

TEXTO PARA DISCUSSÃO

Nº 171

The Cruzado first attempt:
The Brazilian Stabilization
Program of February 1986*

Eduardo Marco Modiano



PUC-Rio – Departamento de Economia

www.econ.puc-rio.br

August 1987

* Paper presented in the seminary “Inflation Stabilization: The experience of Israel, Argentina, Brazil, Bolivia and Mexico”. Toledo, Spain, June 9-11, 1987.

Resumo

Este artigo apresenta o diagnóstico básico do processo inflacionário brasileiro, que inspirou o Plano Cruzado. Um modelo analítico simples é usado para ilustrar seus fundamentos teóricos. Após analisar as tensões inflacionárias que levaram a seu lançamento no final do primeiro ano da Nova República, descreve-se, em detalhe, o conjunto de regras, hipóteses e compromissos, que nortearam a reforma monetária de 28 de fevereiro de 1986. Aponta-se alguns de seus elementos de risco, tais como: a magnitude do abono salarial, a introdução da escala móvel dos salários, o desprezo pelo realinhamento dos preços e a ausência de metas para a política monetária e fiscal. Além disso, o artigo examina a falta de ação da política econômica pós-Cruzado, o que levou as taxas de inflação do cruzado a superar, um ano depois, as taxas de inflação do cruzeiro. Com a perspectiva de maio de 1987 para a inflação brasileira, analisa-se a possibilidade de uma segunda tentativa.

Abstract

This article presents the basic diagnosis of the Brazilian inflationary process, that inspired the Cruzado Plan. A simple analytical model is used to illustrate its theoretical foundations. After analysing the inflationary tensions, that have led to its launching at the end of the first year of the New Republic, the set of rules, hypotheses and commitments, that comprised the monetary reform of February 28th, 1986 is discussed in major detail. Some of its risk elements are pointed out, such as: the magnitude of the wage bonus, the introduction of the wage sliding scale, the neglect of price realignment and the lack of monetary and fiscal policy targets. Besides, the article examines the lack of action of the economic policy after the Cruzado Plan, which was led the cruzado inflation rates, one year later, to exceed the cruzeiro inflation rates. With the perspective of May 1987 for the Brazilian inflation, the possibility of a second attempt is analysed.

1. Introduction

During the first half of the eighties economic policy in Brazil was mainly geared towards fighting rampant inflation. The first doubling of the rate of inflation occurred by the end of 1979, as it jumped from 50 to 100% per year. The conjunction of the second oil shock with a domestic policy of setting “realistic prices” and simultaneously increasing the frequency of wage adjustments from twelve to six months contributed to increase inflation rates. The second doubling is dated of 1983, as the mark of 200% per year was reached. The acceleration of inflation in this case can be primarily attached to the cruzeiro maxi devaluation of February 1983. By early 1986 another doubling of the rate of inflation was signalled as agricultural prices reflected the drought that affected Brazilian harvests. At this moment the Cruzado Plan was launched.

The orthodox stabilization policies adopted from 1981 to 1984 had little effect upon the trajectory of inflation. Inflation seemed to resist to the deflationary forces of recession and unemployment. During this period several theoretical and empirical studies attempted to show that the Brazilian inflation had special properties and followed its own dynamics. The predominance of inflation inertia, feedback by widespread indexation, over aggregate demand and supply conditions was demonstrated by Lopes and Lara-Resende (1980), Lopes (1982) and Modiano (1983, 1985a) among others. Research efforts were then concentrated upon alternative ways to eliminate inertial inflation.

By the second-half of 1984 Arida and Lara-Resende (1985) presented the “indexed currency” or “Larida” proposal. They suggested the introduction of a new currency that would circulate simultaneously with the cruzeiro. The new currency would have a fixed parity with the *Obrigações Reajustáveis do Tesouro Nacional* (ORTN), whose nominal value in cruzeiros was monetarily corrected monthly on the basis of past inflation. Conversion to the new currency would be voluntary but, according to the authors, public acceptance would be guaranteed by its stability and credibility. Simonsen (1984), Modiano and Carneiro (1984) questioned that stability showing that: if inflation in cruzeiros accelerated during the conversion period, the new currency would devalue, what would damage its credibility. The risk of reindexation under the new currency was also shown to be present.

Approximately at the same time Lopes (1984b) proposed the so-called “heterodox shock” to curb Brazilian inflation. In its original form, it suggested a wage-and-price freeze at levels consistent with the *status quo* of the distribution of income and a widespread deindexation of the economy. Later it incorporated the idea of a simultaneous monetary reform, introducing the “cruzado”. The rules for conversion from cruzeiros into cruzados were further developed by Modiano (1985b).

Following this introduction, in section 2, the basic diagnosis of the Brazilian inflationary process, that inspired the Cruzado Plan, is presented. A simple analytical model is used to illustrate

its theoretical foundations. Section 3 discusses the inflationary tensions that have led to the announcement of the Cruzado Plan at the end of the first year of the Brazilian New Republic. Section 4 describes the Plan in greater detail, pointing out some of its risk factors, such as: the magnitude of the wage bonus, the wage sliding scale, the neglected price adjustments and the lack of monetary and fiscal targets. Section 5 analyses the mismanagement of economic policy, which has led, one year later, the cruzado inflation rates to exceed the cruzeiro inflation rates. Finally, section 6 concludes this paper discussing the current prospects of Brazilian inflation and the alternative of a second Attempt.

2. The inertia and conflict inflation model¹

The Cruzado Plan favoured the interpretation that Brazilian inflation was mainly inertial. Inflation inertia resulted from the indexation mechanisms for monetary correction of prices, wages, the exchange rate and financial assets, that tended to perpetuate past inflation. In the absence of shocks, the inflation rate tended to remain as it was. This perception of the inflationary process is perfectly compatible with the model of income distribution conflict, that characterizes Structuralist macroeconomics, as recently formalized by Bacha (1982) and Taylor (1983). Movements of the inflation rate, as opposed to movements of the price level, would result from an *ex-ante* inconsistency in the distribution of income².

The inflationary process that originates from an income distribution conflict can be explained with a simple model of an economy with an aggregate production function and only two inputs: labor and imported intermediary products. The price frontier of the economy establishes, then, an inverse relation between the real wage w and the real exchange rate e , given by:

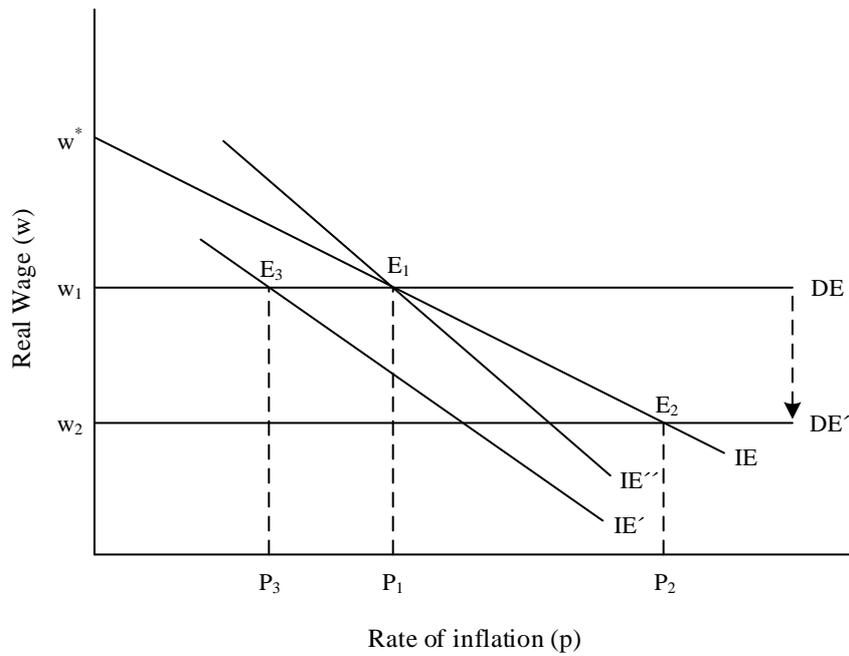
$$w = f(e) \therefore f_e < 0 \tag{1}$$

The income distribution equilibrium implied by (1) is represented graphically by curve DE in Figure 1. Notice in (1) that a real devaluation (an increase in e) would result in a decline in real wages (a decrease in w). In Figure 1 a real devaluation would be represented by a downward movement of DE to DE' .

An inverse relation between the real wage and the rate of inflation p completes the model. Denoting by h the rule for adjustments of the nominal wage and by w^* the peak real wage, one can show that:

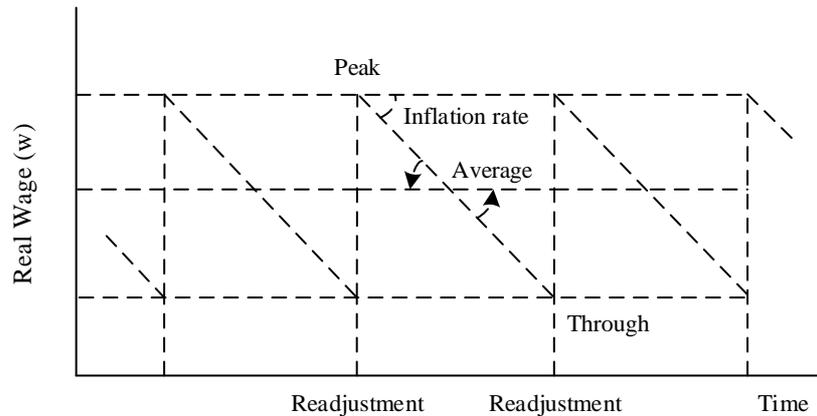
¹ This section draws heavily on Modiano (1985b, 1985c).

² For a non-analytical exposition of the relation between conflict and inertia see Bacha (1986).



Inflationary and Income Distribution Equilibria

Figure 1



The Dynamics of Real Wages

Figure 2

$$w = g(p, w^*, h) \therefore g_p < 0, g_w^* > 0 \tag{2}$$

The inflationary equilibrium determined by (2) is represented in Figure 1 by curve IE . The intercept on the vertical axis w^* indicates the real wage that would prevail in the short-run if inflation stopped abruptly after a nominal adjustment. In Figure 1 a decline in the peak real wage would displace IE downwards to IE' . A decrease in the frequency of nominal wage adjustments would rotate IE clockwise to IE'' .

Equations (1) and (2) determine simultaneously the equilibria real wage and rate of inflation of the economy. This general equilibrium is represented in Figure 1 by E_1 , at the intersection of curves

DE and IE . According to this stylized interpretation of the Brazilian inflationary process, the economy real wage would depend solely upon the pattern of income distribution, that might be rigid in the short-run. Changes in indexation rules or in peak real wages would affect only the rate of inflation, without altering the real wage. In the absence of shocks, the rate of inflation would remain constant due to the indexation mechanisms, characterizing an inertial process. A supply shock, such as a real devaluation, would cause, as DE moves downwards to DE' in Figure 1, both a permanent decline in real wages and a permanent rise in the inflation rate.

The inverse relation between the real wage and the rate of inflation in (2) can be easily derived in the case of fixed-periodicity adjustments, that dominated the Brazilian economy until the Cruzado Plan was launched. Figure 2 illustrates the dynamics of real wages, and to a certain extent of any relative price, for which nominal values are corrected by past inflation at fixed intervals of time. The peak real wage is restored at the moment the nominal wage is adjusted. While the nominal wage is kept constant, the real wage declines due to the continuous inflationary process, and a trough is reached exactly before another adjustment is due. Note in Figure 2 that since the real wage oscillates, a more stable measure of purchasing power is given by the average real wage. Hence, equations (1) and (2) should be reinterpreted in terms of the real wage averaged over an interval of time equal (or a multiple) to the fixed interval between successive adjustments.

