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# China and Brazil in the Global Economy

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## 1 Introduction

Recent years have seen a flourish of interest in the BRICS (Brazil, Russia, India, China and South Africa) economies and their growing role as producers and intermediate powers in the global economy (Humphrey and Messner in this *IDS Bulletin*). Although often considered as a group (with Russia excluded from the BICS grouping), China and India on the one hand, and Brazil and South Africa on the other, represent different trajectories. The former, the Asian Drivers, are characterised by great economic dynamism, while Brazil and South Africa are facing uncertain economic prospects.

In this article, limited in depth by length constraints, we focus on the respective trajectories of Brazil and China, and the growing direct and indirect consequences for Brazil of China's rapid growth. We begin in Section 2 with an analysis of relative economic performance, and then in Section 3 we discuss the nature of their inter-relationship and the implications this has for Brazil. This involves consideration both of trade impacts (Asian Driver 1 in the Schmitz taxonomy, this *IDS Bulletin*) and the reorganisation of production networks at world level (Asian Driver 2 in the Schmitz taxonomy, this *IDS Bulletin*). In the final section, some preliminary assessments and inferences are made, indicating themes and approaches that should be better studied for an improved understanding of the dynamics of the BRIC/BICS economies.

## 2 Brazil and China compared

### 2.1 Overall indicators of development

Historically, comparative analyses of the evolution of the Brazilian industry *vis-à-vis* Asian countries have not been consistent because the Asian reference seems to change as time goes on. In the 1970s and

1980s, South Korea used to be the Asian counterpart. Although Korea is a smaller country and its industrialisation process was initiated some years after that of Brazil, there was a period where similarities in terms of industrial development and structure were quite strong (Goldenstein 1994; Fleury and Fleury 1995). Korea, however, has now moved into "the big league" and these comparisons are seldom pursued. Instead, it is with China and India that the comparison is made.

Currently, Brazil's gross national product (GNP) (US\$605bn) is of the same order of magnitude as that of Korea (US\$696bn) and India (US\$686bn). Populations differ in these three countries however, and Korea's GNP *per capita* is three times higher than that of Brazil which, in turn, is four times larger than India's. China's GNP is currently twice the size of these three economies (US\$1,460bn) and GNP *per capita* is somewhere between that of Brazil and India. But what is striking is that from 1990 to 2003, the Chinese and the Indian economies grew five and two and a half times more than the Brazilian economy (around 11 per cent, 5 per cent and 2 per cent yearly), respectively.

Those figures indicate the relative difference in the dynamism of three of the participants of the BRIC/BICS: even if the whole group is referred as the "moving whales", their relative speed seems to have been quite different in the recent past.

### 2.2 The presence of multinationals in the Brazilian industry

The acceleration of the industrialisation process that is currently observed in China and India might be considered similar to the one that took place in Brazil during the 1950s and 1960s. But, unlike China and India who have seen sustained growth in recent decades, during the second half of the twentieth century, industry in Brazil grew through discontinuous cycles of prosperity and depression.

**Table 1: Growth of Brazilian and world markets**

|                                    | 1973–83 | 1983–93 | 1993–2003 |
|------------------------------------|---------|---------|-----------|
| World (measured by global exports) | 12.22   | 7.18    | 6.13      |
| Brazil (measured by GNP)           | 4.21    | 2.78    | 2.67      |

