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Inflation and the Costs of Stabilization

Country Experiences, Conceptual Issues, and Policy Lessons

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The costs of hyperinflation are almost unbearable to any economic system. Nevertheless, stopping hyperinflation seems to be faster and less costly than stabilizing chronic inflation. The history of stabilization shows that fiscal restraint and adequate external resources are key elements for successful stabilization.

A key issue in anti-inflationary policymaking is how to bring inflation down permanently and at a low cost. Solimano reviewed several anti-inflationary programs to determine the role played by fiscal reform, the availability of foreign resources, stabilization of the exchange rate, and the distributive conflict in the success or failure of those programs.

Focusing on the costs of stabilization and the lessons to be drawn from each case, Solimano examined three types of anti-inflationary experience: stabilization of hyperinflation (in Germany, 1923; Austria, 1922; and Bolivia, 1984-85); orthodox stabilization programs in the Southern Cone in the mid-1970s and early 1980s; and heterodox stabilization programs in Argentina, 1985-87, and Brazil, 1986-87. He concluded that:

Stabilization of hyperinflation entails costs—in terms of employment and real wages—but they seem to be lower than the costs of stabilizing chronic-intermediate inflation, mainly through restrictive demand policies.

The orthodox experiences in the Southern Cone in the mid-1970s show that stabilization programs that focus only on restrictive monetary and fiscal policy can be slow in producing anti-inflationary results and may cost considerably in terms of activity levels and real wages. Orthodox programs based on exchange rate management (tried in the late seventies and early

eighties) reduced inflation more rapidly than traditional programs, but led to overvalued real exchange rates and the accumulation of foreign debt. Correcting these disequilibria arising in the course of stabilization proved that those exchange rate-based stabilization programs did not eliminate but only delayed the costs of stabilization.

Heterodox stabilization programs significantly reduced inflation in the short run, without recession and even with (moderate) growth—but in Argentina and Brazil the gains were temporary, and inflation accelerated dramatically in 1987, 1988, and 1989. These results are explained by different factors like the difficulties in controlling aggregate demand and the fiscal deficit, the behavior of relative prices during stabilization, the net transfer abroad, the inertia of the economy's contract structure, and the influence of the distributive conflict and the political cycle. Israel has succeeded with a heterodox program, stabilizing inflation more permanently by undertaking fiscal adjustment and benefiting from a net resource transfer *from* abroad.

The intertemporal distribution of the costs of stabilization that tilt toward the end of the program of stabilization is a feature valid both in programs that rely on one nominal anchor and in heterodox plans that use several nominal anchors to stabilize.

This paper is a product of the Macroeconomic Adjustment and Growth Division, Country Economics Department. Copies are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Emily Khine, room N11-055, extension 61763 (44 pages with tables).

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A. Introduction*

The macroeconomic effects and the actual costs of different anti-inflationary programs is a subject of great importance for the design of stabilization policies. In effect, how to bring inflation down on a permanent basis and at a low economic cost is at the core of the discussion on the conceptual foundations and actual results of different anti-inflationary policies.

This paper reviews several historical anti-inflationary programs and some of the recent past. The purpose of the paper is to help understand current difficulties with stabilization, especially in Latin America. The emphasis in each experience reviewed is on the cost of stabilization and the role played by fiscal reform, the availability of foreign resources, the stabilization of the exchange rate and the distributive conflict, relating to the success or failure of the particular anti-inflationary program studied. In addition, special attention is given to the existing controversies on the causes and cures of inflation in the literature on stabilization.

The paper is organized into four sections besides this introduction. In Section B, three hyperinflations are analyzed: Germany in 1923, Austria in 1922 and Bolivia in 1984-85; emphasizing the origin of the hyperinflation

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and the results of the stabilization plans implemented in each of these economies. In Section C, the analysis centers on the orthodox stabilization programs applied to the Southern Cone of Latin America during the mid-seventies to early eighties. We study the traditional monetarist plans as well as the open economy version applied in Chile, Uruguay and Argentina during that period. Their effectiveness in reducing inflation and their impact on employment, real wages and on income distribution is discussed. Section D examines the heterodox stabilization plans applied in Latin America. For that purpose we considered the Austral Plan of Argentina and the Cruzado Plan of Brazil, with some reference to the Israeli case. Section E synthesizes and discusses the lessons and questions that arise from the stabilization experiences reviewed in this paper. Finally, Appendix I presents a formalization of the balance of payments view of inflation that was popular in the twenties. This approach, in turn, may be illuminating in understanding other episodes of inflationary acceleration, mainly in Latin America in the eighties.

B. Hyperinflations and stabilization:
Germany 1923, Austria 1922 and
Bolivia 1985

Hyperinflations are periods of extremely large and frequent increases in the price level, which lead to severe dislocations in the functioning of the economic system. Defining hyperinflation is certainly a matter of convention. The best known definition is Cagan's (1956) which assumes that a hyperinflation starts when the monthly rates of inflation are greater than 50 percent and that it ends when inflation is less than 50 percent in every month

during at least one year.¹

1. European Hyperinflations:
Germany (1923), Austria (1922)

Germany, 1923: The European hyperinflations of the twenties were, borrowing Keynes (1919) famous dictum, to a great extent the "economic consequences of the peace" that followed World War I. In effect, the war reparation payments sanctioned by the Treaty of Versailles on Germany and on the ex Austro-Hungarian empire (already separated into independent countries), produced at least two adverse economic effects. On the one hand, they imposed a heavy burden on the balance of payments of these economies. Germany, for example, had to transfer nearly six percent of her income abroad, although this effect was in part ameliorated by an inflow of foreign capital. The scarcity of foreign exchange, in turn, led to devaluations followed by monetary accommodation and domestic inflation. On the other hand, the war reparation payments and, in the German case, the takeover of the Ruhr province and the passive resistance policy financed by the government led to a strong deterioration of the fiscal budget, which was financed through loans from the Central Bank to the National Treasury.

The combined effect of these shocks and domestic policies produced extreme macroeconomic instability, as seen in columns (1) to (3) of Table 1. In fact, Germany (1922) registered a yearly rate of inflation of nearly 4,000 percent, while the exchange rate was devalued by more than 5,000 percent. Nearly 40 percent of the fiscal expenditures were financed by money creation. In 1923, the situation became even worse, especially after the unsuccessful stabilization attempt of February to April of that year; so that by August

inflation exceeded 7,500 percent monthly and in October it reached 30,000 percent.

In Germany, all of the characteristic elements of a hyperinflation were present: (a) a complete domestic demonetization and a shift of portfolios towards foreign currency; (b) an increase in the fiscal deficit, mostly because of the decreased real tax revenue due to the fiscal lag. Additionally, the growing fiscal deficit increased the rate of domestic credit expansion fueling inflation, thus generating an unstable inflationary process (c) the "end" of the contract structure, in terms of a drastic shortening of its durations (de facto) pegging them to the exchange rate; (d) a very rapid depreciation of the exchange rate; and (e) a decrease in the indexes of physical production, real wages and an increase in unemployment.

Under these conditions, the need for stabilization was clear. It was finally achieved in early November 1923 and was even followed by a price deflation at the beginning of 1924. The three basic elements of the stabilization were:²

- i) A fiscal reform, which included an increase in taxes and a reduction in public expenditures;
- ii) A monetary reform forbidding the Reichsbank to discount government bonds as an (inflationary) form of financing the deficit;
- iii) Depreciation of the Rentenmark and afterwards freezing the exchange rate.

