, Cambodia, Laos PDR and Myanmar due to the fact that their contribution to regional trade is marginal.

Figure 3**A SINGLE CORE FORMATION
IN EAST ASIA, 1991-1994**

Another factor that has contributed to the two-hub formation of regionalism in East Asia is the decreasing influence of the US in the region. This is illustrated by the first two columns of *Table 4*. The five industrial economies in East Asia (Japan, Korea, Singapore, Hong Kong SAR and Taiwan, China) now rely much less on the US market than they used to. China has passed the US as their most important trade partner. The ASEAN member states are generally more intra-regionally oriented, and their relative market reliance on either the US or the EU has also decreased.

Both Hong Kong and Taiwan have significantly strengthened their economic ties with mainland China over the past two decades; and a *de facto* "great China economic zone" is clearly being shaped. Meanwhile, China's reliance on the EU market increased more than that on the U.S. market. Exports from China to the EU grew steady during the 1990s and the 2000s. Since 2007 the EU became China's biggest export destination.

The hub-ness index is also calculated for each pair of LAC nations (*Table 5*). Generally speaking, intra-regional economic interdependence in Latin America is not as strong as in East Asia. Brazil could be a hub candidate in the south cone. Indeed, the bilateral free trade agreement signed by Argentina and Brazil in 1986 was gradually gathering depth as more sectors were

added and bilateral tariffs were further cut (Baldwin, 2004). This triggered a domino effect and later gave birth to the Southern Common Market (MERCOSUR), a regional arrangement dominating intra-regional trade in Latin America. Brazil and Argentina together contributed to almost half of total intra-regional trade in Latin America. As the core of MERCOSUR, Brazil has substantially enhanced its economic ties with other member states and associate countries. On the other side, although Mexico is the second biggest economy in GDP terms in LAC, it is the NAFTA agreement that has helped it to gain more hub attractiveness, particularly *vis-à-vis* the Central American economies.

When transplanting the East Asian conceptual framework to LAC and using the same cut-off points as above, one can see the existence of two "wheels" there, but probably not yet a "Latin American bicycle". One is a "Brazil-Argentina wheel" composed of South American nations including Brazil, Argentina, Uruguay, Paraguay, Venezuela, Bolivia, Chile and Surinam. The other will be either a "Mexican wheel" covering Guatemala, Nicaragua, Chile and Belize, or a "Mexican-US wheel" (if we include the US in the "region") that consists of almost all nations in the region (*Figure 4*, *Figure 5*).

The East Asian Bicycle seems to have been well assembled: *First*, a big share of its international trade is intra-regionally oriented. Intra-regional exports accounted for almost half of the region's total exports. *Second*, the economies of the two wheels are closely connected to the core nations. *Third*, the two hub nations are both economically strong and have a large market potential, which gives them enough gravity for economic integration. *Fourth*, there are intensive interactions between individual economies, and the two hub markets are also highly interdependent.

In comparison, the Latin American one may need further assembly: So far the GDP of Latin America only accounted for less than 7 per cent of the world's total GDP in 2008. In 2008, Latin American countries together contributed to 6.5 per cent of the world's total exports, of which less than 20 per cent occurred within the region. The US economy is still dominant in the region and the two LAC candidate hubs are much less interdependent.

A final remark is related to FDI. As Krugman (1993), Baldwin and Venables (1995), and Baldwin *et al.* (2003) pointed out, a hub-and-spoke system of trade

Table 5

LATIN AMERICAN HUB-NESS MEASURES
(%, 2005-2008)

	U.S.	U.S. (1991- 1994)	EU	EU (1991- 1994)	Argentina	Brazil	Chile	Colombia	Mexico	Peru	Venezuela
Antigua and Barbuda	39.7	n.a. ¹	24.3	n.a. ¹	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina	4.8	11.2	7.8	8.6	0.0	38.7	6.6	1.6	8.5	1.6	5.6
Belize	64.2	88.6	2.1	0.0	0.0	0.0	0.0	0.0	21.4	0.0	0.0
Bolivia	39.6	25.7	2.7	2.4	14.2	24.6	4.9	1.5	0.9	10.1	1.2
Brazil	20.3	25.8	14.9	15.6	12.3	0.0	3.7	2.4	7.2	1.7	4.8
Chile	12.1	8.4	4.6	7.9	13.6	6.6	0.0	6.7	5.4	14.3	10.4
Colombia	12.9	14.8	1.2	7.6	0.1	0.4	1.0	0.0	1.7	3.2	49.9
Costa Rica	27.6	33.8	12.4	7.1	0.1	0.1	0.0	0.3	1.2	0.2	0.1
Cuba			7.5	n.a. ¹	0.0	2.9	0.0	0.0	1.3	0.0	42.9
Dominica	0.0	2.4	74.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dominican Republic	81.3	97.8	10.0	1.0	0.0	0.1	0.0	0.0	0.3	0.0	0.3
Ecuador	6.4	3.6	0.5	1.6	0.5	1.0	1.8	51.4	0.3	4.2	27.9
El Salvador	69.7	9.2	0.7	0.3	0.0	0.1	1.0	0.7	0.9	0.1	0.1
Grenada	18.1	8.2	13.7	0.4	0.0	0.0	0.0	0.0	0.3	0.0	0.7
Guatemala	9.7	3.1	1.6	0.3	0.1	0.1	0.2	0.6	6.7	3.2	0.8
Guyana	15.0	n.a. ¹	9.9	n.a. ¹	0.0	0.6	0.0	0.0	0.0	0.0	0.0
Honduras	85.7	20.5	0.6	2.4	0.0	0.2	0.1	0.0	0.8	0.0	0.2
Jamaica	41.3	4.9	0.5	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Mexico	73.9	81.2	3.7	3.3	0.5	0.8	0.4	0.9	0.0	0.3	0.7
Nicaragua	17.7	19.4	0.8	4.0	0.0	0.1	0.1	0.2	63.4	0.1	0.2
Panama	3.3	2.1	2.7	1.1	0.0	0.0	0.5	1.8	0.0	0.0	2.8
Paraguay	15.4	1.7	19.1	6.6	10.0	18.7	1.2	0.6	0.0	2.4	1.1
Peru	27.4	31.7	5.0	4.5	1.9	1.4	7.3	5.6	2.4	0.0	15.7
St. Kitts and Nevis	99.2	99.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St. Lucia	74.7	84.4	6.2	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.2
St. Vincent and the Grenadines	31.9	17.5	0.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suriname	27.2	26.2	32.0	70.9	0.0	7.3	0.0	1.6	1.1	0.0	0.0
Uruguay	5.1	0.7	3.2	1.5	62.6	9.7	2.8	0.6	2.4	0.3	1.4
Venezuela	28.0	28.9	5.7	1.7	0.5	4.0	0.6	18.2	3.0	1.3	0.0

Note: ¹ data not available for the time period.

Source: Authors' calculation based on UNCOMTRADE data (bilateral trade flows are an average of 2005-2008, unless indicated otherwise).

Figure 4

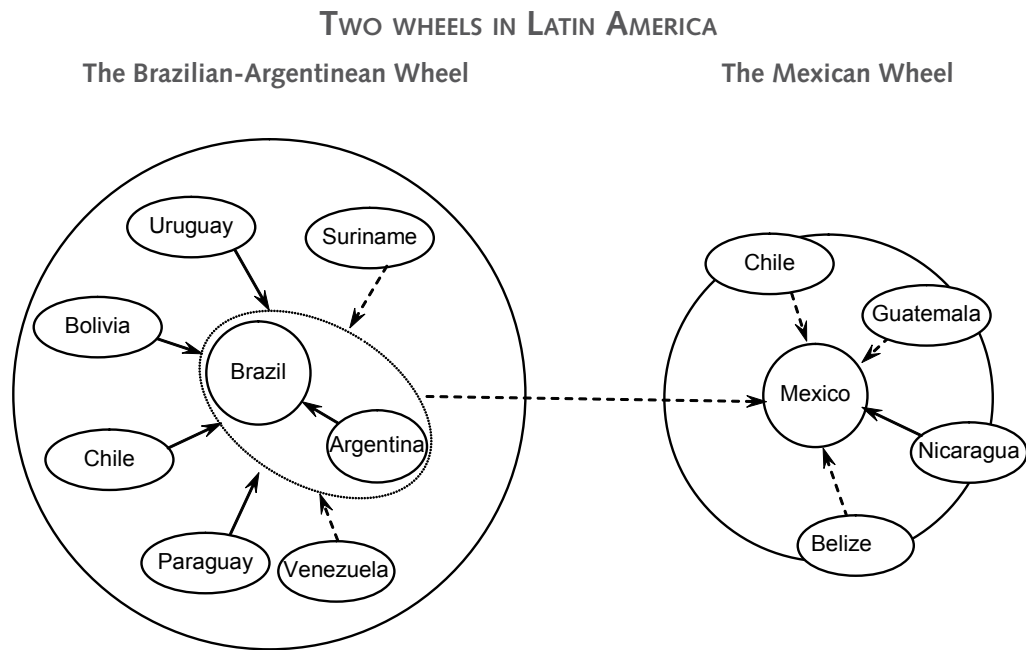
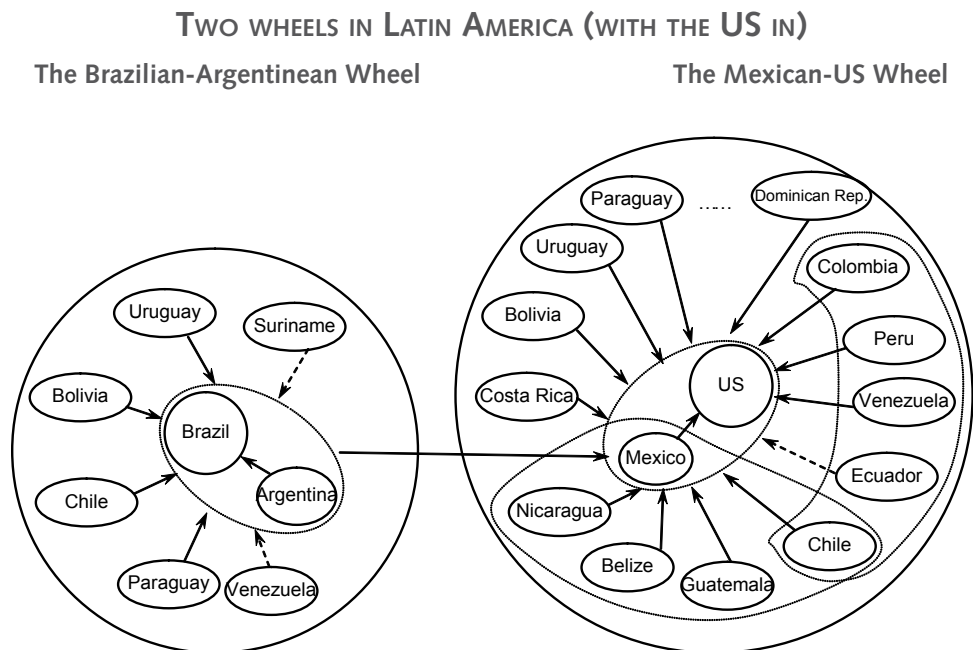


Figure 5



Note: The Mexico-US wheel consists of almost all Latin American nations except Dominica, Cuba and Panama. Some of them are omitted from the figure.

arrangements tends to favor the location of industrial firms in the hub as they will confer preferential access not only to the domestic market, but also all other foreign markets that the trade arrangement covers. As a result, the hub nation becomes a favorable destination of industrial relocation and new investment, which on the other hand, will reinforce the nation's position as a hub of regional economic activities.

Table 6 shows the distribution of US FDI abroad. By the end of 2009, East Asia and Latin America respectively absorbed 10.1 and 3.6 per cent of the

total accumulated US FDI in the world. US FDI in China expanded more than 4 times between 1999 and 2009. By 2009, 30 per cent of US FDI in East Asia is located in China and Hong Kong SAR, which is as much as what Japan received. As a gateway of ASEAN, Singapore's absorption of US FDI also increased significantly.

Many US companies seem to choose Mexico as their initial destination of investment in LAC. Whereas in 1999, the accumulated US FDI stocks in Mexico and in Brazil were almost the same; in 2009, Mexico has

Table 6

US FDI IN EAST ASIA AND LATIN AMERICA

The accumulated US FDI abroad	By 1999	By 2009	Changes between 1999 and 2009
World (US\$ Billion)	1216	3508.1	2292.182
East Asia (US\$ Billion)	148	380.6	232.6
Japan (%)	37.2	27.2	20.9
Singapore (%)	14.0	20.2	24.2
Hong Kong SAR, China (%)	15.4	13.3	11.9
China (%)	6.4	13.0	17.2
Korea, Rep. (%)	5.1	7.1	8.4
Taiwan, China (%)	4.6	5.1	5.5
Indonesia (%)	5.7	4.2	3.3
Malaysia (%)	4.2	3.5	3.1
Thailand (%)	3.7	2.7	2.0
Philippines (%)	2.4	1.5	1.0
Latin America (US\$ Billion)	157.2	239.7	82.5
Mexico (%)	23.6	40.8	73.6
Brazil (%)	23.6	23.6	23.6
Chile (%)	6.5	9.4	15.1
Venezuela (%)	4.7	6.1	8.6
Argentina (%)	12.0	5.9	-5.8
Panama (%)	21.3	3.3	-31.1
Colombia (%)	2.4	2.8	3.6
Peru (%)	2.0	2.6	3.7
Costa Rica (%)	0.9	1.0	1.1
Ecuador (%)	0.7	0.5	0.2
Honduras (%)	0.2	0.4	0.6

Source: Calculation based on BEA's data on US direct investment abroad. Data retrieved on November 26, 2010.

received even more FDI from the US than the five MERCOSUR member states together.

CONCLUSIONS

In this article we have looked at trade- and production-based regional integration (i.e. *de facto* integration) in LAC, thereby using the “East Asian model” as a benchmark case. Apart from the cultural and political aspects of this model, it is characterized by a bottom-up development of production networks, historically driven by Japan, the NIEs and –more recently- PR China, following a “geeze-flying pattern”. In our article we have focused on two characteristic aspects of the East Asian model: the intensity and composition of intra-regional trade and the development of production sharing networks, on the one hand, and the role of hub economies in driving the networks, on the other.

With respect to intra-regional trade, we observed that by-and-large the importance of this category of trade in total trade is broadly comparable between the two regions. The differences become visible when looking at the composition of intra-regional trade. Trade in manufactured products, in general, and manufactured parts and components, in particular, is clearly more important within East Asia. East Asian intra-regional trade shares for these categories easily double the corresponding shares for LAC. However, when looking at the dynamics over time, we see that LAC is slowly diminishing the gap since the early 2000s.

With respect to hub-ness, we applied Baldwin's measures (combined with our own cut-off points) and observed that East Asia until the early 1990s could still be understood in terms of the “flying-geeze” model, with the Japanese economy in command. However, when looking at the evolution since then, with the rise of China the picture has changed and a solid “bicycle” was assembled, characterized by a strong mutual interdependence between the two wheels (hubs). By contrast, when using the same cut-off points the situation in LAC is very different. Although there are also two candidate hubs, their relative importance in intra-regional trade is still more modest, the level of mutual interdependence is low, and they are overshadowed by the US economy.

In the LAC region there seem to be opportunities for a combination of different types of innovation policies, on the one hand, and regional integration policies, on the other. Although both types of policies have their limitations in influencing business strategies, the former should (directly and indirectly) promote the creation of innovative businesses with an insertion potential into international value chains; the latter should facilitate the development of production sharing networks around these new ventures, through further facilitating cross-border trade, investment, labor mobility and knowledge flows in the wider region. As shown in the East Asian case, the development of a strong regional production sharing network goes hand-in hand with a stronger participation in GVCs. The combination of scale and agglomeration effects will possibly imply that hub and spoke patterns are further strengthened in some sectors, although one should not underestimate the growing mobility and dispersion of many productive activities. ♦

REFERENCES

- AGARWALA, R.; P. PETRI AND V. THOMAS. 1994. *East Asia's Trade and Investment. Regional and Global Gains from Liberalization*. Washington DC: The World Bank.
- AKAMATSU, K. 1962. “A Historical Pattern of Economic Growth in Developing Countries”, *The Developing Economies*, 1(1): 3-25.
- ANDO, M.; S. ARNDT AND F. KIMURA. 2006. “Production networks in East Asia: strategic behavior by Japanese and U.S. firms”. Paper presented at the Japan Center for Economic Research Conference.

ATHUKORALA, P. AND N. YAMASHITA. 2006. "Production Fragmentation and Trade Integration: East Asia in a Global Context", *The North American Journal of Economics and Finance*, 17(3): 233-256.

ATHUKORALA, P. C. 2010. "Production Networks and Trade Patterns in East Asia: Regionalisation or Globalization?", ADB Working Paper Series on Regional Economic Integration, 56.

BALASSA, B. 1979. *Intra-industry Trade and the Integration of Developing Countries in the World Economy*. Washington DC: The World Bank.

BALDWIN, R. 1994. "A Domino Theory of Regionalism", CEPR Discussion Paper, 857.

----- 2004. "The Spoke Trap: Hub and Spoke Bilateralism in East Asia", KIEP Discussion Paper, 04-02.

----- 2006. "Multilateralising Regionalism: Spaghetti Bowls as Building Blocs on the Path to Global Free Trade", *The World Economy*, 29(11): 1451-1518.

----- AND A. VENABLES. 1995. "Regional Economic Integration", in: G. Grossman and K. Rogoff (eds.), *Handbook of International Economics*. Amsterdam, North-Holland.

BALDWIN, R.; R. FORSILD; P. MARTIN; G. OTTAVIANO AND F. ROBERT-NICOUD. 2003. *Economic Geography and Public Policy*. London: Princeton University Press.

CALFAT, G. AND A. RIVAS. 2008. "Fragmentation, Income, Gender and Poverty Linkages: The Case of the Maquila Industry in Guatemala", IOB Working Paper, 02.

-----; D. CASSIMON AND R. G. FLÓRES JR.. 2008. "Far from Champions, close to Midgets – International Production Sharing in Central and South America", IOB Working Paper, 01.

CHEN, L. 2007. "A Two-hub Regionalism in East Asia", in: Ruffini P. B. and J.K. Kim (eds.), *Corporate Strategies in the Age of Regional Integration*. London: Edward Elgar, pp. 200-218.

----- 2008. "The Market Driven Trade Liberalization and East Asian Regional Integration", IHEID Working Paper, 12.

DE BENEDICTIS, L. AND L. TAJOLI. 2008. "The World Trade Network". Paper presented at the 10th European Trade Study Group Conference, Warsaw, 11-13 September.

DE HOYOS, R.; M. BUSSOLO AND O. NUÑEZ. 2008. "Can Maquila Booms Reduce Poverty? Evidence from Honduras", World Bank Policy Research Working Paper, 4789.

DE LOMBAERDE, P. AND L. J. GARAY. 2008. "El nuevo regionalismo en América Latina", in: De Lombaerde, P.; S. Kochi and J. Briceño Ruíz (eds.), *Del regionalismo latinoamericano a la integración interregional*. Madrid: Siglo XXI, pp. 3-35.

