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THE SUBSTITUTION OF FOREIGN FOR DOMESTIC SAVINGS AND ITS INVERSE: THE BRAZILIAN CASE

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Abstract. Brazilian economy was able to put an end to high inertial inflation in 1994, but, despite the large inflows of capital received in the form of finance and direct investment, the country remained quasi-stagnant. A central explanation for it was the opening of the capital account and the adoption of growth with foreign savings strategy. In this paper, the focus is in the exchange rate which tends to become overvalued in consequence of such strategy. The paper shows that the perverse effects of such strategy operate in three stages: first, substitution of foreign for domestic savings; second, indebtedness and financial dependency of the country; and finally, balance of payment crisis. After that the paper concentrates in the first stage: summarizes the critique of the growth *cum* foreign savings strategy into a model, defines the rate of substitution of foreign for domestic savings that takes place when current account deficits are increasing, and its inverse. Finally, it offers a simple measure of both rates for Brazil, in the 1990s, when the country was receiving foreign savings, and in the 2000s, when the inverse happened.

After the foreign debt crisis of the 1980s, and after the stabilization of the high inflation in 1994, Brazil, like almost all Latin-American countries, accepted the strategy of growth with foreign savings. This, consistently with a monetary policy that keeps the country fettered to a trap of high interest rates and appreciated foreign exchange, kept it semi-stagnant, with investment rates under 20% of GDP and very low growth rates, although, since the late price stabilization in 1994, Brazil seemed to offer all the conditions for a remarkable resumption of growth. The high that has for many years prevailed in the Brazilian economy is related to an appreciated foreign exchange rate and to the high basic interest rate that have been in force since the release of the Real Plan. In a few months, after July 1st, 1994 (when the monetary reform under the Real Plan put an end to high inertial or indexed inflation), foreign exchange appreciated steeply in face of the massive inflow of capitals drawn to the high interest rates and the newly stable currency. This appreciation turned the foreign surpluses the country had been reporting since 1983 (when

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it depreciated its currency) into high current account deficits that were a perfect match for the growth with foreign savings strategy. The belief that foreign savings are the means to bring about economic development — 'it is natural for rich countries to transfer capitals to capital-poor countries' — it is deeply inserted in economic theory; it was already present in neoclassical economics, in development economics, in the Eclac's structuralism theory,[1] and plays a central place in the theory of 'associated dependency' of the late 1960s;[2] it is not present in the Keynesian economics because savings result from investment, but Keynesians don't have a critique of growth financed by foreign savings. In the Brazilian case, foreign loans and direct investments facilitated the growth rates achieved in 1968-1973 (the brief 'miracle' period), but then led the country into the massive foreign debt crisis. The same belief reemerged with full force in the early 1990s, at the heart of conventional orthodoxy, and was quickly accepted by the Brazilian government and elites.[3] The effects of this new strategy of growth with foreign savings, now complemented with an open capital account, were disastrous for the economies of Brazil and other Latin American countries. The sole exception was Chile, who, like the Asian countries, was capable of controlling capital inflows and defending its foreign exchange rate from the appreciation caused by current account deficits legitimized by being foreign savings. It was, until the 1960s, more of a theoretical proposition. From the 1970s onwards, however, this belief began taking over from the law of comparative advantages as an unintended means of neutralizing developing countries' growth efforts. Until then Ricardo's law of comparative advantages, in addition to being a landmark in economics, was the ideological instrument Britain used to exercise domination — neutralizing late countries' attempts to protect their infant industry. England was the first to use it against lagging European countries. Later, rich countries used it against developing ones. Since the 1970s,

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[1] Development economics has been based on this thesis since its seminal paper (Rosenstein-Rodan, 1943): Lewis's (1956) classical paper and Chenery and Bruno's (1962) two-gap model are paradigmatic; Latin-American structuralism, which is a version of development economics, also adopted it since Prebisch (1963); for Keynesianism, see McCombie and Thirwall (1994) McCombie (1997), and Porcile and Tadeu Lima (2005), who resume the structuralist concept of the income-elasticity of imports being grater than that of exports.

[2] In Cardoso and Faletto (1969) the authors, despite acknowledging that until the 1950s Latin America had grown with domestic savings, argue that since the 1960s it could only grow based on foreign savings; for a recent discussion of the topic, see Bresser-Pereira (2005).