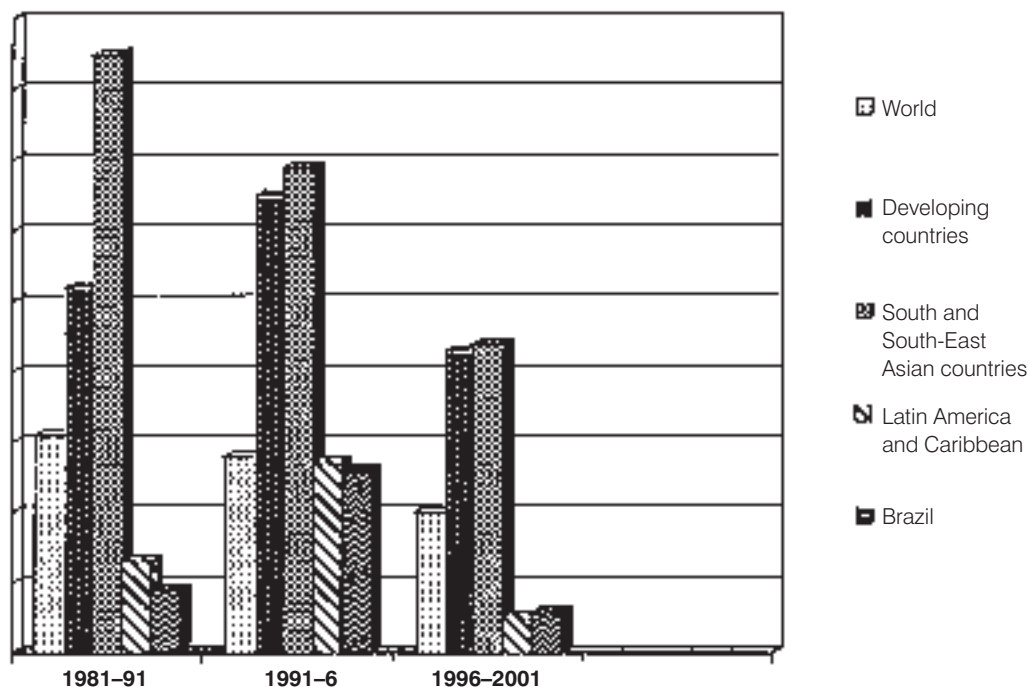
Source: Frischtak (2004: 3).

Brazilian industrial growth was heavily dependent on multinational enterprises (MNEs). And, for the purposes of this study, it is relevant to point out that the vast majority of the MNEs which, in different moments of its industrialisation process, established a leading role in the Brazilian economy: in automotive and metal-mechanics during the 1950s and 1960s, in chemicals during the 1970s, in computing during the 1980s, in telecommunications and automobiles during the 1990s, and have recently established a strong foothold in China.

In the 1980s, the subsidiaries of MNEs were

concentrated in the most dynamic industrial sectors, accounting for 26 per cent of manufactured value added and 20 per cent of total manufacturing employment (Zockun 1987). In the 1990s, after the opening of the local markets, the weight of the subsidiaries of MNEs increased. Ferraz *et al.* (1999), in an article focusing on the economic and structural changes in the Brazilian economy, it was observed that those ‘well placed to implement these strategies [the ones needed to cope with the changes] were foreign firms operating in sectors associated with the expansion of final demand’. On top of that, the

**Figure 1: Growth of manufacturing industries**



Source: Frischtak (2004: 4).

**Table 2: Participation of Brazil and China in the world market (%)**

| Year | Brazil  |         | China   |         |
|------|---------|---------|---------|---------|
|      | Exports | Imports | Exports | Imports |
| 1990 | 0.91    | 0.63    | 1.49    | 1.50    |
| 1995 | 0.91    | 1.03    | 2.50    | 2.53    |
| 2000 | 0.86    | 0.89    | 3.91    | 3.43    |
| 2001 | 0.95    | 0.92    | 4.34    | 3.84    |
| 2002 | 0.94    | 0.75    | 5.07    | 4.49    |
| 2003 | 0.98    | 0.66    | 5.86    | 5.39    |

Source: IMF, *Direction of Trade and Statistics Yearbook 2004* (accessed 15 August 2005).

privatisation process that took place in the same period augmented the relative importance of MNEs in the Brazilian economy.

As a consequence, Brazil's presence in international markets has been driven by the exports of MNEs. Of the total value of exports by the 76 Brazilian firms ranked among the 200 largest, 64 per cent originated from subsidiaries of MNEs, 30 per cent from locally owned private enterprises and 6 per cent from state-owned enterprises (*America Economica*, 16 August: 84). Therefore, as we will show, MNE global sourcing decisions and intra-firm trade play an extremely important role in the direct and indirect impact of China's growth on Brazil.