ECONOMIC COMMISSION FOR LATIN AMERICAN AND THE CARIBBEAN- ECLAC. 2000. *Latin America and the Caribbean in the World Economy, 1999-2000*. Santiago, Chile.

FEENSTRA, R. C. 1998. "Integration of Trade and Disintegration of Production in the Global Economy", *Journal of Economic Perspectives*, 12(4): 31-50.

----- AND G. HANSON. 1995. "Foreign Direct Investment and Relative Wages: Evidence from Mexico's Maquiladoras", NBER Working Paper, 5122.

FINGER, J. M. 1975. "Tariff Provisions for Offshore Assembly and the Exports of Developing Countries", *Economic Journal*, 85(338): 365-371.

----- 1976. "Trade and Domestic Effects of the Offshore Assembly Provision in the U.S. Tariff", *American Economic Review*, 66(4): 598-611.

FUNG, K. C.; A. GARCIA-HERRERO AND A. SIU. 2009. "Production Sharing in Latin America and East Asia", BBVA Working Papers, 0901.

GRUNWALD, J. AND K. FLAMM. 1985. *The Global Factory: Foreign Assembly in International Trade*. Washington DC: The Brookings Institution.

HILL, H. AND J. MENON. 2010. "ASEAN Economic Integration: Features, Fulfillments, Failures and the Future", ADB Working Paper Series on Regional Economic Integration, 69.

IAPADRE, L. 2010. "Regional Integration Agreements and the Geography of World Trade. Statistical Indicators and Empirical Evidence", in: De Lombaerde, P. (ed.), *Assessment and Measurement of Regional Integration*. Abingdon-New York: Routledge, pp. 65-85. [paperback edition].

----- AND M. PLUMMER. 2011. "Statistical Measures of Regional Trade Integration", in: De Lombaerde, P.; R. Flôres; L. Iapadre and M. Schulz (eds.), *The Regional Integration Manual. Quantitative and Qualitative Methods*. London: Routledge, pp. 98-123. (forthcoming).

IAPADRE, L. AND F. TIRONI. 2009. "Measuring Trade Regionalisation: The Case of Asia", UNU-CRIS Working Paper, 09.

JANSEN, H. G. P. ET AL. 2007. "The Impact of the Central America Free Trade Agreement on the Central American Textile Maquila Industry", IFPRI Discussion Paper, 720.

JONES, R. AND H. KIERZKOWSKI. 1990. "The Role of Services in Production and International Trade: A Theoretical Framework", in: Winthrop Jones, R. and A. O. Krueger (eds.), *The Political Economy of International Trade: Festschrift in Honor of Robert E. Baldwin*. Oxford: Basil Blackwell, pp. 31-48.

----- 2001. "A Framework for Fragmentation", in: Arndt, S. and H. Kierzkowski (eds.), *Fragmentation: New Production and Trade Patterns in the World Economy*. Oxford: Oxford University Press, pp. 17-34.

KIMURA, F. AND M. ANDO. 2005. "The Economic Analysis of International Production/Distribution Networks in East Asia and Latin America: The Implications of Regional Trade Arrangements", *Business and Politics*, 7(1): 1-36.

KOSAKOFF, B.; A. LÓPEZ AND M. PEDRAZZOLI. 2008. "Trade, Investment and Fragmentation of the Global Market: Is Latin America Lagging Behind?", *Serie Estudios y Perspectivas*, 39E. Buenos Aires: ECLAC.

KRUGMAN, P. 1993. "The Hub Effect: or Threeness in Interregional Trade", in: Ethier, W.; E. Helpman and J. Neary (eds.), *Theory, Policy and Dynamics in International Trade*. Cambridge: Cambridge University Press.

NG, F. AND A. YEATS. 2001. "Production Sharing in East Asia: Who Does What for Whom, and Why?", in: Cheng, L. K. and H. Kierzkowski (eds.), *Global Production and Trade in East Asia*. Boston: Kluwer Academic, pp. 63-109.

----- 2003. "Major Trade Trends in East Asia: What Are their Implications for Regional Cooperation and Growth". World Bank Working Paper, 3084.

OZAWA, T. 2003. "Pax America-led Macro-clustering and Flying-geese-style Catch-up in East Asia: Mechanism of Regionalized Endogenous Growth", *Journal of Asian Economics*, 13, pp. 699-713.

ROTH, M. S. AND M. DAKHLI. 2000. "Regional Trade Agreements as Structural Networks: Implications for Foreign Direct Investment Decisions", *Connexions*, 23(1): 60–71.

THARAKAN, P. K. M. 1981. "The Economics of Intra-Industry Trade: A Survey", *Recherches Économiques de Louvain*, 47(3-4): 259-290.

UCHINO, T. 1978. *Japan's Postwar Economy. An Insider's View of Its History and Its Future*. Tokyo: Kodansha International.

VENTURA DÍAS, V. AND J. DURÁN LIMA. 2001a. "Production Sharing in Latin American Trade: The Contrasting Experience of Mexico and Brazil". Serie Comercio Internacional, 22. Santiago, Chile: ECLAC.

----- 2001b. "Production Sharing in Latin American Trade: A Research Note". Serie Comercio Internacional, 23. Santiago, Chile: ECLAC.

WONNACOTT, R. J. 1975. "Canada's Future in a World of Trade Blocs: a Proposal", *Canadian Public Policy*, 1.

----- AND P. WONNACOTT. 1996. "El TLCAN y los acuerdos comerciales en las Américas", in: Krugman, P. *et al.*, *Las Américas: Integración económica en perspectiva*. Bogotá: DNP-IDB, pp. 103-136.

YEATS, A. 1997. "Just How Big is Global Production Sharing?" World Bank Policy Research Paper, 1871.

YI, K. M. 1999. *Can Vertical Specialization Explain the Growth of World Trade?* New York: Federal Reserve Bank of New York.

GLOBAL VALUE CHAINS AND EXPORT SOPHISTICATION IN LATIN AMERICA

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The process of globalization has wrought a major change in the international economy, and the scope of feasible trade between countries has broadened. Global value chains (GVCs) combine participation by a large number of suppliers across the world in the production of modern manufactured goods characterized by an acceleration of technical progress. Unlike other developing countries, the Latin American countries have not played a leading role in this dynamic, with consistently low levels of export sophistication. This paper evaluates the level of Latin America's export sophistication from a dynamic and comparative perspective, using a modern product sophistication indicator. Its results confirm the starting hypothesis, but reveal different situations and trajectories. An order according to levels of export sophistication was established in the countries selected: Mexico, Brazil, Argentina, Colombia, Costa Rica, Uruguay, and Peru. The work takes in the dimension of the dynamic of the export specialization pattern by product type (e.g. capital goods, primary inputs, processed inputs, consumer goods) in the period 2000-2007. In products with permanent specialization, which channel the bulk of exports and reflect the pattern of specialization, Mexico and Brazil are always around the Latin American average for all types of goods. Mexico reaches levels of sophistication similar to the OECD average in capital goods, processed inputs, and consumer goods, but with notably lower levels of sophistication in primary inputs. Brazil is below Mexico except in primary inputs, where it has an average similar to the OECD countries. In the products that describe the dynamics (i.e. that lose and gain specialization), the level of sophistication is always higher than goods with permanent specialization. The order within the countries analyzed does not hold and, in some cases, even has almost the reverse pattern. In all cases, the countries most notable for their levels of sophistication in goods that gain specialization are Peru, Uruguay, Costa Rica, and Colombia. In other words, in the margin, there may be evidence that these countries are participating in a recent process of export modernization, particularly in processed intermediate goods.

INTRODUCTION

The process of globalization has, in recent decades, wrought a dramatic change in the international economy. One of the sources of this new dynamic is the swift process of technical change in the circulation of information and in the reduction of transport costs in general. There has been a significant increase in the levels of trade, and broadening of the basket of economic activities (goods and services) traded at the level of the international economy. Furthermore, the mobility of factors is also important, although this has an asymmetric pattern concentrated in capital (physical and financial) and in labor with a high human capital endowment. From the specialization point of view, this phenomenon is expressed in the process of fragmentation of production at the planetary level. The various stages making up the production of a given amount of economic activity—whether in the production of goods and/or services—have been distributed across the planet through numerous national jurisdictions in a vast array of organizational forms or modes of governance that are known, among other names, as global value chains (GVCs). This fragmentation of production is the modality that characterizes the internationalization of the production processes in many modern manufactured goods, but it has been spreading to a varied group of economic activities, notably the service sector.

Unlike other regions (particularly Southeast Asia), Latin America has not played a leading role in this recent dynamic. The Latin American economies, which display low levels of export quality (commodities with low levels of change, low unit value, and low differentiation), might be able to modify this pattern if dynamically inserted in GVCs.

This work aims to contribute to the analysis of some Latin American countries' insertion in the process in recent years. As there are so few precedents in terms of quantitative approaches to the phenomenon, we have turned to the empirical identification of two stylized facts peculiar to insertion in GVCs: the emergence of new products in the export baskets and the presence among them of intermediate products. In addition, a measure of the products' sophistication is used to incorporate a notion of quality in the different subbaskets identified.

After this *introduction*, the work is structured in five sections. *The Second Section*, which defines the phenomenon of GVCs, illustrates the fundamental trends in terms of trade structure and discusses the main literature of international trade that has identified it (Baldwin, 2006a & 2006b). *The Third Section* links GVCs to the structure of exports and analyzes the dynamic effects of specialization, which suggest that economies' capacity for growth is bound up with the quality of the products they export (their technology density). *The Fourth Section* presents and discusses the results, and the last highlights the major results.

NEW WAVES OF GLOBALIZATION AND GVCs

The increased intensity of international trade is associated with the broadening of the scope of feasible trade at the international level. Trade specialization first began with a wave of fragmentation, signaling the separation between production and consumption in national markets. This opened up opportunities for trading and its resulting mutual benefits. The first type of international trading was based on a kind of trade determined by the differences between countries, both in the technology they use to produce and in the allocation of production factors. The essential principle is that of comparative advantages (different comparative costs in non-trade conditions), characterized by a pronounced interindustrial trade pattern: countries sell very different types of goods than the ones they buy.

In the last two decades of last century, new phenomena emerged in international trade and new grounds for specialization were identified. The change is primarily grounded in technologies characterized by increasing returns to scale, which encourage specialization and trade in other areas and directions, and make it necessary to consider aspects such as non-competitive market structures, product differentiation, and the existence of trade costs. This last dimension is where another pronounced trend is processed, consisting of a sharp drop in trade costs that stimulated a new geography in the production of manufactured goods on a global scale.

Trade costs, strictly speaking, include transport costs, costs associated with adaptation to access to different

markets (including distribution costs), and the cost of enforcing trade policy. Various different factors have combined to make a significant reduction in trade costs possible, most notably the processes of cargo unitization and increase in the scale of transport, standardization of production processes on a global scale, and trade liberalization. The lower the trade costs, the more relevant small differences become in production costs between different origins as determinants in the countries' capacity to place global activities.

The combination of the above trends underpinned the development of GVCs, which combine participation by a large number of suppliers across the world in the production of modern technology-intensive manufactured goods. The greater buoyancy of trade associated with this new wave of specialization is intraindustrial in nature (close substitute goods in production and/or consumption are traded), both horizontally and —primarily—vertically. High growth in trade in intermediate goods is the most prominent stylized fact in the evolution of late-twentieth-century trade.

A new trend in international trade incorporating new patterns of specialization has taken hold during the last decade. Although the process has been under way for longer, it has only come to maturity in the last few years, when the wave of technical progress has again played a central role. There are two complementary levels of change fuelling the so-called new reasons for specialization: there has been intense development of information technologies and universalization of computer networks; simultaneously telecommunications costs have fallen drastically. Production that was traditionally not internationally traded can now feasibly be turned into a globally-traded commodity. The impact of this is felt especially keenly in services.

Trade in services was traditionally confined to the headings of “travel” and “tourism” (consumers move and purchase services from suppliers from elsewhere in the world) and to services associated with the international transport of goods. In recent years, in association with this new wave of fragmentation in global economic activity, other commercial services have grown, most notably corporate services. In other words, fragmentation not only occurs within the plant producing the goods, but also within the

management structure that produces corporate services. This phenomenon has been called building the “global office”.¹

Two bodies of original ideas in economics converge in the new division of labor unfolding at the scale of the international economy: *on the one hand*, the link between division of labor and productivity as discussed by Adam Smith; *on the other*, the Ricardian determinants of countries' productive and commercial specialization, which, in modern parlance, is based on relative productivities in producing goods or performing tasks.

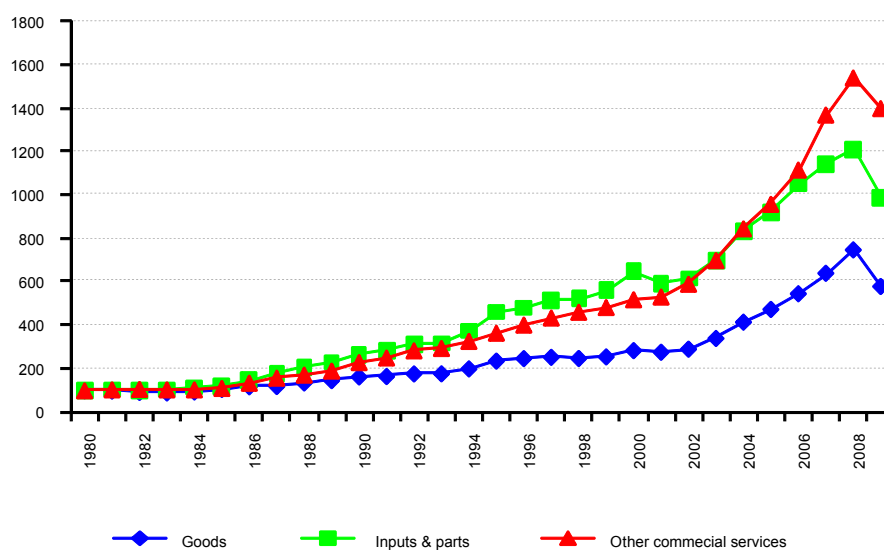
In conventional models of international trade based on comparative advantages, movements of goods and factors of production are considered as substitutes (the effects of the movement of factors is analogous to those of the movement of products to which these factors have been applied). Taking into account the new reasons for trade, the current trends include a high degree of complementarity between the movement of factors and trade, particularly with trade in intermediate goods and task trade. However, the enhanced mobility of factors of production—a typical feature of globalization—follows an asymmetric pattern almost exclusively affecting physical capital through foreign direct investment (FDI), financial capital, and highly skilled workers.

To summarize, the distinctive feature of the current wave of globalization is the widespread increase in the degree of internationalization of economic activity. *Figure 1* shows growth in trade in “other commercial services” and “intermediate goods” over the last three decades. This growth was faster than that of general trade in goods, which grew sixfold during the reference period, with trade in inputs and parts growing tenfold and that of other commercial services (including corporate services), fourteenfold. These components associated with the process of fragmentation of economic activity stood out as the most dynamic sectors in international trade: whereas in 1980 they represented 14% of world trade (goods and services), by 2009 they accounted for a quarter.

¹ Another term for the process is “task trade”. A set of tasks needs to be performed for the production of a certain good or service. The new technologies allow these tasks to be relocated internationally and to enjoy the advantages of specialization.

Figure 1

EVOLUTION OF GOODS AND OTHER COMMERCIAL SERVICES GLOBAL EXPORTS 1980=100 indexes



Source: UNCOMTRADE and WTO.

The new international division of labor involves a reduction of the importance of the sectors specializing solely in import substitution (Baldwin, 2006a). It is difficult today to find sectors solely aligned to domestic market conditions without, at the same time, being linked to external conditions (either importing and/or exporting), and the global sectors that emerge are at the same time importing and exporting. The above set of changes, therefore, has a substantial impact on the political economy of trade policy.

This phenomenon has been clearly expressed in the international crisis and *post*-crisis periods. The economic crisis, which fundamentally played itself out in the industrialized economies, raised new question marks over the risk of increased protectionism and a possible process of “deglobalization”. In such an event, the structural changes seen at the level of international trade specialization could slow or even reverse. However, as the global structure of economic activity registers such high levels of interdependence, this is extremely difficult to alter. Fragmentation and

specialization-based strategies enable companies to maintain their global competitiveness, and any reversions would involve declines in their productivity and their capacity to penetrate global markets. A reversion would, therefore, have an impact on demand and employment levels contrary to the desired one. In a recent work for the World Bank, Cattaneo, Gereffi, & Staritz (2010) have argued that trade has withstood the crisis rather well and GVCs are partially responsible for this result.²

² According to Cattaneo, Gereffi, & Staritz (2010), the redeployment and localization of world production that has emerged over the past 20 years are so far-reaching in their scope that they withstood the tests and temptations of protectionism. World production is now geographically dispersed, organized by networks and chains with companies of global size and reach that structure the process. There seems to be no turning back from the phenomenon.

COMPARATIVE ADVANTAGES, EXPORT
SOPHISTICATION, AND GVCs

For its empirical approach to the phenomenon of GVCs, this work uses the UNCOMTRADE database for annual FOB exports by country of origin for the period 2000-2007. Countries registering no information in one of the eight years have been eliminated, leaving a total sample of 121 countries. In terms of products, we used the 2002 6-digit Harmonized System (HS) classification, and we applied the criterion of maintaining those products for which trade was registered in one or other year of the period analyzed (4,913 products of the existing 5,224). This produces a database with 594,473 observations.

We chose three types of countries for the analysis and presentation of the results: (i) selected developed countries (Germany, the Benelux countries, South Korea, United States, and Japan); (ii) Brazil, Russia, India, and China (BRIC), i.e. new emerging countries with large markets; and (iii) selected Latin American countries (Argentina, Brazil, Colombia, Costa Rica, Mexico, Peru, and Uruguay).

EVOLUTION OF TRADE BY COMPARATIVE ADVANTAGE

Figure 2a and Figure 2b represents the evolution of trade in the 4,913 products across the 121 countries. There are three types of situations for country-product combinations in each year: the good is not exported in that country; it is exported, but without revealed comparative advantage (RCA); or it is exported with RCA. As Figure 2a shows, the number of products in each situation considered remains stable, with approximately 47% of products not exported, 42% of products exported without RCA, and just the remaining 11% of products in the HS exported with RCA each year. While the value of trade has risen steadily over the past few years, as shown in Figure 2b, the proportion of the value of exports with RCA is stable, at around 81%.

If the data by country is analyzed, we can see that, the weight of exports with advantage in the more developed countries is lower, at three-quarters of the total, whereas in the developing countries, this percentage is usually above 90%, at least in the smaller countries. Table 1 sets out the percentages for the selected countries and, as can be seen, there are no major changes in the period under consideration.

