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RIS-DP # 127

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Brazilian Economy: Recent Evolution and New Perspectives for South-South Cooperation

Maria Lúcia L.M. Pádua Lima[1]

Abstract: The paper begins by analysing the Brazilian economic development stressing the external sector of its economy. Brazil is already an important product player in food trade and could be, in the future, a very significant player in the international commerce of biofuel and bioproducts. For this reason, this paper also focuses on the Brazilian experiences in the production of food, bioproducts and energy generated by renewable sources taking sugarcan as a specific instance. The Brazilian competitiveness in the agricultural sector required a great deal of research effort and technological improvements, especially in the production of biofuel and bioproducts. On the other hand, some Brazilian studies indicate a noteworthy capacity of this kind of agricultural chain to incorporate the work force in the rural areas. Finally, the paper discusses the feasibility of reproducing abroad the successful agricultural Brazilian experience. This could be a very promising subject for the South-South cooperation.

1. Introduction

This paper discusses the possibilities of enhancing the cooperation between Brazil and other developing countries and less developed countries (LDC). It presents an analysis of Brazil's contemporary economic development focusing on both the internal and the external sectors. The analysis aims at highlighting the potential of the Brazilian economy, to enable an asessment of the possible outcomes of South-South cooperation.

This paper also offers a brief comparison between Brazil and the other four major emerging countries (namely South Africa, Russia, India and

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China). These economies, though similar in some aspects, display important differences but not in the growth rates they have experienced since the 1990s.

This paper thereafter moves on to examine the Brazil's agricultural performance alongwith the new possibilities of growth springing from the rising importance of bioenergy. Thus agriculture, seen from three angles – food, energy and bioproducts – may alter the paradigm for growth in the country and, possibly, lead to a new form of South-South cooperation.

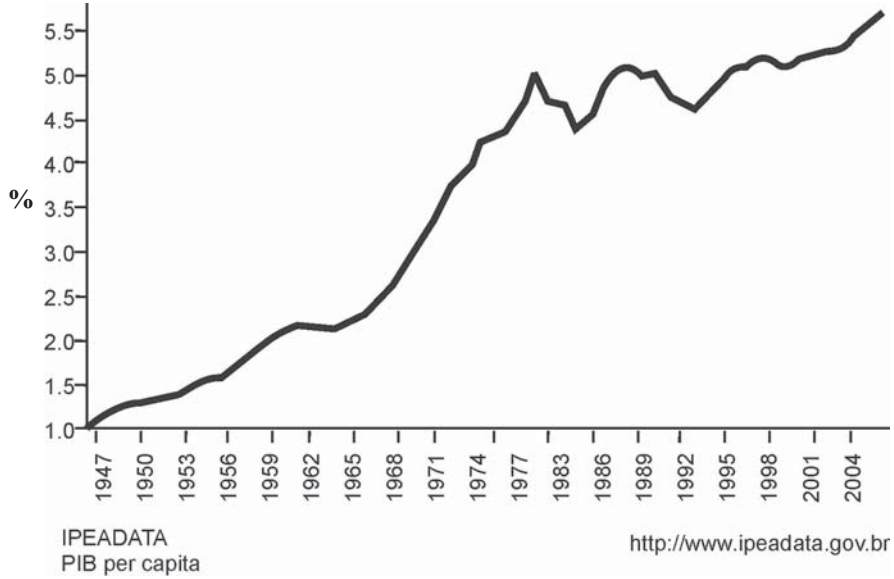
Finally, the discussion here will present the case of sugarcane as a rather tangible reality in terms of change in the growth patterns and trade relations, and of technology transfer to less developed countries.

2. Brazilian Economy: Recent Evolution

Brazil had the highest growth rates for the first eight decades in the last century. [2] The change occurred in the second half of the twentieth century, when Brazil shifted from a strictly agriculture-based, primary-goods export economy to an industrial nation. Although from the 1980s onwards, the model of Import Substitution Industrialization (ISI) has come under strong criticism, one cannot deny that Brazil was a successful model. One can question the costs of adopting this strategy, its continuation over the decades, the consequences of delay in change of strategy and a number of other aspects which have been widely criticized. However, the data below are indisputable (Charts 1 and 2).

It is worth noticing that, from the 1930s Revolution[3] onwards, the option for development has basically remained unchanged regardless of the political regime in power. The obsession for development, understood as industrialization, has carried on for generations. The reason for such an obsession is not hard to grasp.The high growth rates allowed for very efficient mechanisms of social ascension and accumulation of wealth. Even the social groups left behind could nourish hopes of being included in the overall development process at some point in the future. It is not by chance that the present President, coming from a very underprivileged social group – a migrant from the NE – could rise socially through his inclusion as a worker in the auto-industry in São Paulo.[4]

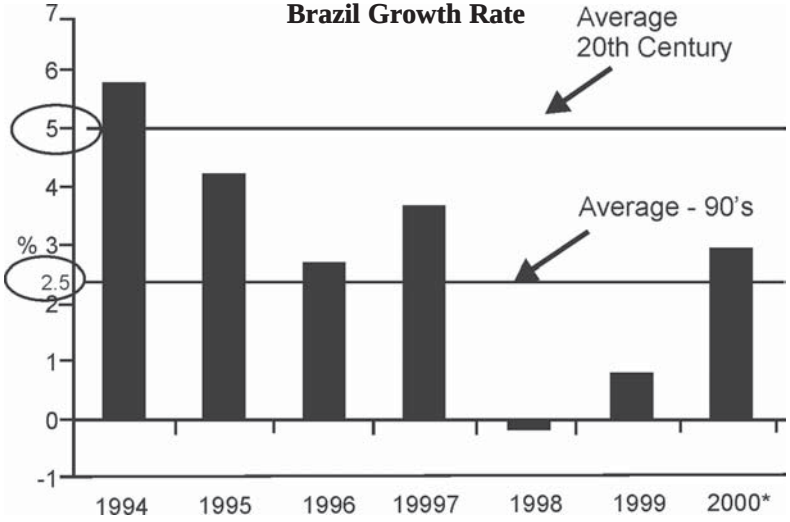
Chart 1: Growth Rate of GDP



But the fact is that after almost a century of fast development the country has been facing, from beginning of the 1980s, a long stagnation period. The reasons for such stagnation have been matter of debate. Recently, the *Instituto de Economia e Estudos Estratégicos* (IEEI) presented the results of an interesting research,[5] which involved experts from various Brazilian universities. They aimed at examining the reasons for the country's dismal development for over two decades.

Brazilian economic stagnation of the early 1980s mirrors that of the other Latin American countries. Thus, comparison on the economic data for the whole of Latin America from 1980 up to today and those of the 1950-1980 period, reveals that investment rates are substantially lower; unemployment is higher; and the average income of salaried workers is lower. Broadly speaking, it has been a period devoid of no meaningful, steady development as was present in the revised 1950-1980. Popular dissatisfaction with pro-market reforms is, therefore, quite understandable. The emergence of populist regimes in Latin American is certainly linked to the poor economic performance of the past decade.

Chart 2: Average Brazilian Growth Rate during the 20th Century



Source: IPEADATA

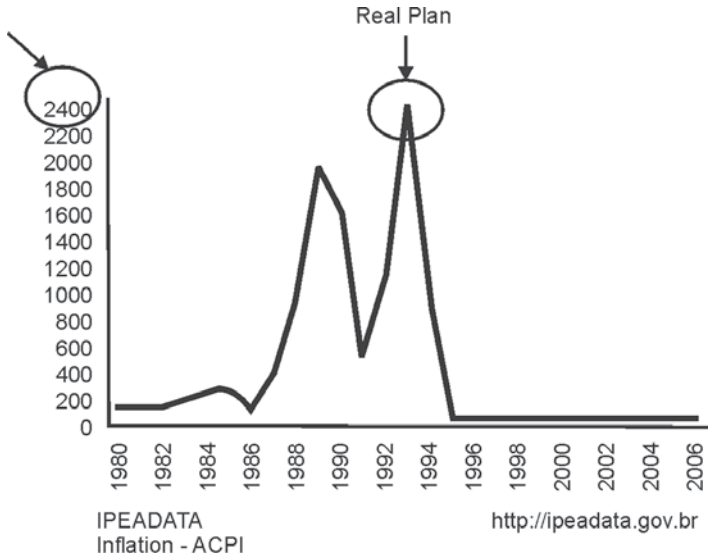
During the 1980s, the main reason for a substantially lower economic growth is the debt crisis coupled with rising inflation (Chart 3). Even after having solved the problem of external debt in the early 1990s, Brazil still had to fight an up-hill battle to break its fast-paced inflation. This gained speed in the 1980s before it was finally put out, in 1994, by the Plano Real.[6] In any case, after thirteen years of internal price stabilization and discarding the possibility of new economic external strangulation, Brazil still presents mediocre growth rates.

The ensuing assessment of the Brazilian economy shows the difficulties and dilemmas of the so-called "country of the future". In the present circumstances, the official rhetoric of helping LDC creates some uneasiness as the economy has failed to show the necessary dynamism for the country to lead this kind of action.

2.1. Internal Sector: a Brief Assessment

The 1994 stabilization Plan (Plano Real) not only made inflation control possible but it also brought hopes of a resurgence of economic development

Chart 3: Brazil: Inflation Rate 1990-2006



in Brazil. During the years of fast-paced inflation, there had been a consensus that the Brazilian economy could only grow again after stabilization. Medium and long-term strategic planning was believed to be impossible without inflation control, as it was deemed unreasonable to expect any strong rise in private investment. On the other hand, the years of external crisis had undermined the "developmentist" spirit and there was a widespread belief that the model ISI was mainly responsible for the long period of economic woe.

It is important to point out that internal price stabilization was achieved almost simultaneously with the country's embracing of the global markets logic. The *sine qua non* for implementation of Plano Real was the voluntary recovery of the access to International Financial Markets (IFM), without which it would have been impossible to implement the price control plan with a fixed exchange rate. In fact, establishing a fixed exchange regime would only be feasible with significant international liquidity and ready access to external financing.

If embracing globalization meant having access to international credit, it also meant that there was need for a number of reforms, mainly liberalizing in terms of unilateral trade openings and privatizations. It is important to stress that the embracing of globalization by Brazil was only made possible after the solution of the external debt stock that triggered the debt crisis of the 1980s.

It is not hard to understand how positive an unfettered acceptance of globalization could be. In the early 1990s, the international economic scenario made it possible for Brazil, and other Latin American countries, to fight inflation and incur repeated trade balance and current accounts deficits without being penalized by the International Monetary Fund (IMF). Apart from that, pro-market reforms would guarantee economic development without any strategy, that is to say, passively.Therefore, it was impossible to resist. Thus, the government and elite alike embraced globalization with such zest that they easily convinced society. Nonetheless, countries like Brazil do not enjoy the same degree as autonomy as does the United States of America (USA).[7]

From the early 1980s, the US has been facing not only public deficits – with the exception of a couple of years in the late 1990s, but also rising and persistent current accounts deficits. However, the US has kept excellent growth rates throughout this period, with low unemployment rates and low inflation, and has had no problems so far in finding sources of financing. What would be unthinkable for many countries (for example, Brazil) is for the US the very essence of its growth. Moreover, the US has not only maintained its position, but also has in fact its power and domination over the rest of the world.

