

A long and winding road: Brazil's (slow) trajectory towards becoming a world industrial power¹

João Carlos Ferraz, David Kupfer, Mariana Iooty, Sebastián Rovira and Márcia Tavares²

Abstract

This article analyses the economic and structural features of Brazil's recent development in search for explanations as to why Brazil is the laggard in the BRIC block. It shows that chronic poverty, high inequality rates and low capability levels have kept the potential of the domestic market as a force for economic growth below its potential. Moreover, twenty five years of macroeconomic uncertainty and reactive, short term economic policy has been a deterrent of investment. These conditions have taken their toll on growth and the renewal and diversification of conditions of production. The structure of production and foreign trade, in turn, being biased towards natural resource related activities, with low income elasticity and productivity growth potentials, has conditioned economic growth, thus contributing to long term uncertainty. Exports and inward and outward foreign direct investments have shown potential to be relevant potential drivers of change if, in the years to come expansion towards dynamic markets and incorporation of more knowledge is observed. In this context, the role of public policies is of extreme relevance. Policies directed to three fronts have special importance: macroeconomic policies, social policies and innovation and industrial policies.

¹ This article was prepared for the International Symposium "Rise of the Next Giants. Anatomy of BRICs", organized by the Institute of Developing Economies, JETRO, Japan, to be held in Tokyo on December 20th, 2006.

² João Carlos Ferraz, Sebastián Rovira and Márcia Tavares are at the United Nations, Economic Commission for Latin America and the Caribbean (UN-ECLAC); David Kupfer and Mariana Iooty at the Instituto de Economia, Universidade Federal do Rio de Janeiro (IE-UFRJ). Authors are responsible for all opinions expressed.

1. INTRODUCTION: BRAZIL – A SLOW BRIC

When in October 2003 Dominic Wilson and Roopa Purushothaman published the Goldman Sachs report "Dreaming With BRICs: The Path to 2050", they highlighted similarities existing between Brazil, Russia, India, and China, leading them to coin the acronym that defined a special country group as an emerging, and important force in the world economy. These were countries that had, according to the authors, economic and demographic characteristics that would enable them to overtake the G-6 (United States, Japan, Germany, United Kingdom, France, Italy) in terms of GDP, per capita income and importance in global consumption, in a period of fifty years.

Another Goldman Sachs report, dated 2005 (O'Neill et al., 2005), stressed the diversity among the BRICs and highlighted this as an important source of their growth potential as a group. The flip side of this otherwise welcome diversity may be the fact that each country is moving towards economic development at different speeds. Among them, Brazil displays the lowest growth rates over the past few years.

Is Brazil a BRIC only because of its size and its market potential or is it an increasingly complex economic machine? Is Brazil a true BRIC facing circumstantial problems or structurally a slow BRIC that will eventually lose ground and distance itself from the other BRICs? Why? These are the issues addressed in this article. It analyses the economic and structural features of Brazil's recent development in search for explanations for why Brazil is the laggard in the BRIC block. Section 2 presents a BRIC based comparative overview of key economic indicators. Section 3 analyses further in detail Brazil's performance and searches for the determinants of recent performance. Section 4 is dedicated to the analysis of two sources of growth: exports and foreign direct investment. Section 5 summarizes main findings and explores policy implications.

Three basic assumptions are made here. The first is that entrepreneurship, a relevant driving force for growth by means of new investment, requires a reasonable degree of certainty in relation to the macroeconomic environment in order to flourish. The second is that in large developing countries, such as in the BRIC group, the strength of the local market is a source of advantage for companies; local market is the sowing ground for capital accumulation and growth (eventually) beyond national frontiers. That strength is determined by social development, income levels and income distribution. The third is that economies that progressively advance towards sectors where elasticity of demand and the potential for productivity growth are higher do better. Particular attention is given to the latter. As the knowledge-based component of industrial competitiveness is intensified, countries must respond to the fact that comparative advantages based on cheap labour and natural resources is insufficient to ensure sustained competitiveness. (Amsden, 2001)

2. A COMPARATIVE PERSPECTIVE

This section presents a comparative overview of key economic indicators for the four BRICs countries, grouped under the following categories: (i) growth rates and patterns; (ii) income distribution and consumption patterns; (iii) the aggregate structure of these economies; (iv) labor productivity growth; and (v) education and science and

technology capabilities.

2.1. Growth and income distribution

As a group, BRICs economies have exhibited high growth rates in the last decades. According to the IMF “World Economic Outlook”, together, these countries showed an annual average (real) GDP growth rate of 6.9%, between 1987 and 1996, and, between 1997 and 2006³, of 6%. The strength of the BRICs group is evident in contrast with Asian newly industrialized economies (NIEs): in the 1987-1996 period, Asian NIEs presented a real GDP growth rate of 7.9% per year, but only 4.2% for 1997-2006. The long term outlook also seems positive when compared to other groups of countries. Goldman Sachs projections to 2050 anticipate that the size of the BRICs economies will be comparable to the G7 nations by 2040, and that the ranking in 2050 will be (1) China, (2) US, (3) India, (4) Japan, (5) Brazil, (6) Mexico and (7) Russia.

There are, however, significant disparities among BRICs. Between 1990 and 2004, Brazil average per capita GDP growth rate was 2.0%, below India (5.7%) and China (8.5%), but better than Russia (-0.9%). Besides, as shown in Table 2.1, Brazil growth has been very volatile since 1990, while Russia in the past few years has shown a strong growth trend.

Table 2.1 – Growth rates of real per capita GDP, 1990-2004

Period	Brazil	China	India	Russia
1990	-4.3	2.7	5.7	...
1991	1.3	10.6	0.4	-5
1992	-0.5	14.3	5.4	-14.5
1993	4.9	13.5	5	-8.7
1994	5.9	12.8	7.5	-12.7
1995	4.2	10.5	7.6	-4.1
1996	2.7	9.6	7.4	-3.6
1997	3.3	8.8	4.5	1.4
1998	0.1	7.8	6	-5.3
1999	0.8	7.1	7.1	6.4
2000	4.3	8	3.9	10
2001	1.3	7.5	5.2	5.1
2002	1.9	8.3	4.6	4.7
2003	-0.2	9.3	8.2	7.3
2004	4	9.5	6.4	7.3
Average 1995-1999	2,2	8,8	6,5	-1,0

³ Estimates.

Average 1990-2004	1,5	10,8	4,8	-10,2
Average 2000-2004	2,3	8,5	5,7	6,9
Average 1990-2004	2,0	9,4	5,7	-0,9

Source: World Economic Outlook Database

Table 2.2 contains GDP estimates for 2005. Measured in current US dollars, Brazil, Russia and India's GDP is roughly a third of China's. Under PPP, India's GDP is more than twice that of Brazil or Russia, and China's is 2.3 times that of India.

Table 2.2 – BRICs GDP indicators in 2005

	Brazil	Russia	India	China
GDP current 2005 (billion) US\$	794	764	786	2,229
GDP 2005 (billion) PPP	1,543	1,532	3,787	8,608

Source: IMF, "World Economic Outlook Database"

In terms of levels of per capita income, as shown in table 2.3, Brazil is above China and India in absolute terms, but way below in terms of growth rates.

Table 2.3 - Real GDP per capita – US\$

	1980	2004	% year
Brazil	6.380	7.801	0.84%
China	1.069	5.150	6.77%
India	1.159	3.097	4.18%

Source: FMI-IFS

However, as shown in table 2.4, income inequality is highest in Brazil. This is reflected in the fact that over 62% of consumption is concentrated in the richest 20% elite, also significantly higher than for any of the other BRICs. In terms of the percentage of the population living below one dollar a day, Brazil does significantly better than China and India, although when national poverty lines are considered, with 22% of the population below that level, it only does better than India.

Table 2.4 - Income distribution and consumption capacity

	GINI	% of consumption in the highest 20% of income	% population below \$1 a day	% population below the national poverty line
Brazil	58.0 (2003)	62.1	7.5 (2003)	22 (1998)
China	44.7 (2001)	50.0	16.6 (2001)	4.6 (1998)
India	32.5 (1999-2000)	43.3	34.7 (1999-2000)	28.6 (1999-2000)
Russia	39.9 (2002)	46.6	<2 (2002)	N.A.

Source: World Development Indicators (World Bank)

Apart from the intrinsically (negative) importance of these numbers from a humanitarian point of view, they indicate an economic limitation to capital accumulation and growth based on local markets, especially mass consumption markets.

2.2. Economic structure, performance and capabilities

Estimates by the United Nations Statistics Division on the evolution of the composition of GDP of each of the BRICs from 1985 to 2003 (1995 for Russia) show that whereas for Brazil, Russia and India the Services sector dominates, for China it is the Mining, Manufacturing and Utilities group, although Services have grown significantly relative to Agriculture, Hunting, Forestry and Fishing. China and India contrast with Russia and Brazil in that the Mining, Manufacturing and Utilities group has grown in the former, and fallen in the latter. If China, India and Brazil are compared, Brazil is the only one among the three where services have fallen relative to the other two sectors.

According to the World Development Indicators of the World Bank, shown in Table 2.5, not much has changed in any of the BRICs in terms of the composition of GDP over the 2000-2005 period⁴. Considering the categories of agriculture, industry and services, in Brazil, India and Russia services predominate, and in China it is industry.

Table 2.5 – Estimates of composition of GDP (%), 2000-2005

Brazil						
	2000	2001	2002	2003	2004	2005
Agriculture	7	8	9	10	10	10
Industry	28	38	38	40	40	38
Services	65	54	53	50	50	52
China						
	2000	2001	2002	2003	2004	2005
Agriculture	15	14	13	13	13	..
Industry	46	45	45	46	46	..
Services	39	41	42	41	41	..
India						
	2000	2001	2002	2003	2004	2005
Agriculture	24	23	21	21	20	19
Industry	26	26	27	26	27	28
Services	50	51	53	53	53	54
Russia						
	2000	2001	2002	2003	2004	2005
Agriculture	6	7	6	5	5	6
Industry	38	36	35	34	36	38
Services	56	58	60	60	59	56

Source: World Development Indicators database (World Bank).

These aggregate figures say little, however, of the sophistication of the productive structures of these countries. For that, the share of high technology sectors in production and exports – both in industry and services – may be considered to be more relevant.

⁴ The last available number for China refers to 2004.

Between 2000 and 2004 exports increased as a percentage of GDP in all countries, except for Russia (see Table 2.6). When considering the structure of these exports, China stands out: its manufacturing sector accounts for 91% of total exports in 2004, contrasting to 73% in India, 54% in Brazil, and 21% in Russia. Relative to others, Brazil is particularly specialized in food and agriculture while Russia concentrates exports in oil and gas. More importantly though, between 2000 and 2004 China's manufacturing exports evolved towards high technology products. Meanwhile, exports from Brazil and India took up increasing shares of GDP but exhibited a decreasing performance in terms of technology intensity.