Figure 2a

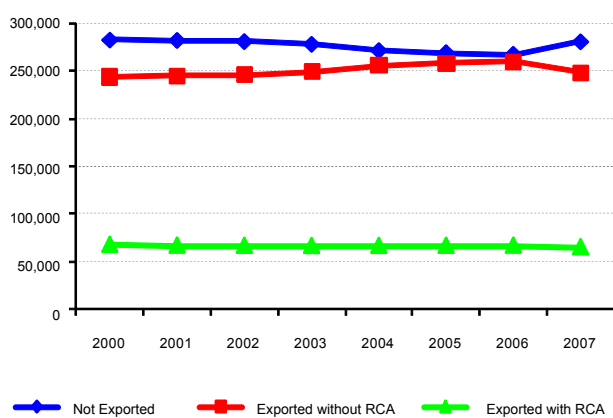
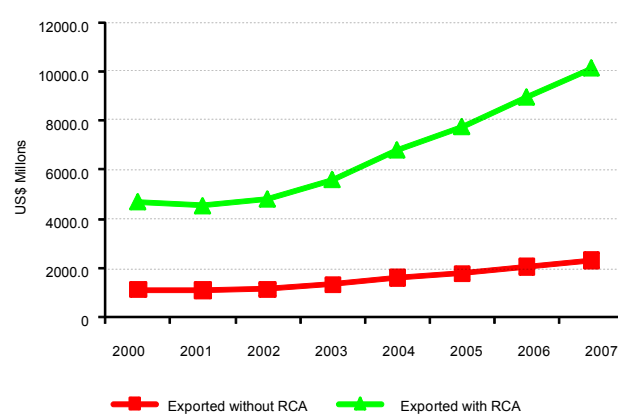
EVOLUTION OF INTERNATIONAL TRADE
WITH AND WITHOUT RCA
Number of products

Figure 2b

EVOLUTION OF INTERNATIONAL TRADE
WITH AND WITHOUT RCA
Value of imports

Source: Based on trade data from UNCOMTRADE.

Table 1

EXPORT COMPOSITION CONSIDERING RCA
% of total exports for selected countries, 2000 & 2007

Country	2000	2007	Country	2000	2007
Developed			Latin American		
Germany	75.4	77.0	Mexico	81.7	81.8
Benelux countries	76.4	77.9	Brazil	81.3	83.7
South Korea	84.5	84.1	Argentina	85.6	84.9
United States	74.9	74.1	Colombia	91.8	91.1
Japan	86.0	82.5	Costa Rica	94.9	93.9
BRIC (exc. Brazil)			Uruguay	92.3	92.3
China	81.0	84.1	Peru	93.7	93.8
India	88.3	84.9			
Russia	91.2	91.3			

Source: Based on trade data from UNCOMTRADE.

EVOLUTION OF EXPORT SOPHISTICATION

A methodology has recently been developed that provides an indicator of the levels of product sophistication and overcomes the critiques of previous proposals that registered a high degree of endogeneity.³ The only information used to calculate it is a country-product grid each cell of which indicates whether the country (column) has RCA in the product (row).

An economy with low levels of sophistication is an economy that specializes in few products (i.e. it lacks the capacity to produce most goods) that many countries, also with low levels of sophistication, specialize in. This is what in common parlance is called a "banana republic": specialization in a product that many other similar economies specialize exclusively in. A highly sophisticated economy is the opposite: there is specialization in many products that other also highly sophisticated countries specialize in. The method of reflections implements this idea. The Annex Figure presents the resultant ranking from the calculation of the indicator of levels of export sophistication for the

121 countries considered in each year of the period 2000-2007.⁴

As can be seen, the countries of the region display relative stability in export sophistication. Among the selected countries, Costa Rica and, to a lesser extent, Colombia have achieved clearer improvement whereas Argentina and, to a lesser extent, Brazil have lost sophistication. This, together with the decline in the Indian and Russian baskets, accounts for a simplification of three of the BRICs' export baskets. The evolution of China's exports contrasts with this pattern, being characterized by a marked improvement.

In the developed countries, there is the usual stability in their relative position, with the exception of South Korea, which belongs to the group of countries with greatest export sophistication. 2007 was notable for the progress that several of the region's countries (e.g. Uruguay, Costa Rica, Colombia, Peru, and Argentina) made, despite a fall in all cases over the previous years.

If this evolution were analyzed by clustering countries, Argentina's decline would have moved it

³ The new indicator is known as the level of products sophistication of the "method of reflections" (Hausmann & Hidalgo, 2009).

⁴ For a detailed description of the methodology, see Flores & Vaillant (2011).

from the best-positioned group in the region (along with Mexico and Brazil) to the top of the group with medium sophistication (along with Colombia, Costa Rica, Uruguay, and Chile). Peru remained stable throughout the period, and, alongside Bolivia and Ecuador, formed part of the group with least export sophistication in the South American region.⁵

EVALUATING THE CHANGES

For the purposes of this work, we wish to investigate the dynamics through which countries have acquired advantages in certain products in the period analyzed. While the indicator of the method of reflections considers exports with RCA, and brings together products exported without RCA and products not exported under a single category, we propose here to differentiate the latter two situations.

As a way of incorporating a dynamic view, the analysis is divided into an initial subperiod (2000-2003) and a final subperiod (2004-2007). Four possible scenarios for product-country observation are identified in each subperiod, paying attention to a dominance criterion in each four-year group: no dominant behavior (ND); dominance of periods of no exportation (NE); dominance of periods of export with no RCA (NA); and dominance of periods of export with RCA (A).⁶ With these elements, it is possible to simply appreciate the relevance of the different evolutionary patterns of countries' export structures: both the stable behavior across subperiods and the changes that reflect a country's situations of gain or loss of specialization in a product.

As shown in *Table 2*, observations corresponding to country-product cases of no exportation stand at 45.2% in the initial period, and 38.4% maintains this feature in the final period (stable not exported). For exports without RCA, the figure is 36.9% in the initial period, 31.1% of which maintain the characteristic. Finally, the cases of export with RCA were 9.5% in the initial period and 7.2% maintained such a condition.

The weight of stable cases (exports in 2004-2007 faced a situation similar to that of 2000-2003) reaches 78% (values highlighted in the diagonal of each panel). These products channeled 88% of the value of world trade in the initial period and 86.5% of it in the final period.⁷ However, *Table 2*'s interest does not lie in stable situations, but in its description of the changing situation.

Table 2 (Panel A) shows that the largest number of products that change situation do so either from a situation of non-dominance (ND) to being exported without advantage (NA), or from not being exported (NE) to a non-dominant (ND) behavior or to being exported without advantage (NA). Panels B and C measure the value coverage of exports in the initial and final subperiods. The table allows us to see the distribution of different types of traffic identified, the importance of which can be quantified either in the initial or final period. It is interesting to compare the distribution of importance in the initial classification as measured by exports in the initial period against the distribution in the final period as measured by exports in the final period (values highlighted in bold in Panels B and C).

Table 2 identifies 16 patterns in the export specialization dynamic. Five categories can be identified in order to simplify the variable and consider the most relevant patterns: those that have an advantage in the initial and final periods (A,A); those that acquire some degree of specialization (NE,A), (ND,A), (NA,A), plus (NE,NA) and (ND,NA); those that lose specialization (A,NE), (A,ND), (A,NA), plus (NA,ND) and (NA,NE); those exported without specialization (NA,NA) plus (ND,ND); (NE,ND), (ND,NE); and last those that are never exported (NE,NE).

Table 3 presents the five patterns of the dynamic and products are further distinguished by type of good (capital goods, primary inputs, processed inputs, and consumer goods).⁸

⁵ It should be remembered that Venezuela is one of the countries that have been excluded due to a lack of information for 2007 in the UNCOMTRADE database.

⁶ The dominance criterion in the four years of the subperiod considers dominant any situation arising in a number of years strictly higher than any of the possible alternative situations.

⁷ These figures do not coincide exactly with the ones presented above because, in this case, the products have been classified in light of the situation prevailing in each subperiod; in the four years comprising it as a whole, however, there may arise non-dominant situations. So, for example, the value of positive trade seen in products classified as non-exported corresponds to exports in a year of products that register no exports in most years of the subperiod.

⁸ We have used the classification by broad economic categories (BEC).

Table 2

EVOLUTION OF EXPORTS BY SITUATION BETWEEN 2000-2003 & 2004-2007
% of total products and of world export value

A) Distribution of total of products situations					
Ini \ Fin	NE	ND	NA	A	Total
No Exportation (NE)	38.4	3.3	3.2	0.3	45.2
No Dominance (ND)	2.7	1.4	3.4	0.8	8.4
No Advantage (NA)	1.8	2.6	31.1	1.4	36.9
Advantage (A)	0.2	0.7	1.4	7.2	9.5
Total	43.2	8.1	39.0	9.7	100.0
B) Distribution of products in exports in 2000-2003					
Ini \ Fin	NE	ND	NA	A	Total
No Exportation (NE)	0.03	0.00	0.07	0.08	0.20
No Dominance (ND)	0.15	0.34	1.84	2.04	4.37
No Advantage (NA)	0.03	1.06	15.42	1.58	18.09
Advantage (A)	0.15	2.17	2.78	72.24	77.35
Total	0.4	3.6	20.1	75.9	100.0
C) Distribution of products in exports in 2004-2007					
Ini \ Fin	NE	ND	NA	A	Total
No Exportation (NE)	0.02	0.05	0.17	0.49	0.7
No Dominance (ND)	0.01	0.31	1.37	3.41	5.1
No Advantage (NA)	0.01	1.82	15.00	3.41	20.2
Advantage (A)	0.02	1.38	1.32	71.21	73.9
Total	0.06	3.56	17.86	78.52	100.0

Source: Based on data from UNCOMTRADE.

70% of world trade is in products where the countries' advantages remain stable in the period. The weight of this situation for capital goods is lower (62%), which is perhaps an indicator that the pace of technical progress is faster in these types of goods. It is also apparent that almost 10% of trade in 2007 was in products where the countries recently acquired specialization (these products accounted for less than 5% of world exports in 2000). Among the types of goods comprising this set of dynamic products, primary inputs stand out, representing 18% of exports of products where there is a gain in specialization when they are worth just 8.7% of the value of total exports.

Figure 3 evaluates the level of sophistication by type of good and dynamic.⁹ The highest degree of

⁹ The level of sophistication was measured at iteration 10 from indicator Kp (Hausmann & Hidalgo, 2009), and the order was then taken to percentiles. The averages of the percentiles by type of good and pattern of dynamic are presented. This simple average of the levels of sophistication can be seen to have an extremely high correlation (99.1%) with the country index used in Section Comparative Advantages, Export Sophistication, and GVCs. Using the sophistication of each product has the advantage of allowing us to work with subbaskets of the group of products exported by each country.

Table 3**DYNAMICS OF EXPORTS AND TYPE OF GOOD**

As %

A) Proportion of number of products exported in 2007						
	(NE,NE)	No Spec.	Specialization		(V,V)	Total
			Lose	Gain		
Capital goods	0,6	9,7	1,0	2,2	1,5	14,9
Primary inputs	0,3	3,0	0,5	1,0	1,0	5,8
Processed inputs	2,3	30,1	3,5	7,6	6,4	49,9
Consumer goods	1,1	17,7	2,2	4,3	4,1	29,3
Total	4,4	60,5	7,1	15,1	12,9	100,0
B) Proportion of value of exports in 2007						
	(NE,NE)	No Spec.	Specialization		(V,V)	Total
			Lose	Gain		
Capital goods	0,0	3,9	1,1	2,6	12,5	20,1
Primary inputs	0,0	1,1	0,3	1,7	5,6	8,7
Processed inputs	0,0	7,6	2,3	3,6	34,8	48,2
Consumer goods	0,0	3,6	1,0	1,8	16,7	23,0
Total	0,1	16,2	4,7	9,5	69,6	100,0

Source: Based on data from UNCOMTRADE.

sophistication is seen in capital goods, followed by processed inputs, then consumer goods, and last, primary goods. Product-country combinations that acquire advantage at the global level do so by increasing levels of sophistication in relation to the group of products permanently exported with an advantage.

Figure 4 shows the same structure, but in four regions: OECD (excluding Mexico and Chile); China; BRIC (excluding China), and Latin America (excluding Brazil). It is worth noting that the order by type of good holds good across all country clusters (capital, processed goods, consumption, and intermediate goods). In products with advantage, the OECD countries and China are undifferentiated in levels of sophistication. Whereas the OECD is somewhat better-off in terms of capital goods, China has higher levels of sophistication in primary products and consumption. They are extremely alike in terms of processed products. The other three BRIC countries always register lower levels of sophistication

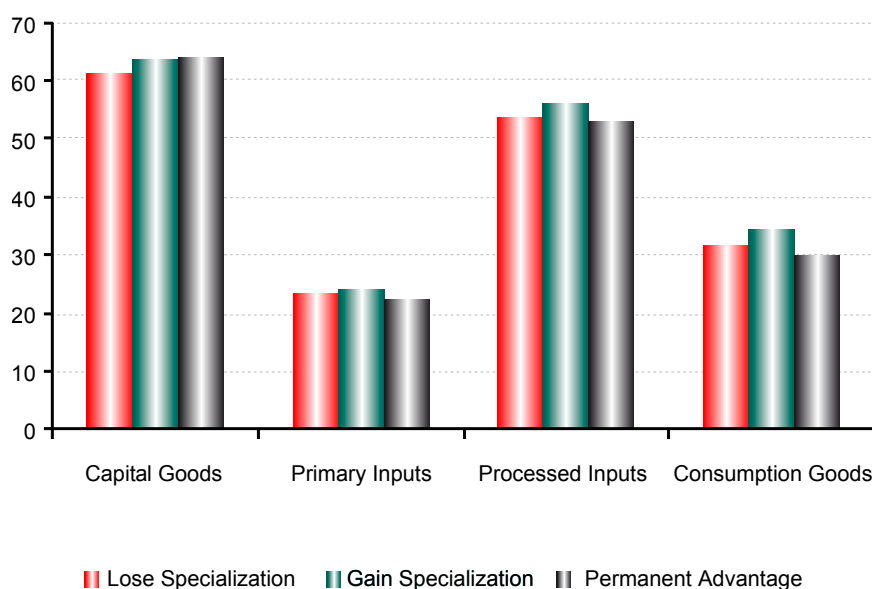
than China, and Latin America (excluding Brazil) always shows lower figures than the other regions.

In terms of the dynamic, products where specialization is acquired have a similar level of sophistication across country clusters in all types of goods. This implies that the difference of sophistication among new and permanent products will have precisely the opposite order to the level of sophistication by region and type of good. Latin America is the region with the lowest levels of sophistication, but where new products with advantage have a major difference with the traditional pattern.

The situation in Latin America is heterogeneous, as noted in previous sections. In products with permanent specialization, which channel the bulk of exports and reflect the pattern of specialization, Mexico and Brazil are always above the Latin American average in all types of goods (Figure 5). Mexico reaches levels of sophistication similar to the OECD average in capital

Figure 3**SOPHISTICATION (2007) BY TYPE OF GOOD AND DYNAMICS (2000-2007)**

Total global exports



Note: Includes all 121 countries and 4913 products.

Source: Based on data from UNCOMTRADE.

goods, processed inputs, and consumer goods, and has notably lower levels of sophistication in primary products (*Figure 4* and *Figure 5*). Brazil is below Mexico except in primary goods, where it registers an average similar to the OECD countries.

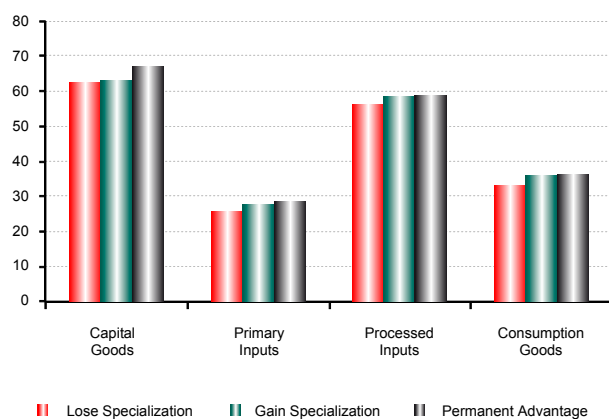
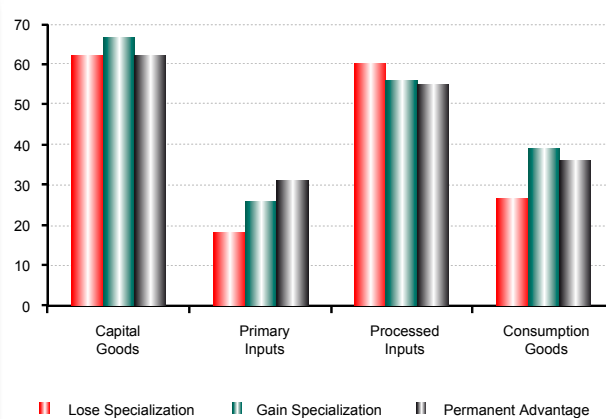
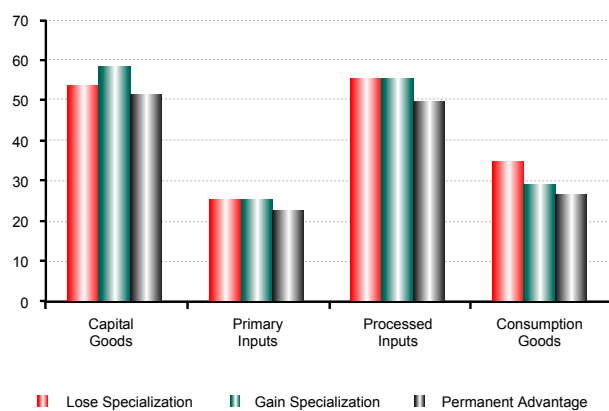
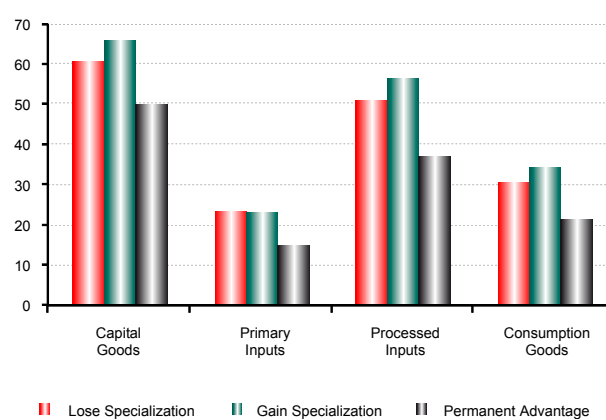
Keeping the spotlight on products with permanent specialization, the order registered in intermediate processed goods is the same as the global order (i.e. the average of sophistication of the basket of products). In this type of inputs, third place in terms of sophistication is held by Argentina, followed by Colombia, Costa Rica, Uruguay, and Peru. This order has variants in the other types of goods, however. In capital goods, third place is held by Costa Rica, and Uruguay is in last place. In primary goods, Uruguay comes second, very close to Brazil and ahead of Mexico, while Peru comes

last. Finally, in consumer goods, third place is held by Colombia, while Argentina and Peru come second to last and last respectively.

In products that describe the dynamic (i.e. that lose and gain specialization), the levels of sophistication are always higher than goods with permanent specialization. The order among the countries analyzed does not hold good and is even almost the reverse in some cases (see *Figure 5* for capital goods in cases that gain specialization). In every case, the countries that stand out for their levels of sophistication in goods that gain specialization are Peru, Uruguay, Costa Rica, and Colombia. In other words, there is evidence in the margin that these countries are participating in a recent modernization process in their export baskets, particularly, in intermediate processed goods.