### 2.3 Indicators related to competitiveness of industry in world markets

Until the early 1990s, the Brazilian market was relatively closed and domestic industry was heavily protected. After trade liberalisation, and contrary to expectations, not only did the growth rate not pick up, but the internal market grew much more slowly than the rest of the world (Table 1). Moreover, the growth of the Brazilian manufacturing industry

was slower than most of the remaining regions; Latin America among them (Figure 1).

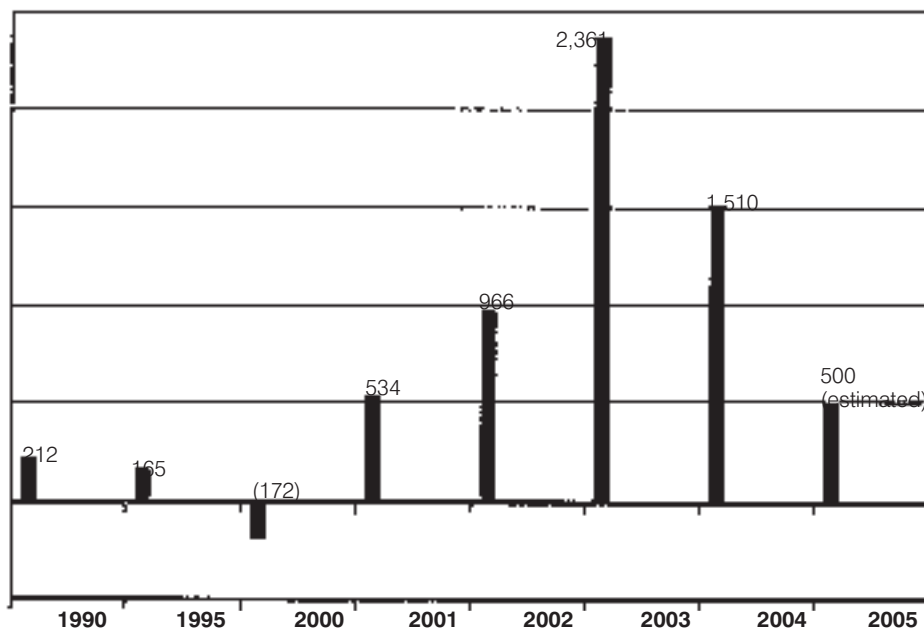
A third characteristic of Brazil's growth has been that the export orientation of the industry did not change after the opening to the world markets. Veiga (2000) observes a continued absence of dynamism with little change in the structure of exports during the 1990s. He compared Brazilian exports to the US and to the rest of the world. In the US, consumer demand reflected a much higher pattern of technological intensity than in the demand structure of the rest of the world. Yet, there were no significant differences in the technological content of exports to these two distinct markets, suggesting an absence of structural dynamism in the Brazilian economy. In 2004, Frischtak corroborated these conclusions about the absence of dynamism in Brazilian exports and the continued dependence on the domestic market (Frischtak 2004).

As a consequence, Brazil's participation in international markets is still limited, particularly by comparison with China (Table 2). Even though the absolute value of Brazil's exports has risen substantially since 2000, this has had little impact

**Table 3: Brazilian imports from OECD countries**

| Year       | 1990  | 1995  | 2000  | 2001  | 2002  | 2003  |
|------------|-------|-------|-------|-------|-------|-------|
| Percentage | 57.18 | 65.07 | 62.50 | 64.52 | 63.16 | 60.09 |

Source: Data from: The Secretary of International Trade (SECEX); MDIC, Brazilian Ministry for Industry and Trade, SECEX: [www.desenvolvimento.gov.br/sitio/secex/depPlaDesComExterior/indEstatisticas/aliWeb.php](http://www.desenvolvimento.gov.br/sitio/secex/depPlaDesComExterior/indEstatisticas/aliWeb.php) (accessed 15 August 2005) [elaborated by the authors].

**Figure 2: Bilateral trade balance Brazil–China (US\$m)**

Source: MDIC, Brazilian Ministry for Industry and Trade, SECEX: [www.desenvolvimento.gov.br/sitio/secex/depPlaDesComExterior/indEstatisticas/aliWeb.php](http://www.desenvolvimento.gov.br/sitio/secex/depPlaDesComExterior/indEstatisticas/aliWeb.php) (accessed 23 August 2005).

on its share of global trade. By contrast, China's share of both global exports and imports has risen markedly.