It is interesting that the stabilization program took place along with the arrangement of an external loan, granted under the supervision of the League of Nations, which was finally received by Germany in 1924. The loan was conditional upon the implementation of legislative reforms in the fiscal

and monetary areas.

With regard to the impact of the stabilization on production, real wages and employment, the available information (Table 2) shows that the index of per capita production falls substantially in the year of the hyperinflation - 1923 -- and rises quickly in 1924, the year of price stability. Real wages rise when the inflation rate falls. This is made apparent by comparing December 1923 with October of the same year. In 1924 real wages rise again. Table 2 also shows that unemployment rates increased at the beginning of the stabilization and tended to decrease in 1924.

Austria 1922: The hyperinflationary process in Austria (the country which suffered losses of territory and of assets due to the disintegration of the Austro-Hungarian empire) started in late 1921, and lasted until September of 1922. In that month, a stabilization plan was carried out, which consisted of restrictive fiscal and monetary policies, and stabilization of the exchange rate supported with foreign loans.

The Austrian plan included real tax increases, reduction of fiscal expenditures and an inhibiting legislation on loans from the National Bank of Austria to the government. In addition, the importance of foreign financing in the stabilization process - through a loan received from the League of Nations - was decisive. In fact, it contributed to stabilizing the exchange rate (which was floating), an essential ingredient in stopping price increases.

Referring to the costs of Austrian stabilization, Wicker (1986) reports significant losses of employment. Until 1926, the number of people who lost their jobs in the financial sector, (which became smaller during the

stabilization), was 10,000. Similarly, there was a reduction of 85,000 in public employment. In fact, it is quite possible that Austria could no longer support the bureaucracy left over from the defunct Austro-Hungarian empire. All of this suggests that the fall in employment associated with the stabilization process was not negligible, at least in absolute terms.

2. The Bolivian Case, 1984-85

The Bolivian case of 1984-85 is one of the most recent episodes of hyperinflation (another is Nicaragua in 1988). As in the European experiences of the twenties, this hyperinflation originated in difficulties in the external sector, deterioration of the public finances and social and political conflicts.³

The process of accelerating price increases in Bolivia illustrates the common pattern of hyperinflations (Table 3): Very high monthly inflation rates (over 50 percent per month between April of 1984 and September of 1985). Drastic decreases in real money balances, even in the presence of rapid expansion of the nominal quantity of money (indicating an increase in money-velocity); Domestic dollarization, shortening of contracts and pegging to the dollar, especially the parallel exchange rate; and increases in the fiscal deficit, due to the erosion of the real value of tax revenue.

In the Bolivian stabilization plan, carried-out by the government of Paz-Estenssoro in August 1985, the stabilization of the exchange rate led to a sudden stop of inflation (as in the stabilization episodes in Germany and Austria in the 20s). This is explained by the fact that wages, the prices of domestic and imported inputs, and most contracts were de facto pegged to the exchange rate. So, when this key price was stabilized, the rate of increase

in prices also stopped.⁴

The Bolivian Plan also comprised a drastic fiscal reform⁵, an agreement with the IMF and a continued moratorium on the repayment of both principal and interest of the external debt. The results of the plan on inflation control were felt immediate especially in October and November of 1985 (although inflation accelerated again in December of 1985 and January of 1986). However, during the rest of 1986, the stabilization was completely consolidated.

An interesting feature of the Bolivian stabilization program was the slow remonetization of the economy, made apparent through low real balances (Table 3, column 3), which indicate that restoring confidence and credibility was a slow process. Referring to the behavior of real wages, the available evidence (column 5 and 6 of Table 3) shows that they fell drastically in the second quarter of 1985 and started to recover when inflation slowed down.

The (measured) GDP fell in 1985 and in 1986 (it had been decreasing since the early 80s), due partly to the stabilization plan and also to the deterioration of the terms of trade in those years. Furthermore, open unemployment in Bolivia has been considerable - nearly 20 percent (1986). Morales, (1987), attributes three points of this percentage to the stabilization policy. The reduction of employment in the public sector and the negative growth in 1985-86 would explain the increase in open unemployment.

C. Orthodox Stabilization Programs:
The Southern Cone in the mid 70s
and early 80s

Orthodox (or monetarist) stabilization programs usually refer to anti-inflationary policies that seek to reduce (or eliminate) the rate of increase in the price level mainly through reductions in the rate of growth of money. Accordingly, they must reduce the fiscal deficit, which would be the ultimate cause of the money creation and inflation.⁶ The prior question about what produces the fiscal deficit, is left unanswered.

The "initial conditions" of the stabilization in Argentina, Chile and Uruguay in the mid-seventies consisted of severe disequilibria. In Chile in 1973, the yearly inflation rate reached 813 percent and the fiscal deficit was almost 25 percent of GDP. Argentina, in 1976, had an inflation rate of over 400 percent and the fiscal deficit reached 7.2 percent of GDP. In Uruguay, 1974, the inflation rate was lower but still considerable, 77.2 percent.

In this connection, stabilization in the three economies included reductions of the fiscal deficit, significant initial devaluations (followed by some system of periodic exchange rate readjustments or crawling pegs) and wage controls mainly engineered through de-indexation (see "Phase I" in Table 4).

However, the reduction in inflation was not spectacular in the short and medium run. In Chile, in 1976, although inflation was one third of that of 1973, it was still over 200 percent yearly, even though the fiscal deficit was drastically reduced (from 24.7 percent of the GDP in 1973 to 2.3 percent in 1976). In Argentina, in 1978, inflation continued to be over 150 percent yearly and in Uruguay, nearly 45 percent, although these economies had also performed significant fiscal adjustments.⁷

Concerning the costs of these orthodox plans (Table 5), we observe that Chile and Uruguay suffered a sharp drop in real wages, near 18 percent in both countries (between 1973 and 1976 in Chile and between 1974 and 1978 in Uruguay).⁸ The cut in real wages in Argentina was smaller (2.5 percent between 1976 and 1978), although this value would have been greater if 1975 were considered as the reference point.

On the other hand, the rate of unemployment in Chile jumped from 4.6 percent in 1973 to 19.4 percent in 1976. In Uruguay unemployment also rose by about two percentage points. But in Argentina, surprisingly enough, there was a reduction in unemployment between 1976 and 1978.

The record on income distribution under orthodox stabilization in Chile, Argentina and Uruguay (Table 6) shows a significant reduction of the share of labor in national income during the first phase of the stabilization plan, 1973-1978. This process was followed by a recovery of the labor's share in the early eighties, although not to the point of what it had in 1970.⁹

Let us now turn to the open-economy monetarism, or exchange rate based stabilization plans carried out in the Southern Cone at the end of the seventies and early eighties (Phase II in Table 4).

The specific details of these programs were different in the three economies considered. In Chile the exchange rate was fixed from June 1979 to June 1982. A system of pre-announced exchange rate devaluations at decreasing rates throughout time was used in Argentina until 1981 and in Uruguay until late 1982.

In Chile and Argentina, inflation decreased, real wages increased (or recovered) and the unemployment rate fell; additionally, in all three

countries GDP growth accelerated, but unsustainable disequilibrium developed in the balance of payments.

The size of the disequilibrium accumulated in the external sector may be appreciated by looking at the real exchange rate. In fact, the real exchange rate measured in wage units appreciated more than 50 percent in Chile between 1976 and 1981, and by a similar percentage in Argentina between 1978 and 1980 (Table 5). The overvaluation in Uruguay was about 20 percent in Phase II. In turn, the financial system experienced an enormous increase in its liabilities which were backed by assets of dubious quality. These developments finally led to ~~very~~ severe financial crisis in these economies (Diaz-Alejandro, 1985). As an example, in Chile as late as 1987, the Central Bank held a stock of non-performing loans of the financial system that amounted to 26% of its total assets (Arellano, 1988).