Figure 4**SOPHISTICATION (2007) BY TYPE OF GOOD AND DYNAMICS (2000-2007)**

Groups of countries

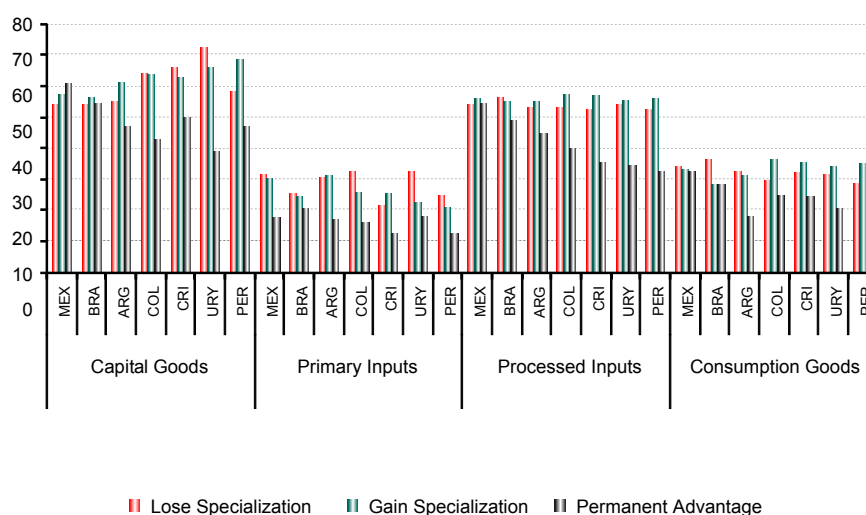
a) OECD**b) China****c) Brazil, Russia & India****d) Latin America**

Source: Based on data from UNCOMTRADE.

Figure 5

SOPHISTICATION (2007) BY TYPE OF GOOD AND DYNAMICS (2000-2007)

Selected countries in Latin America



Source: Based on data from UNCOMTRADE.

CONCLUSIONS

0% of the value of world exports is accounted for by exporting countries with a comparative advantage. Developing countries tend to have an even higher proportion of exports, which allows us to speculate that they have greater stability in their patterns of specialization.

The pattern of specialization is evaluated in terms of the performance displayed by the countries in their **levels of export sophistication** (estimated by the method of reflections). The Latin American countries do not do well in this indicator, which shows a low level of exports sophistication. A group of countries was selected that show relatively stable evolution in these indicators over the period considered, allowing us to differentiate cases such as Brazil, which is close to the lower OECD levels, and Peru, which has the lowest levels of sophistication in the region. Though minor, the changes show that Costa Rica in first place and Colombia in second show an improvement, whereas Argentina, and to a lesser extent Brazil, lose export sophistication.

The mode in which the region's economies are inserted in GVCs can be a determinant both in their recent developments and their prospects of modifying their role as exporters of goods with low levels of change, low unit value, and low differentiation (commodities). The development of GVCs is associated with relocation of production and is reflected in participating countries' beginning to export new products, which therefore requires the incorporation of a vision of the **dynamic of the pattern of specialization**. According to the methodology set forth in this work, the weight of new products accounted for 10% of world trade in 2007. Given that a strict criterion is being applied that takes into consideration new sectors, such as those emerging between 2004 and 2007, the importance of the phenomenon in the reference period is plain to see.

To round off the analysis, a third perspective is incorporated by **product type** (capital goods, primary inputs, processed inputs, and consumer goods), which captures a second fact: the fragmentation of production. It is interesting here to analyze processed inputs and, possibly, primary inputs among the new

products being traded. Trade in primary inputs in the countries selected accounts for a significant percentage of the group of products in which the countries have recently gained specialization.

The final analysis was done by crossing the dynamic of the pattern of specialization (lose, gain, and maintain specialization with advantage) and the type of product, and the level of sophistication of each of these twelve subbaskets was evaluated.

In the case of products with advantage, China reaches levels of sophistication similar to the OECD average across all categories, followed by BRIC, and Latin America (whose performance is similar to the rest of the world). The order of levels of sophistication by product type is similar across all regions: capital goods, processed inputs, consumer goods, and, last, primary inputs.

The results show that product-country combinations acquire advantage by increasing levels of sophistication in relation to the group of products permanently exported with advantage. This can be seen in both world trade and the different regions analyzed.

Significant heterogeneity among the Latin American cases selected is seen when we look at the sophistication of the subbasket of products exported with permanent advantage. This order confirms the above order at the global level.

However, the products in which specialization is acquired have a similar level of sophistication across clusters of countries in all types of goods, and the same is seen across the Latin American countries. This implies that the difference in sophistication between new and permanent products will have exactly the opposite order to levels of sophistication by region and type of good. Latin America is the region with the lowest sophistication, but where new products with advantage are more differentiated from the traditional pattern. The countries that stand out most for their levels of sophistication in goods that gain specialization are Peru, Uruguay, Costa Rica, and Colombia. In other words, there is evidence in the margin that these countries are participating in a recent modernization of their export baskets, particularly where intermediate processed goods are concerned. ♦

REFERENCES

BALDWIN, R. 2006a. "Globalization: The Great Unbundling(s). Paper prepared for the Secretariat of the Economic Council under the EU Presidency of Finland.

-----, 2006b. "Offshoring and Globalisation: What is New about the New Paradigm?" Mimeo. Geneva: Graduate Institute.

CATTANEO, O., G. GEREFFI, & C. STARITZ. 2010. *Global Value Chains in a Postcrisis World*. Washington, DC: The World Bank.

FLORES, M. & M. VAILLANT. 2011. "Cadenas globales de valor y sofisticación de la canasta de exportación en América Latina". Documento de Trabajo del Departamento de Economía - Udelar, 7. Montevideo.

HAUSMANN, R., J. HWANG & D. RODRIK. 2007. "What you exports Matters", *Journal of Economic Growth*, 12(1), pp, 1-25.

HAUSMANN, R. & C. HIDALGO. 2009. "The Building Blocks of Economic Complexity", *PNAS*, 106(26), pp 10575-10575.

HIDALGO, C. A., B. KLINGER, A. L. BARABÁSI & R. HAUSMANN. 2007. "The Product Space Conditions the Development of Nations", *Science*, 317(5837), pp, 482-487.

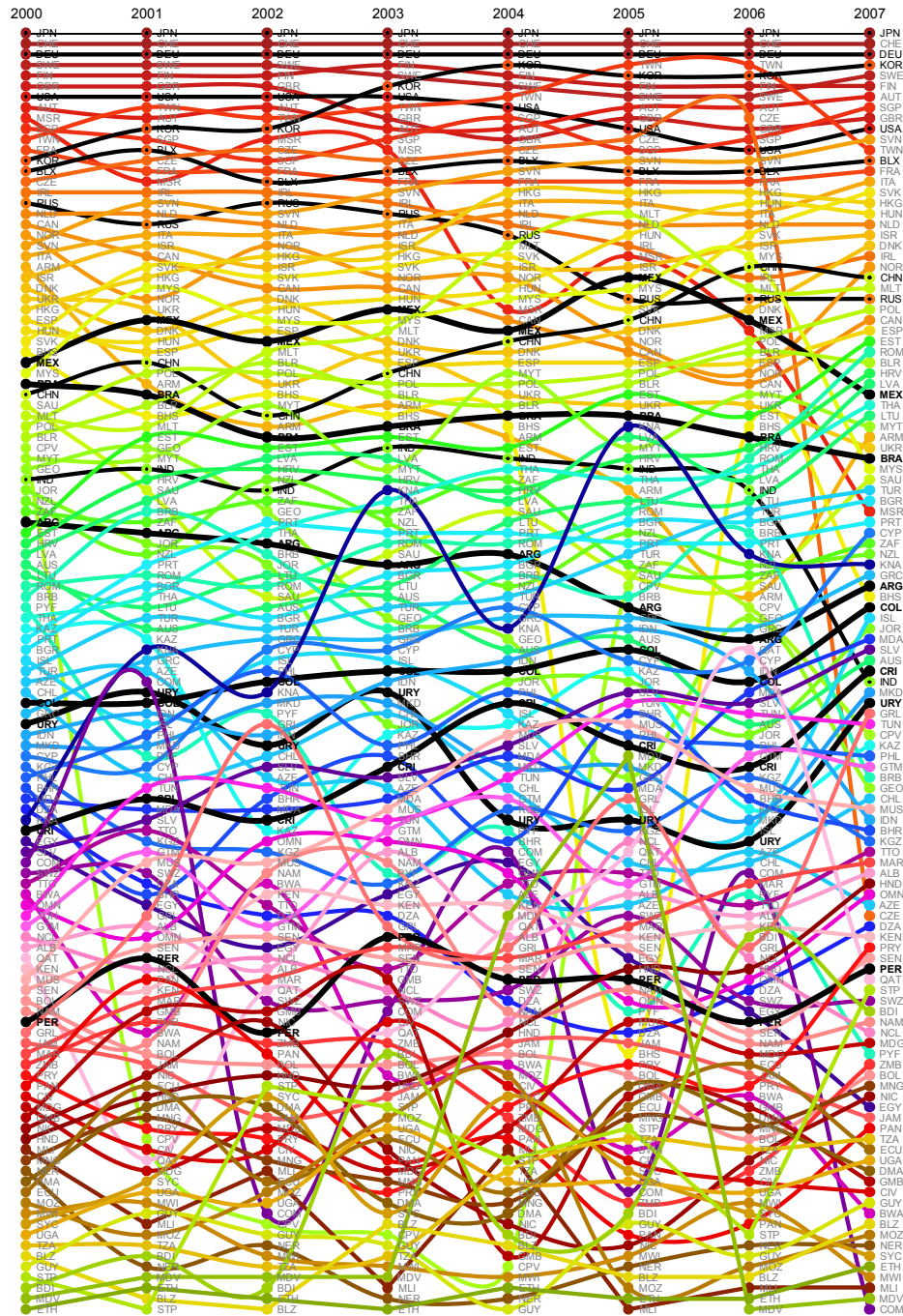
HIRSCHMAN, A. 1958. *The Strategy of Economic Development*. New Haven, Conn.: Yale Press.

KRUGMAN, P. 1988. "La nueva teoría del comercio internacional y los países menos desarrollados", *El Trimestre Económico*, LV(217). January-March.

Annex Figure

EXPORT SOPHISTICATION - REFLEX METHOD ($K_{c,18}$)

2000 – 2007



Source: Based on trade data from UNCOMTRADE.

GLOBAL VALUE CHAINS IN THE SERVICES SECTOR: BUSINESS STRATEGIES AND LATIN AMERICAN INSERTION

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The services sector accounts for the bulk of the gross domestic product (GDP) and employment in the developed economies and much of the developing world. International trade in services has been growing steadily and has been more resilient to the crisis than trade in goods. A significant part of the growth in world trade in services can be explained by the recent deployment of global value chains (GVCs) in various different areas, following a trend that first appeared decades ago in the production of goods. In this scenario, a significant number of developing countries have joined this global market and established themselves as attractive locations for investment. The possibility for the Latin American countries to export services is largely tied to their participation in GVCs, either in the framework of chains specifically of services or in linkages of service activities within manufacturing chains. However, although such insertion generates opportunities for fresh sources of income and employment, it is no guarantee that other beneficial effects (e.g. knowledge spillovers, technology development, etc.) will follow. Against such a background, public policies are key to enhancing internal conditions, striving toward less volatile positions within these global production frameworks and encouraging the generation of spillovers and linkages.

INTRODUCTION

The role of services in the economy has been changing and growing over time. Services today account for the bulk of the gross domestic product (GDP) and employment in the developed economies and much of the developing world. According to World Bank data, the weight of services in Latin America's GDP in 1970 and the current Eurozone was 50%, and 60% in United States. The figures currently stand at 61%, 72%, and 77% respectively.

According to WTO data, moreover, global trade in services between 2000 and 2008 went from US\$1.5 trillion to US\$3.8 trillion.¹ Looking at this evolution a little more closely, we can see that, between 1980 and 2009, trade in services grew faster than trade in goods (7.9% against 6.5% respectively).

Although trade in services contracted in 2009, the impact of the crisis was less severe than in the case of goods (-12.4% against -22.5%). Whereas services directly linked to trade in goods (e.g. transport), tourism, and financial services fell most sharply, business, professional, and technical services went on expanding (Borchert & Mattoo, 2009).

These trends occur in a context where certain services previously perceived as weakly tradable or non-tradable (health, education, accounting, legal services and administration, advertising, research and development (R&D) display high levels of trade and expectations of strong growth. Sectors where there trade flows had existed for some time (e.g. finance, construction, and engineering) have increased levels of internationalization. Lastly, certain more recent segments, (e.g. software and IT services) have rapidly become industries where international transactions have taken on a central role (López *et al.*, 2009).

The structural change in the composition of trade in services is perhaps the most interesting feature of this process and is associated with the formation of global value chains (GVCs). In recent years, this process has been ongoing in various service activities following the trend in goods that began decades ago.

In this new scenario, transnational corporations (TCs) play a central role as organizers of most GVCs by seeking to offshore their provision of services to where there are competitive costs and access to skilled resources. Other key actors also come into play, namely, the developing countries (DGCs), which still have a minor but increasingly important role in the process. In fact, a significant number of DGCs and transition economies have successfully integrated with these markets and established themselves as attractive locations for the placement of investments. Drawing on their vast reserves of university-educated labor, China and India are the preferred candidates when it comes to providing offshore services, but other Asian nations too, as well as Eastern European and Latin American countries² (e.g. Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico, and Uruguay) figure among the locations chosen to provide certain types of services forming part of the logic of GVC production fragmentation.

This article analyzes the characteristics of GVCs in the services sector, based on an understanding of the business strategies of the firms involved. On this basis, we are better able to appreciate the Latin American countries' potential for insertion and the role of various public policies.³

GLOBAL VALUE CHAINS IN THE SERVICES SECTOR

Although the GVC approach was originally developed for goods production, service activities also underwent changes and fragmentation processes that led to the emergence of their own GVCs. Indeed, the generation of GVCs in different industries has itself enabled the emergence of related subchains in the area of services.⁴

² An annual survey of offshoring companies by Duke University shows that 70% of global launches of contact centers in 2007-2009 were in Latin America. This figure reaches 50% for the offshoring of IT services, as against 33% and 4% respectively in 2001-2003 (The Conference Board, 2010).

³ There are two possibilities for the insertion of Latin American and Caribbean countries' in international service provision: (a) through the provision of services in goods GVCs; and (b) the integration of services GVCs. Having made this clarification and unless otherwise specified in the rest of this article, we will make no further distinction between the two.

⁴ See, for example, Apte & Mason (1995), or the more recent work by Gereffi & Fernández-Stark (2010).

¹ Following WTO data, global trade in manufactures climbed from US\$6.5 billion to US\$16.1 billion between 2000 and 2008, falling to US\$12.5 billion in 2009.

A major part of the growth in world trade in services is explained by the development of these GVCs. For DGCs, the opportunities for exporting services are therefore largely tied to the insertion they can achieve within GVCs, either in specifically services chains (e.g. banking services, audiovisual materials, advertising, health services, etc.) or in services linkages in manufacturing chains (e.g. logistic services, R&D, business, etc.). This kind of insertion can also take place via various different modalities, and this will affect the sustainability of the country's export position and the impact of exports on its economy.

The expansion of GVCs in services has been stimulated by TCs' interest in relocating the different functions of the value chain to where they can more efficiently serve the corporation as a whole. TCs are thus increasingly focusing their core business on their parent companies or on certain key subsidiaries, delegating routine tasks (accounting, IT support, customer service, human resource management, charges and payment management) to subsidiaries located in third countries, or outsourcing them to independent firms. More recently, more complex activities, including R&D, are also being decentralized.

As a result of this, most GVCs are headed by the leading TCs, which are capable of defining the relations that are established within those chains. This, in turn, determines the way each country is inserted and the opportunities for upgrading in the activities it carries out.⁵

Insertion in GVCs can occur in links that are highly diverse in terms of their level of technological complexity and the capabilities required to carry out their respective tasks. Business services exports, for example, range from call centers to market or financial research. Between the two extremes, the importance of labor costs as a factor in competitiveness decreases and human capital rises. The same is true in the software industry, which ranges from the software factory to the implementation of R&D projects, or in the pharmaceutical chain, which ranges from human clinical trials to the installation of laboratories to operate in phases to discover new drugs.

In turn, the opportunity to generate knowledge spillovers via links with other agents (customers,

suppliers, universities and research centers, public agencies, etc.) may be conditioned by the segment of action within the chain and the type of agents operating. A pharmaceutical TC that relocates its R&D to an emerging country, for example, is likely to have fewer links to universities and local laboratories than a similar local firm (for reasons of secrecy or trust).

In the meantime, local conditions also influence the possibilities of escalation and generation of spillovers, including: (i) the availability of human capital; (ii) access to modern infrastructure; (iii) the existence of consolidated clusters; (iv) the technological and absorption capacity of domestic firms; (v) the operations of national innovation systems; (vi) macroeconomic and institutional stability; and (vii) the public policy framework (Kosacoff *et al.*, 2007).

Following the classification developed by Gereffi & Fernández-Stark (2010), the services offshoring market can be divided into three horizontal segments: Information Technology Outsourcing (ITO), Business Process Outsourcing (BPO), and Knowledge Process Outsourcing (KPO). Meanwhile, there are vertical markets per industry where specific services (financial, health/pharmaceutical, energy, communications, etc.) are provided.

Gereffi & Fernández-Stark believe that, according to levels of complexity and requirements of human capital, the ITO segment would be in the lowest echelon of horizontal services, BPO in the middle, and KPO in the highest level. In turn, activities coexist within each segment that are very different in terms of the intensity of the new knowledge involved (e.g. in the case of IT, from infrastructure management to software R&D). Similarly, in vertical segments, various types of services can also be detected, with their own scaling value logic.

An alternative way to approach the topic is to analyze the degree of commoditization of different types of services. BPO and ITO are perceived as the segments most akin to the case of commodities (and hence are primarily subject to cost competition); this is not the case with KPO and R&D activities. There are two phenomena in this context: (a) greater concentration on the ITO and BPO markets; and (b) a general concern from firms and countries to position themselves in the KPO market.

⁵ See, for example, Humphrey & Schmitz (2002), Gereffi *et al.* (2005), Giuliani *et al.* (2005), and Pietrobelli & Rabellotti (2006).

Indeed, insofar as BPO and ITO markets are “commoditized,” competitiveness is defined by cost and scale, while the unification of practices becomes more widespread. The large companies dominating these global markets (e.g. IBM, Accenture, Cap Gemini, EDS (now HP Enterprise Services), TCS, etc.) are widely adopting the so-called Global Delivery Model. This consists of the creation of a global network of customer service offices and specialized centers for the provision of services in countries with low labor costs (India and Philippines lead the field in such centers).

This makes competition among local or regional businesses in these markets increasingly difficult (Gereffi & Fernández-Stark, 2010). This concentration has been reinforced by a growing wave of mergers and acquisitions,⁶ the most striking example of which is the purchase of EDS by Hewlett Packard (ECLAC, 2009). There is also a parallel trend toward closure of shared services centers, held captive by traditional manufacturing and services firms, and outsourcing to the kind of large consultancy firms we have just mentioned, essentially for cost reasons.

