

Inertial Inflation and the Cruzado Plan

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Summary. — On 28 January 1986 the Brazilian government decided to freeze all prices. This article examines the “heterodox shock” and the development by Brazilian economists of the theory of inertial inflation, which served as a theoretical basis for the shock.

1. INTRODUCTION

On 28 February 1986, Brazilian inflation, which was already at a level of approximately 350% per annum, was halted by a heterodox shock, that is, by a freeze in prices, wages, and the exchange rate. This same phenomenon had taken place in Argentina nine months earlier. In both cases the economic policy adopted was derived directly from a new development of the Latin American structuralist theory of inflation: the theory of inertial inflation. In both cases we witnessed an important advance in the thinking on economic policy accompanied by a corresponding development in macroeconomic theory. Based on these experiences and on the theory of autonomous or inertial inflation which preceded them, it is here maintained that orthodox economists — monetarists as well as Keynesians — should rethink their models and give more importance to administrative policies for stabilizing prices.

The objective of this article is to make a general analysis, right after the Brazilian Stabilization Plan, of the shock itself, of the theory on which it was based, and of its prospects.

When this article was written, one month after the Brazilian heterodox shock, everything seemed to indicate that inflation would be brought under control. If this prediction is confirmed, and the 1,000% inflation in Argentina and the 350% inflation in Brazil are eliminated with almost no cost, economic theory and policy — via the theory of inertial inflation — will have taken a great step forward.

2. THE STABILIZATION PLAN

In the second semester of 1985, Brazilian

inflation underwent a new acceleration, after a partial price freeze from April to July, which artificially maintained it at an annual level of 150%. Inflation jumped from 270% a year (almost 12% a month) to a new annual level of about 360% (almost 13.5% per month), as can be seen in Table 1.

Table 1. *Annualized inflation*

Periods	IPCA*	IGP†
Dec. 1984–Mar. 1985	275.8	268.8
Apr. 1985–Jul. 1985	155.8	149.6
Aug. 1985–Jan. 1986	305.3	334.4
Nov. 1985–Jan. 1986	360.2	453.7

Source: FIBGE and Getulio Vargas Foundation.

*IPCA = Consumer Price Index.

†IGP = General Price Index.

When, in January 1985, monthly inflation (Consumer Price Index — IPCA) reached 16.2%, and in February 14.3%, the situation became unbearable. The economic authorities and the President of the Republic quickly learnt all they could about the theory of inertial inflation which some Brazilian economists had developed at the beginning of the 1980s. They also noted the success of the monetary reforms and general price, wage and exchange rate freeze in Argentina and in Israel. It became increasingly clear that the only way to eliminate Brazilian inertial inflation would be a general price freeze and a monetary reform, or, in other words, a heterodox shock. The decision to carry it out on

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28 February was hastened by the high inflation rates of January and February.

The basic measures of the Stabilization Plan consisted of: (1) freezing all prices, wages, and the exchange rate on D day; (2) de-indexing the economy; (3) introducing a new currency, the Cruzado, in place of the Cruzeiro, from which three zeros were removed; and (4) converting all term contracts (wages, debts, rents, school tuitions, mortgage payments) from Cruzeiros to Cruzados via formulas which would guarantee the recomposition of the average real price of the last six months. All other stipulations of the Plan complemented or established exceptions to these four basic guidelines.

It was a general freeze accompanied by the setting of prices for the most important consumer goods (almost 500 articles, with prices differentiated according to geographic regions). The prices were controlled formally by professional inspectors and informally by the whole population.

Wages could not be directly converted from Cruzeiros to Cruzados due to the different months in which wage readjustments were legally executed. They could also not be readjusted to their peak real value on D day by increasing nominal wages by 100% of the period's inflation and then be converted into Cruzados, because, in dealing with a term contract, this would imply an increase in the real wages of the workers. It would have made the freeze inviable for the firms as it would have eliminated their profits. The solution was a simple conversion table for wages and benefits received in the last six months into Cruzados in a way which guaranteed the reconstitution of average real wages and therefore of workers' buying power. Monthly wages received during the September 1985 and February 1986 period were multiplied by corrective coefficients which transformed them into real wages in terms of 28 February prices, totaled, and then divided by six to obtain the average real wage. An 8% bonus was added on to this amount.

As in Argentina, another table was established to reduce the value of term contracts in general. Corporations had included their expectations for future inflation in the prices for all term sales. Once prices were stabilized, it became necessary to guarantee a discount for debtors which corresponded to these inflationary expectations. The daily table for converting Cruzeiros into Cruzados established this discount, corresponding to the geometric average of inflation in the last three months before the shock (14.65%). Special formulas for conversion were established for rents, mortgages and school tuitions, all of which attempt to reestablish the average real value of the contracts.