Denoting the fixed interval between nominal wage adjustments in months by h and the monthly rate of inflation by p , one obtains that:

$$w = \frac{(1 + p)^{h+1} - 1}{(h + 1) \cdot p \cdot (1 + p)^h} w^* \quad (3)$$

For the specific case of wage adjustments every six months, as it prevailed in the Brazilian economy until the February 28th, 1986, it suffices to make $h = 6$ in (3)³. With expression (3) the inverse relation between w and p , postulated in the inflationary equilibrium represented by equation (2), can be easily proved.

Figure 2 illustrates one major technical difficulty involved in the design of a stabilization program for the Brazilian economy: the lack of synchronism in wage adjustments. If the inflationary process were terminated abruptly, workers with the same average real wage could be left with different real wages, as they were caught at different stages of the same “inflationary slide”. Major redistributions of income could result. The same observation applied to all other sources of income that were monetarily corrected with fixed periodicities but lacked synchronism, such as rents, profits and the exchange rate.

³ Equation (3) is a discrete-time version of the expression for the average real wage earlier derived by Simonsen (1984) and Modiano (1985c). The discrete-time version is adopted here for consistency with the conversion rules of the Cruzado Plan.

The Cruzado Plan was designed to overcome these difficulties. Its technical foundations can also be explained with the aid of Figures 1 and 2. Notice in Figure 2 that a decline in the peak real wage, that leaves the average real wage unchanged, corresponds to a counter clockwise rotation of the “slide” around the mean. As the angle of the “slide” is the rate of inflation, to a reduction of the peak real wage there corresponds a decline in the rate of inflation. In the limit the “slide” turns horizontal and the inertial component of inflation would vanish, without affecting the income distribution equilibrium determined in Figure 1. In the latter the process of disinflation would correspond to a downward movement of IE , until the peak real wage would coincide with the equilibrium (average) real wage. Hence, it becomes clear that the main ingredients for price stabilization would be the conversion to average relative prices and the suppression of indexation mechanisms that linked current to past inflation. The monetary reform and the wage-and-price freeze would only reinforce such a stability.

3. From inflation to the Cruzado^{4,5}

The Brazilian “New Republic” took office in March 1985, after twenty-one years of military rule. While the necessity of a “social pact” to conciliate real wage claims with disinflation had been very much emphasized during the electoral campaign, an orthodox economic policy was announced at the onset of the new government. Besides facilitating negotiations with the International Monetary Fund (IMF), the cut in public expenditures and the slowdown of monetary expansion were presented as the government initial contribution to a “social pact” that never materialized.

Since restrictive fiscal and monetary policies could take some time to produce a decline in inflation rates, that by that time reached 12% per month, a price freeze was determined for the month of April. Also, in order to dampen the acceleration of inflation, the formulas for computing monetary correction and exchange rate devaluation were modified, extending the “memory” of past inflation from one to three months. A scheme of daily minidevaluations, pre-set every month, was introduced.

Immediately after the announcement of the new economic policy, inflation dropped significantly, from 12.7% in March to 7.2% in April. However, this result could be almost entirely explained by the suspension of price adjustments for two groups of products: steel and fuel. Private prices, that were not under strict control, did not seem to follow the freeze. Anyhow, the government decided to extend the duration of the price freeze. As prime costs increased in real terms during these months, since the existing lags on the formulas for wage, exchange rate and monetary correction passed along past higher inflation rates, the price freeze was put under high pressure.

⁴ This section draws heavily on Modiano (1986).

⁵ The data used in this section are in the tables of the Appendix.

In June the government announced the first increases for a few public and several private-controlled prices. In order to avoid an inflationary rebound, minor adjustments were conceded in the first round. An increase in the frequency of later adjustments was to compensate for the losses in profit margins incurred during the freeze. Inflation jumped from 7.8% in June to 8.9% in July.

The adjustment of prices had only begun when the economy suffered a major agricultural supply shock with wholesale food prices augmenting 19.0% in August. The General Price Index (IGP-DI) increased 14.0% in the same month, signalling the failure of the anti-inflationary package of March and the end of the first phase of the “New Republic” economic policy.

The new Finance Minister announced a more modest inflation target to be pursued: stabilization at the rate of 10% per month. The indexation rules were once more altered in order to avoid the propagation of the August inflation rate. The “memory” of past inflation in the formulas for monetary and exchange rate correction was reduced from three to one month. Important public and private-controlled prices would be monetarily corrected on a monthly basis, and hence at smaller percentages, to minimize the impact upon the general price index. This suggested that the stabilization of the inflation rate would be obtained at the expense of an increase in the degree of indexation of the economy. Interest rates, that skyrocketed during April/July, would decline as a result of a less restrictive monetary policy.

The new indexation rules suggested that the economy was on the route of the “indexed currency” proposal, as price, exchange rate and financial assets monetary adjustments became increasingly linked to the monthly variations of the ORTN. However, there was not a clear, and widely acceptable, rule for the indexation of nominal wages, that remained, at least officially, guided by the six-month adjustments established in 1979. The perspective of returning to inflation rates of 10-12% per month, after the failure of the price freeze, gave a new impulse to the demand for more frequent nominal wage adjustments.

The proposals for a new wage policy included: adjustments every three months, adjustments every month according to the variation of the ORTN and a sliding scale of 30%. While the public discussions proceeded, the government allowed free negotiation of bonuses, advancements and alternative indexation schemes as long as these were not passed along to prices. The price control agencies would not consider for the purpose of cost computation any wage increase that was not in strict accordance with the official rule of six-month cost-of-living adjustments. Real wages increased substantially during this period.

If on one hand the “fine-tuning” of price adjustments maintained inflation at 9% per month during September/October, on the other hand it did not allow any space for compensating the losses incurred mainly by public prices during the freeze of April/July. Repressed inflation combined with a major supply shock originating from the drought that harassed the food harvests, raised the general

price index by 15% in November. Deindexation then proceeded along an alternative line: the price index that officially measured inflation was changed from the General Price Index (IGP-DI) to the Ample Consumer Price Index (IPCA). The latter showed an inflation rate of only 11.1% in November. The IPCA became also the universal indexer for capital and labor incomes, that used to be monetarily corrected by the IGP-DI and the INPC (Restricted Consumer Price Index), respectively. While this move was announced as one step toward social justice, the frequency of nominal wage adjustments was maintained at six months. The main advantage of the IPCA over the other indices was its slower response to supply shocks, which would help dampening the expected increase in inflation rates. This gain had to be balanced against the fact that consumer prices were less suitable to controls than wholesale prices, that comprised 60% of the IGP-DI.

At this point, as a new acceleration of inflation seemed inevitable, the application of an “heterodox shock” or the negotiation of a “social pact” were already in the order of the day. The main discussion, motivated by the usual association between recession and orthodox stabilization programs, concerned the eventual contractionary effects upon economic activity. In fact, the fear of a recession based upon the experiences of Argentina and Israel, seemed to be the major obstacle to be overcome.

Inflation, as measured by the new index, reached 13.4% in December and 16.2% in January. The agricultural supply shock finally showed up at the consumer level, as the price of foodstuffs increased approximately 17% per month during December/January. At the wholesale level it increased 26% only in January. There was little doubt that, with the widespread indexation of the Brazilian economy, the annual inflation rate would move quickly to a new plateau of 400 to 500% per year. The government would not be able to keep wage adjustments at the frequency of six months, what could result in another cost push that would drive the economy into a hyperinflation. Also the jump in monthly rates frustrated the exchange rate policy, as the pre-set daily minidevaluations could not keep pace with inflation. A program of gradual recovery of the real price of public services had to be abandoned as the nominal adjustments in December and January ended up falling behind the monthly rates of inflation.

The failure of gradualism in producing the stability of monthly inflation rates ended the second phase of the “New Republic” economic policy. Rampant inflation threatened not only the economic ministries but also the political coalition that supported the government. The legitimacy of the indirect voting process that elected Tancredo Neves and of the presidential succession after his death, was once again at stake. Even the President’s political party seemed on the verge of a major rupture. Not many options were left and on February 28th President José Sarney decreed a new stabilization program: The Cruzado Plan.

The preconditions for the Plan were considered most appropriate: industrial output had grown

9.2% during the twelve months before February, the trade balance had accumulated US\$ 12.8 billion during the previous twelve months, the public sector deficit was believed to be roughly balanced for 1986 as a result of a “fiscal package” of December 1985, the price of oil, that accounted for 45% of Brazilian imports, was declining in the world markets and the dollar was being devalued against European currencies and the Japanese Yen.

4. The Cruzado Plan

The Brazilian stabilization program of February 28th, 1986 promoted a monetary reform, that established the cruzado (Cz\$) as the basic unit of national currency. The rate of conversion was fixed at 1,000 cruzeiros per cruzado. As explained in section 2, the lack of synchronism in wage and price adjustments required the design of specific rules for conversion, if major redistributions of income and wealth were to be avoided. These rules aimed at producing a “neutral shock”, which would restore under the cruzado the same patterns of income and wealth distribution verified more recently under the cruzeiro.

Several reasons concurred for the “shock” to be not as neutral as it purported in its original form. Among these, one can cite the fact that the stabilization program was launched when inflation was in fact accelerating and, hence, before a new inertial inflation and a new income and wealth distribution were settled. Also, as will be ascertained from the description below, the neutrality was impaired by political commitments and technical difficulties.

4.1. The conversion of wages

Wages have been converted into cruzados on the basis of the average purchasing power of the past six months. Even though quarterly adjustments have become widespread during the second half of 1985, the official wage policy, dated of 1979, still determined adjustments every six months. The wage conversion formula computed the average real wage between September 1985 and February 1986, valued at prices of End-February. It modified equation (3) to consider the actual, as opposed to uniform, monthly inflation rates.

The rule for conversion, established by the Decree-Law 2283 of February 28th, 1986, can be expressed analytically as:

$$W(\text{Cz}\$) = \frac{1}{6} \sum_{t=0}^5 W_{t-1}(\text{Cr}\$) \prod_{j=0}^t (1 + p_{t+1-j}) \quad (4)$$

where $W(\text{Cz}\$)$ stands for the wage in cruzados, $W(\text{Cr}\$)$ for the monthly wage in thousands of cruzeiros and p for the monthly rate of inflation. Time period t refers to February 1986, $t - 1$ to

January 1986, $t - 2$ to December 1985 and so forth. The right-hand side products in (4) are the “present-value factors” to End-February 1986. The rate of inflation for March 1986, time period $t + 1$ in (4), was set to zero.

An underlying hypothesis for (4) was that wages were normally paid at the last day of the month, even if they were set at the beginning of the month. The erosion of the real wage that occurred along these thirty days of the month was not compensated for⁶. Besides, purchasing power was assumed to be exercised in full at wage receipt in the last day of the month. Weekly or fortnightly advancements, as well as alternative paydays, were disregarded.

One advantage of the conversion procedure adopted by the Cruzado Plan over the utilization of pre-set conversion factors that applied to February nominal wages according to the month of the last adjustment, as earlier suggested by Modiano (1985b), stemmed from encompassing bonuses, advancements, quarterly adjustments and other benefits freely negotiated for September 1985 through February 1986.

