

# BRAZIL IN FACE OF THE CHINESE RISE: THE RISKS OF REGRESSIVE SPECIALIZATION<sup>1</sup>

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## Introduction

During the first decade of the 21<sup>st</sup> century, China consolidated its position as the world's second largest economy in terms of its product, international trade and property of financial assets abroad<sup>6</sup>. Not even the global financial crisis, originated in the U.S. mortgage market in 2007 and whose consequences are felt until today, was able to stop its upward trend<sup>7</sup>. The most influential projections about the evolution of global economy suggest that China will, in a not too

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<sup>6</sup> See Timmer *et al.* (2012), Morrison and Labote (2011).

<sup>7</sup> Breslin (2011) provides an updated review on the nature of the "Chinese model". See also Zheng Bijian (2006), Kang (2007), Naughton (2007), Kurlantzick (2007), Halper (2010), Kissinger (2011), Leão, Pinto and Acioly (2011).

distant future, overcome the U.S., positioning itself as the largest economy in the world<sup>8</sup>.

Experts in political science and international relations tend to evaluate such dynamic in terms of its impacts on the power structure at global level (BRESLIN, 2011; VISENTINI, 2011). There are those who fear that the contemporary China reproduces historical situations in which rising powers – such as Japan and Germany between the end of the 19<sup>th</sup> century and the first decades of the 20<sup>th</sup> century – sought to change the *status quo*, which resulted in destabilizing process and wars<sup>9</sup>. There are, obviously, those who imagine that China will be a well-behaved actor of the liberal order created on the post-war<sup>10</sup>. Still in the framework of this debate has taken shape the duality between the supposed American decline and the strengthening of the Asian power.

Chinese experts and sinologists of the Western academy argue that China's rise will be peaceful and the country is far from replacing the U.S. as a hegemonic power. They glimpse a multipolar international order and with a greater sharing of responsibilities (KANG, 2007; ZHENG BIJIAN, 2005; WU JIGLIAN, 2005, 2006; HU ANGANG, 2010). They point out to weaknesses in the Chinese political-institutional structure and its economy, particularly the low capacity to generate technological innovations, the deterioration of the environment and the pattern of income distribution, sub-products of the model of accelerated growth. They even question the capacity to legitimate the

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<sup>8</sup> See, among others, Goldman Sachs (2007), National Intelligence Council (2008), Cepal (2011a) and Timmer *et al.* (2012).

<sup>9</sup> Subramanian (2011) and Halper (2010) show that the risks of China overtaking the U.S. are high, either by virtue of their own, or by increasing economic and political fragility of the current superpower. And this could happen in an environment of increasing conflict as suggested by Mearsheimer (2010). To Halper (2010) the main risk comes from the international projection of the Chinese model, where they combine the strong centralization of political decisions in an authoritarian State with an aggressive adherence of market mechanisms in the world of production, marketing and finance. In turn, Subramanian (2011) emphasizes the weaknesses of the Americans, potentiated after the crisis: excessive debt, growing concentration of income, depletion of the middle class and the inability of the political system to provide solutions to economic problems. Still, others consider that the Chinese power and its prospects in the coming decades have been over-estimated (Babones, 2011; Clark, 2011).

<sup>10</sup> U.S. analysts envision the possibility of China working alongside the U.S. to face global problems. The maintenance of a democratic and open order would pass, on one side, by the U.S. ability to recover the ability to influence the emerging powers by non-aggressive mechanisms and, secondly, by their provision to act to strengthen institutions and global public assets. See: Nye Jr (2011), Kissinger (2011) and Ikenberry (2011).

current power structure and, consequently, its possibility to ensure a path of social stability in the context of an economy increasingly governed by market mechanisms. The "fragile superpower" (SHRINK, 2007) would be surrounded by internal and external problems that would derail its capacity to project power internationally in the same way that the United States do.

This more general debate serves as a background to what is the focus of this article, namely, to explore some implications of China's rise on the recent development trajectory of Brazil. More specifically, we seek to map some of the risks associated with the pattern of economic interaction that has been consolidating in the Sino-Brazilian relations, in which, on the one hand, Brazil has emerged as a producer and exporter of natural resources and, on the other hand, China intensifies its presence as an exporter of manufactured goods and capital. Our main hypothesis is that the consolidation of this pattern tends to impose non-negligible risks of crystallization of a regressive specialization framework (COUTINHO, 1997; JAYME JR; REZENDE, 2009) to Brazil, in which it is possible to see the loss of density, diversity and vitality of the productive structure and the pattern of commercial insertion. To counter this trend, the country will need to recover the capacity to adopt coherent and powerful development policies, whose general characteristics will be explored at the end of this work.

Our arguments are structured as follows. After this short introduction, section 2 recovers the recent debate about the development, in which it is emphasized the success of Asian economies. It is highlighted that this success is rooted on the diversification of the structure of production and international trade, whereas other peripheral regions showed loss of dynamism. Section 3 provides a set of empirical evidence that suggests that Brazilian economy, as well as other peripheral economies, is increasingly linked to the Chinese economy in a typical pattern of North-South relation. Section 4 gathers the key conclusions and explores their implications in terms of policymaking.

## 2. Development in Perspective: the international experience compared

The perception that government activism is directly associated to economic progress of nations goes back, at least, to the period of mercantilism (REINERT, 1999; 2007). The argument of protection of the infant industry of

Alexander Hamilton and Friedrich List became popular in emerging nations seeking to reproduce the British trajectory of industrial revolution (CHANG, 2002). Likewise, the notion that economic development entails a qualitative change in production structures, where technological innovations find a central role, is strongly grounded in the work of Schumpeter and resonates in Marx's analysis.

Writers such as Joan Robinson, Kaldor, Pasinetti, Thirlwall, among others, based on the insights of Keynes, Kalecki and, to a lesser extent, Marx, showed that the growth process is centered on the accumulation of capital without being, necessarily linear, tending to balance or able to, through market mechanisms, produce a socially fair pattern of expansion. Moreover, in opposition to the neoclassical models, it is emphasized the centrality of the manufacturing industry, considered as the bearer of the growth-enhancing properties (TREGENNA, 2009; PALMA, 2007; 2011). The so-called Kaldor's laws of growth clearly express this. Thus, for this author: (i) there would be a direct relationship between the growth of industry and growth of the economy as a whole - the "first law"; (ii) productivity growth in industry would be an endogenous phenomenon to the expansion of this sector, given the static and dynamic economies - "second law" or "Verdoorn law"; and (iii) the higher productivity in the industry is, the greater productivity of non-industrial sectors is. Moreover, Kaldor and Thirlwall realized that there would be a limiting long-term expansion associated with differences in income elasticities of imported and exported products, in line with the arguments of Furtado (2003) and Prebisch (1984).

Furthermore, historical experience of the interwar represented a decline of liberal strategies, with the subsequent rise of State activism, necessary to enable the restructuring of economies after the 1929 crisis, the war effort and the later reconstruction. The independence movements in Africa and Asia from the second half of the 1940s and the insights of the theorists of development<sup>11</sup> stimulated the modernization effort, in which nation-building

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<sup>11</sup> To this period authors as Rosentain-Rodan, Nurkse, Hirschman, Prebisch, as well as economists of the "Cambridge school" (Tregenna, 2009, Palma, 2007 and 2011), as Kaldor, Robinson, Pasinetti, among others, are essential references. Krugman (1993) called this period of "high development theory", whose

was mixed up with the idea of industrialization. In this context, the debate on economic development has polarized positions between those who favor and those who criticize the idea that market mechanisms are sufficient to ensure a sustainable and balanced growth. Among the critics there is a perception that the State has a crucial role in the induction and, in certain circumstances, in the command of the development process. They argue that State action is directly proportional to: (i) the markets' weaknesses and shortcomings, and (ii) the relative delay of each country in face of the techno-productive frontier. This would explain the greater economic presence of State in late development countries. Moreover, this tradition suggests that industry is vital for growth and nations can build competitive advantage through industrial policies.

The pro-market view has been supported by mainstream of professional economists and the most influential multilateral organizations like the IMF and World Bank (WB). It is emphasized that the market is the institution that ensures more efficiency on allocation of scarce resources. The freely determined prices in the markets would signal the relative scarcity of factors of production and, thus, would indicate the patterns of productive specialization. It is suggested that productive and trade specialization, in line with comparative advantages derived from the relative factor allocation, would maximize the allocative efficiency and, therefore, the growth potential. Countries that are rich in natural resources should specialize in these sectors. The supply of other goods would come through exports. To counter such a standard, through industrial policies, would lead, ultimately, to a waste of resources, corruption, and fiscal and monetary imbalances.

Since the postwar period, the industrialization experience of peripheral economies has been the backdrop for the clarification of these positions. In particular, the successful case of sustained growth of Asian countries<sup>12</sup> became the center of major controversy, as they began to detach

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pioneering had insights later incorporated into the "new economic geography", in endogenous growth models and the new trade theory.

<sup>12</sup> The recent study commissioned by the World Bank (World Bank, 2008) and led by two Nobel Prize winners in Economics, Robert Solow and Michael Spence, sought to identify success stories (and its explanations) of high and sustained growth in the period that followed World War II. There were 13 countries to grow more than 7% a year for over 30 years, out of which 9 were nations of Southeast and

from the other peripheral regions in terms of growth, and income and world exports share, as well as structuring of the more diverse and complex production bases than those observed in other regions. And this process took place with those countries departing from a base of economic and social development lower than that observed in Latin America in general and, even, in many African countries (CHANG, 2006).