The phenomenon of exchange rate overvaluation showed the sluggishness of domestic inflation in converging to international inflation (plus the rate of devaluation), as had been predicted by the Monetary Approach to the Balance of Payments popular at that time. In fact, the observed price behavior made evident that the law of one price holds just mildly in the aggregate. Among the factors that conspired against meeting the targets on inflation were in Chile, an excessive level of domestic spending on non-tradable goods combined with clauses of 100 percent backward wage indexation in a context of decreasing inflation. In Argentina, contrasting with the Chilean case, a large fiscal deficit was one of the main causes of failing to meet the anti-inflationary targets. In addition to this, the appreciation of the real exchange rate was an important factor affecting foreign debt accumulation in Chile, Argentina and Uruguay.

The combination of excessive foreign debt accumulation and negative foreign shocks in the early eighties led the governments of the Southern Cone to abandon their exchange rate-based stabilization plans. They finally devalued and/or gave up with the tablita (system of preannounced devaluations at a decreasing pace) while adopting policies to reduce domestic absorption and prevent a large-scale financial collapse. The final outcome was an acceleration in inflation - of different magnitudes in the three economies - and a devastating impact on activity levels, unemployment and real wages (see Table 5).

D. Heterodox stabilization programs in Latin America: The experiences of Argentina 1985-87 and Brazil 1986-87

During the past three years, Argentina and Brazil implemented heterodox stabilization plans. (Israel, in mid 1985, and Mexico, in December 1987, also adopted heterodox programs). These plans were launched in a context of accelerating inflation rates approaching a hyperinflationary situation.

The central innovation of these stabilization programs was the use of generalized controls over prices, wages, public tariffs and the exchange rate. This was the response to both a diagnosis of inertial inflation and to the desire of avoiding the recessionary and distributive costs often associated to orthodox stabilization programs.

The basic elements of the Argentine stabilization plan of June 1985¹⁰ are well-known and featured the freezing of wages, the exchange rate and tariffs for an unspecified length of time. Previous to this, the exchange rate, public sector tariffs and other prices were adjusted in order to begin the program with corrected relative prices and a better fiscal budget.

Additionally, after creating the new currency, the Austral, a scale was adopted to convert contracts for wages and debts and avoid undesired distributive effects associated with the sharp decline in inflation. Finally, the program was accepted by the IMF and Argentina received additional foreign financing, with active participation of the American government.

During the first nine months of its application, the plan was quite successful. In fact, inflation fell from a monthly average of 26 percent between January and June of 1985 to an average of 3 percent between July 1985 and March 1986. After the "price flexibilization" step that took place in April 1986, inflation began to rise again, reaching a monthly average between April and December 1986 of 5.8 percent. Inflation accelerated further in 1987, with a 178 percent increase in the consumer price index. The situation became even worse in 1988 when inflation rose to around 400 percent, on a year-to-year basis.

Referring to the economic costs of the Argentine stabilization plan, the purchasing power of (industrial) wages fell by about 12 percent between May of 1985 (the month preceding the appearance of the Austral) and November of 1988. Nevertheless, until June of 1987, the purchasing power of industrial wages had increased by 7.2 percent. It was basically the more rapid acceleration of inflation beginning in the second half of 1987 that depressed real wages. In relation to activity levels, the plan was moderately expansive: on average, industrial output increased by 3.4 percent during the years 1986-87. This is consistent with the heterodox idea of avoiding a recessionary outcome. However the resumption in inflation casts doubts whether a permanent reduction in inflation can be achieved at low cost. This is a very important subject and requires more investigation. To conclude this discussion over heterodox

plans in Latin America, let us now examine the Brazilian experience with the Cruzado Plan in 1986 and its outcome.

The Cruzado Plan, like the Austral Plan consisted of a general freeze of prices, wages, the exchange rate and public tariffs. Wages were initially converted to their average level of the preceding semester and then increased by eight percent across the board, plus a 15% bonus applied to the minimum wage. Unlike the Austral, however, the exchange rate and public tariffs were not adjusted before the freeze. In addition, indexation was removed and wages were automatically adjusted if the accumulated inflation exceeded 20 percent (trigger system).

The first months of this plan were highly successful. Monthly inflation rates were between 1 and 2 percent, industrial output increased by 40 percent between February and October of 1986; and in November 1986, real wages were nine percent greater than their average level attained in 1985. In spite of that, the Plan started to be unsustainable in August 1986. The trade surplus fell from over one billion dollars per month (level existing at the beginning of the Cruzado Plan), to 544 million in September 1986, turning negative between October and December of that year. The deterioration of the balance of payments was even more striking if we consider that Brazil lost 3.5 billion dollars of international reserves between the beginning of the Plan (February 1986) and December of the same year.

So, towards the end of 1986, the macroeconomic situation in Brazil consisted of repressed inflation, generalized excess demand, and depleted international reserves. In effect, when the price controls were abandoned, inflation rose to monthly rates of between 10 and 15 percent (December 1986-March 1987), which increased even more from April 1987, reaching monthly rates

of 26 percent between May and June of that year. The acceleration of inflation led the government to adopt a new stabilization plan, known as the Bresser Plan (named after the Finance Minister, Luis Bresser Pereira, who replaced Dilson Funaro, initiator of the Cruzado Plan).

The Bresser Plan tried to correct some of the errors of the Cruzado Plan, adjusting public fares and the exchange rates at the beginning of the price freeze. This time the freeze was to be just temporary and wage indexation mechanisms were restored (lagged with respect to the average inflation rate of the preceding quarter). The final outcome of this program was also unfavorable with rapidly rising inflation in the last quarter of 1987 (over ten percent monthly). Brazil entered a quasi-hyperinflationary situation in 1988, having a yearly inflation rate of about 1,000 percent. Once again, controlling and reducing inflation have become the first priority in any economic policy agenda in Brazil.

E. What do we learn from the stabilization experiences?

1. The hyperinflations

The literature on hyperinflation can be categorized into four approaches: one approach is associated with the simple quantitative theory (Cagan, 1956). It emphasizes money creation as the "active" source of inflation, exacerbated by increases in money-velocity in situations of very high inflation. In this approach, a high coefficient of expected inflation in the demand for money can generate explosive dynamics of prices approaching a hyperinflationary situation.

A second approach, related to the above, is a fiscal regime view of the stabilization of the European Hyperinflations of the 20s as represented in

Sargent (1982). This author visualizes the success of these stabilization programs as the result of a radical change in the fiscal regime and monetary institutions. Furthermore, the public sees these reforms as a decisive correction of the main causes or "fundamentals" of inflation. Most importantly, for policy purposes, this author regards the monetary and fiscal reforms as a sufficient condition to achieve a sudden stop of the hyperinflation, as observed in Central Europe in the twenties.

A third view, that could be called the balance of payments approach to inflation (see a discussion of the approach in Bresciani-Turroni, 1937 and Robinson, 1938), emphasizes the adverse shocks on the Balance of Payments (i.e., war reparation payments in the early 20s or foreign debt services in the 80s) as basic causes of the exchange rate devaluations and of inflation.

In this context, money is passive in the sense that money supply is adjusted to the evolution of the exchange rate and prices in sustaining high activity levels. In turn, the fiscal deficit would be, to a great extent, endogenous and related to inflation through the so-called Keynes-Olivera-Tanzi effect. Moreover, a distributive conflict about a desired real wage forces the economy to undertake an inflationary adjustment of relative prices (see formalization in Appendix I).

