FOREIGN CAPITAL AND ECONOMIC GROWTH —
THE BRAZILIAN CASE STUDY

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1) Introduction

That capital would naturally flow from developed to developing countries has long been assumed by the marginal productivity theory: other things being equal, profit rates would be higher in LDCs where capital is relatively scarce than in industrialized nations, where it is relatively abundant. The concept was reinforced by the Keynesian predictions of the 1940s and early 1950s, according to which excess savings in developed countries should be invested abroad to keep full employment at home. Ideally, international capital movements would, in the long run, eliminate economic inequalities across countries.

Why actual capital flows achieved much less in terms of promoting LDC growth can be explained by four reasons.

First, other things are not necessarily equal. Cheap unskilled labor is obviously available in LDCs, but profit rates depend on a number of other factors besides labor costs, such as technology, plant scales, local availability of human capital and local supply of public goods. All these other factors are better supplied in most developed countries than in most LDCs. On the other hand, profit rates are affected by government intervention. Price and exchange rate controls, obstacles to free entry in a number of sectors, and political instability leading to changing regulations, create natural barriers to foreign investment in a number of LDCs.

Second, as opposed to Keynesian predictions, increased wealth does not necessarily yield excess savings. The great challenge of the 1980s is that Reaganomics turned the world's largest economy into the biggest international debtor-country. In fact, international capital flows to LDCs were crowded out by the US fiscal and current-account external deficits.
Third, capital is not readily locked in a foreign country because of currency inconvertibility. In principle, that applies equally to investment in the United States and to investment in sub-Saharan Africa, except that the problem is much more evident in the case of LDCs. As such, in the case of loans to LDCs, principal and interest should be repaid in the lender's currency. Equity investment cannot impose such binding clauses but investors will only come to LDCs expecting to remit adequate profits and occasionally repatriate capital in their home currencies.

Fourth, access to foreign capital does not automatically lead to increased long-term growth rates. It can simply finance present consumption at the expense of future consumption. Trade-offs may be blurred as long as a country can benefit from positive international transfers, that is, as long as new capital inflows exceed outflows plus interest and profit remittances. Except that positive transfers are not likely to be sustained indefinitely. An obvious case where access to international capital markets led to increased present consumption at the expense of future consumption was the purchase of US T-bills by German and Japanese investors encouraged by both interest rate differentials and the fancy promises of supply-side economics. LDC's, though no less imaginative in terms of unorthodox economic policies, have never been prestigious enough to place abroad similar amounts of government debts. At best, they have only been able to float symbolic bond issues. Yet a number of them were able, during the late seventies, to use foreign capital to finance present consumption at the cost of reduced future consumption through an indirect device: foreign savings financed domestic investment, but exchange-rate overvaluation allowed equal present consumption increases. Summing up, through exchange-rate overvaluation, domestic savings were crowded out by foreign capital inflows.

The present paper analyzes how foreign capital can be used to foster LDC growth, using Brazil as a case study. The Brazilian experiment is worth discussing for a number of reasons: a) Brazil is the largest NIC, not necessarily in terms of real per capita income, but at least in terms of total GDP; b) economic policies in Brazil have often been disastrous, but also...
very successful; c) government intervention has been a rule since the early thirties, yet the country was able to score impressive rates of growth from 1920 through 1980; d) inflation rates, although very high from the late fifties until the late seventies, then explosive since the early 1980s, have not undermined the country's balance of payments performance; e) as opposed to most debtor-countries, Brazil used its access to foreign credit markets to promote an ambitious structural adjustment program immediately after the first oil shock, the dividends of which were quickly collected after the 1982 debt shock; f) foreign capital actually appears to have helped Brazilian economic growth.

Early attempts by the country to attract foreign capital, from the late nineteenth century through the mid-sixties, are described in section 2. Around the turn of the century, a first wave of capital immigration created a public-utility network that was to play an essential role in the country's growth process. It was interrupted by the Great Depression and by a long nationalistic interlude. A second wave, during the Kubitschek administration (1956-1961), transformed Brazil into a producer of consumer durables and capital goods. Yet even after that second wave, Brazil was still a small-scaled economy, especially in terms of international trade. In 1965 the country's external debt was around 3.5 billion dollars, foreign equity invested in the country corresponding to approximately one billion dollars.

Access to large amounts of foreign capital was only conquered in the late sixties and early seventies, reflecting two factors: i) increased international capital mobility, with the emergence of the eurodollar markets and the diversification strategies of multinational corporations; ii) domestic policy reforms that enhanced the country's international creditworthiness. Section 3 describes the Bulhões-Campos reforms during the Castello Branco Government (1964-1967). Imaginative as they might have been, they eventually led to a system of widespread indexation (analyzed in section 4) that was to become an inflationary nightmare when the country was exposed to adverse supply shocks.
Brazil's trade balance was seriously impaired in 1974 by the first oil shock, falling from equilibrium to an unprecedented 4.7 billion dollar deficit. Had the country had no access to foreign capital, import shortages would have led to chaotic recession. However, since at that time investing and lending to Brazil was a must, policy-makers decided to keep the country growing at 7 percent a year under a structural adjustment strategy. Investments were pushed to both import substitution and export promotion, being financed by increased domestic and external savings. A temporary increase in external debt was actually planned, as described in section 5. Yet the foreign debt was expected to be eventually paid off with the dividends of the structural adjustment policies.

Hindsight indicates that the 1974 structural adjustment policies underestimated both Brazil's exposure to further external shocks and their own strength. What actually happened between 1979 and 1984 is described in section 6. In a first round, with the second oil shock and with the escalation of the dollar interest rates, external debt virtually doubled in four years. The collapse of commercial-bank voluntary lending in late 1982 caught Brazil at a moment when external reserves were close to zero. Brazil was soon recognized as the leading problem debtor, being put under severe credit rationing in 1983. Recession became inevitable both because of import shortages and a poorly conceived IMF-supported adjustment program that neglected the supply side of inflation. What was basically wrong with the program is discussed in section 7. For a shock of such a magnitude, however, recession was short-lived, given the balance of payments response to a 30% real-currency devaluation. In fact, in 1984 and 1985 Brazilian trade surpluses were strong enough to service all the interest on the external debt, with the domestic economy at full employment in late 1984 and growing 8.5 percent in 1985. In short, structural adjustment policies initiated in 1974 were not only able to cope with the first oil shock, for which they were designed, but were also able to match the adverse impacts of the second oil shock and of the escalation of the dollar interest rates between 1979 and 1982.
Because of early structural adjustment policies, Brazil is perhaps one of the few developing-debtor countries that could fully service its external debt while keeping full employment at home, provided the principal were subject to appropriate long-term rescheduling, a practice now largely accepted by commercial banks. Now, as far as sovereign risk is concerned, ability to pay does not automatically mean willingness to pay. Brazil is now transferring abroad 3.5 percent of its Gross Domestic Product. One may well argue that such transfers are a fair payment, given what Brazil has gained because of its past access to external capital markets. This is surely a backward-looking perspective, one that takes debt-servicing as a moral commitment. Since the escalation of the dollar interest rates from 1979 through 1982 was the result of unilateral action by the United States, developing-debtor countries do not perceive full payment of the debt as a moral obligation. On the contrary, the fact that transfers abroad by indebted LDCs were the eventual result of fiscal policies intended to ease the life of the American taxpayer has led to increased political resentment and encouraged unilateral actions and demands for partial debt relief.

Once debt servicing ceases to be considered a moral commitment, willingness to pay is driven by forward-looking estimations that involve both uncertainty and incomplete information. A key problem (which is addressed in section 8) is whether the anticipated scenario assumes pleasant or unpleasant debt arithmetic. Under pleasant debt arithmetic, namely, when export growth rates exceed international interest rates, debt problems solve themselves: debt/export ratios would fall even if creditors accepted to refinance all the principal plus interest, and the need to transfer resources abroad should be viewed only as a temporary sacrifice to speed up the improvement of the creditworthiness coefficients in order to regain access to voluntary credit supply. The collapse of competitive recycling in late 1982 can be naturally explained as the outcome of an unanticipated shift from pleasant to unpleasant debt arithmetic. And the muddling-through approach to the debt crisis designed by the IMF and the leading Central Banks in late 1982 implicitly assumed a new turn to pleasant debt arithmetic, as discussed in section 9.
Unfortunately, what overindebted LDCs have been facing since the breakdown of competitive recycling is unpleasant debt arithmetic, with export growth rates lagging considerably behind international interest rates. Under such a scenario, long-term transfers abroad are inevitable to prevent further escalation of the already inflated debt/export ratios. Well-behaved debtor countries may even regain access to voluntary credit markets, but not to what really matters: new loans in excess of debt service, as were available in the 1970s.

Of course, once a developing country's perception is that the debt burden imposes relentless transfers abroad, willingness to pay can only be sustained by a threat: costs of sanctions on default. Yet this threat is not free of doubt, since sanctions, while harming substantially a defaulting country, would bring little or no benefit to its creditors. The non-zero sum game opens space to partial debt relief, as discussed in section 10. However, because of incomplete information and moral hazard, a definite solution to the LDC debt problem cannot emerge that easily. It involves a lot of poker playing, where the Brazilian moratorium of 1987 can be looked upon as an unfortunate bluff. The muddling-through strategy still survives, as described in section 11, because no better alternative has been invented. Nonetheless, markets now realize that involuntary lending, whether or not inspired on the Baker Plan, is nothing but disguised interest capitalization. Accordingly, commercial banks have shielded their exposures to over-indebted LDCs with substantial loan-losses reserves, opening space to some ingenious solutions such as debt-equity swaps.

Turning back to Brazil, one may ask how foreign capital can foster again the country's growth. From commercial banks little can be expected except trade finance and occasional involuntary lending, as discussed in section 12. Direct investment can increase substantially, provided the country decides to adjust the domestic economy and get rid of old-fashioned nationalism. Yet, as long as Brazilian debt is priced at a discount on secondary markets, direct investment is mostly expected to flow as debt-equity swaps, a healthy exit to the debt problem, but one that
brings no additional savings to the country. Hence, on the visible horizon, the only external contribution to gross capital formation finance, apart from involuntary lending, will come from official credit agencies.
2) Foreign capital in Brazil: early stages

As described in the preceding section, Brazilian policies to attract foreign capital can be qualified as a non-linear experiment. Foreign equity investment was strongly encouraged from the late nineteenth century until the golden twenties, bringing into the country electric power, railways, telephone and telegraph services, urban transportation, steel production and gas distribution. Contemporary reports suggest that public-utility rates yielded huge monopoly rents to foreign-owned firms. Yet such monopoly profits were probably a fair price for what the country gained in terms of technical progress and human capital as a result of foreign investment. To give an example, at the turn of the century Brazilian engineers and constructing firms had no expertise about how to build a hydroelectric plant. The two major energy companies at the time (Light and Power and American Foreign Power Corporation) trained generations of experts that eventually were to build an Itaipú in the 1970s.