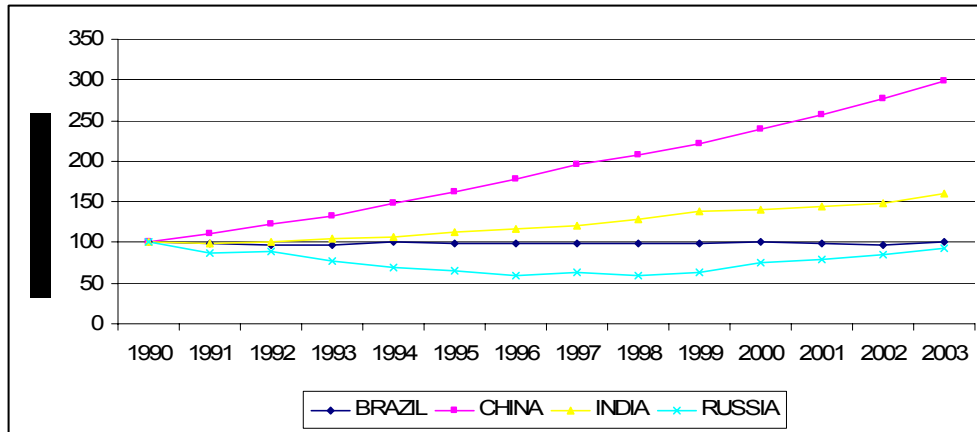
Table 2.6 – Structure of BRIC exports (%), 2000, 2004

	High-technology exports (% of manufactured exports)		Exports of goods and services (% of GDP)	
	2000	2004	2000	2004
Brazil	18.6	11.6	23.0	34.0
Russia	13.5	9.1	44.1	34.4
India	5.0	4.9	13.2	19.0
China	18.6	29.8	23.3	34.0
Structure of exports in 2004				
	Brazil	Russia	China	India
Food & agriculture materials	32.0	4.0	5.0	11.0
Fuels	5.0	50.0	2.0	9.0
Ores & metals	8.0	8.0	2.0	7.0
Manufactures	54.0	21.0	91.0	73.0
Others	1.0	17.0	-	-

Source: World Bank, Country Data Profiles

Figure 2.1 shows an index of labor productivity for the BRICs countries, measured in terms of real GDP (in US\$) per worker since 1990. The data used was extracted from the Penn World Tables. Despite the well known problems of using labor productivity as a reliable measure of productivity, it is possible to extract some stylized facts on the comparative performance of the four countries. China increased its productivity in almost 300% between 1990 and 2003, with an average annual growth rate of 8.1%. India has the second best productivity performance. Its labor productivity rose 59% in the 1990-2003 period, with an average growth rate of 3.4% per year. On the other hand, the performance of Brazil and Russia in this regard has been sobering. During the same period, Brazil showed a slow pace of labor productivity growth while Russia's productivity actually decreased, with – 6.9% accumulated growth between 1990 and 2003. It is important to keep in mind, however, that this last result is obviously affected by the choice of the base year and the structural transformations that were then taking place in Russia.

Figure 2.1 – GDP per worker among BRICS; index 1990=100



Source: Penn World Tables, Center for International Comparisons at the University of Pennsylvania

According to estimates by Barro and Lee (2000) on educational attainment, in 2000 Russia had the highest educational standards among the BRICs, with 10.49 average years of schooling in 2000 and 17.4% of completed post secondary education in the population aged 25 or more for that same year. Russia's figures on school attendance were high even when compared with developed countries such as the United States, Germany and Japan. On the other hand, other BRICs countries, especially India, had large shares of the population with no schooling or only incomplete primary schooling. Average years of school for the population aged 25 and over, in 2000 was 4.56 years in Brazil, 5.74 in China, and 4.77 in India.

More recent numbers, from the World Development Indicators database, indicate India with a 61% literacy rate in 2004 (% of people aged 15 years or more). The percentages for Brazil, China and Russia are 89, 91 and 99%, respectively. Table 2.7 shows gross enrollment rates in primary, secondary and tertiary education. Numbers of over 100% indicate the enrollment of people at the respective level that are not accordingly aged, suggesting high numbers of adults or older children catching up in primary and secondary schooling, especially in Brazil.

Table 2.7 - School enrollment (% gross)

Primary	2000	2001	2002	2003	2004
Brazil	151	148	145	141	..
China	..	118	116	115	118
India	99	98	99	107	116
Russia	..	107	112	118	123
Secondary	2000	2001	2002	2003	2004
Brazil	104	107	110	102	..
China	63	65	67	70	73
India	48	48	50	52	54
Russia	..	..	93	93	93

Tertiary	2000	2001	2002	2003	2004
Brazil	16	18	20	22	..
China	8	10	13	15	19
India	10	10	11	11	12
Russia	..	..	..	65	68

Source: World Development Indicators database

Data on the composition of university graduates are available for Russia and Brazil. Whereas in 2003, the percentage of Brazilian graduates in science, engineering, manufacturing and construction was of 12.55%, in Russia, in 2004, that number was of 25.56%.

In terms of R&D indicators, Russia and China stand out relatively to Brazil and India. Russia is by far the BRIC with the highest relative number of researchers. Brazil does well in terms of ICT expenditure as a percentage of GDP and internet users, and is second to Russia but very significantly superior to China and India in terms of computer access. India does poorly in all of these criteria compared to the other BRICs, except ICT expenditure relative to Russia (table 2.8).

Table 2.8 – Science and Technology indicators for BRIC

	Brazil	Russia	India	China
R&D expenditure as % GDP, most recent number available between 1996 and 2004	0.98	1.28	0.85	1.31
Researchers in R&D (per million people), most recent number available between 1996 and 2004	344	3319	119	663
Information & communications technology expenditure, 2004, % of GDP	6.3	3.3	3.8	4.4
Personal computers, 2004 (per 1,000)	105	132	12	41
Internet users, 2004 (per 1,000)	120	111	32	73

Source: World Bank, World Development Indicators

Summing up, relatively to other BRICs, Brazil has better indicators for poverty levels and in the absolute value of per capita income, in access to computers and internet. Brazil is doing relatively worse, however, in terms of income distribution, evolution of labor productivity, education, R&D expenditures and relative number of researchers, and of the ultimate indicators, economic growth and growth of per capita income. Brazil's economy is structurally similar to other BRICs although its exports are bent towards agriculture and other natural resource-based products. This picture already suggest some of the structural impediments to sustained growth: an unequal and low capabilities based society with prevalent economic activities intrinsically less dynamic relatively top advanced economies and even other BRIC. The next section will focus on the analysis of the Brazilian economy, in search of determinants of these structural conditions.

3. THE DETERMINANTS OF GROWTH

This section examines three aspects of the Brazilian economy that may help to understand its recent evolution: the macroeconomic context, investment trends and the

characteristics of its industrial structure.

3.1. A long search for the short term macroeconomic stability

A common thesis among economic development experts linked to the "growth accounting" school is that emerging countries tend to have higher growth rates than developed countries, enabling catching-up processes to take place, for three reasons. The first is that the accumulated capital stock in emerging countries is small and therefore room for further growth exists. Moreover, returns on investments tend to be higher, leading to higher capital stock growth rates. The second reason has to do with demography. Potential absorption-capacity of the working population in productive activities makes it possible for the rate of growth of employment to keep up with the pace of economic growth. The third reason relates to the existence of positive effects of the international diffusion of technological process, which allows laggard countries to benefit from innovation generated elsewhere thus reducing the productivity gap that separates them from developed countries.

The inclusion of Brazil in the BRICs group was justified by the authors of the Goldman Sachs 2003 report not so much for the recent performance of the Brazilian economy – the average real GDP growth rate in the ten previous years had been just above 2% -, but by the structural characteristics that had historically marked the country as a potentially high growth economy. By that time there was an open optimism in regard to the perspectives of future evolution of the Brazilian economy. This optimism was based first on the success of the macroeconomic stabilization policy, through which inflation was finally brought under control, with the Real Plan in 1994, after 15 years of high and volatile inflation. Secondly, the country had managed to escape the trap of using fixed exchange rates as a price anchor, and had moved on to a floating exchange rate regime in early 1999, with no major traumas for the national economy. Thirdly, the positive expectations reflected the tranquility under which the feared political transition took place between (what was considered to be) the liberal and outward-oriented administration of President Fernando Henrique Cardoso to (what was feared to be) a new socialist-oriented one commanded by President Lula. In practice, a macroeconomic policy aimed primarily at price stabilization was kept by President Lula with much zeal.

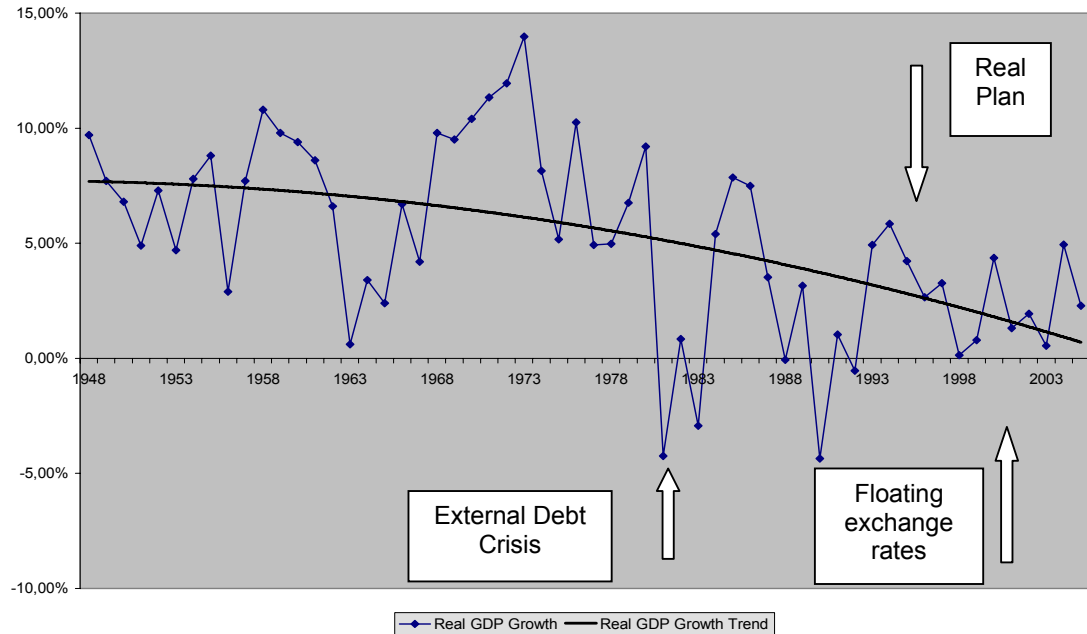
However, once the natural accommodation period had elapsed, the new administration did not manage to change the economic policy agenda and induce or favour development to the Brazilian economy, which found itself entangled in a web of restrictions to growth that has proved to be difficult to overcome.