This view of the European hyperinflations in the 20s emphasizes the need of maintaining an undervalued real exchange rate able to generate a trade surplus equivalent to the transfers abroad (arising from the war reparations imposed by the treaty of Versailles on Germany and the ex Austro-Hungarian empire). In the presence of distributive conflict, the fall of real wages following a real devaluation would be resisted through increases in nominal wages, and accommodated with greater inflation. Then, the stabilization was

successful when Germany and the other countries received their war reparation payments recycled through loans granted by the League of Nations (Taylor, 1987).

A fourth approach is an eclectic view of hyperinflation stabilization (Dornbusch (1987), Sachs (1986)). It emphasizes the role of the exchange stabilization in stopping hyperinflation in economies that have "dollarized" their goods and asset markets, using the exchange rate as the de facto price index of goods and services. In this way, Sachs (1986) shows that, in the Hyperinflationary Bolivia of 1985, the stabilization of the exchange rate induced domestic inflation to immediately converge towards international inflation, in a much faster way than if the economy would have relied only on fiscal reform. Dornbusch (1987) points out that the stabilization of the exchange rate is like a certificate of credibility in the stabilization plan. In fact, when real fiscal revenues increase because the stabilization of the exchange rate reduces inflation, the improvement in the fiscal accounts by itself will increase the probability that the program will succeed.

This approach suggests that when the government stabilizes prices and therefore eliminates the part of the fiscal deficit that is endogenous to the inflation rate, it should also take measures to reduce the structural deficit as a requirement to guarantee permanent price stability.

The literature on the costs of stabilizing a hyperinflation has been substantially influenced by Sargent (1982). Looking at the hyperinflation stabilizations of Central Europe in the 20s, he makes the case of "stabilization at lowest cost" in economies that have undertaken drastic changes in the rules that guide their fiscal and monetary policies. In effect, Sargent (1982) suggests that the decisive change in the rules that

seemed to have made the stabilization credible and immediate, also saved the economies from going through a period of unemployment and output losses, as would have been predicted by Phillips curve models or other Keynesian or structuralist approaches.

At least two remarks can be made about Sargent's approach: on a theoretical level, the nominal rigidity imposed by the contract structure, a cause of non-neutrality of money and the existence of Phillips curves with negative slopes, seemed to disappear during (and because of) the hyperinflation before fiscal and monetary reforms were taken up. This, obviously, contributed to reduce the costs of the stabilization plan.

The situation is different in chronic and high inflations (but not hyperinflations), in which the existing contract structure shortens its terms but does not disappear. In these situations, it would be a lot more difficult to reduce stabilization costs, even if the anti-inflationary plan were completely credible. This suggests that the costs of the stabilization can be related to the level and variance of inflation and not only to the credibility of the stabilization plan.

At an empirical level, recent studies (Wicker, 1986) have provided new evidence about the behavior of employment levels and the unemployment rates in the same economies analyzed by Sargent (1982). Wicker's study shows that the stabilization costs, in terms of employment losses, were not trivial in those economies. In effect, the author explains three concrete situations in which employment fell after the stabilization: i) a decrease of employment in the banking sector that had over-expanded during the hyperinflation; ii) the reduction of employment in the public sector, connected to the fiscal reform; and iii) the fall in employment per unit of output in the firms of the

private sector that were forced to be more efficient after the stabilization.

2. The orthodox stabilization

Persistent inflation: One of the main lessons coming from the orthodox programs in the southern cone (and also from other orthodox experiences, see Kiguel and Liviatan, 1988), refers to the sluggishness of inflation to react to policies that reduce the rate of growth of nominal spending. This feature of inflationary inertia and credibility problems is illustrated by the fact that even in economies that adopted drastic fiscal adjustment (i.e., Chile in the mid-seventies), the inflation rate continued at high levels -- over 3 digits -- for extended periods of time. Inertia and credibility problems were severe enough that when the exchange rate started to be used as the main nominal anchor in stabilization, the inflation rate declined only moderately which led to currency overvaluation.

The costs of stabilization: The orthodox plans in the southern cone in the seventies had an adverse effect on real wages, (Table 5). The combination of sharp devaluations, the deregulation of prices of essential products i.e., food and the like, and the imposition of wage controls (i.e., through de-indexation) explain these adverse effects on real wages. The results of these plans dealing with employment, unemployment and income distribution depend on: i) how recessionary the stabilization is ii) the content of the fiscal reform in terms of reduction of real wages and/or employment in the public sector, and, iii) the redistribution of wealth that may take place with the stabilization. In this regard, Chile represents a case of deterioration of those indicators in the initial phase of stabilization (see Ramos, 1986 and

Foxley, 1982).

Exchange rate-based stabilization showed that the conflicts between stabilizing inflation and maintaining an "appropriate" real exchange rate (with respect to an equilibrium level) can be decisive for the success of a stabilization program. In effect, an overvalued exchange rate can lead to a balance of payments crisis, so the stabilization plan may end up in a recession and/or in a resumption of inflation. The Southern Cone in the early eighties provided clear examples of both results in practice.

Intertemporal distribution of the adjustment: The experience with stabilization shows that the intertemporal distribution of the costs of stabilizing inflation between traditional and exchange rate-based programs is different. In the traditional plan, the costs are faced at the beginning of the program when the economy is hit by the fiscal shock. In the exchange rate-based plan the costs occur at the end of the plan, when the correction of unsustainable current account deficits come along with cuts in output, employment and real wages.

3. The heterodox experience

The heterodox plans in Argentina and Brazil achieved significant anti-inflationary results in the short-run without incurring a recession, even sustaining some growth. However, they were unable to stabilize inflation on a more permanent basis. In 1987 and 1988 inflation sharply accelerated in both economies (reaching Quasi-Hyperinflationary levels in Brazil during 1988). Let us look at some lessons to be drawn from heterodox stabilization experiences in these two economies.

Growth in spending and the inflation target: The Cruzado Plan of 1986 clearly illustrates that excessive growth in aggregate demand goes against meeting the targets on inflation.¹¹ In fact, Brazil attempted to grow at an annual rate of 8 percent and at the same time have zero (or very low) inflation; an event very unlikely to be observed in an economy with such a long inflationary history. In Argentina, by the second half of 1985 after the launching of the Austral, the growth in spending was certainly more moderate. Nevertheless, some Argentine economists, Canavesse and Di Tella (1988) and Rodriguez (1988), have questioned the degree to which monetary and fiscal policy was consistent with the objective of reducing inflation, especially after April 1986. Given the current inflation rates in Argentina it is hard to say that demand policies have been over-restrictive.

Price freezing and relative prices: One of the risks in any scheme of price freezing is that of producing distorted relative prices. This was clear in Brazil during 1986 with the Cruzado Plan. The real exchange rate fell and at the ruling relative prices of basic and durable goods there was excess demand for those goods, reflected by the emergence of black markets, queues, etc.. This in turn put great pressure on the controlled prices. In addition, the trade surplus vanished in six months mainly as a consequence of a sharp rise in imports. Hence the combination of excess demand with misaligned relative prices led to unsustainable disequilibria that finally undermined the stabilization effort.

De-indexation: The presence of indexation was viewed as the main element behind inertial inflation in those economies. As a key part of the stabilization plan indexation mechanisms were removed. However, the move proved to be barely recommendable or effective. In fact, even though indexation tends to reduce the will to fight inflation and produces inflationary inertia, it may also play the role of a guideline for price-setting by firms. This feature may be very useful in a phase of price de-control after a period of freezes. In fact, indexation may contribute to avoiding big price jumps that could occur if prices are severely misaligned and there is uncertainty about the new set of relative prices once the (price) controls are relaxed.