For Brazil, and of other Latin American countries, the tough reality is the impossibility of reproducing the American model. In our region, globalization reforms have promised an unfeasible option: replicating the American strategy. In other words, to carrying on with liberalizing reforms, adapt to market conditions, abandon it their own strategies and still get as promising results as those of the US is just not possible for Brazil and other Latin American countries. It is also not true that the US had abandoned its own national strategy: globalization is the very strategy of that country.

Even though many of the pro-market reforms have contributed to improvement of the institutional environment, rise of private investment in specific sectors, and efficiency in government administration, they were not enough to guarantee a sizeable resurgence of economic development in Brazil. At that moment, the extremely seductive and dominating idea that it would suffice to stabilize prices, privatize State companies and carry on a unilateral trade opening for the economy to thrive again failed to materialize.

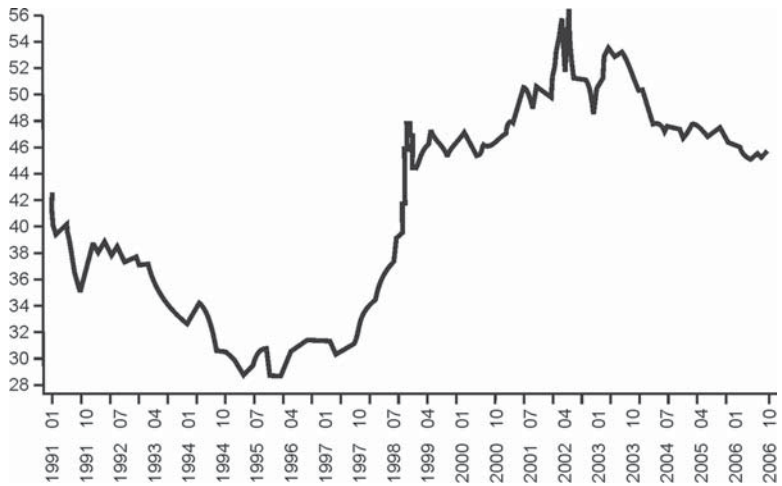
During the late 1990s, the financial crises of emerging countries put an end to the hopes of replicating the American model in a country like Brazil. Thus, in 1999 at the beginning of the second term of President Fernando Henrique Cardoso, there was a review of some of those liberalizing economic tenets, mainly what is regarded as international trade. Brazil then adopted a much sterner stance in multilateral trade negotiations. From the early stages of the Doha Round (2001) the country adopted a much more consistent attitude on agriculture and on other important topics.

From the economic policy standpoint, the second term of President Fernando Henrique Cardoso (1999/2002), to a large extent was devoted, to adjusting the Balance of Payments due to the exchange crisis brought about by the restriction of international credit. When the Brazilian government approached the IMF, it was forced to establish external targets for Balance of Payments and internal goals for public accounts.

In spite of the success of the changes in the exchange rate regime, the economic impact caused by the turmoil of the 2002 elections made it even more urgent for the present government, during its first years in office, to raise the trade surplus, to strengthen the commitment to meet the goals for internal fiscal surplus[8] and to toughen the monetary policy on inflation. Even though the inflationary pressures arising in the wake of President Lula's election had been controlled, the economic policies remained extremely conservative.

As a result, the growth of the internal public debt[9] and the increase of financial expenses came to be seen as the chief obstacles to implementing a fast-development strategy or improving significantly the distribution of wealth and income in Brazil.

Chart 4: Public Debt as per cent GDP

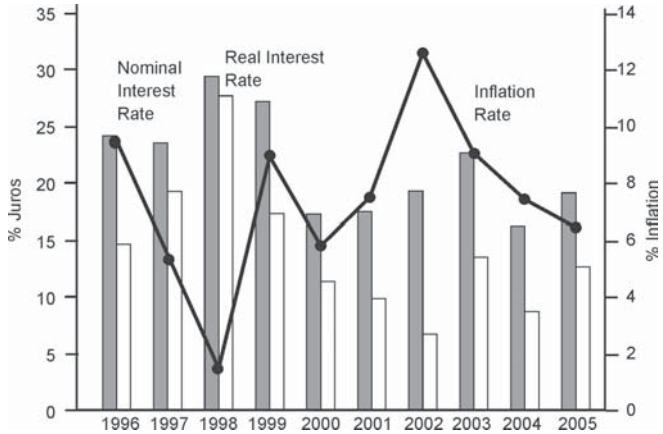


Source: IPEADATA

The real interest rate resulting from the restrictive monetary policy is the highest in the world. More importantly, there is no plausible explanation for the permanence of such high rates after the deflating of the inflationary bubble caused by the confidence crisis of 2002. Keeping the real interest rates over 10 per cent per annum means setting aside a significant amount of tax resources, the permanent transfer of such resources to a small portion of society and the continuous rise of the internal public debt.

To illustrate the kind of wealth concentration engendered by the enduring policy of high real interest rates, it suffices to check Brazil's (see Table 1). Central Bank data on federal bond holders: around 80 per cent of such bonds are in the hands of institutional investors. It is estimated that these investors represent no more than 200,000 holders who in 2006 alone received something around US$ 80 billion. Apart from that, the high interest rates on public bonds establish the interest rate floors for the market, which causes internal credit to become both expensive and scarce.

Chart 5: Brazil: Real Interest Rates and Inflation Rate 1996-2005



Source: IPEADATA

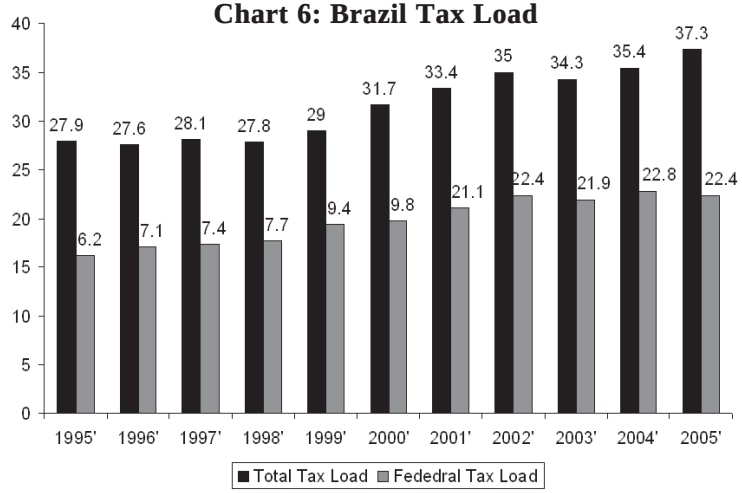
Table 1: Federal Bond Holders – 2006

	R$ million	per cent
Banks	315.499,00	**31,71**
Others	108.684,00	10,92
Individuals	1.620,00	0,16
Non-Financial Legal Entities	62.359,00	6,27
Financial Legal Entities	308,00	0,03
Financial Funds	497.827,00	**50,03**
Residuals	8.749,00	0,88

Source: BACEN; Elaboration: Carvalho, C.E

The steady growth of the internal public debt also entails the need for permanently high primary fiscal surpluses. In Brazil's case, such surpluses have been possible, mostly, by an increase in the tax load which in 2005 represented 37 per cent of the GDP. That is the why, in the fiscal dimension, the current debate centers on the problem of a continuous rise in public spending, both financial and non-financial, which has produced an ever-growing tax load. Among the emerging countries, Brazil has the heaviest tax load, with its percentage of the GDP as levels similar to those of developed countries.

Chart 6: Brazil Tax Load



Source: BACEN Elaboration: J.R; Afonso, E. Araujo.

Regardless of the increase in the tax load, the government's demand for goods and services has diminished as a proportion of the GDP, that is to say, the increase in the tax load has not come back to the economy in the form of investments or consumption. What is more, the income transfer connected to social programmes, albeit having grown substantially under this administration, still represents less than 2.5 per cent of the GDP. It is also important to observe that the tax load increase has taken place at the federal level, once the largest portion of interest payment springs from federal bonds.

Table 2: Brazil Public Finance: 1995-2003

	% do PIB		" 03/95	
	1995	2003	%PIB	Distri-bution
Income (A)	34,43%	42,35%	7,92	100,0%
Income tax inflow	28,44%	34,01%	5,57	70,3%
Other Income 1/	5,99%	8,34%	2,35	29,7%
Expenditures (B)	36,1%	38,1%	1,93	24,4%
Consumption and Investment	22,13%	21,59%	-0,54	-6,8%
Social security	13,15%	15,89%	2,74	34,6%
Others	0,86%	0,59%	-0,27	-3,4%
Fiscal Margin(A - B)	**-1,71%**	**4,28%**	**5,99**	**75,6%**

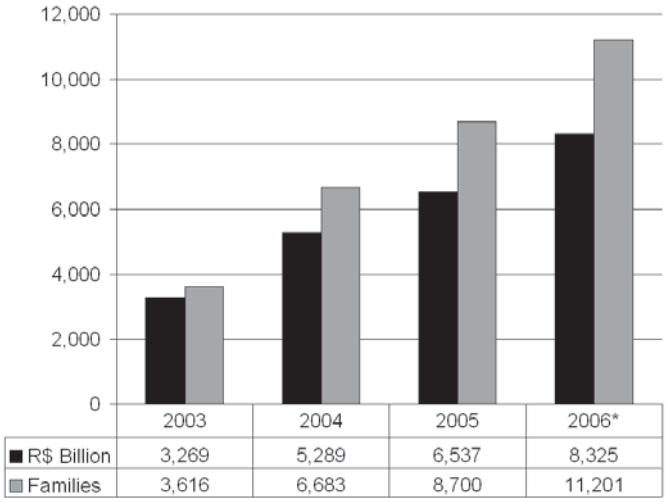
Source: BACEN Elaboration: J.R; Afonso, E. Araujo.

The tax resources allocated to the payment of the internal public debt are often larger than those dedicated to social programmes once it systematically transfers income to the holders of public bonds. Thus, over the past year, the main social programme for income transfer to low-income families, called "*Bolsa Família*," has helped around 44 million people and involved something close to US$ 4.2 billion (see Chart 7). Nevertheless, over the same period, the massive transfers to State creditors reached around US$ 80 billion. That is why market operators have dubbed this payment "*Bolsa Juros*".[10] As mentioned before, there were around 200,000 holders who have received nearly twenty times the amount allocated to 44 million poorest Brazilians. The difference lies in the volume of resources going to each of these segments of Brazilian society and, obviously, the number of their beneficiaries.

An analysis of the data on income transfer in Brazil during the interval from 1981 to 2005 immediately reveals that a counterweight was provided to low economic growth in the period by the substantially lesser population growth. Data from the IBGE[11] reveals that the total income, over this

Chart 7: Brazil Social Assistance

Social Assistance: "Bolsa Familia"



period, increased 91 per cent in real terms, whereas the population growth was of 53 per cent . This engendered a rise in the per capita increase and introduced a demographic element to the analysis.