A first spurt of nationalism emerged with the Vargas dictatorship (1930-1945), focusing on public-utility rates. The latter, according to contracts then in force, were to be adjusted according to exchange-rate changes. Since the Great Depression had led to domestic recession, deflation and to exchange-rate devaluation, the exchange-rate link with tariffs was looked upon as intolerable. Government's reaction was twofold. First, contracts between Brazilian parties denominated in gold or foreign currencies were declared illegal. Second, public-utility profits were limited to 10 percent a year on net historical investments, measured in Brazilian currency units. For the profit standards of the 1930s and in the absence of domestic inflation, that sounded like a sensible natural monopoly regulation. In any case, it reduced what utility companies could remit abroad as dividends. The serious problem emerged in the late 1930s, when inflation became part of the Brazilian way of life. At that point, 10 percent a year on historical investments measured in local currency meant shrinking profits in purchasing-power units. Not surprisingly, public-utility companies stopped equity investments.
in Brazil. Expansion of capacity was financed by loans and newly created state enterprises funded by taxes. Eventually, most public utilities were to be nationalized, with the exception of urban transportation and gas distribution.

Vargas was deposed in October/1945, returning as constitutional President with an overwhelming electoral victory in January/1951. In the interim period (President Dutra's administration), little was done to attract foreign capital. Brazil was one of the few countries to stick to the fixed exchange-rate parity of Cr18.82 per dollar declared at the Bretton Woods Treaty, in spite of domestic inflation rates of around 10% a year. The result was real exchange-rate overvaluation leading to incentives to negative transfers, that is, to profit remittances in excess of new capital inflows. Coming back to power, Vargas tried to stop the negative transfers not by attacking its cause (exchange-rate overvaluation), but by limiting profit remittances to 8 percent a year on historical investments denominated in local currency. His concept, largely influenced by ECLA's theories, was that Brazil should only rely on domestic savings to finance economic growth; that since the external demand for Brazilian exports was highly-price and income inelastic, growth should be based exclusively on import-substitution policies; and that a high degree of state intervention was necessary to make economic growth a self-sustaining process. Accordingly, the National Bank for Economic Development, funded by a 15 percent additional on income tax, was created to finance key industrial projects as well as public utilities. A number of state enterprises were created to fill the empty spaces left by the private sector because of the absence of price incentives. As a climactic measure, oil production and refining was made a state monopoly of Petrobras, with a grandfather clause authorizing the operation of the already existent oil refineries, but leaving no space for their expansion.

Sticking to the Bretton Woods parity did not only cost negative transfers in terms of capital movements. It also forced discretionary import controls that, with increased exchange-
rate overvaluation, led to intolerable bureaucratic inefficiency and corruption. The policy response was not a straightforward exchange-rate devaluation (since that was feared to ignite inflation), but an option for complication. In August/1953, Brazil moved from fixed to multiple exchange rates, with no less than twelve different cruzeiro/dollar rates. Capital and dividends could freely move in and out the country by the 12th exchange rate, the free market rate that was not subject to Central Bank intervention. The new system failed to attract direct foreign investment not only because of its complication, but especially because of its asymmetry. In fact, foreign investors needed to import equipment, since at that time Brazil was not yet a producer of capital goods. Now, the dollar/cruzeiro rate for importing capital goods was almost twice as much as the free market rate. This is to say, in order to bring into the country one dollar of foreign equipment, foreign investors were required to sell almost two dollars on the free exchange markets. Needless to say, that could not encourage foreign investment in Brazil.

Vargas committed suicide on August 24, 1954, because of the imminent threat of deposal by the military, but not without leaving a testamentary letter that accused foreign capital of conspiring against him and the interests of the Brazilian people. He was succeeded by Vice-President Café Filho who, under the influence of Finance Minister Eugênio Gudin, tried to remove the obstacles to foreign investment in Brazil. The key policy change (SUMOC's Instruction 113) was to accept foreign investment in terms of equipment: foreign investors were allowed to bring capital goods into Brazil with no need to sell, and buy dollars at different exchange rates. The logic of the policy change was crystal clear in the confused exchange-rate atmosphere of the 1950s. Nonetheless, it provoked strong reactions from nationalistic groups, including Brazilian industrialists who feared foreign competition.

SUMOC's instruction 113 was maintained by President Kubitschek, who idealized a spectacular industrial push under the slogan "fifty years in five". The concept, largely inspired by
ECLA's theories, was that of import substitution at any cost: industrial goods produced in Brazil should be protected against foreign competition by the necessary tariffs, whatever they might be. Necessary imports, that is, of goods that were not yet produced in the country, should be virtually duty free. Needless to say, the new policies disregarded the consumer but provided strong incentives to invest. Enormous incentives were provided to foreign firms willing to join the new development efforts, including the automobile industry and ship building, among other impressive achievements.

Kubitschek was succeeded by Janio Quadros, whose major policy reform was to eliminate the multiple exchange-rate system in March 1961 (SUMOC's Instructions 204 and 208), while keeping generous infant industry protection. An articulate anti-inflatory program was announced but never implemented, since Quadros resigned seven months after taking office. He was replaced by Vice-President João Goulart, a populist follower of Vargas who moved back to extreme nationalism. Law 4.131, enacted in 1962, determined that all foreign investments and external loans should be registered at SUMOC (Superintendência da Moeda e do Crédito). Profit remittances were limited to 10 percent a year on the original investment measured in foreign currency units, and a 6-percent-a-year cap was set on interest on external loans.

So far we have discussed how Brazilian domestic policies either encouraged or discouraged foreign equity investment. There remains to be discussed how the country dealt with what was to become the biggest source of external savings, namely, foreign loans.

In short, external loans have always been welcome as long as they are available, both their supply until the mid-sixties was rather limited. Traditional lenders, from the Rothschilds in the nineteenth century to the official credit agencies after World War II, kept the country on a short leash. Between the turn of the century and the late 1920s, Brazilian bonds gained some prestige on the international capital markets. External credit flows were interrupted by the moratorium declared
during the Vargas dictatorship as a result of the balance-of-payments collapse during the Great Depression. Debt-servicing was resumed at a discount in the 1940s, but until the mid sixties Brazil remained poorly rated in terms of international creditworthiness because of its chronic balance-of-payments problems. In fact, when Goulart was deposed on March 31, 1964, the country had virtually no foreign-exchange reserves, commercial arrears then amounting to 300 million dollars.
3) Policy reforms in the mid 1960s

A radical change in economic policies was the most interesting outcome of the military revolution that deposed Goulart on March 31, 1964. A comprehensive program was implemented to fight inflation, promote external adjustment and encourage savings and growth, based on the following principles:

i) budget deficits should be eliminated by a fiscal reform;

ii) indexed bonds and tax indexation should encourage private domestic savings;

iii) money supply should be regulated by an independent Central Bank;

iv) rents and public-utility rates should be corrected for past inflation and then indexed for future general price increases;

v) foreign capital should be encouraged to flow into the country;

vi) realistic exchange rates should promote balance of payments equilibrium with lower import duties and without capital and import control;

vii) income policies should help to break the wage-price spiral.

The fiscal reform did not eliminate completely the budget deficit, but successfully brought it down from 4% to 1% of Gross Domestic Product. Indexed capital market instruments encouraged savings and restored the mortgage market, virtually killed in the early sixties by usury law that limited nominal interest rates to 12 percent a year. This, as well as the new rent regime, led to the recovery of house construction. Tax indexation, besides stimulating private savings, was also helpful in reducing tax evasion (in 1963, when the inflation rate was running at 80% a year, the penalty on tax arrears was only 32% a year). As to the independent Central Bank, it still remains a dream. The Central Bank was actually created, but had to share
some of its traditional functions with the long established Banco do Brasil, both being brought under the supervision of a Monetary Council chaired by the Minister of Finance.

To encourage the return of capital flows into the country, Law 4.131 was amended by law 4.390, which introduced three major policy changes:

a) the ceiling on profit remittances, instead of being based on original investment, was now to be set on the basis of original investment plus retained earnings translated into the investor's home currency;

b) the ceiling was raised to 12 percent a year after tax on original investment plus reinvestment, deferral arrangements within a three-year period being accepted by law. Moreover, the ceiling might be exceeded provided an income-tax surcharge was paid (truly prohibitive, it must be admitted);

c) interest on external loans should be market determined, no caps being imposed by the new law.

Free capital entry was not exactly what the new rules actually meant. Oil production and refining remained a state monopoly. Public utilities, with some minor exceptions such as gas distribution and urban transportation, were nationalized, although this involved a friendly settlement of disputes. A non-written rule blocked new foreign equity participation in commercial banking (although not in investment banking), a grandfather clause allowing foreign-owned commercial banks already operating in the country to expand their activities. Further non-written rules were also set to limit the foreign voting power in mining and in petrochemical industries. Whether these restrictions were adequate or not is a matter of controversy. In any case, the rules of the game were fairly stable, opening good opportunities for investing in Brazil with relatively low risk-premia.

Exchange rate policies actually brought the balance of payments into equilibrium without the need of capital and import controls, allowing for a significant reserve accumulation in 1965. In 1966 import duties were substantially reduced, but the
current account remained close to equilibrium. The only criticism of exchange rate policies in that period is that they took too seriously the Bretton Woods regime, trying to insist on fixed exchange rates. Although inflation rates were considerably reduced, they were not brought down to zero, or to the small one digit figures of the United States. Hence, devaluations could not be avoided for long, and this was quickly perceived by economic agents. The result were huge reserve swings, which (among other inconveniences) complicated the management of monetary policy. Reserves increased swiftly after each devaluation and then gradually declined, until a new devaluation became a self-fulfilling prophecy.

The income policy part of the plan, which played a major role in fighting inflation, actually meant wage deindexation. It was implemented by law 4.725 of July 1965, which established that nominal wages should be fixed for periods of twelve months and adjusted in such a way that, taking into account the expected inflation rate, their average purchasing power should be equal to the average real wage of the past twenty-four months, plus a productivity gain.

The rationale of the wage rule of 1965 is described in figure 1. In an inflationary economy where nominal wages are adjusted at constant time intervals (e.g., one year), two concepts must be distinguished: that of the real wage peak $W_o$, immediately after the nominal increase and that of the average real wage $W_m$, proportional to the shaded area in the figure. The average real wage is actually what the economy affords to pay the labor force, and what should be maintained by income policies, except for small productivity adjustments. Since the average/peak ratio is a decreasing function of the inflation rate, peaks should be properly lowered whenever the inflation rate is expected to decline. This means that, with decreasing inflation rates, nominal wages should be adjusted less than proportionally to past cost-of-living increases.
From a technical standpoint the 1965 wage formula was nothing but a forward-looking wage determination rule. In became an incomes policy device because both the productivity gain and the expected rate of inflation for the following twelve months were decreed by the government, leaving no room for collective bargaining or strikes.

Except for market adjustments in individual negotiations (which were never prohibited by the government) the 1965 wage formula would actually squeeze the real wages if future inflation rates were underestimated by the authorities. The problem was felt in 1965, 1966 and 1967 when the cost of living increased 45.5, 41.2 and 24.1 percent, respectively, compared to prospective inflation rates of 25, 10 and 15 percent. In fact, the average wage in the manufacturing industry declined 24.8 percent between 1964 and 1968. This may be partially explained by the weakened position of labor unions after the 1964 revolution. A more consistent view is that a substantial decline in real wages was inevitable, given the policy objectives of increasing indirect taxes, real rents and real public utility rates, cutting subsidies, and promoting a strong real exchange rate devaluation. It could be the result of a prolonged stagflation, it could be achieved by higher inflation rates, but still it was inevitable. The 1965 wage law helped to reconcile this inevitable real wage decrease.
with declining inflation rates and low output losses. In fact, the combination of the wage formula with tight monetary and fiscal policies produced sound anti-inflationary dividends: the inflation rate, which soared to 91.8% in 1964, fell to 24.3% in 1967. Inflation-output trade-offs were not particularly adverse. An industrial recession was experienced in 1965, when industrial output declined 4.7%, but recovery was already achieved in 1966, with a 9.8% industrial growth. Moreover, the road was paved for a seven-year period of accelerated growth and declining inflation.