[3] I understand for 'conventional orthodoxy' the sum of diagnoses and recommendations that rich countries make to developing countries principally through IMF and World Bank.

however, when the first NICs (newly industrialized countries) began exporting manufactured goods to rich countries, it were the latter that had to protect themselves from these competitors who used their cheap labor to make exports. How, then, to neutralize this threat or perceived threat?[4] In the 1970s (the decade in which the Golden Years of capitalism ended and began the neo-liberal ideological offensive) rich Northern countries found an answer to this question in the growth with foreign savings strategy. Yet, this strategy only became clear in the 1990s, with a new wave of capital inflows to developing countries, now referred to as 'emerging markets'. For rich countries' governments, represented by the international agencies in Washington, and mainly for those countries' multinational corporations, the idea of medium income developing countries competing for their resources was attractive. The trumps in the competition, however, were not limited to austere economic policy: they also included the introduction of market-oriented structural reforms, particularly, open capital account, to be combined, first, with dollarization, and, when dollarization proved unworthy, with a floating foreign exchange rate. Acceptance among developing countries was widespread.[5] The more dependent a country, the faster it would accept the tempting offer from the North to grow with foreign savings, that is, with current account deficits. Some sounder or prudent Asian countries, like China or Taiwan, were not fooled. Others Asian countries yielded, incurring high current account deficits and, finally, enduring the 1997 balance of payments crisis. But they learned fast, devaluing their currencies and quickly resuming current account surpluses. Brazil, on the other hand, like almost all Latin-American countries, joined the race for foreign savings, faced balance of payment crises, and did not experienced growth.

The real and great competition, however, is globalization. Here, this unintentional but effective process of neutralizing the competitiveness of cheap labor countries through the growth with foreign savings strategy can be divided into three stages. In the first one, current account deficits financed with foreign savings cause a process of substituting foreign for domestic savings – the main topic of this paper. With successive current account deficits, the country's foreign indebtedness, whether financial or equity (arising from direct investment) increases so that, in the second stage, the country is heavily into

[4] 'Perceived threat' because, though aware of the fact that medium income developing countries that use their cheap labor to export manufactured goods pose serious competition for rich countries and imply structural changes therein, I don't believe that their development in any way harms rich countries.

debt, financially weakened and, as a result, dependent on the outside: any debt refinancing suspension may lead to a balance of payments crisis; as a consequence, the country feels or regards itself as compelled to engage in 'confidence building', that is, to adopt creditor recommendations without submitting them to appropriate criticism based on the national interest criterion. The third stage is crisis. Be it because foreign debt-to-GDP or debt-to-exports ratios are excessive or picking up too much speed, creditors, who already assign increasingly worse risk ratings to the debtor country, suddenly decide to suspend debt refinancing; the country starts losing reserves and eventually has not choice other than default.

There is a condition under which foreign savings do contribute to economic development instead of hampering it. In the cases where a country is growing very rapidly and, for this reason, offers investors high prospective profits, resorting to foreign savings may be legitimate for some time, as the wages increase due to foreign exchange appreciation will not go entirely to consumption: in this case the marginal propensity to consume will diminish as people decide to invest more drawn to particularly favorable returns. The last time it was clearly present in Brazil was during the 1968-1973 'miracle'.

Table 1: Average annual GDP growth in three and a half decades — %

Period	GDP	*Per capita* GDP
1971-1980	8.67	6.10
1981-1990	1.67	-0.47
1991-2000	2.67	1.09
2001 – 2005	2.20	0.72

Source: Ipeadata – www.ipeadata.org.br.
Note: Calculations based on GDP and per capita GDP data in 2005 reais.

Although the process I am introducing is generalized among developing countries and, in particular medium-income countries, the two Latin-American countries that most

[5] The undersecretary of the US Treasure, at this time, is Lawrence Summers.

clearly experienced these stages in the 1990s were Argentina and Brazil: they both had large current account deficits and, therefore, received large amounts of foreign savings, but their investment rates did not rise and growth failed to resume; they became financially fragile and endured balance of payments crises. Although Argentina's is a textbook case, here I examine the Brazilian case, which I am more familiar with. The last time the Brazilian economy reported high growth rates was in the 1970s. Since then, as can be seen in Table 1, it has remained semi-stagnant. While *per capita* income grew 6.10% a year in the 1970s, growth was a mere 1.09 and 0.72%, respectively, in the 1990s and in the first five years of the decade of 2000, despite the great inflow of foreign savings in the 1990s. In the first section of this work I examine the new shape conventional orthodoxy took in the 1990s, when it adopted the growth with foreign savings strategy; in the second section I review Brazil's experience with foreign and domestic savings; in the third section I make a formal criticism of the growth with foreign savings strategy, which perversely keeps the country in debt, but contributes little to its investment capacity; in section four I return to the Brazilian case to assess the ratio of substitution of domestic savings with foreign savings that takes place when the latter increases; I also examine the inverse substitution (foreign with domestic savings) that occurs when current account deficits begin falling and eventually become surpluses: this is what happened since 2002 as a consequence of the 1999 depreciation and of the improved terms of trade in force from 2002 onwards.