One must also bear in mind that IBGE's research methodology is neither capable of assessing the income of the richest part of the population, nor of assessing the benefits generated by possession of wealth. Therefore, when commenting on the data below, it is important to remember that there is no way of taking into account the wealth and income concentration springing from the monetary and tax policies just described. This element is more important than the demographic element, because the gains arising from holding liquid assets were the largest throughout the period of economic stagnation, mainly after 2003.

Table 3 shows that the income of those economically active has dropped sharply, whereas that of the non-economically active – retired, pensioners and beneficiaries of social programmes – has risen steadily. The unfavorable conditions of the labour market – shown as turnover rates, the growing employer expections and the lessening wages – go a long way to explain the drop on the income of those economically active. On the other hand, it is possible to relate the improving income conditions of the non-economically active population to the increase in the numbers of those being reached by social programmes

The analysis of the income distribution through social strata, as presented by the IBGE, shows contraction of the income of the two highest segments and the improvement of the two lowest in recent years. These movements - contraction of the income of middle–class and increase in the income of the working–class and the destitute – have been cause of euphoria for government authorities, apart from having guaranteed last year's reelection of the President.

The long stagnation period and the deepening of an orthodox economic policy have worsened the social structure in the country; thus clearly obstructing the possibilities of social ascension and leading to a serious

social crisis.[12] As already pointed out, the possibility of social ascension for a good portion of the twentieth century was the main mechanism

Table 3: Economically-Active/Non-Economically-Active Income Ratio

Brazil- Income Distribution Social Levels TOTAL						
Years Middle Class	High Class	Middle Middle Class	Low	Workers	Miserable	Total
1981	35,5	20,2	26,9	12,0	5,4	100%
1982	37,8	19,0	25,9	12,2	5,1	100%
1983	32,6	21,3	23,8	13,1	9,2	100%
1984	31,0	20,0	25,9	13,4	9,6	100%
1985	37,2	20,2	24,0	12,9	5,7	100%
1986	46,3	19,9	21,7	9,2	2,9	100%
1987	38,9	19,9	23,7	11,1	6,3	100%
1988	39,2	18,6	23,1	11,5	7,7	100%
1989	45,8	18,3	19,8	9,4	6,7	100%
1990	38,4	20,0	24,2	10,0	7,4	100%
1992	29,5	20,7	26,1	14,1	9,7	100%
1993	34,9	18,7	23,7	12,9	9,8	100%
1995	39,4	19,4	23,3	11,7	6,2	100%
1996	43,1	19,7	22,5	9,1	5,7	100%
1997	37,6	21,6	22,7	11,2	6,8	100%
1998	38,0	21,4	22,6	11,2	6,7	100%
1999	35,9	19,5	25,4	12,0	7,2	100%
2001	36,0	19,2	24,4	12,9	7,4	100%
2002	33,5	19,5	24,9	14,0	8,2	100%
2003	32,1	17,8	27,1	14,2	8,9	100%
2004	30,1	19,1	26,1	15,9	8,8	100%
2005	31,9	19,0	27,2	18,9	3,0	100%

Source: PNAD/IBGE Elaboration: W. Quadros.

for lessening social and regional inequalities. The current compensatory social policies have acted much more like anesthesia than as real tools for for an effective reduction of inequalities.

The comparative analysis of emerging countries shows how the income distribution might have evolved had the Brazilian economy presented a less meager economic development. Under the present circumstances, social competition has been exasperated by the scarce job opportunities, which have entailed constant extension of the working hours.

2.2. External Sector

When imagining the possibilities for economic development in Brazil, one needs to ponder over the problem of external restrictions. Thus, the entire industrialization process, for example, has been carried out under pressure from the external sector. However, this kind of restriction, no longer exist, and the problem of price stabilization has been solved for over one decade ago.

As is well known, numerous academic works on external restrictions to the Brazilian growth have always linked the course of the country's external debt to the possibilities for its economic growth.[13] Although this had become a moot point in the debate of the early 1990s, after the solution of the debt stock accrued between 1967 and 1979, once again to the fore at the end of the past decade in view of Brazil's increasing external vulnerability this discussion has remerged.

The January 1999 alterations in the exchange rate regime allowed for a new external adjustment, progressively reducing the external vulnerability, without jeopardizing the price stability brought about by the Plano Real (1994). Not even the economic impacts of the 2002 election turmoil prevented the foreign accounts from being adjusted and the internal prices from being kept stable.

It remains to be examined to what extent Brazil's external sector's results, which appear in the trade balance, will grant the country, in the

Table 4: Brazil's Balance of Payments

Brazil's Balance of Payments (US$ million)	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006***
Trade Balance	-1.198,87	-697,75	2.650,47	13.121,30	24.793,92	33.640,54	44.748,10	43.700,00
Exports	48.011,45	55.085,59	58.222,64	60.361,79	73.084,14	96.475,24	118.308,27	129.000,00
Imports	-49.210,31	-55.783,34	-55.572,18	-47.240,49	-48.290,22	-62.834,70	-73.560,17	-85.300,00
Service	-25.825,31	-25.047,85	-27.502,52	-23.147,74	-23.483,23	-25.197,65	-34.113,17	-37.267,00
Interest rate	-7.616,85	-6.181,13	-5.579,31	-4.924,97	-4.819,76	-4.496,60	-4.100,82	-
Royalties	-1.149,74	-1.289,39	-1.132,23	-1.128,53	-1.119,81	-792,32	-1.302,83	-1.152,00
Current unilateral transfers	1.689,40	1.521,07	1.637,52	2.389,82	2.866,59	3.236,35	3.557,77	4.231,00
Current Account	-25.334,78	-24.224,53	-23.214,53	-7.636,63	4.177,29	11.679,24	14.192,69	10.644,00
Capital account	337,73	272,50	35,97	432,96	498,19	371,34	662,76	639,00
Financial Account	16.981,41	19.053,30	27.088,07	7.571,47	4.612,75	-7.894,61	-10.256,11	-8.918,00
IMF	4.059,10	-6.876,43	6.756,80	11.480,37	4.769,31	-4.362,58	-23.270,92	-
Capital and Financial Account	17.319,14	19.325,80	27.052,10	8.004,43	5.110,94	-7.523,27	-9.593,34	-8.279,00
Overall Balance	**-7.822,04**	**-2.261,65**	**3.306,60**	**302,09**	**8.495,65**	**2.244,03**	**4.319,46**	**18.465,00**

Source: BACEN.

near future, the possibility of once again growing steadily. In any case, it is important to point out that, so far, it has been impossible to take advantage of the favorable conditions – resulting from the foreign accounts adjustment- to relaunch the Brazilian economy.

Analysis of Brazil's foreign accounts reveals the long tranquility, stability and consistence present in the country's economy. The repeated positive results of the Balance of Payments since 2001 created the possibility of the economy to operate with copiousness of currency. and at the same time, with the reduction of external vulnerability (see Table 4). Thus, the Brazilian economy would not have another exchange crisis imminent, in the near future. The reason for this is that this external interval springs from increasing trade surpluses.

The considerable growth of the major economies, mainly after 2002, generated a strong demand for a considerable number of Brazilian products. A fast and impressive rise in Brazil's exports over the past few years is clearly perceptible: from US$ 60 billion in 2002, they more than doubled in 2006 (Chart 8). This is due to a positive coupling between the *quantum* and the price of exports. Rise in international prices for many of the Brazilian exports may also be pointed out as the main reason for such good results. Brazil has doubtlessly been able to take advantage of the noticeable rise of the international demand for[14] commodities, mainly metals (Table 5).

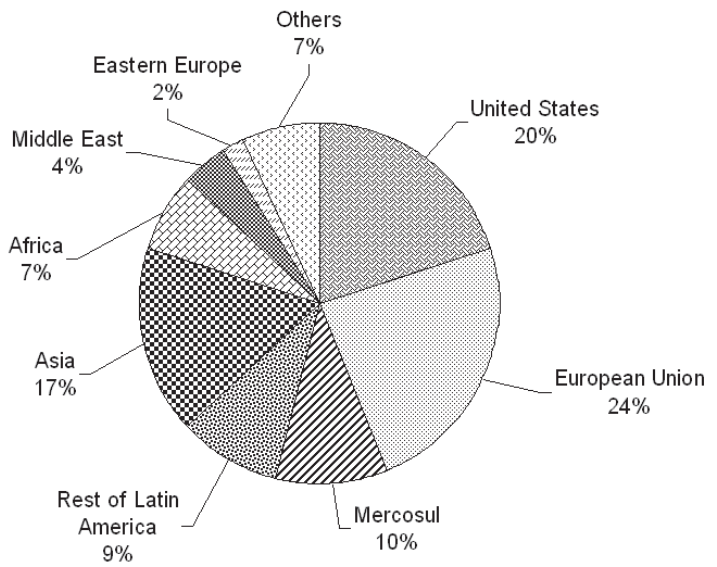
Table 5: Commodities Price Growth

2002-2006	Growth Prices in US$)(%)	Participation
Metals	179.7	88
Food	41.3	9
Agricultural Input	4,3	3
Total Commodities Non Oil	60,1	100

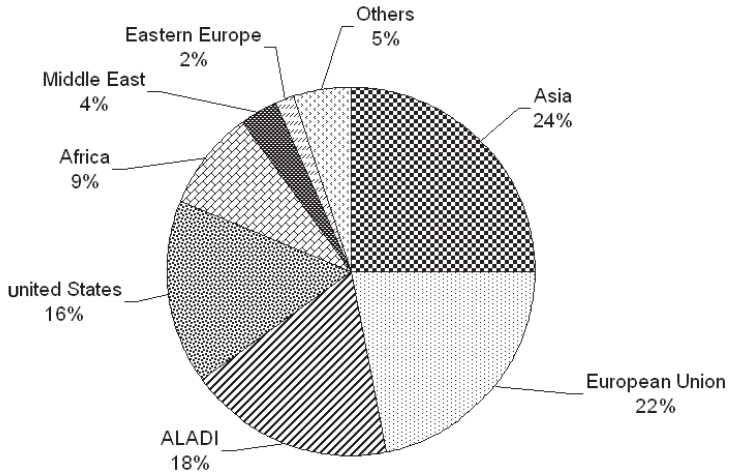
Source: IMF Elaboration: A. Oliveira; F.Villares and J. Wagner.