As far as inflation was concerned, the policy reforms of 1964 led to a temporary success followed by chronic problems. The temporary success was due to the budget cut combined with wage deindexation. Chronic problems were to emerge ten years later, since it was politically impossible to combine financial-assets indexation and rent and mortgage indexation with the Castello Branco wage formula based on law 4.725. In fact, the asymmetry of the initial indexation schemes was corrected in 1968, when indexation was extended to both wages and exchange rates, as will be discussed in section 4. It worked well as long as the country did not have to face any adverse supply shock. It started being looked on as a serious problem after the quadrupling of oil prices by OPEC in late 1973.

As far as growth rates were concerned, they had already been spectacular under the inward-looking import-substitution policies since the Great Depression, as shown on Table I. Real GNP expanded at average annual rates of 5.6% between 1929 and 1964, with industrial output growing 7.8% a year. From 1946 to 1964 these average rates escalated to 7% a year to 8.9% a year respectively. The fact that real exports and imports virtually stagnated in the thirty-five year period of import substitution (average annual rates of growth were limited to 0.8% a year) and that imports, as a percentage of GNP, fell from 23.8% in 1929 to 5.6% in 1964, may suggest that Brazilian growth policies failed to keep a proper balance between infant-industry protection and comparative advantages in international trade. There is indeed no evidence that Brazil followed an optimal growth path and some policy mistakes can be easily singled out, such as keeping
overvalued exchange rates. Yet the welfare costs of excessive inward orientation are impossible to measure. The fact remains that Brazil grew at an impressive rate, basically because economic policies encouraged savings, investment and economic diversification.

Policy reforms in the mid sixties were to lead to even more impressive growth rates. In fact, after the 1964 Revolution policy-makers decided to test whether export stagnation was actually the outcome of external demand inelasticities, or simply the response to poor exchange rate incentives. In fact, the inelasticity argument could make sense for coffee, where Brazil held some monopoly power, but not for other goods and services. Hence, it should be tackled by export taxes on coffee instead of by exchange rate overvaluation. Key policy changes were the elimination on the multiple exchange rate system in 1964 followed by a few strong currency devaluations; the reduction of import duties in 1966; exchange rate indexation through a crawling-peg mechanism as of August 1968; and the creation of subsidies for the exports of manufactured products as of 1969.

The market response was an export boom, from 1.6 billion dollars in 1965 to a 6.2 billion dollars in 1973. For the first time, industrial products such as textiles and footwear became important export items, reducing the country's vulnerability to changes in coffee prices. Moreover, from 1968 through 1973 Brazil grew at record rates above 10% a year with declining rates of inflation. These were the golden years of the so-called Brazilian miracle, which apparently displayed the virtues of outward-oriented growth policies.

The end of the miracle was a 4.7 billion-trade deficit in 1974, partly the result of the quadrupling of oil prices and partly the effect of demand overheating in 1973.

Yet the country was now an open economy, with diversified exports and with wide access to foreign credit markets. In fact, lending to Brazil at that time was considered a must. The structural adjustment policies drawn up at that time kept the country growing at 7 percent a year until 1980, as will be discussed in section 5.
4) Inflation and indexation

Imaginative as they might have been, the economic policies of the Castello Branco administration (1964/1967) involved a major asymmetry that could not last for long. Most incomes and financial assets were indexed, but not wages and exchange rates.

Both wage and exchange rate indexation were to be implemented as of 1968. In the case of wages, it came as a reaction to the systematic underestimation of prospective inflation rates under the 1965 regime. The contrast between the wage adjustment rule and the indexation system for rents, mortgages, financial assets and public utility rates was too evident even for a military regime. A new wage law, enacted in 1968, determined that the 1965 formula should be kept, but that nominal wages in the previous twelve months should enter the equation not by their actual values but by those that would have prevailed if inflation rates had been properly forecast. The mathematics was inadequate, since it only corrected half-way the inflation underestimation, and was improved by a new wage law enacted in December 1974. In practice, however, it meant that nominal wages were to be adjusted every twelve months proportionally to the increase in cost of living plus a productivity gain. This was a backward-looking indexation rule that, instead of stabilizing the average purchasing power $W_m$, simply restored every twelve months the real wage peak $W_o$ adjusted for productivity increases as in figure 2.

![Figure 2](image-url)
Since the average/peak ratio is a decreasing function of inflation rate, the new wage rule implied that inflation could only decline as long as average real wages grew faster than the officially determined productivity gain. Moreover, since the law determined a floor rather than a ceiling to changes in labor compensation, it introduced an asymmetry between inflation acceleration and inflation deceleration. In fact, markets were free to increase the peak $W_o$, but not to reduce it, except through labor turnover, the only way to escape the law. Yet this was a highly costly device in the case of skilled workers, and virtually useless in the case of the non-skilled ones, since minimum wages were adjusted by the same indexation rule. In short, backward looking wage indexation introduced highly adverse short-run inflation-output trade-offs, discouraging quick anti-inflationary policies and favouring monetary accommodation. The problem was not perceived until 1973, since during the golden years of the Brazilian miracle average real wages were able to expand much faster than the officially determined productivity increases. In fact, inflation rates declined steadily from 24.7% a year in 1967 to 15.5% in 1973. Yet the expansive monetary policies of 1972 and 1973 combined with the first oil shock lifted the annual inflation rate to 35% in 1974. Tight monetary policies were then tried but soon abandoned, since it was perceived that wage indexation anchored the wage-price spiral. Eventually, the Government chose monetary accommodation, keeping the annual inflation rates in the 35%-40% a year range until 1978.

Two imprudent policy steps in late 1979 were to lead to further escalation of inflation rates. First, the Government decided to control interest rates, which caused a 75% expansion in money supply. Then a new wage law, besides introducing a number of complications, reduced the nominal wage adjustment interval from twelve to six months. As theory could predict, what was previously the annual rate of inflation became the six month inflation rate. Tight monetary policies were implemented again in 1981 and 1982, but had to face the adverse trade-offs created by backward-looking indexation. The country experienced the first major industrial recession since 1965 with a rather unimpressive
anti-inflationary yield. Inflation rates only declined from 110% in 1980 in to 95% in 1981 and 100% in 1982. The contrast with 1965, when a much milder recession brought the annual inflation rate down from 92% to 34%, was more than evident.

Under external credit rationing the country was forced to adjust its balance of payments in 1983. Key policy changes were a 30% real exchange rate devaluation and, following IMF advice, substantial indirect tax increases and subsidy cuts. This, of course, implied a significant real wage decline. Under the prevailing wage indexation rules it could be only achieved by an acceleration of the inflation rate so as to squeeze the average/peak ratio to proper level. In fact, inflation leaped to 210% a year, with tight monetary policies only producing unprecedented recession as a result of sky-recketing real interest rates. Eventually, in mid 1984, the Government decided to turn back once again to monetary accommodation.

As to exchange rate indexation, this was introduced in August 1968 to reduce the swings in external reserves caused by the discontinuous devaluations since 1964. As a basic guideline, the dollar/cruzeiro rate was changed by small percentages and at irregular intervals of time (10 to 50 days until 1978) according to the inflation rate differential between Brazil and the United States. Slight adjustments were superimposed on this basic rule taking into account a number of factors, namely: (i) the fluctuations of the dollar relative to other major currencies; (ii) the inflation rate differentials between the major OECD countries; (iii) changes in terms of trade; (iv) balance of payment problems.

What actually happened to the real dollar/cruzeiro rate, i.e. to the price of a constant dollar in terms of constant cruzeiros is shown in Table I. The collapse of the Bretton Woods system provided an excuse for a real 9% currency appreciation between 1970 and 1973. Then the real parity was kept virtually unchanged for six years. On December 7, 1979 the tradition was broken by a 30% devaluation of the cruzeiro. This became no more than a temporary realignment, since for 1980 the increase in the
dollar/cruzeiro rate was predetermined at 50%, substantially below the 110 percent inflation rate. A return to the traditional crawling-peg rules was announced in early 1981, with a change that allowed for some exchange rate depreciation until 1982: exchange rates were to accompany domestic inflation rates, without discounting price increases in the United States. Then, in February 1983 the Central Bank declared a new 30% maxi-devaluation of the cruzeiro, followed by exchange rate adjustments proportional to domestic price increases.

Compared to other Latin American countries that used exchange rate overvaluation as a systematic instrument to delay price increases, the Brazilian crawling-peg since 1968 may appear as a relative success. At least Brazil decided not only to index wages but also to index the exchange rate, and at much shorter intervals. Ex-post one may argue that a real exchange rate devaluation should have been decreed after the first oil shock or, at most, immediately after the second. (The 30% maxi-devaluation in December 1979 was actually a step in this direction, but was virtually neutralized by the 1980 pre-determination exchange rate). In any case it should not be forgotten that the collapse of the Bretton Woods system blurred the notion of equilibrium exchange rate as a function of current account performance, the most extreme case being the United States in 1984 and 1985.

The Brazilian experience must be criticized for choosing the complicated route of substituting widespread indexation for the natural goal of price stability. One may argue that such a goal could never have been reconciled with the country's expansive monetary and fiscal policies, and that informal indexation arrangements were eventually to emerge. However, informal indexation systems seldom introduce so much inflationary rigidity as the backward-looking wage/price links of the Brazilian economic legislation. In non-indexed economies relative price changes often impose once-and-for-all price increases. The equivalent effect, under the Brazilian indexation regime, is a permanent leap in the inflation rate. A professional mathematician might
accept that in an indexed economy what matters is not the inflation rate but inflation acceleration, provided all incomes and financial assets are homogeneously adjusted for inflation with the same lags. Most economic agents, however, regard high inflation rates as a symptom of economic mismanagement, partly because indexation regimes are not homogeneous, partly because agents are not adequately trained in abstract reasoning. Moreover, even the professional mathematician would immediately conclude that homogeneous indexation is nothing but a useless exercise in complication.

For policymakers, this is the worst of all worlds. They rarely succeed in fighting inflation, except in periods of favourable supply shocks. Moreover, realizing that their rating will be highly damaged if inflation accelerates, they try to postpone as long as possible any adverse relative price change. This largely explains the proliferation of export subsidies and selective import restrictions after 1968, when the Brazilian economy became almost fully indexed. It also explains why, in the same year, capital controls were reintroduced, which led to a black-market (but officially cononed) exchange rate. In fact, widespread indexation is a lively example of over-regulation that has impaired relative price flexibility, preventing quick domestic responses to external challenges.