Another advantage for wage-earners of the adopted conversion procedure resulted from its “backward-looking” direction. Wages have been converted into cruzados on the basis of the average purchasing power of the past six months. The rise in monthly inflation rates from 12.8%, which corresponded to the average between September 1985 and February 1986, to 14.6%, which corresponded to the average between December 1985 to February 1986, would result, according to (3), in a decline of 3.9% in the six-month average real wage. This means that, had inflation rates remained at 14.6% per month with wage adjustments occurring every six months after March 1986, the average purchasing power for the following six months would fall by 3.9%. Hence, a “forward-looking” conversion procedure would set wages in cruzados at levels 3.9% lower than “backward-looking”.

4.2. Wage bonus and cost-of-living adjustments

A bonus of 8.0% was conceded to all wage-earners, irrespective of prior gains obtained through labor negotiations from September 1985 to February 1986, when inflation accelerated⁷. The minimum-wage, which used to be adjusted in November and May, was raised to 804 cruzados from 600 thousand cruzeiros in February 1986. With respect to the average purchasing power of the past six months, the new minimum-wage implied a bonus of 16.1%. If the average purchasing power of

⁶ The full compensation for the loss in real wages along the month would require the substitution of p_{t-j} for p_{t+1-j} in (4).

⁷ In terms of Figures 1 and 2 the introduction of the wage bonus meant that the Cruzado Plan established a new peak real wage (the vertical intercept of the *IE* curve) above the prevailing average real wage, but below the cruzeiro peak real wage.

the following six months is taken as a reference, the bonuses amounted to 12.2% for all wage-earners and 20.6% for the minimum wage.

There was no economic rationale for the magnitude of the wage bonus. This resulted from a political decision to promote a redistribution of income toward wage-earners, favouring still further the lower classes⁸. The “New Republic”, installed in March 1985, was committed to restore real wages to pre-1983 levels. The recession and the wage deindexation of 1983, in the aftermath of the foreign debt crisis, had reduced the real wage by approximately 20%.

Wages were not frozen with the Cruzado Plan. Instead, the annual wage negotiation dates that had prevailed until November 1979 were restored. Hence, the asynchronous in wage adjustments that complicated the launching of any stabilization program for the Brazilian economy was not eliminated. Only the interval between successive wage negotiations has been extended from six to twelve months. At first wages were supposed to be freely negotiated on a yearly basis, with no automatic compensation for past inflation. However, a second-version of the decree-law established an automatic cost-of-living adjustment at the negotiation dates, equivalent to 60% of the variation of consumer prices accumulated either from March 1st 1986 or from the previous negotiation date, whichever came last⁹.

4.3. The wage sliding scale

A sliding scale for wage adjustments has been a constant demand in labor negotiations during 1985. While in the opposition, the political party that came into power in March 1985 had endorsed such a claim. The government then felt that acceptance by the working class of the wage conversion scheme would be enhanced if a sliding scale for protection of real wages was introduced with the stabilization program. Hence, the Cruzado Plan established, over and above the annual automatic partial compensations, that wages should be automatically adjusted whenever the inflation rate accumulated the trigger of 20%. The trigger counter was set initially at zero on March 1st 1986 and would be reset either at the annual negotiation dates or each time the trigger was reached.

Given the instability associated with wage adjustments without a fixed periodicity, it was thought that the trigger of 20% would indicate an annual inflation rate that was tolerable without further monetary or fiscal restraint. For the sliding scale to remain inoperative and wage adjustments to be limited to the annual negotiation dates, inflation rates had to be kept below 1.67% per month, which is equivalent to 20.0% in eleven months and 22.0% in one year.

⁸ An effective income redistribution toward wage-earners would also require an upward movement of the *DE* curve in Figure 1.

⁹ As the link between the average real wage and the inflation rate had not been eliminated, the *IE* curve in Figure 1 rotated counterclockwise without turning horizontal.

It can be shown with equation (3) that with an inflation rate of 1.67% per month, the equality between the real wage after the Plan (averaged over twelve months) and the real wage before the Plan (averaged over six months) would be obtained if the cruzado wages were set 9.4% above the average purchasing power of the cruzeiro wages from September 1985 through February 1986¹⁰. This theoretical bonus, that would guarantee no losses in real wages in the “worst case”, was of the same magnitude of the politically determined bonus of 8%.

An expression for the average real wage w , in terms of the peak real wage w^* , with a sliding scale coupled to annual wage negotiations can be obtained as an extension of (3). Denoting by p the uniform monthly inflation rate, it can be shown that:

$$w = \left\{ \frac{hn}{12} \left[\frac{(1+p)^{h+1} - 1}{(h+1)p(1+p)^h} \right] + \frac{12-hn}{12} \left[\frac{(1+p)^{12-hn} - 1}{(13-hn)p(1+p)^{12-hn}} \right] \right\} w^* \quad (5)$$

where h is the number of months between two successive wage adjustments and n the number of times automatic wage adjustments are triggered within a year. Clearly, n must be the integer that results from the division of 12 by h . Consistency with the trigger mechanism further requires that $(1+p)^{h-1} \leq 1.2$ and $(1+p)^h \geq 1.2$.

The instability of the rate of inflation with the sliding scale is illustrated in Table 1. It uses equation (5) to show different combinations of p and h (and hence, n) that result in the same decline in the average real wage with respect to the peak, that would prevail under the “zero-inflation” hypothesis¹¹. Note that the average real wage would decline by the same percentage of the official wage bonus of 8% under alternative inflation rates that run from 1.4% to 3.9% per month. In the best case the sliding scale would not be triggered and wage adjustments would be limited to annual negotiations. In the worst case, automatic wage adjustments would be triggered twice within the year, at the end of the fifth and tenth months.

Table 1
Alternative inflation rates consistent with an 8% decline in real wages

Monthly inflation rate (%)	Annual inflation rate (%)	Number of months until next wage adjustment	Number of times sliding scale is triggered	Number of months until next negotiation date
1.4	18.4	21	0	12
1.7	22.3	11	1	1
2.0	26.7	10	1	2
2.3	31.4	9	1	3
2.6	25.9	8	1	4
2.8	39.3	7	1	5
3.9	57.7	5	2	2

¹⁰ Substituting 0.0167 for p and 12 for h in (3), the peak-to- average wage ratio is 1.094.

¹¹ In the limit, when p approaches zero in (5), it can be shown that $w = w^*$.

Table 2
Consistent inflation rates (%)

Real wage adjustment (%)	12-months adjustments		6-months adjustment		20% sliding scale	
	Monthly	Yearly	Monthly	Yearly	Monthly	Yearly
0	0.0	0.0	0.0	0.0	0.0	0.0 (12)
-2	0.3	4.2	0.7	8.5	0.3	4.2 (12)
-4	0.7	8.6	1.4	17.9	0.7	8.6 (12)
-6	1.1	13.4	2.1	28.5	1.1	13.4 (12)
-8	1.4	18.4	2.9	10.4	1.4	18.4 (12)
-10	1.8	24.0	3.7	53.9	5.6	91.4 (4)
-12	2.2	30.0	4.5	69.4	9.3	189.1 (3)
-14	2.6	36.6	5.3	86.9	17.3	575.8 (2)
-16	3.1	43.6	6.2	106.8	47.1	10130.4 (1)

Note: The values in parentheses indicate number of months between successive wage adjustments.

Table 2 determines the inflation rates that are consistent with the same adjustment of the average real wage under alternative indexation schemes. Besides the sliding scale introduced by the Cruzado Plan, two fixed-periodicity regimes are considered: adjustments every twelve months, which coincide with the annual negotiation dates and adjustments every six months, which were in force before the Cruzado Plan¹². For the sliding scale, the smallest rates of inflation were selected.

Notice that up to an 8% decline in average real wages, the sliding scale would not be triggered and the rate of inflation would be the same as under the policy of adjustments every twelve months: 1.4% per month or 18.4% per year. Six-month adjustments would imply a higher rate of inflation: 2.9% per month or 40.4% per year. If real wages have to decline by more than 10%, the rates of inflation under the three regimes become markedly different. A rate of inflation of 1.8% per month or 24% per year under annual adjustments is consistent with 5.6% per month or 91.4% per year under the sliding scale. In the latter case adjustments would be triggered every four months. The distance between inflation rates under the alternative regimes becomes larger, the larger is the required decline in real wages. Real wages would fall by 16% with inflation rates of either 3.1% per month under the fixed periodicity of twelve months or 47.1% per month under the 20% sliding scale¹³.

The importance of setting prices “right” at the onset of a stabilization program that at the same time introduces a sliding scale for protection of real wages becomes clear. Should large price corrections be needed afterwards the inflation rate may grow exponentially as wage readjustments become frequently triggered. The numerical example in Table 2 shows that, in the presence of a 20%

¹² The expressions for the average real wage under 12-month and 6-month adjustments are derived in Modiano (1985c).

¹³ With the introduction of the wage sliding scale the *IE* curve in Figure 1 became discontinuous for annual rates of inflation above 20% and, according to Table 2, flatter than under the 6-month adjustments for annual rates of inflation above 40.4%.

sliding scale, the need to raise prices by as much as 16% above wages could move the economy from stabilization on the route of hyperinflation.

4.4. The conversion of prices and the exchange rate

Prices should have been converted into cruzados following basically the same rule that applied to wages. Relative prices under the cruzeiro, with respect to either a composite cost index or the wholesale price index, should have been averaged out over a predetermined period of time. In the example carried out by Modiano (1985b), where the inflationary process was purely inertial, average relative prices were computed considering a time interval equal to the fixed periodicity of adjustments. In practice, however, major technical difficulties were involved.

As discussed in section 3, from April to July 1985 a partial price freeze was adopted by the Brazilian authorities. In order to avoid a major inflationary rebound, the new economic administration, installed in September 1985, did not promote major price realignments when the freeze was lifted. The losses incurred with the freeze were to be compensated gradually. For public prices, the situation was even more critical as these had already been frequently used during the early eighties as part of the anti-inflationary policy.

Under the prevailing conditions it seemed clear that some “right” prices could be well above the averages computed for one, two or even six months. As pointed by Modiano (1985b) disregarding such lags could create a “potential inflation” for the new currency. The technical difficulties involved in determining the “right” levels were not overcome and prices, except for industrial electricity which was raised by 20%, were frozen at the consumer levels prevailing on February 27th 1986. A technically fragile price freeze was to become the “fundamental piece” of the stabilization program.

Rough estimates of the maximum price lags with respect to the averages, disregarding the above mentioned generalized pressures on the price index due to past repressed inflation, can be obtained with the help of equation (3). Using in (3) the actual average inflation rates for the interval between successive adjustments, one obtains that price lags could run from at most 6.7% in the case of monthly adjustments to as much as 45.1% in the case of six-month adjustments. The latter were limited by February 1986 to a few public tariffs. It was thought that, in the absence of generalized demand pressures, relative price distortions could be corrected along the time span of the Plan without much inflationary impact by matching some price increases with other price decreases.

The Cruzado Plan also modified the consumer price index (1PCA) that had been adopted in November 1985 as the official measure of inflation. Its structure, which measured the prices of a consumption basket for workers with income up to 30 minimum-wages, was not altered. Only the price basis was displaced to February 28th 1986. The new index was named Consumer Price Index

(IPC).

The rationale for such a move was to avoid what has been called the “Alfonsín effect”. Lopes (1986) has shown that with prices measured by daily or weekly averages, the IPCA would register an increase in the first month after the Plan even if prices remained stable all along. Roughly, approximately half of the February 1986 inflation rate, which amounted to 14.4%, would show up in the index for March. This effect was first observed one month after the Argentinian Austral Plan was launched in July 1985. For the Cruzado Plan such a statistical effect was thought unbearable as it would inappropriately fuel the trigger for the wage sliding scale.

