

Country Economics Department
The World Bank
May 1991
WPS 671

Lessons from the Heterodox Stabilization Programs

Miguel A. Kiguel
and
Nissan Liviatan

Heterodox stabilization programs are more successful in chronic high inflation countries because only there can the benefits from achieving a rapid initial reduction in inflation outweigh the costs of tampering with price and wage controls. While the heterodox phase is effective in blocking inflation initially, success depends on a long-term commitment to the orthodox part of the program and the readiness to accept the unavoidable costs of disinflation.

This paper — a product of the Macroeconomic Adjustment and Growth Division, Country Economics Department — is part of a larger effort in PRE to examine stabilization policies. It was funded by the research project "Stopping High Inflation" (RPO 674-24). Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Emily Khine, room N11-061, extension 39361 (40 pages).

This paper draws lessons on the advantages and disadvantages of the heterodox stabilization approach in chronic high inflation countries. Heterodox stabilization programs make *temporary* use of income policies — price and wage controls — to support orthodox policies. The evaluation is based on heterodox programs — successful and unsuccessful ones — from the 1960s and 1980s in Latin American countries and Israel.

Orthodox stabilization programs normally involve a tight fiscal policy, a fixed exchange rate, and sometimes tight monetary policy. The programs have proved their worth under different conditions, including low and moderate inflation (Costa Rica and the Philippines in the early 1980s) and hyperinflation (Bolivia in 1985). The orthodox approach has been less successful in chronic high inflation countries — as demonstrated by Mexico's experience in 1982-83, where a drastic reduction in the budget deficit was accompanied by a large increase in inflation.

Kiguel and Liviatan argue that inflationary rigidities, in an economy with chronic high inflation, can be quickly overcome by using income policies. Their main role is to deal with pessimistic expectations about inflation in situations where the government announces and makes a fiscal adjustment, but private agents do not fully believe it and set prices accordingly.

Heterodox programs were successfully tried in two chronic high inflation countries, Israel's

program of 1985 and Mexico's Pacto de Solidaridad of 1987-88. In both cases these programs were followed by a second, more orthodox stage and included the use of the exchange rate as the nominal anchor. While the programs succeeded, both experienced costs in the form of an appreciation of the real exchange rate and high real interest rates.

The main lessons from the experiences analyzed by Kiguel and Liviatan are:

- The initial, rapid reduction in inflation (which usually comes about with small costs) at the beginning of heterodox programs is the easy part; the difficult part is to maintain price stability over time.
- Income policies in heterodox stabilization programs are only justified in high chronic inflation countries (countries with annual rates of inflation above 100 percent) where inflationary persistence is more pervasive and problematic.
- There is a case for a larger fiscal adjustment in heterodox programs than in orthodox programs because of the risk that a government that starts with price controls could be confused with one that tries to achieve price stability without adjusting.
- A heterodox program that fails is likely to lead to larger inflation instability than an orthodox program that fails.

The PRE Working Paper Series disseminates the findings of work under way in the Bank's Policy, Research, and External Affairs Complex. An objective of the series is to get these findings out quickly, even if presentations are less than fully polished. The findings, interpretations, and conclusions in these papers do not necessarily represent official Bank policy.

**Lessons from the Heterodox
Stabilization Programs**

by
**Miguel A. Kiguel
and
Nissan Liviatan***

Table of Contents

I.	Introduction	1
II.	The Heterodox Programs	5
III.	Problems with the Orthodox Approach	7
	The Mexican Experience	8
	Reasons for Inflationary Rigidities	9
IV.	Income Policies in Heterodox Programs	10
	Income Policies to Deal with Institutional Inflationary Rigidities	11
	Income Policies to Deal with Expectational Inflationary Rigidities	12
	i. Fiscal Aspects	12
	ii. Nominal Aspects	13
V.	Experience with the Heterodox Approach	15
	i. Difficulties in Identifying Persistent Programs in the First Stage	15
	ii. Advantages and Disadvantages of the Heterodox Approach	17
VI.	Policy Issues	25
	The Role of Controls: A Reassessment	26
	When is Heterodox Appropriate?	27
	Cost of Failure	29
VII.	References	31

* We are grateful to Jariya Charoenwattana for her valuable research assistance.