An unfortunate attempt to stop inflation through a standstill in indexation was the Cruzado Plan, decreed on February 28, 1986. The plan combined a sophisticated set of income policies with a temporary price freeze and with a fiscal reform that was expected to reduce the public sector deficit to 0.5% of GDP. Escalator clauses were the forbidden except for contracts exceeding twelve months. The plan initially scored an overwhelming success. Unfortunately it was a blueprint with a poor content. Income policies were mismatched, since prices, rents and the exchange rate were frozen, while real wages were increased from 8 to 15 percent. $M_4$ expanded nothing less than 30 percent in the first month after the plan. As to the public sector deficit, it remained in the range of 3% to 4% of GDP, being largely financed by money
creation. Not surprisingly, supply shortages made the price freeze unsustainable. Inflation resumed again by the end of the year, peaking 26 percent a month in May 1987. Indexation, of course, turned back, now at one month intervals for wages and daily adjustments for financial assets. A second price freeze was attempted in June, 1987. It was now received with absolute skepticism, and the result was repressed inflation for a few months followed by 16 percent monthly inflation rates in the first quarter of 1988.
### TABLE I

REAL EXCHANGE RATE INDEX

(Constant cruzeiros per constant dollars at December 31st)

<table>
<thead>
<tr>
<th>Year</th>
<th>Rate</th>
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</thead>
<tbody>
<tr>
<td>1968</td>
<td>108.4</td>
</tr>
<tr>
<td>1969</td>
<td>108.7</td>
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<td>1975</td>
<td>100.5</td>
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<td>1976</td>
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<td>1977</td>
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<tr>
<td>1978</td>
<td>99.2</td>
</tr>
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<td>1979</td>
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<td>1980</td>
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<td>1981</td>
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<td>1982</td>
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<td>1983</td>
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<td>1984</td>
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</tr>
<tr>
<td>1986</td>
<td>147.3</td>
</tr>
<tr>
<td>1987</td>
<td>143.6</td>
</tr>
</tbody>
</table>

**Sources:** Fundação Getulio Vargas, Banco Central do Brasil, International Financial Statistics.
5) Policy responses to the first oil shock

Brazil's balance of payments from 1961 through 1967 is presented in Table II. In the early sixties, as a consequence of inward-oriented growth policies, annual average exports stagnated around the 1.4 billion-dollar mark. Coffee still responded for 50% of total export revenues, as shown in Table III. Services and transfers, including interest on the 3-billion-dollar external debt, cost about 300 million dollars a year. As a result, changes in the current account largely reflected imports fluctuations. Access to external capital was strongly restricted. Autonomous capital inflows adjusted for errors and omissions were limited to a 76-million-dollar annual average between 1961 and 1965. Reserves were more than scarce and the overall balance of payment deficits of 1962 and 1963 were partly financed by a 300-million-dollar build-up in commercial arrears. Adjustment policies in 1964 and 1965, based on strong exchange-rate devaluations and tight controls on aggregate demand led to a sizeable increase in reserves and improved the country's international credit standing. What made them effective, however, was not export growth but import decline.

As a consequence of the already described policy changes in the mid-sixties, both exports and imports expanded swiftly from 1965 to 1973. The export boom was a response to the exchange-rate crawling peg, to world economic growth and to the especial incentives to export diversification, including subsidies to sales abroad of manufactured products. Imports expanded because of more liberal trade policies and because of the 10% a year domestic rate of growth. Deficits in the service account also increased swiftly, from the 300-million-dollar annual average in the early sixties to 1.7 billion dollars in 1973. Since the trade balance remained close to equilibrium, net service payments virtually equalled the current account deficits. The latter, however, were over-financed, since Brazil gained access to external capital and largely benefited from the development of the euro-dollar markets. Autonomous capital inflows largely exceeded current account deficits and, as a result of successive external surpluses, foreign reserves increased to an unprecedented 6.4 billion-dollar figure by the end of 1973.
<table>
<thead>
<tr>
<th>YEAR</th>
<th>EXPORTS (FOB)</th>
<th>IMPORTS (FOB)</th>
<th>TRADE BALANCE (C=A-B)</th>
<th>SERVICES AND TRANSFERS (D)</th>
<th>CURRENT ACCOUNT (E=C+D)</th>
<th>AUTONOMOUS CAPITAL (F)</th>
<th>ERRORS AND OMISSIONS (G)</th>
<th>SURPLUS (+) OR DEFICIT (-) H=E+F+G</th>
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</thead>
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<td>1961</td>
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<td>1,292</td>
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<td>-372</td>
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<td>327</td>
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<td>6,192</td>
<td>7</td>
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<td>-5,966</td>
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<td>9,679</td>
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<td>-2,554</td>
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<td>14,044</td>
<td>8,350</td>
<td>-12,825</td>
<td>-4,475</td>
<td>-7,340</td>
<td>-540</td>
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</tbody>
</table>

SOURCE: Banco Central do Brasil
### TABLE III

**COFFEE AS A PERCENTAGE OF TOTAL EXPORTS**

<table>
<thead>
<tr>
<th>PERIOD</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961-1965</td>
<td>50.6</td>
</tr>
<tr>
<td>1966-1970</td>
<td>40.0</td>
</tr>
<tr>
<td>1970-1975</td>
<td>17.4</td>
</tr>
<tr>
<td>1976-1980</td>
<td>20.6</td>
</tr>
<tr>
<td>1981-1986</td>
<td>9.0</td>
</tr>
</tbody>
</table>

**SOURCE:** Banco Central do Brasil
Accumulated current account deficits moved the country into increased external indebtedness, with net debt (i.e., total debt minus reserves) expanding from 3 billion dollars in the mid sixties to 7.2 billion dollars in December 1973. Yet this was not considered a reason for concern, since Brazil had avoided short-term borrowing, the Central Bank held a sizeable amount of external reserves, the country continued to keep a good international credit standing, and especially because the increased indebtedness was largely backed by the export boom. In fact, as a percentage of annual exports, net external debt fell from 200% in the middle sixties to less than 120% in 1973.

In 1974 the new Geisel administration faced unprecedented trade and current account deficits, 4.7 billion dollars and 7.1 billion dollars, respectively. This was partly the result of the quadrupling of oil prices by OPEC but also and to a large extent the lagged response to the expansive monetary policies in 1972 and 1973. The additional oil import bill was almost matched by export growth, from 6.2 billion dollars in 1973 to 8.0 billion dollars in 1974. The real trouble was the 104% increase in dollar imports, from 6.2 to 12.6 billion dollars. Average import prices had increased 50%, but imported quantities also expanded 36%, suggesting that Brazil was trying to grow beyond its possibilities.

That adjustment policies were necessary and that they should be bridged by a temporary increase in external indebtedness was too obvious to be a matter for controversy. Where opinions were largely split was on how adjustment should be achieved and at what speed. The Minister of Finance defended that the key issues were to control aggregate demand and to keep savings rates high so as to finance export promotion as well as a new round of import substitution. The Minister of Planning agreed on structural adjustment/investment policies, but insisted that the Brazilian miracle should not come to a halt, that is, that the economy should be kept growing at 10% a year, a central assumption of the Second National Development Plan (II PND). The President of the Central Bank was less concerned with debt growth than with managing its maturity profile. Additional borrowing should be
encouraged provided that short-term indebtedness was avoided and reserves kept at appropriate safety levels. The underlying assumption was that external credit supply, although limited in the short run, was infinitely elastic in the long run.

The compromise solution kept Brazil growing not at 10% but at a 7% annual average between 1974 and 1978. An ambitious investment program financed by both domestic and external savings was implemented to foster export growth and further import substitution. It was recognized, however, that it could only yield long-term results and that immediate actions were necessary to reduce the current account deficit. The most natural choice might have been a real exchange-rate devaluation. This was discarded for two reasons. First, because policy-makers feared that, given the backward-looking wage indexation regime, a real exchange-rate devaluation would permanently lift the inflation rate. Second, because it would impose heavy on externally indebted firms, undermining confidence in the exchange-rate rule and discouraging further borrowing abroad. Hence, Brazil once again chose the route of complication: increased subsidies to manufactured exports, higher import duties, increased taxes on oil products and prior deposits with zero minimal interest rate on a large list of import items. Moreover, some non-essential imports, such as automobiles, were simply prohibited.

Although highly debatable in terms of efficient resource allocation, the export incentives and import surcharges yielded some impressive results until 1977. A simulation made by the Minister of Finance in early 1975 suggested that an annual improvement of 1.3 billion dollars in the non-interest current account balance was consistent with a controlled increase in external indebtedness. Net foreign debt would escalate to a 35.5-billion-dollar peak in 1981, then gradually decline. The magic policy number, 1.3-billion-dollars a year, corresponded to one fifth of the non-interest current account deficit in 1974. The simulation, an interesting document on how balance of payments projections were made in Brazil in the mid-seventies, helps to identify when the Brazilian adjustment program actually began to slow and why the debt increase ran out of control.
Table IV reproduces the debt simulation made in early 1975 on the basis of the following hypotheses:

i) foreign direct investment would average 800 million dollars a year; hence, the annual increase in net external debt would equal the current account deficit minus 800 million dollars;

ii) non-interest current account deficits would fall according to the formula \( Z(t) = 6.5 - 1.3(t-1974) \), \( Z(t) \) indicating the non-interest current account deficit in year \( t \), measured in billion dollars;

iii) annual interest payments would correspond to 10% of the net external debt at the beginning of the year;

iv) dollar exports were to grow at 15% a year.
<table>
<thead>
<tr>
<th>YEAR</th>
<th>NET INITIAL DEBT (A)</th>
<th>NON-INTEREST CURRENT ACCOUNT DEFICIT (B)</th>
<th>NET INTEREST PAYMENTS (C=0.1A)</th>
<th>NET FINAL DEBT (D=A+B+C-0.8)</th>
<th>EXPORTS X</th>
<th>DEBT EXPORT RATIO D/X</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>13.4</td>
<td>5.2</td>
<td>1.3</td>
<td>19.1</td>
<td>9.2</td>
<td>2.1</td>
</tr>
<tr>
<td>1976</td>
<td>19.1</td>
<td>3.9</td>
<td>1.9</td>
<td>24.1</td>
<td>10.6</td>
<td>2.3</td>
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<td>1977</td>
<td>24.1</td>
<td>2.6</td>
<td>2.4</td>
<td>28.3</td>
<td>12.2</td>
<td>2.3</td>
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<tr>
<td>1978</td>
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<td>1.3</td>
<td>2.8</td>
<td>31.7</td>
<td>14.0</td>
<td>2.3</td>
</tr>
<tr>
<td>1979</td>
<td>31.7</td>
<td>0</td>
<td>3.2</td>
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<td>35.4</td>
<td>18.5</td>
<td>1.9</td>
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<tr>
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<td>35.4</td>
<td>-2.6</td>
<td>3.5</td>
<td>35.5</td>
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<td>1982</td>
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<td>-3.9</td>
<td>3.6</td>
<td>34.4</td>
<td>24.5</td>
<td>1.4</td>
</tr>
</tbody>
</table>

SOURCE: Author
Ex-post the simulation appears as an exercise on naive optimism, since Brazil's net external debt escalated to almost 100 billion dollars in 1983. In a growing economy with a fixed real exchange rate, the steady improvement in the non-interest current account could only be projected as a result of structural adjustment or of anticipated gains in terms of trade. In early 1975 there was no reason to anticipate such gains nor to overestimate the speed of response to structural adjustment. Hence, what the simulation really meant was that balance of payment policies should be managed so as to keep current account deficits on target.

What actually happened is shown in Table V. From 1974 through 1977 annual current account deficits decreased from 7.1 to 6.7, 6.1 and 4.0 billion dollars. The overall result was better than expected in the 1975 debt simulation, when current account imbalances were projected to fall from 7.1 to 6.5, 5.8 and 5.0 billion dollars. The decline of the non-interest current account deficit to 1.9 billion dollars, partly the response to monetary and trade policies, partly the response to monetary and trade policies, partly the effect of improved terms of trade, appeared as an enormous success. Since the current account deficit, as a proportion of GNP, was brought down to the pre-oil shock figures, a number of analysts concluded that Brazil had completed its external adjustment program. Then, in 1978, because of unusually bad crops that cost substantial export losses, because of worsened terms of trade and because government savings fell from 4.0% to 2.3% of GNP with no parallel reduction in investment, the non-interest current account deficit moved up again to 4.3 billion dollars.