The new administration was facing not only short term constraints or suffering from the legacy of its predecessor. In reality, both administrations failed to recognize and address the structural difficulties the Brazilian economy was suffering since the debt crisis, which was translated into a chronic pre-disposition to low growth. One of the reasons was related to the macroeconomic disorganization that followed the wearing out of the industrialization model based on import substitution. The successive inflationary outbreaks, which were increasingly difficult to control, were evidence of the fiscal disequilibrium caused by high levels of internal and external indebtedness of the public sector. The need to maintain an undervalued real exchange rate in order to boost the trade balance and high interest rates to secure the balance of payments through the

attraction of foreign capital, combined to form an ineffective equation that became increasingly difficult solve and turn it into sustained growth.

As Figure 3.1 shows, neither the control of inflation with the 1994 Real Plan nor the gradual improvement in macroeconomic stability due to the adoption of floating exchange rates and fiscal targets were enough, at least until now, to revert the trend towards volatile and low GDP growth rates, initiated after the debt crisis.

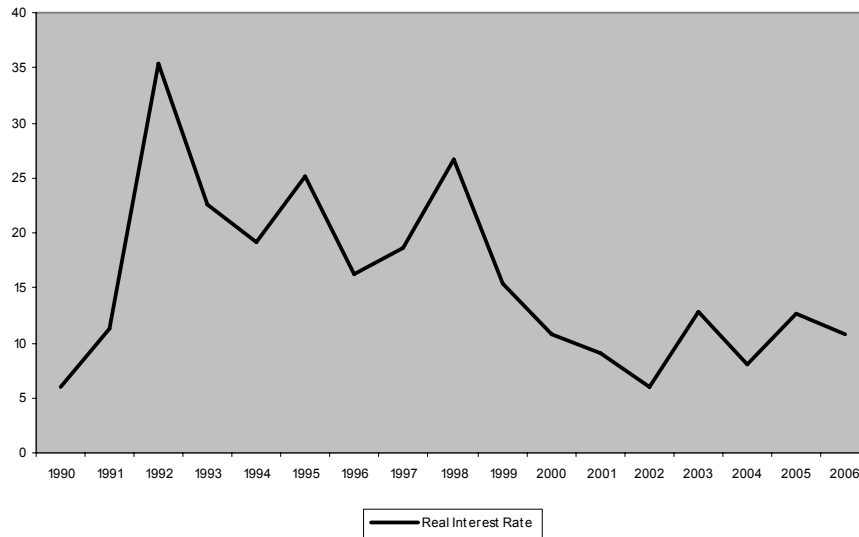
Figure 3.1- Real GDP annual growth and trend of the Brazilian Economy: 1948 to 2005



Source: IPEADATA and IBGE

The central axis of macroeconomic management in Brazil after 1999 is a regime of inflation targets that is focused on the “basic interest rate”, determined by the Central Bank, as its core adjustment variable. Faced with the numerous shocks in supply and demand that took place since the Real Plan, the reaction of the Central Bank has always been of raising the exchange rate. As a result, despite the important improvements in the foundations of the economy, for over 10 years Brazil has been among the countries with the highest interest rates in the world. Figure 3.2 shows the evolution of real interest rates in Brazil since 1990.

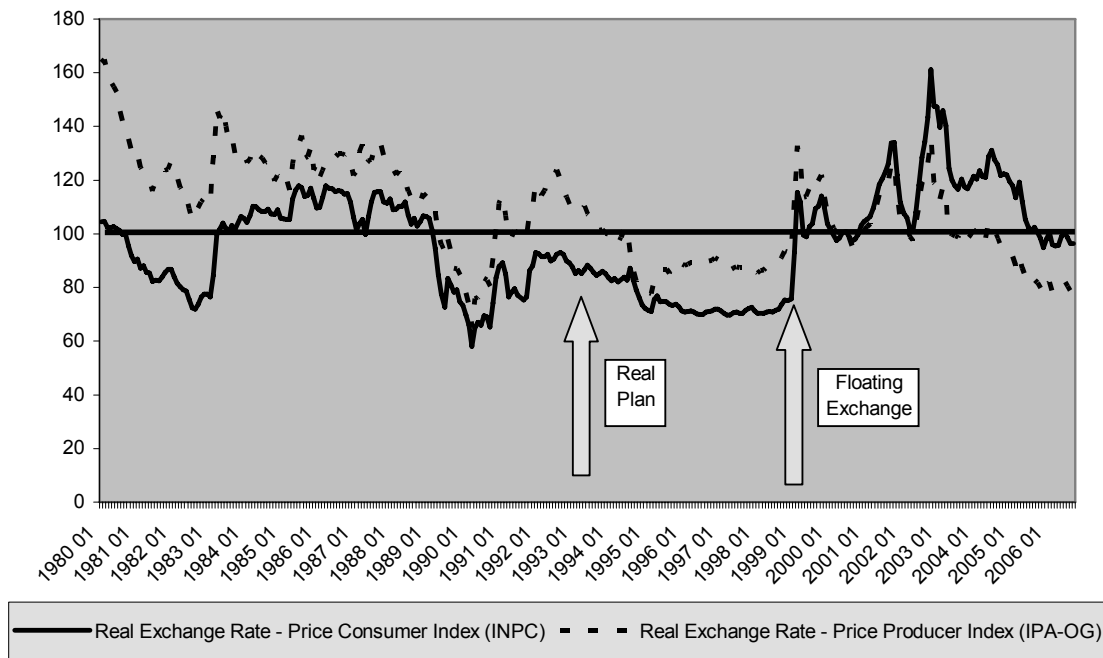
Figure 3.2 - Evolution of the real exchange rate in Brazil, 1990-2006* (%)



Source: BCB and IBGE, elaborated by MB Associados; * Projection

One of the negative side-effects of keeping such high interest rate levels is the pressure on the exchange rate by the entry of foreign capital. As Figure 3.3 shows, the Brazilian Real underwent a strong appreciation over the last three years. The real effective exchange rate of Brazil's industrial exports (in reference to the currencies of trade partners), when deflated by the wholesale price index, is below the level registered in 1998, that is, before the adoption of floating exchange rates. The appreciation of the Real is even greater when the comparison is made only with emerging countries that are Brazil's greatest competitors on world markets, and greater still in reference to the emerging Asian economies.

Figure 3.3 - Real exchange rate. Average 2000 =100



Source: IPEADATA and FUNCEX

For the past 25 years, Brazil has not enjoyed any significant period without macroeconomic crises. Policies focused on short term price and balance of payments stability through a very conservative approach in which economic growth was not a matter of concern or priority. With the benefit of hindsight, it can be said that a quarter of a century is a sufficient length of time to deeply affect the willingness and introduce a very low, or even a negative attitude in investors to commit capital to new production capacity. This is the subject matter of the next section

3.2. Investment trends

A longstanding, excessive emphasis on short term stabilization policies overshadowed long term structural policies. Economic policy has been limited to instituting compensatory mechanisms that try to reduce, a posteriori, inequalities created or exacerbated by policy itself. The shortsightedness of economic policy is also derived from the absence of accurate diagnostics on the real possibilities of a broader vision of development, especially of industry.

Industrial development is a process of transformation on two simultaneous fronts. One is the inter-industrial sphere: economic development is expected to bring about changes in the sectoral composition of production and labor, towards more technology intensive industries, leading to more dynamic markets and resulting in higher wealth and income. The second refers to the intra-industrial sphere, that is, changes in the organization of production and in the technological capacity of firms. The basic elements of corporate modernization that usually characterize the sectoral development of production are included in the latter.

Fernand Braudel refers to the idea that development is a relay race where the baton is a cluster of key technologies and institutions that follow each other throughout historical cycles. Under this perspective, promoting economic development implies mobilizing the necessary productive and institutional resources to put in motion structural change towards the key relevant technologies in each era.

Under this line of reasoning, the cluster of innovations corresponding to the end of the twentieth century and the beginning of the twenty-first is related to the introduction and rapid diffusion of information and communications technologies, among other general purpose technologies. The common trait of these technologies is that they involve, simultaneously, changes in both the inter-industrial (creation of new productive activities related to hardware, software, new materials, etc.) and intra-industrial (learning and accumulation of competencies in companies for the incorporation of new products and production processes) spheres. A partial or complete lack of change implies the incapacity of firms to redefine their competitive positions and rigidity in the industrial structure.

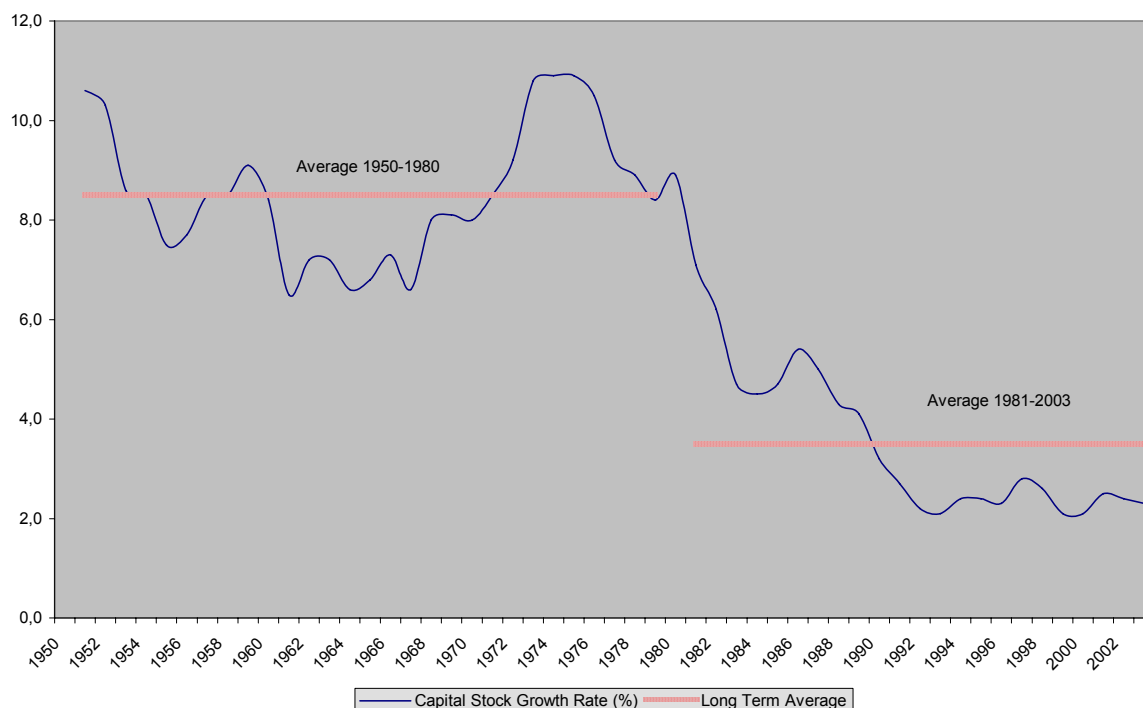
In economies following progressive, evolutionary pathways, it is expected that innovations introduced by a leading firms or a group of leaders will be rapidly replicated by followers. The latter, by pro-actively spurring the imitation process, ensure the diffusion of new technologies within a relatively short span of time. Incentives are then in place to fuel dynamics to the productive structure. However, a different pathway may prevail, if the diffusion of innovations occurs slowly along different economic activities. In this case, followers engage in the absorption of modernizing innovations with delay. If diffusion is partial, a third category of firms exist: those that are not even able to develop capacity to adopt new technologies, and are therefore kept away from a modernization drive. As a result, innovation processes are even longer, and stunts economic development. This is the essence of the “truncated” development path in the work of Fernando Fajnzylber, ECLAC economist and author of “La Industrialización Trunca de América Latina” (1984). In this book, the author explores the negative consequences to development derived from the incapacity of local sectors of high technological intensity (at the time, mechanical capital goods) to constitute the dynamic pole of Latin American economies. This is the result both of the low relative weight these sectors occupy in the productive structure and of the difficulties in ensuring an adequate flow of innovation to industry.