A second advantage of the displacement of the price basis of the IPCA (now, IPC) was that it opened space for major price adjustments prior to the freeze, with no harm to the “zero-inflation” target set for March 1986. However, due to the technical difficulties discussed above and the political costs involved in backdating price increases in early March to February 28th, this opportunity was bypassed.

As mentioned in section 3, since March 1985 the exchange rate was being adjusted on a daily basis. After September the daily minidevaluations were pre-set to equalize the inflation rate of the past month. Under an inflation rate that ran at less 0.5% per day, it was reasonable to assume that peak and average real exchange rates coincided. Hence, the exchange rate was converted to cruzados at the level prevailing on February 27th at the rate of 1,000 cruzeiros per cruzado.

The comfortable external position of the Brazilian economy and the devaluation of the US dollar, to which the cruzeiro was pegged, against European currencies and the Japanese yen in late 1985 and early 1986 seemed to eliminate the need for a maxi devaluation prior to the Plan. However, as flexibility was desired, the exchange rate was not frozen, but fixed for unlimited time. It was thought that this “semantic difference” would not associate an eventual devaluation with a rupture with the price freeze.

4.5. The conversion of rents

Before the Cruzado Plan, residential rents were adjusted based on 80% of past inflation every six or twelve months. The conversion to cruzados could use the same procedure adopted for wages. However, as with partial indexation, real rents tended to decline, a “forward-looking” rule was enforced. Average-to-peak ratios were computed for both six and twelve months’ adjustments based upon an inflation rate of 14.6% per month, which corresponded to 0.45% per day for 30.4 days.

The general formula for computation of the average-to-peak ratio r was:

$$r = \frac{1.146^h - 1}{h(0.146)1.146^{h-1}}, \quad h = 6 \text{ or } 12$$

which resulted in $r = 0.7307$ for $h = 6$ and $r = 0.5266$ for $h = 12$. Before applying the average-to-peak ratios, residential rents were monetarily updated to February 28th 1986. This procedure assumed that all residential rents were paid at the last day of the month.

Commercial rents did not have such well-defined periodicities for adjustments. Corrections were based on the variation of the ORTN, which was monetarily updated every first day of the month based on the rate of inflation of the previous month. Most commercial rent contracts were updated every three months by February 1986. However, monthly as well as yearly adjustment contracts also existed.

The procedure for converting commercial rents into cruzados followed the same scheme adopted for wages. Multiplicative coefficients to be applied to the nominal rents of February 1986, according to the periodicity of adjustments and the month of the last adjustment, that reproduced the average real rents over an interval equal to the period between adjustments, were announced.

4.6. The conversion of future contracts

Basically two types of contracts for future payments in cruzeiros existed in the Brazilian economy before the Cruzado Plan. The difference resided on whether interest rates were pre-set or post set. Contracts with post set rates did not impose major problems for conversion into cruzados: with the suppression of monetary correction, the percentages contracted over and above monetary correction would become the nominal interest rates in cruzados. This has been the case for all contracts the lasted less than one year, as with the Cruzado Plan indexation was forbidden within such a time span. The only exception occurred for savings-deposits, that remained indexed. An “insurance against inflation”, to be credited quarterly, substituted the monthly monetary correction that prevailed before the Plan.

Pre-set contracts imposed a major difficulty as inflation accelerated from December 1985 to February 1986. In contrast to the Argentinian case, there existed in the Brazilian economy pre-set contracts that had been signed up to one year before the Plan. Clearly, contracts signed in the near past had already taken into account the rise in inflation rates, while older contracts still projected inflation rates of 10% per month. Hence, the elimination of the “inflationary expectation” imbedded in such contracts, in the style of the “Austral tablita”, involved a greater degree of arbitrariness.

The Cruzado Plan pre-set the future devaluation of the cruzeiro at 0.45% per day, which corresponded to the daily average of the inflation rate between December 1985 and February 1986. Bagged on this devaluation rate, a table for daily conversion of future cruzeiros into cruzados was established for the following twelve months. Certainly the conversion table would promote a major redistribution of income between debtors and creditors. However, this would be no different from the

redistribution of income that would result if the cruzeiro inflation rate had stabilized at 0.45% per day.

4.7. Monetary and fiscal policies

The Cruzado Plan did not indicate any rules or targets for monetary and fiscal policy to complement the stabilization program. This did not mean, however, that demand policies were considered unimportant for a successful stabilization. On the contrary, as pointed out by Modiano (1986), the general belief was that aggregate demand policies, while impotent to deal with inflation rates of 200-400% per year feedback by widespread indexation, would regain vitality under one or two-digit annual inflation rates.

Flexibility to control aggregate demand was desired to counteract any abrupt changes in economic activity during the time span of the Plan. However, the action of monetary and fiscal policies was left to the discernment of the economic authorities. As mentioned in section 4.3, the 20% sliding scale imposed an annual inflation limit that could be tolerated without further restraint as the triggering of wage adjustments would increase the risk of a widespread reindexation of the economy. The major difficulty would stem from the proper assessment of potential inflation, once the price freeze was lifted.

According to Arida and Lara-Resende (1985), the decline in inflation rates would provoke an increase in the demand for real money balances. The implicit objective of monetary policy during the first months of the Plan was to accommodate such a spurt in money demand as this movement was viewed as non-inflationary. It would be the consequence of a portfolio shift towards the stable new currency. The difficulty here was to evaluate when the process of natural remonetisation had ended, and further monetary expansion would be deemed inflationary. Interest rates would signal excessive or insufficient remonetisation.

Monitoring interest rates during the first months of the Plan would prove, however, a difficult task as several restrictions applied. Higher interest rates could negatively affect investment programs that were badly needed, as the rate of investment in the Brazilian economy had declined from 22.5% of GDP in 1980 to 16.3% of GDP in 1985. Also higher interest rates would increase the burden of the domestic public debt, that amounted to approximately 21.3% of GDP in December 1985. On the other hand, lower interest rates could stimulate speculation with inventories and foreign currency, threatening stabilization.

Concerning the fiscal policy, the government announced in December 1985 a “fiscal package” that aimed at eliminating the Public Sector Borrowing Requirements (operational concept) projected for 1986. The income tax refunds due in 1986 were divided in four annual instalments to reduce

current cash pressures. The tax structure on capital incomes was changed to include taxes on nominal gains, that would be considerably reduced with abrupt disinflation. As of that moment the Cruzado Plan was under discussion, but there was no clear sign that it would in fact be launched. Six-month income statements, which would only increase government revenue during the second half of 1986, were required from large enterprises. Besides, measures were taken to reduce the “fiscal lag”, the inflationary erosion of government revenues. On the other hand, withholding taxes on labor incomes were reduced, increasing net wages in 1986 but decreasing the volume of tax refunds in 1987.

It was clear that some of the benefits of the December “fiscal package”, such as the taxation of capital nominal gains, would not survive the Cruzado Plan. Others, such as the shorter fiscal lags, would reduce the benefits normally associated with the process of disinflation. Also, the “fiscal package” of December 1985 could not take into account the loss of the “inflation-tax” that would follow price stabilization after February 28th 1986.

5. From the cruzado back to inflation¹⁴

In this section the results of the Cruzado Plan between March 1986 and May 1987 are reviewed. The analysis of these fifteen months is divided into three periods. During the first period, from March to June 1986, disinflation was actually obtained but also the first problems of the stabilization program became visible. The second period, from July to October 1986 is characterized by the total immobility of the government in face of the aggravation of product shortages and the deterioration of the foreign sector accounts. The third period, from November 1986 to May 1987, confirms the failure of the Cruzado Plan, with the return of high inflation rates¹⁵.

5.1. From the Cruzado to disinflation: Mar 86/Jun 86

The Cruzado Plan was enthusiastically received by the population. Even though it was edited by a decree-law, the Plan obtained ample support as, after twenty-one years of military rule, it satisfied the Brazilian society desire for a greater participation on the destiny of the country. The President’s claim for the population to watch the price freeze was understood as a civic duty and the technically fragile price freeze, discussed in section 4.4, became immediately the “fundamental piece” of the stabilization program. The government excessive commitment to the freeze would plant the seeds of the difficulties that the Cruzado Plan would face in the very near future.

The main challenge faced by the government during the first month was to convince the labor

¹⁴ The data used in this section are presented in the tables of the Appendix.

¹⁵ Carneiro (1987), Franco (1986) and Marques (1987) discuss in greater detail the first ten months of the Plan.

unions that the complicated average-plus-bonus wage conversion formula did not imply any losses in purchasing power. The government actually succeeded as a protest movement commanded by the most important labor union in March did not gather more than a few participants. Government efforts were also concentrated on convincing the population that the Plan would not lead to recession and unemployment and that the deflation projected for March, as a result of the elimination of the financial costs imbedded in term sales prices, did not mean the beginning of a great depression.

Inflation rates, as measured by the new Consumer Price Index, in fact declined in the first months of the Cruzado Plan. During the period under consideration the maximum monthly inflation rate was 1.4% in May. For some government officials these results confirmed the proposition that a substantial reduction in inflation rates could be obtained without a major recession and that the way was paved to deal with the fundamental sources of inflationary pressure. For others, however, these results gave the false impression that all inflationary pressures could be knocked down with strong will and faith.

The decomposition of the monthly rates of inflation for this period revealed the first symptoms of excess demand in the economy. The prices of clothing articles and used cars, that were hard to control and accounted for approximately 15% of the IPC, were increasing at the rates of 4 to 5% per month. The distortion of relative prices between strictly frozen prices and uncontrollable prices, that had started in early March, only intensified during the extended freeze.

The redistribution of income favouring wage-earners, the voluntary dissaving caused by monetary illusion, the decline in withholding personal income taxes, the reduction of interest rates, the repressed consumption during the recession years and the freezing of some prices at very low levels triggered all together a “consumption boom”. Some government officials maintained that this movement was a “consumption bubble”, that would vanish after the renewal of consumer durables stocks. Consumer purchases picked up already in March, but industrial production was practically paralyzed while inter-industry prices were negotiated. In April, however, the rate of growth of industrial production already surpassed the February peak of 9.2%.

The first shortages appeared during this period, but they would not represent a generalized problem until the following period. During the first four months’ shortages were observed in the milk, meat and automobile markets. The case of milk was typical of an administered price frozen lagging behind costs. The government decided to subsidize milk producers, what would become a more general practice in the following period. The meat shortage had a different origin as it resulted from a seasonal decline in supply and speculative motives. In this case the government opted for massive imports, but these proved late and insufficient. The meat crisis prolonged itself during the entire freeze and constituted a major battleground for the government. The failure to enforce the freeze, even under the threat of cattle seizure, eroded public confidence. Automobile prices were frozen at relatively low

levels as these had not been compensated for the losses incurred during the partial freeze of 1985. As a result, queues accumulated in the new cars market, raising the prices of used cars above the new models.

Besides the above mentioned sectoral problems other indicators suggested that generalized excess demand could be building up. The increase in money supply during the first months seemed to exceed the natural rise in money demand that followed abrupt disinflation. It was argued that the decline in the opportunity costs of holding money should have provoked a portfolio shift from indexed assets into paper currency and demand deposits with no net effect upon the broader monetary aggregates. However, the rate of growth of the broader monetary aggregate M4 accumulated 21.1% between End-February and End-June.

The liquidity slack from excessive monetization reflected itself in terms of *ex-post* real interest rates during this period. As a consequence, stock prices increased 50%, the premium on the dollar parallel market jumped from 26% to 50%, and the prices of real assets increased significantly. While the practice of low nominal interest rates during the first month could be viewed as a contribution to reinforce the expectations of “zero-inflation”, later efforts by the Central Bank to restrain monetary policy and raise interest rates faced strong political opposition and, hence, did not succeed.