Chart 8: Brazilian Exports and Imports-2006

Exports



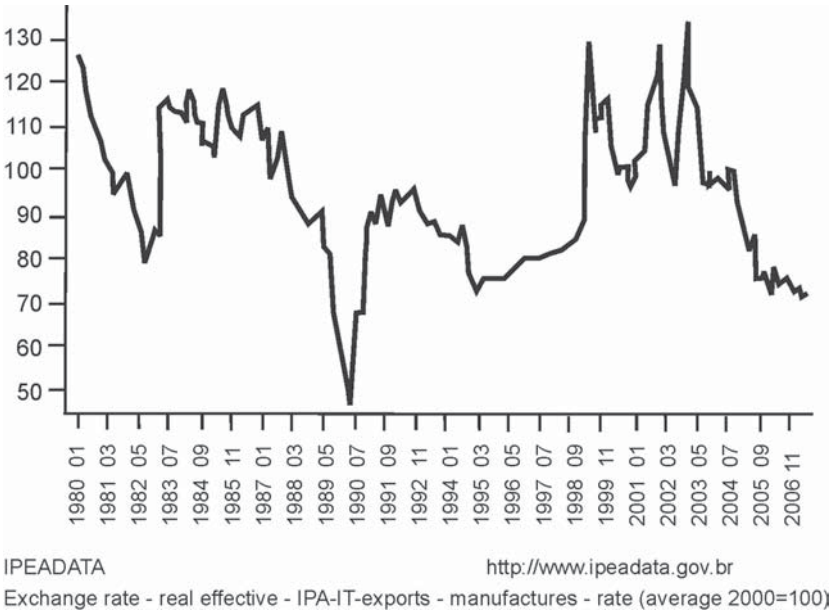
Imports



Source: SECEX/MDIC

Over the past few years, the markets for Brazilian exports have also deversified with a remarkable increase in those for Latin America, Asia (excluding China), Africa, and other countries, apart from the traditional markets of the US and Europe. Even with a sharp appreciation of the national currency throughout the past two years, the high external demand for commodities has guaranteed excellent results in the export accounts.

Chart 9: Real exchange rate US$/R$

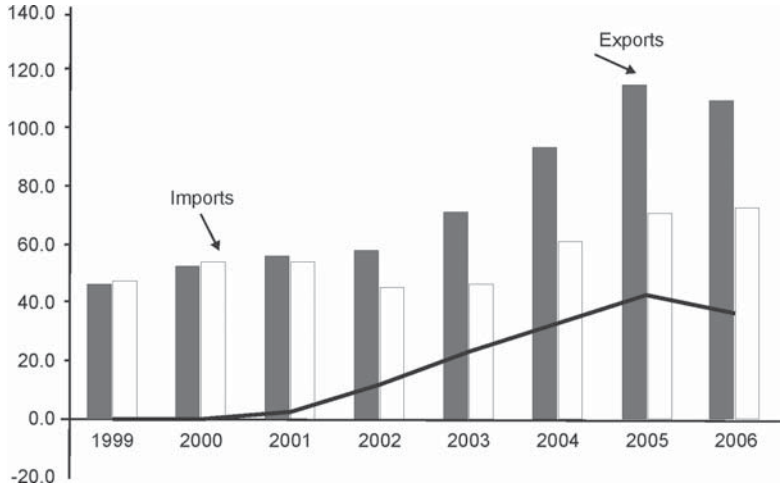


Brazilian imports have displayed less impressive results than the exports. Despite the currency valuation already mentioned, the growth rate for imports has been higher than that for exports. The origin of imports has displayed a remarkable diversification over the past seven years. Apart from the imports from developed countries, Brazil has enlarged its imports from Asia, Africa and Latin America (Chart 8).

The Trade Balance jumped from a negative US$ 1.2 billion in 1999 to a positive US$ 44 billion in 2005, which means a growth of more than twenty-fold in seven years (Chart 10). This sequence of trade surpluses

allowed for positive results in the Current Account after 2003. It resulted in a reversal of the deficit that took place since 1994, which peaked to US$ 33 billion in 1998.

Chart 10: Trade Balance



Source: MDIC

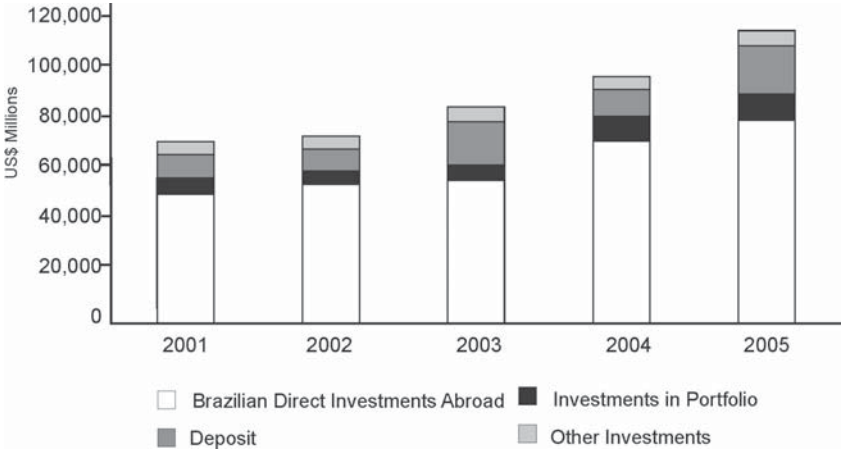
The positive results of the current accounts were buttressed by the positive result of the unilateral transfers. Such transfers, though markedly on the rise for the past four years, make it impossible to claim as for the other Latin American countries, that the country's main export products are its citizens.[15] Be this as it may, it is nothing less than alarming the fact that Brazil is no longer a "land of opportunity" for a large number of its population. The reversion of the migratory flow is certainly not a good sign for what was once a promising country.

The capital and financial account, which had displayed markedly positive results since 1994, has suffered a sharp decrease after 2002. It has become negative since 2004, reflecting, among other factors, the operations for regularization with the International Monetary Fund (IMF) and the behaviour of the Foreign Direct Investments (FDI) flow. If it is true that improvment in foreign accounts made it possible for

Brazil to honour its debts with the IMF, it also made Brazil much less attractive for foreign investment,[16] to such a extent that the FDI dropped from US$ 32.8 billion in 2000 to US$ 15,1 billion in 2005 – a meaningful reduction even if one takes into account in the recent evolution of the FDIs and their main characteristics.

It is also important to highlight the faster pace of Brazilian investments abroad over the past five years, with an average rate of 15 per cent per annum (Chart 11). As is well known, internationalization of corporations, traditionally means a step forward in the intense accumulation process of domestic markets, prompting the expansion of the productive structure as a result of new and larger markets. In the case of Brazil, the main incentive for corporations seems to have been the lack of economic opportunities in the country.

Chart 11: Brazilian Investments Abroad 2001-2005



Source: BACEN.

An assessment of the flow of Brazilian capital abroad highlights the increase in foreign direct investments by corporations located in Brazil. But the fact remains that 50 per cent of the flows of Brazilian capitals go to financial centers *offshore*. It is possible to credit the growing financial liberalization with the rise in the amount of capital leaving the country.

This brief discussion on the recent evolution of Brazil's Balance of Payment reveals the adjustment of Brazilian foreign accounts that, nevertheless, was possible due to the exceptionally favourable international environment of the past four years. The concurrence of international liquidity, rise in prices and increase in demand of important Brazilian export *commodities* made it possible for this benign scenario to continue during in this period.

Once it is not possible for the country to control the conditions of international liquidity, there have been repeated warnings about the negative impact of this on the trade balance. This may lead also to possible difficulties in maintaining the growth of exports and there is no doubt that this is unpact the ensuing rise in imports by means of an overvalued exchange rate. So far such warnings have been overloaded for trade surpluses keep on accumulating, month after month. As pointed out, the above, however, the pace of the growth of exports has slowed down while that of imports has been gaining speed. Thus the reversion of the trade surplus continue to be postponed.

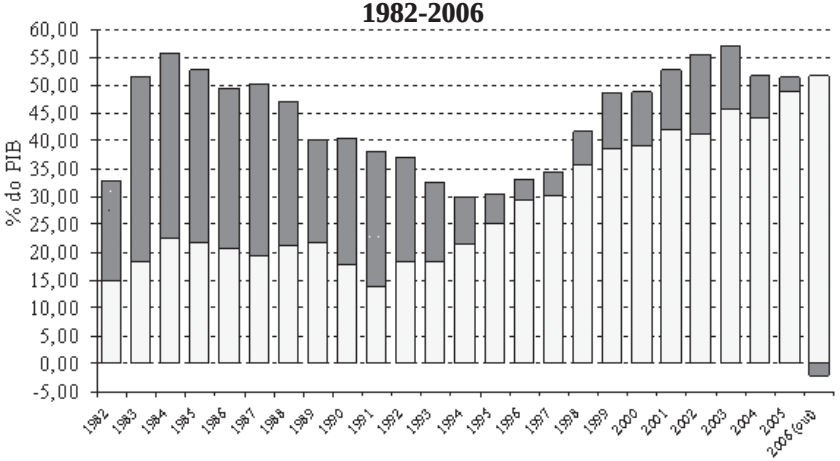
The excellent performance of the foreign accounts had a very positive aspect in the reduction of the stock of the foreign debt and the consequent reduction of the service of this debt. Thus, an improvement in foreign accounts with the reduction of the debt stock has more important and more long-lasting effects on the Balance of Payments (Chart 12).

The official jubilation may thus seem justified[17] regarding the external sector of Brazilian economy. A partial analysis of this sector may lead to highly optimistic conclusions, likely to corroborate the current administration's euphoria. It must be added that this adjustment of the foreign accounts was produced within a context of growing financial liberalization in the country. One might well question, therefore, the immediate impact and the possible future risks of a less promising international context.

However, the issue why the country continues to present meager growth rates still remains, even after one of the gravest restrictions to the growth of the GDP has been removed. An analysis of Brazil's Balance of Payments reveals such undisputable improvement of the country's foreign

accounts over the past few years. At the same time, it broadens the debate on the challenge of how to make the country experience sustainable economic growth. If the external sector alone is examined, it becomes even more difficult to explain the long duration of such anemic growth rates.

Chart 12: Public Debt-Internal and External
1982-2006



Source: BACEN

The truth is that, after the debt crisis of the 1980s and the stabilization of internal prices carried out by Plano Real, the country has seen, almost unceasingly and in large amounts, the inflow of foreign currency in two very dissimilar situations: in-flow of foreign resources and enlarging of foreign liabilities (1994-1998) and strong increase in the exports with reduction of external vulnerability (2002-2006).

It is also true that Brazil has gone through two-exchange crises in the past twelve years. Even so, the relatively swift and orderly overcoming of such crises forces one to look elsewhere – not in those difficulties which are the outcome the restrictive impositions arising from the external sector - for explanations for the low growth rate in this same period

Between 1994 and 1998, the non-limitation by the external sector is due to the positive results of the capital and financial account. This

period failed to vindicate the famous old formula 'growth via indebtedness. [18] In spite of the substantial in-flow of foreign resources in the capital and financial account, especially on the Foreign Direct Investment, the growth rate was rather modest. It is worth noticing that, up to the 1997 Asian crisis, the positive results of the Balance of Payments point to a flow of external resources excessive in relation to the need for meeting external financing caused by the deficit in transactions. It confirms, than the plethora of external resources available.

Since 2003, the external sector has not been an obstacle to economic growth, albeit for very different reasons. The successful adjustment of foreign accounts that started in 1999 allowed for an overcoming of the exchange rate crisis – both of that year and of 2002 – in a rather efficient and swift manner. This adjustment was based, to a large extent, on the substantial expansion of the Trade Balance surplus, especially on the steady growth of exports after 2003. However, the significant increase in the exports in this period is not linked to a meaningful rise in the level of economic activity in the country.