More than twenty years after Fajnzylber’s proposition, its essence can be captured in the low investment levels of Brazil relatively to other regions and countries, mostly located in Asia. Since the beginning of the 1980s, while gross fixed capital formation in Asian emerging economies has been of the order of 30% of GDP, in Brazil it has rarely even reached the 20% threshold. Only in the 1995-1997 triennium and, more recently, in 2004, did the investment rate show a more encouraging behavior. These were, accordingly, years of positive behavior of the internal demand; in the first period due to the income-effect of the stabilization of inflation and the return of foreign credit and, in 2004, due to the recovery of wage levels and the improvement of credit instruments, especially consumer loans. According to Central Bank numbers, between 2000 and 2006, credit ratio to GDP increased from 27% to 32%.

Figure 3.4 shows clearly the brutal contraction of investment capacity in the Brazilian economy after the balance of payments crisis of 1982, when the primacy of

conservative policies based on monetary restriction began. Particularly in infrastructure-related industries, accumulated investment gaps negatively affect the efficiency of the Brazilian economy and its propensity to grow. An estimate of this investment gap in infrastructure industries is displayed in Table 3.1.

Figure 3.4 - Capital Stock Growth Rate, 1951-2003 (%)



Source: Morandi, L. & E. J. Reis. "Estoque de capital fixo no Brasil - 1950-2002". XXXII Encontro Nacional de Economia, 2004, at <http://www.anpec.org.br/encontro2004/artigos/A04A042.pdf>

Table 3.1- Estimate of actual and necessary investments, by infrastructure segment, in 2005, US\$ Billions

	Actual (A)	Necessary (B) *	Share (A/B - %)
Oil and gas	6.8	8.9	76.4
Electricity	3.6	7.4	48.6
Transportation logistics	1.8	3.9	46.2
Telecommunications	1.5	2.7	55.6
Sanitation	1.1	3.8	28.9
Total	14.8	26.7	55.4

Source: ABDIB, 2006, *Agenda da Infra-estrutura: 2007 - 2010*, at www.abdib.org.br/documentos_downloads.cfm.

* According to ABDIB estimates.

In short, the low growth trap is reflected in the slow rhythm of capital investment. The combination of high interest rates and an appreciated exchange rate compromises

the future expansion capacity of the economy, freezing potential production and making any alternative pathway increasingly difficult without inflationary outbursts. The toll taken on industrial development of so many years of low investment rates has been enormous, since structural change occurs with new factories and innovation. The hostile macroeconomic environment that subsists in Brazil is translated, in practice, into a competitive regime that punishes technology intensive sectors and firms engaged in product differentiation, where the strategic competitive driver is the investment in R&D.

3.3. The evolution of the industrial structure

Corporations are part of an economic system that favors or restricts the realization of their competitive potential. In markets that are not dynamic, or that are not among the most dynamic, companies with greater survival capacity expand through the acquisition of those of worse performance, taking up their market shares without expanding productive capacity or renewing plants. Companies operating in stagnated markets do not have demand led incentives to change, thus introducing localized innovations, substituting obsolete equipment or introducing new processes only in the most critical stages of production, to the extent needed to keep competitors at bay. Especially in capital-intensive industries, technological updating often demands large blocks of investment that are rendered impossible from a pay-off perspective in the absence of favorable perspectives on the growth of sales. As a result, productivity stagnates or grows very slowly. If, in a given economy, a large proportion of wealth is derived from firms operating under these conditions, perspectives of economic growth are dim.

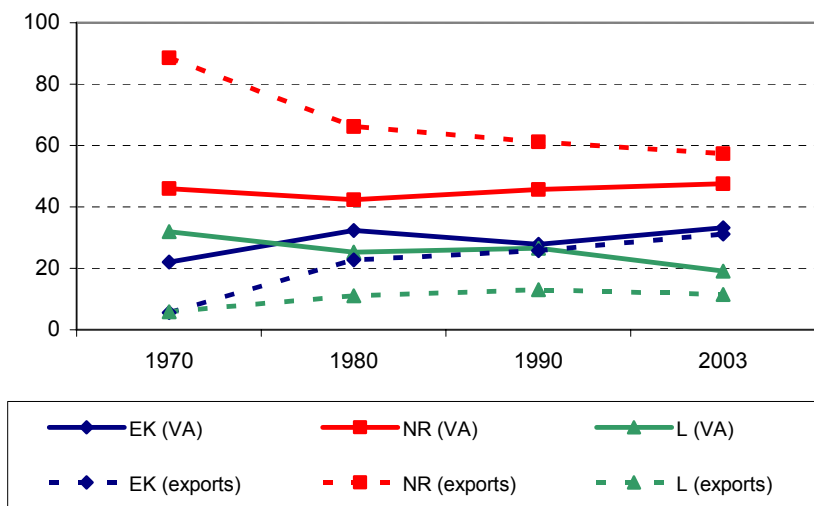
On the other hand, dynamic markets stimulate companies to continuously search for competitiveness, through gains in economies of scale and scope. The constant renewal of product lines, the introduction of up-to-date technology incorporated in capital goods, as well as the opening up of new plants is relevant features of expanding markets. Positive growth perspectives under these conditions are definitely in place.

In Brazil, as a consequence long term uncertainty, companies searched for flexibility along three lines: financial flexibility (most visible in the early 1980s), involving reduction of indebtedness levels and the raising of non-operational income through financial investments, to the detriment of productive ones; market flexibility, through which firms sought to expand sales to the local or to foreign markets, depending on relative prices and, production flexibility, through which they could adapt production levels to fluctuating demand by means of outsourcing, rationalization and product upgrading. (Ferraz, Kupfer, Serrano, 1999) This adjustment process to long term uncertainty allowed those capable of doing so an extended survival capacity to a hostile environment but also an entrenched resistance to commit capital to fixed investment. To a great extent, firms capable of doing so were those of larger size and the process has not yet trickled down to smaller firms. As a result, intra-sectoral productivity gaps have increased throughout the years. (Kupfer and Rocha, 2005)⁵

⁵ The classical concept of structural heterogeneity, which can be traced back to ECLAC contributions in the 1950s, refers to the coexistence of modern, high productivity, industries with traditional sectors – especially agriculture – occupying obsolete techniques resulting in low productivity. In a more contemporaneous definition, heterogeneity refers to differences in productivity within the same sector, owing to the

While intrasectoral change does seem to have occurred, favoring firms already with competitive advantages, Figure 3.5 shows the evolution of value-added (VA) and exports between 1970 and 2003, in engineering/knowledge (EK), natural resources (NR) and labour (L) intensive manufacturing sectors⁶. The first conclusion to be drawn from these figures is that, in Brazil, structural change occurred with more intensity between 1970 and 1980, a period of high economic growth. Thereafter, changes were slow, with a decreasing importance of NR exports and increases in EK exports. In terms of value-added, between 1980 and 2003, there are marginal gains in the share of NR and EK sectors against losses for L ones.

Figure 3.5 – Brazilian industry structure, value added and exports



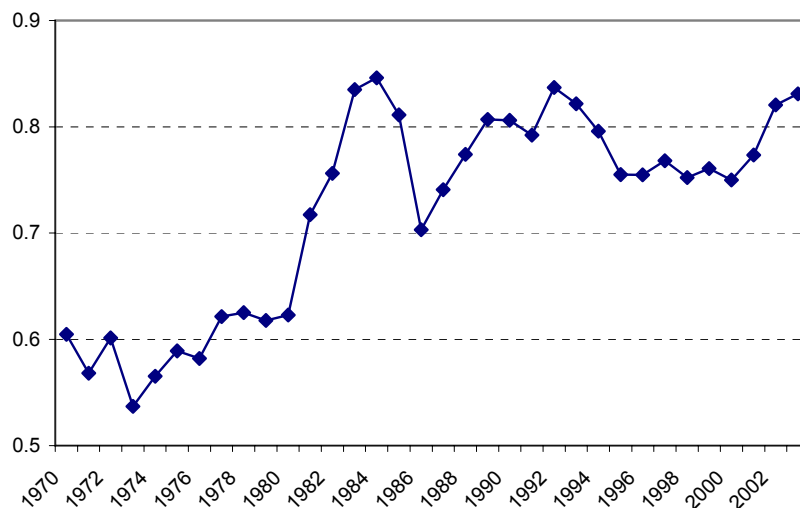
asymmetry between the extended large number of smaller local firms with scant modernization capacity and large firms operating at or close to the efficiency frontier (Kupfer and Rocha, 2005).

⁶ Sectors are classified following Katz-Stumpo (2001): **A) Sectors for which engineering and R&D efforts are relevant:** 381 - Manufacture of fabricated metal products, except machinery and equipment; 382 - Manufacture of machinery except electrical; 383 - Manufacture of electrical machinery apparatus, appliances and supplies; 384 - Manufacture of transport equipment; 385 - Manufacture of professional and scientific, and measuring and controlling equipment not elsewhere classified, and of photographic and optical goods; **B) Sectors where natural resources are the main input:** 311 - Food manufacturing; 313 - Beverage industries; 314 - Tobacco manufactures; 331 - Manufacture of wood and wood and cork products, except furniture; 341 - Manufacture of paper and paper products; 351 - Manufacture of industrial chemicals; 353 - Petroleum refineries; ; 354 - Manufacture of miscellaneous products of petroleum and coal; 355 - Manufacture of rubber products; 362 - Manufacture of glass and glass products; 369 - Manufacture of other non-metallic mineral products; 371 - Iron and steel basic industries; 372 - Non-ferrous metal basic industries; **C) Labour-intensive sectors:** 321 - Manufacture of textiles; 322 - Manufacture of wearing apparel, except footwear; 323 - Manufacture of leather and products of leather, leather substitutes and fur, except footwear and wearing apparel; 324 - Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear; 332 - Manufacture of furniture and fixtures, except primarily of metal; 342 - Printing, publishing and allied industries; 352 - Manufacture of other chemical products; 356 - Manufacture of plastic products not elsewhere classified; 361 - Manufacture of pottery, china and earthenware; 390 - Other Manufacturing Industries.

Source: ECLAC/DPPM/PADI

The correlation between EK exports over total exports and EK value added over total value added, considering 29 Brazilian manufacturing sectors for the period 1970/2003 is plotted in figure 3.6. In the 1970s, the Pearson correlation coefficient shows low values. It only stabilizes at a higher threshold after the debt crises and with the onset of trade liberalization. This reveals that the macroeconomic background and economic measures to cope with it often have strong effects on trade patterns that are not necessarily reflected in changes of the industrial structure. It is also interesting to note that over this period natural resources industries have the highest correlation coefficient (0.76), followed by EK sectors (0.71), then the labour intensive group (0.40).