A feature of China's rapid export growth has been its participation in regional value chains (Lall and Albaladejo 2004; Evans *et al.* in this *IDS Bulletin*) leveraged by the increasing number of regional trade agreements. This is reflected in the disproportionately large growth in China's imports from other developing economies; in 1978, 70 per cent of its imports originated from industrialised countries, while in 2001, that proportion fell to 49 per cent (Barros 2004: 18). Brazil shows a stable pattern with almost two-thirds of imports originating from Organisation for Economic Co-operation and Development (OECD) economies (Table 3).

There are a variety of explanations for this, including the absence of what Evans *et al.* in this *IDS Bulletin* refer to as "deep integration" – that is, regional value chains. The difficulties experienced in the effective implementation and functioning of Mercosur, the default of the FTAA (Free Trade Area of the Americas) and the orientation of Lula's government prioritising the creation of South-South

trade blocks, which face political and economic obstacles, left Brazil in an isolated position.

#### 2.4 Indicators related to the attractiveness of each country in terms of FDI

In 1990, foreign direct investment (FDI) inflows were valued at US\$990m into Brazil, US\$780m into India and US\$3.5bn into China. During the 1990s, the annual average was in the range of US\$10.5bn for Brazil, US\$1.7bn for India and US\$28.0bn for China. For the period 2000–03, those figures rose to US\$20.5bn for Brazil, US\$4.8bn for India and US\$44.0bn for China. It is unclear whether these large flows to China were at the cost of other developing countries such as Brazil but recently the Bank of Spain estimated that 'for each US\$1.00 invested in China, US\$0.16 is not invested in Latin America' (*Valor* 03, August 2005: A9). According to the study, Mexico and Colombia would be the most directly affected countries and Brazil would be only lightly harmed. However, in order to understand this diversion in flows, particularly in the future, they need to be assessed in relation to the locational

and sourcing decisions of MNEs. This point will be addressed below.

### 3 Brazil and China: participation in the world markets

#### 3.1 Asian Drivers 1: changes in the quantity and direction of trade

Bilateral trade between Brazil and China has increased substantially in the last decade. Between 1996 and 2003, exports from Brazil to China grew four-fold and between 2000 and 2003, China moved from the twelfth to the fourth position among the countries to which Brazil exports. Brazil's market share in the Chinese market increased from 0.43 per cent in 2000 to 1.27 per cent in 2003. However Brazilian imports from China are growing at an even faster rate and the trade balance which, until 2003, presented a positive result for Brazil, is being rapidly reversed (Figure 2). There is already a clear trend favouring China and a deficit in trade is expected for 2006.

It is not just the rate of growth of this bilateral trade that shows asymmetries, but also its composition. Brazil exports basic commodities and natural resources-intensive products: coal, grains (soy), steel and associated products and meat (poultry and swine). Brazil's exports of manufactured and semi-manufactured products accounted for only 5.5 per cent of its exports to China.

In a recent study, Negri (2005: 24) observes that 'considering manufacturing industry only, [Brazil's] exports to China presents a lower technological level than the exports for the rest of the world'. The implications of this are severe when we bear in mind our observation of the lack of dynamism of Brazilian exports to the rest of the world. By contrast, Brazil largely imports manufactured goods from China. The main imports are related to electronics components, telecommunications (especially cell phones and liquid crystal displays), textile, shoes, toys, tyres and components for motorcycles and bicycles. In our view, the predominant explanation for this structure of bilateral aid is explained in relation to the strategies and configurations of MNEs.

In summary, the major export opportunities from Brazil to China appear to be in the areas of commodities. It is widely believed in Brazil that the impressive growth of China, as well as other Asian countries, which are poor in terms of natural resources create opportunities for countries with a complementary profile, such as Brazil. This is not

without its dangers, however. The increase in exports of basic commodities produces an appreciation of the local currency that creates obstacles for the simultaneous growth of manufactured products.