THE NEW CONVENTIONAL ORTHODOXY OF THE 1990S

Conventional orthodoxy, that is, the set of diagnoses and recommendations emanating from Washington and more generally from rich countries has a clear pro-market bias and affirms nation-states' loss of relevance in the new worldwide economic framework. Most developing countries could benefit from fiscal adjustment and market-oriented reforms, particularly those leading to greater trade and financial openness. In the generalized competition frame that defines globalized capitalism, conventional orthodoxy disregarded that economic development is usually the outcome of a national strategy of growth: that a nation-state competing in the world economy cannot allow that its nation and state weaken, under penalty of arresting its development.

In the 1990s, conventional orthodoxy underwent deep changes that the Washington Consensus of the 1980s had failed to envision. Williamson's consensus explicitly excluded open capital accounts and free-floating foreign exchange rates. The new conventional orthodoxy, on the other hand, is based on capital opening and dollarization (in a first moment) or free-floating (in a second moment). The old orthodoxy which prevailed before 1990 cast the foreign exchange rate in a leading role and proposed its devaluation whenever crisis loomed; the new orthodoxy of the 1990s prescribes either a fixed foreign exchange rate to act as a nominal anchor against inflation (hence dollarization), or its opposite, a free-floating exchange rate that, in theory at least, would keep al crises at bay. Under the old orthodoxy the IMF's core goal was to prevent balance of payments crises, which it sought to attain by limiting foreign indebtedness; with the new orthodoxy, the agency began competing with the World Bank to promote economic development via foreign savings. The new conventional orthodoxy was to have disastrous consequences for its adopting countries; notwithstanding, it was indeed promptly embraced by the elites of most developing countries because it appeared to imply no costs — only benefits.

Instead of telling developing countries what should do to adjust and stabilize their economies, as was the case during the foreign debt crisis, conventional orthodoxy in its new version announced what they had to do in order to grow. The prescription was simple: just add market-oriented reforms to fiscal adjustment in order to qualify for foreign savings within a framework of complete financial openness. Instead of the 'development *cum* debt' of the 1970s we now had 'development *cum* foreign savings': the same thing by a different name and new financial instruments — financial securities instead of bank loans.

Like all successful ideologies, the growth with foreign savings strategy is simply and clearly enunciated. It can be summed up in a sentence made of three terms. The first one ('we understand that you no longer have the resources to fund your development') rings true; in fact, medium income countries like Brazil, or Mexico, or China, do have resources for development; in Brazil the remarkable development between 1930 and 1960 was essentially achieved with domestic resources. The second term is a twin condition ('but not to worry, just carry out fiscal adjustment and reforms'); it is most reasonable as regards fiscal adjustment; as for the reforms, it depends on what reforms one has in mind.

After the two conditions were met, the sentence is completed: 'we will finance your development with foreign savings, possibly with direct investment.' There lies the misguided Brazilian decision to disregard the issue of foreign unbalance after the Real Plan; there lies the main explanation for Brazil's two balance of payment crises: one in 1998, in the end of the first Fernando Henrique Cardoso administration, the other in 2002 in the end of his second.

THE BRAZILIAN EXPERIENCE

Brazil since 1995 adopted the growth with foreign savings strategy decisively. President Cardoso was convinced that Brazil would only develop by resorting to foreign savings since the time when he and Faletto (1969 [1979]) formulated their 'theory of associated dependency', in the late 1960s. Thanks to the abundant supply of capital in the globalized system and to the good prospects for the Brazilian economy originated from the price stabilization achieved in 1994, Cardoso had no trouble implementing a policy that appeared to be the epitome of rationality, and the country experienced ever-growing current account deficits. The outcome, however, was not increased investment and growth, but quasi-stagnation.

In its first four years, the Cardoso administration coexisted with an overappreciated foreign exchange rate, large current account deficits as high as 5% of GDP, and high interest rates, ending in the midst of a severe balance of payments crisis. This crisis, whose immediate cause was foreign creditors' refusal to refinance Brazilian public and private debt, was directly related with the country's high indebtedness. In late 1998, the foreign debt/exports ratio was in excess of four times. Once reelected, the president immediately — in January 1999 — allowed the real to float, it depreciated nearly 30% in real terms, and the country appeared to move towards macroeconomic balance and to resume economic growth. Soon afterwards, however, in July 1999, when the short-term interest rate remained astronomically high, the government decided to implement an inflation targeting policy. Having lost its foreign exchange anchor, it now wanted, with the IMF's support, to replace it with a monetary one (Blanchard, 2005). It was a terrible time to implement such a policy, because inflation targeting was conceived to manage a given monetary policy regime, rather than change it (Bresser-Pereira and Gomes, 2006). Brazil, trapped since 1994 in a quagmire of high interest rates and low foreign exchange rates

(Bresser-Pereira and Nakano, 2002), needed to change its regime, developing a strategy to lower the base interest rate that put a heavy price on the entire public debt and, therefore, unbalanced public finance. This was not done. Giving the moment it was adopted, the inflation targeting policy assumed a neutral or equilibrium exchange rate of around 9%; with this, the country allowed itself to be formally stuck in the interest – exchange rate trap in which already was informally. Yet, despite the 1998 crisis, the administration was still persuaded that the growth with foreign savings strategy was right. This strategy, combined with high interest rates, caused the foreign exchange rate to appreciate anew after the 1999 depreciation, so that the countries foreign indebtedness ratio remained high. Given the indebtedness level, a stagnant economy and, in the second half of 2002, the threat felt by creditors by the likely election of Workers' Party candidate Luís Inácio Lula da Silva for president, it was no surprise that the country faced a second balance of payments crisis.