On the other hand, de-indexation will hardly be effective if the structure of wage (or other) contracts exhibits hysteresis, in the sense that the length of the contracts shortens during inflationary accelerations, but does not lengthen in periods of greater price stability. This lack of symmetry in the length of contracts undoubtedly makes stabilization more difficult.

Controlling the fiscal deficit: A frequent explanation of the failure of the heterodox plans in Argentina and Brazil to attain a more permanent stabilization, is their inability to reduce the fiscal deficit. However, a key question, rarely addressed, is why it is so difficult to undertake a fiscal reform. One explanation is that the price freezing, per se, reduces the fiscal deficit, because the Olivera-Tanzi effect disappears. The problem would be solved if the cut in inflation were permanent. However if the reduction in inflation is just transitory, policy-makers may wrongly interpret

a cyclical fiscal adjustment as a structural improvement of the government budget.

On the other hand, a structural adjustment of the fiscal deficit involves economic and political costs that only a few governments are willing to (or can) face, especially in short periods. This is especially so during economic crises like the ones that have been accompanying the implementation of the heterodox programs in Latin America during the eighties. The natural tendency then would be to postpone the fiscal adjustment, waiting for a more favorable macroeconomic environment.

The foreign exchange constraint: Our previous discussion of the stabilization of European hyperinflations in the twenties emphasized the role played by the availability of foreign currency in the success of those stabilization plans.

An evident parallel can be made with the Argentine and Brazilian experiences in the eighties: The balance of payments of both economies has been very vulnerable, mainly due to foreign debt service problems they have faced. This situation is destabilizing since it makes it particularly risky to use the exchange rate for anti-inflationary purposes. Exchange rate adjustments may send inflation to a higher plateau when there is widespread indexation in the economy.

A reference to the Israeli stabilization plan is useful at this point. Among the heterodox programs so far, Israel stands out as a more successful case. Its capability of eliminating the fiscal deficit explains, to some extent, Israel's outstanding performance. Nevertheless, we must note that during the stabilization plan, Israel received a net transfer of resources from abroad (through foreign assistance and others). Thus Israel has been

able to run trade deficits. In contrast, in Argentina and Brazil, the resource transfer has been made to foreign countries and therefore they were forced to run trade surpluses and to undervalue the real exchange rate. As we already mentioned, such a transfer can be inflationary and works against stabilization.

Distributive conflict and the political cycle: Although the heterodox programs were not explicitly conceived as redistributive plans, the distributive conflict has been present. The environment has been one of a foreign constraint and undervalued real exchange rates (compared to a situation with more availability of foreign resources). Again, this may be inflationary because labor may resist the fall in real wages and try to conserve its share of national income. The result of this can be an increase in inflation, if monetary policy is accommodating. This might be reinforced by the fact that the heterodox programs in Argentina and Brazil were undertaken by democratic governments preceded by authoritarian experiences that had weakened the bargaining power of labor.

The political cycle in some respects contributed to, and in other respects harmed the stabilization process. As noted by Dornbusch and Simonsen (1987), both the heterodox plans in Argentina and Brazil initially had strong political support by the population. However, this political base of support started to be eroded as the initial success was followed by a resumption of inflation.

The political cycle also hampered the stabilization effort by encouraging over-expansionary policies, aimed at increasing public support for the government, at times of upcoming elections. The clearest example of this

was the expansionary cycle experienced by the Brazilian economy before the parliamentary elections in November of 1986, at a time when the Cruzado Plan was underway.

F. Final Remarks

Three types of anti-inflationary experiences have been examined in focusing the discussion on the costs of stabilization and the lessons to be drawn from each case.

The notion that the stabilization of a hyperinflation has low (absolute) costs in terms of employment and real wages, is not fully endorsed either by the European experiences of the twenties or by the Bolivian case in the mid-eighties as shown by recent empirical evidence. However it seems to be the case that stabilizing a Hyperinflation still has lower economic costs than stabilizing chronic, intermediate inflation. Furthermore, a discussion of four approaches: the quantitative theory, the fiscal regime view, the balance of payments theory and the eclectic approach was done in order to shed some light on the causes and cures of these hyperinflationary episodes.

The orthodox experiences in the Southern Cone in the seventies show that stabilization programs focusing only on restrictive monetary and fiscal policy can be slow in producing anti-inflationary results. They may also entail considerable costs in terms of activity levels and real wages. Orthodox programs based on exchange rate management were able to reduce inflation more rapidly than traditional programs, but led to overvalued real exchange rates and the accumulation of foreign debt. The correction of these disequilibria proved that the stabilization costs were not eliminated by those programs but were only delayed towards the end of the anti-inflationary program.

It is interesting to note that the intertemporal distribution of the costs of stabilization, related to programs that rely mainly on one nominal anchor, such as the exchange rate, is also valid in heterodox plans that use several nominal anchors to stabilize.

The heterodox stabilization programs were able to achieve significant anti-inflationary gains in the short-run, without recession and even with (moderate) growth. Nevertheless, in Argentina and Brazil these anti-inflationary gains were temporary and were followed by significant inflationary accelerations in 1987 and 1988. The explanations behind those results are multiple and are connected to the difficulties of controlling aggregate demand and the fiscal deficit, the behavior of relative price during the stabilization, the existence of a foreign constraint with important net resource transfers abroad, the inertia of the contract structure in the economy, and the influence of the distributive conflict and the political cycle. Finally, it is worth mentioning Israel. This country has been able to stabilize inflation more permanently through a heterodox program that succeeded in the fiscal adjustment and benefited from a net resource transfer from abroad. In this regard, it stand-up as the successful case in the heterodox field.

A final and important issue concerns the appropriate policies to use in different inflationary situations. It is hard to make valid generalizations on this issue but some principles are apparent. In general, a stabilization plan that relies only on reducing money growth and doing fiscal adjustment has more chance to succeed in reducing inflation in the short run in situations of temporary inflation. However, in countries with a long inflationary history and well developed indexation mechanisms, inflation will be "sticky".

Therefore exclusive reliance on restrictive monetary and fiscal policies may be a costly and probably ineffective way to cut inflation in the short and medium run.

The use of income policies combined with demand management policies may become an effective tool to reduce inflation in the short run without forcing the economy to go through a recessionary period. However, the achievement of a permanent reduction in inflation requires nominal spending to grow at rates compatible with price stability in the medium and long run.

The stabilization of Hyperinflation provides a case of rapid disinflation with restrictive monetary and fiscal policies; but the stabilization of the exchange rate also proved to be a key component for the success of those stabilization packages. Finally, the history of economic stabilization has amply shown that the availability of adequate foreign financing has been an important complement to the success of different stabilization plans.