De-indexation was not total, thus maintaining certain guarantees for economic agents. Monetary correction was kept on deposits in savings accounts. The ORTNs (Readjustable National Treasury Bonds), which served as a base for the whole indexation process, were transformed into OTNs (National Treasury Bonds), but they kept a guarantee of a yearly correction. A "trigger price adjustment" was established for wages, guaranteeing that they will be readjusted whenever cumulative inflation reaches 20%. At the last minute, due to pressure from the workers, it was also established that, in the respective annual data base for wage negotiations, each category of workers would have its wages readjusted by 60% of the past inflation, even if the "trigger" of the movable scale is not reached.

3. WHY A HETERODOX SHOCK?

The success of the program depends mainly on one condition: that on D day, 28 February, the freeze does not provoke the emergence of any big winners or big losers. In other words, relative prices should be reasonably adjusted, without any distortions caused by partial freezes and subsidies. Aside from this, the time lags in the increases should be small enough so that, on this D day, relative prices are not unbalanced because the last readjustment was closer or farther from the D day.

If there are big winners and big losers, this will mean that the reform did not respect the law of value; that market prices deviated too much from production prices; that relative prices were distorted benefiting those who had increased their prices recently and penalizing those who had planned to raise their prices soon after D day; that the differences between the sectoral profit rates increased rather than decreased; and that wages and other time contracts were not converted according to their average real values. If this happens, the pressure from losers could prove unbearable. Their prices will have to be readjusted sooner or later, and the stabilization program will be a failure.

Contrary to what happened in Hungary in 1946, and in Argentina and Israel in 1985, there were no adjustments made in relative prices on the eve of D day in Brazil. Prices of state corporations were not increased because it was thought, perhaps a bit hastily, that most of them had already been adjusted, and because it was wrongly predicted that there would be no operational public deficit in 1986. The Cruzeiro, on the other hand, was not devalued before being converted into Cruzados, and therefore no safety margin was established in relation to the ex-

change rate which would allow for a small amount of inflation in the following months.

The predicted fiscal balance came, on the one hand, from a fiscal reform approved at the end of 1985, which increased the tax base progressively, and, on the other, from the Stabilization Plan, which eliminated the real loss of taxes which came from the difference between the moment in which taxes are computed and when they are paid. For example, in the case of the tax on industrialized products (placed on the consumer), with inflation the government was losing receipts relative to the devaluation of the Cruzeiro of a three to four month period. This loss disappeared with the stabilization, increasing the taxes collected. In 1985, the operational public deficit (Public Sector Borrowing Requirements in real terms) was 3.4% of the GNP. With the fiscal reform it was estimated that this deficit would be reduced to 0.5% of the GNP. After the Stabilization Plan, all Government estimates pointed to a balanced budget. Two months later, however, this idea was dismissed, as there were new projections of a public deficit of around 5% of the GNP. The effects of the fiscal reforms were not as positive as previously thought, the decision not to raise the prices of the public sector immediately before the shock was a mistake and the control of public expenditures was somewhat loose.

Given the dominantly inertial nature of Brazilian inflation, there was no other alternative to a heterodox shock. An orthodox shock, inspired by monetarist or Keynesian economics, is based on a cut in state spending and an increase in taxes, on a drastic reduction in the money supply, on an increase in the interest rate and on a recession which would have indirectly led to a reduction in wages and in profit margins. This kind of shock would not have been viable because inflation was inertial rather than due to demand pull. It was necessary to break the inflationary inertia, that is, the ability of economic agents to formally or informally index their prices, thus automatically passing their increases in costs on to prices. To do this, indirect measures which aim to reduce this inertial increase of prices via the market are inefficient, as they present an extremely high cost-benefit ratio. Actually, there are only two correct ways for combatting inertial inflation, both of which are of an administrative nature. One can either follow a policy of gradually controlling prices, wages, and the exchange rate in accordance with a declining future rate of inflation, or, if the level of inflation is already very high, introduce the only alternative, a heterodox shock.

The shock is heterodox because it is based on a

price freeze and on administrative measures instead of market measures to combat inflation. It is also heterodox because it does not provoke a recession. An orthodox shock begins from the assumption that economic agents spend more than they earn. For this reason it would be necessary to provoke a recession which would reduce spending. The heterodox shock already recognizes that the market no longer functions — since it no longer maintains stable prices, even though there is no excess of demand — and that it is necessary to administer it. In these terms, a recession is unnecessary, if not even counterproductive. An expansion of the economy would make it easier to stabilize prices, as an increase in productivity would make it possible to reduce costs.