As Table 2 shows, Brazil's current account deficit rose steadily between 1993 and 1999: we had a surplus in 1992, and in 1999 the foreign savings inflow was 4.73% of GDP. Nonetheless, the investment rate did not increase: on the contrary, it even dropped a little if we consider these same two years, 1993 (19.28%) and 1999 (18.90%). On the other hand, the Cardoso administration's current account deficits (1995-2002) were financed by two means: loans and direct investments. Direct investments rose remarkably. As Cardoso himself pointed out in his Holidays message of 2001, until 1994 the country received at most 2 billion US dollars in direct investments per year; after Real o country started to receive, on average, 2 billion US dollars in direct investments per month. As show in Table 3, until 1994 direct investment was a mere 0.4% of GDP, while it went over 5% of GDP in 1999 and 2000.[6] Still, as we can see from the preceding table, the economy's total investment rate failed to grow; what rose was net income transferred abroad.

[6] That year, direct investments exceeded current account deficits, which means that the country paid off some of its financial debt.

Table 2. Domestic savings, foreign savings and investment as % of GDP – 1990-2005

Year	Foreign Savings[1]	Domestic Savings	Investment[2]
1990	1.07	19.59	20.66
1991	1.17	16.94	18.11
1992	-0.92	19.35	18.42
1993	0.76	18.53	19.28
1994	0.92	19.83	20.75
1995	2.82	17.72	20.54
1996	3.15	16.12	19.26
1997	4.14	15.72	19.86
1998	4.32	15.37	19.69
1999	4.73	14.17	18.90
2000	4.22	15.07	19.29
2001	4.45	15.02	19.47
2002	1.24	17.08	18.32
2003	-0.62	18.41	17.78
2004	-1.89	21.50	19.60
2005	-1.65	21.57	19.92

Source: www.ipeadata.gov.br and www.ibge.gov.br. Notes**:** 1. Foreign savings = current account deficits; 2. Investment = gross fixed capital formation.

The balance of payments crisis of 2002 leads to a new and more radical depreciation of the real. This more competitive foreign exchange rate and the considerably improved terms of trade due to the increase in the price of Brazilian commodities brought about a great increase in exports that completely changed the country's foreign accounts. Higher prices for the country's commodities caused by the international prosperity headed by China were key to exports growth, which doubled in five years. The exchange rate, initially heavily depreciated (reaching almost four reais to a US dollar at the peak of the crisis in 2002) will, too, be important to the acceleration exports then experience. In 2003 the country achieves current account balance and, in the two years after, it reports current account surpluses in excess of 1% of GDP. From 1999 to 2005 there was, thus, an

enormous foreign adjustment greater than 6% of GDP.[7] As a consequence, the country's indebtedness ratio plunges, as shown in Table 4. Yet, in much the same way as investment rates did not grow as foreign savings increased, the capital accumulation rate did not drop when these savings did and became negative foreign savings: in fact, as Table 2 shows, it rose by one percentage point: from 18.90 in 1999 to 19.92% in 2005.

Table 3: Direct investment and net income transferred abroad as % of GDP – 1990-2005

Year	Direct foreign investment	Net income transferred abroad
1990	0.21	2.42
1991	0.27	2.24
1992	0.53	1.89
1993	0.30	2.4
1994	0.40	1.7
1995	0.62	1.6
1996	1.39	1.5
1997	2.35	1.9
1998	3.66	2.4
1999	5.33	3.7
2000	5.44	2.9
2001	4.41	3.8
2002	3.61	3.8
2003	2.00	3.5
2004	3.00	3.3
2005	1.91	

Sources: www.ipeadata.gov.br *and Conjuntura Econômica*.

[7] Given the current account deficits of 1999 (4.73%) and 2005 (-1.65%), the adjustment was exactly 6.38%.

Table 4: Brazil's foreign indebtedness ratios since 1995

Year	Foreign debt/ Exports (times)	Foreign Debt/GDP (%)
1995	3.42	22.58
1997	3.77	24.76
1999	5.03	45.00
2001	3.88	44.34
2002	3.77	49.56
2004	2.28	36.40
2005	1.58	28.30

Source: Ratios computed based on the www.ipeadata.gov.br data bank. Foreign debt on December each year.