In 2010, the Asian-Pacific countries represented 55% of world population, 34% of income and 30% of exports. The dynamism of Asia in the period of globalization opened in the last quarter of the 20<sup>th</sup> century can be expressed as follows: if, in 1980, Latin America accounted for 11% of global GDP measured in dollars adjusted through purchasing power parity, Asia (excluding Japan) reached 9%. Three decades later, Latin America had 8.5% of global GDP, while Asia reached 28%. While Asian countries grew at average rates of 7% per year, the Latin American and African countries experienced much lower rhythms, between 2% and 3%<sup>13</sup>. From the point of view of foreign direct investment absorption, the Asian (excluding Hong Kong) more than double its space between the years 1980 and 2010<sup>14</sup>. On the other hand, economies that have developed their national innovation systems and constituted internationally competitive companies generally have lower levels of participation of foreign capital, cases of Japan, South Korea and Taiwan<sup>15</sup>.

The era of globalization resulted in the incorporation into the international market circuits of economies, which until then, had kept limited

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East Asia (Japan, Hong Kong, Taiwan, South Korea, Singapore, Malaysia, Indonesia, Thailand and China). Brazil, in the 1950-1980 period, is also in this group.

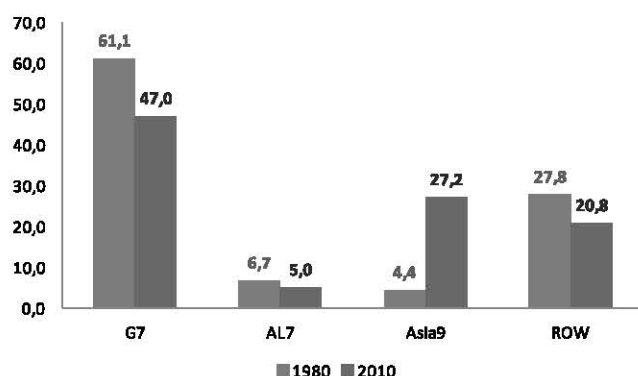
<sup>13</sup> See IMF World Economic Outlook, September, 2011. <<http://www.imf.org/external/pubs/ft/weo/2011/02/index.htm>>. Accessed on March 21, 2012.

<sup>14</sup> Between 1980 and 2010 the world stock of FDI (inward) went from \$ 700 billion to \$ 19.141 billion. In 1980, developed countries held 57% of that stock, against 43% of developing countries. In 2010 these contributions were respectively 65% and 35%. On the other hand, the Asian economies, excluding Hong Kong, rose from 5.2% to 13.4% of world total. <[http://www.unctad.org/en/Pages/Publications/WorldInvestmentReports\(1991-2009\).aspx](http://www.unctad.org/en/Pages/Publications/WorldInvestmentReports(1991-2009).aspx)>. Accessed on March 21, 2012.

<sup>15</sup> In 2010, the FDI/GDP coefficient was: 30% in developed economies, 29% in developing economies, 26% in Asia, 33% Africa, and 34% in Latin America. However, in the most dynamic Asian economies this indicator was much smaller than that observed in other economies with similar per capita income: 4% in Japan, 13% Korea and 14% in Taiwan. In China it was 10%. <[http://www.unctad.org/en/Pages/Publications/WorldInvestmentReports\(1991-2009\).aspx](http://www.unctad.org/en/Pages/Publications/WorldInvestmentReports(1991-2009).aspx)>. Accessed on March 21, 2012.

interaction ties with the rest of the world. Countries of the former socialist bloc and several nations in the periphery become, simultaneously, spaces of production and markets for goods, services and factors of production, particularly capital. Clearly, Asian economies can be identified as those that emphasized an insertion based on the production and export of industrial goods, which, in a Keynesian-Kaldorian perspective, tends to contribute to its superior performance in terms of GDP growth and productivity. Figure 1 reports the participation of major economies in the region, excluding Japan, which is the G7 cluster, in the world production of manufactures. In 1980, Asia accounted for 4.4% of the world total, below the participation of major Latin American economies, 6.7%. In 2010, the Asian participation rose to 27.2% and the Latin American shrank to 5%. The most advanced economies (G7) and the rest of the world also experienced the relative loss of importance of its industrial production.

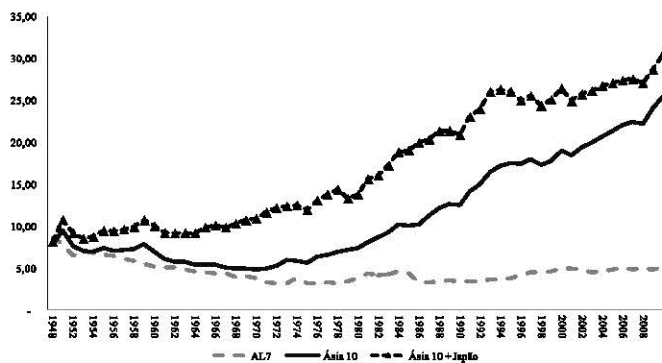
Chart 1. Distribution of world industrial production, 1980-2010 (value added in processing industry in %).



Source of raw data: United Nations National Accounts Main Aggregates Database <<http://unstats.un.org/unsd/snaama/introduction.asp>>. Accessed on March 3, 2012.). G7 - U.S., GB, Japan, Germany, France, Italy and Canada; AL7 - Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela; Asia9 - China, Hong Kong, South Korea, Malaysia, Indonesia, India, Thailand, Philippines and Singapore; ROW - rest of the world.

Chart 2 suggests that, until the mid-1970s, the major developing economies of Asia and Latin America held similar shares of world exports. However, while the Asian economies quadrupled its market-share, the Latin American economies remained roughly in the same situation.

Chart 2. Participation of Selected Economies in World Exports of Goods, 1948-2010 (%)



Source of charts: own elaboration based on WTO data <<http://stat.wto.org/Home/WSDBHome.aspx?Language=E>>. Accessed on February 5, 2012. AL7 = Argentina, Brazil, Chile, Colombia, Peru, Venezuela and Mexico. Asia10 = China, Hong Kong, India, Indonesia, South Korea, Malaysia, Philippines, Singapore, Taiwan and Thailand.

Asian growth has been accompanied by deep structural changes (Tables 1 and 2). There was intense urbanization, relative loss of agriculture importance in income generation, and strong increase in the share of foreign trade in GDP. In no other region in the world, the exports of goods and services expanded so fast. The gross capital formation and increase on industry participation in income led the process of productive modernization. While in Latin America the period that followed the debt crisis in the early 1980s was characterized by the loss of dynamism in the industry and decline of investment, the Asian economies managed to maintain and, in some cases, increase the pace of accumulation of capital, under the leadership of the industrial sector. As highlighted by the literature on growth inspired in the tradition from Keynes and Kaldor, these two factors are essential to explain the long-term performance of an economy. In view of Palma (2007, 2011) the success of Asia and the framework of semi-stagnation in other peripheral regions, especially in Latin America, show the ability of the former of sustaining a dynamic of expansion based on the accumulation of capital led by the urban-industrial activities. In turn, Rodrik (2006) suggests that there is robust empirical evidence of strong correlation between growth acceleration and the existence of diverse productive structures with a high participation of the manufacturing industry.



**Table 1 - Sector Distribution of GDP in Selected Economies, 1960-2010 \***  
 (%)

|                                | Agriculture |       |       | Industry |       |       | Services |       |       |
|--------------------------------|-------------|-------|-------|----------|-------|-------|----------|-------|-------|
|                                | 1960s       | 1980s | 2000s | 1960s    | 1980s | 2000s | 1960s    | 1980s | 2000s |
| <b>I. Latin America</b>        |             |       |       |          |       |       |          |       |       |
| Argentina                      | 10,3        | 8,3   | 9,1   | 47,0     | 39,4  | 32,9  | 42,7     | 52,3  | 58,0  |
| Brazil                         | 16,0        | 10,2  | 6,1   | 36,3     | 44,0  | 27,8  | 47,7     | 45,8  | 66,1  |
| Chile                          | 8,4         | 7,7   | 4,4   | 40,1     | 39,1  | 43,0  | 51,5     | 53,2  | 52,6  |
| Colombia                       | 27,9        | 18,1  | 8,1   | 27,0     | 35,2  | 32,8  | 45,1     | 46,7  | 59,1  |
| Mexico                         | 12,3        | 8,9   | 3,8   | 28,7     | 33,5  | 33,0  | 59,0     | 57,7  | 63,1  |
| Peru                           | 18,8        | 9,7   | 7,5   | 30,3     | 31,6  | 33,8  | 50,8     | 58,8  | 58,6  |
| Venezuela                      | 5,5         | 5,9   | 4,2   | 39,6     | 49,6  | 53,1  | 54,2     | 44,4  | 42,7  |
| <b>II. Asia</b>                |             |       |       |          |       |       |          |       |       |
| China                          | 38,4        | 29,1  | 11,9  | 34,7     | 43,6  | 46,5  | 26,8     | 27,3  | 41,5  |
| Singapore                      | nd          | 0,9   | 0,1   | nd       | 36,9  | 30,3  | nd       | 62,2  | 69,7  |
| South Korea                    | 31,0        | 12,7  | 3,3   | 22,3     | 39,7  | 37,2  | 46,8     | 47,6  | 59,5  |
| Philippines                    | 27,8        | 23,5  | 12,9  | 31,2     | 36,4  | 33,5  | 41,0     | 40,1  | 53,7  |
| Hong Kong                      | nd          | 0,5   | 0,1   | nd       | 28,6  | 9,2   | nd       | 71,0  | 90,7  |
| India                          | 42,5        | 31,3  | 19,4  | 20,3     | 26,2  | 27,3  | 37,2     | 42,5  | 53,3  |
| Indonesia                      | 50,9        | 22,7  | 14,5  | 14,8     | 37,9  | 46,2  | 34,3     | 39,4  | 39,2  |
| Malaysia                       | 30,7        | 19,6  | 9,3   | 25,8     | 39,1  | 46,9  | 43,4     | 41,3  | 43,7  |
| Thailand                       | 31,1        | 16,8  | 10,6  | 22,8     | 32,8  | 43,7  | 46,0     | 50,3  | 45,7  |
| <b>III. Advanced economies</b> |             |       |       |          |       |       |          |       |       |
| Germany                        | 6,4         | 3,2   | 1,0   | 46,0     | 39,9  | 29,2  | 47,6     | 57,0  | 69,8  |
| U.S.                           | 3,7         | 2,0   | 1,2   | 48,1     | 38,7  | 21,6  | 48,2     | 59,3  | 77,3  |
| Japan                          | 3,5         | 2,4   | 1,6   | 35,2     | 30,6  | 29,7  | 61,2     | 67,0  | 68,8  |

Source: World Development Indicators on Line, World Bank <<http://data.worldbank.org>>. Accessed on February 5, 2012.