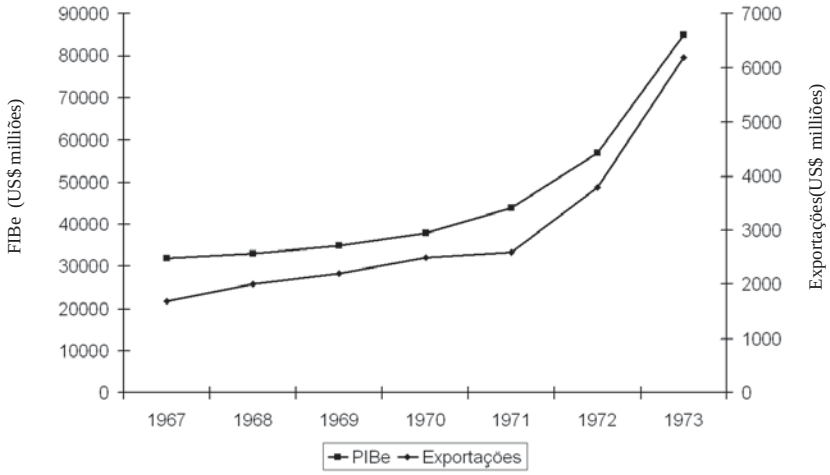
If one compares the two *boom* periods for Brazilian exports – 1967 to 1973 and 2003 to 2006 – the remarkable loss of capacity for growth of the Brazilian economy due to the substantial increase in exports becomes clear. Apart from that, another difference between these two periods is the diversification of the export list between 1967 and 1973, which includes more value-added products.

Today, the fast pace of export growth has neither significantly impacted the GDP, nor has it caused a change in the export list capable of promoting Brazil's flow of international trade. Therefore, in the absence of the brilliant export performance of the past few years, economic growth would have been even more dismal. The good news, however, is the possibility represented by the biofuel potential; perhaps it could change the present situation.

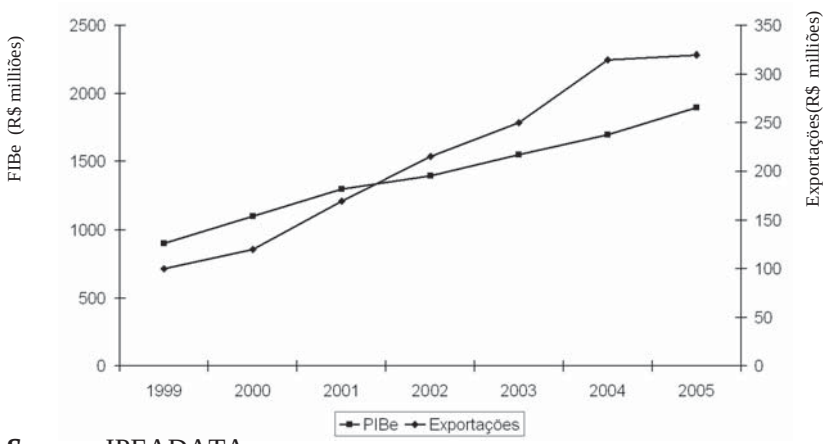
The idea that rising export level is a key element for abolishing external restrictions and, thus, for allowing for sustainable growth has been present from the very beginning of the strategy devised by the Economic Commission

Chart 13: Brazil GDP and Exports (1967/73 – 2003/06)

Brazil FIBe Exportaçöess (US$ milliões)
1963-1973



Brazil PIBe Exportações (R$ milliões)
1999-2005



Source: IPEADATA

for the Latin America and the Caribbean (CEPAL) for the development of Brazil and Latin America.[19] At this moment, however, the possibilities for a sustainable growth of the Brazilian economy must go beyond the overcoming of external restrictions.

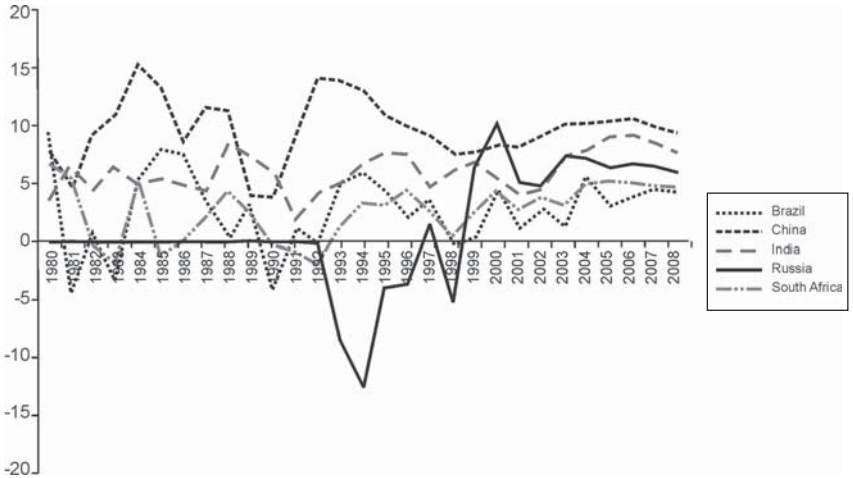
Whatever caused the overcoming of external restrictions over the past twelve years, the fact remains that the Brazilian economy has not recovered the internal dynamism or its capacity for continuous growth. For the past four years, not even the exceptionally favourable international scenario and the undisputable external adjustment have made it possible for Brazil to consistently recover its economic growth.

2.3. Brazil and other large emerging countries: A comparison

At the turn of the twentieth century, some so-called large emerging countries began to stand out in the worldwide economies, viz. South Africa, Brazil, China, India and Russia. These "large peripheral countries"[20] drew the attention of several analysts owing to their potential and capacity to have a global impact and influence the economies of developed countries.

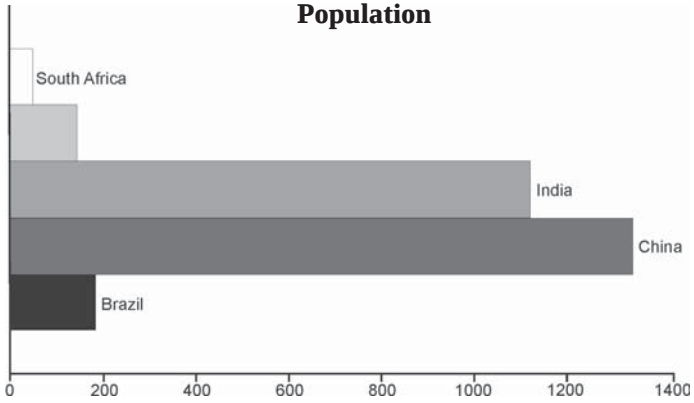
Chart 14: GDP Large Emerging Countries

GDP Evolution



Source: IMF

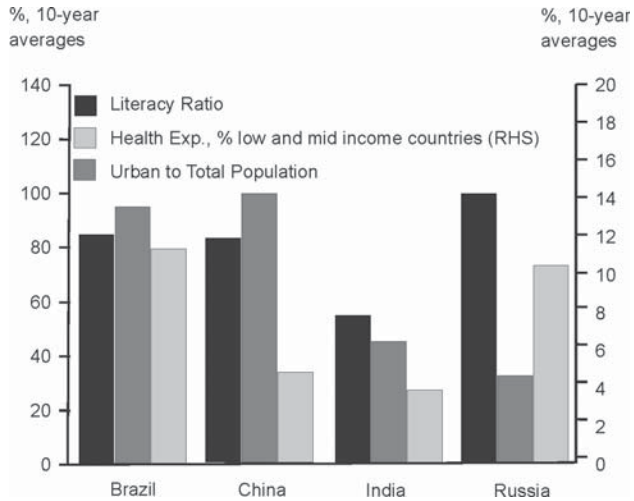
Chart 15: Large Emerging Countries: Population



Source: IMF

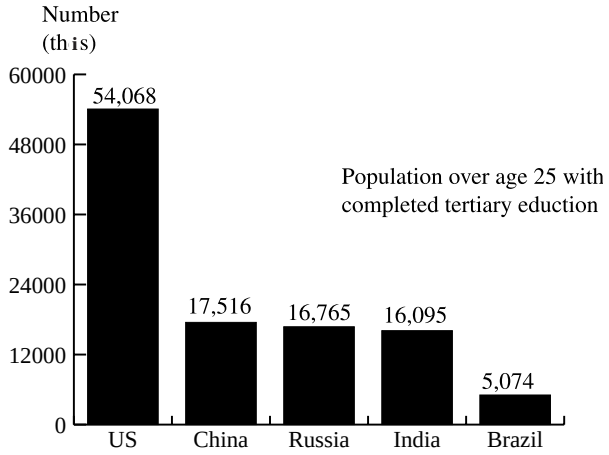
Recently, four of these emerging countries with continental dimension - Brazil, India, China, Russia and South Africa – were named BRICS[21], an acronym that aims at summing up the aforementioned phenomenon. Data in the Charts 14,15,16 and 17 below show the reason why these countries have drawn the attention of analysts from developed countries.

Chart 16: BRICS-Basic Indicators 2005



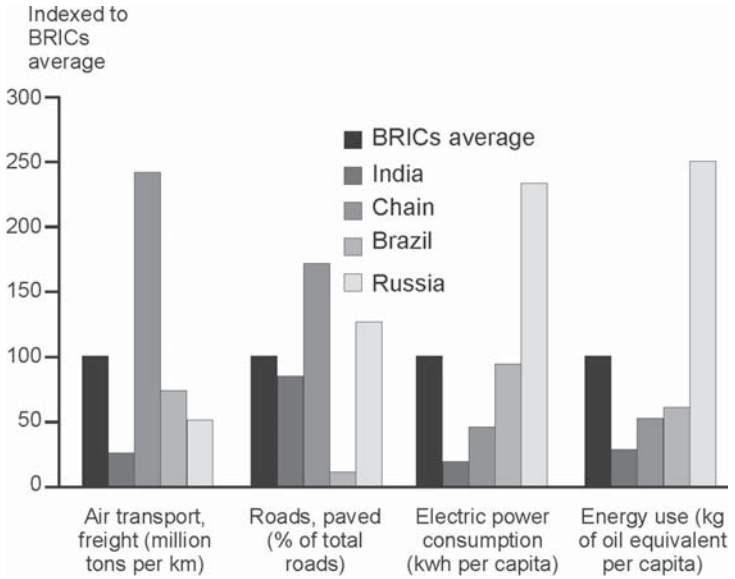
Elaboration: Goldman Sachs.