During this period there was also a growing conscience that the public deficit at the onset of the stabilization program was far from balanced. This situation would only grow worse during the time span of the Cruzado Plan due to the increase in expenditures with the wage bill, direct and indirect subsidies, tax exemptions and transfers to state enterprises and state and local authorities. The government started to recognize that the deficit could attain 2.5% of GDP as opposed to the 0.5% projected after the “fiscal package” of December 1985. The lack of trustworthy and regular information on the public deficit raised suspicions that the actual number was even higher than 2.5%. The expected increase in government real revenues due to the elimination of the inflationary erosion of tax receipts was not materializing in due proportion and in due time. By the time government revenue started to increase, reflecting also the push of economic activity, it was more than matched by an increase in expenditures to support the price freeze and win the November elections for state governments and the Constituent Congress.

The magnitude of the economy overheat in June can be further illustrated by a few figures: consumer purchases increased 22.8% in the first six months of 1986 with respect to the same period in the previous year, the production of consumer durables increased 33.2% during the previous twelve months, the open unemployment rate declined from 4.4% in March to 3.8% and real wages increased approximately 12% from End-February.

At the end of this period economic policy had, apparently, only two options left: either lift the price freeze or slow down output growth by means of a severe and quick cut down in aggregate

demand. The first option could break the implicit pact between the government and the Brazilian society and would face the wage-trigger trap. The political costs were deemed unbearable. The second option, that involved basically an increase in direct taxes, could be viewed as contractionary and would face the growth-at-any-cost trap. The political costs were also deemed unbearable. The “Cruzadinho” was the government solution to this impasse.

5.2. From disinflation to the Cruzado II: Jul 86/Oct 86

On July 24 the government announced the “Cruzadinho”, a timid fiscal package designed to dampen the consumption pressures. It involved basically a compulsory savings scheme: the creation of new indirect taxes on purchases of gasoline and automobiles that would be refunded after three years. It also introduced non-refundable taxes on the purchases of foreign exchange for traveling and international airplane tickets. The proceeds of the new taxes would finance the Plano de Metas, a program of public and private investments that contemplated a GDP growth rate of 7% per year, launched at the same time. The observation that these tax receipts fell short of the Plano de Metas financial needs, and that the sources of the residual funds were not appointed, gave the impression that the “Cruzadinho” was merely an emergency act to finance a deteriorating public deficit.

The credibility on the program was also harmed by the decision of the government to purge the increases in automobile and gasoline prices from the Consumer Price Index. The main objective of the purge was to avoid fuelling the wage trigger counter. After long discussions the government decided to publish both indices (purged and non-purged) but determined that the purged index should be considered for the purposes of indexation. The implied rupture with the price freeze led to the feeling that a general lift of the freeze was nearby. To the speculative inventory accumulation, the government responded only with a mildly more restrictive monetary policy, raising interest rates. During this period real interest rates, deflated by the official rates of inflation, turned slightly positive. From August to November 15 all government efforts were concentrated on winning the elections, which immobilized economic policy. As expected, the “Cruzadinho” fell short of restraining consumption. On the contrary, the expectation of an imminent price liberalization gave a new impulse to consumer purchases. Industrial output growth peaked at the annual rate of 12.2% in September with several sectors virtually operating at full capacity. There were severe shortages of raw materials and intermediate products.

Official inflation during this period remained at low rates, displaying only a slightly ascending trend. The pattern of sectoral rates was not different from the one observed immediately after the Plan. For the sectors where the freeze could not be enforced, like clothing, household items and transportation (used cars), the rate of price increase was approximately the double of the official

inflation rate. It is noteworthy also that the reported or collected prices were less and less related to the prices actually practiced in the market as overprices and new brands had become common expedients to circumvent the freeze. This discrepancy between official and actual inflation during this period questions the utilization of official price indices to deflate wages, the exchange and interest rates. At the end of the period shortages were increasingly frequent and queues had become part of the daily routine.

Until August the trade surpluses were not reflecting the excess demand in domestic markets, with exports revenues fairly stable and the increase in non-oil imports expenditures accommodated by the decline in oil prices. This situation changed in September, and more drastically in October, as exports revenues fell from US\$ 2.1 to US\$ 1.3 billion. Two basic reasons concurred for this move: the profitability of domestic sales with disguised overpricing in contrast to foreign sales with a fixed exchange rate and the speculation over a cruzado maxi devaluation, as signalled by the premium on the dollar parallel market that reached 90% in October.

Finally, still in October, the government devalued the and announced a policy of eventual minidevaluations based on an exchange-rate/wage indicator. As the indicator suggested that exchange rate was overvalued by at least 10% with respect to End-February, the expectation of a new and larger devaluation further stimulated the postponement of exports and the anticipation of imports. Since only a few weeks were left until the November 15 elections, the government did not respond either to the continuous loss of foreign exchange reserves.

5.3. From the Cruzado II back to inflation: Nov 86/May 87

One week after the government party had won the elections, the Cruzado II was announced. Given the political costs associated with increases in direct taxes and cuts in public expenditures, the government decided again to raise indirect taxes. For this reason, consumer prices for automobiles increased by 80%, cigarettes by up to 120% and beverages by 100%. Public prices were also adjusted: gasoline by 60%, electricity and telephone by 35%, and postal tariffs by 80%. The Cruzado II was in fact a “fiscal package” with little regard either for price stabilization or for demand price elasticities. It aimed at increasing government revenue by 4% of GDP, at the cost of a violent inflationary shock. Inflationary expectations were further fuelled by the announcement that the adjustment was not complete: steel and milk prices would be increased later on. The government expected that all remaining prices would respect the freeze still in force.

The Cruzado II also determined that the price increases for automobiles, cigarettes and beverages should be purged from the Consumer Price Index. This purge would reduce the official rate of inflation by approximately 10 percentage points between November and December and its

main objective was to delay the first triggering of the wage sliding scale. The purge became immediately a political issue as newly elected governors and deputies stood against it. It was clear also that with the labor market still overheated such a purge would not be easily accepted. A few weeks later the government backed off and reinstated the Restricted Consumer Price Index (INPC) as the indexer. The wage sliding scale would be triggered for the first time in December, with a new proviso: trigger adjustments would be limited to 20% and the residuals carried over to the next trigger.

The government proclaimed that Cruzado II represented a definite end to indexation. At the same time, it reinstated the daily minidevaluations of the cruzado and linked all financial contracts to the returns on the Letras do Banco Central (LBC) which, in order to avoid an outflow of funds into the dollar parallel market, soon became over indexed, geared not by the past lower inflation rates but by the future higher expected inflation rates. One week later, as nominal interest rates on pre-set 60-days CD's reached 200% yearly, the government allowed the banks to reissue CD's with post set rates. As one would expect, given the magnitude of the inflationary shock promoted by the Cruzado II, indexation was returning in full force, even though it was officially qualified as just a short interlude. Inflation, measured by the new official index, the INPC, increased from 3.3% in November to 7.3% in December 1986.

During December the government neither started administering the lift of the price freeze nor discarded the possibility of determining another freeze. While at that point the chances of success of a second freeze would be minimal, the return of the wage-price spiral to its present proportions could have been avoided. As the Cruzado II provided a scape valve for all the inflationary pressure that had been built up during the extended freeze, the overprices that had become a general disguised practice started to be disclosed and captured by the price collection agencies in January 1987. Under the threat of an inflationary explosion, the government initiated discussions with representatives of the entrepreneurs and wage-earners aiming at signing a social pact. But the lack of tradition in negotiations of such pacts did not allow for a rapid conciliation of the conflicting objectives. The failure of the social pact became evident in late January.

The inflation rate in January reached 16.8%, which meant that the first trigger wage adjustment, that would benefit approximately 50% of the working class and would be paid by the end of January, accounted for little more than the loss of purchasing power that occurred during that same month. The real wage protection conceded by the sliding scale was at stake. While the government still discussed whether it should undertake a gradual lifting of the price freeze or determine another freeze, considerable pressure was being exerted by the industrial sector for liberalization.

The government acquiesced in early February, retaining control only over a very restricted set of prices. With the abrupt lifting of price controls, inflation in February was expected to reach the rate of 20%. The government interest rate and exchange rate policies sanctioned these expectations

arguing that a more restrictive monetary policy would postpone the threat of a hyperinflation posed by the February rate. At the end of the month it was verified that the rate of inflation for February was 13.9%, which meant that the government practiced a significantly positive real interest rate and promoted a minidevaluations of the cruzado.

On February 27th, as the Cruzado Plan fulfilled one year, under a monthly inflation rate projected at 20%, the reindexation of the economy, initiated in November, was completed as monetary correction on a monthly basis was reintroduced. The fixed periodicities for adjustments of the old cruzeiro contracts were all redeemed except for labor contracts that, with the sliding scale, gained a flexible periodicity. Consequently, the economy become more heavily indexed than on the last days of the cruzeiro, which meant that the perpetuation of the high rates of inflation of January and February would occur at a much faster pace.

As the figures for the monthly trade balances were not showing signs of recovery, the government decided in late February to suspend interest payments on the foreign debt to private bankers for unlimited time. The official objectives of this “technical moratorium” wore: to stop the loss of foreign exchange reserves and to start a new stage of debt negotiation. A third unofficial objective of the moratorium was to regain popular support as government credibility was being considerably harmed by the failure of the Cruzado Plan. None of the objectives was attained in the short-run. The exigency of foreign bankers and the lack of support of the major political party concerning a deal with the IMF, was one major obstacle to resume negotiations. As the obstacle was never overcome, the impasse on negotiations continued.

At the same time the sales statistics suggested that the country was on the verge of a strong slowdown of economic activity. While the replenishment of inventories approximately sustained the level of industrial production during the first quarter of 1987, consumer purchases fell significantly as a result of the decline in real wages, the rise in interest rates and the increase in uncertainty.

The economic activity slowdown had, however, also supply origins. Limits were imposed on imports of essential raw materials and intermediate products due to the scarcity of foreign exchange and the domestic markets were disorganized by the abrupt lifting of price controls with no guidelines with respect to either future cost adjustments or a new freeze. The diagnosis that demand restraints prevailed led the government to take some expansionary measures in March: the maximum time span for consumer credit was extended from four up to nine months, withholding taxes on labor income were reduced and the time span for paying 1986 personal income taxes was extended to eight months with no monetary correction.

Once the February inflation was known, in mid-March, the process of realigning public tariffs and administered prices, interrupted in March, due to the threat posed by the expectations that the February inflation would reach 20%, was reinitiated in April. Further inflationary pressure was added

by a wave of rumours that a new freeze was going to be announced in late April. Consequently, the rate of inflation jumped from 14.4% in March to 21.0% in April, determining for the first time a simultaneous trigger adjustment for all wage-earners at the end of May. In the meantime, the Finance Minister, that had become most popular at the wake of the Cruzado Plan, lost his office as the end of the “inflationary bubble”, which meant that inflation would vanish once the process of price realignment was completed, never materialized and the foreign debt renegotiations, which would reunite the forces of the Brazilian society, came to a new deadlock.

The new Finance Minister, in office since late April, started by announcing that the GDP growth rate for 1987 should be limited to 3.5%, what collided with the 7% growth aspiration of the government political party and his predecessor. The new Minister seems to accept negotiations with the IMF, if deemed necessary, but will face severe opposition within the party. The middle valuation of 7.5% of the cruzado, announced on May 1st, was seen as one more step towards a more orthodox economic policy, which is repelled by the party. A sympathizer of the “heterodox shock”, the Minister cannot contain the constant wave of rumours of an imminent price freeze¹⁶.