Such adverse results, combined with prospective increases in oil prices and in dollar interest rates, called for much stronger adjustment policies in 1979. An interesting step was announced in January, namely, a five-year program to gradually phase out both subsidies to manufactured exports and prior deposits on imports, and to devalue the real exchange rate progressively. Yet the need for radical changes became evident by the second
half of the year, with the visible deterioration of current account performance and when reserves, which had peaked 11.9 billion dollars in December 1978, began to decline.
6) Debt escalation

By mid 1979, with the second oil shock and with the escalation of dollar interest rates, Brazil obviously needed a renewed effort to improve its external accounts. Tight monetary and fiscal policies should restrain domestic consumption, a real exchange rate devaluation should encourage the increase of net exports, and savings should be fostered to speed up the structural adjustment program initiated in 1974.

Once more policy-makers were split and once again the final decision was to keep the country growing at accelerated rates. Except that growth was no longer supply oriented but mainly led by domestic consumption. Nominal interest rates were kept below inflation rates and money supply expanded at generous figures, under a naive revival of the real bills doctrine. A new wage indexation law tried to increase real wages especially in the lower income groups, by adjusting them not only to past inflation, but to 110 percent past inflation plus highly overestimated productivity gains. Moreover, growth policies were no longer supported by high domestic savings, as in the in the mid-seventies. As shown in Table VI, domestic savings as a proportion of GNP, which had averaged 24.4% between 1970 and 1973 and 24.2% between 1974 and 1978, fell to 18.1% in 1979 and to 16.2% in 1982. In short, external savings, previously absorbed to finance additional investment, were now being used to finance debt servicing and domestic consumption.
TABLE V

BRAZIL'S CURRENT ACCOUNT DEFICIT-1971-1986

(US$ BILLION)

<table>
<thead>
<tr>
<th>YEAR</th>
<th>NON-INTEREST CURRENT ACCOUNT DEFICIT</th>
<th>NET INTEREST PAYMENTS</th>
<th>CURRENT ACCOUNT DEFICIT</th>
</tr>
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<tbody>
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<td>1.0</td>
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<td>1.1</td>
<td>0.4</td>
<td>1.5</td>
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<tr>
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SOURCE: Banco Central do Brasil
What might have been an important step to adjust the external accounts, the 30% exchange-rate devaluation on December 7, 1979, became a largely useless experiment for two reasons. First, because subsidies to manufactured exports and prior deposits on imports, which were being slowly phased out according to the previously announced five-year program, were eliminated immediately. (They were to come back on stage in 1981, prior deposits being replaced by an import surcharge). Second, because the exchange rate predetermination in 1980, as previously explained, offset the real impact of the 1979 maxi-devaluation.

Since reserves were close to depletion, the Government decided to make a 180-degree change in economic policies in January 1981. The basic steps were to abolish interest-rate controls, tighten monetary policies, accelerate the exchange-rate mini-devaluations and restore export subsidies and import surcharges. The 3.9-billion-dollar improvement in the non-interest current account performance was the impressive result of such a policy change, which cost a 1.6% real decline in Gross Domestic Product. Yet its effect on the current account deficit was largely diluted by the 2.8-billion-dollar increase in the interest bill. Breaking the old rules of prudent debt management, the country was able to delay an external liquidity crisis by heavy short-term borrowing, even by overseas branches of Brazilian banks, which used their access to money markets to extend balance of payment loans to the country. The unstable equilibrium was to come to disruption in late 1982, when the current account deficit escalated to 16.3 billion dollars and the Mexican moratorium triggered the collapse of commercial bank recycling. To complicate things, Brazil's export credits to a number of developing countries became illiquid. As a result, external reserves were quickly depleted and Brazil had to apply to an IMF-supported adjustment program.

The initial program, approved by the IMF in February 1983, is to be remembered as a piece of technical ineptitude. It assumed that tight monetary and fiscal policies, combined with a one-percent a month real exchange-rate devaluation, could
increase Brazil's trade surplus from 700 million dollars in 1982 to 6 billion dollars in 1983. It failed to distinguish nominal from real public sector deficits in a largely indexed economy. It assumed that, in spite of widespread backward-looking income indexation and substantial indirect tax increases and subsidy cuts, inflation rates could easily recede from 100% in 1982 to 70% in 1983. It appears, in retrospect, that the hastily prepared program was intended to convince commercial banks to roll-over the principal, maintain commercial credit and interbank facilities, and increase their Brazilian exposure by a projected 4 billion dollars.

In February 1983 the Brazilian authorities concluded that a 30% real exchange-rate devaluation was absolutely necessary in order to improve the country's external performance. Accordingly, a second letter of intent to the IMF, revising the inflation target to 90%, substituted the one previously approved. Since inflation rates escalated immediately to 200% a year, the public sector deficit increased swiftly in nominal values (although not in real terms). And since the performance criteria agreed upon with the IMF were determined in current cruzeiros, the country was considered as not complying with the terms of its second letter of intent. As a result, in May the IMF decided to suspend the disbursement of the second installment of the extended credit facility. Commercial banks, who trusted blindly in IMF wisdom, did the same with the new money facility and reduced both money market exposures and commercial credits to the country.

As a result, Brazil had to face an unprecedented credit crunch, which forced external adjustment as a budget constraint. Exports grew from 20.2 billion dollars in 1982 to 21.9 billion dollars in 1983, and could have grown much more if they had been supported by adequate commercial credit facilities. Imports fell from 19.4 to 15.4 billion dollars, partly because of the increase in domestic oil production and the 3.2% decline in real GNP, but especially because they were subject to strict rationing. The trade surplus consequently increased to 6.7 billion dollars, and the non-interest current account balance to a 2.7-billion-dollar surplus. Foreign exchange controls were made inevitable and as
a consequence, the black market rate premium escalated from the traditional 25% level to nothing less than 90%.

A new agreement with the IMF was eventually established in December, 1983. The IMF had conceded that fiscal policies should no longer track the nominal but rather the real public sector deficit (which, incidentally, should turn into a surplus). It also recognized that inflation was hard to fight as long as backward-looking wage indexation rules were in force. What might have been a reasonable solution, namely, adjusting rents, wages and mortgage installments for 80% of past inflation, was rejected by the Congress. An unfortunate compromise solution was to keep the 80% dampening coefficient for rents and to adjust wages according to a regressive rule, which fully compensated lower wages for past inflation while squeezing middle-class incomes. In any case, it was accepted by the IMF.

Under the new adjustment program, commercial banks supplied a 6.5-billion-dollar new money facility in early 1984. It basically served to clear interest arrears and restore the country's reserve position. In fact, in 1984 Brazil did not absorb external capital since it was able to score a small current account surplus. The 13-billion-dollar trade surplus far exceeded the IMF-supported targets.
TABLE VI

SAVINGS AND INVESTMENT AS A PERCENTAGE OF GNP

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<th>YEAR</th>
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SOURCE: Fundação Getulio Vargas
Part of the improvement of Brazil's trade balance in 1984 can be attributed to economic growth in OECD countries, especially in the United States. Mostly, however, it was the eventual outcome of the structural adjustment policies set down in the mid-seventies. The country now exported what it previously imported, such as steel products, paper and pulp, capital goods, petrochemical products, aluminum, etc. Moreover, in spite of import liberalization (at least in terms of the 1983 standards), imports fell from 15.4 to 13.9 billion dollars, while the economy was already growing at 4.5% a year. This largely reflects the effectiveness of import substitution policies, especially the increase in domestic oil production, from 170 thousand barrels a day in 1974 to 550 thousand barrels a day in 1984.
IMF conditionality is based on a textbook exercise inspired by the Bretton Woods tradition. An open economy with fixed exchange rates faces an infinitely elastic supply of foreign capital at a given interest rate \( i \). (It may be hard to see why such an economy would ever apply for an IMF-supported adjustment program. The implicit assumption is that IMF assistance rotates the foreign capital supply schedule by 90 degrees.) Nominal wages may be sticky, so the first step toward adjustment must be an exchange-rate devaluation to make the current-account target consistent with full employment. To prevent further wage increases and inflation, public sector borrowing needs must be reduced by an amount equal to the desired improvement in the current account. With fixed exchange rates and as infinitely elastic supply of foreign capital, money supply becomes an endogenous demand-determined variable. Hence, the monetary aggregate to be tracked is net domestic credit, whose expansion leads to an equal decline in foreign reserve holdings.

Of course, the assumption that the supply of foreign capital is infinitely elastic at a given interest rate looks like science fiction for an illiquid country that applies for IMF assistance. Yet the idea that monetary policy should control the expansion of net domestic assets and not of the money supply may be defended as a modern version of the gold standard rule. Money supply should be expanded when reserves increase, contracted when reserves fall. The rule is by no means adequate as far as price stability is concerned, but prevents sterilizing intervention that leads to foreign reserve instability, perhaps to depletion.

As to the concept that public-sector borrowing needs should be cut by the same amount as the desired improvement in the current account, it is inspired in the tautology:

\[
(I_p - S_p) + (G - T) + (X - M) = 0
\]

where \( I_p, S_p, G, T, X \) and \( M \) stand respectively for private investment, private savings, government expenditures, taxes, exports of goods and services and imports of goods and
services and imports of goods and services. Whether a reduction in the public-sector borrowing needs G-T leads or not to an equal increase in the current-account balance X-M depends on what happens with the difference $I_p - S_p$ between private investment and private savings. That a one-to-one ratio may not hold has been known since the Keynes-Ohlin controversy of the late 1920s on the German war reparations. The IMF seems closer to Ohlin than to Keynes while accepting the one-to-one ratio as a first approximation. In any case, an appropriate exchange-rate realignment can endorse this approximation.

The theoretical flaws of the IMF conditionality model spring from three sources: the lack of perception of the role of public investment in developing countries, the lack of understanding of the supply-side of inflation and, at least until recently, the lack of understanding of inflationary accounting.

In principle, an improvement in the current account X-M can either be achieved by a reduction in the public sector deficit G-T or by a reduction in the difference between private investment and private savings $I_p - S_p$. Apparently, the IMF prescription is growth-promoting, in the sense that it prevents crowding-out of private investment. The problem is that, in a number of developing countries, important sectors are controlled by the government, including public utilities and high capital-output industries. In this case, cutting basic investments, which are complementary to private investments, is the easiest way to reduce G. In a word, the IMF ignores how a mixed economy works, accepting a cut in infrastructure investments as equivalent to a cut in the government current-account deficit. This not only lead to sacrificing growth, but also to conflicts between IMF and World Bank conditionality.

Second, the IMF virtually ignores the supply side of inflation. It urges countries to promote exchange-rate devaluations, indirect tax increases and subsidy cuts, which impose an immediate general price increase, but overlooks the following inflationary developments through the Phillips curve mechanism.
Although the IMF is not opposed to income policies, they are not required as part of a stand-by agreement. The result is that, in most cases, inflation largely exceeds the IMF targets.

Third, at least at the early stages of the debt crisis the IMF failed to distinguish nominal from operational public-sector deficits, a difference that amounts to a large percentage of GDP in high-inflation countries. According to the established doctrine, what should be accounted in the public-sector borrowing needs is the nominal deficit, that carries all the nominal interest payments on the government's debt. The idea of excluding from G-T the part of those interest payments corresponding to the inflationary adjustment of the principal was rejected on the grounds that, in any event, what had to be financed was the nominal and not the operational deficit.