(\*)We calculated the averages in each decade. In the 1960s there were, in some cases, gaps of information.

**Table 2 – International Trade, Investment and Rural Population in Selected Economies, 1960-2010 \***

|                                | Rural Population (% of total) |      |      | International Trade in Goods and Services (% of GDP) |       |       |         |       |       | Gross Capital Formation (% of GDP) |       |       |
|--------------------------------|-------------------------------|------|------|--|-------|-------|---------|-------|-------|------------------------------------|-------|-------|
|                                | 1960                          | 1980 | 2010 | Imports  |       |       | Exports |       |       | 1960s                              | 1980s | 2000s |
|                                |                               |      |      | 1960s  | 1980s | 2000s | 1960s   | 1980s | 2000s |                                    |       |       |
| <b>I. Latin America</b>        |                               |      |      |  |       |       |         |       |       |                                    |       |       |
| Argentina                      | 26,4                          | 17,1 | 7,6  | 6,0  | 6,2   | 16,9  | 6,3     | 9,3   | 23,1  | 22,4                               | 18,8  | 19,6  |
| Brazil                         | 55,1                          | 32,6 | 13,5 | 6,5  | 7,3   | 12,2  | 6,7     | 10,1  | 13,6  | 19,7                               | 20,7  | 17,5  |
| Chile                          | 32,2                          | 18,8 | 11,0 | 13,8   | 26,2  | 32,8  | 13,7    | 27,5  | 40,1  | 18,1                               | 18,9  | 21,3  |
| Colombia                       | 55,0                          | 37,9 | 24,9 | 13,2   | 13,6  | 19,2  | 12,5    | 15,0  | 16,7  | 19,3                               | 19,4  | 20,5  |
| Mexico                         | 49,2                          | 33,7 | 22,2 | 9,6  | 13,7  | 31,8  | 7,7     | 17,2  | 27,5  | 19,3                               | 21,9  | 24,0  |
| Peru                           | 53,2                          | 35,4 | 28,4 | 19,9   | 16,7  | 20,2  | 18,2    | 16,7  | 23,0  | 32,6                               | 24,5  | 20,7  |
| Venezuela                      | 38,4                          | 20,8 | 6,0  | 15,9   | 20,7  | 20,0  | 26,3    | 25,5  | 30,8  | 25,3                               | 19,8  | 20,8  |
| <b>II. Asia</b>                |                               |      |      |  |       |       |         |       |       |                                    |       |       |
| China                          | 84,0                          | 80,4 | 55,1 | 2,7  | 14,0  | 27,0  | 2,6     | 13,7  | 31,7  | 20,3                               | 36,1  | 42,5  |
| Singapore                      | 0,0                           | 0,0  | 0,0  | nd   | nd    | 188,1 | nd      | nd    | 213,2 | 22,7                               | 41,6  | 23,1  |
| South Korea                    | 72,3                          | 43,3 | 18,1 | 19,3   | 32,3  | 40,0  | 8,9     | 33,5  | 42,1  | 20,3                               | 31,0  | 29,4  |
| Philippines                    | 69,7                          | 62,5 | 33,6 | 18,5   | 26,7  | 47,0  | 17,9    | 25,1  | 42,8  | 22,2                               | 21,7  | 20,5  |
| Hong Kong                      | 14,8                          | 8,5  | 0,0  | 80,5   | 104,0 | 180,3 | 78,5    | 110,8 | 189,2 | 25,4                               | 27,0  | 22,1  |
| India                          | 82,1                          | 76,9 | 69,9 | 5,5  | 7,9   | 21,4  | 4,0     | 6,1   | 18,6  | 15,4                               | 22,4  | 32,3  |
| Indonesia                      | 85,4                          | 77,9 | 46,3 | 12,5   | 22,8  | 26,2  | 10,3    | 24,5  | 30,8  | 10,4                               | 29,2  | 26,0  |
| Malaysia                       | 73,4                          | 58,0 | 27,8 | 37,9   | 56,6  | 87,9  | 41,7    | 59,0  | 108,2 | 17,9                               | 28,3  | 21,2  |
| Thailand                       | 80,3                          | 73,2 | 66,0 | 18,4   | 30,0  | 64,7  | 16,2    | 26,9  | 70,3  | 21,5                               | 30,7  | 26,2  |
| <b>III. Advanced economies</b> |                               |      |      |  |       |       |         |       |       |                                    |       |       |
| Germany                        | 28,6                          | 27,2 | 26,2 | 9,5  | 10,4  | 36,6  | 16,4    | 23,3  | 41,6  | 30,5                               | 22,1  | 18,2  |
| U.S.                           | 30,0                          | 26,3 | 17,7 | 17,9   | 24,9  | 15,4  | 5,3     | 8,4   | 10,9  | 19,2                               | 19,4  | 15,1  |
| Japan                          | 56,9                          | 40,4 | 33,2 | 4,7  | 10,3  | 12,9  | 9,9     | 12,5  | 14,1  | 35,8                               | 30,2  | 23,1  |

Source: World Development Indicators on Line, World Bank <<http://data.worldbank.org>>. Accessed on February 5, 2012.

(\*)We calculated the averages in each decade. In the 1960s there were, in some cases, gaps of information.

The structure of exports, reflecting the deep transformation in the productive base of those economies, passed to be characterized by the

predominance of manufacturing with greater technological content<sup>16</sup>. The comparison between Asia and Latin America highlights the difficulties of the economies of the latter to maintain denser and more sophisticated productive and trade structures. Starting in the 1980s, Asian countries expanded their internationalization, maintaining high levels of involvement of industry in GDP, while Latin Americans watch an intense deindustrialization. This occurs in a context of reduced levels of gross capital formation in Latin America, for average values under 20% of GDP, while in Asia the most dynamic economies kept investments close to 30% of GDP<sup>17</sup> (Table 2, PALMA, 2007 and 2011).

The most dynamic Asian countries also stand out in an attempt to maintain a pattern of development increasingly rooted in sectors which carry technological innovations that have transformed the production basis and consumption patterns in the last three decades. South Korea, Singapore and Japan are among those who invest the most in research and development (R&D)<sup>18</sup>. South Korea deserves special mention, inasmuch as its effort to reach the nations who determine the techno-productive boundaries is translated into R&D expenditure close to the leading economies in innovative efforts, such as Sweden, Finland, Israel and Japan. And this happened in spite of its per capita income being equivalent to something between 50% and 60% of per capita income of the richest nations. China also has been making a breakthrough in this area. Between 1996 and 1998 spending on R&D were on average 0.6% of GDP. Between 2006 and 2008, these investments reached 1.4% of GDP. To

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<sup>16</sup> For the 2005-2009 period, the Asian average of share in ICT products ("Information and Communication Technology", which are goods of information and communications technology, namely, telecommunications, audio, video, computers and related equipment, electronic components, among others, excludes software) is 27% of total exports, against 11% for the OECD countries and Latin America, or the 2.4% recorded in Brazil. See: World Development Indicators on Line, World Bank <<http://data.worldbank.org>>. Accessed on February 5, 2012.

<sup>17</sup> After the financial crisis of 1997 and 1998, there was a decline in investment, especially in ASEAN countries.

<sup>18</sup> Taking the average for the 2006-2008 period, the OECD economies of high income spent, on average, 2.37% of GDP annually in R&D, compared to an average of 2.29% between 1996 and 1998. Finland, Israel, Japan and Sweden spent about 4% of their GDP, compared to 3% of the previous decade. In Latin America such expenditure represented, between 2006 and 2008, only 0.65% of GDP, Brazil having 1% of GDP. A decade earlier, these indicators were respectively 0.5% and 0.7%. Finally, the recent Asian average was 1.37% of GDP, with highlights to Singapore (2.4%) and Korea (3.1%). China spent 1.4% in 2006-2008 against 0.6% for 1996-1998. Source: own elaboration based on World Development Indicators on Line, World Bank <<http://data.worldbank.org>>. Accessed on February 5, 2012.

understand in perspective, the costs from Brazil were, in these two moments, 0.7% and 1% of GDP. Despite emerging as a regional leader in R&D, Brazil is still far behind the more dynamic Asian economies. The Asian lead investments in information technology, equipment and software<sup>19</sup>, in physical and human infrastructure to give support to these sectors and in terms of maintaining a favorable business environment for enterprises (Table 3).

It is also important to remember that, in the Asian case, growth was associated with a significant increase in the quality of life in general, expressed in indicators such as increased per capita consumption, access to clean water, schooling, reducing infant mortality, etc.<sup>20</sup>, as well as lower macroeconomic instability<sup>21</sup>.

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<sup>19</sup> The indicator of spending on information technology and communication computes costs for the purchase of computer equipment and software, computing and communication services and other expenses associated with these technologies as a proportion of GDP of each country. For the 2003-2008 period are: Malaysia (11.9%), Korea (9.2%), Singapore (8.8%), Hong Kong (8%), China (7.3%) and Japan (6.8%). The world average is 5.5% and spending in the U.S. 7.4%, Germany 5.8% and Brazil 5.7%. The other Latin American economies, as well as other Asian economies have indicators below or near the world average. See: World Development Indicators on Line, World Bank <<http://data.worldbank.org>>. Accessed on February 5, 2012.