The rate of inflation for May is projected above 21% and the risk of a hyperinflation presents itself again. The real money stock is still considerably higher than the levels observed under the cruzeiro. The budget deficit for 1987 is already officially projected at 7.0% of GDP, most probably underestimating the inflationary erosion of tax receipts and the expenditures and subsidies granted by the federal government to avoid bankruptcies in the public and private sectors due to the decline in economic activity, rampant inflation and high interest rates. The so much feared wage sliding scale, with the November upper limit of 20%, is now perceived by the government as a powerful instrument for the stabilization of inflation rates around 20% per month.

6. Current prospects and conclusions

The purpose of this paper was to review the conceptual framework and the conjunctural environment of the Brazilian Cruzado Plan of February 28th 1986. Success or failure of a stabilization program depends not only on a technically sound basis, but on the proper evaluation of the economy conditions by the time of its announcement, on the compromise between theory and practice in its formulation, and on the scope and ability of economic policy for “fine-tuning” during its implementation. The analysis of the results of the Cruzado Plan shows that proper and mistaken assessments and decisions have occurred on all three instances.

Concerning the economy prior conditions, it has to be recognized that part of the demand

¹⁶ The academic contribution of present Finance Minister Bresser Pereira to the discussions concerning inflation inertia and the “heterodox shock” is summarized in Bresser Pereira and Nakano (1984-1986).

pressure that the Cruzado Plan has faced after a few months has been built up prior to its announcement. Also the “heterodox shock”, designed to deal with inertial inflation, was launched when inflation was moving to a new *plateau* and the inherent distributive conflicts were being resolved.

In its formulation the Cruzado Plan compromised with a fair and due income redistribution program that could, however, put at risk the stabilization target. Besides, relative prices were frozen at levels that were not consistent with a longer-term equilibrium and indexation was not fully abolished. On the contrary, the introduction of the sliding scale for wage adjustments represented a high-risk factor, as reindexation would not be avoided once wage adjustments started to be triggered without a fixed periodicity. It was thought, however, that deviations in the assessment of the economy prior conditions and in its formulation could be corrected during the time span of the Plan. But the same political constraints that helped launching it on February 28th 1986 remained active, restricting the action of economic policy.

The political fear of a recession dominated the first months, even though, much to the contrary, the Plan was proving to be highly expansionary. Corrective action to counteract the “consumption boom” was very much delayed for electoral purposes. For this reason, the technically fragile price freeze was extended for nine months and no significant fiscal or monetary restraint was undertaken. Once the elections were won by the government party, the Cruzado II was announced. However, by that time significant inflationary pressure had built up, the economy neared full capacity and the excess domestic demand had spilled over to the foreign sector. The late and mistaken Cruzado II, based upon major increases in indirect taxes, represented by itself a major inflationary shock, that was closely followed by an abrupt lifting of all price controls. Reindexation could not be avoided as monthly inflation rates very quickly approached and surpassed the cruzeiro threshold of 15%, that had triggered the Cruzado Plan.

At present, with inflation skyrocketing to 20% per month, the discussions concerning disinflation in Brazil are back to the issues of late 1984, when the first proposals to deal with inertial inflation were presented. The alternative of a pure “orthodox shock” should be discarded as the Argentinian and the Israeli stabilization programs, and also the Cruzado Plan in its first months, have shown, according to Dornbusch and Simonsen (1987) and Ocampo (1987), that the proper combination of incomes policy with demand policies can produce a significant decline in inflation rates with smaller output costs. By the same token it is widely recognized that fiscal and monetary austerity should complement any “heterodox treatment”, if this is to result in something more than just a temporary inflation relief.

Among the “heterodox options” to deindex the economy and to dampen or to eliminate the new inertial component of inflation, that as of now is not yet clearly settled, the discussions are centred

once again among variants of the heterodox shock, the Larida proposal and the heterodox gradualism. The heterodox shock and the Larida proposal face at present the same type of difficulties: there is no sound basis for freezing prices in cruzados or for establishing the proper conversion rules from cruzados into “indexed currency” as relative prices seem to be still far from a stable equilibrium. Under these conditions a price and wage freeze, the main ingredients of the heterodox shock, would have to be very limited and brief and, hence, would not command public support. Also as relative prices move towards equilibrium, inflation would show up in the “indexed currency”, the main ingredient of the Larida proposal, what would harm its stability and credibility. Besides, the economic environment has much changed since these discussions had first taken place: the budget deficit increased and the trade surplus decreased.

Partial deindexation or “heterodox gradualism” is the most recent route selected by the government to cope in the short run with the risk of hyperinflation. Price adjustments can only occur once a month and are limited to 80% of the previous month rate of inflation. The lack of general consistency of this policy, as wages, the exchange rate and monetary correction pass along 100% of past inflation, suggests that it will be short-lived. Besides, the new rule for price adjustments can only be enforced upon a very restricted set of products as the control agencies have been dismantled with the liberalization. At present the only prices over which the government exerts some control are public and a few administered prices. These are exactly the same prices that were left lagging behind costs during the last freeze and that are strong candidates for an eventual second freeze. To use them at this point as part of the anti-hyperinflationary policy could further aggravate the budget deficit and distort relative prices. Possibly it is for these reasons that the partial deindexation was announced but not yet implemented, having just a short-run favourable impact upon inflationary expectations.

There is little doubt that if and when inflation stabilizes a new attempt to eliminate the inertial component of inflation will be carried. A “D-Day” for prices and wages alignments and coordinated deindexation will not be avoided as a gradual increase in public tariffs and administered prices in preparation for the freeze could provoke in the short-run an additional inflationary shock of unpredictable consequences. Before this D-Day, however, the government should take severe steps to cut the budget deficit and reach an agreement with the foreign creditors, in order to create a favourable environment for a successful price stabilization. The experience with the Cruzado Plan has shown that the political will to take such steps is very much weakened once inflation rates start responding to the price freeze. Given the very recent failure of the Cruzado First Attempt, it is reasonable to assume that any new price and wage freeze would have to be limited in scope and in time. After approximately three months the government should set up an active incomes policy to start lifting the freeze and to escape from the automaticity of short-run reindexation.

At present the government is under considerable political pressure to determine immediately a

new price freeze and to revive the Cruzado Plan. Without fiscal adjustment, with low foreign exchange reserves, and under an accelerating inflation rate, the chances of a successful stabilization are small. However, if political convenience should dominate technical considerations, as has been the case during the entire time span of the Cruzado Plan, it may be asserted that the Cruzado Second Attempt is not very far away.

Post-scriptum

Two days after this paper was presented, on June 12th 1987, the Brazilian government announced the New Cruzado Plan, a less ambitious version of the original Cruzado Plan. At the onset public tariffs and administered prices were raised and the cruzado was devalued by 9.5%. The program determines a wage-and-price freeze limited to 90 days and announces a cut in the budget deficit from 7.0 to 3.5% of GDP and the practice of positive real interest rate during the first months. For the period following the freeze, a new wage policy was introduced: monthly adjustments pre-set every quarter based on the average rate of inflation of the previous quarter¹⁷. The price basis of the Consumer Price Index was displaced to June 15th for the purpose of wage indexation. Except for the wage sliding scale, most of the indexation rules of the economy, such as the daily cruzado minidevaluations, were maintained.

¹⁷ The advantages and disadvantages of this new indexation rule are discussed in Modiano (1985c,1986).

APPENDIX

Table A.1

Main economic indicators of the Brazilian economy: 1980/86

Year	1980	1981	1982	1983	1984	1985	1986
GDP – Rate of growth (%)	9.1	-3.4	0.9	-2.5	5.7	8.3	8.2
Industry – Rate of growth (%)	9.2	-9.2	-0.1	-6.6	6.1	9.0	12.1
Implicitly deflator od GDP (%)	91.7	102.5	92.9	151.9	210.5	225.5	143.5
General price index – FGV (annual var - %)	110.2	95.2	99.7	211.0	223.8	235.1	65.0
Consumer price index – FIBGE (annual var - %)	99.2	95.6	104.8	164.0	215.0	242.2	75.5
Exchange rate devaluation – end of period (%)	54.0	95.1	97.7	289.4	223.1	229.5	42.4
Exchange rate – annual average (Cz\$/US\$)	0.053	0.093	0.179	0.573	1.836	6.169	13.580
Trade balance surplus (US\$ billion)	-2.8	1.2	0.8	6.5	13.1	12.5	8.3
Net interest on foreign debt (US\$ billion)	6.3	9.2	11.4	9.6	10.2	9.7	9.1
Gross foreign debt-medium and long term (US\$ billion)	53.8	61.4	69.7	81.3	91.1	95.9	101.0
International reserves (US\$ billion)	6.8	7.5	7.0	4.6	12.0	11.6	6.8
Monetary base – end of period (Cz\$ billion)	0.7	1.1	2.2	3.5	12.7	45.5	178.9
Money supply – end of period (Cz\$ billion)	1.4	2.6	4.2	9.2	27.7	112.0	452.1
Public sector borrowing requirements-nominal (% GDP)	n.a.	n.a.	n.a.	n.a.	23.3	27.5	10.8
Public sector borrowing requirements-operational (% GDP)	n.a.	n.a.	n.a.	n.a.	2.7	4.3	3.7
National treasury – revenue (Cz\$ billion)	1.2	2.2	4.6	11.3	33.8	134.5	394.0
National treasury – expenditure (Cz\$ billion)	1.2	2.2	4.6	11.3	33.8	121.2	500.2

Sources: National Accounts of Brazil
Central Bank of Brazil

Table A.2
Consumer price index – Monthly Variation (%)

Date	Total	Foodstuffs	Residential articles	Personal expenses	Housing	Personal health care	Transports communication	Clothing
Mar-85	12.8	11.5	13.4	15.8	14.7	8.5	13.9	10.1
Apr-85	8.8	8.7	11.9	4.3	9.4	16.6	5.0	15.3
May-85	6.8	5.2	11.3	6.4	4.5	9.8	5.7	15.4
Jun-85	7.7	6.5	11.1	8.0	4.2	7.5	9.4	13.4
Jul-85	9.3	10.9	11.6	6.5	6.3	7.2	11.1	9.1
Aug-85	12.1	16.0	12.8	9.1	11.1	9.0	9.2	10.7
Sep-85	12.0	12.2	11.4	17.6	7.2	10.5	11.0	12.9
Oct-85	9.6	9.3	11.3	6.4	11.4	6.5	9.1	14.8
Nov-85	11.1	11.5	11.9	11.1	9.9	14.0	9.6	11.7
Dec-85	13.4	17.3	11.0	11.5	10.4	11.3	12.6	10.7
Jan-86	16.2	17.2	11.9	14.5	15.6	8.9	22.9	11.3
Feb-86	14.4	17.6	10.4	15.8	13.1	11.4	13.3	7.9
Mar-86	-0.1	-3.5	2.0	1.2	0.1	1.9	1.4	6.3
Apr-86	0.8	-0.7	1.6	0.5	0.7	1.4	1.7	4.4
May-86	1.4	0.2	2.3	1.1	0.8	0.5	1.9	7.0
Jun-86	1.3	0.5	2.1	0.9	0.6	0.5	2.2	4.1
Jul-86	1.2	0.1	1.9	1.1	0.8	0.3	3.4	2.0
Aug-86	1.7	0.4	2.2	2.1	1.0	0.3	4.2	2.3
Sep-86	1.7	0.3	1.2	1.1	0.6	0.7	4.0	5.4
Oct-86	1.9	5.7	2.4	1.8	0.6	0.6	3.5	5.5
Nov-86	3.3	3.1	1.5	1.3	4.1	0.6	5.5	5.8
Dec-86	7.3	4.9	3.6	7.4	8.0	2.0	25.7	5.0
Jan-87	16.8	16.5	5.6	48.0	3.7	8.2	22.1	7.0
Feb-87	13.9	16.8	16.5	9.2	10.4	12.2	7.2	9.8
Mar-87	14.4	8.6	36.9	13.5	24.0	27.6	12.6	13.9
Apr-87	21.0	21.0	17.4	8.7	43.3	39.6	9.6	14.7