We had, therefore, an extraordinary foreign adjustment without reduced investment. How to explain this? How could domestic savings grow so fast as to replace foreign savings or eliminate the current account deficits that only got us deeper into debt, so that total savings (which equal investment) remained at approximately the same level? We could say that the reason lies in the same criticism to growth with foreign savings, but this would only be true in relation to the fact that real wages dropped with depreciation. In fact, the two depreciations brought about a change in the prices of tradable goods relative to non-tradable ones. As a consequence, average wages, i.e., the price of the par excellence non-tradable good, the work force, dropped in the period. The consequent drop in workers' income, of 18.8% between 1996 and 2003, according to the latest PNAD (National Sampled Household Survey), enabled reduced consumption and increased domestic savings. The other major causes for increased domestic savings to have offset the drop in foreign savings was the 2.5 percentage points reduction of the operational public deficit (and, therefore, the relative increase in public savings) between 1999 and 2003, and the increase in the investments required to face the increase in exports.

Since 2003, when the Lula administration begins, therefore, we have had a favorable period for our foreign accounts. It is, in fact, a favorable period for almost all of the world's economy, drawn by the growth in China and the United States. In 2004 we reported 5% GDP growth, with a boost from increased exports, but the Central Bank's hike of an already absurdly high interest rate kept growth in the next year at a mere 2.4%.

For the three first years of the Lula administration, the Brazilian economy grew at a faster pace than during the prior administration, but about two times less than the rates reported by medium-development economies similar to Brazil. The most severe effect, however, is that, thanks to exports growth, the foreign exchange rate gradually appreciated and in early 2006 was already close to R$2.00 per US dollar. Exports remained strong in 2005, but there already was evidence that manufactured goods exports began to loose momentum, while imports increased. In other words, the country – still caught in the trap of high interest rates and low foreign exchange rates – slowly returned to the growth with foreign savings strategy.

CRITICISM OF THE GROWTH WITH FOREIGN SAVINGS STRATEGY

The Brazilian post-Real experience that I just summarized can be largely explained by the growth with foreign savings strategy that conventional orthodoxy continues to uphold. It is true that the balance of payment crises had in the course of the decade, culminating in Argentina, in 2001, led its advocates to be more cautious. But the assumption that 'capital-rich countries should transfer their resources to capital-poor countries' remains as one of its pillars. I have been making this criticism systematically since 2001.[8] My criticism targets precisely this assumption, which is as obvious as it is misleading. Economics as the other sciences is full of situations like this, where one must reject what appears to be common sense.

This criticism is not to be taken just as criticism of open capital accounts. A broad debate on financial opening exists among economists – some of which are critical of liberalization, while others embrace it enthusiastically. The latter based themselves on the neoclassical assumption that all liberalization is beneficial, arguing that financial liberalization is as necessary for development as trade liberalization, and both must take place concurrently. Among critical works, one of the most significant is Rodrik's (1998), showing there is no evidence that countries devoid of capital controls enjoy better growth rates. It makes for very interesting reading, but deals with a different topic: criticism of an open capital account also implies criticism of conventional orthodoxy. But criticism of

[8] See, mainly, Bresser-Pereira (2001, 2002, 2004); Bresser-Pereira and Nakano (2002); Bresser-Pereira and Gala (2005).

growth with foreign savings strategy goes beyond, because it criticizes not outcomes, but an assumption conventional orthodoxy makes.

In the introduction to this paper I suggested three perverse stages experienced by countries that engage in a growth with foreign savings strategy. Criticism of the strategy at its second or third stages is unnecessary, as the damage done to countries therein is obvious. I will, therefore, concentrate on the first stage, where the country has not yet reached the point of suspending international payments, or even gotten so deep into debt as to become dependent on creditors and, as a result, be compelled to embrace the alienating policy of confidence building, but has fallen victim to the process of perverse substitution of foreign for domestic savings, because, through an appreciated foreign exchange rate, a significant portion of foreign funds that should hypothetically increase investment ends up turning into increased consumption.

As for the second and third stages, suffice it to say that there us a limit to a country's indebtedness. There is a threshold beyond which it is dangerous to get further into debt, mainly in financial terms, but also, though to a lesser degree, in terms of equity. The likelihood of a financial crisis, more specifically a balance of payments crisis, is greatly increased. Although impossible to define accurately, empirical research has confirmed that there is a threshold beyond which debt has a negative effect on countries. The World Bank has defined this threshold as debt-to-exports not in excess of 2.2, and as debt-to-GDP as high as 80%. Most debt crisis episodes took place when one of these thresholds was surpassed. Cohen is stricter. According to him, where the indebtedness ratio exceeds 2 or the debt-to-GDP percentage is in excess of 50%, there is a great likelihood of debt restructuring and t he negative effect on growth becomes significant (Cohen, 1994). Finally, a study by three IMF economists shows that, from an indebtedness ratio of 1.6-1.7 and 35%-40% of GDP, 'average impact of debt on the growth of income per inhabitant appears to become negative.' The study also shows that, when the debt-to-exports ratio rises from 1 to 3, the growth rate drops 2 percentage points per year (Pattillo, Poirsin and Ricci, 2002).