In this scenario, considering the relationship between the kind of functions performed in GVCs and the potential for generating spillovers, many countries and companies are aiming to leave the most commoditized segments and concentrate their efforts on KPO (e.g. the large Indian companies). This market also displays higher growth rates. According to OECD (2008), KPO saw accumulative growth of 58% p.a. between 2005 and 2010, as against 25% for BPO and ITO. However, for the time being, the business is less voluminous in terms of invoicing than the other two large markets (KPO represented 12% of the world offshore market in 2010, according to the OECD work) and involves substantively fewer—albeit more highly qualified—personnel.

The attractions of KPO are based on three main factors: (i) it generates better-quality jobs and remuneration, as well as higher revenue per employee for firms; (ii)

it requires a far greater degree of interaction between client and provider, since it usually involves the solution of new problems and more adaptation than ITO and BPO, and thus generates more opportunities for knowledge transfer to countries where the various activities are performed (Fernández-Stark, *et al.*, 2010); and (iii) in the KPO market (unlike the BPO and ITO markets) smaller companies can survive and develop—at least so far—based on their creative and technological capacity (Gereffi, *et al.*, 2009).

Where the form of government of GVCs is concerned, the evidence suggests that many of the new services export sectors are heavily influenced by hierarchical chains.⁷ This is apparent in a number of indicators, e.g. the weight of intrafirm transactions on trade in these services.⁸ However, as we mentioned above, there are trends toward the vertical disintegration of certain functions, which are outsourced to global suppliers specializing in the BPO and ITO segments. Accordingly, relational chains are formed in some cases, where suppliers and customers establish strongly interdependent links involving specific capabilities and knowledge, and requiring significant levels of coordination and trust. For certain more commoditized activities, providers develop services platforms that can be adapted to different customers at relatively low cost, something rather like modular chains (e.g. the Global Delivery Model). At the same time, the trend toward disintegration does not cover all “offshoreable” functions. For example, in the case of R&D, while there has been a marked trend toward the offshoring of functions, the bulk of units abroad are prey to the respective TCs (López, *et al.*, 2010). This is logical considering that R&D is a strategic activity for corporations and that outsourcing it generates risks of unwanted knowledge spillovers. Lastly, the existence of purely market relations in services GVCs

⁶ Transboundary mergers and acquisitions in the business services sector reached US\$100 billion in both 2007 and 2008, with 2,000 and 1,700 cases respectively (UNCTAD, 2010).

⁷ Hierarchical chains are characterized by the presence of a leading firm directly owning other companies in the chain (vertical integration) (Humphrey & Schmitz, 2002; Gereffi *et al.*, 2005).

⁸ According to data from the Bureau of Economic Analysis, levels of intrafirm trade in US imports in the consultancy and management services, computing and information, and R&D sectors in 2008 reached 86%, 76% and 73% respectively.

appears to be an unusual situation, and is, in any event, limited to specific operations and not to the outsourcing of corporations' regular functions. All this means that exporting services outside of TC-led GVCs is increasingly difficult.

THE OUTLOOK FOR LATIN AMERICAN COUNTRIES' INSERTION IN SERVICES GVCs

Despite the slight fall in Latin America's share of world trade in services between 2000 and 2008 (from 3.1% to 2.6%), the changes mentioned above have been consistently reflected in the region (López & Ramos, 2010).

What are the advantages presented by the region in competing in the new services markets? Major heterogeneities between and within countries notwithstanding, we can mention the following: competitive labor costs, skilled human resources, relatively modern ICT infrastructure, the accumulation of skills and knowledge in certain sectors, a similar timezone to United States and close to European time, and cultural affinities with the main importing countries (López *et al.*, 2009).

The existence of competitive costs is a necessary factor when positioning oneself in GVCs. All the studies analyzing companies' motives for offshoring identify cost saving, particularly labor costs, as the most relevant (according to Deloitte, 2009, its importance has been further reinforced since the crisis). Access to skilled personnel is also a necessary condition in the majority of cases, although the type of qualification required varies greatly from one service activity to another.

Several rankings currently reflect how attractive different places are for the location of certain services. According to the one drawn up by A. T. Kearney (2009), Asian countries occupy the top spots (headed by India and China, which have advantages in both costs and human capital). But there are also several Latin American countries near the top, with Chile coming in 8th place, Mexico in 11th, and Brazil in 12th. Below them come Costa Rica in 23th, Argentina in 27th,

and Uruguay in 36th. Asian dominance is also seen in the rankings for the most attractive "emerging" cities (excluding Indian cities already consolidated in this industry and others, like Manila). The best-placed Latin American cities are São Paulo (8th) and Buenos Aires (9th), and three Mexican cities, four Brazilian, Santiago de Chile, and San José de Costa Rica also feature in the top 50 (Global Services & Tholons, 2009).⁹

This shows that the region has become an attractive place for offshoring services and receiving investments. However, insertion in services GVCs is generally limited to segments with low or moderate technological complexity, and/or those that are non-strategic in terms of the global activities of the corporations dominating the chains (the same goes for clinical research, engineering and construction, software or outsourcing, since, the same pattern is replicated to one extent or another in all cases) (López *et al.*, 2009). *Figure 1* illustrates the situation in Argentina.¹⁰

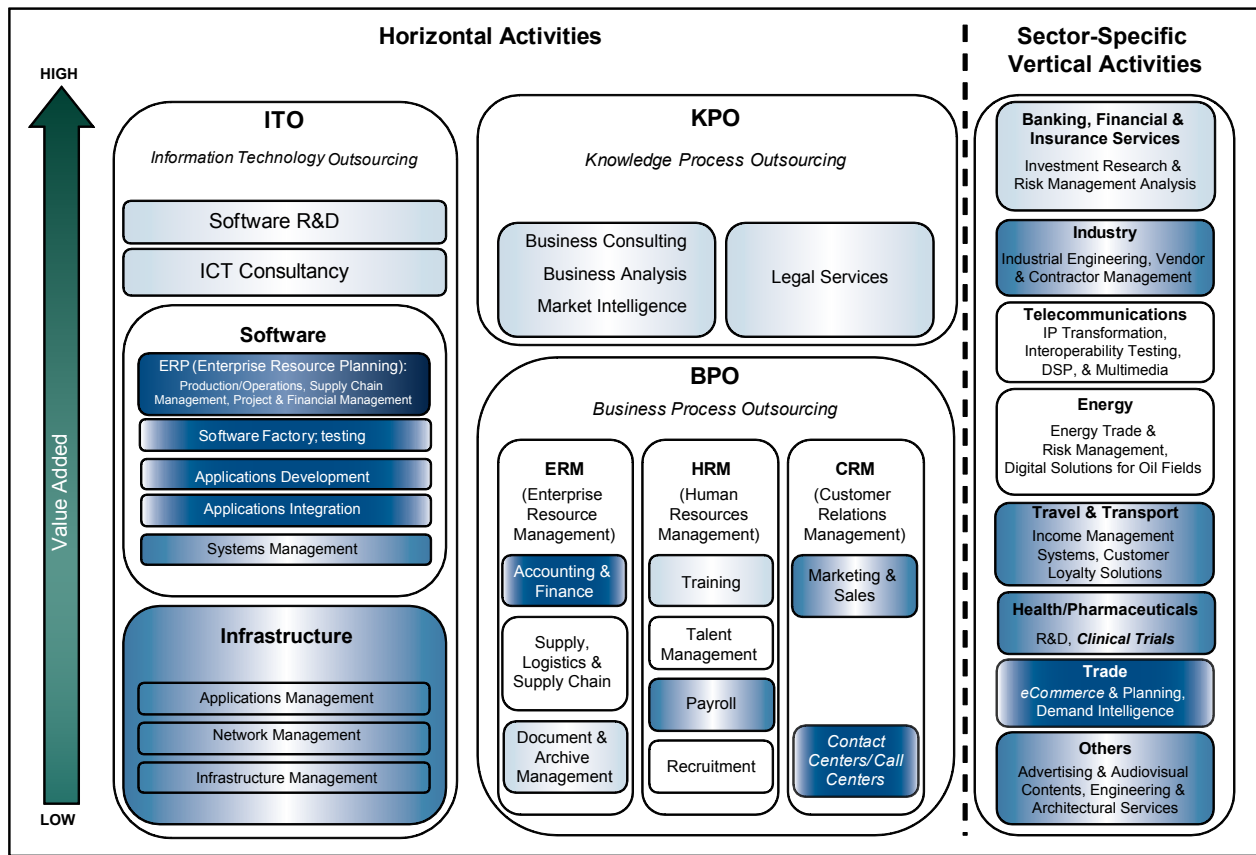
In order to begin to turn this situation around it is first necessary to work on the factors that attract foreign investment, for, as we noted above, a substantive part of trade in services is intrafirm and certain markets seem to be increasingly concentrated in a relatively small group of companies that have consolidated their position as the main global actors and are buying up their smaller competitors. As a result, the region's countries should aim to position themselves with respect to the TC leaders in GVCs (both manufacturing

⁹ The various different rankings are not necessarily comparable, as they tend to use different variables to assess locations. A. T. Kearney (2009), for example, assesses countries using 43 variables grouped in three main categories: financial attractiveness, availability and qualification of human resources, and business environment, giving these categories a weighting of 40%, 30% and 30% respectively in the final index. The main sources of information are surveys and knowledge deriving from links with customers over the last 5 years. As well as primary information based on business surveys and interviews, Global Services & Tholons (2009) also make use of historical data from governments, international agencies and institutions, and monetary organizations. Similarly, the formulation of weighting factors combines both qualitative and quantitative criteria.

¹⁰ Given the region's heterogeneity, it is risky to draw up a summary table for the countries as a whole, as this would mix dissimilar realities and may convey a distorted image of the aggregate.

Figure 1**ARGENTINE POSITION IN GVC SERVICES SECTORS**

Depth of color denotes level of participation



Source: Based on diagram by Gereffi & Fernández-Stark (2010).

and services), not only as providers of low-cost skilled resources, but as suitable places to carry out more complex, more knowledge-intensive tasks based on differential capabilities.

The other challenge for the region's countries comes from the fact that TCs' investments in these sectors generate relatively few linkages with the local environment. The enhanced promise of spillovers seems to currently lie in the mobility of personnel, both in the direction of other local companies and in the development of spinoffs. But spinoffs are more feasible in activities where knowledge and creativity applied to the development of new ideas are paramount (e.g. software) than in others where employees have no access to the global knowledge of business management

and work on the basis of standard procedures (e.g. BPO), aside from other potential obstacles such as the need for fixed asset investment. What is more, in terms of mobility toward local companies, in many countries the opposite effect predominates for the moment (it is TCs that employ personnel trained by local firms) and, in some cases, even the resources hired by TCs perform more routine activities than in their previous jobs (López & Ramos, 2009, in the case of Argentina).

An alternative way to improve Latin America's pattern of insertion in GVCs services is to develop the emergence of local "champions" through mechanisms to promote competitiveness (access to financing, skilled human resources, scale, etc.), taking into account the more advantageous position in which

overseas competitors usually find themselves. In fact, many Indian companies operating in these sectors were globalized precisely to be able to compete with large firms from United States and Europe.¹¹ Some Latin American companies (e.g. Globant, Assa, and Prominente in Argentina; Stefanini, Politec, and CPM Praxis in Brazil; Sonda in Chile; and Sofftek and Neoris in Mexico) are trying to replicate the same model on a regional and, in several cases, global basis also, both with new facilities and via the purchase of companies in various parts of the world.

But, for the moment, these are isolated cases. Indeed, to the extent that the trends toward the concentration and “commoditization” of the BPO and ITO segments are consolidated, the game of “buy or be bought” will grow ever more intense, and will involve the emergence of strong entry barriers for smaller competitors. There are examples of Argentine companies that achieved a degree of international insertion but were subsequently bought by foreign firms, such as Fuego Technologies, acquired by BEA Systems (a firm subsequently purchased by Oracle), or Three Melons, purchased in 2010 by Playdon (a company later acquired by Disney). A Mexican example is TDCOM, a firm that exported design services to United States and was acquired by INTEL in 2000 (after a contractual relationship of almost two years).

There are also cases of relatively successful insertion that have tailed off later. One example is the production of films and audiovisual services in Argentina, where the devaluation in late 2001 made production costs competitive, added to the advantages offered by the country's locations (varied landscapes, similarity with European cities, etc.), its selection of actors and extras (a degree of ethnic diversity), and its stock of physical and human capital acquired during the 1990s. However, the ongoing rise of dollar prices in recent years as a result of internal inflation has reduced the sector's competitiveness and, hence, its sustainability in global chains (particularly in the case of advertising production services). According to figures from the Buenos Aires Film Commission, the number of international commercials filmed in the city fell from 553 to 488 between 2006 and 2008, and then to

269 in 2009 (possibly largely due to the crisis).¹² We can see then that, given the marked mobility in this type of activity, where fixed capital investments are not relevant, it is essential to ground competitiveness in factors other than cost advantage in order to be protected from such situations.

Faced with the disadvantage of the relative size of Latin American companies, a promising alternative is the development of business strategies to fill those market niches outside the main interests of large companies (Mesquita Moreira, 2010). Outside concentrated markets, there is indeed space for local firms in services GVCs. On the one hand, they can offer services cheaper and/or better tailored to the needs of certain customers in local and regional markets, avoiding direct competition with TCs that generally serve the corporate market and the government (see Fifekova & Hardy, 2010) for an illustration of this argument for Eastern Europe). On the other hand, local firms can export from their domestic bases or through less ambitious internationalization strategies, although doing this usually requires either certain quality certifications or strategic alliances with larger players.

In the first case, we can mention CMMI certifications for software and IT services, eSCM-SP for BPO, or accreditation from the Joint Commission International (JCI) for medical tourism. With regard to partnerships, for example, the export of health services in Mexico is boosted by linking local hospitals with US universities or health chains (Portas, 2010). In Argentina many local advertising companies have entered different international networks or groups that have for several years now concentrated the bulk of the global advertising business (López *et al.*, 2009).

In some services, there is also the possibility of exporting on the basis of creative and innovative capacities, and with less attention to cost-related issues or the need for global presence. This is the case with the film industry, TV formats or programs, design and architecture services, video games, animation, etc. Although there are global players already installed in almost all of these markets, these are segments where

¹¹ As part of these processes, Indian companies have been investing in several Latin American countries, with Brazil currently clearly the preferred destination for such operations (Gereffi *et al.*, 2009).

¹² More generally, according to the same source, the number of audiovisual productions recorded in Buenos Aires (movies, television productions, etc.) fell from 794 to 714, and 424 in the same years.

small or medium enterprises can be installed either in specific niches or aimed at generating innovative ideas.

Unfortunately, a few independent firms that had moved toward innovation capacity-based exportation ended up being bought by larger overseas companies (e.g. some Argentine software and video game companies, or advertising agencies). In the area of audiovisual productions, there is a fear that the local firms' partnerships with distributors or foreign production companies may eventually hinder rather

than help exportation from the region, as well as the loss of "country-brand" (Barbadori, *et al.*, 2009).

To remove the obstacles blocking the internationalization of Latin America firms, it is crucial to deal with the systemic factors of competitiveness that generally affect the region's insertion in these GVCs. It is therefore necessary to work on the strengthening of weak innovation systems, facilitate the existence of adequate infrastructure, and tackle inadequacies in the quantity and quality of human

Promotion Policies in the Services Sector

As we have just pointed out, most of the available fiscal and financial mechanisms for the services sector are extensions of measures aimed first and foremost at trade in manufactured goods (Gari, 2010). This is apparent in tax incentives (exemptions or refunds), operations in duty-free zones, deferred payment, and tariff elimination on imports of inputs and/or capital goods—measures that can be exploited in varying degrees by one branch of services or another. This logic is also often reflected in the most common financing mechanisms, such as preferential credit lines, guarantees, and export insurance, which are available for both trade in goods and services. Some countries have been encouraging the parallel formation of capital risk schemes. Similarly, the tools used to attract foreign investment—tax benefit aside—also include subsidies, either general or to cover certain costs.

However, the development of certain branches of services is often associated with activities with high technological content and potential knowledge spillover, aspects not always present in the case of manufacturing production. In this sense, the promotion of the services sector also requires support measures to target these issues more specifically.

An interesting case is Chile, where the National Economic Development Agency (CORFO) has, since 2000, been pursuing a program of special incentives for investment in outsourcing projects for services and industries with a high technological content (e.g. biotechnology). These contributions involve the cofunding of preinvestment studies, start-up costs, and investment in physical assets. The program also includes the provision of subsidies for a one-year period aimed at training staff in specific skills and the possibility of obtaining a subsidized rental in CORFO's technology building in Valparaíso. Furthermore, in order to promote ICT-linked services exports, CORFO has been working with trade associations in industry and promotion agencies and technology transfer on the creation of a quality certification program for industry, via which companies interested in obtaining accreditation are given financial assistance.

Moreover, given the importance of the "knowledge factor" in several of the targeted services branches, some countries support the education and training of human resources in specific skills through the extension of tax rebates for any costs incurred, or via specific financial contributions. The need to improve and adapt the population's skills to new needs has also led to a rethink of certain general education policy guidelines in order to increase the importance of computer and ICT knowledge, and language skills in the labor force (especially English). Costa Rica, for example, has revised the syllabus for technical and university studies, and created new degree courses in order to adapt the educational system to market requirements. Specializations in bilingual accounting, bilingual information technologies, and services center executive have been established in secondary technical colleges. The "Multilingual Costa Rica" program, aimed at improving and extending coverage of English and other languages, is also under way (ECLAC, 2009).

resources. As Mesquita Moreira (2010) points out, the scant supply of engineers and other university graduates in Latin American countries is one of the main limiting factors, and comprehensive policies programs have to be embarked on that will deal with this weakness. If successful, the benefits of such policies will only be reaped in the long term.

Furthermore, although several countries in Latin America have launched sectoral programs or policies to enhance certain service areas (notably software and IT services, and, to a lesser extent, other business and technical services), it is difficult to find other specific measures aimed at promoting services exports or investments in the sector. Generally, the most frequent fiscal and financial support mechanisms extensions of tools originally designed for trade in goods and, on occasion, the problem inherent in the correct definition of what is meant by trade in services has excluded many exporters from these benefits (Mesquita Moreira, 2010) (see [Box](#)).

Moreover, in addition to the traditional weakness of the region's financial systems, the services sector has characteristics of its own, such as the limited opportunities for committing physical assets or future production as guarantees. A pressing issue is the formation of risk capital schemes, indispensable for activities where the degree of intangibility in operations is extremely high, or financing is required to undertake innovation processes associated with a great deal of uncertainty (e.g. more knowledge-intensive services).

CLOSING REMARKS

Although participating in GVCs generates potential opportunities for certain Latin American countries in terms of exports and job creation, there are no guarantees of other beneficial effects, such as knowledge spillovers or the accumulation of technological capabilities. Moreover, insofar as insertion in these chains is based on labor costs, the process can, if successful, soon come up against boundaries. Insofar as services exports have positive effects on the exporting country's levels of *per capita* income, this will entail rising wage bills, which will enable a degree of competitiveness only if offset by productivity increases. But, as relatively homogeneous technologies (e.g. ICT infrastructure and easy transfer routines) are in use in many new services export sectors, it seems implausible that there are huge differences in productivity to sustain the competitiveness of locations with high labor costs. This is less likely to occur if competition is based on other differentiating factors that are hard to replicate by competing countries.