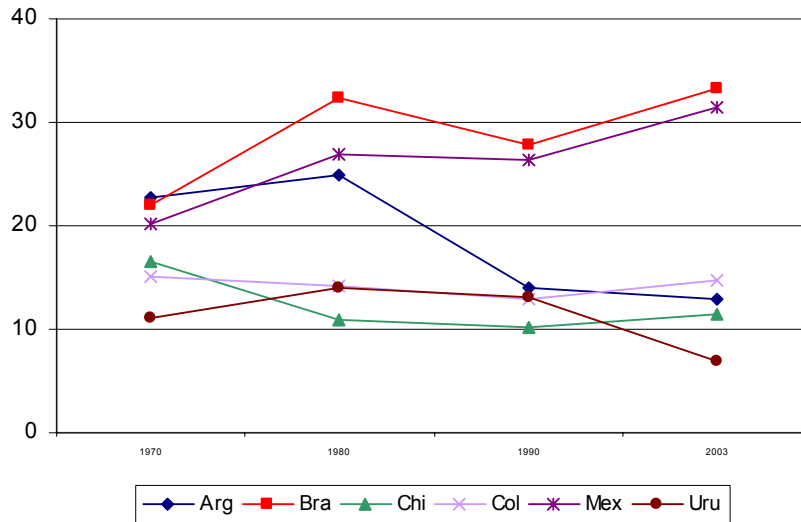
Figure 3.6 – Relations (Pearson Coefficient) between exports and VA in EK industries



Source: ECLAC/DPPM/PADI

Summing up, during the past quarter of a century Brazilian industry has not gone through relevant structural change, for better (towards high technology sectors) or for worse (towards deindustrialization); a slow and positive evolutionary trajectory is its main development feature. Nevertheless, when different comparative benchmarks are considered, the overall picture changes. As shown in figure 3.7, when compared to large Latin American economies, Brazil and Mexico are the only ones increasing the share of engineering intensive manufacturing sectors in total manufacturing VA, between 1970 and 2003. For Brazil, this share fell during the most turbulent years of the lost decade and increased during the years of slow economic growth rates, since 1990. Mexican specialization comes in the aftermath of the North American trade treaty and it is based principally on maquilas' activities.

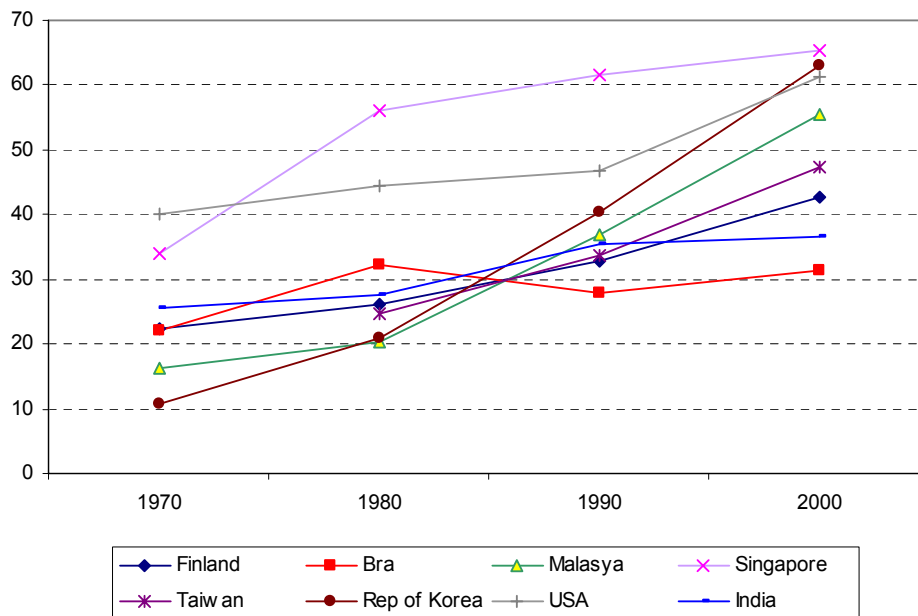
Figure 3.7 – Engineering/knowledge intensive sectors in total manufacturing value added, selected Latin American countries, 1970-2003



Source: ECLAC/DPPM/PADI

However, when compared to countries that have notoriously undergone transformations of their production structure towards catching-up with the technological frontier, as well as with India (no data are available for the other BRICs), Brazil's change is much more timid. Once again, the picture is clear: once the turbulent era began, the country began losing relative positions (Figure 3.8).

Figure 3.8 – EK VA in total manufacturing VA, selected countries, 1970-2000 (%)



Source: ECLAC/DPPM/PADI

Thus, contrary to what is occurring in high growth countries, in Brazil the economically relevant group of manufacturing activities is the natural resource based. They are less dynamic for the generation of income and employment and more sensitive to price and quantity cycles of international trade, relatively to engineering and knowledge intensive activities. In recent years, as commodity prices increased, terms of trade have evolved satisfactorily with positive impacts on foreign trade. Engineering intensive sectors are still slowly but steadily recuperating their relative importance in Brazilian manufacturing to levels observed prior to the debt crises.

4. TWO DRIVERS OF CHANGE: EXPORTS AND FDI

To a great extent, the slow pace of change in Brazil is the result of microeconomic reactions to complex and uncertain macroeconomic conditions and to economic policy that has been largely reactive and short-term oriented. Cause and effect, however, is almost impossible to disentangle. It is also true that its natural resource based industrial structure does not contribute to change in macroeconomic conditions. That is, while the country's industry is concentrated in less dynamic sectors, possibilities for diversification towards sectors of higher productivity growth potential and demand elasticity are lower. If that would be the case, wealth generation would be greater and growth would come easier which then, would contribute to a macroeconomic context of sustained growth. What is clear, however, is that be it from the macroeconomic front, be it from the structure of industry, it seems that very few mechanisms were in place in Brazil to lead it towards a consistent and fast trajectory towards industrial upgrading for the past 25 years and relatively to other successful emerging countries.

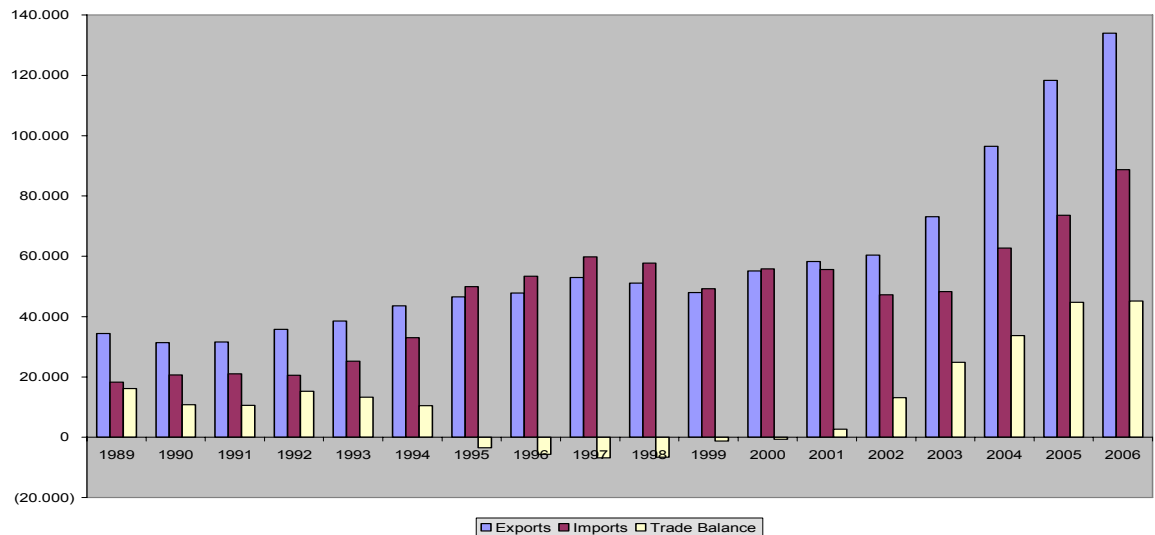
In 2003, Brazil was considered to be a member of the BRIC elite for its complex economic structure, for its past record of growth and for the nature of economic policies then in place. The picture presented so far indicate macroeconomic and structural impediments to growth, leading the country towards a slow process of change. The question to be posed at this stage is one that Albert Hirschman posed many years ago: whether there are hidden rationalities that would impel the country towards a different development trajectory. In this respect, two drivers of change deserve close attention: the export sector and the inward and the outward foreign direct investment (IFDI, OFDI). It was already shown that exports expanded rapidly in the past few years; could it be a source of expansion for the whole economy? Is inward FDI contributing to the modernization of the Brazilian economy? Under what patterns is outward FDI, representative of the spearhead of Brazilian capitalism, taking off? These are the subject matters of this section.

4.1 Export performance

Brazilian foreign trade performed relatively well in recent years. The total export value doubled over the last five years placing Brazil, for the first time, in the elite group of 25 countries exporting more than 120 billion dollars a year. Figure 4.1 shows the

evolution of Brazilian foreign trade from 1989 to 2006.

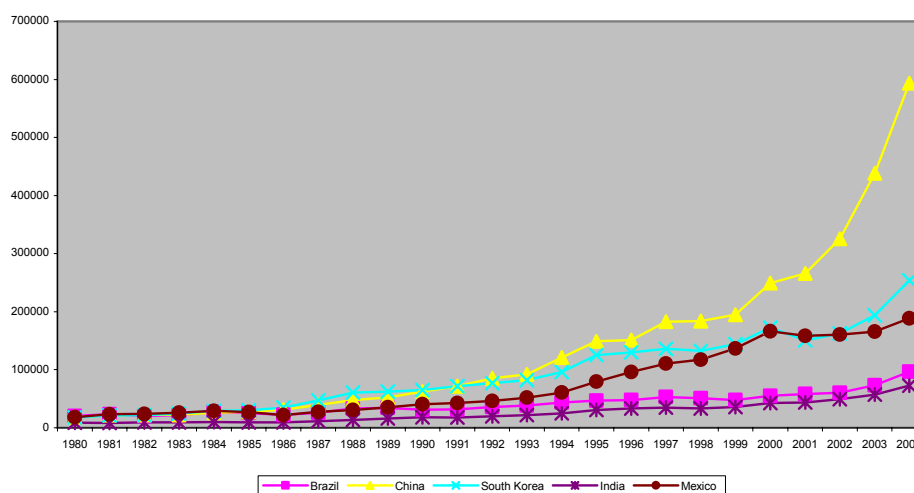
Figure 4.1 - Brazilian foreign trade, US\$ billions, 1989-2006*



Source: ALICE/SECEX/MDIC, * 2006: estimates, based on the period from January to September.