On the other hand, research carried on among OECD countries based on the original paper by Feldstein and Horioka (1980) show that, although these countries receive and make direct investments among themselves, almost one hundred percent of the capital accumulation that takes place in each one is the result of domestic savings. Faced with this

evidence, neo-classical economists, bound to their preconceived notion that the mobility of capitals is capable of automatically balancing out markets, identified the problem as the 'Feldstein-Horioka puzzle'. But later studies revealed that it was no puzzle; it was, in fact, s simple matter of each country's solvency constraint. That is to say, OECD countries are not willing to get into debt to increase investment; and when they do get into debt for this purpose, they do so in a limited way, so that domestic investments are essentially financed with domestic savings.[9]

Let us now return to the first stage. Why does growth with foreign savings strategy imply substitution of foreign for domestic savings? And what is the role the foreign exchange rate plays in this process? The substitution occurs, essentially, due, on one side, to the appreciated foreign exchange rate that accompanies the inflow of foreign savings into the country to finance current account deficits, and, on the other, on the diminution of exports and of the corresponding investments. Relative appreciation will tend to occur due to the forces of the market, as the foreign exchange rate that lends equilibrium to a chronic current account deficit is lower than the one that would occur in the absence of deficit, if foreign accounts were in balance.[10] The consequence of this foreign exchange appreciation, or this change in relative prices towards non-tradables implicit in appreciation, is an increase in real wages (in addition to encouraged imports and discouraged exports). This increase will lead to domestic consumption growth, assuming a high propensity to consume among wage earners and, therefore, in classical terms, to a decrease in domestic savings, which are replaced with. On the other hand, an appreciated foreign exchange rate reduces exports, reduces investments towards exports, and draw down savings. Thus, the movement on the demand side sanctions that on the side of supply, thus completing complete the cycle of substitution of foreign for domestic savings.[11]

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[9] See Rocha and Zerbini (2002) for a survey of the evidence. The authors reference studies by Sinn (1992) and Coakley et al. (1996) as additional evidence, in addition to those found in the study itself, that the Feldstein-Horioka correlation is no puzzle: it simply expresses a solvency constraint.

[10] I do not refer to this rate as equilibrium foreign exchange rate to avoid debate. It is merely a reference rate that, in the presence of current account deficits, makes it evident that the market-defined foreign exchange rate is appreciated.

[11] I owe this demand-side, or Keynesian, argument to Luiz Fernando de Paula.

If, when a country's current account deficit increases and, foreign savings replace domestic savings, the inverse should also take place: when a country receives foreign savings, whether voluntarily or because a balance of payments crisis forced the country to carry out foreign adjustments, the gradual transformation of current account deficits into surpluses will cause wages and consumptions to drop and export-oriented investment to increase. As a result of either reduced consumption or increased foreign investment, domestic savings will increase, replacing foreign savings in a beneficial way because foreign indebtedness will now be reduced.

The process can be more clearly perceived by means of a simple model (Bresser-Pereira and Gala, 2005). It assumes that a country's increased per capita income is mainly a function of capital accumulation, *I*, and of the technical progress expressed in the product-capital ratio:

$$\dot{y} = \alpha\, I/Y \quad (1)$$

The question to be answered is if finance of the current account deficit was used to increase the country's investment rate thus contributing to growth, or if the rate of substitution of foreign for domestic savings was so high as to make this increase small or nil while it increased the country's foreign indebtedness and its future responsibility for transferring interests and profits abroad.

Investment, in turn, is stimulated by exports and financed by domestic and foreign savings, where foreign savings, that is, those the country receives from abroad, equals the current account deficits, which, in turn, corresponds to net exports plus net income transferred abroad.

$$I = S_i + S_x \quad (2)$$

where

$$S_x = M - X + RLE \qquad [\text{ foreign savings }] \quad (2.1)$$

Foreign savings, in turn, vary with the real foreign exchange rate (θ). The more depreciated the foreign exchange rate, the lower the current account deficit, and, therefore, the less foreign savings are needed to finance it.