<sup>20</sup> We chose to avoid here exhaustive data. The Annual Reports of the World Bank (World Development Indicators, World Development Reports) and UN (UNDP Human Development Reports) show that Asian countries have been presenting, over the last decades, significant improvements in virtually all human development indicators in a higher rate than all the developing countries. Details on World Bank (1993, 2008) and Chang (2006).

<sup>21</sup> The main macroeconomic indicators signal the fact that the more advanced economies of the region, such as Japan, South Korea, Taiwan, Hong Kong and Singapore, have tended to perform more favorably than the relatively less developed countries, such as those that comprise the ASEAN. These, in turn, maintained a behavior closer to that of the Latin American countries (Palma, 2007 and 2010).

**Table 3 - Indicators of Technological Infrastructure and Business Environment in Selected Economies, 1985-2011**

|  | Articles published in scientific and technical journals* |           | Conventional telephone lines (per 100 inhab.) | Mobile telephone lines (per 100 inhab.) | Internet users (per 100 inhab.) | Doing Business Index** | Logistics index ***<br>(1=low, 5=high) |
|--|--|-----------|---|---|---------------------------------|------------------------|--|
|  | 1985-1989  | 2003-2007 | 2010  | 2010                                    | 2010                            | 2011                   | 2009                                   |
| <b>I. Latin America</b>                        |  |           |   |   |                                 |                        |  |
| Argentina                                      | 1.413  | 3.117     | 24,7  | 141,8                                   | 36                              | 113                    | 3,1                                    |
| Brazil   | 1.778  | 10.097    | 21,6  | 104,1                                   | 41                              | 126                    | 3,2                                    |
| Chile  | 659  | 1.560     | 20,2  | 116,0                                   | 45                              | 39                     | 3,1                                    |
| Colombia                                       | 94   | 409       | 14,7  | 93,8                                    | 37                              | 42                     | 2,8                                    |
| Mexico   | 894  | 3.936     | 17,5  | 80,6                                    | 31                              | 53                     | 3,1                                    |
| Peru   | 59   | 132       | 10,9  | 100,1                                   | 34                              | 41                     | 2,8                                    |
| Venezuela                                      | 53   | 220       | 24,6  | 96,7                                    | 36                              | 177                    | 2,7                                    |
| <b>Asia (developing country)</b>               |  |           |   |   |                                 |                        |  |
| China  | 3.606  | 42.320    | 22,0  | 64,2                                    | 34                              | 91                     | 3,5                                    |
| Singapore                                      | 395  | 3.513     | 39,1  | 143,9                                   | 70                              | 1                      | 4,1                                    |
| South Korea                                    | 684  | 16.286    | 58,4  | 103,9                                   | 83                              | 8                      | 3,6                                    |
| Philippines                                    | 139  | 180       | 7,3   | 85,7                                    | 9                               | 136                    | 3,1                                    |
| Hong Kong                                      | 423  | N/a       | 61,5  | 189,8                                   | 69                              | 2                      | 3,9                                    |
| India  | 9.438  | 15.080    | 3,0   | 64,2                                    | 8                               | 132                    | 3,1                                    |
| Indonesia                                      | 71   | 191       | 15,8  | 91,7                                    | 9                               | 129                    | 2,8                                    |
| Malaysia                                       | 207  | 642       | 16,1  | 121,3                                   | 55                              | 18                     | 3,4                                    |
| Thailand                                       | 255  | 1.339     | 10,1  | 100,8                                   | 21                              | 17                     | 3,3                                    |
| <b>Advanced economies (OCDE – high income)</b> |  |           |   |   |                                 |                        |  |
| Germany  | 27.875   | 43.674    | 55,8  | 128,0                                   | 82                              | 19                     | 4,1                                    |
| USA  | 170.702  | 204.593   | 48,9  | 90,2                                    | 79                              | 4                      | 3,9                                    |
| Japan  | 32.700   | 55.323    | 31,7  | 94,7                                    | 79                              | 20                     | 4,0                                    |

Source: Own elaboration based on World Development Indicators on Line, World Bank <<http://data.worldbank.org>>. Accessed on February 5, 2012.

(\*) Papers published in the areas of biology, chemistry, physics, mathematics and related areas.

(\*\*) In a total of 183 countries, ranked first (1) presents the best business environment, and the final (183), the worst.

(\*\*\*) The rate of the perceptual logistic efficiency regards to the administration procedures, infrastructure, and costs.

The evaluation of the Asian experience leads us to the realization that there is no single model for successful industrialization. If the export orientation, investments in training human capital and state intervention are points in common, historical context and industrial purposes – and, therefore, the utilized instruments – were different. The different objectives of each country, especially in regard to the deepening of industrialization, would have resulted in different positions in face of foreign direct investment (FDI). Singapore, for example, would be more liberal in this respect, having mounted its exporter drive based on transnational corporations. This would have implied a lower local technological effort. On the other hand, Korea and Taiwan would have had the opposite behavior. They encouraged the local technological development, via national companies – large conglomerates in Korea, small and medium enterprises and state-owned enterprises in Taiwan. This restricted the participation of transnational corporations. The experience of Hong Kong would be closer to the behavior envisioned by neoclassical paradigm, with a lower selectivity in policy, given that the deepening of industrialization was not central in its dynamics of modernization. Countries such as Malaysia and Thailand, with greater emphasis, and the Philippines and Indonesia (JOMO, 2001 and 2005) used strategies closer to those found in other laggard economies, particularly in Latin America and Eastern Europe, structuring its production industrial basis with a strong presence of FDI. China, in turn, sought to provide foreign capital and technology through the strategy of establishing partnerships with local companies in order to strengthen their capacities. After three decades of rapid growth, the country is trying to advance in the effort to generate endogenous innovation effort in the midst of an intense process of internationalization of their companies.

It seems reasonable to assume that the Chinese recent success reflects the Asian regional dynamics of expansion. Since the late 1970s, the country has experienced an intense process of modernization of its economy, integration into international flows of trade and investment, which is generating a deep transformation of their own socioeconomic reality as well as the international economic and political order. In recent years, despite the international financial crisis, the resolutions of the Chinese government to reform and opening remain unchanged and in progress.

With an average growth of income of 10% per year, between 1979 and 2010, the Chinese economy has become the second largest in the world<sup>22</sup>. The latest data from the IMF<sup>23</sup>, which refers to the year 2010, show that with a population of 1,341 million, the per capita income of China is still relatively modest: US\$ 4,382 in current dollars, occupying the 93<sup>th</sup> position in the IMF ranking of 179 countries with available data, or 7.519 per capita in international dollars (purchasing power parity), which meant the 94<sup>th</sup> position. To put that in perspective, in terms of current values the GDP per capita of China amounted to 9.3% of U.S. GDP per capita, while at purchasing power parity this proportion was 15.9%. In terms of HDI (human development index)<sup>24</sup>, China has an average level of development, appearing in the 89<sup>th</sup> position among 169 countries.

In 2010, China consolidated its position as global leader in exports of goods, being the second largest importer in the world. Between 1980 and 2010 exports grew, on average, 16% per year, while world exports advanced by 7% a year. Because of this, Chinese participation in the world total rose from just over 1% in the early 1980s – a level equivalent to the Brazilian – to more than 10% in 2010. International comparisons of the conditions of competitiveness of economies suggest that China still does not occupy a prominent position, despite important recent advances<sup>25,26</sup>.

The last five-year plans, especially the 12<sup>th</sup> Five-Year Plan for Economic and Social Development (CASEY; KOLESKI, 2011), which covers the period from 2011 to 2015, highlight the concern of Chinese leaders and strategists to renew its development model. Increased emphasis on the domestic

<sup>22</sup> China exported US\$ 1,578 billion or 10.4% of the world, the U.S. exported US\$ 1,278 (8.4%), Germany exported US\$ 1,269 (8.3%) and Japan exported \$ 770 billion (5.1%). From the perspective of imports these countries imported, respectively: US\$ 1,395 billion (9.1% of world total), US\$ 1,968 billion (10.4%), US\$ 1,067 billion (6.9%), US\$ 693 billion (4.5%). Source: WTO.

<sup>23</sup> World Economic Outlook Database, April 2011. <<http://www.imf.org/external/pubs/ft/weo/2011/01/weodata/index.aspx>>.

<sup>24</sup> See: <<http://hdrstats.undp.org/en/countries/profiles/CHN.html>>. Accessed on May, 2011. In 2010 its HDI was 0,663. In 1980 it was 0,368.

<sup>25</sup> See “The Global Competitiveness Report 2010–2011”: <[http://www3.weforum.org/docs/WEF\\_GlobalCompetitivenessReport\\_2010-11.pdf](http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2010-11.pdf)>. Accessed in May, 2011 and <<http://www.doingbusiness.org/rankings>>. Accessed in May, 2011.

<sup>26</sup> See “Doing Business 2011”, of World Bank: <<http://www.doingbusiness.org/data/exploreconomies/china>>. Accessed in May, 2011.

market and, therefore, the necessary redistribution of income and reduction of propensity to save of households through increases in public investment on social safety net, and environmental and energy sustainability are essential vectors for the managing future. Furthermore, in addition to "world factory", China aspires to be a source of technological innovation and generation of new patterns of production in consumption. Thus, the challenge is to move from the "Made in China" step to the "Designed and Made in China" stage (CASEY; KOLESKI, 2011; NOLAN, 2011; WONG, 2011). In both cases, the internationalization of its economy seems to be essential.