#### 3.2 Asian Drivers 2: the globalisation of value chains

The accelerated development process of the large Asian countries and their incorporation in global value chains has both direct and indirect effects upon Brazilian industry. The direct effects are associated with direct relationships in terms of trade and mutual influences in their industrial structures through cooperation and competition. The indirect effects involve third parties: the strategies of MNEs in their global sourcing and locational decisions.

##### The indirect impacts

###### *Relocation of production*

The relocation of production is the most visible feature of the entry of China in the global markets due to a generalised adoption of *offshoring* strategies. More than Brazil, Mexico was deeply affected by this, with about 600,000 jobs being transferred from the Mexican *maquiladoras* to Chinese suppliers. There are no figures available for the case of Brazil but it is well known that many individual MNEs switched production from Brazil to China. The auto industry is a case in point. After the significant investment that was made in Brazil in the second half of the 1990s to modernise existing plants and in the establishment of new plants (many designed around radically new concepts), there is clear evidence of an almost complete inflection towards the Asian markets in the new millennium.

But this is also evident in the case of the electronics sector. Philips, the European producer of electronic products has been operating in Brazil for almost a century. Its most recent strategy emanating from Europe was to close Brazilian plants and to source for the domestic market from China. Only the active resistance of local managers succeeded in reversing that trend. It is not clear how many other MNEs have made similar decisions which have not been publicised as widely as the case of Philips.

###### *Dislocation of production*

The entry of new Asian enterprises into high-scale, low-priced, basic products has forced many MNEs to abandon commodity segments and to specialise in more complex products. This has created challenges

### Box 1: CVRD and the creation of joint projects

Companhia Vale do Rio Doce (CVRD) is the largest mining company of the Americas and the fourth largest world producer. It began exporting to China in 1973, initially through its Hong Kong representative office. China is currently its largest external market.

In 2002, CVRD established a new office in Shanghai. CVRD has a close relationship with the Chinese steelmaker Bao Steel. Bao's latest plant in China was designed in Japan to operate according to the specifications of Brazilian raw materials. Simultaneously, a new joint project aiming to install a new large operation of Bao Steel in the North of Brazil is being developed. That new plant is expected to be fully operational until the end of the current decade.

In addition, CVRD also has two joint ventures in China: Henan Longyu Energy Resource and Shangdong Yukuang International Coking Company.

for their operations in developing countries such as Brazil, where many of their subsidiaries produced commodity products. Should these subsidiaries be upgraded in line with their global restructuring? Should they continue to produce commodities locally, given that these were products discontinued elsewhere? In an earlier study (Fleury and Fleury 2001), we focused on the textile production chains based on chemical fibres. In the early 1990s, new large integrated Chinese producers of commodity fibres forced MNEs such as BASF, Dow, Rhone and Poulenc to alter their specialisations. Gradually, these MNEs changed the profile of their subsidiaries in Brazil moving towards specialities, highly value-added products, and mostly abandoning the plants dedicated to commodity fibres. Some of those plants were sold very cheap to local groups but, overall, the quantity and variety of local supply was reduced and consequently imports increased significantly.

#### Sourcing

The third indirect effect could be called "Asian sourcing". It concerns the possibilities opened for subsidiaries of MNEs established in Brazil to source from China, either directly or indirectly, thus changing the structures of the local supply chains.

Unilever is a case in point: inputs that were formerly purchased in Brazil are now imported from Asia, especially China, in larger quantities. A slightly different arrangement can be observed in the telecommunications industry. Large global manufacturing and services providers, the so-called "manufacturing contractors", were established during the 1990s (Sturgeon 1997). When subsidiaries of manufacturing contractors were installed in Brazil, the subsidiaries of specialised equipment suppliers, such as Ericsson, NEC, Motorola, among others, began subcontracting from them. However, these manufacturing contractors act on a global scale and now source parts and components from Asia (Fleury and Fleury 2004). In both cases, the configurations of the local supply chains were substantially altered and local suppliers were urged to redefine their strategies.

#### The direct impacts

The direct impacts relate to changes in the structure of the industry and positioning in global value chains as a consequence of bilateral investments between the two economies. In this case, it is necessary to analyse the process of internationalisation of Chinese and Brazilian enterprises.