In Argentina, the economy was already going through a recession when the heterodox shock was applied. This recession was aggravated because it was necessary to set a very high interest rate in order to avoid capital flight and an inventory buildup; also, because it was necessary to implement a very large and abrupt cut in the public deficit. The Stabilization Plan in Brazil was introduced under completely different circumstances. The economy was in full expansion, the external sector balanced, international reserves relatively high and public finances under relative control. Also, Brazil has a powerful industrial economy which is internationally competitive, and where opportunities for investment are enormous. For this reason, capital flight is a much less serious problem, and does not demand a high interest rate. Also, the risk of speculative hoarding of stocks is smaller in Brazil. This is another factor which dispenses with a high interest rate, because, as there were no drastic adjustments made in public prices on the eve of the D day, economic agents did not have a special reason to expect a future increase in these prices.

4. THE THEORY OF INERTIAL INFLATION

The theory of autonomous or inertial inflation, which served as the base for the heterodox shock of 28 February 1986 in Brazil and, previously, for the Argentine shock of 15 June 1985, is part of the wider structuralist theory of inflation. Actually, it could be considered as the third paradigmatic moment of the development of this theory. The first moment, which was marked by the works of the economists of CEPAL (The Economic Commission for Latin America of the United Nations), especially those of Sunkel

(1958), Furtado (1959), Pinto (1973) and Oliveira (1964), introduced two basic concepts: (1) supply bottlenecks which provoke sectoral elevation of prices, and (2) the propagating effects of inflation, which spread the initial price hikes to the rest of the economy. Simonsen, who always uses an eclectic approach — both monetarist and structuralist — to analyze inflation, made a contribution to the theory of the propagating effects with his concept of inflationary feedback (1970).

The second paradigmatic moment for the theory of inertial inflation took place with the publication of Rangel's book, *A Inflação Brasileira* (1963). The endogenous nature of the money supply, inflation as a defense mechanism of the economy itself when faced with a chronic insufficiency of demand, and the concept of administered, or oligopolistic, inflation were the main ideas developed by Rangel.

The third paradigmatic moment for the theory of structural inflation took place at the beginning of the 1980s in Brazil. There are some works, dealing especially with formulas for indexing wages, which contain some elements of the future theory of inertial inflation: Resende (1979), Lopes and Resende (1980), Lopes and Bacha (1981), Arida (1982). The idea of autonomous or inertial inflation gained consistency with the works of Luiz Bresser Pereira (1981, pp. 15–20), Silva (1981, pp. 67–75), and Bacha (1982, Chap. 7), in which the idea that the present inflation is a mere reproduction of past inflation, that it is the result of the formal and informal indexation of the economy, and on a wider level, of the distributive conflict, begins to become defined. In Chile, Ramos (1977) made a pioneer contribution to the theory of inertial inflation, even though he adheres excessively to the problem of inflationary expectations. Eckstein in the United States made an important contribution to the theory of inertial inflation with his concept of "core inflation" (1981).

The theory of inertial inflation, meanwhile, only became fully developed with the works of Bresser Pereira and Nakano (1983 and 1984b), Lopes (December 1984a), Arida (1984) and Resende and Arida (1984). This starting point was the concept of stagflation, that is, of the coexistence of inflation with recession, idle capacity and unemployment. In order to explain this fact, it was necessary to construct a model of inflation which, contrary to what happens in Keynesian models of inflation, (1) assumes unemployment and idle capacity, and (2) does not begin from a situation of stability (zero inflation) to explain inflation, but admits the existence of a given prevailing inflation rate.

5. CONSTRUCTING THE MODEL

In order to construct a model of inertial inflation, there was a need for a clear distinction — which the conventional literature on inflation does not make, or to which it does not give enough importance — between the factors which accelerate inflation (demand or supply shocks) and those which maintain it (the "tendency," "momentum," or inertial component of inflation). By starting with zero inflation, the theories of inflation were always oriented towards explaining the causes of inflation in terms of the causes of inflationary acceleration. This resulted in a debate to determine if, in each concrete case, we were dealing with demand inflation (Keynesian, if the excess of demand has a fiscal origin; monetarist, if the origin is monetary; and structural, if the excess of demand is sectoral), or with administered, or cost inflation, provoked by the monopoly power either of corporations, of trade unions or of the government.

After making the distinction between factors which accelerate and those which maintain inflation, it became necessary to clarify, when asking about the causes of inflation, whether the question referred to the causes of the acceleration of inflation, or to the maintenance of the level of inflation. If one was dealing with the first question, the old debate between demand inflation and cost inflation continued to be valid. However, if one was dealing with the second question, it then became necessary to search for the causes of the autonomous or inertial nature of inflation. It became necessary to know why past inflation tended to automatically reproduce itself in the present.