Exports expanded steadily after the 1999, the year of the introduction of a floating exchange. However, when other nations are considered, Brazil's performance is not as outstanding. In 1980, Brazilian exports were at 20.1 billion dollars. It was 15% greater than Korean exports and approximately 11% greater than the exports of Mexico or China, 56% greater than the exports of Thailand, 200% those of Malaysia, to quote just a few examples from the other countries in the group of 25 mentioned above. In 2004 however, Chinese exports were 6.2 times those of Brazil, Korean exports were 2.5 times greater, Mexico's were double, Malaysia's 1.4 times greater, and Thailand's equal to Brazil's exports. Figure 4.2 shows the evolution of Brazil's exports compared to those of other emerging countries in the last 25 years.

Figure 4.2 - Evolution of Brazilian exports and those of other emerging countries, 1980-2005, US\$ billions



Source: GIC-IE/UFRJ Database based on the OMC Statistics Database.

According to WTO Statistics Database, even with the excellent results obtained in recent years, Brazil's share in international trade flows reached 1.13% in 2005, after having peaked at 1.38% in 1984 and having reached its lowest point in thirty years at 0.84% in 1999. Between 1994 and 2002, the world market share of Brazilian exports fell from 0.75% to 0.65% in manufacturing and from 1% to 0.7% in mineral products. Only in agricultural products was there a significant improvement: from 2.6% to 3.1%. In short, despite growth in absolute values, exports of manufactures expanded at smaller rates than those of Brazil's competitors.

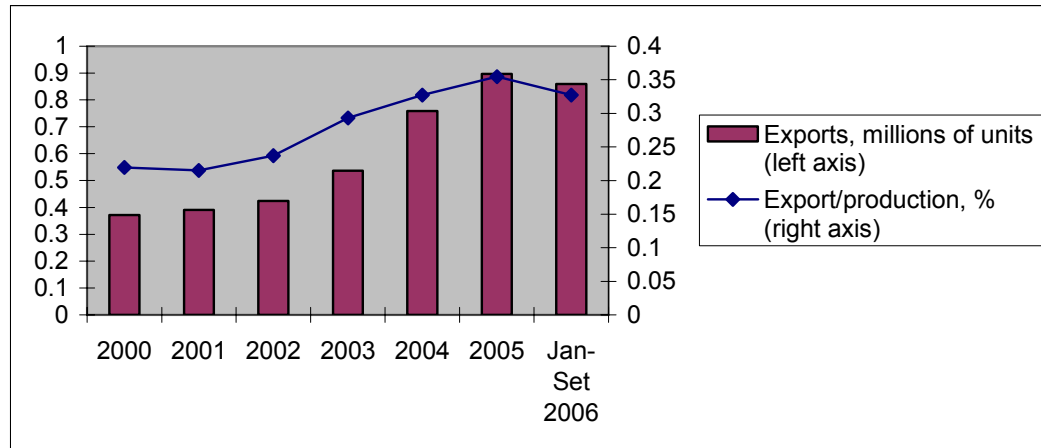
Export success during the first Lula administration was the combined result of three elements: firstly, expanding international economies in which commodity prices were steadily increasing; secondly, an initially competitive exchange rate, an advantage that was eroded in the last two years; finally, an aggressive export policy followed by the government. Of all determinants of Brazil's export performance, the appreciation of the exchange rate is the most worrisome. It has direct implications on the trade balance and, more important, it may represent a relevant disincentive for investments which would be necessary to ensure medium and long term competitiveness.

There are two mechanisms through which the exchange rate can affect exports: the level and the volatility of exchange rate.

The first, most immediate one, is commanded by the level of the exchange rate: the more appreciated the exchange rate, the lower the international competitiveness of "made in Brazil" products and the smaller the profitability of foreign sales. Despite its direct effect, this is not an instantaneous process, due to the hysteresis in place, that is, the delay between cause and effect that characterizes the relationship between exchange rate and trade flows. This is occurring in Brazil for the past 3 years. As exporters signed contracts at a competitive exchange rate, the Brazilian Real was slowly gaining ground against foreign currencies, as shown previously, in Figure 3.3. In short, long term agreements export contracts were signed on the basis of more favorable

expect. This is the case of the automobile industry, as shown in Figure 4.3. By 2005/2006 most export contracts signed two to three years before were being finalized and Brazilian subsidiaries were losing export contracts to other affiliates where exchange rate conditions made a competitive differential. Brazilian production which peaked to 2 million cars in 2006 is expected to maintain production rates in 2007 but exports will decrease.

Figure 4.3 - Automobile exports and exports as a % of production, 2001-2006* (percentages and units)



Source: Anfavea. * Projections for the year based on figures for January to September.

In regard to imports, a perception had been established among experts that industry would have promoted a rapid re-substitution of imports, as an adjustment to a strong devaluation occurring in 1999. However, something very different happened, with very important implications. From the beginning of trade liberalization and especially after the liberalization process that took place immediately after the implementation of the Real Plan in 1994, Brazilian industry developed a great flexibility to sourcing, that is, the capacity of trading local inputs for imports and vice-versa, commanded by relative prices determined by fluctuations of the exchange rate. In short, the long term performance of the Brazilian economy indicates that exports follow a continuous and smooth pathway, regardless of oscillations in the economy, while imports, on the other hand, have had an extremely irregular behavior, with spurts and contractions defined by the macroeconomic situation.

The second mechanism is the volatility of the exchange rate. This is a long term related mechanism because it affects not only production decisions but especially decisions on investment in productive capacity. A volatile exchange rate affects investment negatively through the creation of uncertainty not only on export prices but also on quantities, costs and the financial burden of debts taken to finance expansion.

What sets Brazil's exchange rate apart from that of other emerging countries is not so much its level but its enormous volatility. If volatile exchange rates really do have the power to withhold investment decisions, it may even be possible to maintain current export volumes but it may not be possible to undergo the necessary structural changes towards products of greater technological content, more dynamic in international trade

and with greater capacity of inducing development of the productive forces.

Besides the exchange rate, the composition of Brazilian trade also has had relation with its development trajectory. The dynamics of a country's exports in one sector can be decomposed into two connected effects: the competitiveness effect, that explains part of the variation in trade flows due to changes in the country's international trade in that sector; and the positioning effect (dynamism), that explains the share in the variations of trade flows that are due to the relative share of that sector in total international trade flows.

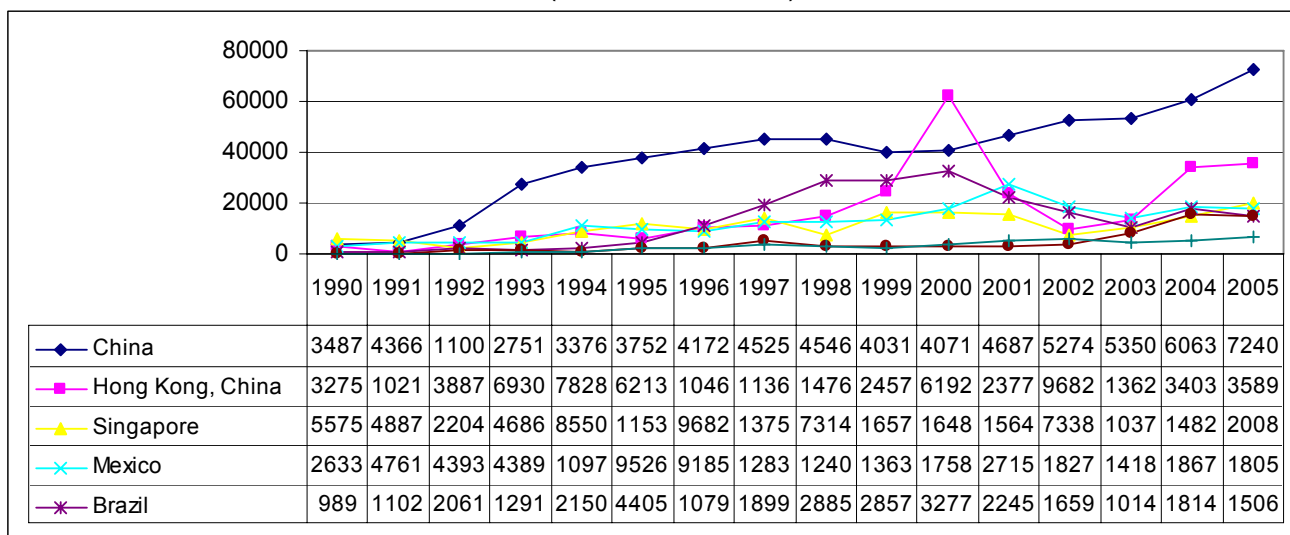
The main gap in Brazil's external insertion is related to the positioning effect which is usually associated to the introduction of new and technology intensive products. Among Brazil's most important export products only two are new, and economically relevant in the export mix: cellular phone terminals and oil and oil products. In the case of cellular phone equipment, exports began in 1999 at US\$ 270 million, reached US\$ 1 billion the following year and were at US\$ 2.5 billion by 2005. In the case of oil and oil products, the numbers are even more impressive: from approximately US\$ 400 million in 1999 to US\$ 2 billion in 2001 to US\$ 7 billion in 2005. It is noteworthy that both products fit into the group whose exports were propelled by the positioning effect. The remaining products of medium-high or high technology whose exports performed favorably during this period, such as airplanes, automobiles and motors, seem to represent results of the competitiveness effect.

4.2 Foreign direct investment into Brazil and by Brazilians

This section addresses the evolution and the logic behind the strategies and investment behaviour of the companies that form the spearhead of Brazilian capitalism: foreign firms operating in the country and Brazilian firms investing abroad. This analysis may provide important indicators as to if and how Brazil is diverging from the paths followed in recent history or showing signs of more positive trends for the road ahead.

Brazil has alternated with Mexico as the largest recipient of FDI in Latin America and the Caribbean over the last few years. In 2005, only China, Hong Kong (China), Singapore and Mexico received more FDI than Brazil among developing countries (see figure 4.4).

Figure 4.4 - FDI Inflows, Largest developing country recipients, 1990-2005, (millions of dollars)



Source: UNCTAD World Investment Report, 2006 (CD-Rom)

In terms of gross fixed capital formation (GFCF), IFDI was more important in Brazil than in other BRICs, between the end of the 1990s and the beginning of the 2000s, due to the privatization, especially of energy and telecommunications, then taking place. In 2005, FDI/GFCF was down from 28.5% in 2000, to 9.5%, a similar level to that of Russia and China but still significantly above the figure for India (3.5%).

The contribution of FDI to the development of certain sectors in Brazil is undeniably critical. Nonetheless, the historical division of labour in Brazil between foreign and local firms, which has not changed significantly in recent history, has non-trivial implications that are likely to be amplified as the importance of knowledge-based industries grows in the world economy.