However, as in the previous plans, there is a potential contradiction between the desired pace of change and the need for job creation and income expansion. The latter acts as social stabilizers and legitimations of the political status quo. So, even if China migrates to a less unbalanced development path, it does not seem credible that this takes place in the near future. More of the same is what you can expect in the short term, that is, utilization of the export drive – in a world where advanced economies are in crisis and the peripheral economies try to keep their dynamism – and heavy doses of gross capital formation<sup>27</sup>.

Therefore, despite the effort to "grow based on the internal market", China will follow in seeking to advance in international markets, especially in regions with greater potential for absorption of its products, as in Latin America and Africa. As highlighted by ECLAC-CEPAL (2011a, 2011b), China is the regional hub for exports. Because of this, the Asian giant has a trade deficit

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<sup>27</sup> About Chinese imbalances and the need to create jobs "at any cost", Zhang and Liu (2010) comment that: "The lack of domestic consumption as well as heavy dependence on investments and net exports is a consequence of previous or existing economic and social policies. For example, the increase income disparity and lack of social security networks have depressed aggregate consumption propensity, thus impairing overall domestic demand. At the same time, the inefficient banking system, lower environmental standards and an immature capital market have made the cost of using capital unnaturally low, thus providing distorted investment incentives." (p. 9). "Heavy investment and lack of consumption caused overcapacity in China's production, particularly manufacturing production. In order to find markets for the overcapacity of Chinese industries, the Chinese government had to support enterprises to sell their products in international markets by keeping Chinese currency lower than its market value" (p.9). "The considerations of labor absorption are an important reason why China's police makers have hesitated to reduce the dependence on investments and exports, as well as to tackle environmental degradation." (p. 11)



with its more developed neighbors, especially Japan, South Korea and Taiwan, suppliers of technology-intensive manufacturing, and developing neighbors, such as the ASEAN countries, recently benefited from the free trade agreement and that supply China with natural resources – and therefore are competing, in different segments, with the economies of Latin America and Africa that are in the same range of supply, without benefiting from the terms of that agreement.

### 3. Industry and International Trade in a Sino-centric World: regressive specialization of Brazil?

The previous section provided evidence that the more successful peripheral economies in terms of growth and economic modernization sustained their trajectories based on high volumes of investment and maintenance of diversified production structures, reflected in the growing technological sophistication of its production and exports. Starting in the 1930s, and with more intensity between 1950s and 1980s, Brazil also experienced an intense process of structural change centered on the binomial urbanization and industrialization. During that period, the goal was to overcome the primary-exports model, whose intrinsic vulnerabilities became all too evident in the interwar years. The specialization in the production and export of products with low elasticities, price and income, and import of manufactured goods with high income elasticity, led to structural problems of balance of payments. Such economies were characterized by the duality of the modern sectors, linked to exporter complexes, but dependent on international demand, and traditional sectors, with low productivity levels and linked to domestic demand.

In Brazil, as in other peripheral nations, particularly those characterized by large populations and areas, this stage was characterized by, among other things, the low absorption of labor surplus, fragile tax bases and dependent on international trade, and poor physical (roads, ports, energy production and distribution, communications, etc.) and social (education, health etc.) infrastructure. The concentration of income, wealth and political power in social classes possessing the ownership of natural resources (mines, farms, etc.) tended to be reflected in political and social institutions, unable to produce spontaneously robust growth trajectories.

At the height of its modernization process in 1980, Brazil had the largest manufacturing sector of developing countries and ranked in the eighth place overall, with 2.6% of internationally added value. In that year China was in twelfth place with 1.7% and South Korea in the twenty-seventh, with 0.6% of world production of manufactures. In 2010, Brazil appeared in eleventh place, behind China, South Korea, India and Mexico<sup>28</sup>. However, despite its relative decline, Brazil still accounts for 1.7% of global production. In this context, authors such as Palma (2007 and 2011) and Bresser-Pereira (2010) suggest that Latin American economies suffer from a dynamic of early deindustrialization, visible when controlling this trend for the levels of per capita income. Excessive dependence of intensive sectors on natural resource and the lack of development policies, in stark contrast to the Asian experience, are pointed out as plausible explanations for the poor performance of countries in the region.

This perception is reinforced by the literature that studies the impacts of specialization in production and export of natural resources over the long-term performance of economies<sup>29</sup>. Sachs and Warner (1995;1997) find there is a negative relationship between long-term growth and participation in natural resource intensive exports as a proportion of income. These influential works reinforced the debate on the existence of a "natural resource curse"<sup>30</sup>. The pessimism associated with this type of approach is explicit in the so-called "Dutch disease", which is a manifestation of the pernicious effect of the appreciation of national currency in face of the foreign exchange inflow boom originated in commodity exports<sup>31</sup>. In this context, the change in relative prices

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<sup>28</sup> See: United Nations Statistics Division - National Accounts; Palma (2007, 2011).

<sup>29</sup>For an exhaustive review see, among others, Sinnott, Nash and De La Torre (2010), Prebisch (1984), Reinert (2007), Rodrik (2006 and 2010), Palma (2007 and 2011).

<sup>30</sup>The subsequent empirical literature has pointed to methodological shortcomings and possible problems of endogeneity in the econometric exercises. That is, there are difficulties of needing to what extent countries cannot grow because they rely heavily on natural resources or otherwise, if this dependence is originally from low growth. The existence of developed countries with this type of specialization would indicate the possibility that the abundance of natural resources would not be necessarily a determinant of low growth. Thus, for much of the literature, it is the institutions, not nature, that determine the trajectories of development (World Bank, 2008, Sinnott, Nash and De La Torre, 2010, Lederman and Maloney, 2010).

<sup>31</sup> The General Secretary of UNCTAD, Supachai Panitchpakdi, believes that the strong capital inflows may cause effects similar to the Dutch disease: "Today's experience of capital flows and currency

between tradable and non-tradable goods tends to discourage the diversification of the productive structure and foreign trade<sup>32</sup>.

Furthermore, the old developmental literature and its contemporary heirs (FURTADO, 2003; PREBISCH, 1984; KRUGMAN, 1993; RODRIK, 2006;2010; REINERT, 2007) pointed to the limits of intensive sectors in natural resource to multiply income, employment and taxes through the nucleating of more complex and intensive in technology productive chains. Assuming as valid the Prebisch-Singer hypothesis of the secular trend to falling terms of trade, the countries exporting natural resources would suffer, with repeatedly negative shocks in terms of trade (the ratio between prices of exports and imports) and, therefore, structural difficulties in balance of payments. Moreover, lower income elasticity of primary products vis-à-vis the manufacturers limit the relative expansion of commodity markets. The low elasticity in supply and demand of these goods is to be transmitted to prices, potentially more volatile, undermining the macroeconomic management of countries whose income, in general, and the revenues of the public sector, in particular, are strongly dependent on some sectors. Rent-seeking, corruption and serious concentration of income, non-democratic political regimes, wars, political instability and low-quality institutions would be recurrences in countries that are highly dependent on the production and export of commodities (DE LA TORRE, 2010).

The non-renewable character of certain commodities, especially oil and minerals, can generate processes of over-exploitation of resources and negative externalities such as pollution, depletion of other associated resources (water, air, soil, etc.). In addition to the disincentives created by the "Dutch disease", the character of physical enclave of the production, as well as the fact that the

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misalignment has much in common with the 'Dutch disease' experience of some commodity exporting countries in the past." (Statements by Supachai Panitchpakdi, Secretary-General of UNCTAD, International Monetary and Financial Committee of the IMF, Washington DC, 16 April 2011 - <<http://www.unctad.org/Templates/webflyer.asp?docid=14856&intItemID=3549&lang=1>>. Accessed on May, 2011.

<sup>32</sup> This would be a serious problem inasmuch as, both for old developmentalists, and for the growth of modern literature there would be a strong correlation between growth acceleration and the existence of diverse and productive structures with a high share of manufacturing industry. See Rodrik (2006 and 2010).

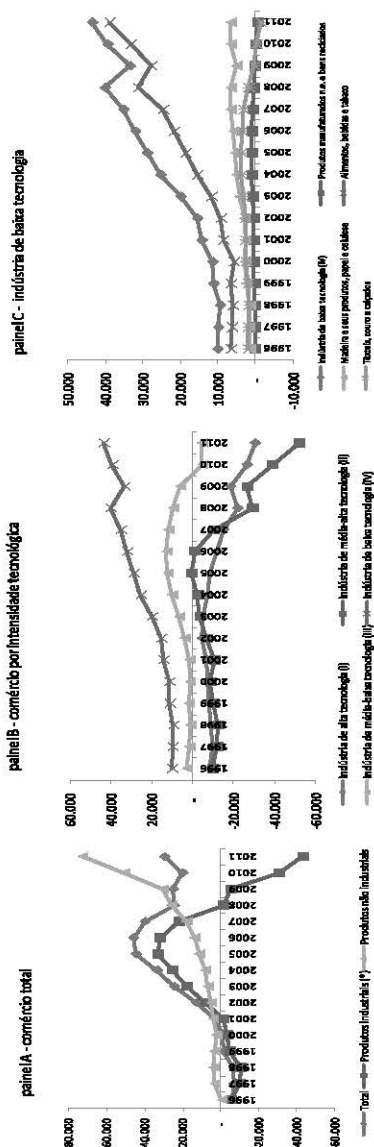
initial investment to obtain them are very high and long maturation return, may lead to conflicts of ownership, reduced investment in other sectors of the economy, concentration of physical and legal infrastructure to sustain exclusively such activities, etc. The excessive concentration of investments in commodity-producing sectors could result, also, in reduction of investment in human resources and capital-intensive sectors reducing, in the long term, the overall capital stock savings.