As the theory of inertial inflation is an advance or a new conceptual stage of structuralist theory, it looks for this cause in the distributive conflict. For the structuralists, inflation is a real phenomenon which always has monetary consequences (and possibly causes). Economic agents always try, either individually or in groups, to maintain their share in income, and if possible, even to increase it. Besides, all try to maintain a positive growth of income. In the process of defending their income share — and given the current inflation rate — economic agents increase their prices alternately and systematically. If the economy consisted of only three economic agents — A, B and C — and if the current inflation were $x\%$, then corporation A would increase its prices inertially by $x\%$ on the first day of the month, B on the 10th, and C on the 20th, thus causing A to again increase its prices by $x\%$ (as long as there is no new accelerating factor) on the first day of the following month, and so on. If any one of the

economic agents were to stop increasing its prices, it would have its income share reduced. All were facing the prisoner's dilemma.

In his more detailed model of inflation, Milton Friedman made a distinction between accelerating factors and inflationary tendency. However, as he understands inflation to be essentially a monetary phenomenon, he attributes inflation, its acceleration and its "tendency" (inertia) directly to the behavior of the money supply, and indirectly, to expectations relating to this money supply. As a result, the distinction between accelerating factors and maintaining factors is lost, as all are explained by the same cause: the money supply. On the other hand, by reducing the whole problem of inflation to the money supply, the monetarists, and especially the followers of the theory of rational expectations, turned inflation into a problem of expectations, and thus into a psychological problem. The determining factor for inflation would be the expectations of economic agents in terms of the money supply.

As inflation is an economic problem, and as economics is a social science, it is tautological that inflation is based on the behavior of individuals, on their expectations of the future, and on their attempts to face uncertainty and to make the most of the profits or wages which they are to receive. Meanwhile, it is far from clear that these expectations can be easily changed by means of economic policy. It is equally unclear that the expectations of economic agents influence their behavior to the extent that these expectations are confirmed in practice. There are many expectations which never materialize. Hirschman once defined disappointment, such a common phenomenon, as a kind of mistaken expectation. He added: "it is much more common for expectations to exceed reality than for reality to exceed expectations" (1982, p. 13). Consequently, economic agents know that they cannot take their expectations too seriously.

Nevertheless, orthodox economists keep placing increasing importance on expectations. They believe that governments can change expectations through changes in the "economic policy regime." Once these changes are implemented, they believe that economic agents will behave rationally, in terms foreseen by the economic theory.

As opposed to what monetarist economists assert, inflation is not essentially a monetary phenomenon, but rather a real phenomenon with monetary consequences (and eventually causes). Inflation is a real phenomenon directly related to the distribution of income. Actually, monetarists underestimate the tendency for economic agents

to defend their share in the income by basing their expectations principally on past inflation, which is concrete, instead of acting in accordance with expectations of declining future inflation, which in the end may or may not confirm current expectations. There is a radical divergence along these lines between the structuralist or neo-structuralist theory of inertial inflation, based on the real distributive conflict, and the theory of rational expectations, which uses the idea that inflation is a psychological phenomenon, which depends on the way in which economic agents change their expectations in terms of the changes of the regime of economic policy.

The higher inflation is, the clearer the income effects of price increases become for all economic agents. Monetary illusion disappears. As a result, the distributive conflict becomes sharper and inflation increasingly inertial. In cases of hyperinflation — the study of which was very important for the formulation of the theory of inertial inflation — the inertial component of inflation becomes absolutely dominant. On the other hand, the non-synchronization of price increases becomes minimal and relative prices reach a reasonable balance in which no one gains or loses with inflation. Price increases become almost simultaneous and instantaneous. The differences between peak prices and real average prices almost disappear. For this reason, any significant exogenous factor — such as a monetary reform accompanied by the receipt of foreign loans which guarantee the fixation of the exchange rate, as happened in Central European countries after World War I — allows for the immediate elimination of inflation without the need for a price freeze. Taking the viewpoint of the theory of rational expectations, Sargent (1982) mistakenly attributed the end of hyperinflations to the change in economic policy. Actually, inertial inflation reached such dimensions, the time lag between price increases became so small, that inflation lost any redistributive effects and therefore its reason for existing. The exogenous change in economic policy was just a signal for the economic system, which was ready and anxious to stop hyperinflation as long as the exchange rate was maintained stable.

6. THE ROLE OF MONEY SUPPLY

In the theory of inertial inflation, the money supply is considered to be a factor which sanctions inflation. The endogenous nature of the money supply was advanced by Bogtliew, Schumpeter, Keynes, and Robinson in the 1930s¹

but in a very imprecise form. Finally, this idea was fully developed by structuralist economists, particularly by Rangel. More recently it became popular among post-Keynesians, mainly due to the contributions of Kaldor (1970). Given the exchange equation and assuming relative stability for the income-velocity of money, the inertial increase of prices necessarily leads to an increase in the money supply. The alternative is a reduction in the real money supply, a liquidity crisis, an increase in the interest rate and recession. To avoid this, the economic system tries to defend itself by increasing the nominal money supply, either directly, through an expansionist monetary policy, or indirectly, through the automatic mechanism of the financial market. Faced with the need to create nominal money in order to prevent a reduction in the real money supply, and thus to make the volume of current transactions viable (macroeconomic reason), and given the credit available for financially sound corporations (microeconomic reason), the banking system automatically expands the nominal amount of credit. Even when the Central Bank succeeds in avoiding an increase of the nominal money supply through particularly restrictive measures of monetary policy, the economic system still manages to defend itself by increasing the velocity of circulation of the existing money stock, with a result which is similar to a nominal increase in the money demanded by the market.