One should recognize, first, that this was nothing but poor economic theory. In fact, rational creditors will not confound real interest rates with inflationary adjustment of the principal, and will not spend the latter as if they were current income. In the case of external creditors the situation is obvious: one should not expect a bank to increase its spending or its dividends just because a currency devaluation increased its exposure in cruzados or pesos. Local creditors should act the same way, provided they suffer no money illusion, an illusion with which no one can survive in a high-inflation country. Summing up, in the absence of money illusion, an increase in the inflationary adjustment of the principle of the public-sector debt automatically creates the nominal private savings required to provide its finance. As such, it has no impact on aggregate demand, neither worsening the current-account balance nor private investment. In fact, if nominal savings did not adjust automatically to the inflationary adjustment of the principal, how could public sector deficits of 20 or 25 percent of GNP be financed under external credit rationing?

The lack of recognition that what actually matters is the operational and not the nominal public-sector borrowing needs, led to wasteful recession and to wasteful frictions between
debtor countries and the IMF. In fact, because of poor supply-side inflation analysis, inflation rates were underestimated, and as such the nominal public-sector borrowing needs. Once inflation displayed its real magnitude, and the correspondent increase in the public-sector nominal interest bill was accounted for, there was one single way to meet the IMF performance criteria: to cut the operational deficit by an equivalent amount to the unanticipated increase in the public-sector interest bill. A number of countries rightly preferred to lose IMF assistance than to embark on compensating budget cuts that would completely ruin their economies. Some others, to keep the IMF blessing, tried to avoid whatever might accelerate the short-term inflation rate. The result was inefficient adjustment policies, relying too much on demand constraints and too little on exchange-rate devaluation.

In short, IMF-supported adjustment programs were largely inadequate, because of poor economic theory, and debtor countries can only resent the fact that major Central Bank as well as commercial banks blindly trusted in IMF wisdom. Certainly, as a result of the learning-by-doing approach, the IMF is less dogmatic today than in late 1982. The fact that Brazil, in late 1983, was able to convince the Fund that what should be tracked was the operational and not the nominal public sector deficit was a breakthrough. It was highly successful in the sense that Brazil scored in 1984 a thirteen-billion-dollar trade surplus, combined with a 4.8-percent real GNP growth. The problem is that, although fulfilling all the IMF performance criteria, inflation remained at a 200%-a-year plateau, indicating that the real world does not necessarily behave in line with the IMF conditionality model, according to which the inflation rate, in Brazil, would have fallen to 100% a year in 1984. The Brazilian failure to fight inflation convinced the IMF that tracking operational instead of nominal public sector deficits was a mistake, and that the old orthodoxy should be resumed.

Since late 1985 the IMF seems to be more flexible in its concepts, perhaps after recognizing that the muddling-through
strategy was nothing but a time-buying device. The Argentine Austral Plan was received as a welcome reform, in spite of its unorthodox content. The Mexican agreement revived the Brazilian idea that what matters is not the nominal, but the operational public-sector deficit. And even the Brazilian Cruzado Plan, in spite of all its shortcomings, was blessed by the IMF, in March 1986.
External debt dynamics can be summarized by the equation: (*)

\[ \dot{z} = (i - x)z + g \]

where \( z \) indicates the net debt-export ratio, \( \dot{z} \) its time derivative, \( g \) the resource gap-export ratio, \( i \) the average interest rate on outstanding debt, and \( x \) the growth rate of exports. Net debt is to be understood as total foreign indebtedness minus reserves. Resource gap is defined as non-interest current-account deficit, minus direct investment, plus capital exports.

Growth theories of the 1950s and 1960s accepted that capital should flow from industrial to less developed countries to improve the international allocation of resources. The assumption that the marginal productivity of capital was a decreasing function of the capital-labor ratio meant that LDCs were natural capital absorbers. Foreign capital should help developing countries expand their exports and their GNPS, creating the conditions for future profit and interest remittances. Moreover, net capital inflows could exceed profit and interest remittances as long as LDCs were able to keep their exports growing at rates above the international interest rates, yielding a positive balance of payments transfer to developing countries.

These post-Keynesian transfer models inspired most commercial bank recycling after the first oil shock (1973-1974). Statistical evidence of the 1960s and 1970s suggested that pleasant debt arithmetic could be sustained, in the sense that LDC exports would grow at rates well above international interest rates. In fact, from 1974 through 1980, a typical interest rate

(*) Indicating by \( D \) the dollar net debt and by \( G \) the dollar gap, \( D = iD + g \) is a balance of payments tautology. If \( X \) stands for the dollar exports, \( z = D/X \) and \( x = \dot{X}/X \), equation (1) is equivalent to the above mentioned tautology.
on developing-country loans - London Interbank Offer Rate (LIBOR) plus 1.5-percent-a-year spread - averaged 10.7 percent a year, while exports of non-oil LDCs expanded at 21.1 percent. Under the \( x-i > 0 \) hypothesis, lending to LDCs offered little risk. Debtors would hardly seek a confrontation with creditors as long as they were prepared to refinance all the debt service, making \( g=0 \) in equation (1). And with \( g=0 \) and a positive \( x-i \) differential, debt/export ratios would gradually fall, bringing credit-standing ratios to any desirable level. Moreover, with export growth consistently surpassing international interest rates, a resource-gap-export ratio \( g=(x-i)z \) could be accommodated without raising the debt-export coefficient.

A sudden and unanticipated shift from pleasant to unpleasant debt arithmetic in 1981-82 led to the debt crisis: average interest rates on commercial bank loans to LDCs soared to 16.3 percent a year, while the annual growth rate of exports declined to 1 percent. With a strongly negative \( x-i \) differential and with limited efforts by LDCs to reduce their resource gaps, debt/export ratios rose substantially in this two-year period, sometimes entering a dangerous zone, 4.75 for Argentina, 4.14 for Brazil, 3.7 for Chile, 3.35 for Mexico.

Interest-export ratios in 1982 soared to alarming figures, both because of the increase in debt-export ratios and the explosion of the dollar interest rates: 53.6 percent in Argentina, 57.1 percent in Brazil, 49.5 percent in Chile, 47.3 percent in Mexico. A crisis had become inevitable and was triggered by the Mexican moratorium in September, 1982.

The shift from pleasant to unpleasant debt arithmetic was not only the central cause of the debt crisis. It also moved conventional wisdom on foreign lending from one pole to its opposite. William R. Cline, for example, notes:

"As widely recognized in the mid-1970s and again in 1979-80, bank lending played a socially valuable role in facilitating the financial recycling of OPEC surpluses to non-oil developing countries in the process of adjustment. Official
lending responded only sluggishly, especially to middle-income countries, so that it was primarily bank lending that met the sharply increased need for financing. Moreover, as was repeatedly pointed out at the time, if this lending had not been forthcoming, developing countries would have been forced to cut back their imports from industrial countries, causing and even sharper recession after the first oil shock. (*)

Under the pleasant debt arithmetic of the 1970s this was the conventional view on lending to LDCs. Since unpleasant debt arithmetic led to the collapse of competitive recycling, conventional wisdom says that debtor countries must now transfer resources abroad because they overborrowed in the late 1970s. If external borrowing was used to finance productive investment, dividends should now be collected to start repaying the debt, and this can be achieved with acceptable social costs. If foreign loans were to finance consumption, exchange-rate overvaluation or capital flight, LDCs should now pay for their previous attempt to live beyond their means. Moreover, since the collapse of competitive recycling, witch hunters discuss who is responsible for the debt crisis, commercial banks that borrowed imprudently or developing countries that borrowed irresponsibly.

That a number of developing countries used their access to external credit markets in the 1970s to finance consumption, exchange-rate overvaluation and, in some case, capital flight is a well-known story. (One may argue that the United States has been doing exactly the same, since the beginning of the Reagan administration). That commercial banks overlooked the fact that, since money is fungible, project finance was nothing but disguised balance-of-payments finance, has also been established. Moreover, both lenders and borrowers were too confident regarding the sustainability of the pleasant debt arithmetic of the 1960s and

1970s. Yet the witch-hunting exercise reflects nothing but poor logic, since it does not even meet elementary probability tests. Until late 1982, commercial banks never behaved as a collective, but rather as independent decision units. Similarly, debtor countries never coordinated their individual economic policies. The chances of a crisis being precipitated by the errors of independent actors are minute, according to the law of large numbers. Hence, a plausible explanation for the debt crisis must rely on either some external factor or on the inadequacy of the recycling system, or both.

The external factor was the United States' choice to fight inflation with an unorthodox blend of tight monetary and loose fiscal policies, a policy mix that could hardly be successful except under the floating exchange-rate regime, and that bears some similarities to some Latin-American attempts to fight inflation through exchange-rate overvaluation. In fact, the change in the x-i differential in the debt dynamics equation was much more violent in dollars than in yens or DMs, both because of the abnormal increase in dollar interest rates between 1980 and 1982 and the ensuing dollar appreciation. Since most LDC debts were dollar-denominated, for practical purposes the relevant x-i differential should be expressed in dollars. Yet, the foregoing analysis suggests that, to a large extent, the debt crisis has much to do with the central role of the dollar in a world of floating exchange rates, variable interest rates and unstable rules of trade. Were the LDC debts predominantly yen - or DM - denominated, instead of dollar-denominated, the developing-country debt problem might well be handled as a short cycle instead of a strong discontinuity. Excessive indebtedness would have been prevented in the late 1970s, since debt arithmetic was much less pleasant in yens and in DMs than in dollars. Yet credit shortages would not have been so dramatic in 1982 and 1983, since the shift to unpleasant debt arithmetic would not have been so violent as in dollar terms.

The systemic flaw was that competitive balance-of-payments finance by commercial banks emerged as an ad-hoc
response to the recycling puzzle after the first oil shock and not as a planned efficient system to bridge external current-account imbalances. In fact, it overlooked the fact that there is virtually no collateral on sovereign risk, a moral hazard problem that the Bretton-Woods agreement tried to solve by the bilateral monopoly approach to balance-of-payments finance. Competitive recycling flourished because commercial banks, in contrast with official credit agencies, provided a timely response to the challenge of the first oil shock, namely, how to channel the OPEC surpluses to the oil-importing countries. This prompt action avoided an international economic collapse, where the major victims would have been the developing countries unable to attract funds from the major oil exporters. But it also set in motion a system of balance-of-payments finance with a strong externality bias. In fact, the credit-supply curve of a bank to a borrowing country was a function of the perceived credit-supply curves to this country by other banks. Under such types of externalities, competitive markets do not meet economic efficiency tests. They either tend to supply too much, as before the debt shock, or too little, as after the Mexican moratorium in September, 1982.

Since setting efficient institutional arrangements is a task for governments, and not for private enterprise, regulators are to be blamed for the lack of recognition of this externality trap. One can not even say that it was an unprecedented issue: the collapse of international lending during the 1930's was a well-documented experience, which incidentally led to the bilateral monopoly approach to balance-of-payments finance in the Bretton Woods agreement. The acceptance of commercial bank recycling after the first oil shock by regulators, not only as a temporary bridge to the sluggish increase in official lending, but also as a permanent solution to the problem of nonoil LDC finance, can only be interpreted as shortsightedness. In short, the LDC credit bubble inflated under the applause of the regulators.
9) The muddling-through strategy and its implicit assumptions

In late 1982 and early 1983 the LDC debt crisis was officially diagnosed as a temporary liquidity problem that could be solved by a pump-priming effort. All that banks needed to do was to refinance the principal and advance a few new money facilities at market interest rates, since indebted LDCs, though illiquid, were plainly solvent. As for debtor countries, their access to voluntary credit would be restored after the implementation of IMF-supported adjustment programs.