1. In the twentieth century, hyperinflationary phenomena have occurred in Europe in the 20s, specifically in Germany, Austria, Hungary, and Poland. Also in China and Greece in the 40s. Two of the most recent examples of hyperinflation are the Bolivian case in 1984-85, and Nicaragua in 1988.
2. See Dornbusch and Fisher, 1986; Dornbusch, 1985; CEPAL, 1986; Sargent, 1982.
3. In effect, in the early 80s, Bolivia lost its access to private and multilateral international loan sources (World Bank, IDB, IMF), Bolivia responded to that by suspending the servicing of its foreign debt. For fiscal purposes, the government(s) replaced the foreign loans to the public sector by loans from the Central Bank as a source of financing their expenditure.
4. See Sachs (1987) and the econometric evidence on this subject for Bolivia in Sachs (1986).
5. The fiscal reform in Bolivia included a sharp increase in the taxes on fuel, decreases in the employment in public administration and state mines, and a wage freeze for public officials.
6. The open economy version of the orthodox approach (like the monetary approach of Balance of Payments), gives an active role to the exchange rate in the anti-inflationary stabilization process, since it assumes that domestic prices are determined by foreign prices, expressed in domestic currency. So, correcting the fiscal deficit is an essential prior condition to the guarantee of a level of international reserves, consistent with the fixed exchange rate.
7. Another noteworthy aspect is that the relation between the fiscal deficit and inflation differs substantially among these three countries. For example, in 1983, a fiscal deficit of 4% of the GDP in Chile and Uruguay was associated with an inflation rate of 27.3% in the former country and 51.5% in the latter. This variability in the relation between fiscal deficit and inflation is also observed within the different sub-periods analyzed in each country.
8. Nevertheless, in 1975, Chile and Uruguay also faced a deterioration in their terms of trade.
9. The distributive phenomenon in the Southern Cone is further studied in Ramos (1986) and Foxley (1982).
10. See Frenkel et al, 1986, Machinea and Fanelli, 1988.
11. Analytically, a decrease in the inflation rate has an ambiguous effect on aggregate demand. There are at least three effects that operate in opposite directions. i) The real interest rates may rise if inflation slows down unexpectedly. ii) The purchasing power of wages and other income will rise when the inflation rate falls. iii) The real fiscal revenue increases when the inflation rate decreases because of the Olivera-Tanzi effect. Effects i) and iii) are contractive and ii) is expansive. See Taylor (1987).

A.1

APPENDIX

The Balance of Payments Approach to Inflation: A Formalization

As we have seen in this paper, in the analysis of hyperinflations in Central Europe in the 20s, a popular approach was one that attributed the cause of inflation to adverse shocks in the Balance of Payments. This appendix presents a simple model that seeks to capture the basic elements of this approach, still relevant today. In this setting, inflation results from the combination of 3 elements: i) The existence of a fixed, desired real wage in the economy (which reflects the existence of a distributive conflict); ii) The need to modify the real exchange rate to restore balance of payments equilibrium when there is a new set of external parameters; iii) The existence of a passive or accommodative monetary policy.

To formalize these arguments, let us start with a real target wage.

$$\frac{W_t}{P_{t-1}} = \Omega \quad (1)$$

Where W_t is the nominal wage at time t , P_{t-1} is the price level at $t-1$ and Ω is a constant, representing desired real wages by the workers.

Taking logs on both sides of equation (1), and using lowercase letters to denote logs, then equation (1), can be written as:

$$w_t - p_{t-1} = \mu \quad (2)$$

where $w_t = \log W_t$, $p_{t-1} = \log P_{t-1}$ and $\mu = \log \Omega$.

Adding and subtracting p_t ($=\log P_t$) on both sides of (2), we get:

$$\begin{aligned} w_t - p_t + p_t - p_{t-1} &= \mu & (3) \\ w_R + \pi &= \mu \end{aligned}$$

where w_R ($=w_t - p_t$) is the (log) of the real wage and π_t ($=p_t - p_{t-1}$) is the rate of inflation.

From Equation (3), we can write the actual real wage, w_R , as the difference between the target (or desired) log of the real wage, μ , and the ongoing rate of inflation, π .

$$w_R = \mu - \pi \quad (4)$$

It is clear from (4), that the only way to modify actual real wages, given an unchanged desired real wage is accelerating or decelerating the rate of inflation.

The next question is why a change in real wages might be required and how this is related to shocks associated with the balance of payments.

Let us define, now, the real exchange rate E_R , as the ratio of the nominal exchange rate, e , (foreign prices are set at unity) and the level of nominal wages, W .

$$E_R = \frac{E}{W} \quad (5)$$

taking logs, yields

$$e_R = e - w \quad (6)$$

where $e_R = \log E_R$, $e = \log E$, $w = \log W$

Now, a vector Z can be defined, composed by $\{Z_1, Z_2, \dots\}$ elements, each of them corresponding to external variables like the terms of trade, the level of the foreign real interest rate, the availability of foreign financing and

so on.

Then, denoting the balance of payments as $B(\cdot)$ and making it a function of the real exchange rate, e_R , and the vector of parameters, Z .

$$B(e_R^0, Z_0) = 0 \quad (7)$$

Then $B(\cdot) = 0$ represents equilibrium in the balance of payments, for given values of e_R and Z . A relationship between current real wages and the real exchange rate can be obtained from a Cobb-Douglas price equation like (8).

$$P = W^a E^{1-a} \quad (8)$$

where a and $1-a$ are the shares of wages and imported intermediate goods in unitary costs (foreign prices of imported intermediate goods are set at unity).

Writing equation (8) in logarithmic form, yields

$$p = a w + (1 - a) e \quad (9)$$

Subtracting w on both sides of (9) and rearranging terms we obtain:

$$w - p = -(1 - a) (e - w) \quad (10)$$

or

$$w_R = -(1-a) e_R \quad (10)$$

That is, from (10) appears a negative relationship between the real exchange rate and the level of real wages.

Now, let us assume the economy is hit by adverse foreign shocks like a deterioration in the terms of trade or a cut in foreign financing, so that now for $Z = Z^1$ (a new vector of $\{Z_1^1, Z_2^1, \dots\}$), the restoration of balance of payments equilibrium requires a higher real exchange rate, say

$$e_R = e_R^1 > e_R^0, \text{ so that}$$

$$B(e_R^1, Z^1) = 0 \quad (11)$$

From our relationship between the real exchange rate and actual real wages, (equation (10)), it is clear that restoring balance of payments equilibrium requires a reduction in actual real wages

$$w^1_R = -(1-a) e^1_R \quad (12)$$

where $w^1_R < w^0_R$ (consistent with e^0_R)

A relationship between the rate of inflation and the level of the real exchange rate can be obtained by combining equation (4) with (10).

$$\pi = \mu + (1 - a) e_R \quad (13)$$

Equation (13) says that a higher real exchange rate is associated with a higher rate of inflation for a given level of the target real wage. Clearly, the adjustment in relative prices (the real exchange rate) associated to adverse foreign shocks produces an acceleration in inflation, the basic contention of the balance of payments school. A graphic representation could help to illustrate this point.

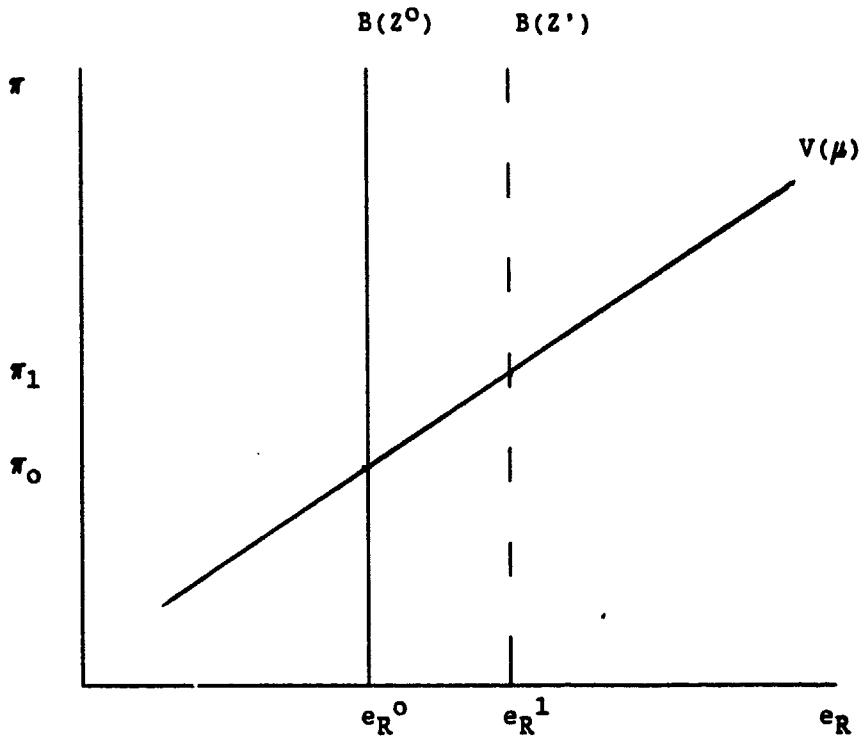
The vertical schedule B B in Table 5, represents the balance of payments equation $B(e_R, Z) = 0$, drawn for a given vector Z.