Domestic savings, in turn, equals the sum of workers' wages, professionals' salaries and capital less consumption.

$$S_i = W_t + W_o + \Pi - C \quad \text{[domestic savings]} \qquad (2.2)$$

From (1) and (2), we have

$$C + I + X - M = W_t + W_o + \Pi + RLE \qquad (3)$$

Therefore, we have the *ex post* identity: investment equals domestic savings plus foreign savings.

$$I = (W_t + W_o + \Pi - C) + (M - X + RLE) \quad \text{[domestic savings } S_i \text{ + foreign savings } S_x \text{]} \quad (4)$$

Given that, the objective of the model is to know if the inflow of foreign savings will involve their substitution for domestic savings, my hypothesis is that this rate of substitution, z , will be high in normal situation, only being relatively low in the exceptional moments in which the large investment opportunities persuade de salaried middle class and the capitalist to invest more and consume relatively less.

$$z = \partial S_i / \partial S_x \quad (5)$$

Let as first see the consumption function. In the model, real wages and salaries, w, are a function of productivity, the real foreign exchange rate, and the mark-up, or income distribution pattern.

$$w = b/(1+m)\theta^{\alpha} \quad (6)$$

Consumption, in turn, depends on real wages, salaries and on profits and the corresponding marginal propensities to consume of workers, professional middle class, and capitalists – or, more simply, on national income, R_n, and on the gap between interest rate and the profit rate, $r - i$. Workers savings are almost nil; the marginal propensity to consume of the salaried professional middle class and of capitalists will rise and they will invest instead of consuming if gain opportunities are very favorable at the time.

$$C = C(R_n, r - i) \qquad (7)$$

$$\partial C / \partial R_n = \mu \quad (7.1)$$

Leaving aside, in the name of simplicity, the difference between wages and salaries, μ, is the marginal propensity to consume.

Where the growth with foreign savings strategy prevails and the current account deficits is on the rise, the foreign exchange will appreciate correspondingly and wages and salaries will rise (from the position associated with the reference foreign exchange rate where current account deficit is zero), so that the wages and professional salaries mass will remain at an artificially high level, while profits fall correspondingly.

As such, the greater the marginal propensity to consume in relation to salaries and profits, μ, the greater the drop in domestic savings caused by current account deficits. Under this model, therefore, domestic savings is a function of the foreign exchange rate. On the side of aggregate supply, the key variable is the marginal propensity to consume, μ, responding to the variation of total income, or, more analytically, to the variation of wages and salaries in one direction and of profits in the other; and the consumption function will move to the left or to the right depending on the differential expected rate of profit – interest rate, $r - i$.

In relation to the aggregate demand, the essential is to consider that the exchange rate appreciation leads to decreased exports, which will involve a reduction in investment and, thus, on domestic savings. Thus, on the side of demand, the key variable is the elasticity of exports to the exchange rate, and, next, the elasticity of the rate of investment to exports, or, directly, the elasticity of exports in relation to the variation of the exchange rate, λ.

Summing up, the rate of substitution of foreign for domestic savings, z, will be greater as greater will be the marginal propensity to consume, μ, as smaller will be de profit – interest rate differential, $r - i$, and the higher investment elasticity in relation to the exchange rate, λ.

$$z = z(\mu, r - i, \lambda) \quad (8)$$

The existence of a current account deficit assumes an appreciated exchange rate in relation to the reference exchange rate and a lowered domestic saving. In periods when

foreign savings rise and the local currency appreciates, domestic savings will drop, so that we can measure the rate of substitution of foreign for domestic savings in the period. Put differently, a domestic savings displacement will take place. Conversely, when domestic savings or current account deficits are dropping, real wages will drop, consumption will drop and the inverse will occur: a rate of substitution of domestic for foreign savings, whose causes are the same; the only difference is that the signals of the variables will be inverted.

RATE OF SUBSTITUTION IN BRAZIL

We are now equipped to determine what happened in Brazil post-Real Plan. Between 1994 and 1999 current account deficits or foreign savings rose steeply, while the investment rate remained practically constant. Thus, and as predicted by the model, domestic savings substitute foreign savings. Since 2000, or, more accurately, since the depreciation of the real in 1999, the inverse begins to occur: a structural shock took place and the current account deficit of 4.73% of GDP in 1999 turns into a 1.65% surplus in 2005. We have, therefore, a foreign adjustment equal to 6.38% of GDP. These data are available from Table 2, which also shows that in much the same way that investment had failed to rise in the preceding period, it did not drop in the period at hand: in fact, comparing the average investment rate for 2004-05 with that for 1999-00, we have a 3.7%, or 0.7 percentage points, increase in the investment rate. In this second period, then, domestic savings replaced foreign savings. This is because, as the model predicts, wages and consumption drop, thereby rising domestic savings on the supply side, while, on the side of demand, exports increase (almost twofold between 2002 and 2005, as seen in Table 5), leading to growing investment in the tradables sector and, therefore, also to increased domestic savings. In the Brazilian case, this inverse substitution process was augmented in the period by the fiscal adjustment begun in 1999, which reduced public negative savings, and by the improvement in the terms of trade since 2003. If the proposed model is correct, we should have had, in the first period, a high rate substitution of foreign for domestic savings and, in the second period an equally high rate of substitution of foreign with domestic savings, if not higher.