While foreign firms dominate the more knowledge-intensive industries, often relying on the import of strategic components, local firms focus on natural resource-based or lower-technology industries. Why does this matter? Investments carried out in sectors such as durable goods could induce dynamic effects to a host economy, directly or indirectly, including changing and upgrading the nature of employment of a region. If these are foreign firms, conditions must be in place to allow for various spillovers: technology transfer, development of local suppliers, increasing of local capacity, etc. In practice multinationals typically invest little in R&D and knowledge outside their home countries (UNCTAD, 2005). Some countries have, with different degrees of success, negotiated the terms under which foreign companies enter their countries, notably making requirements regarding technology transfer, minimum local ownership and content requirements, among others.⁷ In the absence of effective policy instruments,

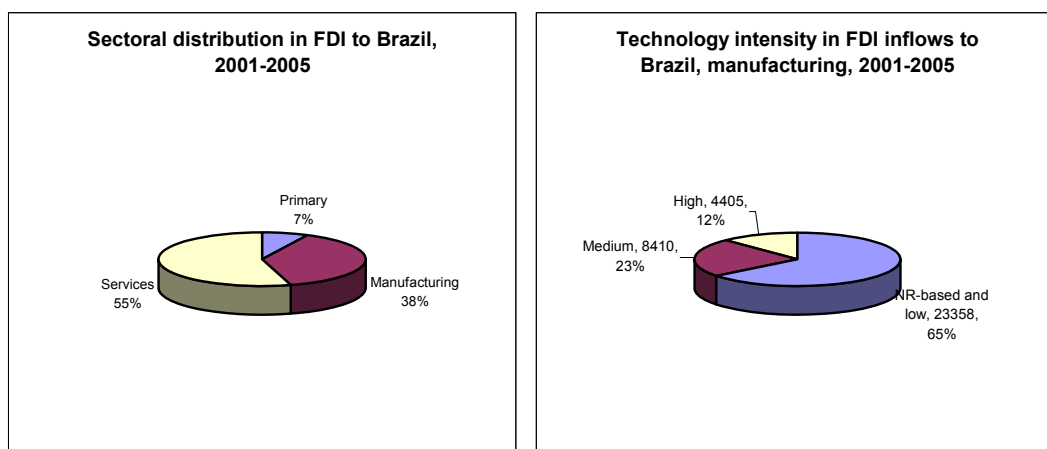
⁷ The term negotiated is used here rather than imposed because a transnational firm always has the option of not investing, and the extent to which it does depends on the assets the country has to offer (including the size of the market, natural resources, cost, technological capacity, etc.) that will determine its bargaining power.

perspectives on local capabilities based technological upgrading are limited.

The potential contributions by FDI to local development can be observed from two additional angles: motivations for investment and sectoral distribution. Motivations for investment refer to the benefits companies seek by investing in a certain destination: natural resources, markets, or assets that make production competitive in third markets. The sectoral distribution refers to how much investment goes to the primary sector versus knowledge intensive ones. A combination of these factors provides an indication of how local production fares by global standards. The more export-oriented investment in technology intensive industries, the better the perspectives for future competitive positioning are. That a country has or does not have, judging by the nature of the FDI it has attracted, “created” competitive assets beyond those resulting from abundance in “inherited” factors such as abundant labour and natural resources is a strong indicator of where it is headed in terms of global competitiveness in an increasingly knowledge intensive economy.

In Brazil, even after the peak of privatizations (late 1990s), from 2001 to 2005 55% of FDI went to service sector which is almost exclusively non-tradable; 7% went to the primary sector, and, in manufacturing, 65% to natural resource-based, or low technology manufactures (figure 4.5).⁸

Figure 4.5- Sectoral distribution of FDI to Brazil, 2001-2005, (%)



Source: Banco Central do Brasil

What this sectoral distribution suggests, and corporate histories confirm, is that much of the recent FDI received by Brazil has been attracted by the country's endowments, that is, the cost-advantage of natural resource-based manufacturing, and its market size and potential. Very little has gone into export-oriented production in knowledge based industries. Where this has been the case, it has been more of a reaction to slumps in internal demand rather than long term planned strategies.

The automobile and consumer electronics industries illustrate the case. The

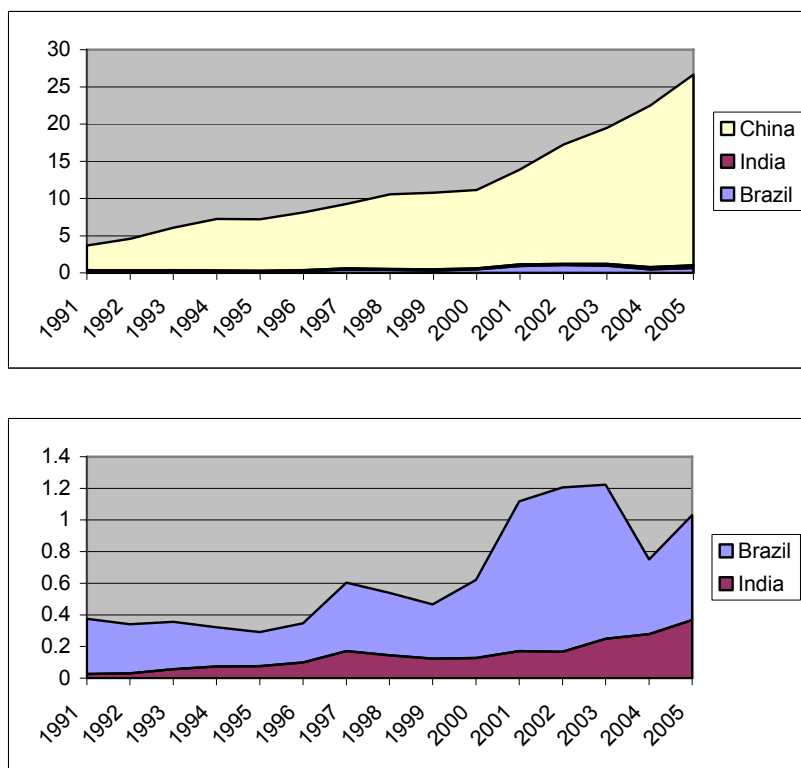
⁸ "Revised-Technology Groupings of Products Defined According to the Standard International Trade Classification (SITC-Rev 2) at 3-Digits"

market structure of durable industries is typically conformed by differentiated and concentrated oligopolies, with few firms, capable of exploiting economies of scale and scope, operating in global markets. In Brazil, firms invested mainly in search of markets. With the Real Plan, investments expanded in the electronics and automotive industries, by incumbents and new players, to meet rising demand. Trade liberalization brought in competition which imposed the need for investments allowing local production to meet global price and technical standards, at least to serve the Brazilian market.

In the automobile industry, in the 1990s a renewal of production took place and was responsible for a large share of total FDI in manufacturing. The main attraction had been the size and potential of the Brazilian market and the perspectives of an amplified, regional one (ECLAC, 2005). With the slump in local demand between 2001 and 2003 (when growth rates of GDP per capita were -0.2, 0.4 and -0.9, respectively (ECLAC, 2006a), producers turned to exports as a solution for their excess capacity. While several ventures were successful in placing Brazilian, and in some cases Brazilian-developed, products in world markets (as was the case for Chevrolet's Meriva, Ford's Ecosport and Volkswagen's Fox – see ECLAC, 2005), signs of a consolidation of this trend are scant. Recent exports have been affected by the appreciation of the currency (Figure 4.3) to an extent that auto producers are the outstanding example of "production flexibility" by shifting sales destinations to local or foreign markets depending on how relative prices behave. If that is so, none of the major manufacturers seem to have a solid strategy of considering Brazil a major global export platform. While there has been some relocation of global functions to Brazil, the country is still far from having constituted competitive assets that will draw further large-scale, globally oriented, manufacturing.

Consumer electronics presents a similar pattern. Significant investments were made in the mid 1990s based on market potential. Trade liberalization led to defensive and competitive restructuring of the industry; once learning took place, many companies started exporting in addition to selling to the local market. Again, however, exports were either aimed at the Latin American market or a matter of selling surplus left over from a volatile local demand. Figure 4.6 shows how, on one hand, Brazil's (and India's) shares in the United States electronics market has remained relatively stable (and low) compared to China's, and, on the other hand, how, despite higher than India's, it has been more volatile. In other words, although transnational firms are key actors in the local electronics industries, Brazil has not yet developed competitive assets that would make it a relevant platform in the global electronics industry.

Figure 4.6- Shares of US electronic imports by Brazil, China and India, 1990-2005, (%)



Source: MagicPlus. Electronics= chapter. 85: electrical machinery and equipment and parts)

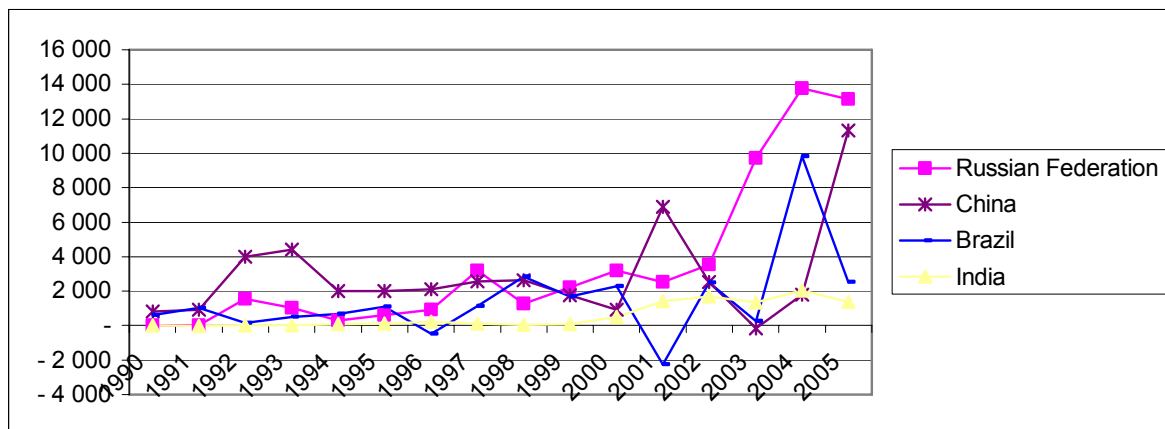
The lack of export-oriented FDI in knowledge-based industries is related to two issues. Firstly, that the country receives less investment (and therefore less jobs, income, and of course exports) than would be the case had it developed competitive assets beyond the natural resource base and low labour costs. Secondly, that it receives less investment in sectors with a higher potential of generating technological spillovers. Since Brazil is not, in general, at the front end of corporate strategies in knowledge intensive industries, while at the same time what there is in the country in these industries is controlled by foreign capital, seems to be generating (or to be contributing) to a vicious circle where the absence of capacities leads to further backlash. There is no indication of an endogenous way out if not by a sustained investment drive in local capabilities.

For much the same reasons that there is little FDI in Brazil that is not either natural resource- or market-seeking, many Brazilian firms that could be exporting from Brazil to reach foreign markets are setting up productive operations abroad.