I. Introduction

There are usually considerable difficulties in stopping inflation in chronic high inflation countries when they followed the orthodox approach (see Kiguel and Liviatan 1988). Disinflation is usually slow in these cases, and results in large costs in terms of unemployment. Heterodox programs were devised as an alternative, more effective way of bringing down inflation in these countries. The purpose of this paper is to draw lessons on the advantages and disadvantages of the heterodox stabilization approach in chronic high inflation countries. Heterodox stabilization programs are those that combine tight fiscal policy, a fixed exchange rate, and price and wage controls. The first two elements are also part of exchange rate based orthodox stabilization programs. What separates orthodox from heterodox programs is the use of income policies as a temporary device for the purpose of bringing down inflation.

Two recent heterodox programs are those of Israel in 1985 and the Mexican Pacto de Solidaridad of late 1987. In these two cases the fiscal adjustment was undertaken and maintained throughout, the exchange rate was used as the main nominal anchor from the outset, and price and wage controls were introduced to support a rapid initial reduction in inflation. Both programs have succeeded in maintaining low inflation for an extended period thus giving support to the argument that under the right circumstances the

heterodox approach can be a viable alternative to bring down inflation. As controls were removed over time, the two programs converged to exchange rate based orthodox stabilizations of the type used in Chile in the late seventies.

Most of the existing works on heterodox programs, including Bruno et. al. (1988), Ocampo (1987) and Alberro and Ibarra (1987), have focused on issues and problems that appear in the initial stage of the programs.¹ Because most of these works evaluated these programs based on the record of the first or at best the second year, the evaluation was based on a relatively short term horizon, and hence they overlooked some of their longer term consequences. Thus, the main lessons that one finds in the existing literature² only provide a partial evaluation of heterodox programs. By and large, the view at that time was that (i) price and wage controls can be useful to support disinflation initially when the inflation process displays "inertia", (ii) the initial costs of bringing down inflation in this way are usually small compared to those in orthodox programs, and (iii) the success of a heterodox program in the longer term primarily depends on maintaining the fiscal adjustment (the orthodox part) throughout.

In this paper we broaden the understanding of heterodox programs by concentrating on the medium and long term implications of starting a stabilization program through a heterodox phase. Our working hypothesis is that the so called heterodox programs are just the first stage of a long term stabilization effort. Eventually, price and wage controls are removed and

¹ See also Blejer and Cheasty (1988), Heymann (1987), Cardoso and Dornbusch (1987), Fischer (1987), etc.

² See for example Bruno et. al (1988), etc.

stabilization proceeds in the second stage along orthodox lines. Typically, the exchange rate becomes the main nominal anchor in the second stage, and hence the program becomes an orthodox exchange rate based stabilization.

Once the programs are analyzed from this perspective a number of questions arise which are not addressed in the existing literature. First, there is a need to understand in which ways, if any, are the prospects for stabilization enhanced by reducing inflation quickly, early on through the use of price and wage controls. This issue is important because the rationale for using controls is that orthodox programs do not succeed in bringing down inflation quickly in chronic high inflation economies. In this paper we argue that there are two potential benefits: (i) the initial improvement in the fiscal accounts resulting from the reverse of the Olivera-Tanzi effect, and (ii) the initial "grace" period in terms of low inflation during which the government can show its commitment to eliminate the budget deficit in a sustainable way.

A second, related, issue is to understand the costs that using controls in the first stage entail for later developments. We want to go beyond the possible distortions in the allocation of resources arising from using controls in the first stage (which in our view are not that important in these programs). A more relevant issue is the way in which the credibility of the government can be damaged in the longer term by using controls to avoid a recession in the first stage of disinflation. Since the government did not establish its willingness to accept the costs associated with bringing down inflation through orthodox methods, opting instead for the use of controls, the question remains as to whether it will be willing to accept these costs later on. If this is the case, what difficulties is the

government likely to face later on?