Table 5: Exports 1999-2005

Year	Exports	Index
1999	55,2	79
2000	64,6	92
2001	67,5	97
2002	69,9	100
2003	83,5	120
2004	109,1	156
2005	134,4	192

Source: www.ipeadata.gov.br

Table 6 summarizes measurements of the two substitution rates. I chose the period when foreign savings was clearly on the rise (1993-99) to measure the rate of substitution of foreign for domestic savings, and the period when foreign savings was declining (1000-05) to measure the inverse process of substitution of foreign with domestic savings. Measurement of the change was based on the average of the data for the three immediately preceding years. The result is unsurprising as regards the rate of substitution of foreign for domestic savings, which was 119.4% in the period. The rate was superior to 100% because the fall in the internal savings was bigger than the increase in domestic savings (1.84 x 1.54%). Other researchers, although not equipped with a theory to explain the phenomenon, measured the displacement of domestic savings by foreign savings in different countries and periods, and most results lie in the vicinity of 50%.[12] The inverse process of substitution of foreign with domestic savings, in turn, which begins in 2000, might seem surprising, but is entirely consistent with the prediction of the model; what was surprising was the substitution rate found for the 2000-05 period, 114%. This means that, instead of dropping, the investment rate raised in the period, despite the sharp decrease in foreign savings, which, in a space of few years, turned into negative foreign savings, that is, a current account surplus. It was not the drop in real wages alone that allowed this, but also the government's fiscal adjustment that began in 1999,[13] and the

[12] Gala (2006) provides a survey of the research.

[13] While primary surplus was around 0% between 1995 and 1998, in 1999-02 it revolved around 3.5% and, in the next year, was close to 4.5% of GDP.

increase in exports since 2002, explained not only by more a favorable foreign exchange rate, but mainly by increase in the price of Brazilian commodities estimated at around 30% between 2002 and 2005.[14]

Table 6. Rate of substitution of foreign for domestic savings (1993-99) and of foreign with domestic savings (2000-2005) - basis: average of three preceding years

Period	Foreign savings (=Sx) average - % of GDP	Domestic savings (=Si) average - % of GDP	ΔSi/ΔSx (%)	ΔSx/ΔSi (%)
1990-1992	0.44	18.62	-----	-----
1993-1999	2.98	16.78	119.4	-----
1997-1999	4.40	15.09	-----	-----
2000-2005	0.96	18.11	-----	113.9

CONCLUSION

In this paper I have provided a critical review of the growth with foreign savings strategy. I have showed that development of a country that is adopts such a strategy will be neutralized in a three-stage process from substitution of foreign for domestic savings, through indebtedness and weakened financial health, to culminate in a balance of payments crisis. The last two stages imply that the country has surpassed its foreign indebtedness threshold, and require no criticism. The first stage, on the other hand, must be criticized because, in it, the rate of substitution of foreign for domestic savings tends to be high inasmuch as an inevitable foreign exchange appreciation, in coexistence with chronic current account deficits (that define the strategy itself), artificially raises wages and consumption while lowers export oriented investments. This means that the country goes into debt, whether financially (by means of financial instruments), or in terms of equity (via direct investment), theoretically to increase its investment capacity. In the end, however, a significant portion of the funds received substitute domestic savings, or, in other words, are channeled towards consumption. The only circumstance where this does not take place is when the receiving country's economy is growing at a fast pace, offering

[14] Source: Funcex.

extraordinary gains opportunities: at such times, the professional middle-class and capitalists will be under a greater propensity to invest than normally. On the other hand, as soon as the country decides or is forced by crisis to abandon its chronic current account deficits strategy, the inverse should occur, with foreign savings being substituted by domestic savings.

I assume this model applies to all economies that decide to adopt the growth with foreign savings strategy and do not offer great profit opportunities, but, since I formulated it based on the Brazilian experience, I applied the model directly to it. I have defined the rate of substitution of domestic savings as its change in relation to foreign savings, and saw that, when foreign savings were on the rise (1993-99) the rate was 119,4%. On the other hand, when current account deficits dropped and became a surplus (2000-05) the rate of substitution of foreign with domestic savings was 114%.

Brazil boasted extraordinary development since 1930 and completed its industrial revolution in the 1960s or 1970s at the latest. Therefore, its development would be expected to become self-sustained since then, as predicted by development economics. This was not the case, however. The Brazilian economy has been semi-stagnant since then. My assumption, which was confirmed by the model and the findings reported in this paper, was that one of the reasons why economic growth failed to become self-sustained was that as early as the 1970s the country became involved with the growth with foreign savings strategy, which culminated in an unprecedented crisis in the 1980s. Yet, the country did not learn the lesson, and, since the early 1990s, the growth with foreign savings strategy became a centerpiece in the Brazilian economy: two balance of payment crises and low growth rates followed.

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