It is from these findings and the literature and evidence outlined in section 2 that we analyze the recent performance of the Brazilian economy. The recent recovery of dynamism occurred in the context where China's rise fueled demand for natural resources and thereby contributed to a beneficial cycle in terms of trade. Economies with abundant natural resources have experienced faster growth and improved macroeconomic - particularly in relation to external and fiscal solvency - and social conditions. Brazil fits this case. However, this relatively better performance did not reverse the negative picture inherited by a quarter-century of slow growth. In particular, echoing the literature previously discussed, the processing industry continues to grow little and aggregate investment and productivity in the Brazilian economy remain comparatively low. And, more importantly, in this moment of shy resumption, the global financial crisis broke out that, among other challenges, has produced an environment of greater competition in manufacturing. Apparently China leads the process of occupation of all possible spaces, given the need to maintain its active exporting complex responsible for generating over 120 million jobs (ZAHNG; LIU, 2010:11).

In this context, we should observe the behavior of trade and production in the Brazilian economy. In a first approximation, the third chart provides the balance of international trade in goods from Brazil in the 1996-2011 period. It was surprising to overcome the deficits inherited from the period of monetary stability, particularly since 2002, when world demand was strong and exporters benefited from favorable exchange rates. Since then, the country has been producing trade surpluses averaging US\$ 30 billion per year. However, as can be seen in panel A, the manufacturing industry has lost the ability to generate surpluses. On the contrary, since 2008 the deficits pile up. The external environment after the crisis, with lower growth and more competition, especially from Chinese and Asian production, associated with the expansion of

domestic demand and the appreciation of national currency, have induced the increase in import coefficients and the fall in industry export coefficients (CUNHA; LÉLIS; FLIGENSPAN, 2011).

Chart 3 - Trade Balance of Brazil, 1996-2011 (US\$ million)

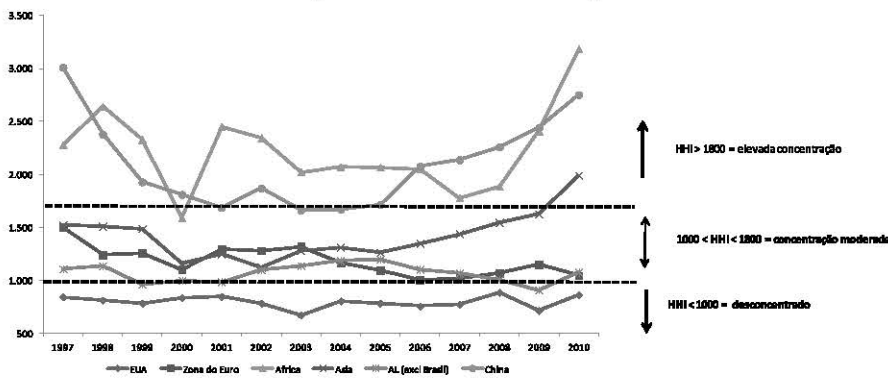


Source: own elaboration based on data from MDIC <[www.mdic.gov.br](http://www.mdic.gov.br)>. OECD sector classification.

Looking at the sectors according to technological intensity, it appears that, except for the low-tech industry, all others were strongly deficient in the recent period (Figure 2, panel C). And, among the sectors classified as low-tech, only the export of food, beverages and tobacco, especially, and wood, wood products, paper and cellulose, in the background, produce surplus. Segments of intensive labor and that traditionally had trade surpluses, such as textiles, leather and footwear, have become unprofitable.

Chart 4 reinforces the perception that there is a process of specialization and concentration of an export basket. The HH<sup>33</sup> indicator shows high and increasing concentration of the agenda for Africa, Asia and China, moderate concentration for exports to Europe and Latin America, and low concentration only with the U.S.

Chart 4 - Concentration of Brazilian Exports, 1995-2010  
(Herfindhal-Hirschman)



Primary source of data: Global Trade Information Services (GTIS).

<sup>33</sup>The concentration index of exports sector (Herfindahl-Hirschman Index, HHI), obeys the following

definition:  $HHI_j = \sum_{k=1}^n \left( \frac{x_{j,k}}{X_{j,w}} \times 100 \right)^2$  Where:  $x_{j,k}$  = Exports from the “k” sector performed by the “j”

country;  $X_{j,w}$  = Total exports originating in the “j” country. This indicator has a range where a result less than 1,000 indicates a low concentration, a HHI between 1,000 and 1,800 characterized moderate concentration and, finally, a value of greater than 1,800 HHI indicates a situation where the export basket is concentrated in few sectors.

It should be noted that China experiences, reproducing to some extent the successful pattern of its more developed neighbors, a dynamic of deepening and diversifying their production and international trade structures. Between 1995 and 2010, the rising power has succeeded in diversifying its export markets<sup>34</sup> and products<sup>35</sup> which, moreover, reveal growing technological sophistication. The sectors that produce and export more sophisticated products, intensive in scale and technology, advanced from 29% to 62% of total exports<sup>36</sup>. Remember that during this period Chinese exports grew tenfold in value from US\$ 151 billion to US\$ 1,578 billion.

Considering the relevance of intra-regional trade to Brazil and evidences of the international literature (GREENWAY; MAHABIR; MILNER, 2008; GIOVANNETTI; SANFILIPPO, 2009; WOOD; MAYER, 2010) is important to consider whether China is replacing Brazil in Latin American market of manufactured products. According to Lélis, Cunha and Santos (2012) the answer is probably yes. They found that between 1994 and 2008, particularly in the post-2003, both Chinese and Brazilian manufacturing exports in the region had great growth. Latin America economic recovery after 2002 opened up space for such expansion. However, Chinese exports grew 40 times more than the Brazilian ones did. Naturally, Chinese exports were much lower than the Brazilian ones a few years ago; now, this is no longer true. Since 2007, the export of Chinese manufactured products has been growing faster than exports of Brazilian manufactured goods. Lélis, Cunha and Santos (2012) showed that Chinese exports to Latin America are less concentrated than the Brazilian exports to the region<sup>37</sup>, while Chinese exports corresponded to imports from Latin America more than the Brazilian exports. In 1996, the rate of additional

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<sup>34</sup> Take as reference the index of concentration ratio (CR), characterizing which portion of the "n" regions has in total exported by the Chinese economy. In 1995, the 15 major trading partners of China, excluding Hong Kong absorbed 60.6% of its exports. In 2010, they accounted for 56.7%. (Own calculations based on raw data from the Global Trade Information Services).

<sup>35</sup> The Chinese HH concentration index shows low concentration (or high deconcentration) of the Chinese staff in all target markets. However, the post-2008 marks a slight movement of concentration in mature markets and devolution in other regions. Still, it appears that the HH is less than 1000, in 2010, to all regions (own calculations based on raw data from Global Trade Information Services).

<sup>36</sup> Own calculations based on raw data from the Global Trade Information Services.

<sup>37</sup> Concentration index of exports (Herfindhal-Hirschman) of Brazilian exports fluctuated around 1000, between 1996 and 2008, and reached 1007 in 2008, while the same index for Chinese exports rose from 895 in 1996 to 685 in 2008 (Lélis, Cunha and Santos, 2012).

trade<sup>38</sup> of Chinese exports to Latin America (excluding Brazil) was 47.6, while in 2008 it grew to 58.9. In the same period, the rate of additional trade of Brazilian exports was, respectively, 56.9 and 50.8. To the authors Chinese exports have replaced the Brazilians in the region due to its volume-effect and diversification.

Despite its uniqueness, the Brazilian experience echoes the already voluminous literature that seeks to assess the impacts of China's rise in Latin America. Lederman, Olarreaga, and Perry (2008), Jenkins (2010), ECLAC-CEPAL (2011a, 2011b), Phillips (2011), Leão, Pinto and Acioly (2011), Jenkins and Barbosa (2012), among others, provide an updated review of arguments, where there is a clear divide between optimists and pessimists. In the first field, in the Chinese demand for natural resources is identified a source of dynamism for the region's economies, and in the imports of finished products and equipment is found the potential for increased well-being and competitiveness of local producers. Moreover, the establishment of partnerships with Chinese companies and foreign direct investment originated in the Asian giant would contribute, respectively, so that Latin American companies could expand their internationalization as constituent parts of global production networks, and to finance the balance of payments and infrastructure works. In another field, even if assuming the potential benefit from Chinese demand, the pessimists emphasize the risks associated with excessive specialization in production and exports of natural-resource-intensive products, amid a process of renewed deindustrialization impetus, particularly in the more diversified economies. Assuming that there are different effects between rich economies and exporters of natural resources, especially in South America, and economies linked to the U.S. market and exporter of labor-intensive manufactures, such as Mexico and Central America and the Caribbean, it appears that the displacement of manufactured exports, the diversion of FDI from the region to China and the return to a dependent and reflex situation would refer to a framework of

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<sup>38</sup> ICTY =  $100 - \frac{|m_{ik} - x_{ij}|}{2}$ , where: (i)  $x_{ij}$  is the participation of good "i" in total exports of the country "j"; and (ii)  $m_{ik}$  is the participation of good "i" in the total imports of country k. When the index is zero, no good is exported by the country or imported by another. When the index is 100, the quantities imported and exported match (Hoekman, Mattoo and English, 2002, Appendix B). HOEKMAN, B. M.; MATTOO, A. and ENGLISH, P. Development, Trade, and the WTO: A Handbook Washington DC: The World Bank, 2002.



regressive specialization, equivalent to that criticized by the political economy from ECLAC-CEPAL (PREBISCH, 1984; FURTADO, 2003)<sup>39</sup>.