The inclusion of income policies is the main reason that makes heterodox stabilization programs controversial. The skepticism about the use of controls in stabilization is partly related to their frequent misuse in populist programs (see Dornbusch and Edwards (1989)), which use controls as a way to bring down inflation while avoiding any adjustment in the fundamentals, and to the potential distortions that they could introduce in the allocation of resources. In fact, many economists would argue that the elimination of the budget deficit in a sustained way is all that is needed to bring down inflation; whether or not controls are used is irrelevant, controls could be used in these cases but they would not serve any useful role. The empirical evidence, however, shows that a reduction in the budget deficit, while necessary, is not sufficient for bringing down inflation in the short, or even in the medium run. Price and wage controls are not necessarily the solution for this problem. Nevertheless, there are specific circumstances in which the heterodox approach can be the right way to go.

The paper will be organized as follows. In section II we will introduce the programs that will be included in this study. We include successful as well as unsuccessful programs. The core of our sample are the heterodox programs of the eighties in Latin America and Israel, although we will also make reference to some important income policies based stabilizations implemented in the sixties in Latin America.³ In section III we discuss the inflationary rigidities (inertial inflation) observed in chronic high inflation countries, and the difficulties it creates for the

³ These programs are described in more detailed in Kiguel and Livistan (1989).

orthodox approach. In section IV we discuss the effectiveness of income policies to overcome these rigidities, and the advantages and disadvantages of using controls in heterodox programs. We conclude in section V with general lessons and policy implications.

II. The Heterodox Programs

The existing literature is not precise in defining heterodox programs. In Bruno et. al. (1988), for example, the sample of heterodox experiments includes programs as diverse as the Austral, Cruzado and that of Israel, while Ocampo (1987) includes the Peruvian populist experiment of 1985 in a study of heterodox programs (figure 1 summarizes recent inflation in these countries).

In this paper we consider as heterodox programs those that use income-policies in the first stage but which are part of a long term stabilization effort in which the fiscal balance is maintained persistently. In this respect we take a different stand from previous works. The distinctive feature of these programs is the initial a temporary use of price and wage controls and a fixed exchange rate to achieve a rapid reduction in inflation.

Once controls are removed it usually becomes an exchange rate based orthodox program. Since most orthodox exchange rate based stabilization programs are usually preceded by a money based stabilization stage (e.g. Chile and Argentina in the mid-seventies), the main difference between orthodox and heterodox is the strategy for stopping inflation in the first stage. Inflation comes down slowly in the former and rapidly in the latter.

Few programs satisfy our definition of heterodox. There are just two

examples in the eighties of heterodox programs: the Israeli program of 1985 and the Mexican program of 1987-88.⁴ Both programs used income policies initially to achieve a rapid reduction in inflation, in both cases the exchange rate was the main nominal anchor and was fixed at the beginning, and both maintained the fiscal adjustment throughout.⁵ There were differences in the degree with which controls were applied in the two countries. In Israel for example, controls were economy wide, while in Mexico the government opted to allow a large number of prices to be freely determined. But these differences were only of degree and not of substance, the philosophy behind these two programs was basically the same.

Brazil implemented an important and quite successful income policies based stabilization program in the mid-sixties. As in the eighties, the stabilization program paid due attention to the fiscal accounts. It was different from the heterodox shocks of the eighties because controls were introduced in a gradual form, to a large extent on a voluntary basis, and because it did not bring about the spectacular reductions in inflation observed in the eighties.⁶

In addition to the heterodox programs mentioned above, there are a number of programs that started as heterodox and addressed the budget deficit at the beginning, but where the fiscal stance was relaxed later on and

⁴ The Mexican program cannot be fully evaluated yet, since two and a half years is not a long enough period according to our criteria. Progress has been good, however, and the prospects are promising.

⁵ The Israeli program is analyzed in detail in Bruno and Pitterman (1988), Bruno and Meridor (1990), and Liviatan (1988) and (1990) among others, and the Mexican program in Ortiz (1990). See also Kiguel and Liviatan (1989).