As a marketing strategy to handle the early stages of the debt crisis, the pump-priming concept was probably useful. The idea that indebted LDCs faced no solvency problem helped in forming a bank coalition to refinance the principal and part of the interest falling due, the latter in the form of "new money facilities". At the same time, it tried to convince debtor countries that transfers abroad of 4 to 6 percent of GNP should be looked on as an investment of regain international credit-worthiness.

The hidden assumption behind the pump-priming diagnosis was that the world economy would quickly turn back to the pleasant debt arithmetic of the 1960s and 1970s. In short, LDC exports would grow at rates well above the international interest rates. Under that favorable scenario, debt/export ratios would continuously fall, even if creditors accepted to refinance all the LDC debt service, principal plus interest. As such, transfers abroad by LDCs had only to speed up the improvement in their credit-standing coefficients until they regained access to voluntary credit markets.

The experience of the 1980s unfortunately suggests that the world has entered a phase of unpleasant debt arithmetic, with international interest rates largely exceeding the growth rate of debtor-country exports, as shown in Table VII. Under such unpleasant arithmetic, highly indebted nations must transfer abroad a sizeable proportion of their export revenues simply to prevent further increases in the debt/export ratios.
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Source: ECLA
example, let us assume a country with 400 percent debt-export ratio, 2 percent a year export growth, and annual interest rates on the outstanding debt averaging 8 percent. To prevent further escalation of the debt/export coefficient, this country must permanently transfer abroad 24 percent of its export revenues.

The notion that the world economy has entered a phase of adverse debt arithmetic, that is, that international interest rates are likely to exceed the growth rate of exports of indebted LDCs in the foreseeable future provides the fundamentals of what has been called debt fatigue. The various dimensions of this debt fatigue should be properly analysed.

LDCs now perceive the need to transfer resources abroad as a long-term balance-of-payments contraint, and no longer as a temporary effort to reconquer access to voluntary credit markets. Access may be regained, but at amounts considerably below external interest bills. In short, transfers are now perceived as costs and not as investments. This change in perception obviously narrows the acceptable transfer ratio by highly indebted countries. In principle, transfers are still acceptable as long as their costs do not exceed the costs of default, and for most debtor countries the costs of fully servicing the interest bill appear as much smaller than those of being excluded from normal channels of international trade. This virtually rules out any possibility of outright debt repudiation. The problem is that debtor countries have already perceived that partial or temporary default is not a zero sum game. In fact, calling a country in default inflicts serious losses to the bad debtor, but brings little benefit to its creditors, since there are virtually no collaterals against transfer risks. This leads to an intricate game-theoretical problem opening a large field for threats and bargain. Incomplete information complicates the game, leading to non-credible threats followed by retreats. The Brazilian suspension of interest payments to commercial banks since February, 20, 1987, disastrous as it might have been for the country, provides a striking example of how a debtor country may react once it feels that transfers abroad are a permanent drag on its domestic savings.
10) Debt fatigue x debt relief

The preceding discussion provides the fundamentals of what has been called "debt fatigue". Under unpleasant debt arithmetic, creditors can no longer impose their conditions based on the threat that bad debtors will be excluded from future voluntary loans. In fact, what matters for debtors is not to regain access to future voluntary loans, but to future loans in excess of debt service, and that cannot be sustained once export growth rates lag behind interest rates. As such, creditors can only collect their claims on the basis of the threat of sanctions on default. Yet sanctions, while harming substantially the defaulting country, would bring little or no benefit to its creditors, since there are virtually no collaterals on transfer risks. As such, they are a powerful threat against outright debt repudiation, which would exclude the bad debtor from the international payments system. But not against intermediate proposals involving partial debt relief.

The potential for bargain under the debt fatigue scenario was advanced by Paul Krugman in 1984:

"Let us suppose a debtor country offers to pay part of its debt provided its creditors refrain from declaring the country in default and invoking their sanctions. Ex ante, creditors would like to commit themselves to imposing sanctions when a country attempts to evade its obligations; but ex post, the creditors might prefer to renegotiate terms rather than lose all their claims. Therefore, creditors, although they can impose serious costs on defaulting nations, may have a problem making credible the threat that they will actually impose these costs.

Why, then, don't countries freely seek to renegotiate the terms of their debt? Creditors might impose sanctions, for as least two reasons. The first is that creditors may view themselves as playing a "repeated game" in which reputation is important. The second is that creditors are not perfectly collusive and may have an individual interest in invoking sanctions even
if collectively they would be better off not doing so.

The repeated-game argument is one that comes from pure theory, but it does seem quite realistic. If creditors believe that leniency with one debtor will result in demands from others for renegotiation, the additional cost may make creditors unwilling to be lenient. Recognition of this unwillingness may make debtors pay; and the result will be a self-sustaining set of beliefs.

An interesting fact about this explanation is that it might provide an incentive for debtors to form a cartel. Creditors who are willing to discipline one debtor as an example to others might not be able to make credible the threat to discipline several at once. We know that a debtors' cartel was proposed in 1982. The incentive to form one still exists.\(^\ast\)

What makes the debt game much more complicated than the one described by Paul Krugman is that a credible offer by a debtor country to pay a fraction of its debt, provided the remaining part is forgiven, requires an additional guarantee that cannot be easily produced. Were a country prepared to pay cash part of its external debt as a definite settlement, banks might accept to write-off the remaining part. In fact, this is how Bolivia has recently settled part of its debt for 11 percent of its face value. Bolivia presents an extreme case, but surely other Latin American countries would get partial debt relief were they prepared to pay cash sixty on seventy percent of their outstanding debts. The problem, of course, is that no big international debtor has accumulated foreign reserves in that amount. If they had, they would have been excluded from the list of the big international debtors.

Given this fact, no big debtor country has been able to propose a credible offer to pay part of its debt provided its creditors refrained from declaring the country in default.

and invoking their sanctions. All that has been proposed were debt-debt swaps, such as the exit bonds of the Argentine rescheduling program of 1987 and the frustrated Brazilian proposal of swapping bonds for promissory notes at a 30 percent discount. The rationale behind the Brazilian proposal was an implicit rule of debt subordination: in fact, in 1987, Brazil suspended the interest payments to commercial banks, while fully honoring the principal and interest on bonds. As a result, discounts on Brazilian commercial bank debt were much larger than discounts on Brazilian bonds. What made the debt-debt swap proposal unacceptable was that the subordination rule was not mandated by international law, but was simply decided by the debtor country. Were Brazilian debts largely swapped from promissory notes to bonds, the country might choose the opposite rule, fully honoring the promissory notes and defaulting on bonds.

Of course the intervention of an external guarantor, such as the World Bank, could make debt-debt swaps an effective instrument for partial debt relief. Commercial banks would surely be willing to forgive part of LDC debt if ordinary promissory notes were replaced by promissory notes with a World Bank guarantee. The problem is how to bring the World Bank, or some other international agency, on stage. First, the G-7 should accept to treat the LDC debt problem as a political issue, funding the World Bank for the additional contingent liabilities. Second, a scheme for equitable distribution of World Bank debt guarantees should be agreed on. Third, debt guarantees should be matched by a newly designed conditionality program. Fourth, compensation schemes should be developed for the poorer LDCs that did not become overindebted simply because they had no access to commercial bank credit in the 1970s. For overindebted LDCs the external guarantor is a hope, but a somewhat remote possibility.

Given all these game-theoretical complications, a possibility should not be excluded: unilateral action by debtor countries. Up to now, unilateral actions have been extremely naive, in the sense that they failed to realize that the
solution to bargain can neither be zero nor one hundred percent. From this point of view, the Brazilian moratorium decreed on February 20, 1987, was an awkward piece of poker playing. Once a country stops paying all principal and interest to banks with the deliberate intention of twisting their arm, it cannot expect anything but retaliations. Banks took a wait-and-see attitude, increasing their loan loss reserves and not invoking sanctions on default. Short-term credit lines to the country were reduced by six hundred million dollars, but this was much less than the delayed interest payments. The place where sanctions came from was the invisible actors, official credit agencies that stopped lending to Brazil, foreign investors who accelerated profit remittances and capital repatriation, and even Brazilians who embarked on capital flight. In short, Brazil lost reputation, both domestically and abroad.

Now, what would have been the response to more sophisticated unilateral action is a problem to be tested by empirical evidence. Let us assume, for instance, that instead of declaring the moratorium, Brazil had announced that it would pay 50 percent of the interest due to commercial banks in convertible currencies, the remaining 50 being paid in cruzados that might be used for relending or debt-equity swaps. And that, simultaneously, the government decided to implement a domestic adjustment program to fight inflation and foster savings, investment and exports. What would then have been the creditors' and creditor-countries' response? One possibility is that Brazil would still be sanctioned by the invisible actors, OECD, official credit agencies and foreign investors, since accepting unilateral action might open a precedent that would transfer the management of the debt problem to LDCs. Yet the visibility now would have been that Brazil was taking responsible unilateral action, as opposed to what actually happened in 1987. Creditors' response, in that case, might have been to endorse the Brazilian program, transforming a unilateral move into an international agreement.

The foregoing discussion singles out the game-theoretical complications behind international debt renegotiations. Although banks are prepared to forgive part of their claims on LDCs, most
debt-relief proposals are unfeasible because of moral hazard. An external guarantor might solve the problem, but it can only be brought on stage if the G-7 decides to look at the LDC debt issue as a global political problem. As to unilateral actions by LDCs, they should be viewed in a broader framework: bargain is eventually solved by alternate proposals and counter-proposals. The finally accepted settlement is proposed by somebody that, "ex-post", can always boast that he was able to impose his unilateral views. The point is that once a proposal which is mechanically unilateral has been accepted, it ceases to be practically unilateral.
11) Muddling-through under debt fatigue

Under unpleasant debt arithmetic, whether a debtor country should be treated as illiquid or insolvent is an exercise in uncertainty. Solvency, in the sense that the country will eventually be able to pay off its debt, depends on three variables: the percentage of export revenues allocated to debt-servicing, export growth rates, and international interest rates. Some of these variables escape the control of debtor countries, and none of them can be managed by its private creditors.

As a response to uncertainty, commercial bank exposures to overindebted LDCs should be cushioned by appropriate loan loss reserves. German, French and Swiss banks have been quietly accumulating such reserves since the early stages of the LDC debt crisis. American banks, concerned with their quarterly profits, postponed a similar action, in spite of the fact that LDC debt instruments were priced at secondary markets with substantial discounts. The Brazilian moratorium convinced Citicorp to increase its loan loss reserve by three billion dollars, approximately 25 percent of its refinancing-country exposure. Stock markets reacted favorably to this noisy move, which simply recognized what was the asset valuation in the marketplace, and other banks decided to do the same.

While the accumulation of loan loss reserves can be labeled as prudent banking practice, it has raised a number of problems as far as the muddling-through strategy is concerned. The first is how to reconcile such reserves with the Baker initiative of 1985, which urged banks to provide new money facilities to LDCs willing to promote GNP and export growth, under structural adjustment policies. The second is how to reconcile the increase in LDC external debts with what has now become a must for commercial banks: to reduce their LDC exposures.