Chart 17: R&D Workers in 2005



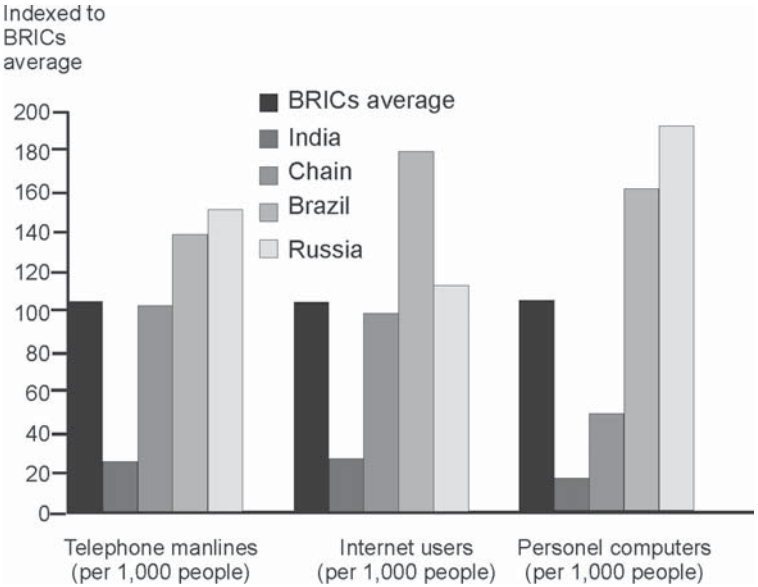
Elaboration: Goldman Sachs

Chart 18: Transport in 2005



Elaboration: Goldman Sachs.

Chart 19: Telecommunication in 2005



Elaboration: Goldman Sachs.

Not by coincidence, the most important relevance of these countries in international economy came from the generalization of the globalization process. The breakdown of the Soviet Union could be understood in the context of the idea that the capitalist logic needed to incorporate more and more markets into the same economic process. It is true that China continues to maintain the regime effective since 1949, but from the economic point of view the Chinese government from the 1980s, began to emulate the conditions of a market economy. Despite the Chinese economic system having remained centralized in its essence, it is remarkable on the part the Chinese government to simulate its way of work to a capitalist economy.

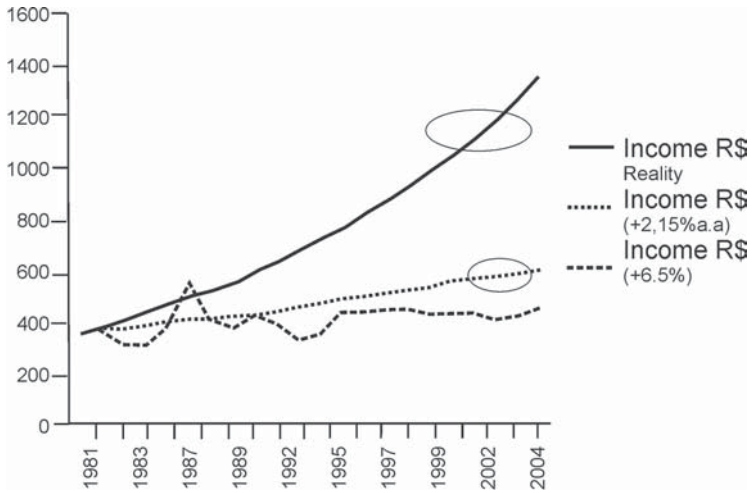
Regarding the forecasts of the Goldman Sachs' paper on BRICs for 2050, the following caution should be taken: projections for the future based on current data take for granted that national strategies and capitalist development in general will be maintained. However, there is no doubt that

these continental economies have enhanced their competitiveness and are on the lookout for a strategic position to make the most of the international insertion.

Just for the sake of comparison, the projections developed by the Hudson Institute[22] in the 1970s on what would happen at the turn of the twentieth century which caused quite an uproar at the time and are proof of how relative these prognostics are. For example, the notion of the Amazon at that time has been completely changed, so the proposal to flood the region to build naval bases to defend Western civilization from Soviet Union attacks is, at least, laughable at the beginning of the twentyfirst century.

If, on one hand, from the 1990s onwards there is a clear move by large emerging countries towards the "logic of the markets"; on the other, the results achieved in almost two decades are unquestionably different. All that is needed is a brief comparison between the growth rates of GDP in these countries to see the vast difference in performance. The best results were achieved by China, while Brazil registered the worst (Chart 14 - GDP growth rates: South Africa, Brazil, China, India and Russia).

Chart 20: Brazil - Income growth in Brazil: an exercise



Source: IPEADATA

If Brazil had presented the same growth average over the last twenty-five years as the other peripheral economies under study, or the same as its historical rate up to the beginning of the 1980s, it would have achieved results that were in fact significant in the reduction of poverty and social inequality. But stagnat social policies have no possibility of positively transforming the reality of millions of Brazilians. This adds to the country's stagnation which becomes all the more apparent when compared to the large emerging countries.

The reason for such a difference between the growth rates can be found in the structure and the extent to which these countries took to economic liberalization and the pro-market reforms that have characterized the international economy since the 1980s. With this, if it is fact that these countries present different growth rates in the period under question, the diverse strategies adopted by them for international insertion are also remarkable.

Above all, China has been implementing a consistent and constant national strategy for international insertion based not only on attracting Foreign Direct Investment (FDI), but also through an internal economic policy that guarantees high return on investment due to the macroeconomic conditions of the labour market. Note that the labour conditions in China - an essential element to explaining high return on investments cannot be imported to other economies. This is owing to the fact that it is the most populated country in the world, with a strong tradition of monocracy and very little interest in democratic legality.

Russia, despite having abandoned the communist regime in the beginning of the 1990s, still an autocratic approach and the status of a nuclear potential. It is seeking to rise above the development model based on oil and natural gas. However, the never-ending increase of oil prices may make it feasible to explore the reserves in the Caspian Sea,[23] postponing, most likely, more sophisticated international economic insertion.

India's most expressive participation in the centre of the international economic system is the result of the recent process of its economic liberalization since the beginning of the 1990s, as well as the way developed

countries, namely the US, has realized the importance of this country. India, although it has the second largest population in the world, has the largest number of engineers and scientists after the US, which has allowed its international insertion into areas of the knowledge-based economy. The solid economic, political and social institutions in terms of democracy guarantees India a status of regional potential.

For South Africa, after apartheid[24] and its resulting economic isolation, the liberalization process, and the transition to democracy at the beginning of the 1990s, fostered economic development more relevant to the country and the beginning of fairer distribution of income.

When it comes to Brazil, as previously mentioned in this paper, running the economy has not got its own development strategy and is restricted rather to controlling inflation and the solvency of the public sector. For this reason, economic growth has been systematically left aside year after year for a series of excuses.

As the data points out, the differences between the large peripheral countries are quite expressive. Apart from the fact that these economies are components of the same group of countries with considerable potential to impact the developed countries, the ties between these countries are not *natural* and, therefore, the possibility to revisiting the movement such as that in the 1970s is not very realistic. It is important to remember that these countries are competitors in the main world markets rather than spontaneous partners.

Nevertheless, the existing disparities and rivalry among these countries do not mean that it is completely impossible to build cooperative relations between these nations. There are, evidently, common characteristics that take for granted the existence of concrete interests that allow the development of sustainable alliances. Excluding Russia, the other countries are members of the World Trade Organization (WTO) and have managed to create converging positions in the Doha negotiations.[25] There is a lot of room to work on the FDIs and technologic transfers.

Considering this, Brazil has a relevant role due to the following fact, namely that: it is more nationally integrated; that there is no overpopulation problem; that it is more used to a market economy; that its industrialization included the participation of transnational companies from diverse places; that it has a sophisticated and complex economic structure; that it has consolidated its democratic process over the last twenty years; and, evidently, that it has large and varied natural resources. Unfortunately, the most crucial problem the country faces today if the lack of what was a Brazilian characteristic throughout eight decades in the twentieth century, namely economic drive. Without recovering the capacity for strong and sustainable growth, it is not likely that Brazil will be a key player that the developing countries and the less developed countries expect it to be.

The new factor that allows for more optimism is related to a possible Brazilian development strategy based on its rich potential of natural resources association with the new technology that the country has. For reasons, such as increase in prices and uncertainties concerning fossil fuels which in turn is connected to the increasing geopolitical instability in productive areas; and environmental and climactic problems which have become increasingly relevant, there is worldwide interest in the production of biofuel and bioproducts. As is well known, Brazil possesses the best conditions to become a worldwide player. That is why the following analysis focuses on the evolution of Brazilian agriculture.

3. The Agriculture Trinomial: Food, Bioenergy and Bioproducts

The Brazilian agricultural sector's reputation, which put the country among the most competitive worldwide exporters, is the result of a series of transformations that occurred over the last three decades. Along with the other causes that helped transform agribusiness in Brazil, it is important to mention the following: i) the reduction of government intervention; ii) the trade liberalization; iii) the investment in research; and iv) the development and stabilizing of internal prices.

3.1. Brazil Agriculture: Food

The process of modernization of the Brazilian agriculture began in the military regime in the 1970s when plantations expanded from moderate

areas (southeast and south) to more tropical zones in Brazil's midwest and northeast. Such expansion could be possible due to the research carried out by the Brazilian Agricultural Research Corporation's (EMBRAPA)[26] to adapt seeds and develop new products, as well as the developing of access to government credit associated to the minimum price policies.

At the beginning of the 1990s, liberalization of economic policies had an important impact on the agricultural sector turning it into the most dynamic sector of the Brazilian economy. Among the changes were the reduction of government intervention and greater integration into the international market. If, on one hand, there was a drastic change in the way the government intervened by abruptly reducing subsidized credit; on the other, investment in research and technology was not only maintained, but was in fact expanded. Voluntary access to the International Financial Markets guaranteed other financing mechanisms to substitute government credit. So, at that time, the grain production more than doubled, and the meat production almost tripled. This agricultural growth is a contrast to the other sectors and was only possible because of the link to exports that doubled in the period.

The increase in competitiveness of Brazilian agribusiness exports is associated to factors such as investments in research and technology both in the private and public sectors, the stability in prices as of 1994, and the increase in expenditure on purchasing equipment. In Brazil, the estimated annual average growth of agricultural productivity was 5.7 per cent between 1998 and 2002 when, in the US, the annual rate was at 1.8 per cent between 1948 and 2002.[27] Investments in research and technology, besides promoting an increase in productivity, made it possible for the expansion of modern agriculture to new regions in the interior of Brazil, and a substantial diversification of products surpassing the small group of tropical commodities produced beforehand. Finally, these changes, connected as they were to the increase in international demand, at the end of the 1990s, resulted in the most significant growth in the sector over the last few decades. Table 6 shows the main changes in Brazilian agricultural policies in the last four decades.