Source: FIBGE

Table A.3

Inflation Rates – Monthly variation (%)

Date	General price index	Consumer price index	Consumer price index foodstuffs	Wholesale prices		
				Industry	Agriculture	General
Mar-85	12.7	12.8	11.5	14.8	10.8	13.6
Apr-85	7.2	8.8	8.7	7.3	7.0	7.3
May-85	7.9	6.8	5.2	4.2	11.0	6.5
Jun-85	7.8	7.7	6.5	5.7	13.6	7.1
Jul-85	8.9	9.3	10.9	8.0	5.6	7.6
Aug-85	14.0	12.1	16.9	12.9	22.6	14.5
Sep-85	9.1	12.9	12.2	9.5	19.1	9.1
Oct-85	9.9	9.6	9.3	12.4	4.6	9.5
Nov-85	14.9	11.1	11.5	12.9	29.7	15.1
Dec-85	13.2	13.4	17.3	12.1	6.1	12.3
Jan-86	17.8	16.2	17.2	17.9	27.1	19.0
Feb-86	22.4	14.4	17.6	19.5	19.6	22.2
Mar-86	-9.9	-0.1	-3.5	-1.3	0.0	-1.0
Apr-86	9.6	9.8	0.7	-1.8	-0.2	-1.5
May-86	9.3	1.4	0.2	-0.7	0.7	0.1
Jun-86	9.5	1.3	0.5	9.3	0.7	0.4
Jul-86	0.6	1.2	0.0	0.2	1.2	0.6
Aug-86	1.3	1.7	0.4	0.9	2.5	1.3
Sep-86	1.1	1.7	0.3	0.0	2.4	0.7
Oct-86	1.4	1.9	5.7	0.2	3.6	1.2
Nov-86	2.5	3.3	3.1	1.5	3.2	2.1
Oec-86	7.6	7.3	4.9	7.7	6.3	7.7
Jan-87	12.0	16.8	16.5	8.3	16.2	10.5
Feb-87	14.1	13.9	16.8	12.8	3.0	10.4
Mar-87	15.9	14.4	8.6	17.3	2.7	14.1
Apr-87	29.1	21.0	21.0	24.7	7.7	21.9

Source: IBGE
FGV

Table A.4
Industrial production - index (1981 = 100)

Date	Total	Capital goods	Intermediate goods	Consumer goods	Durable	Non-durable
Mar-85	103.0	87.9	112.1	98.9	110.7	96.4
Apr-85	92.7	73.0	102.2	90.4	75.2	93.6
May-85	104.5	80.3	114.7	102.6	91.1	105.0
Jun-85	107.9	83.0	117.9	103.9	103.2	104.1
Jul-85	119.1	94.8	126.6	119.3	129.?	117.2
Aug-85	121.4	96.6	129.5	119.8	125.7	118.6
Sep-85	119.3	98.5	126.0	117.8	136.8	113.8
Oct-85	130.3	105.4	136.1	132.1	153.1	127.7
Nov-85	118.0	97.3	122.6	120.9	140.2	116.9
Dec-85	108.6	88.5	117.1	108.0	106.9	108.2
Jan-86	111.5	91.9	120.1	110.6	119.1	108.8
Feb-86	104.7	91.2	111.7	102.9	123.0	98.7
Mar-86	107.3	94.9	116.5	102.8	135.0	96.0 1
Apr-86	111.6	105.5	117.9	108.9	139.4	102.6
May-06	116.5	102.5	123.3	116.8	149.8	109.9
Jun-86	123.0	116.5	128.7	120.1	145.9	114.7
Jul-86	133.3	117.4	138.6	131.7	133.7	131.3
Aug-86	132.2	113.5	139.3	128.3	136.2	126.7
Sep-86	138.5	123.1	143.5	135.5	161.5	130.0
Out-86	144.5	127.3	149.7	141.9	162.0	137.7
Nov-86	128.0	114.7	132.2	126.4	134.5	124.7
Dec-86	116.2	97.3	124.7	112.7	108.3	113.7
Jan-87	118.1	100.6	126.7	115.1	121.8	113.8
Feb-87	117.5	103.5	123.0	116.1	133.0	112.5
Mar-87	122.1	108.5	129.9	117.4	131.9	114.3
Apr-87	120.9	108.8	127.6	117.0	137.8	112.6

Source: FIBGE

Table A.5

Growth of industrial production accumulated over 12 months (%)

Date	Total	Capital goods	Intermediate goods	Consumer goods	Durable	Non-durable
Mar-85	8.1	16.1	9.6	3.1	-1.2	4.1
Apr-85	8.0	14.5	9.0	4.1	-0.4	5.2
May-85	7.6	12.9	8.4	4.3	-0.6	5.4
Jun-85	7.1	12.6	7.4	4.4	1.1	5.2
Jul-85	6.9	12.6	6.8	4.9	3.2	5.4
Aug-85	7.0	12.0	6.7	5.6	4.4	6.0
Sep-85	7.7	12.8	6.8	7.1	9.3	6.7
Oct-85	7.8	12.3	6.9	7.5	12.5	6.6
Nov-85	8.0	12.0	6.9	8.0	14.0	6.9
Dec-85	8.5	12.3	7.2	9.0	15.1	7.9
Jan-86	8.3	11.4	7.1	9.4	14.2	8.3
Feb-86	9.2	12.8	7.8	10.7	17.1	9.2
Mar-86	8.6	11.7	7.3	10.3	17.4	8.6
Apr-86	9.9	15.1	8.3	11.4	23.7	8.7
May-86	10.7	17.8	8.5	12.6	30.4	8.9
Jun-86	11.6	20.8	9.1	13.7	33.2	9.6
Jul-86	11.9	21.3	9.3	13.4	30.3	9.8
Aug-86	11.9	21.9	9.3	13.2	29.8	9.6
Sep-86	12.2	22.3	9.0	13.2	27.7	9.9
Out-86	12.0	22.5	9.7	12.4	24.5	9.6
Nov-86	11.9	22.7	9.8	11.6	21.7	9.3
Dec-86	11.5	22.1	9.4	10.8	20.4	8.5
Jan-87	11.0	21.7	8.9	9.9	19.1	7.9
Feb-87	10.9	21.0	8.9	9.7	17.4	8.0
Mar-87	11.6	21.4	9.5	10.5	15.2	9.4
Apr-87	10.8	18.2	9.0	9.6	10.2	9.4

Source: FIBGE

Table A.6
Trade balance (US\$ million)

Date	Exports			Imports			Balance
	Primary	Manufactured	Total	Oil	Other	Total	
Mar-85	672	1262	1957	514	546	1061	897
Apr-85	827	1272	2124	462	581	1046	1078
May-85	860	1349	2239	347	654	1001	1238
Jun-85	747	1422	2195	442	523	965	1230
Jul-85	791	1371	2185	351	606	957	1228
Aug-85	770	1379	2170	460	613	1073	1097
Sep-85	796	1583	2404	404	615	1099	1305
Oct-85	677	1667	2370	516	740	1256	1114
Nov-85	607	1664	2292	501	713	1214	1078
Dec-85	834	1802	2665	458	997	1455	1210
Jan-86	542	1353	1910	444	765	1209	701
Feb-86	590	1145	1751	363	760	1123	628
Mar-86	832	1309	2157	226	795	1021	1136
Apr-86	820	1334	2172	139	741	880	1292
May-86	831	1441	2292	204	747	951	1341
Jun-86	644	1345	2000	167	762	929	1071
Jul-86	698	1506	2209	181	1009	1190	1019
Aug-86	622	1446	2099	174	966	1140	959
Sep-86	560	1290	1858	193	1117	1310	518
Oct-86	390	947	1340	205	1205	1410	-70
Nov-86	365	899	1277	222	1078	1300	-23
Dec-86	457	852	1329	268	1272	1540	-211
Jan-87	305	934	1259	276	1029	1305	-46
Feb-87	397	1046	1451	271	957	1228	223
Mar-87	487	932	1427	392	829	1221	206
Apr-87	629	1025	1663	288	855	1143	520

Source: FUNCEX
Gazeta Mercantil

Table A.7

Monetary Aggregates – Balance (Cz\$ billion)

Date	MB	M1	M2	M3	M4	M5
Mar-85	14.4	31.0	109.6	198.4	255.5	282.6
Apr-85	11.6	34.3	128.1	228.9	293.8	320.2
May-85	16.5	37.2	149.4	259.4	329.1	361.2
Jun-85	17.8	41.3	173.2	294.3	375.0	409.5
Jul-85	19.6	49.1	201.0	329.7	417.8	456.1
Aug-85	32.1	56.0	227.1	361.6	459.8	503.4
Sep-85	25.8	65.0	251.2	403.0	507.2	554.6
Oct-85	26.8	67.5	283.8	452.4	568.7	621.8
Nov-85	32.1	83.9	319.0	504.7	629.2	689.4
Dec-85	15.5	112.0	370.5	588.1	737.3	803.7
Jan-86	15.9	102.1	395.4	660.6	829.6	906.9
Feb-86	51.5	116.5	448.3	760.2	966.1	1050.7
Mar-86	70.0	209.8	580.0	880.5	1085.2	1171.4
Apr-86	94.8	250.6	617.0	900.6	1098.3	1186.9
May-86	109.0	288.5	656.5	939.6	1133.1	1224.6
Jun-86	120.6	334.2	689.1	977.8	1174.3	1272.9
Jul-86	137.6	333.5	678.2	973.1	1182.2	1282.1
Aug-86	145.8	356.2	705.1	1005.1	1214.4	1312.1
Sep-86	149.9	376.4	734.6	1016.9	1313.3	1413.0
Oct-86	157.6	402.0	739.7	1055.4	1364.4	1473.2
Nov-86	172.5	122.4	741.8	1059.1	1396.6	1505.1
Dec-86	178.9	452.1	811.4	1139.5	1493.2	1598.5
Jan-87	172.4	347.2	761.9	1130.5	1524.6	1630.9
Feb-87	164.3	371.9	882.5	1338.7	1766.2	1869.3
Mar-87	169.2	412.5	997.2	1570.1	1990.1	2147.6
Apr-87	187.0	363.4	1073.4	1756.0	2195.0	2352.4

Notes: MB = Monetary Base

M1 = Means of Payments

M2 = M1 + Federal Public Debt Net Monetary Authority

M3 = M2 + Savings Deposits

M4 = M3 + Time Deposits

M5 = M4 + State and Municipal Bonds and Bills, Bills of Exchange and Housing bonds

Source: Banco Central do Brasil

Table A.8

Monetary Aggregates – Rates of growth – Monthly Variation (%)