Naturally, there are special cases in which an increase in the money supply can have an exogenous component and transform itself into an accelerating factor of inflation. If the government decides to act in a populist way and finances its public deficit by emitting money, or, more precisely, by increasing the real money supply, the resulting acceleration of public and private investment (given the reduction in the interest rate) would lead the economy to a classic demand inflation. It must be made clear, however, that the simple existence of a nominal public deficit financed by an increase in the nominal money supply does not transform this increase into an accelerating factor of inflation. While the money supply increases nominally when there is inertial inflation, in order to maintain the real money supply, it would merely sanction inertial inflation.

7. THEORETICAL AND POLICY IMPLICATIONS

Naturally, there are numerous points in common between the neo-structuralist theory of inertial inflation and the post-Keynesian theory.

Perhaps the endogenous nature of money would be the point where the two theories come closest to each other. In the post-Keynesian model, however, there is no distinction between accelerating factors and maintaining factors, there is no adequate explanation for stagflation, the distributive conflict does not receive the same emphasis, and shocks in supply are almost exclusively related to real increases in wages above productivity, thus ignoring or underestimating oligopolistic increases in profit margins and measures of "corrective inflation."

The distinction is also clear of the level of economic policy. While monetarists are fundamentally oriented towards controlling the money supply and Keynesians towards managing fiscal and income policy (thus admitting the importance of the distributive conflict), the neo-structuralists emphasize administrative controls of prices and wages.

If inflation is inertial, if it is not the result of an excess of demand, but rather of the ability of economic agents to automatically pass on increases in their costs to their prices, the natural solution to break this cycle is administrative price controls. This solution becomes even more natural when we learn that this ability to automatically reproduce past inflation in the present would become greater not only if inflation is higher, but also as the market for goods and services as well as the labor market are oligopolized and nationalized.

Administrative wage-price controls can be carried out either gradually, in keeping with a forecasted declining inflation, or abruptly, via a general freeze of prices, wages and the exchange rate. As long as inflation is at relatively low levels, it is still possible to think in terms of a gradual administrative control. However, when inflation reaches high levels (more than 300% in Brazil, and more than 1,000% in Argentina and in Israel) there is no other choice than a freeze to abruptly cut inflation.

The first economist who perceived the need for an administrative type of shock treatment in order to eliminate inflation was Octavio Gouveia de Bulhões, when, at the beginning of 1983, he proposed a total de-indexation of the Brazilian economy. De-indexation is an administrative measure. However, as he is a monetarist economist and does not make use of the concept of inertial inflation, he did not propose a freeze, preferring to support de-indexation with a radical reduction of the money supply.

The proposals for a freeze and de-indexation are natural results of the theory of inertial inflation. Consequently, as soon as or immediately after this theory was formulated, proposals

formulated by these same economists appeared. Bresser Pereira and Nakano (July 1984b, pp. 123–124) proposed a “heroic solution for controlling inflation,” with the choice of a D day for a general price freeze. Lopes (1984a; 1984b) introduced the expression “heterodox shock” and made a more complete proposal along these lines, which would later serve as the main theoretical source for the Argentine and Brazilian shocks. Resende (1984a; 1984b) and Arida (1984, pp. 5–18), both separately and together (1984), proposed a “monetary reform” and an “indexed currency.” Simonsen (1984) supported and further developed the original proposal of Resende. Leite (1985) presented a proposal of “overcoming inflation in 100 days.” Modiano (1985) made a formal proposal for converting wages to an average real wage. Lastly, Dornbusch (1986) proposed a freeze while maintaining indexation.

Taken together, these proposals served as the base for the Austral and the Cruzado Plans. In the Argentine case, there was more preoccupation with correcting relative prices at the time of the shock, as occurred in Hungary in 1946.² In Brazil, the major preoccupation was with guaranteeing distributive neutrality via several formulas for conversion. In Argentina, the economy was in a recession; in Brazil, in an expansion. In both cases, however, the heterodox shock was based on the choice of a D day to end inertial inflation through a general price freeze. In this way Brazil avoided the deep recession which an orthodox policy (either gradualist or by shock) certainly would have provoked to eliminate such high inflation. Argentina was not as successful because its economy was already in a recession when the shock was applied.

8. PROSPECTS FOR SUCCESS

Now the big question is whether or not both stabilization plans will be successful. Orthodox economists are generally skeptical, or else they pretend that rather than a heterodox shock in their countries, there was an orthodox one. The structuralist economists are confident, because in both stabilizations, as well as in Israel, they see a confirmation of their theory of inertial inflation.