Table 6: Agricultural Policy in Brazil (1965-2005)

	1965-1985	1985-1995	1995-2005	Proposed Agenda
Macroeconomic conditions and policy	- High inflation - Controlled Exchange rate - High growth rate - Increased government expenditures in farm policy	- Uncontrolled inflation and low growth (stagflation) - Heterodox plans - Debt crisis - Land as real asset - Decreased government expenditures in farm policy	- Control of inflation - Volatile Exchange rate - High real interest rate - Modest growth rate - Privatization	- Low inflation - Structural reforms and fiscal balance - Less volatile exchange rate - Lower interest rates - Sustained growth - Investments in infrastructure
Agricultural policy goals	- Food security	- Deregulation - Liberalization	- Land reform programs - Family farming and social inclusion	- Competitiveness - Sustainability (economic, social and environmental)
Price suport and government storage	- Massive intervention: public agencies, government purchases and storages, price controls - Commodity price support	- Decreased intervention - Agricultural commodity market deregulation	- Modest and selective intervention	- Modest and selective intervention
Rural credit	- Government supply of credit financed by treasury (SNCR) - Negative real interest rates	- Decreased government supply of credit - Interest rates less subsidized	- Credit lines targeted to family farms (PRONAF) - Specific programs for investment credit (BNDES) - Agricultural credit crisis and debt rescheduling	- Crop insurance - Private instruments for agricultural finance - Targeted credit lines to family farms - Credit cooperative development

Table 6 continued

Table 6 continued

	1965-1985	1985-1995	1995-2005	Proposed Agenda
Agricultural trade policy	- Closed economy - High tariffs - Import substitution model - Export taxes on primary commodities	- Unilateral openness to trade - International integration (Mercosur) - Elimination of export taxes	- Aggressive policy against agricultural trade barriers - WTO dispute panels - Leadership in G-20 - Negotiation of regional agreements (FTAA, EU-Mercosur)	- Aggressive trade policies negotiations, litigations - Increased emphasis on NTB´s: technical, sanitary and social barriers - Conclusion of regional and bilateral trade agreements
Agricultural research and extension	- High investment in public research (Embrapa, federal and state universities) - Development of public extension service network	- Leveling-off of public investment	- Crisis of public research and extension services	- Renewed public commitment to agricultural IR&D, including GMOs - Increased role of public private partnerships - Intellectual property rights

Elaboration: F, Chaddad & M. Jank

Brazil's total planted area has grown over the last three decades. Over the last six years, there has been a strong 11 per cent annual increase. In the same period, corn and grain for oil (soybean) took over almost two thirds of the total planted area. Other products, in the order of importance, included: sugarcane, fruit and vegetables, and coffee. The growth in the areas for soybean and sugarcane was, on average, 3.5 per cent and 2.0 per cent per year, respectively; areas for cultivating tobacco and fruit showed more modest growth, rising by 0.7 per cent and 0.4 per cent , respectively; while the areas for producing cocoa, coffee, cereals, and vegetables dropped between -0.2 and -1.8 per cent.[28]

The agribusiness concept is aimed at modern agriculture that is not restricted to the direct producer, but rather contemplates the entire productive chain: inputs, agriculture itself, agro-industry and distribution. Therefore, chains leading to agribusiness, and those following it, incorporate activities in the primary, secondary and tertiary sectors of the economy and demand continuous technological development and sophisticated management capacity. With this, Brazilian agribusiness is characterized by the large-scale economies and concentration of capital in its four components.

The modernization of Brazilian agriculture and the increase in international competitiveness brought about more expressive involvement of transnational companies in agribusiness. For example, eight out of the ten largest companies in the food industry are transnational and the three largest supermarket chains are controlled by foreign groups.[29] With exports rising from US$ 8.9 billion in 1990 to US$ 21.1 billion in 2003, the possibility of further increases, resulting from the advances at the Doha Rounds and the perspectives opened by biofuel and bioproducts, one can suppose even further significant increases of FDI in agribusiness.

Concerning the destination of Brazilian agricultural exports, Europe remains the largest market, even though the agricultural exports dropped from 52.4 per cent to 40.3 per cent in 2003. Asia and the Pacific, the Middle East and North Africa, Europe and the former Soviet Union countries represent, respectively, the second, third and fourth largest markets for Brazilian agricultural exports. The average annual growth of Brazilian exports to these regions was 11.8 per cent between 1990 and 2003. Brazilian

agricultural exports to Canada and the US showed an average annual drop of -0.9 per cent, but, if one considers only the period from 2000 to 2003, they grew by approximately 10.9 per cent a. a.

Latin America and the Caribbean imports of Brazilian agricultural products showed an average annual growth of 9.1 per cent between 1990 and 2003. However, in contrast to the US and Canada, if one considers only the period from 2000 to 2003, there is a drop of -1.4 per cent a. a., due mainly to the effects of the Argentine crisis in Paraguay and Uruguay. Finally, the African Sub-Saharan markets showed expressive growth, rising at an annual rate of 11.9 per cent between 1990 and 2003.

The European Union, China, the US, Russia and Japan received 77 per cent of the total Brazilian agricultural exports in 1990 and 64.4 per cent in 2003. Nonetheless, while the US, Europe and Japan lost ground in the period, China and Russia emerged as important markets for Brazilian agricultural exports. The Middle East and North Africa also became large importers of Brazilian products, for example Iran, Saudi Arabia, Egypt and the United Emirates.

Brazilian agricultural exports are concentrated in some specific agricultural chains. In 2003, the 12 main segments of the sector totaled 93.9 per cent of exports, with the first six representing 80 per cent . Exports linked to soybean totaled 40 per cent. Products related to soybean, meat and to corn took on more importance in the export roster, while coffee, cocoa and tobacco showed a significant drop.

Brazilian agricultural imports have also grown over these last few years, with Latin America being the largest exporter of agricultural products to Brazil. The region supplied 66 per cent of the total agricultural imports in 2003. Second and third on that list are Europe and the US, with 14.6 per cent and 11.2 per cent respectively, of the total imports in 2003.

In the commercial exchange of agricultural products, Brazil has a surplus in every region of the world, except for Latin America and the Caribbean, where an average annual deficit of US$ 1.1 billion has been registered. Of all Latin American exports to Brazil, the largest part comes from countries in the Mercosur, especially Argentina.

In spite of the success of Brazilian agricultural exports, the growth of Brazilian agribusiness has encountered some obstacles, both internally and externally, that merit mentioning. The internal issues relate to macroeconomic strangeness, such as high interest rates, volatility of exchange rates, excessive tax load and others, have already been covered. But there are still some specific domestic problems related to agribusiness, including regulation of genetically-modified products; reduction of government spending to prevent sickness of the animals and sanitation control; and the uncertainties resulting from an intensifying social movement requesting agricultural reform.

In the context of social demands related to land ownership, during the Fernando Henrique Cardoso administration there was a major effort to deal with the social rural problems, which pushed back agricultural reform as a priority to reduce poverty in rural areas. It was understood that the real need was to better the living condition of the rural population – an effort that was easily carried through without having to promote a radical change in the land ownership. As such, special programmes for family-run agricultural businesses including credit, qualification, and the push to form co-ops were launched. As part of the initiatives for the rural area, close to 500,000 families were settled on lands that were not occupied productively. With the election of the current President, the demand for agricultural reform, similar to that raised much like at the end of the nineteenth century rose again and led to political instability in rural areas.

With respect to external obstacles, the main problem relates to the difficulty of access to markets in developed countries. That is why, for Brazilian agribusiness, the Doha Round provides an opportunity to improve conditions of international trade in agricultural products. The European Union, for example, which is the largest importer of Brazilian agricultural products continues to place restrictions on its internal market.[30]

Recently, new frontiers for international expansion arose for Brazilian agribusiness; these are biofuel and bioproducts. Strategic issues such as energy security and environmental questions were open to discussion in

countries in the European Union and the US, putting the energy framework based on fossil fuels into check.

As is well known, the US is the biggest consumer of oil in the world and although it is a producer, still it depends heavily on imports which are close to 64 per cent of the yearly needs. Even though the effective high prices make oil exploration possible in the Caspian Sea and with that the worldwide oil supply increases, issues of security related to the use of fossil fuels would remain for worldwide consumers. A good part of this additional oil supply would be for countries like Iran and Russia.

Global warming and the need to reduce gas emissions caused by the greenhouse effect, are high on the international agenda and most certainly will be part of the next US election debate. The need to substitute and complement fossil fuels with biofuel is a new factor that will swiftly alter the worldwide energy framework. Such change in the energy framework could open an excellent opportunity for Brazil and other developing countries.

It is reasonable to say that Brazil's success in food production can lead to increase in bioenergy and production of bioproducts. Based on the analysis of policies for the use of biofuel in the US and the EU, it is also possible to make optimistic projections about the potential of the biofuel market and the consequent increase in worldwide exports.

The Energy Policy Act, signed by the American President in 2005, which established norms for Renewable Fuels Standard, was one of the major issues in the presidential speech at the State of Union Address in January this year.[31] If to achieve this objective which is five times smaller and which was established previously, the US was having difficulty, it is obvious what would happen after this expressive increase.

In February 2007, the goal was established in the European Union to increase the mix of ethanol and bio-diesel with fossil fuels by 10 per cent by 2020. It was more of a suggestion rather than a mandatory measure. Even though the member countries adopt their own bioenergy policies and there is no agreement on this the announcement could not go unnoticed.

If in the US the main raw material used for producing biofuel is corn; in the EU different inputs are used, such as beets, wheat and other cereals. Nonetheless, both in the US and the EU, the increase in biofuel production tends to pressure greatly the price and the production of food.

With this, one can conclude that, according to the projections based on the goals established to substitute and complement biofuel in the US and the EU, the increase in energy commodity imports will be indispensable.

Also, the natural productive advantage presented by tropical and subtropical developing countries and the greater need for energy of the developed countries clearly forecast a new and sizeable commercial wave that will be boosted by biofuel.

Brazil is among the countries with great potential for production of biofuel. It is the second largest producer of ethanol in the world and the largest producer and exporter of sugar. At the moment, the main restriction to a huge increase of ethanol exports lies in the difficulty to access the markets of developed countries. Even if these countries offer a wide range of subsidies for production of raw materials that are used to produce biofuel, the costs of production in countries like Brazil are low enough to continue to be competitive.

3.2. Brazil Agriculture: bioenergy and sugarcane

Brazil has over thirty year's experience producing biofuel from sugarcane. The National Ethanol Programme (Proálcool) was launched in 1975 by the General Geisel military administration after the first oil crisis, with the idea of maintaining the ambitious goals of the 2nd National Development Plan that had been threatened by the possibility of oil prices rising four times.

In fact, the use of ethanol as automotive fuel had already been identified since the end of the nineteenth century. However, it was the work done at the Aeronautic Technology Center[32] that made it possible not only to adapt the engines for the use of the ethanol-gasoline mix, but also to convert the engines to receive pure ethanol. The availability of Brazilian technology to use ethanol as a fuel was a key element for the launching of Proálcool.

With regard to the production of industrial ethanol, Brazil already had vast experience and exceptional conditions to cultivate and extract both ethanol and sugar. As is well known, the history of Brazil's colonization is a mix of plantations and sugar refining.[33] Although it was an old tradition at the time that Proálcool was launched, the sector had been modernized, especially in the southeastern region of the country.

Proálcool focused its incentives on producing anhydrous alcohol[34] to mix with gasoline, which brought about the construction of new modern distilleries. The response from the private sector was quick: from 600 million liters per year in 1975, the country began to produce 3.4 billion liters per year in 1979. At the same time reduction in the need to import oil, use of gasoline and pure ethanol contributed to reducing carbon monoxide emissions and to eliminating lead from gasoline. In the large urban centers, like São Paulo, the benefit from using biofuel was quickly perceived.

In the mid-80s, the fall in oil prices and the difficulty in maintaining regular stocks of biofuel led to the loss of enthusiasm in relation to the use of ethanol.