The upward-sloping schedule VV represents the equation

$$\pi = \mu + (1-a) e_R$$

Schedule VV is drawn assuming a given target real wage μ . The equilibrium rate of inflation and the exchange rate are represented by π_1 and e^1_R given Z'.

Figure 5



In this setting, an adverse real shock affecting the balance of payments will shift the BB schedule to the right, thus increasing the equilibrium rate of inflation and the equilibrium real exchange rate.

In summary, for a balance of payments "crisis" to be associated with an acceleration in inflation two conditions have to be met: the desired real wage has to remain constant or at least "sticky" in face of adverse real shocks to the balance of payments and second, monetary policy must be accommodating in order to check price increases associated with exchange rate depreciation.

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STATISTICAL TABLES

Table 1
EUROPEAN HYPERINFLATION IN THE 20s

Germany 1923						Austria 1922						
(1) Fiscal deficit (% public expenditure)	(2) Inflation Rate %	(3) Devaluation rate %	(4) Fiscal Deficit (% public expenditure)	(5) Inflation rate (%)	(6) Devaluation rate (%)	(7) Money Growth rate (%)						
						Money	Deposits					
1920	64.0	1920	14.8	1920	23.7	January-June 1919	66.6	1921				
1921	66.3	1921	142.4	1921	201.6	July 1919-June 1920	62.7	June	7.1	9.1	6.6	
1922	61.8	1922	8 918.5	1922	5 208.8	July 1920-June 1921	59.2	September	12.8	26.0	12.2	
1923	71.4	1923		1923		January-December 1922	39.6	December	63.6	35.7	35.4	
1924	-0.7	May	56.8	May	96.0	January-December 1923	11.8	1922				
1925	1.6	June	187.1	June	131.0	January-December 1924	-10.1	March	15.6	38.7	20.4	
		July	286.6	July	221.0	January-December 1925	-18.4	June	31.9	30.8	21.8	9.4
		August	1 626.0	August	1 307.0			September	61.8 ^a	68.5 ^a	60.6 ^a	21.3 ^a
		September	2 436.8	September	2 085.0			December	-4.7	0.0	21.4	51.6
		October	29 824.8	October	28 967.0							
		November	10 126.6 ^a	November	9 482.0 ^a							
		December	73.9	December	90.2							
		1924		1924				1923				
		January	-7.0	January	0.0			March	1.5	0.0	3.0	26.9
		February	-0.9	February	-3.5			June	4.0	0.0	6.8	14.6
		March	3.8	March	0.9			September	0.8	0.0	4.6	11.1
		April	2.8	April	0.0			December	1.4	0.0	4.6	10.4
		May	-1.8	May	1.4							
		June	-5.4	June	4.9							
		July	0.0	July	3.1							
		August-Dec.	0.1	August-Dec.	0.0							

EMCFR: Bergant (1983), Dornbusch and Fischer (1986)

^aBeginning of the stabilization.

Table 2

EUROPEAN HYPERINFLATIONS IN THE 20s: INDICATORS OF THE LABOR MARKET AND PRODUCTION

Index of physical production per capita	Germany				Austria			
			Real Wages		Unemployment Rate (%)	No. of unemployed people (receiving) subsidies)		
			Skilled workers (1913=100)	Unskilled workers (1913=100)				
1920	61.0	August 1922	72.0	93.4	September 1923	9.9	<u>1922</u>	
1921	77.0	October 1923	53.0	64.6	November 1923	23.4	January	17 000
1922	86.0	December 1923	70.0	85.2	January 1924	26.5	April	42 000
1923	54.0	June 1924	89.24	98.4	April 1924	10.4	July	33 000
1924	77.0				October 1924	8.4	October	38 000
1925	90.0						<u>1923</u>	
1926	86.0						January	117 000
1927	111.0						April	153 000
							July	93 000
							October	79 000
							<u>1924</u>	
							January	98 000
							April	107 000
							July	64 000
							October	78 000

Source: Sargent (1983), Dornbusch and Fischer (1986)

TABLE 3

BOLIVIA, HYPERINFLATION AND STABILIZATION

(1) Fiscal Deficit (BCNF)	(2) Inflation Rate (3)		(3) Real Money Balances, Monetary Base (mils. pesos 1980)		(4) Exchange Rate Premium (2 difference between official and unofficial exchange rates; quarterly average)		(5) Real Wages, end of quarter (1983=100) ^{a/}		(6) Gross Domestic Product (growth rate)		(7) Open Urban Employment Rate (3)		Terms of Trade (1980=100)	... (1980=100)			
	Annual	Monthly															
1980	6.4	23.9	1984	1986	1980	12.0	1981	1985	1984	1980-84 (accumulated)	-9.7	1984	15.5	1984	10.4		
1981	8.7	26.2	January	0.7	January	23.0	1981	I	0.0	I	330.9	I	55.1	1985	18.2	1985	10.4
1982	22.3	298.5	February	23.0	February	8.0	1981	II	0.0	II	321.0	II	89.9	1985	-1.8	1986	10.7
1983	17.5	328.5	March	21.2	March	0.1	1982	III	45.5	III	798.1 ^{b/}	III	57.9	1986	-2.9	1987	10.7
1984	20.6	2 177.2	April	63.0	April	3.6	1983	IV	68.3	IV	0.0	IV	88.7	1986	-2.9	1987	10.7
1985	4.8	8 170.5	May	47.2	May	1.0	1983	I		1985		1987	1.5	1987	10.7		
1986	-2.6	64.0	June	4.1	June	4.3	1984	II	57.0	I	5.8	I	119.0				
1987	-	10.7	July	5.2	July	1.8	1984	III	3.5	II	2.1	II	43.2				
			August	15.0	August	0.7	1985	IV	4.8	III	1.1	III	60.2				
			September	37.4	September	2.3	1985	I	4.0	IV	0.9	IV	85.0				
			October	59.3	October		1986	II	5.1								
			November	31.6	November		1986	III	4.5								
			December	61.1	December		1987	IV	5.1								
			1985	1987			1987	I	116.3								
			January	88.9	January		1987	II	105.1								
			February	182.8	February		1987	III	241.8								
			March	24.9	March	0.7	1987	IV	225.4								
			April	11.8	April	1.6	1987	I									
			May	25.7	May	0.5	1987	II									
			June	78.5	June	-0.25	1987	III									
			July	64.3	July	-0.025	1987	IV									
			August	16.5	August		1987	I	327.4								
			September	56.5 ^{b/}	September		1987	II	89.8								
			October	-1.9	October		1987	III	309.7								
			November	8.2	November		1987	IV	302.7								
			December	16.5	December		1987										

Source: Sachs (1988); International Finance Statistics, IMF, December 1988; Economic Inform, ECLA (UN).