### Box 2: Embraco and the manufacture of compressors

Empresa Brasileira de Compressores (Embraco) is the world's largest producer of hermetic compressors, with a global market share of 25 per cent. Its second foreign plant was installed in China in 1995 under a joint venture with Chinese Snowflake (Embraco owns 56 per cent of the equity, Snowflake holds 40 per cent and Whirlpool of the US has 4 per cent).

The Chinese plant has the capacity to produce 2.2 million units/year and employs 1,200 persons. The plant has a local R&D staff of 52 and maintains a strong relationship with its Brazilian headquarters for the development of products appropriate for the local markets.

**Table 4: Evolution of new starters and number of new plants**

| Year                             | Pre-1992 | 1992–4 | 1995–7 | 1998–2000 | 2001–03 | 2004 | Total |
|----------------------------------|----------|--------|--------|-----------|---------|------|-------|
| Brazilian firms investing abroad | 3        | 3      | 6      | 2         | 5       | 1    | 20    |
| Number of foreign plants         | 5        | 9      | 12     | 25        | 26      | 12   | 89    |

### *Brazilian enterprises producing abroad and in China*

Towards the end of the twentieth century, the internationalisation of Brazilian enterprises gained rhythm and consistency. Acquisitions of firms and the establishment of new plants, both in advanced and in developing countries, became part of their competitive strategies. The late internationalisation of Brazilian enterprises has been due to four main factors: (a) the geographic dimension: Brazil (like the other BRICs) is a very large country and has a large internal market; (b) the lack of governmental stimulus (in contrast to Korea); (c) the protected domestic market until the early 1990s reduced the incentive to target external markets; and (d) cultural distance from other countries (Barretto and Rocha 2003). Table 4, shows the year in which the Brazilian companies initiated their process of internationalisation. Until 1992, only three of them had foreign factories (a total of five sites), all of them in neighbouring countries. From 1992 on, an increasing number of companies started international manufacturing. The majority of foreign factories were acquisitions (“brownfield” sites accounted for 80 per cent), a very small percentage were newly built “greenfield” factories (3 per cent) and joint ventures represented the remaining 17 per cent.

The year 1991 was the year of the opening to the international markets through the substantial reduction of tariffs. Thus, the first movers might have been influenced by trade liberalisation.

Thereafter, the increase in the number of firms investing abroad between 1995 and 2001 seems to be related to two important moments in the Brazilian economy: the first, the stabilisation of currency after a long period of high levels of inflation and the second, the devaluation of the Brazilian currency in the 2001 global crisis. Access to financial resources in international markets and the circumvention of tariff and technical barriers seem to be the key factors for decision making at firm level. The need to guarantee at least part of the turnover in a strong currency (hedging) might be considered one of the most important drivers for the internationalisation of the Brazilian firms.

Beyond South America, these plants are located in a variety of countries: 17 in the US, eight in Europe, one in South Africa and six in China. This indicates that the internationalisation of Brazilian firms is basically market-seeking. Where Asia is concerned, China is the primary target for Brazilian enterprises. The Brazilian Embassy in Beijing reports that there are around 40 joint venture agreements of Brazilian enterprises in China, ranging from banks and commercial firms to large and medium Brazilian industrial firms. Of the 20 largest Brazilian MNEs, six have installed production plants in China. Three of these were the object of field research: Companhia Vale do Rio Doce (CVRD, Box 1), Embraco (Box 2) and Embraer (Box 3). Each of these manufacturing investments began with the earlier growth of exports to China, followed by the establishment of a

### **Box 3: Embraer and the assembly of aircraft**

Empresa Brasileira de Aeronáutica (Embraer) is one of the world’s leading manufacturers of regional jets.

Seeing the prospect of a rapidly growing market in China and operating in a very competitive global sector, Embraer established a commercial office in Beijing in 2000.

In 2003 it signed a joint venture agreement with Hafei (controlled by the China Aviation Industry Corporation) to assemble the 45-seat jet aircraft in Harbin. The Hafei operation was remodelled and currently receives components in kit form from Brazil. The aircraft are assembled by a staff of around 180 people.

commercial office and only subsequently two of them installed physical plants.