At the beginning of the 1990s, several factors discouraged the use of ethanol-driven cars. These factors were related to the following: i) trade liberalization; ii) import of gasoline-driven cars produced overseas; iii) the incentive to produce compact cars (1,000 cylinders) developed to use gasoline; iv) and problems with filling up ethanol tanks. This crisis was contained by a drop in the purchase of ethanol-driven cars and by introduction into the market of a mix of hydrated ethanol with methanol and gasoline. Still, this marred the concept of the ethanol-driven car.

By the end of the 1990s, the main internal restriction on expanding the use of ethanol-driven cars was the seasonal availability of ethanol resulting from both the non-existence of regular stocks and oscillations in international sugar prices. But with the development of flex fuel engines this problem was eliminated. There was an enormous technological competition to develop and launch the biofuel car. The first automobile producer to launch a flex fuel car was Volkswagen followed by General Motors.[35]

Even though the flex fuel technology was developed by transnational companies, with healthy competitive rivalry, this technology, based on the possibility of mixing fuels, was the result of years of research on the corrosion of parts, the cold-start ignition system and the possibilities of mixing ethanol and gasoline carried out in Brazil.

Currently, the flex fuel vehicles dominate the Brazilian market, representing close to 80 per cent of sales of new vehicles in 2006. More recently, Toyota, the biggest car producer in the world, began producing flex fuel vehicles in Brazil.

The expansion of ethanol consumption in Brazil and the perspectives for an increase in exports are taking place simultaneously at a time when sugar prices are high in the international market. This has motivated the planting of sugarcane in the country and boosted programmes of Brazilian companies to produce ethanol abroad.

So, there are private production projects to produce anhydrous alcohol[36] in Jamaica[37] with the aim of reaching the American market easier. Through the CBI (Caribbean Basin Initiative) programme, Caribbean countries can export up to 7 per cent of the US total demand for ethanol with exemption of the import tariff which is applied to other countries like Brazil, for example. Joint venture projects that are also being studied are between Brazilian and European companies to cultivate and produce ethanol in African countries.

Stressing the possibility of expansion of the Brazilian experience on biofuel production and use, the newly-inducted President of the International Bank for Reconstruction and Development (IBRD), in a recent visit to Brazil, affirmed that the bank is interested in financing, in partnership with Brazilian enterprises, biofuel production projects in less developed countries. This type of announcement can be understood as the demonstration of a possible path to build South-South cooperation.

Finally, the production of bioproducts extracted from sugar cane and other cultures as substitutes for products derived from crude oil is equally promising. The *Universidade Estadual de Campinas* and other research

centers in the State of São Paulo have been obtaining exceptional results on this field. Therefore, the agricultural trinomial become complete, making it possible to use many kinds of cultures as food, biofuel and bioproducts.

4. Final Considerations

In conclusion there some issues are raised for discussion before this paper will be finalized: In first place, agriculture seen as a three-angled concept, with food, bioenergy and bioproducts as important elements for boosting the Brazilian economy, has been stagnant for nearly three decades. Under the hypotheses presented by Klinger and Lederman[38] the inductive development discoveries are not restricted solely to so-called “dynamic” industrial sectors. They can exist in agriculture, which seen as agribusiness has this potential.

Secondly, the natural productive advantage presented by tropical and subtropical developing countries along with the developed countries with greater need for energy clearly forecasts a new and sizeable commercial wave that will be boosted by biofuel. Some analysts refer to this new opportunity as a three-angled concept among developed countries: Brazil and other developing countries and less developed countries in tropical and subtropical areas.

Also, a national strategic plan for the bioenergy sector should include growing investments in innovation and participation of government, private sector and academica so that Brazil can maintain its leadership in this new prosperous market of biofuel. International partnerships for development of new processes, which are mainly of bioproducts, are needed. The most promising is the research being conducted by *Lignocelulose* which makes it possible to produce ethanol from sugarcane residue (waste after sugarcane is crushed), molasses grass, peels, grass, etc.[39] This could mean an increase in the number of countries that could take part in the future global biofuel market.

Finally, the effective construction of a global biofuel market is desirable to establish standards, production conditions and commercialization, which

would, in turn, transform agricultural products into **bioenergy commodities**. This advance is considered essential for overcoming the restrictions on the access to these products in larger consumer markets.

Endnotes

1 The author is very grateful to Juliana Simonsen Mellão, Flávia Donadelli and Marilia Jimenez Zanona for the assistance provided in this study.

2 MADISON, August, "Monitoring the World Economy 1820-1992". Paris: OECD, 1995, 1998 .

3 The 1930s Revolution was a Brazilian armed revolution undertaken by Liberal Alliance opposition to Paulista´s coffee oligarchs. The 1930´s Revolution was leade by the States of Minas Gerais and Rio Grande do Sul and deposed the elected president Júlio Prestes (from State of São Paulo) who was replaced by Getulio Vargas (from State of Rio Grande do Sul).

4 The State of São Paulo is a Southeastern Brazilian state. São Paulo is the most populous and rich Brazilian state and it's responsible for 31 per cent of Brazilian's GDP. São Paulo received immigrants from many different parts of the world, so it has a very heterogeneous population.

5 The results of the IEEI research was published in Dupas, G.(org.)- Espaços para o Crescimento Sustentado da Economia Brasileira– UNESP, São Paulo, 2007.

6 Plano Real: Brazilian economic programme developed in 1994 during Fernando Henrique Cardoso´s leadership.

7 As one knows, the Anglo-Saxon model of capitalism that originated in the US is based on the technological revolution that based on information and communication; on the supremacy of the financial sphere; and on the set of pro-market policies. Such policies are often described as deregulation, privatization, unilateral trade opening and — mainly— financial liberalization. From the "Reaganomics" era, this new kind of capitalism started to be associated with the globalization process – understood as the interdependence of financial markets and the shift of the dynamics of capitalism to financial activities.

8 The IMF developed the concept of primary fiscal surplus after the Balance of Payments crisis of the 1990s. It is defined as the difference between the total public revenue subtracted from the non-financial government expenses. Thus, positive primary results aim at guaranteeing the payment of the government's financial expenses (interest).

9 According to Brazil's Central Bank, between 2002 and 2006 the internal public debt rose 25 per cent in real terms. www.bacen.gov.br

10 The Brazilian sense of humor is unfailing.

11 IBGE: Instituto Brasileiro de Geografia e Estatísticas. Official agency of the federal government.

12 The growth of the drug economy and, its most visible consequence, the rising violence in many Brazilian cities is one example of such social crisis.

13 See for example: Regis, Bonelli, Sandra Maria, Rios & José E., Reis (1988); Winston, Fritsch & Eduardo Marco, Modiano (1988).

14 As it is well known, the Chinese market has had a crucial role in the rising demand for commodities.

15 As it has been the case in Guatemala, Honduras and Nicaragua, among other Latin American countries.

16 United Nations Conference on Trade and Development (UNCTAD) data show the lessening importance of Brazil in the FDI for developing countries: the increase in the flow of FDI in 2005 was of 29 per cent , while in Brazil there was a reduction of 20 per cent UNCTAD (2006).

17 The worn-out line of the current President "never, in the History of this country, have we seen such a positive moment" is justifiable in this case.

18 It is the growth cum debt strategy adopted by Brazil from the late 1960s to the beginning of the debt crisis, in 1980. The worsening of the indexes of external vulnerability indexes, between 1994-1998 had no "counterpart" in any remarkable GDP growth, as it had happened in the 1970s. See, for example, Bresser Pereira (2004).

19 See, for example, Medeiros & Serrano, 2001.

20 The category "large peripheral countries" was elaborated by Prof. Gilberto Dupas to refer to countries with a GDP above US$120 billion, a population of more than 25 million inhabitants, and income per capita calculated in terms of Purchase Power Parity (PPP) below US$18,000 per annum. Dupas,Gilber to- South África África do Sul, Brasil e Índia:divergências, convergências e persprctivas de alianças_in Índia, Brasil e África do Sul- VILLARES, FABIO (org), 2006, UNESP-SP, Brazil

21 Sachs, Goldman- Dreaming with BRICs: The Path to 2050- Global Economics Paper No 99, 2003, New York, USA

22 Herman Khan created the Hudson Institute in 1961. He built scenarios based on System Analyses and Game Theory. His main work, written together with Anthony J. Wiener, is The Year 2000 – A Framework for Speculation on the Next Thirty Three Years- Hudson Institute, Macmillan,New York, USA 1967.

23 The giant Kaschagan in the Caspian Sea is considered one of the largest oil reserves in the world.

24 The apartheid regime prevailed in South Africa from 1948 and 1990. In 1994, free elections were held which marked the end of that regime.

25 Both the creation of the G-20 and Brazil and India's active participation in the informal group to overcome the impasses at the Doha Rounds prove the real possibility of cooperation at the WTO.

26 EMBRAPA-Empresa Brasileira de Pesquisa Agropecuária is a federal government company.

27 , J.G. Gasques; E.T; Bastos, M.P.R Bachi, J.C.P.R. Conceição.- "Condicionantes da produtividade da Agropecuária Brasileira", Revista de Política Agrícola, 13(3), 73-90.

28 M.Q. M. Jales; M.Jank, S.Yao, C.A. Carter- Agriculture in Brazil and China: Challenges and Opportunities- Occasional Paper 44, IDB, 2006

29 F.R. Chaddad, M.Jank - The Evolution of Agricultural Policies and Agribusiness Development in Brazil– *Choices Magazine* 21 (2), American Agricultural Economics Association, 2006

30 As previously mentioned, within the context of the Doha Round and the agricultural negotiations at the WTO, Brazil and the coalition of developing countries, members of the G-20, found a common base for negotiations aimed at stopping agricultural subsidies

in developed countries and guaranteeing better access to these markets.

31 For 2012, the initial usage goal was 28.4 billion liters of biofuel, which was increased to 132.5 billion liters.

32 Centro Tecnológico da Aeronáutica (CTA) in São José dos Campos, São Paulo is part of the Comando Geral de Tecnologia Aeroespacial.

33 Despite sugarcane being originally from India, it was the Portuguese that developed the technology to cultivate it on a large scale and to extract sugar.

34 Hydrated ethanol the final product of the process of distilling and rectifying. Hydrated ethanol can be sold directly or can go through a dehydrating process and be transformed into anhydrous alcohol.

35 VW launched a flex fuel model before GM when they did not even have the product in production. The heated competition between these two car manufacturers clearly shows the perception of the market potential for this product.

36 Anhydrous alcohol or dehydrated ethanol that facilitates transport.

37 Opened in 2005 the plant of the Brazilian enterprise Coimex processes hydrated alcohol from Brazil. Currently all of the plant production is exported, but with new planned investments around 20 per cent of the production is going to stay in Jamaica, as the country has introduced a mixture of 10 per cent ethanol in gas.

38 B. Klinger; D. Lederman - Discovery and Development: an empirical exploration of "new products ", World Bank, Nov.2004 (Policy Research Working Paper, n.3450)

39 See R. E. Lugar; J. Woolsey - The New Petroleum, in *Foreign Affairs*, Vol.78

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