⁶ This program is discussed in more detail in Simonsen (1974), and Cardoso and Fishlow (1989) among others.

shifted into a different path. These programs are included in our study because they illustrate the similarities in overall macro-developments during the early stage between those programs that persist and those that do not. Within the latter (which we call not-persistent heterodox) we include the 1985 Austral plan in Argentina, and two programs of the sixties, the Argentine 1967 program under Krieger Vasena and the Uruguay program of 1968.

Finally, we include two populist programs.⁷ These so called stabilization programs used price-wage controls and a fixed exchange rate to stop inflation but paid no attention whatsoever to the fiscal side. In fact, many of these programs combined controls with expansionary fiscal and monetary policies, and increases in real wages with disastrous macroeconomic implications. The inclusion of these programs is useful because their evolution is very different from the not-persistent heterodox. Recent examples of populist programs are the Cruzado plan in Brazil and the Peruvian program of 1985.

III. Problems with the Orthodox Approach

The adoption of the heterodox approach was most times motivated by the difficulties encountered in chronic inflation countries with the orthodox approach. These difficulties are well documented in Kiguel and Liviatan (1988) which discusses different types of orthodox stabilization programs in which the fiscal adjustment was undertaken. The slow and many times small reductions in inflation are common to programs that used money and to those

⁷. See Dornbusch and Edwards (1989) for a more extensive discussion on these programs.

that used the exchange rate as the main nominal anchor. In few cases, one even observes the paradoxical result of inflation increasing permanently in conjunction with a reduction in the budget deficit.

The Mexican Experience

The Mexican experience prior to the Pacto is a good example of the frustration with orthodox programs characteristic of countries that eventually opt for the heterodox strategy. Table 1 summarizes the main macroeconomic developments in Mexico in the eighties. The fiscal accounts were corrected early on in an impressive way, the deficit in the operational balance (which was 11 percent of GDP in 1981) was basically eliminated by 1983.⁶ But this drastic reduction in the deficit was accompanied by large devaluations which induced an increase in inflation from 28 percent in 1981 to 100 percent in 1983. In an attempt to reduce inflation, the policy shifted in 1984 to using the exchange rate as the nominal anchor, but this strategy had only moderate and temporary effects in reducing inflation (although the fiscal accounts continued to be sound). In fact, inflation went up in 1986 once again, when the exchange rate rule was abandoned and substituted for a policy of aggressive devaluations to deal with the plunge in oil prices. The acceleration of inflation continued in 1987, a year in which the government ran a surplus in its operational balance.

The Mexican experience makes clear that a correction in the budget deficit is not sufficient for bringing down inflation. A budget surplus

⁶ The significant improvement in the primary balance is another indication of the sizeable improvement in the fiscal accounts. While public sector borrowing requirements (PSBR) increased during the period, this is not an indication of loose fiscal policy. Because the PSBR includes nominal interest payments which increase with inflation, the size of the PSBR is more a reflection of inflation rather than a cause.

might not be enough for this purpose. This means that a well designed stabilization program needs to balance the correction in the fundamentals with a policy to manage the nominal anchors. In Mexico, however, the success was meager even when the exchange rate was used as nominal anchor, especially because the nominal anchor proved weak when the economy faced an adverse external shock.

The difficulties in controlling inflation through various orthodox strategies in the aftermath of the debt crisis is perhaps the main reason why Mexico finally decided to go for the heterodox approach. The available information indicates that the Mexicans adopted this approach reluctantly, and that many of the concerns on the use of controls that critics of these programs raise were shared by policy makers in Mexico. Nevertheless, reluctantly, but encouraged by the success of the Israeli program, the Mexican authorities finally accepted to try the heterodox alternative.

Reasons for Inflationary Rigidities

The difficulties experienced in Mexico for bringing down inflation are characteristic of chronic inflation countries. The reasons for the existence of inflationary rigidities have been widely discussed in the literature.⁹ For the purpose of our discussion it is useful to differentiate two types of rigidities: A first type, that we will call institutional, results from the existence of backward indexation, staggered contracts, etc. This is the type discussed for example in Fischer (1977) and (1983), Taylor (1979), Lopez and Bacha (1983), etc.