As has been the case for other developing countries (UNCTAD, 2006), Brazil's outward FDI has risen significantly since the mid 1990s. Figure 4.7 shows the evolution of OFDI from the BRICs. In terms of the quantity of investment outflows, Brazil has fared substantially better than India, and not far from China. In 2006, for the first time in recent history outflows in value terms are expected to be very similar to inflows which are not

expected to fall. Why is this important in the appraisal of the direction of Brazil's competitive potential? On one hand, because internationalization ensures markets, produces rents, develops further managerial and economic spillovers on the home country, allows a company to grow to its potential and to reinvest in the domestic economy, among other benefits. Generally, that companies are investing abroad means they are actively seeking ways to expand their markets, reduce costs, ensure access to resources, etc., all of which improve their overall performance generating positive feedbacks to their home operations and the home economy.

Figure 4.7 – OFDI by Brazil, Russia, India, China, 1990-2005, (millions of dollars)



Source: UNCTAD World Investment Report, 2006 (CD-Rom)

An analysis of the sectoral distribution of OFDI can provide important indications as to what internationalization may mean for local development. Given the large share of Brazilian OFDI that is reported under financial activities or intra-company services, a list of largest Brazilian firms with significant investments abroad was composed (Table 4.1), to provide a clearer view of what activities these investments are directed to and the regions in which they have been undertaken.⁹

Table 4.1 - Large Brazilian firms with investments abroad: sectors and destination

Company	Industry	Total sales 2005 US\$ million	Geographic distribution of investments				
			Latin America	North America	United States	Asia & Pacific	Other
Natural resource based							
Petrobras	Oil and gas	58,360.8	X	X	X	x	x
CVRD	Mining	14,522.5	X	X	X	x	x
Gerdau	Steel	9,076.7	X	X	X		

⁹ Census data collected by the Central Bank in 2001-2004 only allows for the identification of the sectoral distribution of small percentage of total investment – between 7% and 13%. For them shares, main target industries are oil and gas, mining, construction, metals, plastics and rubber, and agriculture. A similar problem arises with the information on target countries, since a large share of investments is directed first at financial centers.

Usiminas	Steel	5,571.3	X				
Belgo-Mineira	Steel	4,596.1	x				
Votorantim Cimentos	Cement	2,021.5		X			
Klabin	Paper and pulp	1,156.2	X				
Camargo Correa Cimentos	Cement	446.6	x				
Mass consumption							
AmBev	Beverages	6,817.9	X	X			
Tigre	Construction material	ND	X				x
Services and infrastructure							
Norberto Odebrecht	Engineering and construction	2,723.9	X	X	X	x	x
TAM	Airlines	2,413.3	X				
Andrade Gutierrez Construção	Engineering & construction	622.0 ^b	x		x	x	x
Queiroz Galvão	Engineering & construction	ND	X				
Engineering and knowledge intensive							
Embraer	Airplanes	3,902.0		X	X	x	
Weg	Capital goods	1,074.4	X		X	x	
Embraco	Components for domestic appliances	860.7	X	X	X	x	
Marcopolo	Buses	730.2	X		X	x	x
Sabó	Autoparts	ND	x	X	X		

Source: adapted from ECLAC, 2006

The first feature this panorama shows is that Brazil's largest transnationals are concentrated in sectors in which the country is stronger. Oil and gas, mining, steel, pulp and paper and cement – in other words, primary activities and natural resource-based manufacturing – account for a large share of the listed companies. In high technology industries the most obvious exception, Embraer, is the result of a unique combination of historical factors including state ownership and decades of investment in technological development. The absence, of local large-scale firms in engineering intensive industries, such as durable goods reflects the division of labour existing in the country between local and foreign firms. As outward investment is concentrated in relatively low externality generation industries, feedbacks from international operations may also be limited and restricted to improvements within those sectors.

In terms of destination, companies that supply primary or intermediate goods (and services – consider engineering and construction) have invested globally, whereas companies supplying goods and services directly to consumers (beverages, airlines) have invested mostly on the Latin American region. There are proportionally less consumer-oriented transnationals from Brazil than from other Latin American companies.

Accordingly, as group, Brazilian companies are more geographically diversified than those transnationals from other Latin American countries. However, again, their competitive advantages on a global scale are limited to low-technology segments.

However, as in the case of inward FDI, numbers hide a wide range of motivations that can have different implications for local development. Brazilian transnationals would be indicating a dynamic propensity to growth if an upward trend in OFDI would reflect the competitiveness and maturity of local firms if they are motivated to reach out to expand and conquer new markets. On the contrary, a different tale about local productive conditions would exist if they have chosen to produce abroad rather than exporting local production.

Whatever inefficiencies transnational firms encounter in Brazil are equally applicable to local entrepreneurs, with the aggravation that access to technology from a large corporate base and to capital at competitive rates is often more difficult. These factors may lead companies to resort to offshore production, not as an alternative to local production but, in the long run, as the only way to maintain competitiveness both abroad and, often, in the local market, in the absence of a stable home environment. Furthermore, because of the restrictions in access to capital, companies have invested abroad to diversify the location of their assets, reduce risk exposure and thus be eligible for credit at a competitive cost. Finally local firms may be investing abroad due to protectionist barriers, shifting production that would otherwise (in the absence of barriers, that is) be done more efficiently domestically. OFDI that is a result of these distortions cannot be hailed, as it often is, as a victory of local capitalism. Rather, while positive in the sense that it allows companies to grow or in some cases simply survive, they are no more than a second best solution.

It is very difficult to make a definite appraisal of how much Brazilian OFDI is a reaction to distortions rather than a welcome result of companies' competitiveness. Nonetheless, a research programme under way in ECLAC has helped to shed light on Brazilian transnational investment motivations. (ECLAC, 2006b, Tavares, 2006) This line of work, based on interviews with senior management and public corporate documents indicates that Brazilian companies have invested as a reaction to what can be called investment-diverting factors attributable to conditions in Brazil. OFDI is aimed at risk diversification: against exchange rate volatility, market fluctuations, country-risk and its effects on access to and cost of capital, among others. It is interesting to note that the risk motive is of little importance for OFDI from other developing countries. (UNCTAD, 2006) In manufacturing, exchange rate risks have motivated companies not only to move production abroad, especially in the recent period of currency appreciation, but also to shift away from Brazil their supplier chains. In other industries, such as steel, firms have invested as a reaction to trade barriers.

Even though diverting-pull or domestic distortions factors prevail, Brazilian transnationals can only invest abroad if they have a minimum of consolidated competitive assets. The current panorama indicates that they are using a special momentum to bring in investments abroad as part of an explicit strategic design aimed at expanding their presence in global industries.

5. SUMMARY AND POLICY IMPLICATIONS

To reply to the questions posed in the introduction, Brazil's economic size and market potential place it among the largest economies in the world and this is a fact today and will be in 50 years time. Brazil is also a complex economic machine as its industrial matrix is very dense. It therefore deserves to be classified squarely as one of the BRICs. But Brazil is a slow BRIC, behind most of the others by most aggregate sets of indicators.

From an economic perspective, its chronic poverty, high inequality and low capability levels have kept the potential of the domestic market as a force for economic growth below its potential. And, twenty five years of macroeconomic uncertainty and reactive, short term economic policy is a deterrent of investment. These conditions have taken their toll on growth and the renewal and diversification of conditions of production. The structure of production and foreign trade, in turn, is biased towards natural resource related activities, which typically show low income elasticity and productivity growth potentials. This has also conditioned economic growth, contributing to long term uncertainty. Exports and inward and outward foreign direct investments have shown potential to be relevant potential drivers of change if, in the years to come expansion towards dynamic markets and incorporation of more knowledge is observed.

In this context, the role of public policies is of extreme relevance. Policies directed at three fronts have special importance: macroeconomic policies, social policies and innovation and industrial policies. In the past 10 years improvements in these fronts have been observed. Macroeconomic stability is relatively consolidated and there are indications that the country can achieve investment grade in 2007 or 2008. Effective social policies especially oriented to maintain real gains in minimum wages and family income transfer programmes conditioned to school attendance of children are in place and resulting in decreases in Gini coefficients and expansion of local markets at the lower income levels. Innovation and industrial policies are in place, mobilizing resources and aiming at exports, technology development and at specific, knowledge dense sectors. Nevertheless, there are relevant challenges to be addressed in order to overcome long term uncertainty and induce structural change through investment in new plants and expansion of the knowledge base.

In the macroeconomic front, the relevant policy objective must be to ensure competitive exchange rates, similarly to what other BRIC and emergent economies have managed to accomplish and consolidate. Industrial policies were designed for a context of competitive exchange rates and still have to address a context of overvaluation. Instruments and resources are still not sufficient to address the needs of firms. Continuity of social, redistributive policies that are currently in place is a necessity but the challenge there is how to associate income transfer with job creation, thus offsetting the assistentialist side of public actions. More consistency and robustness are thus the ingredients of public policies to speed up Brazil to the levels of its counterparts.

Brazilians have often heard of Brazil as "the country of the future". In the absence of consistent and robust policies and instruments, the persistence of the slowness with which the country has advanced through the long and winding road towards development in the past will make this idealized future ever elusive.

Bibliography

Amsden, Alice (2001), *The Rise of the Rest – Challenges to the West from Late-Industrializing Economies*, Oxford University Press.

Barro, Robert J. and Jong-Wha Lee (2000), "International Data on Educational Attainment: Updates and Implications", CID Working Paper No. 42, April.

ECLAC (Economic Commission for Latin America and the Caribbean (2006a), *Economic Survey of Latin America and the Caribbean, 2005-2006*, Santiago, Chile, July.

_____ (2006b), *Foreign Investment in Latin America and the Caribbean, 2005*, Santiago, Chile, April.

_____ (2005), *Foreign Investment in Latin America and the Caribbean, 2004*, Santiago, Chile, March.

Fajnzylber, Fernando (1984). *La Industrialización Trunca de América Latina*. Buenos Aires: Centro Editor de América Latina.

Ferraz, João Carlos, David Kupfer, and Franklin Serrano (1999), "Macro Micro Interactions: Economic and Institutional Changes in Brazilian Industry". *Oxford Development Studies*, England, v. 27, n. 3, p. 279-304.

Kupfer, David (2006), *Política Industrial para o Desenvolvimento Setorial da Indústria Brasileira. Relatório de pesquisa*. Rio de Janeiro. Mimeo.

Kupfer, David, and Frederico Rocha (2005), "Productividad y heterogeneidad estructural en la industria brasileña", in Maio Cimoli (ed.), *Heterogeneidad estructural, asimetrías tecnológicas y crecimiento en América Latina*, ECLAC/IADB, November.

O'Neill, Jim, Dominic Wilson, Roopa Purushothaman, and Anna Stupnytska (2005) Goldman Sachs, *Global Economic Paper No. 134, How Solid are the BRICs*, December 1st.

Tavares, Márcia (2006). "Investimento brasileiro no exterior: panorama e considerações sobre políticas públicas", *Serie Desarrollo Productivo no. 172*, ECLAC, Santiago.

Unctad (United Nations Conference on Trade and Development), *World Investment Report, 2005*, Geneva, Switzerland.

_____ (2006), *World Investment Report, 2006*, Geneva, Switzerland.

Wilson, Dominic and Roopa Purushothaman (2003), "Dreaming With BRICs: The Path to 2050", *Goldman Sachs Global Economic Paper No. 99*, October 1st.