The paradox would be easily solved were American bank accountants and regulators prepared to accept an obvious statement: since there are no tangible collaterals on sovereign
risk, new money facilities to overindebted LDCs are nothing but partial interest capitalization in a disguised form. In fact, once a bank shields its exposure to a certain country with a 25 percent loan loss reserve, it implicitly recognizes that the country is only expected to service 75 percent of its debt, and that the remaining 25 percent should eventually be written-off against the loan loss reserve. The Baker initiative, incidentally, can be read as follows: "since there are no collaterals on sovereign risks, banks are better off by collecting part of the interest payments falling due and refinancing the rest than by calling debtor countries in default".

Curiously, the equivalence between partial interest capitalization and new money facilities has long been perceived by European bankers and by Latin-American debtors. However, in the United States a Great Wall of China tries to isolate the two concepts. Now, once banks have hedged part of their LDC exposures with loan loss reserves, new money facilities to LDCs that are not dressed as partial interest capitalization become very hard to explain. In fact, how can bank managers explain to their shareholders that they have accepted to invest one dollar that was known to be worth only sixty or seventy cents the day after? The truth is that, collectively, banks have no choice: either they invest a dollar that is worth only sixty cents the day after, or they should increase their loan loss reserves by at least an additional forty cents.

New money facilities to debtor countries were certainly not killed by the loan loss reserves made in 1987 by American banks. The muddling-through strategy still survives, probably because banks have realized that the alternative would be mandated interest capitalization, and because no better scheme has been developed up to now. Still, one should recognize that the international financial system is being forced to walk on a sharp razor-edge.

The only strong innovation has been debt-equity swaps. They provide a way out for banks that are willing to reduce their LDC exposure; they also improve the profile of LDC external
liabilities, which are too concentrated on debt and with small foreign-equity participation. To give an example, total foreign investment in Brazil is no more than 27 billion dollars, including reinvestment, less than one fourth of the external debt. Moreover, it is a flexible instrument which brings new partners to locally indebted firms and new technology into the country.

A number of objections to debt-equity swaps have been raised, such as:

i) debt-equity swaps do not bring foreign savings into the country;

ii) debt-equity swaps neither help the country's balance of payments in the short run nor in the long run, since interest payments are replaced by profit remittances;

iii) debt-equity swaps lead foreign investors to bail out the banks instead of bringing fresh new money into the country;

iv) debt-equity swaps lead to money creation by the Central Bank, adding extra fuel to inflation;

v) debt-equity swaps may lead to massive denationalization, since asset prices in LDCs are extremely depressed;

vi) debt-equity swaps do not provide a definite solution to the debt problem.

Let us analyse each of these objections. That debt-equity swaps do not bring new foreign savings into the country, at least immediately, is an obvious accounting statement and not an objection. The same applies to a firm that issues stock to pay off part of its debt. It is not an action to finance expansion, but to get rid of overindebtedness, perhaps a necessary condition for sustained future expansion.

The notion that debt-equity swaps do not even help the country's balance of payments in the long run, since it substitutes profit remittances for interest payments, reflects poor economic thinking that overlooks risks and assumes perfect foresight. Of course, under perfect foresight debt-equity swaps would be useless, since there would be no distinction between
interest and profits, at least under perfect competition. In
the same vein, firms should never issue stock to pay off part
of the debt, since the idea of overindebtedness is inconsistent
with the assumption of perfect foresight. The fact, however, is
that we live in a world of uncertainty, where neither businessmen
nor government officials are fortune-tellers. As such, the
advantage of debt-equity swaps is to substitute partners for
creditors. Profit remittances, as opposed to interest payments,
do not lead to external illiquidity. To remit profits, foreign
firms should first be actually profitable; and, second, should
be able to buy foreign currencies at the exchange rate markets.
Firms go bankrupt because of excessive debt, not because of
excessive amounts of ordinary shares. The same applies to a
country.

The idea that debt-equity swaps lead foreign investors
to bail out the banks instead of bringing new fresh money into
the country is the result of an obviously wrong assumption:
foreign-based firms must invest in LDCs a fixed amount of dollars,
yens or DMs, either by bringing new fresh money or by
purchasing at a discount commercial bank credits to those
countries. A small substitution effect may indeed occur, but it
is probably very small. The evidence is to be found in the fact
that whenever debt-equity swaps are prohibited, foreign investment
in overindebted LDCs falls to minute figures, when compared to
normal past flows. The obvious reason is that foreign investors
rarely seek to place their funds in overindebted countries, where
a dollar debt is priced in secondary markets at sixty or
seventy cents. Overindebtedness does not only deter new direct
investment in fresh money, but also encourages capital repatriation,
as noted in Brazil in 1986 and 1987.

The concept that debt-equity swaps leads to money
creation fueling inflation assumes that external funds were
borrowed not by firms, but by the country's Central Bank. In
fact, no commercial bank in the 1970s provided any loan to LDC
Central Banks, since their aim was to finance development projects
and not balance of payments. Hindsight shows that foreign
commercial banks overlooked the fact that money is fungible,
and that, since they were not prepared to be repaid in cruzeiros, pesos or any other inconvertible currency, project finance was a veil that actually concealed balance of payments finance. In the aftermath of the debt crisis, Central Banks collected local currencies from the contractual debtors and used the proceeds to finance public sector deficits. Banks, of course, should have accepted the cruzeiro or peso payments as a second best, since Central Banks were not able to convert them into dollars. Instead of the automatic acceptance, however, banks preferred to move into time-consuming negotiations leading to relending arrangements. In the meantime, a substantial part of the local currency repayments of the external debt were used to finance the public-sector deficits, and now LDC Central Banks argue that bygones are bygones.

Since inflation has become a serious problem in the three largest LDC debtor countries (Brazil, Argentina and Mexico), the monetary argument against debt-equity swaps cannot be fully neglected. Yet it should be looked upon as an argument to limit rather than to block debt-equity swaps. First, it should not apply to private-sector debt-equity swaps, which should be kept as free as possible. Second, in the case of the public-sector debt and the private-sector debt that was transformed into Central Bank debt, debt-equity swaps should be given priority over relending arrangements. Third, debt-equity swaps should be coupled with a privatization program, which, while not necessarily passing the control of some state-owned companies to foreign shareholders, would offset the monetary impact of the debt-equity conversion.

As to concern about massive denationalization, because asset prices are strongly depressed in LDCs, this can be easily dispersed. First because a sovereign country has the right to limit which assets can be sold to foreigners, and this is a mandatory rule in debt-equity swaps regulations. Second because asset prices are depressed due to the lack of domestic confidence and the absence of foreign demand for such assets. Debt-equity swaps may change both, thus increasing asset prices with renewed domestic confidence fostered by additional foreign demand.
The last objection to debt-equity swaps, namely, that they do not provide a definite solution to the debt problem, mixes realism with a wrong methodological approach. Debt-equity swaps should not be looked upon as a panacea. They may solve part, but not the whole LDC debt problem. The wrong methodology is to minimize the importance of any partial solution to the debt problem, once again setting the issue on an all-or-nothing basis. The potential of debt-equity swaps is, indeed, a highly promising one. It is a way to get out of overindebtedness. Moreover, new equity investors will become partners in the country's success. They will bring into the country new technology, new banking connections, additional export markets and eventually succeed in removing the fundamentals of debt fatigue, by moving back to pleasant debt arithmetic.
That the 1980s has been a lost decade for Brazil, as well as for most Latin-American countries, needs no further explanation. Brazil was less impacted by the collapse of competitive recycling than other indebted LDCs, because of structural adjustment policies initiated as early as 1974. Credit rationing, however, forcing an increase in the trade surplus of 5 percent of GNP in a two-year period (1982-1984), could only impose tough sacrifices on the country. The most immediate of them, following the exchange-rate devaluation of February, 1983, was a dramatic real-wage cut. This was achieved in the Brazilian way by inflation acceleration, the well-known method of squeezing real incomes under backward-looking indexation. The balance of trade performance was defended because the exchange rate was also indexed, though at much shorter intervals (being reduced to one day since 1985, except for the Cruzado interlude).

The ominous feature of Brazil's economic policies was that, while the external accounts were adjusted, the internal budget went pieces. Public-sector deficits were cut in 1983-1984, but by squeezing investment rather than current expenditures. And current government expenditures grew enormously from 1985 through 1987 pushing the prospective budget deficit to 7 percent of GNP in 1988, not including the inflation adjustment of the totally indexed public debt. Daily exchange-rate indexation largely isolated the external accounts from domestic monetary and fiscal expansion, except during the fixed-rate period of the Cruzado Plan. The outcome, however, was explosive inflation and reduced domestic savings.

To what extent international shocks leading to the debt crisis were responsible for the domestic financial disarray is a question worth analysing. External interest payments now absorb approximately 3 percent of Brazilian GDP, as opposed to the moderate 0.5% of the 1974-1978 period. This means that in the absence of a fiscal reform intended to spare the country's saving rate, gross domestic savings, as a proportion of GDP,
would have fallen by 2.5 percentage points. In fact, from 1974-1978 to 1986-1987, gross domestic savings declined from 24 percent to 16 percent of GNP.

The conclusion is that the loss of momentum in Brazilian economic growth was much more the result of populist policies that dismantled the budget accounts than the adverse impact of the debt crisis.

How can foreign capital, at this point, foster Brazil's economic growth? All one can say under the present circumstances is that, given the current economic policies, there is neither a strong demand nor a strong supply of foreign capital to the country. The reason for supply shortages is obvious: the country is overindebted, inflation rates and political uncertainties scare off foreign investors. The counterpart, however is that given the current trade surpluses and the sluggish domestic investment growth, the demand for foreign savings is also highly restricted. In fact, the new money facilities now demanded of commercial banks are intended to restore the country's foreign reserves rather than to finance additional imports. In the same vein, official loans to the country have been reduced because of the lack of budget counterpart investment funds. Of course, the demand for foreign capital would grow rapidly if the country decided to overvalue the real exchange rate, but in this case foreign capital supply would recede, as occurred during the Cruzado Plan.

A positive action should first increase the demand for foreign savings without real exchange-rate appreciation. This would involve a fiscal reform and a budget cut capable of bringing down the inflation rate to acceptable levels and restoring domestic savings. Higher domestic growth rates would increase the demand for imports and, as a consequence, the demand for foreign savings.

The second step is where foreign savings would come from. Direct investment, in terms of fresh new money, would probably be deterred by the chances of debt-equity swaps.
Involuntary lending from commercial banks might still be available in certain amounts, as a way of preventing unilaterally mandated interest capitalization. The fact, however, is that friction with commercial banks tends to dry up other sources of foreign savings, as evidenced by the Brazilian moratorium of 1987. In short, involuntary lending in addition to other foreign savings sources, should be properly dressed in terms of the Baker initiative. Hence, the bulk of the foreign savings contribution should come from official credit agencies.

Of course, as long as the United States remains as a black hole absorbing most of the internationally available excess savings, there is little hope that international credit agencies will be properly funded, either to finance Brazil or any other less developed country. The point is that the United States cannot borrow abroad indefinitely, in spite of all the attractions of its gigantic economy. Concerted action among developed and developing countries requires a much bigger cut in the US trade and current-account deficits than in the surpluses of Japan, West Germany and the Asian tigers. The balance should be left to strengthen official lending to LDCs, as with the Nakasone fund. Brazil might benefit from a substantial part of that surplus balance, provided political determination would bring order to domestic finance.
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