A second type of rigidity, that we will call expectational, arises from

⁹ See for example Dornbusch and Simonsen (1987), Tobin (1987) Ch. 29, etc.

lack of credibility about the ability of the government to bring down inflation on a long term basis. The credibility problem could arise from the perception that the government will not adjust and maintain the fiscal balance as required to support low inflation (i.e. because of temporariness or past failures). A second, less understood credibility problem arises because there could be a suspicion that the government would deviate from the announced targets for the nominal anchor (i.e. the exchange rate or monetary rule) if confronted with increases in wages and prices in excess of the targets. Credibility on the nominal side is different from credibility on the fiscal side, and it arises because the government has non-fiscal objectives (such as maintaining full employment or external balance) which in a discretionary regime could lead it to accept increases in inflation to avoid higher real wages or stepping up the rate of devaluation to avoid overvaluation of the domestic currency.¹⁰

IV. Income Policies in Heterodox Programs

Income policies are included in heterodox programs to overcome the rigidities in inflation discussed above. The potential usefulness of income policies largely depends on the causes of the inflationary rigidities. Besides, they are not necessarily the most effective instrument to deal with this problem, because the long term costs of their inclusion in programs (as we will show later in this section) could well exceed the short term benefits reaped from overcoming the rigidities early on.

¹⁰ The use of inflation to achieve non-fiscal objectives is analyzed in detail in the policy games literature such as Barro and Gordon (1983) and others.

Income Policies to deal with Institutional Inflationary Rigidities

In situations in which backward indexation is the main source of rigidity (the argument usually used to describe the inflation process in Brazil), an initial realignment of prices and wages accompanied by the elimination of indexation in the economy is all that is needed. A three or four months freeze of prices and wages is certainly not required to break this cycle. Once the right relative prices are in place and indexation is eliminated the problem of backward indexation in principle disappears.

A major difficulty in this respect is to determine the "right" set of relative prices. The difficulty is greater in low inflation economies, where nominal contracts are long and staggered, than in high inflation economies, where contracts are short and highly synchronized. Although there are examples of programs in low inflation economies (such as the Krieger Vasena program in the sixties in Argentina) that used fairly sophisticated rules to avoid disparities in real wages across sectors, it is questionable whether the complications and misjudgments are worth the gains. The role of income policies in low inflation economies is very limited, and hence the case for their use is weak.

A stronger case for income policies, as a way to deal with institutional inertia, can be made in high inflation economies, where prices and wage decisions are synchronized. This higher synchronization reduces the risks that a freeze would create large disparities in relative prices and wages. A legitimate question is whether an orthodox shock, as an alternative, is a better way to stop high inflation in chronic inflation countries, especially because the orthodox approach has proved effective in stopping hyperinflation. However, as discussed in Kiguel and Liviatan

(1988), this approach will not work in the same way because an orthodox stabilization program is usually less credible to deal with chronic high inflation than with hyperinflation.

While getting relative prices right in high inflation economies is easier than in low inflation economies, and in this sense income policies provide an opportunity to address institutional inertia, a short freeze is not likely to be enough to stop inflation. Expectations play a major role in determining inflation. The price-wage setting mechanism involves predictions about what will happen to inflation in the future, which can not be based simply on past inflation. In forming inflation expectations agents look at the inflation history of the country, as well as specific aspects such as the record of the numerous previous stabilization attempts (which is usually dismal), the way in which inflation was affected by external shocks, etc.