Clearly, public policies can, in this context, play a key role by enhancing internal conditions for attracting investment and boosting services exports in an attempt to attain less volatile positions within these global production frameworks and generate more spillovers and linkages. And we are not just talking about specific policies for these sectors, but about others tackling more structural problems in Latin American development, mainly linked to education, science and technology, infrastructure, and financing. ♦

REFERENCES

- APTE, UDAY & RICHARD MASON. 1995. "Global Disaggregation of Information-intensive Services", *Management Science*, 41(7).
- A. T. KEARNEY. 2009. *The Shifting Geography of Offshoring: The 2009 A. T. Kearney Global Services Location Index*. A. T. Kearney, Inc.
- BARBADORI, TOMÁS; GUADALUPE GIL PARICIO; LEONARDO SAMPIERI & PAULINA SEIVACH. 2009. *La exportación de contenidos y servicios de producción televisiva en la Ciudad de Buenos Aires. Un diagnóstico sobre la situación actual y las perspectivas de la industria local*. Buenos Aires: Observatorio de Comercio Internacional de la Ciudad de Buenos Aires.

BORCHERT, INGO & AADITYA MATTOO. 2009. "The Crisis-Resilience of Services Trade". Policy Research Working Paper, 4917. Washington DC: The World Bank, Development Research Group.

DELOITTE. 2009. "2009 Global Shared Services Survey Results". Deloitte Consulting LLP.

ECONOMIC COMMISSION FOR LATIN AMERICA AND THE CARIBBEAN - ECLAC. 2009. *La inversión extranjera directa en América Latina y el Caribe - 2008*. Santiago: CEPAL.

FERNÁNDEZ-STARK, KARINA; PENNY BAMBER & GARY GEREFFI. 2010. "Chile's Offshore Services Value Chain". Center on Globalization, Governance & Competitiveness, Duke University. March.

FIFEKOVÁ, MARTINA & JANE HARDY. 2010. "Business Service Foreign Direct Investment in Central and Eastern Europe: Trends, Motives and Impacts". Project Report. The Economy and Society Trust. February.

GARI, GABRIEL. 2010. "Incentives for the Offshore Industry in MERCOSUR Countries". Queen Mary, University of London. May.

GEREFFI, GARY & KARINA FERNÁNDEZ-STARK. 2010. "The Offshore Services Global Value Chain". Center on Globalization, Governance & Competitiveness. Duke University.

----- & MARIO CASTILLO. 2009. *"The Offshore Services Industry: A New Opportunity for Latin America"*. The Inter-American Development Bank Policy Brief #IDB-PB-101. Washington DC: Inter-American Development Bank. 2009.

GEREFFI, GARY; JOHN HUMPHREY & TIMOTHY STURGEON. 2005. "The Governance of Global Value Chains", *Review of International Political Economy*, 12(1).

GIULIANI, ELISA; CARLO PIETROBELLI & ROBERTA RABELLOTTI. 2005. "Upgrading in Global Value Chains: Lessons from Latin American Clusters", *World Development*, 33(4).

GLOBAL SERVICES & THOLONS. 2009. *Top 50 emerging global outsourcing cities*. October.

HUMPHREY, JOHN & HUBERT SCHMITZ. 2002. "How Does Insertion in Global Value Chains Affect Upgrading in Industrial Clusters?", *Regional Studies*, 36(9).

KOSACOFF, BERNARDO; ANDRÉS LÓPEZ & MARA PEDRAZZOLI. 2007. "Comercio, inversión y fragmentación del comercio global: ¿está quedando atrás América Latina?". Serie Estudios y Perspectivas, 39. Buenos Aires: ECLAC.

LÓPEZ, ANDRÉS & DANIELA RAMOS. 2009. "Oportunidades y desafíos para la industria del software en Argentina", in: Bastos Tigre, P. and F. Silveira Marques (coord.). *Desafíos y oportunidades para la industria del software en América Latina*. ECLAC.

----- (coord.). 2010. *La Exportación de Servicios en América Latina: los casos de Argentina, Brasil y México*. Serie Red MERCOSUR, 17. Montevideo: Red MERCOSUR de Investigaciones Económicas.

----- & ANDRÉS NIEMBRO. 2010. "El comercio mundial de servicios de I+D", in: López, A. and D. Ramos (coord.). *La exportación de servicios en América Latina: los casos de Argentina, Brasil y México*. Montevideo: Red MERCOSUR de Investigaciones Económicas.

LÓPEZ, ANDRÉS; DANIELA RAMOS & IVÁN TORRE. 2009. "Las exportaciones de servicios de América Latina y su integración en las cadenas globales de valor". Santiago: ECLAC.

MESQUITA MOREIRA, MAURICIO (coord.). 2010. *India: Latin America's next big thing?*. Special Report in Integration & Trade. Washington DC: Inter-American Development Bank.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT - OECD. 2008. *Regional Investment Strategy: Key Findings of the Sector Specific Study*. OECD Private Sector Development Division, Investment Compact for South East Europe. Sarajevo. July, 18.

PIETROBELLI, CARLO & ROBERTA RABELLOTTI (eds.). 2006. *Upgrading to Compete. Global Value Chains, Clusters, and SMEs in Latin America*. Washington, DC: Inter-American Development Bank.

PORTAS, EDUARDO. 2010. "Las exportaciones de servicios de salud en México", in: López, A. and D. Ramos (coord.), *La exportación de servicios en América Latina: los casos de Argentina, Brasil y México*. Montevideo: Red MERCOSUR de Investigaciones Económicas.

THE CONFERENCE BOARD. 2010. "Financial Services Offshoring: Moving Toward Fewer Captives and Global Cost Competitiveness". The Conference Board - Offshoring Research Network Executive Action Series. March.

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT - UNCTAD. 2010. *World Investment Report 2010 - Investing in a Low-Carbon Economy*. New York and Geneva: UNCTAD.





I N T E R V I E W S



JAVIER MARTÍNEZ ÁLVAREZ (TENARIS)

He graduated from Universidad de Buenos Aires (UBA) as an Industrial Engineer, and holds a Master's Degree in Management, University of Stanford. In 1990, he joined the Techint Group in the Planning Sector, at Propulsora Siderúrgica. As the Group's Head of Exports he was in charge of the Southeast Asia market, among others. He participated in the initial negotiations for acquiring Sidor in Venezuela, and was appointed Assistant to the Vice-Presidency, Flat Products Division. His last post before moving on to Tenaris was that of Commercial Director at Sidor. In 2006 he took over the General Management of TenarisTavsa, a Venezuelan producer of seamless pipes. That same year Tenaris acquired TuboCaribe in Colombia, and set up the Andean region as a management area, covering -besides Venezuela- Peru, Ecuador and other Caribbean countries. He was appointed Director-General of the region and, in June 2010, head of the Tenaris operations in Argentina.



TENARIS. Global leader in manufacturing steel pipes and in providing services for drilling, termination and production of oil and gas wells, and also a leader in the supply of tubular products and services for power generation and processing plants, specialized industrial applications and automotive companies. Its comprehensive production network, customer services and R&D centres allow the company to work with its customers to meet their needs through the timely delivery of high performance products in operating environments that are becoming more and more complex.

- **How is corporate production organized at the international level? Have there been recent changes in the location of production and of the different functions? Please comment on the main factors that lead to understanding the international structure of the firm and its location strategy (access to markets, factor cost, and company history).**

The company was created in 1954 in Campana and, since then, has experienced permanent growth that led it to expanding its operations, firstly, within Argentina, and then to the rest of the world, through alliances and acquisitions. In 2001, it decided to bring all its operations under the same brand: Tenaris

Tenaris is present in over 30 countries -such as Argentina, Mexico, Italy, the U.S.A. and Japan, among others- through 28 production units, 28 service centres, 45 commercial offices and four Research and Development centres. It also has global business units (by business type) and local business units (by region) to meet the needs of the different markets (energy, industry, automotive, etc.) worldwide.

Commercially speaking, the location strategy is based on two variables: direct access to domestic markets and the need to support our customer's activities through products and services, so as to create a competitive edge. All this is done through commercial offices and service centres that cover a varying range of activities according to each local market's dynamics.

Regarding production, the Tenaris global operations network allows productive complementarity and supply chain optimization.

- **Which are the main activities carried out by the company's branch in Argentina? Are activities targeted to the domestic market different from export-related activities? What is the relative importance of one and the other at present?**

Argentina produces seam and seamless pipes that meet different specifications and are used for various purposes -including the high-end premium products-, and pump rods for the oil market. Services related to tubular products are also provided, mostly focused on the latter market.

There is no difference between domestic and export market activities. Client specifications and standards prevail above all.

The Tenaris plant in Campana, Argentina, that produces seamless pipes and premium joints and couplings, exports 70% of its production. Tenaris, however, has a long-standing tradition in supplying local oil companies, and the Argentine domestic market is very important for us. Throughout the years, the Tenaris product offer in Argentina evolved from selling only pipes to a broad range of products and services that aim at simplifying and optimizing the tubular applications of our customers.

- **Which are the main competitiveness factors offered by Argentina and that are important for the company (cost, productivity, human resource capacity, specific/differentiated knowledge/skills, quality/reliability, mastering of key technologies, others)?**

The company's history starts in Argentina and, therefore, a lot of the accumulated know-how is centered in this country. The capacity and knowledge of our people are the firm's most important competitiveness factors. Two events prove it so: the relevant role fulfilled by Argentine professionals in the Tenaris operations worldwide, and the fact that the corporate university that trains employees from all over the world -the Tenaris University- is located in Campana.

Another important competitiveness factor in Argentina is the Industrial Research Centre of the Campana plant, where new technologies are developed and tested, both for processes and products. Over one hundred engineers, scientists and technologists work there and, together with the other company research centres, the Campana one has registered close to 200 patent families.

- **How would you compare the activities of the local branch from a complexity/technological standpoint with those at the branches in other emerging countries? Has the relative positioning of your branch changed in the last few years as regards its kind of activities and its relative weight in the corporation's global agreements?**

The activities carried out in Argentina are at a technological and complexity level that positions them strategically as a mandatory benchmark, not only within Tenaris but also within the global industry. The Campana plant is also a research centre for the development of new technologies and for training the company's employees worldwide. In this regard it plays a unique and fundamental role for Tenaris at the global scale.

No relevant changes have taken place in the relative positioning of Argentine operations beyond those inherent in normal fluctuations, and the characteristics of the energy market and world economy. Historically, 70% of Argentine production has been for export and this continues to be so.

- **Which are the main obstacles faced by the local branch to increase its quantitative and qualitative participation in the corporation's value chain?**

We have some concerns regarding competitiveness in Argentina. A cost increase –added to the uneven relationship between price rises and a stagnated dollar value– deepens the gap separating us from the Asian countries and other emerging economies. It is also of concern the situation of the national energy matrix, in which rationalization affects production. Anyhow, we do not remain idle when faced with these problems: we are working on productivity through investments and the training of our people; also on the optimization of our resources and operations to make them more efficient.





DANIEL HERRERO (TOYOTA)



He joined the company 12 years ago. In 1999, he started his career as Accounting and Finance Manager. Three years later, after the creation of Toyota MERCOSUR, he became Accounting and Finance Manager for the whole region. In 2009 he was appointed Director in charge of Accounting and Finance, IT and Human Resources at Toyota Argentina, and he was appointed President in December, 2010.

TOYOTA ARGENTINA. Since 1997, has been producing the Hilux pick-up at its Zárate plant, in Buenos Aires province. In 2005, it started to manufacture the Hilux SW4 in the country. With a staffing table of over 3,200 employees and greater production and investment, Toyota Argentina has become a manufacturing and export platform of commercial vehicles to Latin America –including Mexico and the Caribbean. It is ranked first in exports measured in terms of invoicing, having exported over 48,000 vehicles in 2010, which accounts for 70% of its production. Recently, Toyota Argentina totaled 500 thousand Hilux and SW4 vehicles manufactured at its Zárate plant. Both vehicles lead sales in their respective segments. For 2011, the company announced investments for over \$500 million to enhance the annual production of vehicles in Argentina from 65,000 to 92,000.

- **How is corporate production organized at the international level? Have there been recent changes in the location of production and of the different functions? Please comment on the main factors that lead to understanding the international structure of the firm and its location strategy (access to markets, factor cost, and company history).**

The organization of Toyota's corporate production at the international level underwent significant changes in mid-2004, when the so-called third stage was launched -in geographical and historical terms.

Indeed, *the first stage* was characterized by the manufacturing of vehicles only in Japan, from where they were exported to the different markets. *The second stage* was one of "manufacturing a vehicle where it is sold", which triggered production in the main markets outside Japan.

Since the end of 2004, thanks to the growing trade liberalization worldwide, a new challenge is being faced to implement a global production and supply system.

This gave rise to the project called Innovative Multipurpose Vehicle (IMV) which set up a production and supply system for pick-ups and multipurpose vehicles, interconnecting production plants worldwide, to meet the demands of over 140 countries.

Within this distribution of production, diesel engines were made in Thailand, gasoline engines in Indonesia and transmitters in the Philippines and India. All these branches provide inputs to the plants Toyota has designated to become the main manufacturing centres for Hilux: Thailand, Argentina and South Africa.

In turn, each of them is an export hub to supply Asia, Europe, Africa, Oceania, Latin America and the Middle East.

- **Which are the main activities carried out by the company's branch in Argentina? Are activities targeted to the domestic market different from export-related activities? What is the relative importance of one and the other at present?**

As explained above, Toyota Argentina is currently one of the main IMV manufacturing and distribution centres worldwide. It supplies the Latin American, Caribbean and Mexican markets.

Investments in Argentina commenced back in 2002 and, in March 2005, the first vehicle was launched under this project: the **Hilux Pick-up**. As from October 2005, the company started producing the **New Hilux SW4** in Argentina. This is the first sport utility vehicle (SUV) manufactured by Toyota in MERCOSUR.

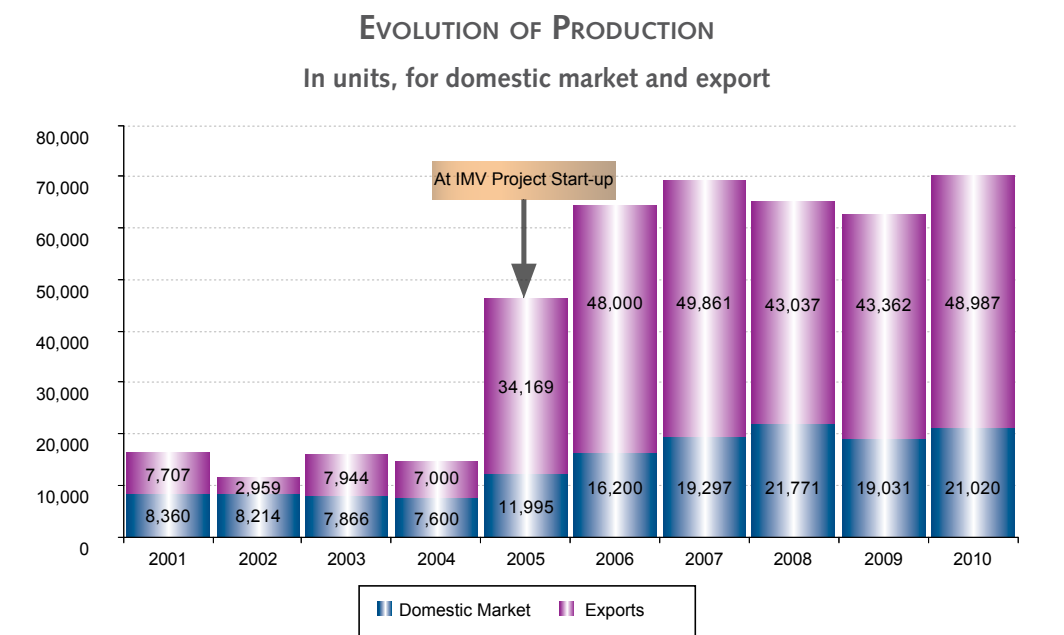
As part of the expansion of the IMV project, the year 2005 production exceeded 46,000 units compared to 19,350 manufactured in 2004. In 2006, Toyota Argentina increased production to 65,000 units *per annum*, of which 75% was exported to over 20 countries in Latin America.

In February 2006, the **new plant was opened for stamping body parts** of the Hilux Pick-Up and the Hilux SW4, a business that required an investment of over US\$15 million. Likewise, a **new engine line** was set up, the **Global Engine Line** (a new assembly notion), with a production capacity of 70,000 vehicles per year.

At the beginning of 2007, within the framework of its fourth expansion stage, Toyota Argentina opened the **plastic part injection and painting plant**, with an investment of close to US\$20 million.

Within the expansion of the IMV project, in December 2010, Toyota announced an investment of US\$126 million to enlarge the Zárate Plant's production capacity. It will thus **manufacture 92,000 units per year as from November 2011**, reaffirming its positioning as a production and export hub.

Similar to the trend experienced in Argentina since the beginning of the IMV Project in 2005, the forthcoming project is also characterized by a clear-cut export profile. Indeed, **80% of the additional volume to be produced in 2012** compared to 2010 will be **for export**.



- Are the exports of the Argentine branch mainly intra-firm or are they also meant for third-party supply?

Exports are targeted toward Toyota car dealers in the different countries.

- Which are the main competitiveness factors offered by Argentina and that are important for the company (cost, productivity, human resource capacity, specific/differentiated knowledge/skills, quality/reliability, mastering of key technologies, others)?

For Toyota and the type of vehicles manufactured at its Argentina branch, the main competitiveness factors refer to human resource capability, the high demand for pick-ups in Argentina, and international agreements signed to offer preferential access to the region's countries.

Prior performance of the Zárate plant was a decisive factor when selecting the country for locating the IMV manufacturing base in Latin America, given the high quality of the pick-ups made there, the human resource capabilities and the plant's productivity.

On the other hand, and in view of the importance of farming and mining activities in Argentina, the demand for pick-ups accounts for a very high market share.

Finally, and in view of the clearly export-oriented nature of the IMV project, international agreements were also a decisive factor. The Brazilian market is very important for the Argentine

automotive industry and for Toyota, since work is carried out with the Brazilian branch under the notion of productive specialization and complementation, which is possible thanks to the agreement signed between both countries.

Likewise, exports to the region's countries take place within the framework of free trade agreements signed with Bolivia, Chile, Uruguay and Mexico, and those of preferential access entered into with the Andean Community member countries.

- **How would you compare the activities of the local branch from a complexity/technological standpoint with those at the branches in other emerging countries? Has the relative positioning of your branch changed in the last few years as regards its kind of activities and its relative weight in the corporation's global agreements?**

As already explained when describing the traits of the IMV Project, the complexity and technology of activities carried out in Argentina are similar to those of the South Africa and Indonesia plants.

The only difference appears with the Thailand branch which was selected to build a Technical Centre because of the annual production assigned to the factory (which is related to the relative size of the markets it serves).

- **Which are the main obstacles faced by the local branch to increase its quantitative and qualitative participation in the corporation's value chain?**

The main obstacles are certain bottlenecks to increase the company's scale, such as the energy restrictions at certain times of the year, the availability of key vendors, and manpower scarcity in the plant's surrounding areas.



JORGE E. SEQUEIRA PICADO (PROCOMER)

General Manager for the Costa Rican Export Promotion Agency (PROCOMER). He is a successful Costa Rican entrepreneur, graduated in Computer Engineering at Tufts University in Boston, and has a Certificate of Special Studies in Administration and Management from Harvard University.