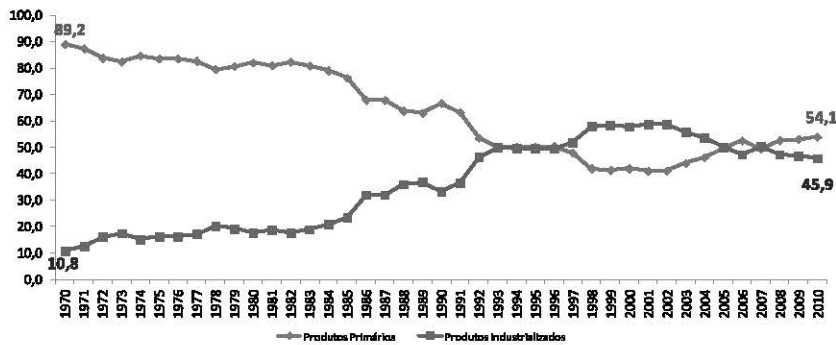
In these frameworks, the Brazilian situation suggests the occurrence of the two effects, namely, the stimulus to sectors that benefit from Chinese demand for natural resources and competitive pressures in the industry, as illustrated earlier (see Chart 3). While the manufacturing industry had an increase in its external deficit between 2008 and 2011, the primary sector obtained significant surpluses. Even if the evidence presented in this session does not support that such behavior is due to commercial links between Brazil and China, one cannot ignore this possibility. The international literature has pointed to evidence in this direction, where the competition with Chinese exports displaces their rivals from the main markets and exacerbate the loss of dynamism in industrial production (GREENWAY; MAHABIR; MILNER, 2008; GIOVANNETTI; SANFILIPPO, 2009; WOOD; MAYER, 2010; JENKINS; BARBOSA, 2012; LÉLIS; CUNHA; SANTOS, 2012).

From the standpoint of international trade, while China has moved from a participation equivalent to the Brazilian in exports of goods in the early 1980s, about 1.5% of world total, to more than 10% after 2010, Brazil dropped to less than 1% in 1990, resuming that level only at the end of the first decade of the 21<sup>st</sup> century. In a broader perspective, Latin America's share has fluctuated around 7% in the last four decades, a period of strong Asian ascension (see section 2). This situation worsens inasmuch as the export basket returned its focus on primary products for the whole region. In 2010, 54% of regional exports were of primary products, as seen in Chart 5.

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<sup>39</sup> For an update of concepts and their application to the Brazilian case see, among others, Coutinho (1997) and Jayme Jr. and Rezende (2009).

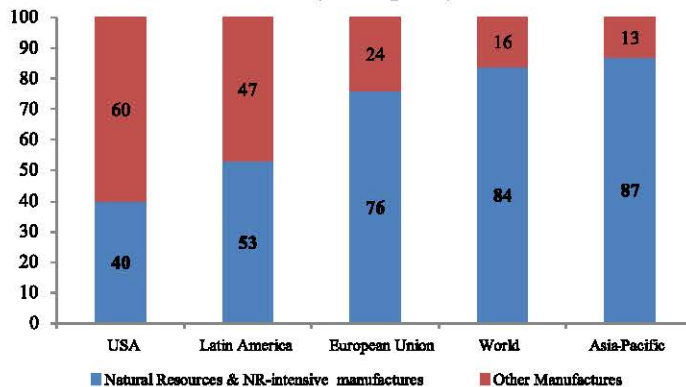
Chart 5 – Structure of Exports in Latin America, 1970-2010 (%)



Source: ECLAC's Statistical Yearbook 2011.

The trade with East Asian countries is particularly intensive in natural resource exports (Chart 6). Countries like Brazil and Mexico have had in regional markets, in the U.S. and middle-income countries, the main destinations for exports of manufactures. It is precisely in these markets that Chinese competition has intensified, particularly in the post-global financial crisis (CUNHA *ET AL.*, 2011; LÉLIS; CUNHA; SANTOS, 2012).

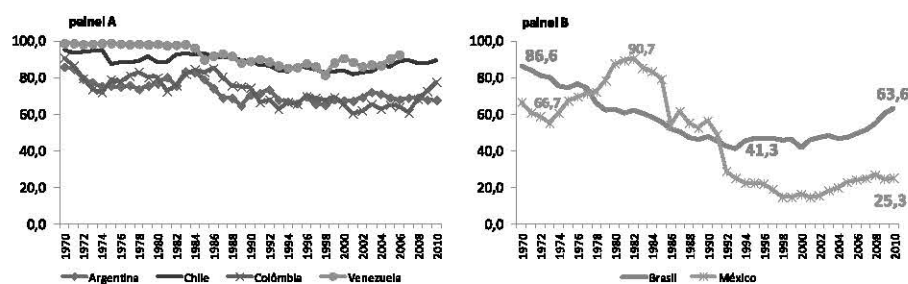
Chart 6 - Structure of Exports in Latin America by Major Destinations, 2008-2010 (average %)



Source: ECLAC-CEPAL (2011b)

It is true that this more general framework needs to be detailed, inasmuch as various regional economies are structurally dependent on the production and export of commodities, being the case of Argentina, Chile, Colombia and Venezuela, among others (Chart 7, panel A). In turn, Mexico and Brazil (Chart 7, panel B), which were able to, throughout their industrialization efforts, diversify their production and export structures, experienced in the recent cycle of high commodity prices, partly due to Chinese demand, an increasing trend in the relative share of natural resource-intensive products. According to ECLAC-CEPAL (2011a, 2011b), in both sets of economies, one can see, as a result of greater trade ties with China and the impacts of the Chinese rise on the global economy, a specialization in a few products, usually non-processed natural resources (table 4).

Chart 7 – Exports of Primary Products in Selected Economies, 1970-2010 (% of total exports)



Source: CEPAL - ECLAC's Statistical Yearbook 2011.

Thus, Table 4 reinforces the perception of deterioration in the quality of bilateral trade, in which China starts to buy products featuring the lowest possible degree of processing and to export increasingly sophisticated manufacturing, reproducing the classical picture of North-South trade criticized by Prebisch (1984) and Furtado (2003).

Table 4 - Structure of Bilateral Trade between Latin America (excl. Mexico) and China, 1990-2008 (%)

|  | Exports |       | Imports |       |
|--|---------|-------|---------|-------|
|  | 1990    | 2008  | 1990    | 2008  |
| Primary Products   | 29,2    | 72,1  | 42,8    | 2,4   |
| Manufactures Products Intensive in Natural Resources and Labor | 17,5    | 6,8   | 25,2    | 22,9  |
| Other Manufactures   | 53,3    | 21,0  | 31,9    | 74,7  |
| Total  | 100,0   | 100,0 | 100,0   | 100,0 |

Source: ECLAC-CEPAL - Overview of the international insertion of Latin America and the Caribbean 2008-2009.

Finally, closer trade ties have produced a new phenomenon in Brazil and other Latin American economies: their business cycles are increasingly tied to the Chinese cycle. Cunha *et al.* (2011) show that the cycles in Brazil are increasingly correlated with China and Argentina, and less related to the United States. This synchronization can be explained by trade and is associated with a pattern of business that Brazil tends to specialize in the production and export of natural resources. Calderon (2008)<sup>40</sup> found similar results when studying cyclical convergence between the countries of Latin America, India and China. In turn, Cesa-Bianchi *et al.* (2011) showed that due to the channels of commerce the long-term impact of a shock of China's GDP over the Latin American economies have tripled since the mid-1990s, while the long-term impacts of a shock of U.S. GDP decreased by half. The Inter-American Development Bank (IDB) also considers that the pace of adjustment of the Chinese economy will bring non-negligible impacts to Latin America. By transiting from an aggregate level of investment of 46% to 48% of GDP to a standard between 30% and 35% of GDP, the rebalancing of the Chinese standard of growth will affect commodity prices and, therefore, the performance of countries that are producers and exporters of natural resources (IADB, 2012). The IDB simulates

<sup>40</sup> Op. cit.

several scenarios in which the pace of slowdown in Chinese growth produces contraction effects in the region, with different levels of depth<sup>41</sup>.

Finally, we must consider that Chinese growth has entered a new stage: after becoming a major destination for foreign direct investment in the 1990s and 2000s, China has become an important exporter of capital in the form of FDI, particularly after 2005. Energy and diverse natural resources industries have been prioritized, as well as countries that are characterized by the relative abundance of those products and that are located in Asia, Africa, Latin America and the Middle East.

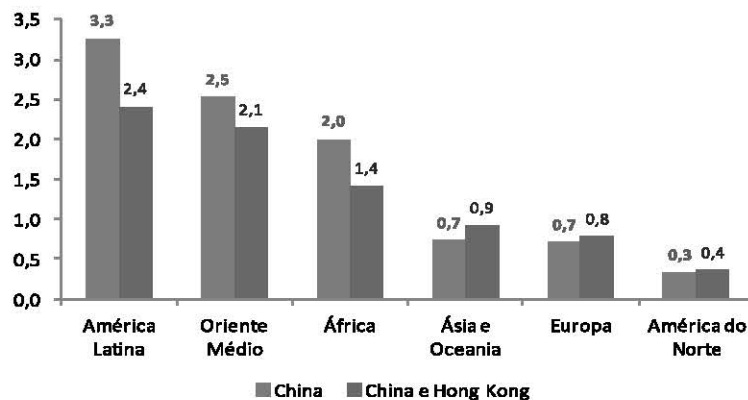
Based on data from official sources and independent researchers (SALIDJANOVA, 2011; ECLACL-CEPAL, 2011a; 2011b), it is possible to assume that the accumulated volume of foreign investments originated in China exceed US\$ 200 billion between 2005 and 2010. While the overall volume of FDI lost dynamism after 2008, Chinese investment accelerated, signaling the fact that the global financial crisis has opened the prospect of acquiring strategic assets. To evaluate the type of geographic targeting of Chinese investments, chart 8 reports the regional intensity index (RII),<sup>42</sup> calculated in analogy to the traditional indicators of trade intensity. An index greater than 1 indicates that the region receives more investments with higher relative intensity, that is, it is more important for the Chinese economy than for the combined economies of the world. Through this indicator, the Chinese investment is between two and three times more intense in Latin America, Africa and the Middle East than that verified in all the economies in the world. Indicators were calculated considering two clusters: China and China + Hong Kong.