Income Policies to Deal with Expectational Inflationary Rigidities

i. Fiscal Aspects

Income policies are potentially more useful to deal with some of the expectational aspects of the inflation process. Specifically, incorrect expectations resulting from lack of credibility on the fiscal adjustment could cause persistence in inflation leading to overvaluation, current account deficits and other difficulties. Controls could thus be useful in situations where the government announces and makes the fiscal adjustment, but private agents do not fully believe it and set prices on this assumption. The purpose of controls in these circumstances is to address the costs that would arise from the difficulties created by adverse expectations.¹¹ Since it takes time to demonstrate the commitment on the fiscal side, the period of

¹¹ This type of argument is made in Persson and van Wijnbergen (1989).

controls needs to be longer than to deal with institutional rigidities. Ideally, by the time controls are removed there should be a clearer picture on how far the government is willing to adjust on the fiscal side.

In the more successful programs the overall fiscal situation improved during the period of price controls. In the Israeli program the fiscal deficit turned into a surplus. A key decision, which signified the new regime, was the abandonment of a large, sacred aviation project, the Lavy, a measure that few expected could be undertaken. The experience in Mexico is somewhat different because to a large extent the fiscal adjustment had been completed prior to the program. Nevertheless, the government introduced additional tax measures and continued its efforts to redimension the public sector through privatizations of public sector enterprises. Likewise, in the successful Brazilian program of the sixties the fiscal accounts improved during the period of controls

This period was not used effectively in the not-persistent programs. In the Austral plan, for example, the fiscal and quasi-fiscal accounts deteriorated slowly, but steadily, during the period of the freeze (see figure 2). Although the size of the fiscal deficit remained well below the levels prior to the Austral plan, the lack of determination to address the budget deficit in a permanent way perhaps signalled that the authorities were not ready to fight inflation persistently. The fiscal accounts also deteriorated during the freeze in the programs of the sixties in Argentina and Uruguay.

ii. Nominal Aspects

While following sound fiscal policies in the initial period is essential to build credibility on the fiscal side, and in this respect it

helps to support stabilization in the longer run, these actions do not directly help to establish credibility on the nominal side. Because it is easy to maintain the nominal anchors for a short time when prices are frozen, the private sector cannot learn how determined the government is to defend its nominal anchors if faced with adverse expectations once prices are freely determined. This difficulty is thus postponed by controls, since it is only when prices and wages are flexibilized that the government can demonstrate its commitment to defend the nominal anchors.

The key question regarding credibility on the nominal side is whether the government will maintain its rules for the nominal anchors if faced with persistent inflation due to adverse expectations. Increases in prices and wages do not necessarily take place because private agents expect that the initial improvement in the fiscal accounts would be reversed. They could instead reflect the concern of workers and firms, who set nominal prices in advance for fixed periods, that these prices would be eroded through an unexpected devaluation in order to increase employment or improve the balance of payments. The concern is many times justified because this was exactly the strategy used in the past to deal with adverse external shocks (as for example in Brazil and Mexico in 1982-84).

The perception that the government could deviate from the announced target for the nominal exchange rate was perhaps most clear during the Pacto in Mexico. The policy adopted there was to announce the values of future exchange rates for a period of around six months. Once the period was about to expire a new rule was announced for the next half year. Nominal interest rates, however, have remained very high, certainly above international levels (in an ex-post basis). The excess of domestic interest rates over

international interest rates to a large extent reflected the risk that the government would deviate from the announced exchange rate policy. Most likely, this risk was not directly related to a fiscal problem (since the operational budget deficit remained small, and the surplus in the primary fiscal balance was sustained), instead, it reflected concern about whether the exchange rate could be maintained in view of a persistent deterioration in the current account of the balance of payments (see table 1).¹² The problem is generally exacerbated because it is difficult to know ex-ante when and how much the government is willing to compromise in order to reduce the costs of disinflation.

Not only are income policies ineffective to deal with the credibility problem on the nominal side, but they could weaken the chances of maintaining the rules for the nominal anchors once prices and wages are liberalized. The use of controls early on could be read by the private sector as a signal that the government is not willing to stick to the rules for the nominal anchors (e.g. adhere to the exchange rate rule) if confronted with adverse expectations. This type of credibility problem is not solved with income policies; it requires that the government demonstrates its willingness to absorb the costs associated with defending the nominal anchors (i.e. overvaluation, recession, etc.).