Both in Argentina (10 months later) and in Brazil (45 days later) inflation has been controlled and prices have stabilized. The recession in Argentina was already occurring before the shock; recent information gives indications of the beginning of a recuperation. In Brazil, there has been no sign yet of a recession, although inter-

industry conflicts on discounts in credit sales could create obstacles to production.

In both countries, meanwhile, the freeze has not been suspended yet — in Brazil, because it is still very early; in Argentina, because the government does not yet feel secure enough for that. Of course, the big question is to know what will happen after the end of the price freeze.

In terms of the inertial inflation theory, the first big risk for the plan is that the shock was not neutral enough from the distributive point of view on D day. The second big risk is that the imbalance of relative prices — which expresses the lack of distributive neutrality — would increase instead of decrease during the period of the freeze. In the event that these two problems converge, inflation would start to accelerate again from the moment when the freeze, having become insupportable, is suspended. In Argentina, up to March 1986, the accumulated inflation for the year was 9.6%. The first devaluation of the Austral, of 3.75%, was announced at the beginning of April, anticipating monthly devaluations for the next two months of 2%. Perhaps this is a consequence of the Argentine government's delay in thawing prices, without, at the same time, managing to correct relative prices.

No matter how inertial inflation is, on the D day there will always be some imbalances in relative prices due to controlled prices or to exceptional behavior in the supply or demand of certain goods in the period immediately before the freeze. These imbalances will be frozen along with the prices, and, moreover, will become more visible. On the other hand, all of the formulas and tables for converting long-term contracts into Australs or into Cruzados would not prevent that, at the beginning, those imbalances increase instead of decrease, due to the different timing of price increases and to the fact that the D day is an arbitrary day among the differently timed price increases. Even though there is an attempt to convert prices to their average and not to their peak value, there are always some prices which could not be converted in this way, or that were converted imperfectly.

In Brazil, during the days following the shock, there were two themes which dominated discussions: one was the conversion of wages in Cruzeiros into Cruzados via the average buying power of the last six months. The other was interindustry relations, given the need of the corporations which were selling on credit to offer a discount relative to the inflation which was built into their selling prices. As for wages, although it was naturally difficult for the workers to

understand the conversion of wages based on the average real wage rather than on the peak real wage, it seems to be sufficiently clear that there has not been any loss for wage earners. The shock maintained the relation between wages and profits more or less unaltered.

The problem of interindustry relations is more complicated, since the government decided not to distinguish between imbalances in relative prices, which already existed on D day, from those resulting from the inflation built into term contracts, nor to establish a clear rule for discounts for new supplies of merchandise sold on a credit basis. Instead, it intended to let the market resolve these two problems jointly, through discounts freely set between the corporations. The result of this policy could be favorable, finally reducing the imbalances in relative prices, but it is more likely that it will be negative, increasing these imbalances. In the same way in which a conversion formula was set for the long-term contracts which were in force on D day, a formula for calculating a minimal discount for new supplies should have been adopted. One month after the Cruzado Plan, interindustry relations continued to be tense. Wholesalers and retailers were not accepting the discounts offered by industry. There was a shortage of merchandise in stores at the time that stocks were accumulating in the factories. The difficulties, however, seemed to be resolved more easily than expected. As opposed to what happened in Argentina, the Brazilian economy was expanding at the time of the shock. In spite of the interindustry difficulties, this expansion continued after the shock, stimulated by higher wages (since many corporations went against the conversion formula and did not reduce nominal wages when the formula called for this) and by the monetary illusion of consumers. Actually, the expansion is helping to solve the interindustry distributive conflict.

Strictly speaking, a general freeze of three or four months should be enough to break inertial inflation. A longer freeze could only be justified if, during this period, the government succeeded in diminishing imbalances in relative prices through a judicious administration of prices, and thus prevent the shock from representing large losses for some and large gains for others. It is important to note that this administration of prices is inconsistent with zero inflation, which was the aim of the Brazilian government. A small amount of inflation is necessary, resulting from the increase of outdated prices. Zero inflation would only be feasible if the increase in these outdated prices were compensated for by a decrease in the prices adjusted more recently, or

else if there were a large deflation in the first month. Obviously, neither of these two alternatives is realistic. In Brazil, for example, deflation in the first month was only 0.11%. In April, the second month, we had a positive inflation of 0.78%.

In any case, the freeze cannot last for long because, in the first months after the shock, it would be theoretically possible to decrease imbalances in relative prices by administrative means; in the long run, however, the risks are very great that administering prices instead of letting them be controlled by the market would increase rather than decrease those imbalances. For this reason it will be necessary to suspend the freeze in time, preferably gradually, and definitely before this suspension can no longer be a decision made by government but rather becomes an inevitable fact, an imposition made by market itself. This would happen if, rather than being respected — because the law of value was observed in determining relative prices — the market was violated during the period of the freeze.