a/ Average nominal wage in t-1 deflated by CPI (Consumer Price Index) in t.
b/ Beginning of the stabilization

Table 4
THE SOUTHERN CONE: INFLATION AND ORTHODOX STABILIZATION

Phase	Chile			Uruguay			Argentina						
	Year	Fiscal deficit (% GDP)	Inflation rate (%)	Money growth rate ^a (%)	Year	Fiscal deficit (% GDP)	Inflation rate (%)	Money growth rate ^a (%)	Year	Fiscal deficit (% GDP)	Inflation rate (%)	Money growth rate ^a (%)	
I.	Beginning	1973	24.7	813.7	259.1	1974	3.8	77.2	80.0	1976	7.2	443.2	399.4
	End	1976	2.3	232.8	216.0	1978	0.9	44.5	53.0	1978	3.2	175.5	142.8
II.	Beginning	1976	2.3	232.8	216.0	1978	0.9	44.5	53.0	1978	3.2	175.5	142.8
	End	1981	-3.1	19.7	62.6	1980	0.3	63.5	34.9	1980	3.6	100.8	115.8
III.	Beginning	1981	-3.1	19.7	62.6	1980	0.3	63.5	34.9	1980	3.6	100.8	115.8
	End	1983	3.8	27.3	26.6	1983	3.9	51.5	11.1	1983	11.0	343.8	361.7

Source: J Ramon (1986), data base of ECLA (UN) and IMF (International Financial statistics).

^a Refers to the growth rate of M1 (currency and demand deposits).

TABLE 5

SOUTHERN CONE: ADJUSTMENT IN THE LABOR MARKET AND REAL EXCHANGE RATE, 1973-1983

Face	Chile			Uruguay			Argentina					
	Year	Real Wage (1970=100)	Unemployment Rate (%) a/	Real Exchange Rate b/ (1970=100)	Year	Real Wage (1970=100)	Unemployment Rate (%)	Real Exchange Rate (1970=100)	Year	Real Wage (1970=100)	Unemployment Rate (%)	Real Exchange Rate (1970=100)
I	1973	80.0	4.6	123.6	1974	85.0	8.1	127.8	1976	74.7	4.6	140.8
	1976	83.0	19.4	224.8	1978	88.9	10.1	191.6	1978	72.3	2.9	136.7
II	1976	83.0	19.4	224.8	1978	88.9	10.1	191.6	1978	72.3	2.9	136.7
	1981	97.5	15.8	94.5	1980	85.1	7.4	152.0	1980	92.8	2.2	60.0
III	1981	97.5	15.8	94.5	1980	85.1	7.4	152.0	1980	92.8	2.2	60.0
	1983	88.8	24.5	143.6	1983	55.3	15.5	261.5	1983	90.8	4.0	131.1

Source: J. Ramo (1986).

a/ Includes emergency employment programs (PEM-POJN) in Chile.
 b/ Deflated by the average nominal wage index.

TABLE 6
SOUTHERN CONE: INCOME DISTRIBUTION,
1973-1983

	Chile Index ^{a/}	Uruguay Index	Argentina Index
1970	100.0	100.0	100.0
1973	84.1	84.2	84.1
1978	77.5	62.3	64.2
1981	92.6	65.7	73.2
1983	97.1	56.1	90.8

Source: J. Ramos (1980), based on data of ECLA.

$$\underline{a/} \quad \text{Index} = (\text{real wage}) \times \left(\frac{\text{Employment}}{\text{Gross disposable income}} \right)$$

i.e., the index reflects the evolution of the labor share in national income (greater than 100 means improvement, lower than 100 means deterioration).

TABLE 7

ARGENTINA: AUSTRAL PLAN

	Inflation Rate, CPI (%)	M1 (% of GDP)	Real Interest Rate; ex post a/ (30 days)		Real Wages (1983=100)b/	Industrial Output (Percentage change)	Open Urban Employment Rate (%)	Terms of trade (variation rate%)			
1985		1984	4.7		1984	124.9	0.7	1984	3.8	1984	21.0
-----		-----			-----						
January	25.1	I	5.1		I	125.2	1.2	1985	5.3	1985	-17.8
February	20.7	II	4.9		II	123.9	5.5				
March	26.5	III	4.6		III	121.6	-0.4	1986	4.6	1986	-15.0
April	29.5	IV	4.1		IV	129.0	-3.7				
May	25.1							1987	5.4	1987	3.4
June	30.5a/	1985	5.0	1.18	1985	112.2	-0.9				
July	6.2	-----			-----						
August	3.1	I	3.7	-1.1	I	117.9	-5.6				
September	2.0	II	3.3	-1.45	II	103.7	-4.1				
October	1.9	III	5.7	4.2	III	112.6	-6.8				
November	2.4	IV	7.1	3.1	IV	114.5	13.1				
December	3.2										
1986		1986	8.1	0.62	1986		2.3				
-----		-----			-----						
January	3.0	I	8.1	2.3	I	122.3	4.5				
February	1.7	II	8.3	-0.3	II	119.8	0.3				
March	4.6	III	8.2	-1.2	III	120.1	7.1				
April	4.7	IV	7.7	2.5	IV	122.9	-2.8				
May	4.0										
June	4.5										
July	6.8										
August	8.8										
September	7.2										
October	6.1										
November	5.3										
December	4.7										
1987		1987			1987						
-----		-----			-----						
January	7.8	I	3.1	0.7	I	120.3	-2.2				
February	6.5	II	6.1	0.8	II	114.3					
March	8.2	III	3.1		III	111.5					
April	3.4	IV	13.6		IV	106.6					
May	4.2										
June	8.2										
July	10.1										
August	13.7										
September	11.7										
October	19.5										
November	10.3										
December	3.4										

Source: R. Frenkel; M. Damill (1987); ECLA (1987)

a/ Free Market lending rate

b/ Average nominal wage in the industrial sector in t-1, deflated by the CPI in period t.

FIGURE #

BRAZIL: THE CRUZADO PLAN

	Fiscal Deficit (% GNP)		Inflation Rate (%)		Trade Balance (FOB millions of US \$)	Ratio of exchange rate/ wages (January 1967=100)	Industrial Real Wages (January 1967=100)	Index of Industrial Output (1961=100)
	Nominal	Operational	Annual	Monthly				
1974-80	-		49.7					
1981	-		102.6	1985 ---- (monthly average)	1 040.5	131.6	104.0	107.6
1982	-		92.9					
1983	19.9	3.0	151.9	1986 ----				
1984	21.8	1.6	210.6	January	14.1	701.0	118.2	102.1
				February	10.9	628.0	122.5	102.4
				March	1.8	1 137.0	117.4	111.7
1985	26.2	4.3	234.8	April	2.3	1 292.0	115.1	111.3
				May	1.9	1 340.0	112.9	111.4
1986	10.8	3.7	142.4	June	0.9	1 071.0	113.5	109.7
				July	1.1	1 010.0	110.7	111.2
1987		5.5	224.8	August	1.9	950.0	108.3	111.6
				September	1.4	544.0	107.0	111.6
				October	3.1	-79.0	104.7	111.6
				November	4.4	-32.0	99.8	113.4
				December	10.3	-210.0	98.0	108.0
				1987 ----				
				January	13.8	129.0	100.0	100.0
				February	11.3	302.0	106.3	98.9
				March	12.0	206.0	98.1	109.1
				April	16.5	520.0	98.0	108.7
				May	26.5	945.0	102.4	104.4
				June	26.8			
				July	9.2			

Source: Selimano (1987), Conjuntura Economica (1987,1988)

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