Which factors determine successful operation in the Chinese market? Looking from the perspective of distinctive competences, it is evident that besides the intrinsic qualities of the raw material extracted in Brazil, it is CVRD's competence in operations management (and especially logistics) that provides its competitive advantage in China. In the case of Embraco, technological competences (capacity to design and implement new types of product) and operations management competences (capacity to manufacture abroad to international standards of quality and costs) provides them with access to the Chinese market. Finally, in the case of Embraer, its competitive strategy is supported by competences in the technological domain, management of complex projects and supply chain management. The decision to become a major supplier of regional aircraft in China required them to install a subsidiary in China due to local procurement procedures.

Each of these cases reflects firm-specific skills, rather than country-specific (i.e. Brazil-specific) skills. Notwithstanding, they indicate the high competitive potential of leading Brazilian firms, which are capable of producing in any country, including China.

#### **Chinese initiatives in Brazil**

Chinese firms are investing in Brazil on two fronts. The first is a government-brokered partnership in which China and Brazil will make joint investments in large infrastructural projects located mainly in the north-east of Brazil. Four of these were discussed between the two governments during official visits and will involve gas-extraction, a petrochemical refinery, a steel plant and an alumina plant. Together they involve a total cost of US\$7.9bn. However, more than a year has passed since these discussions, and no progress has been observed. Brazilian authorities complain about the lack of experience of the Chinese partners and their inexperience about Brazil and Latin America in general, but that might be only part of the story (*Valor*, 15 September 2005: A5).

The second front involves direct investments as a result of independent private sector decisions. To date, there are no Chinese subsidiaries in Brazil. But at least two large Chinese manufacturers are in the process of assessing the feasibility of specific investments. These are TCL, a producer of

consumer's electronics, and Huawei, one of the Chinese national champions in the area of telecommunications equipment which has a growing global presence (including as a supplier of sophisticated telecommunications equipment in Europe).

#### **4 Discussion and conclusions**

The first point to stress is that the rise of China and India is already influencing the trajectory of the Brazilian economy, especially in terms of participation in the world's markets. There are strong reasons to believe that the influence will become more pronounced in the future.

Even though Chinese and Brazilian strengths in terms of industry might appear complementary, the effects this has in reinforcing the basic commodities-producing sectors create difficulties for the more value-adding types of industry. Although not considered in this article, the Indian industrial economy has a similar profile to that of Brazil, for example in software and metal-mechanics, and this might create other types of competition in the future.

With regard to the growing external presence of Brazilian and Chinese firms as producers in external markets, there is a contrast in perspectives between the two countries. In Brazil, public institutions are still ambivalent, if not suspicious, about the significance and impact of the internationalisation of Brazilian enterprises. Will this outward expansion mean that local investments will be reduced? Will the local enterprises be creating jobs abroad while destroying jobs domestically? By contrast, the Chinese orientation towards external markets and their influence upon global institutions and markets seem to be much less equivocal. For example, 'Chinese government agencies and companies are undertaking all the required strategies in order to promulgate unique technology standards and influence over global standards' (Deloitte 2004). With regard to the Chinese multinationals, Child and Rodrigues (2005 forthcoming) consider that 'what precisely characterises the emerging generation of Chinese internationalising firms is their willingness to become path-creators in the sense of moving away from crystallised social practice, regulations or institutions by combining innovative, proactive and risk-seeking behaviour'. In this framework, 'the dynamic capabilities developed by those firms not only interact with



their institutional legacy, but also play a direct role in furthering their internationalisation' (Child and Rodrigues 2005 forthcoming).

If there is one lesson that must be learned from the Brazilian case however, it is that the traditional MNEs from the developed countries are already playing a role and will continue to do so, thus influencing the dynamics of the BRICS/BICS. There is growing evidence that the process of revision and restructuring of the long-established multinationals from the advanced countries – the early movers –

is essentially to focus on highly value-adding activities, and thus create the necessary conditions to increase their command of global production networks (Fleury and Fleury 2005). Therefore, the future of the BRICS/BICS and their mutual relationships will depend to a large extent on the way in which that pattern takes shape through the allocative, sourcing and locational decisions of these MNEs. This is particularly important for economies such as Brazil, in which foreign direct investment has historically played such an important role.

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