As was expected, the stabilization of prices provoked a greater demand for money. The economic agents no longer needed to recycle their Cruzeiros quickly, preferring instead to increase their cash deposits. As a result, cash deposits in the banks increased by 83.4%, the monetary base increased 36.1% and the money supply (M-1) 85.3% in March 1986. For a while, until the remonetization of the economy is completed, the emission of currency could help to finance the public deficit in a non-inflationary way. It is difficult to determine the new ideal level of money with which the economy can operate. If the growth of the money supply provokes an excessive lowering of the interest rate and pressure on demand, these would be signs that it is necessary to interrupt the remonetization process. Until then, even though there may be some excess demand, the real interest rate for depositors should be maintained at approximately the same level as before the shock: 15% per annum.

One month after the shock, concerns about the public deficit returned. The projections for the operational public deficit (Public Sector Borrowing Requirements in real terms) fluctuated between 3.5 and 5.4% for 1986, showing that the fiscal reform of December 1985 was not enough to balance the public budget. This deficit could be financed with the internal savings of the private sector, but it is a cause for concern in the sense that the private sector also is showing signs of wanting to recover investments. In this case,

there would be fewer resources available for the public sector, thus allowing for a substantial increase in the interest rate.

The conditions necessary for the success of the Cruzado Plan are clear. Actually, the Plan is already an extraordinary success, a great conquest of theory and economic policy. The predominantly inertial nature of Brazilian inflation before the shock is indisputable. And although

the plan deserves some restrictions, especially for not having regulated interindustry relations, it was definitely carried out with technical competence. However, there are many decisions to be made until the moment arrives in which the market can go back to regulating the economy. These decisions must continue to be made competently so that the success of the plan can be guaranteed.

NOTES

1. In this respect, see Merkin (1982).

2. See Bomberger and Makinen (1983) and Hegedus (1986).

REFERENCES

- Arida, Pésio, "Reajuste salarial e inflação," *Pesquisa e Planejamento Econômico*, Vol. 12, No. 2 (August 1982).
- Arida, Pésio, "Economic stabilization in Brazil," Discussion text No. 84 (Rio de Janeiro: Pontifícia Universidade Católica, December 1984).
- Arida, Pésio, *Inflação Zero: Brasil, Argentina, Israel* (Rio de Janeiro: Paz e Terra, 1986).
- Bacha, Edmar, *Introdução à Macroeconomia. Uma Perspectiva Brasileira* (Rio de Janeiro: Editora Campus, 1982).
- Bomberger, W. A., and G. E. Makinen, "The Hungarian hyperinflation and stabilization of 1945-46," *Journal of Political Economy*, Vol. 91, No. 5 (December 1983).
- Bresser Pereira, Luiz, "Inflação no capitalismo de estado (e a experiência brasileira recente)," *Revista de Economia Política*, Vol. 1, No. 2 (April-June 1981). Republished in Bresser Pereira and Nakano (1984a).
- Bresser Pereira, Luiz, and Yoshiaki Nakano, "Fatores aceleradores, mantenedores e sancionadores da inflação," em *X Encontro Nacional de Economia* (Belém: Associação Nacional de Centros de Pós-Graduação em Economia, ANPEC, 1983). Published in *Revista de Economia Política*, Vol. 4, No. 1 (January-March 1984). Republished in Bresser Pereira and Nakano (1984a).
- Bresser Pereira, L., and Y. Nakano, *Inflação e Recessão* (São Paulo: Editora Brasiliense, 1984a).
- Bresser Pereira, L., and Y. Nakano, "Política administrativa de controle da inflação," *Revista de Economia Política*, Vol. 4, No. 3 (July-September 1984b).
- Bresser Pereira, L., and Y. Nakano, "Inflação e Curva de Phillips," *Revista de Economia Política*, Vol. 6, No. 2 (April-June 1986).
- Dornbusch, Rudiger, "Reforma monetária no Brasil," *Folha de S. Paulo* (3 January 1986).
- Eckstein, Otto, *Core Inflation* (Englewood Cliffs: Prentice-Hall, 1981).
- Friedman, Milton, "The role of monetary policy," *The American Economic Review*, Vol. 58, No. 1 (March 1968).
- Furtado, Celso, *Formação Econômica do Brasil* (Rio de Janeiro: 1959).
- Hall, Robert E., *Inflation: Causes and Effects* (Chicago: University of Chicago Press, 1982).
- Hegedus, Georges, "A hiperinflação Húngara de 1945-46," *Revista de Economia Política*, Vol. 6, No. 2 (April-June 1986).
- Hirschman, Albert O., *Shifting Involvements* (Princeton: Princeton University Press, 1982).
- Kaldor, Nickolas, "The new monetarism," *Lloyds Bank Review* (July 1970).
- Leite, Antonio Dias, "Idéia fundamental de um plano de domínio de inflação em cem dias," *Boletim de Conjuntura Industrial* of the Instituto de Economia Industrial of the Universidade Federal do Rio de Janeiro, Vol. 5, No. 1 (January 1985). Republished in Antonio Dias Leite, *A Transição para a Nova República* (Rio de Janeiro: Nova Fronteira, 1985).
- Lopes, Francisco Lafayette, "Inflação inercial, hiperinflação e desinflação: Notas e conjecturas," *Revista de ANPEC* (December 1984a). Republished in *Revista de Economia Política*, Vol. 5, No. 2 (April-June 1985).
- Lopes, Francisco Lafayette, "Só o choque heterodoxo pode derrubar a inflação," *Economia em Perspectiva* (Conselho Regional de Economia: August 1984b).
- Lopes, Francisco Lafayette, *Choque Heterodoxo. Combate à inflação e reforma monetária* (Rio de Janeiro: Editora Campus, 1986).
- Lopes, Francisco Lafayette, and André Lara Resende, "Sobre as causas da recente aceleração inflacionária," in *VII Encontro Nacional de Economia* (Nova Friburgo: Associação Nacional de Centros de Pós-Graduação em Economia, ANPEC, 1980).
- Lopes, Francisco Lafayette, and Edmar Bacha, "Inflation, growth and wage policy," Discussion text No. 10 (Rio de Janeiro: Departamento de Economia da Pontifícia Universidade Católica, 1981).
- Merkin, Gerald, "Towards a theory of the German inflation," in Gerald D. Feldman *et al.*, *The German Inflation* (Berlin: Walter de Gruyter, 1982).
- Modiano, Eduardo, "O choque argentino e o dilema brasileiro," Discussion text No. 12 (Rio de Janeiro:

- Pontifícia Universidade Católica, 1985). Published in *Revista de Economia Política*, Vol. 6, No. 2 (April-June 1986).
- Oliveira, Julio G., "La inflación estructural y el estructuralismo latinoamericano," in O. Sunkel *et al.*, *Inflación e Estructura Económica* (Buenos Aires: Paidós, 1967). Originally published in English in *Oxford Economic Papers*, Vol. 16, No. 3 (November 1964).
- Pinto, Anibal, *Inflación: Raíces Estructurales* (Mexico: Fondo de Cultura, serie Lecturas, No. 3, 1973).
- Ramos, Joseph R., "Inflación persistente, inflación reprimida e hiperinflación. Lecciones de inflación y estabilización en Chile," *Cuadernos de Economía*, No. 43 (Instituto de Economía da Pontifícia Universidade Católica de Chile: December 1977). Republished in *Desarrollo Económico*.
- Rangel, Ignacio, *A Inflação Brasileiro* (Rio de Janeiro: Tempo Brasileiro, 1963). Third edition São Paulo: Editora Brasiliense, 1978.
- Resende, André Lara, "Incompatibilidade distributiva e inflação estrutural," in *VII Encontro Nacional de Economia*, Mimeo (Atibaia: Associação Nacional de Centros de Pós-Graduação em Economia, ANPEC, 1979). Published in *Estudos Econômicos*, Vol. 11, No. 3 (September-December 1979).
- Resende, A. L., "A moeda indexada: Uma proposta para eliminar a inflação inercial," *Gazeta Mercantil* (26, 27, 28 September 1984a).
- Resende, A. L., "Moeda indexada: Nem Mágica nem paracéia," *Revista de Economia Política*, Vol. 5, No. 2 (April-June 1984b).
- Resende, André Lara, and Pésio Arida, "Inertial inflation and monetary reform in Brazil" (Rio de Janeiro: Pontifícia Universidade Católica, 1984). Presented at a seminar in Washington sponsored by the Institute of International Economics, December 1984. Published in Arida (1986).
- Sargent, Thomas J., "The ends of four big inflations," in Hall (1982).
- Silva, Adroaldo Moura da, "Inflação: Reflexões à margem da experiência brasileira," *Revista de Economia Política*, Vol. 1, No. 3 (July-September 1981).
- Simonsen, Mário Henrique, *Inflação: Gradualismo X Tratamento de Choque* (Rio de Janeiro: ANPEC, 1970).
- Simonsen, M. H., "Desindexação e reforma monetária," *Conjuntura Econômica*, Vol. 38, No. 11 (November 1984).
- Sunkel, Oswaldo, "La inflación chilena: Un enfoque heterodoxo," *El Trimestre Económico*, vol. 25, No. 4 (October-December 1958). Transcribed in Sunkel *et al.* (1967).
- Sunkel, Oswaldo, *et al.*, *Inflación y Estructura Económica* (Buenos Aires: Paidós, 1967).