PROCOMER. The Costa Rican Export Promotion Agency is a non governmental public institution in charge of Costa Rican export promotion. It was founded in 1996 to take over the tasks previously assigned to the Exports Free Zones Corporation (*Corporación de Zonas Francas de Exportación*); the Center for the Promotion of Exports and Investments (*Centro para la Promoción de Exportaciones e Inversiones*) and the Investments National Council (*Consejo Nacional de Inversiones*). PROCOMER is responsible for the design and coordination of programs related to exports and investments; it provides technical and financial support in the administration of exports special regimes to the *Ministerio de Comercio Exterior* (COMEX); promotes and protects the country foreign trade interests; concentrates and speeds up import and export processes; and follows up on foreign trade statistics.

Introduction

Costa Rica's insertion into global value chains (GVC) is clearly the outcome of successful policies that the country has applied for over two decades to attract foreign direct investment (FDI) and open up trade. The country's insertion into global value chains started in the electronic field and, at first, focused on the manufacturing of high-tech intermediate electronic components, with a high share of imported material. Little by little the country's productive and export structure began to participate in the global value chains of other products, such as medical devices, automotive parts and aeronautical products and services. Furthermore, the country's skilled labour force that can be easily trained has allowed several of the products exported to GVC to increase the share of domestic components in such exports.

At present, Costa Rica participates in at least five global value chains: electronic components, medical devices, automotive parts, aeronautics/aerospace products and filming devices. Overall, around 60 companies participate in these five global value chains, exporting products and services that in 2009 accounted for over 43% of the country's total exports. This information stems from research carried out on the topic by the Ministry of Foreign Trade, which shows that Costa Rica has an important share in such value chains. According to the outcomes of

this research, the fraction of the exported value contributed by Costa Rica is on average 36%, either through companies participating in the Global Value Chains or other companies located in Costa Rica, which provide products and services to the businesses participating in the global value chains. If companies are grouped by global value chain, average domestic contributions to exports within each GVC vary from 22% in the electronics sector up to 72% in aeronautics/aerospace. These figures confirm that Costa Rica's participation in the global value chains is expanding and has been gradually spilling over to other activities, which have brought about important changes in the country's production and export structure, since such activities nowadays represent over 43% of total exports.

Costa Rica's participation in global value chains takes place at several stages of the productive chain, but mainly in the manufacturing of either intermediate components (as, for instance, in the electronic and automotive GVC) or end products (as is the case of the medical devices GVC). The country has, however, been able to enhance its participation in these chains to those activities that in the past used to be carried out by company headquarters. For instance, INTEL servers are not only manufactured in Costa Rica but their design, research, development and testing stages also take place in the country. Another clear example is the aeronautics global value chain since Costa Rica participates in the design, testing and improvement of devices ranging from motherboards through to turbines. This evidences that Costa Rica has a country profile that allows it to aspire to play a more significant role in the productive processes that make greater contributions to the value of products and services.



Only in Spanish

- **To what extent are there productive links between multinational and local companies, and spillovers from multinational companies to local ones?**

There are positive spillovers to local industry in several fields:

- * Increase in the indirect exports of national companies.
- * Increase in the technical and technological skills of national businesspersons which, in turn, have an impact on improving local business practices.
- * Improvement in the production methods of local vendors; and, furthermore, the last report published by PROCOMER on the impact of Free Trade Zones states that the enterprises within this regime purchase 17% of their inputs locally, in Costa Rica.



Only in Spanish

- **Has the experience of the companies participating in the Global Value Chains (GVC) helped other companies to join in?**

No doubt. Without the presence of these companies, the local industry would face very strong barriers in having direct access to GVC. Their presence in Costa Rica also operates as a learning mechanism for the locals to be prepared, firstly, as indirect vendors.



Only in Spanish

- **Are there differences in the productive links and spillovers between Costa Rica and other countries in the region?**

Differences in the region depend mostly on the kind of investment. It is difficult to find two identical matches in the area. In several Latin American countries, investment is targeted towards the potential market for products in the country itself. In others, investments are related to the availability of raw material and, only in a few cases, investment is attracted by efficiency. In Costa Rica, investment is encouraged by efficiency in quality, time, flexibility and logistics. Here the chain component is not only a direct benefit for locals, but also a mechanism to increase multinational company competitiveness.



Only in Spanish

- **What can the public sector do to foster participation in chains, and spillovers?**

The public sector must work along two lines: (1) Business promotion; and (2) Local capacity building through training.

In Costa Rica, the PROCOMER Productive Links Directorate is in charge of business promotion. This Directorate carries out daily mappings of multinational company plants to identify product and service opportunities for local businesses. Furthermore, this Office identifies gaps between buyers' needs and national supply. This becomes an input for Capacity Building which is addressed through business training, funds for entrepreneurial development and financing.



Only in Spanish

- Which would be the role of export promotion in this regard? What is the Programme *Costa Rica Provee* (Costa Rica Supplies) all about? Which are its achievements (please mention success stories)? And its problems (please mention specific unsuccessful cases) and challenges?

The Productive Links Directorate for Exports is a strategic PROCOMER department that facilitates business relationships between exporting companies and local vendors. This unit's expertise reinforces the supply chain of the export sector and increases the competitiveness of our exports at end markets. Each potential business is supported, and those that lead to a purchase order are duly reported. To date the institution has achieved a historical accumulated business total of US\$37 million through over 1,100 initial purchase orders (subsequent ones are not included), made by 248 exporting companies to 331 local vendors.¹

The national companies that can more easily link into the chain are metalworking, plastics and packaging businesses. That is because most of the foreign direct investment comes from medical devices, electronic and automotive companies. In all these areas, the inputs that tend to link more into the chain are precision metal parts, and pieces made of plastic material by injection, hot molding or extrusion.

Some of the conditioning factors for establishing productive chains are the following:

1. That the companies guarantee not only technical quality and price competitiveness, but also customer services and delivery terms throughout time.
2. Multinational companies operate in a global environment in which vendor availability is broad and so is logistics. Therefore, new suppliers must ensure initial competition and a good background.
3. Facing a global environment calls for local vendors to be prepared from a technical and business management standpoint, and this is not always available across the whole range of products or services required by foreign investment.
4. Initial technical requirements vary according to the product and sector with which the company wishes to establish a productive link. Quality control and management of internal processes are, however, essential for the company to establish productive links and keep them up.

We can mention the following success stories in Costa Rica:

INTEL Fair

Thanks to PROCOMER, in 2010, INTEL contacted 50 national businesses that could cover the company's needs and offer trained technical staff. Out of this total, INTEL selected 15 Costa Rican companies, and 180 opportunities for productive linking were identified.

¹ According to an October 2010 IDB Report ("*Evaluación de impacto del proyecto para desarrollar suplidores para empresas multinacionales de alta tecnología en Costa Rica*"), US\$840 million is the total amount resulting from entrepreneurial linkages along the last ten years.

Camera Dynamics

Camera Dynamics is a multinational British investment firm that manufactures tripods for professional film cameras. For years it imported most of the components for its equipment. With PROCOMER's support, it did business with local vendors that now produce the basic inputs for its operational scheme. Of the 100% that the company imported, now close to 75% is produced by local vendors.

The Serpimetal Case

Serpimetal is a small national business that has been on the market for the last 10 years, rendering services in the fields of die-casting, stamping, manufacturing of metal pieces and application of powder coating. Currently, it renders services to big exporters thanks to the productive links established through PROCOMER. Nowadays it has high-end machinery to manufacture metal plates that are used for IP phones in the USA; and through negotiations with a multinational company it achieved ISO 9000 certification which gives it great worldwide support.



Only in Spanish

Conclusion

Trade opening, overall, and regional integration, in particular, are powerful elements to attract FDI and promote insertion into GVC. Figures in Costa Rica show that there was an acceleration in the pace of growth of exports after trade opening in the mid 1980s, and even more so after Costa Rica's regional integration, thanks to the signing of 11 free trade agreements. These agreements regulate trade with 43 countries and provide security and predictability to over 85% of the country's exports. By means of its participation in the multilateral trade system (WTO) and in preferential trade agreements, Costa Rica has built a sound foreign trade platform that favours the country's integration with different regions, and allows foreign investors to gain access under preferential, secure and predictable conditions to many of the biggest and most important markets worldwide (the U.S.A., the European Union, China and Canada), which also leads to employment generation, production diversification and the resulting exports.

Costa Rica believes regional integration is a notion that goes beyond geographical proximity, and has thus been able to become a part of global value chains that include countries in far away places like Asia and Europe. The greater the regional integration, the more investment opportunities there will be and the greater the country's capacity to join new global value chains, or else diversify its current participation in GVC even further. In this regard, it is essential to have due enforcement of the trade rules that govern regional integration, since that is an essential condition to tap to the greatest extent possible the advantages offered by such a scheme. In this regard, the public sector plays a fundamental role, particularly in the

development and implementation of an integration strategy as, for instance, in the case of the “Plan of Action to Optimize the Implementation of Trade Agreements”, that the Government launched under the guidance and leadership of the Ministry of Foreign Trade, in mid-2010.



Only in Spanish



÷	4	0	6	3	4	9	6	9	±	0
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TRADE AND REGIONAL INTEGRATION: SELECTED INDICATORS

This section will regularly review data measuring trade and integration dimensions in the region. The purpose is to provide a brief regional overview every six months.

NEWLY RELEASED DATA

Table 1

EXPORTS BY INTEGRATION GROUP, 2010 (Preliminary Estimates, % change from 2009 to 2010)

Exporting Region	Destination								
	MERCOSUR	MERCOSUR + Chile + Bolivia	Andean Community	ALADI ¹	CACM	Latin America ²	NAFTA	Hemisphere	Total World
MERCOSUR	41	37	31	35	-4	35	23	30	28
Andean Community	53	43	36	14	14	5	36	21	28
ALADI ¹	44	41	29	32	17	28	31	30	30
CACM	40	13	44	39	12	15	17	15	14
Latin America ²	44	41	29	32	15	27	30	29	29
NAFTA	41	39	40	31	24	31	28	28	24
Total Hemisphere	42	39	33	30	19	29	27	28	25

 Table 1

EXPORTS BY INTEGRATION GROUP, 2010 (Preliminary Estimates, US\$ millions)

Exporting Region	Destination								
	MERCOSUR	MERCOSUR + Chile + Bolivia	Andean Community	ALADI ¹	CACM	Latin America ²	NAFTA	Hemisphere	Total World
MERCOSUR	46,053	57,272	10,247	76,750	1,046	78,829	31,135	108,297	278,815
Andean Community	5,470	9,062	8,024	20,644	1,489	23,531	35,598	58,769	100,455
ALADI ¹	65,196	82,950	28,099	127,871	7,623	140,698	369,639	507,489	825,766
CACM	73	199	186	1,585	5,872	8,527	11,764	19,792	26,904
Latin America ²	65,271	83,159	28,305	129,489	13,593	149,365	381,719	527,746	853,425
NAFTA	55,010	69,826	32,830	283,729	22,075	320,822	957,883	1,120,758	1,959,370
Total Hemisphere	114,330	144,798	55,506	397,893	31,912	449,254	1,082,741	1,370,395	2,505,867

STRUCTURE OF EXPORTS BY INTEGRATION GROUP, 2010 (Preliminary Estimates, % Distribution)

Exporting Region	Destination								
	MERCOSUR	MERCOSUR + Chile + Bolivia	Andean Community	ALADI ¹	CACM	Latin America ²	NAFTA	Hemisphere	Total World
MERCOSUR	17	21	4	28	0	28	11	39	100
Andean Community	5	9	8	21	1	23	35	59	100
ALADI ¹	8	10	3	15	1	17	45	61	100
CACM	0	1	1	6	22	32	44	74	100
Latin America ²	8	10	3	15	2	18	45	62	100
NAFTA	3	4	2	14	1	16	49	57	100
Total Hemisphere	5	6	2	16	1	18	43	55	100

Notes: Estimates of Venezuela's exports use partner country import data.

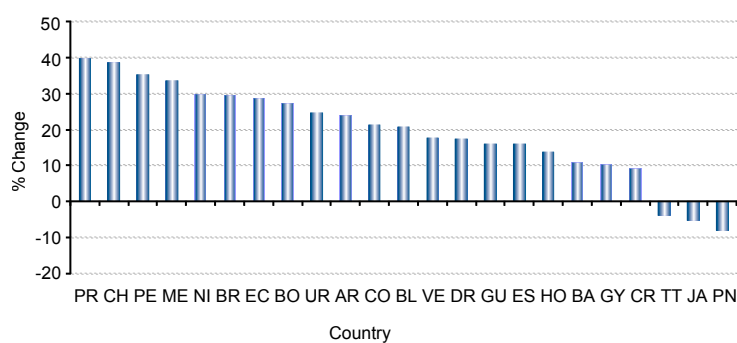
¹ Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay, and Venezuela. Cuba is not included.

² Includes Panama and the countries of ALADI and the CACM.

Source: IDB, Integration and Trade Sector, based on INTradeBID, ALADI, SIECA, and official country data.

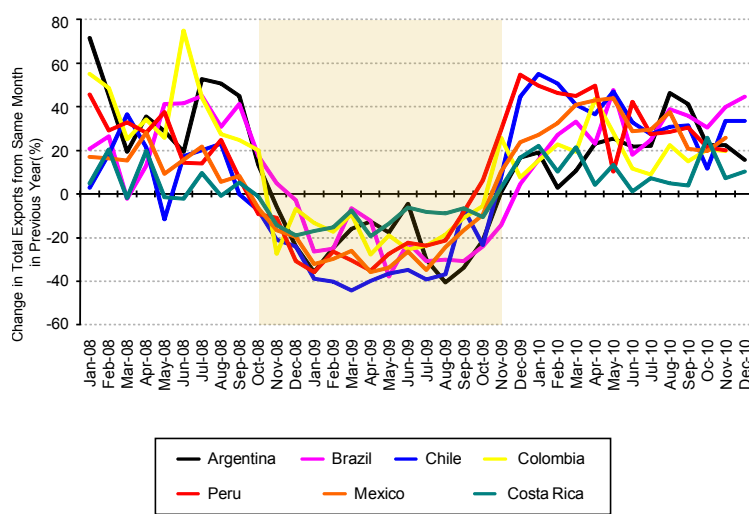
REGIONAL TRENDS

Figure 1

CHANGE IN EXPORTS 2009-2010
(Preliminary Estimates)

Source: IDB, Integration and Trade Sector, based on INTradeBID, ALADI, SIECA, and official country data.

Figure 2

EXPORT PERFORMANCE BEGAN RECOVERING STARTING IN 4TH QUARTER 2009
AND CONTINUES TO IMPROVE

Source: IDB, Integration and Trade Sector, based on official country data.

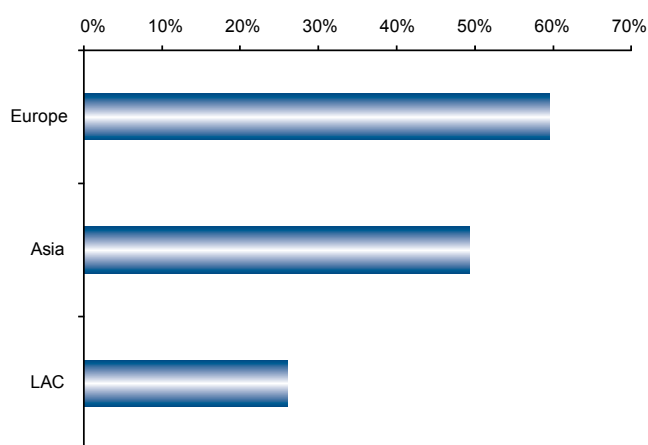


TOPIC-SPECIFIC DATA

The figure shows the exports to the US that takes place between affiliated companies as a proportion of the total exports to the US. Trade between affiliated companies typically include inputs that require further processing and thus it can be taken as a proxy for the participation of a region in international production networks through vertical integration. LAC is at subpar levels relative to other regions suggesting that participation in production sharing is low.

Figure 1

SHARE OF EXPORTS TO THE U.S. TAKING PLACE BETWEEN AFFILIATED COMPANIES



Source: Authors based on "Related-party trade dataset" from the U.S. Census Bureau.



FEATURED PUBLICATION



The Inter-American Development Bank (IDB) Integration and Trade Sector (INT) launched the following publication: *Ten Years After the Take-off: Taking Stock of China-Latin America and the Caribbean Economic Relations*.

Between 2000 and 2008 trade between China and Latin America and the Caribbean (LAC) grew at a breakneck annual rate of 31 percent, and even during the financial crisis in 2009 the dynamism remained unabated. China is today among LAC's top trading partners, particularly in countries such as Brazil, Chile, Peru, and Argentina.

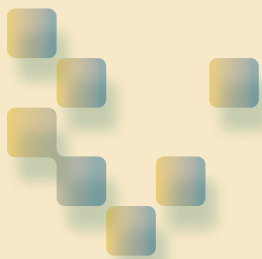
If this relationship is to be sustainable and its full potential realized, policymakers should join forces to address “teething” issues that have developed over the last decade that can potentially derail what has been so far an extremely successful relationship. These issues can be framed under four broad and interrelated areas: *the composition of the bilateral trade, the internal geography of this trade in the region, trade costs, and the trade-investment-cooperation balance*.

1. China-LAC trade was built on the sheer complementarity of their resource endowments—China's scarcity *versus* LAC's abundance of natural resources—which has led to a classical exchange of commodities for manufacturing goods. Though a gainful exchange for both parties, countries in the region would like to see more opportunities to add value to their raw materials or to find niches to export their manufacturing goods.
2. The issues of composition and internal geography are clearly rooted in the countries' comparative advantages.
3. Policy factors such as trade costs seem to play an important role in curtailing opportunities in both sides of the relationship. Tariffs and non-tariff barriers are perceived to be high by firms in both economies but also their perverse medium- and long-term effects on the political economy of the relationship. Other non-traditional trade costs such as transport, processing, and information costs, which fall under the general concept of trade facilitation, also create important challenges.
4. The potential gains of the relationship will not be realized if trade is not complemented by robust investment flows. Foreign direct investment offers profitable opportunities for firms to exploit their knowledge and the advantages of proximity, while giving the host country a very welcome influx of capital, knowledge and jobs. Likewise, there are also opportunities in technical and political cooperation arising from similarities in *per capita* income and stage of development.

Yet, what the data suggest is that the China-LAC relationship has so far stood mostly on just one pillar: trade. There are some hopeful signs that both investment and cooperation pillars are developing, but the fact is that they still lack a critical mass to ensure a stable and sustainable relationship.

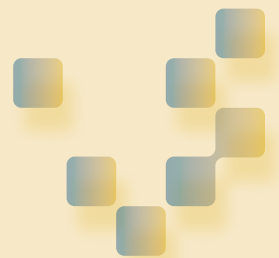
This report is about these “growing pains” that have been marking China-LAC economic relations in this last decade—the decade where it virtually came to life—and the need for an agenda to address the causes of these pains so as to expand and consolidate the gains of this remarkable relationship.