Date	MB	M1	M2	M3	M4	M5
Apr-85	1.2	10.7	16.9	15.4	13.8	13.3
May-85	13.2	8.4	16.7	13.3	13.2	12.8
Jun-85	7.8	19.0	15.9	13.5	13.9	13.4
Jul-85	10.1	10.9	16.0	12.0	11.4	11.4
Aug-85	14.0	14.1	13.0	9.7	10.1	10.4
Sep-85	15.1	16.0	10.6	11.4	10.3	10.2
Oct-85	4.1	3.8	13.0	12.3	12.1	12.1
Nov-85	19.7	24.3	12.4	11.6	10.6	10.9
Dec-85	41.6	33.4	16.1	16.5	17.2	16.6
Jan-86	1.0	-8.8	6.7	12.3	12.5	12.8
Feb-86	12.2	14.1	13.4	15.1	16.4	15.9
Mar-86	35.9	80.1	29.4	15.8	12.3	11.5
Apr-86	35.3	19.4	6.4	2.3	1.2	1.3
May-86	15.0	15.1	6.4	4.3	3.2	3.2
Jun-86	19.6	15.8	5.0	4.1	3.6	3.9
Jul-86	14.1	-0.2	-1.6	-0.5	0.7	0.7
Aug-86	6.9	6.8	4.0	3.3	5.3	4.7
Sep-86	2.8	5.7	4.2	4.2	5.5	5.3
Oct-86	5.2	6.8	0.7	0.8	3.9	4.3
Nov-86	9.4	5.1	0.3	0.4	2.4	2.2
Dec-86	3.7	7.0	9.4	7.6	6.9	6.2
Jan-87	-3.6	-23.2	-5.7	0.8	2.1	2.0
Feb-87	-4.7	7.1	15.4	18.4	15.9	14.6
Mar-87	3.0	10.9	13.0	17.3	12.7	14.9
Apr-87	10.5	-11.9	7.6	11.8	10.3	9.5

Notes: MB = Monetary Base
M1 = Means of Payments
M2 = M1 + Federal Public Debt Net Monetary Authority
M3 = M2 + Savings Deposits
M4 = M3 + Time Deposits
M5 = M4 + State and Municipal Bonds and Bills, Bills of Exchange and Housing bonds

Source: Banco Central do Brasil

Table A.9

Nominal rates of return (%)

Date	Rio de Janeiro Stock exchange index (IBV)	São Paulo Stock exchange index (IBOVESPA)	Paralell market dollars	Certificates of deposit	Savings deposits	Overnight
Mar-85	-1.2	-5.2	7.2	14.1	13.3	11.8
Apr-85	1.7	0.4	8.7	13.2	12.4	11.9
May-85	30.9	44.8	13.6	11.2	10.6	11.1
Jun-85	31.0	46.7	12.6	10.5	9.8	9.7
Jul-85	26.2	20.9	18.0	8.8	8.1	8.8
Aug-85	28.3	23.2	12.7	9.4	8.7	8.3
Sep-85	22.1	31.2	7.2	10.1	9.7	9.2
Oct-85	41.5	27.9	4.9	9.9	9.6	9.4
Nov-85	12.9	12.5	17.1	12.0	11.7	9.2
Dec-85	11.8	-15.5	18.5	14.3	13.9	12.3
Jan-86	-6.3	1.4	7.7	17.3	16.8	15.0
Feb-86	13.7	24.0	11.3	15.4	14.9	13.1
Mar-86	34.4	52.4	0.8	0.9	1.2	0.7
Apr-86	19.2	23.5	8.7	0.7	1.2	0.7
May-86	2.0	-11.0	6.9	1.1	1.2	0.7
Jun-86	-0.4	-9.6	1.5	1.2	1.7	0.8
Jul-86	-5.8	1.7	6.8	1.1	1.7	1.1
Aug-86	12.4	-17.7	8.1	1.8	1.9	1.5
Sep-86	-23.2	-23.8	2.2	2.6	2.0	1.8
Oct-86	14.9	20.4	13.6	2.5	2.3	1.9
Nov-86	-22.1	-21.1	8.0	3.7	3.2	3.8
Dec-86	-7.6	-2.3	-4.0	8.2	2.8	5.5
Jan-87	-19.4	-23.3	0.4	13.1	17.4	11.0
Feb-87	-8.7	-3.7	3.2	17.2	20.2	19.6
Mar-87	-0.7	-3.0	8.4	14.9	15.0	12.3
Apr-87	26.2	29.3	2.2	15.6	17.6	15.3

Source: ANDIMA

Table A-10

Average exchange rate

Date	Official Cz\$/US\$	Parallel Cz\$/US\$	Premium (%)
Mar-85	4.16	5.15	23.8
Apr-85	4.72	5.13	16.1
May-85	5.24	6.20	18.3
Jun-85	5.74	6.98	21.6
Jul-85	6.22	8.24	32.5
Aug-85	6.71	9.28	38.3
Sep-85	7.46	9.95	33.4
Oct-85	8.19	10.14	27.5
Nov-85	8.93	12.23	37.0
Dec-85	9.91	14.49	46.2
Jan-86	11.31	15.60	37.9
Feb-86	13.03	17.37	33.3
Mar-86	13.84	17.50	26.4
Abr-86	13.84	19.03	37.5
May-86	13.84	20.35	47.0
Jun-86	13.84	20.65	49.2
Jul-86	13.81	22.06	59.4
Aug-86	13.84	23.85	72.3
Sep-86	13.84	23.34	68.6
Oct-86	13.97	26.51	89.8
Nov-86	14.11	28.64	103.0
Dec-86	14.55	27.50	89.0
Jan-87	15.70	27.39	74.5
Feb-87	18.14	23.27	55.8
Mar-87	21.01	30.64	45.8
Apr-87	23.71	31.32	32.1

Source: Gazeta Mercantil

Table A-11

Other variables – Monthly variations (%)

Date	Average exchange rate	Nominal wages	Open unemployment rate	Sales (1)
Mar-85	10.6	6.3	6.5	8.6
Apr-85	13.5	14.5	6.1	8.8
May-85	11.0	24.1	5.9	10.8
Jun-85	9.5	9.5	5.6	11.4
Jul-85	8.4	12.1	5.4	14.1
Aug-85	7.9	8.4	5.3	15.7
Sep-85	11.2	3.6	5.4	16.0
Oct-85	9.8	19.4	4.7	17.9
Nov-85	9.0	21.0	3.9	18.0
Dec-85	11.0	7.0	3.5	18.0
Jan-86	14.1	19.8	1.2	13.1
Feb-86	15.2	12.9	4.4	15.1
Mar-86	6.2	11.9	4.4	13.7
Apr-86	0.0	0.9	4.2	19.1
May-86	0.0	2.5	4.1	21.4
Jun-86	0.0	0.6	3.8	22.8
Jul-86	0.0	3.6	3.6	23.6
Aug-86	0.0	3.1	3.5	22.8
Sep-86	0.0	2.4	3.2	24.2
Oct-86	0.9	3.6	3.0	26.5
Nov-86	1.0	6.5	2.6	26.7
Dec-86	3.1	4.5	2.2	26.7
Jan-87	7.9	5.8	3.2	17.9
Feb-87	15.5	11.1	3.4	15.7
Mar-87	15.8	23.7	3.3	8.6
Apr-87	12.9	15.8	3.4	1.3

(1) Yearly accumulated over the same period of the past year

Source: IBGE, FIESP, FGV

References

- Arida, P. and Lara-Resende, A., "Inertial Inflation and Monetary Reform in Brazil", in J. Williamson (ed.), *Inflation and Indexation: Argentina, Brazil and Israel*, MIT Press, Boston, 1985.
- Bacha, E. L., *Análise Macroeconômica: Um Texto Intermediário*, Rio de Janeiro, IPEA/INPES, 1982.
- Bacha, E. L., "A inércia e o conflito: o Plano Cruzado e seus desafios", *Texto para Discussão n° 131*, Departamento de Economia, PUC-Rio, Rio de Janeiro, July 1986.
- Bresser Pereira, L. and Nakano, Y., *Inflação e Recessão*, Editora Brasiliense, São Paulo, 1984.
- Bresser Pereira, L. and Nakano, Y., "Inflação Inercial e Choque Heterodoxo no Brasil", in J. M. Rego (ed.), *Inflação inercial, teorias sobre inflação e o Plano Cruzado*, Editora Paz e Terra, Rio de Janeiro, 1986.
- Carneiro, D. D., "The Cruzado experience: an ultimately evaluation after ten months", *Texto para Discussão n° 152*, Departamento de Economia, PUC-Rio, Rio de Janeiro, Jan. 1987.
- Dornbusch, R. and Simonsen, M. H., "Inflation stabilization with incomes policy support: a review of the experience in Argentina, Brazil and Israel", *The Group of Thirty*, New York, 1987.
- Franco, G. H. B., "O Plano Cruzado: diagnóstico, performance e perspectivas a 15 de Novembro", *Texto para Discussão n° 144*, Departamento de Economia, PUC-Rio, Rio de Janeiro, Nov. 1986.
- Lopes, F. L. and Lara-Resende, A., "Sobre as causas da recente aceleração inflacionária", *Pesquisa e Planejamento Econômico*, IPEA, 11(3): 599-616, Rio de Janeiro, Dec. 1981.
- Lopes, F. L., "Inflação e nível de atividade: um estudo econométrico", *Pesquisa e Planejamento Econômico*, IPEA, 12(3): 639-670, Dec. 1982.
- Lopes, F. L., "Só um choque heterodoxo pode curar a inflação", *Economia em Perspectiva*, São Paulo, CORECON-SP, Aug. 1984 (a).
- Lopes, F. L., "Inflação inercial, hiperinflação e desinflação: notas e conjecturas", *Revista da ANPEC*, Rio de Janeiro, ANPEC, n° 9, Nov. 1984 (b).
- Lopes, F. L., "Problemas do índice de preços na transição para a estabilidade", *mimeo*, Rio de Janeiro, Mar. 1986.
- Marques, M. S. B. "O Plano Cruzado: teoria e prática", *Centro de Estudos Monetários e de Economia Internacional*, IBRE/FGV n° 04/87, Rio de Janeiro, Mar. 1987.
- Modiano, E. M. and Carneiro, D. D., "A mágica do Novo Cruzeiro e a geração da nova inflação", *Texto para Discussão n° 78*, Departamento de Economia, PUC-Rio, Rio de Janeiro, 1984.
- Modiano, E. M., "A dinâmica de salários e preços na economia brasileira: 1966/81", *Pesquisa e Planejamento Econômico*, IPEA, 13(1): 39-68, Rio de Janeiro, Apr. 1983.
- Modiano, E. M., "Salários, preços e câmbio: os multiplicadores do choque em uma economia indexada", *Pesquisa e Planejamento Econômico*, IPEA, 15(1): 1-32, Rio de Janeiro, Apr. 1985 (a).
- Modiano, E. M., "O choque argentino e o dilema brasileiro", *Texto para Discussão n° 112*, Departamento de Economia, PUC-Rio, Rio de Janeiro, Oct. 1985 (b).
- Modiano, E. M., "O repasse gradual: da inflação passada aos preços futuros", *Pesquisa e Planejamento Econômico*, IPEA, 15(3): 513-536, Rio de Janeiro, Dec. 1985 (c).
- Modiano, E. M., *Da inflação ao cruzado: a política econômica no primeiro ano da Nova República*, Editora Campus, Rio de Janeiro, 1986.

- Ocampo, J. A., “Una evaluación comparativa de cuatro planes anti-inflacionarios recientes”, *mimeo*, Fedesarrollo, Bogotá, 1987.
- Simonsen, M. H., “Desindexação e reforma monetária”, *Conjuntura Econômica*, 28(11):101-105, Rio de Janeiro, Nov. 1984.
- Taylor, L., *Structuralist Macroeconomics*, *Basic Books Inc.*, New York, 1983.