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<sup>41</sup> In summary: "A second risk to global economic prospects is growth in the Chinese economy. For many years, rapid credit growth has fueled China's high investment rate, which will surely decline over the medium term; the question is whether this will be with growth falling mildly or a swifter deceleration. Given China's increased importance in global trade, a faster deceleration in China would affect world growth, thereby impacting Latin America and the Caribbean. Moreover, given the high commodity intensity of the economy, Chinese growth is important for maintaining relatively high commodity prices." (IADB, 2012, p. 7).

<sup>42</sup>  $IIR = R_{ij}/RIW$ . Where:  $R_{ij}$  represents the participation on "I" region in total investments originated in the "country j";  $RIW$  is the participation of the same region in global investments.

Chart 8 – Index of Regional Intensity of Chinese Investment, 2005-2011 \*



Source of raw data: FDI Markets. Note: (\*) until June.

For the case of Latin America, ECLAC-CEPAL (2011a, 2011b) indicates cumulative investments of US\$ 7.3 billion in the 1990-2000 period, US\$ 15.2 billion in 2010 and US\$ 22.7 billion for the post-2011 period. As important as the amount involved is realizing its expansive dynamic. After the 2008 crisis, China seeks to transform its financial state and corporate powers in terms of the acquisition of strategic assets, especially if providers of future access to the supply of natural resources or markets.

#### 4. Final remarks

This paper began with a brief review of the discussion on the determinants of the different performances of the peripheral economies over the past decades, period during which the Asian countries, in successive waves, increased their participation in the most dynamic market circuits of the global economy. At the same time, the main Latin American countries, despite the recent improvement in performance, showed a loss of participation in product, industrial production and international trade. The external debt crisis in the 1980s questioned the development model led by State, which led to a reversal of paradigm towards the liberalizing adjustment of the 1990s and 2000s. During this period, the advance of the techno-productive and the subsequent demand for more sophisticated technological, human and institutional inputs made more difficult

the efforts of Latin American countries to reverse the low growth of investment, productivity and income.

The acceleration of growth and improvement in macroeconomic conditions only came after 2003, largely as a response to increased demand and, thus, prices of commodities, benefiting the countries that produce and export natural resources. This dynamic has been determined, among other things, by the strong growth in emerging economies, especially China. In one generation, about one third of humanity has been incorporated into global processes of production and trade. Hundreds of millions of Asian farmers migrated from the countryside to the cities in a massive, deep and fast process of urbanization and industrialization<sup>43</sup>. The impact on international prices of raw materials was felt in the post-2002 high cycle, while manufacturing and services from China, India and their neighbors helped to maintain stable or decreasing prices. Consequently, natural resource-exporting countries and importers of industrial products experienced a favorable shock in terms of trade, with positive effects on external accounts and, in some cases, on public accounts (IADB, 2012; ECLAC-CEPAL, 2011a, 2011b).

In this context, the literature about the impacts of China's rise has emphasized that the increase in demand for natural resources would ensure an export-led growth dynamic in peripheral regions in which those abound. Moreover, China has become an important source of capital, through investment of its companies, financing from official banks and other forms of resource transfer. The high competitiveness of its manufacturing would contribute to the increase in the welfare of the importing countries, both by consumers hungry for cheaper consumer goods and companies requiring capital goods, industrial inputs and, potentially, participation in global production networks focused on China.

In a less optimistic view, other studies point out that the specialization in production and export of natural resources is usually associated with low levels of long-term growth, concentration of income, wealth and power, weak and poorly democratic institutions, and corruption, among other problems.

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<sup>43</sup> To put that in perspective, China is urbanizing at a rate of 1% of the population, which now amounts to 13 million people, to put it in perspective, two cities of Rio de Janeiro.

Furthermore, they stress that the strengthening of the manufacturing industry is at the explanatory center of sustained processes of growth and inducers of virtuous changes in productive structures and in their respective societies. Thus, the industry would be the bearer of enhancing properties of expansion in income and production efficiency. In contrast, deindustrialization, especially when it occurs early, in countries that have not yet reached the highest levels of income per capita, would largely explain the loss in dynamism of the middle-income economies of the capitalist periphery, especially in Latin America.

The evidence presented here suggests that China's rise, for the case of Latin America, in general, and Brazil in particular, introduces a vector of risk and opportunity that tends to be biased for the first dimension. The opportunities opened up by the production and export of natural resources and attraction of investments associated with these production complexes has been important in the recovery. However, there is not, yet, strong evidence of a structural reversal in the trend of deterioration in the terms of trade, or lower volatility in commodity prices. Even smaller evidence that price and income elasticities of natural resources –intensive products have changed, to avoid the problems noted by Thirlwall and Prebisch (JAYME JR.; REZENDE, 2009), that is, the possibility of structural imbalances in balance of payment insofar as the the growth of domestic and international income produces a greater increase in imports (manufacturing) than exports (commodities). Likewise, exceptions are still countries that were able to avoid the problems associated with the so-called "natural resource curse".

With increasingly intense trade channels between China and Latin America, the countries in the region have become more sensitive to cyclical movements in the economy of the former. The global financial crisis, by causing a reduction in income growth in mature economies, led policy makers and Chinese companies to seek to further diversify their exports. The impressive growth of China in recent decades has been focused on investment and exports. Despite intentions to reorient the model, toward a greater importance of domestic demand, this adjustment will not occur in a stable way in a short period of time. The need to maintain jobs, growth at relatively high levels and, consequently, an environment of social and political stability is the central concern of the Chinese political leadership. These elements and the evidence presented here and in the related literature suggest that, after 2008, the Chinese



presence in Latin American markets and other peripheral regions has intensified, displacing Brazilian exports, especially manufacturing, which may be contributing to the density loss in industrial production.

If, in the political and strategic field, experts point to the possibility that Brazil and China consolidate a South-South partnership that is able to, in the context of a reordering of the international system, strengthen the position of the peripheral nations (HART, 2010; ALTEMANI DE OLIVEIRA, 2010; HAIBIN, 2010; VISENTINI, 2011), in the economic field, which is not isolated from the others nor will cease to affect domestic and foreign policies of both countries, there seems to be a crystallizing relationship of the North-South type. In the Brazilian perspective, without a coherent and robust development strategy, it will be difficult to avoid a regressive process of specialization and over-exploitation of natural resources, with the potential compromise of the main assets of the country: its wide range of biodiversity and natural resources, the size of its domestic market as a basis for expansion of domestic production, and a relative political and institutional stability. More severely, the incipient economic and social recovery of the country may be aborted.

Following the reasoning of Castro (CASTRO;CASTRO, 2011), Brazil needs to reinvent its development strategy, advancing on the countercyclical policies adopted after 2008. Thus, the State has a decisive role, and its policies should enhance the positive dimension of stimuli originated in the new international order and, where possible, try to neutralize the risks of its negative side. In this sense, it is important (i) to reorient macroeconomic policies to maintain income and employment growth; (ii) to control the exchange rate and capital flows to reduce the impacts of external turbulence; (iii) to effectively manage resources from exports of natural resources, particularly with the country's new status as a producer of oil, to minimize the effects of "Dutch disease" and ensure the financing of public investments; (iv) to improve the distribution of income, invest in human capital and reduce social differences; (v) to implement robust and sustainable development policies to reduce infrastructure bottlenecks, increase the competitiveness of local industry, increase levels of investment and, especially, preserve the environment and biodiversity of the country.

This article aims to contribute to the ongoing debate, insofar as it is far from clear that the net result of the greater Sino-Brazilian interaction will be positive for the country<sup>44</sup>, particularly when one realizes the lack of a development strategy that addresses the deep transformations derived from China's rise.

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<sup>44</sup> For Rubens Barbosa: "Our dynamic relations with China are bringing opportunities and challenges that must be answered not with improvised but in a strategic medium and long term. Exports of agricultural products and minerals will continue to grow. And the gradual replacement of industrial products for Brazilian products imported from China may increase the decreasing participation of industry in our gross domestic product (GDP). The trend of concentration of exports in few commodities and deindustrialization - if, in the short term, are not faced with effective policies - may reduce Brazil to the category of simple commodity producer and our industry, the domestic market". See: <<http://www.itamaraty.gov.br/sala-de-imprensa/selecao-diarica-de-noticias/midias-nacionais/brasil/o-estado-de-sao-paulo/2011/11/22/os-desafios-da-asia-para-o-brasil-artigo-rubens/print-nota>>, accessed on March 25, 2012. In the same line, Sergio Amaral argues that: "The challenge of China, so isn't only the peculiarity and the shape of its investments or increasing volume of imported products at a price substantially lower than the national equivalent. You are in coping, both the company and the government, a reality that is new, different and presents itself as two sides of the same coin: a promising, another unsettling. This reality can't be treated as business as usual". See: <<http://www.itamaraty.gov.br/sala-de-imprensa/artigos-relevantes/o-desafio-da-china-o-estado-de-s.-paulo-23-01-2011>>, accessed on March 25, 2012.

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**ABSTRACT**

This paper assesses how China's rise as a global power has affected Latin America, in general, and Brazil, in particular. If the global economy will increasingly be Asian-centered and Sino-centered in the decades to come, we must ask which role will be reserved for Latin American countries. We argue that, despite the intentions of a re-orientation in its growth model, the response of the Chinese policymakers to the international financial crisis has reinforced, at least in the short and medium terms, the dependence on exports and investments. Considering the sluggish recovery in advanced economies, that strategy is likely to amplify Chinese pressures to access dynamic domestic markets in emerging countries. In this context, Latin America represents not only a source of natural resources but an increasingly important market for absorbing the Chinese manufactured products. As a consequence, countries such as Brazil, with more diversified production and international trade structures, might experience a regressive pattern of specialization, which might trigger protectionist reactions and other tensions on bilateral relations with China.

**Key Words**

Brazil; China; Development Strategies.

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