Books and Articles

Reviews



Power and Plenty Trade, War, and the World Economy in the Second Millennium

Publication only in English

RICARDO CARCIOFI

Economist, University of Buenos Aires (UBA), with a Master of Philosophy degree (Development Studies) from the University of Sussex, UK and doctoral studies at Sussex University. He is the Director of the Institute for the Integration of Latin America and the Caribbean (IDB-INTAL). Former Executive Director for Argentina and Haiti at the IDB and Inter-American Investment Corporation.

FINDLAY, RONALD AND KEVIN H. O'ROURKE. 2007. *Power and Plenty. Trade, War, and the World Economy in the Second Millennium*. Princeton University Press.

“...The greatest expansions of world trade have tended to come not from the bloodless tâtonnement of some fictional Walrasian auctioneer but from the barrel of Maxim gun, the edge of a scimitar, or the ferocity of nomadic horsemen...” This phrase from the opening pages of their preface gets under way Findlay & O'Rourke's groundbreaking investigation into the characteristics, modalities, and factors behind globalization over the second millennium.

The authors' attention is focused on searching for the most general features of world trade and the expansion of the global economy as a whole. This is an ambitious undertaking, not only because the period spans a little over ten centuries, but also because the book identifies these trends in studies that cover a wide range of subjects—political, economic, sociological, and religious, to name a few. The authors bring out precisely the contrast in the knowledge inventory—indeed, it is the main purpose of the effort of their research: whereas there are, according to them, many works that cover various facets of the different periods in a wealth of detail, they point out the absence of studies on the broad strokes that allow us to grasp the scope of globalization and its various episodes across the millennium.

With objectives such as these, the reader will appreciate the difficulty of the task. So it is worthwhile to ask how they have set about tackling the issue and finding answers to extremely ambitious questions. I believe the key lies in two methodological choices that are central to the construction of the text and the strategy of the research: the *first* of these choices is the identification of the facts that demarcate the incorporation of spaces in trade and in the interaction with other regions;¹ the *second* has bound up with the quote that opens this review.

In relation to the first choice, the authors argue that their long exploration of the millennium recognizes three pivotal cornerstones, which accommodate and organize the space known to date. For Findlay and O'Rourke, these decisive moments of the second millennium in the march of the globalization process are: *first*, the Black Death of the 14th century; a period

¹ The authors identify seven regions that were relevant in terms of their geography, culture, and political history at the start of the second millennium: Western Europe, Eastern Europe, the Islamic world of the Middle East and North Africa, Central Asia, South Asia, Southeast Asia, and East Asia.

labeled the “Pax Mongolica” promoted by the nomadic tribes of Central Asia, but which the other regions adapted to; *second*, Western Europe’s discovery of the New World; and *third*, the period beginning with the industrial revolution in England, the economic forces of which eventually spread to the rest of the planet.

The other methodological criterion is key to the authors’ chosen historical route. It is the identification of the power relations that dominate and control the space and interaction between the different regions. Accordingly: “Each era can be seen as one in which trade is conducted within a geopolitical framework established by the previous major war or conflict, that is in turn altered by the outbreak of the next war”. The dimension of power and military control is a critical factor in explaining the process of trade and the march toward globalization, transparently expressed in the book’s title and subtitle. This is no anecdotal or marginal choice; it is a key piece in the argument.

The individual chapters follow on from this basic precept: four of them are given over to the old order up to the discovery of America and Mercantilism; the next four begin with industrialization, the “Great Specialization” (1780-1914), its countermarches (“deglobalization” in the inter-war period), and its subsequent advance. Looking at the last third of the millennium from the start of the 18th century from this perspective, *Power and Plenty* identifies the three main conflicts that underpin the subsequent development of trade and economic expansion: the Napoleonic Wars, the Great War, and the Second World War, while not omitting to acknowledge the dissimilar modalities and alternatives of trade in the Cold War blocs.

The tenth and last chapter is given over to a comprehensive review of the outlook for globalization at the dawn of the twenty-first century, and is dominated by one central question: can the process be kept up within fairly harmonious bounds? The authors very sensibly reject the temptation to answer the question, which is a matter for speculation rather than historical analysis. However, they squarely identify the challenges facing this new global economy, which now takes in all regions of the planet. There are two distinct categories in this exercise: economic and political. Where the economic order is concerned, they point to two tensions capable of bringing to a

standstill the order as we know it. The *first* is the oil price, which is decisive in transport costs and hence in the competitiveness achieved by locating production elsewhere. The *second* is the threat of unemployment in the developed countries’ low-skilled labor force as a result of contingents of new workers in the South. Will domestic policies in the North manage the disputes in this process and avoid extreme forms of protectionism?

It is in the political order, particularly aspects that touch on security and the military domain, that the authors see the greatest threats. The exercise thus builds up a list of issues present in global geopolitics on a daily basis: US military dominance under constant strain, leading it to actions where defeat has been more common than victory; the constant disputes over access and strategic routes on the Euro-Asian continent; the conflicts in the Middle East; the threats of sporadic attacks by groups with access to part of the nuclear arsenal, and so on. All this and a clear lack of global governance on the grounds that institutions are inadequate, and reflect hierarchies and checks on power that have ceased to be representative. Before reviewing these challenges, the authors state that “it would be foolish [...] to simply assume that the remarkable progress achieved by globalization in the last few decades will be sustained into the future”.

Scouring the 550 pages of *Power and Plenty*, the reader arrives at the conviction that Findlay & O’Rourke fulfilled their mission. The major trends in globalization are easily grasped and the narrative flows transparently. There is no doubting the methodological wisdom or the way in which the authors introduce the geopolitical and military dimension as the framework for economic relations. This is all the more remarkable if we consider that the writers are two economists schooled in the traditional literature of trade theory. They clearly warn from the outset of the limited explanatory capability of such traditional conceptual frameworks for the subject in hand: “The summit of unpleasantness attainable in such models is the use of tariffs, quotas and other trade policy instruments that will benefit some individuals or groups [...] If time is brought into the theory at all, and usually it isn’t, this typically takes the form of allowing countries to gradually accumulate capital, breed new workers, or become better educated as a result of the voluntary decisions of rational, free

individuals". All of this clearly remains in an unhelpful field of abstraction if it is acknowledged that much of "the pattern of trade can only be understood as being the outcome of some military or political equilibrium between contending powers".

The reader turns the last page wishing the authors had added a *post-script*, in light of their work, containing recommendations for a substantial reform of the contents of the trade theory and policy textbooks with which the legion of students of the subject are trained. ♦



El procedimiento de opinión consultiva en el Protocolo de Olivos sobre resolución de controversias

Publication only in Spanish

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CARRIZO ADRI, GUSTAVO. 2010. *El procedimiento de opinión consultiva en el Protocolo de Olivos sobre resolución de controversias*. Buenos Aires. IJ Editores.

This year marks the twentieth anniversary of the signing of the Treaty of Asunción, which created the Southern Common Market (MERCOSUR). This is the backdrop to the book by Professor Carrizo Adris under review. The author stresses how important it is for legal integration to accompany economic integration. The two roads leading us to this goal are the unification and harmonization of legal norms. He believes that the unification and harmonization of norms has a fundamental role to play in Regional Integration Law. Along these lines, he suggests there is an inescapable need to create a "supranational" jurisdictional body to guarantee the full force of uniform, harmonized legislation.

To reach realistic conclusions about the advisory opinion procedure in MERCOSUR's Olivos Protocol the author plots a comparative course ranging from International Law to Regional Integration Law. He analyzes the different advisory procedures for various international jurisdictions. The book accordingly considers the International Court of Justice (ICJ), the Inter-American Court of Human Rights (IACHR), the European Court of Human Rights (ECHR), and the procedures of references for preliminary rulings

in European Community Law, and the Andean and Central American legal systems to compare them with the procedure established by the Olivos Protocol. Here the advances, virtues, and defects in terms of legislative unification and harmonization in MERCOSUR emerge, as this book shows. It is therefore a work of interest not just to scholars of integration law, but also to anyone practicing international law and human rights.

The inquiry from the point of view of International Law dwells *first* on the ICJ. A distinction is drawn between contentious competence and advisory competence, looking in more depth into the procedures of the latter. The author focuses on legitimized subjects, the object, competence, and effects. With regard to the latter, he provides a deep insight into the ICJ's various different stances on the binding or non-binding nature of these opinions. *Next*, he turns his gaze on the IACHR and points out that advisory opinions have contributed to the conceptual development of International Human Rights Law in that the court can refer to doctrinal problems in this legal specialty, which has characteristics of its own. In relation to the advisory procedure for the European Court of Human Rights, he finds "appreciable" differences with its American

counterpart, which saw remarkable development in its advisory tasks, while the European Court has so far only had recourse to contentious competence.

In Chapter III, Adris's inquiry focuses on International Integration Law, specifically references for preliminary rulings in European Community Law. He stresses that one of the virtues of the references for preliminary rulings system is to prevent the judgments of national courts violating European community standards and adds that the procedure in question has always been considered one of the distinctive features of the European legal system's structure. Another characteristic he analyzes is judicial cooperation. National and community judges, each within the framework of their powers, are called on to contribute to the drafting of a decision to ensure the uniform application of community law. The court contributed, in this respect, to the construction of European integration. The characteristics, object, legitimate organs to apply for references for preliminary rulings, special cases, and effects are analyzed with solid doctrinal support and a comprehensive study of the jurisprudence coming out the European court. The chapter closes with an analysis of the procedure for references for preliminary rulings in the Andean and Central American systems based on a comparison with the court in Luxembourg.

Chapters III and IV are the mainstays of the work. The latter looks at advisory competence in MERCOSUR Law and draws on a deep knowledge of other international jurisdictions. It opens with an overview of the evolution of the dispute settlement system from the Treaty of Asunción (1991) to the Olivos Protocol (2002). Adris considers the latter "innovative"

and brings out the distinctive features signifying an advance on relation to the Brasilia Protocol (1991): (a) the forum's election clause; (b) the creation of the Permanent Review Tribunal; (c) the implementation of regulation mechanisms for countervailing measures; (d) the incorporation of procedural norms inspired by the World Trade Organization (WTO) model; (e) the Common Market Group's intervention option; and (f) the improved claims procedure for individuals. The advisory opinion procedure was introduced by the Olivos Protocol, and regulated by Decisions 37/3 and 02/07 of the Common Market Council (CMC). The author believes that the creation of this mechanism is a significant step on the road to strengthening regional integration law. Yet it is the national courts that still control constitutionality. Along the same lines, he highlights the intergovernmental nature of MERCOSUR.

In his closing reflections, he believes there should be a move toward a system of supranational or international jurisdiction to strengthen the validity of an interpretation of the legislation in a uniform or harmonized manner, and toward the creation of a supranational legal system. This will lend the institutional structure distinct characters as compared to those of international organizations, which will require a recoding of the States Parties' competences and powers.

Professor Adris gives us a profound vision of advisory competence in different international jurisdictions, highlighting the strengths and weaknesses of the dispute settlement system in MERCOSUR. His book is an invaluable contribution to the development of regional integration law.◆

Unclogging the Arteries: The Impact of Transport Costs on Latin-American and the Caribbean Trade

Article only in English

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MESQUITA MOREIRA, MAURICIO; CHRISTIAN VOLPE & JUAN BLYDE. 2008. "Unclogging the Arteries: the Impact of Transport Costs on Latin-American and the Caribbean Trade", in: *Globalization, Competitiveness and Governability*, 2(3). Georgetown University & Universia.

The phrase "regional disparities" is used to describe the inequalities between regions in terms of welfare and development. Such inequalities are relevant because, instead of eradicating them, global economic development has brought them about. One of the causes of these disparities lies in the difference in access to infrastructure and, particularly, to transportation infrastructure.

"Unclogging the Arteries: The Impact of Transport Costs on Latin American and the Caribbean Trade", a report by Mauricio Mesquita Moreira, Christian Volpe and Juan S. Blyde, published in *Globalization, Competitiveness and Governability* (Georgetown University and Universia), assesses the impact of transport costs on Latin America and the Caribbean (LAC) trade and puts forward that such impact places big barriers to trade and results in regional disparities. The report's conclusions are the result of a solid technical analysis and the consideration of a series of case studies.

Given the relevance of this issue, the report suggests that the countries in the region should introduce

it into their trade agendas. It also calls for a more comprehensive integration agenda focused not only on the traditional barriers to trade but also on trade costs, such as those associated with transportation. This new agenda would help strengthen competitiveness, thus improving overall welfare and contributing to gradually narrowing regional disparities.

In the same fashion as in the 1980's the trade agenda revolved around liberalization, in the 2000's it is evident that significant progress has been made in this respect. Now the liberalization process is settled, which has changed the relative importance attached to traditional barriers and given more visibility to others that were considered less relevant in the past, but which are strategic for LAC.

This century has brought about a new global context. We live in a world where production is geographically fragmented and takes place within an economy of change. We witness the rise of markets abundant in labor but short of natural resources. For this reason, interdependence is becoming increasingly complex and competition, even fiercer.

By analyzing the impacts of transport costs both on the United States and LAC countries, the report underscores their magnitude and far-reaching consequences on the region's trade processes. The evidence shows that transport costs impact on the region's trade much more heavily than tariffs or taxes, which can be clearly seen when looking at imports and exports (especially those traded intra-regionally)¹ and when compared to those of developed countries. LAC import and export costs are twice as high as those incurred by the U.S. Even though the regions pay similar sea freight costs, the gap widens considerably when it comes to airfreight.²

Besides, it is worth noting that LAC's exports to the US are on average more transport-intensive than those of their competitors. The composition of the region's exports, which are considered "heavier", is only part of the problem. Costs are also highly influenced by infrastructure efficiency³ and the competition between shipping companies, all of which accounts for the disparities *vis-à-vis* developed competitors.⁴

The region has two clear comparative advantages: it is close to the largest market and it abounds in natural resources. The report shows that there is an opportunity for the region: improving port efficiency to the U.S. level would reduce costs by about 20% and would achieve U.S. competition levels.⁵

Some conclusions can be drawn from all this evidence. First, the type of goods exported by LAC plays a major role, though not the only one, in determining trading costs, and distance seems to be less of a determinant than expected. Port efficiency,

competition between logistics companies and the current airline regulations appear to be significant variables distorting competitiveness in the region.

The report also highlights that the region's competitiveness could be improved by means of an agenda of regional integration that includes transport costs. It is also suggested that lower transport costs would not only increase volumes but also help diversify production.⁶

PERSONAL CONCLUSIONS

Poor infrastructure and high transport costs hinder the region's growth, constrain competitiveness and constitute a hurdle in the struggle against poverty. In our increasingly complex world, this situation contributes to maintaining and widening regional disparities. And the report provides interesting conclusions in this respect.

Several studies suggest that these variables must be taken into consideration (Cristini, Moya and Bermúdez, 2002; Castro and Saslavsky, 2009; and Sánchez, 2004). The inefficiency of the region's infrastructure generally results from poor resource-management, the lack of suitable regulations, and a bad history of private investments (Fay and Morrison, 2007).

Evidence shows that an inefficient transport network impacts adversely on a country's trade and, therefore, on its people, and helps to maintain –or even widen– the disparities among regions. Transport infrastructure is the link that connects regional development and international trade. In this sense, progress has been slow in the region if compared with other countries, such as China or Korea.⁷

Widening the scope of the region's trade agenda to encompass variables such as infrastructure and other

¹ Transport costs play a more prominent role if the time costs of shipping (depreciation and inventory costs) are taken into account (Mesquita, Volpe and Blyde, 2008).

² For instance, LAC countries incur considerably higher freight costs than other exporters to the U.S., for example, China, which has managed to keep costs low despite the rise in oil prices (*op. cit.*, p. 128).

³ For instance, LAC airports being less efficient than U.S. airports accounts for around 40% of the difference in shipping costs (*op. cit.*, p. 133).

⁴ When comparing the exports to the U.S. made by the LAC region and the Nordic countries, the latter prove to be more efficient in terms of weight-to-value ratios and port efficiency (*op. cit.*, p. 130).

⁵ *Op. cit.*, p. 133.

⁶ It is estimated that if transport costs were lowered by 10%, the region's exports might grow by 30% (*op. cit.*, p. 139).

⁷ According to official reports, less than one quarter of all national highways in LAC are "in good driving condition", and there are differences between countries: for instance Costa Rica ranks first in terms of infrastructure quantity and quality (*op. cit.*, p. 30).

related issues geared toward improving transport costs seems to be the right path ahead. The goal is clear: maximizing the region's presence in international markets by becoming a more competitive supplier and making the most of comparative advantages, based on a more efficient infrastructure, which in turn results in lower costs and better conditions to compete in the global market.

According to some studies, should the region manage to attain the same infrastructure levels as Korea, the *per capita* growth would increase by 4% and inequality would fall by 10%-20%.⁸

This goal poses a major challenge. A new broader agenda that tackles all these issues imposes heavier demands –mainly at the political level– both on

individual countries and on the region as a whole. Governments should spend more, and more efficiently.

In fact, the State should serve to articulate and facilitate the interrelation between companies from the private and the public sectors, and to foster responsible foreign investment, in order to implement projects that overcome the region's deficiencies.⁹ The role of multilateral agencies is fundamental in promoting and supporting these actions and in determining the continuity of all initiatives, because they promote and facilitate infrastructure development in the region.¹⁰ ♦

⁸ Universal access to water supply, sanitation services and electricity could be achieved in 10 years by using 0.25% of the region's GDP (*op. cit.*, p. 34).

⁹ Efficient agencies that place contracts for public works are called for, so as to provide a transparent regulatory framework which paves the way for private-sector involvement, fosters competition and contributes to risk management (Campillo, 2010).

¹⁰ It is worth analyzing the role played by these multilateral agencies in certain countries, for instance, Peru and Colombia, where they implemented the Partial Risk Guarantee (PRG) service, developed by the World Bank and the IDB, respectively (*op. cit.*, p. 46).

REFERENCES

- CAMPILLO, GISELA. 2010. *El Banco Mundial y los Servicios de Agua en México*, Conference presentation, August.
- CASTRO, LUCIO & DANIEL SASLAVSKY. 2009. *Cazadores de mercados. Comercio y promoción de exportaciones en las provincias argentinas*. Buenos Aires: Center for the Implementation of Public Policies Promoting Equity and Growth - CIPPEC.
- CRISTINI, MARCELA; RAMIRO MOYA & GUILLERMO BERMÚDEZ. 2002. *Infraestructura y costos de logística en la Argentina*. Documento de Trabajo N° 75. Buenos Aires: Foundation for Latin American Economic Research - FIEL.
- FAY, MARIANNE & MARY MORRISON. 2007. *Infraestructura en América Latina y el Caribe. Acontecimientos recientes y desafíos principales*. Washington DC: World Bank.
- MESQUITA MOREIRA, MAURICIO; CHRISTIAN VOLPE & JUAN BLYDE. 2008. "Unclogging the Arteries: The Impact of Transport Costs on Latin-American and the Caribbean Trade", in: *Globalization, Competitiveness and Governability*, 2(3). Georgetown University & Universia.
- PRESIDENCE OF THE REPUBLIC – MEXICO. *Programa Nacional de Infraestructura 2007-2012*. Mexico.
- SÁNCHEZ, RICARDO J. 2004. *Puertos y Transportes marítimos en América latina y el Caribe: un análisis de su desempeño reciente*. Serie Recursos Naturales e Infraestructura N° 82. Santiago, Chile: ECLAC. December.





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