IV. Experience With the Heterodox Approach

1. Difficulties in Identifying Persistent Programs in the First Stage

¹² This deterioration in the current account is in fact characteristic of exchange rate stabilizations (the reasons for this phenomenon are discussed at length in Kiguel and Liviatan (1990.c))

A common feature in the programs considered above is that in all cases, regardless of whether or not they do anything on the fiscal side, inflation comes to a halt almost immediately. Figure 1 illustrates that this phenomenon is observed in serious programs (such as Israel and Mexico), not-persistent programs (the Austral, Krieger Vasena and Uruguay 1968) and in populist programs (the Cruzado plan, and Peru 1985).

These experiences indicate that the initial impact on inflation does not convey useful information about the sustainability of the stabilization effort. It is thus necessary to look at the behavior of other macroeconomic variables to assess whether or not the stabilization program is evolving in the right direction. Populist programs are in most cases easy to recognize because they tend to follow the common pattern detailed in Dornbusch and Edwards (1989). The distinction is more difficult between persistent and not-persistent programs. This is apparent from Blejer and Liviatan (1987), which compares the outcomes during the first year of the stabilization programs in Argentina and Israel of 1985. Within that time frame they conclude that "the programs were similar in their designs and their effects" (p.409). The similarities were specially strong during the first three quarters of the two programs.¹³ Likewise, both the Krieger Vasena program in Argentina and the Uruguay program of 1968, which were eventually abandoned, started in a very promising way and remained sound for a relatively long time (around two years). Both seemed to have a reasonable

¹³ The similarities included policy variables such as the budget deficit and the nominal exchange rate and endogenous variables such as real money balances, interest rates, real wages, the real exchange rate, the premium for the black market exchange rate, unemployment, industrial production, the trade balance, etc.

chance of success initially, and the outcomes were very similar to the more successful Brazilian program of the sixties. While the differences between persistent and not-persistent programs becomes clearer over time, it is not always easy to distinguish them in the early stages.

It is difficult to explain why governments start programs that are later abandoned, especially because the costs of failure are non-negligible. One possible reason is that policy makers underestimate the costs of disinflation, and once they realized that the costs are larger than they had expected the programs are abandoned. Another explanation is that there is widespread political support for stabilization when inflation is high, but this support evaporates once specific groups are being hurt by the policies introduced to maintain price stability (e.g. budget cuts).

This difficulty in distinguishing persistent from not-persistent programs introduces additional costs for the former. In particular, since agents can not tell what type of program it is, they will always attach some (non-negligible) probability to its possible failure. Both, persistent and not-persistent programs are thus likely to face credibility problems which will be reflected in high interest rates or overvaluation of the domestic currency (as discussed in the previous section). Both Israel and Mexico have faced a real appreciation during the stabilization process. In addition, both countries have also faced high real (ex-post) interest rates for a protracted period.

ii. Advantages and Disadvantages of the Heterodox Approach

The above discussion indicates that the heterodox approach is not necessarily superior to other approaches. In section III we discussed some the strengths and weaknesses of controls to deal with inflationary rigidities

resulting from institutional and expectational factors. We also discussed that one potential advantage of the heterodox over the money base orthodox strategy is that the initial costs of reducing inflation are low. In what follows we will discuss in more detail other advantages and disadvantages of the heterodox approach in chronic inflation countries, with special attention on the long term implications.

Advantages

Small Costs of Bringing Down Inflation

As we noted earlier, one characteristic of heterodox programs is that the initial costs of bringing down inflation are small. The typical pattern in these cases is an initial short recession, followed by a temporary expansion, followed in turn by a deeper recession, a pattern that is common to exchange rate based stabilizations in chronic inflation countries.¹⁴ The expansion in this type of programs is caused by adverse expectations on the ability of the government to maintain the exchange rate rule. The perception that the program is temporary leads to an increase in expenditure and output, an appreciation of the real exchange rate, and a deterioration in the current account. As the program persists, demand recedes while the real appreciation impacts negatively on output and the economy enters the recessionary period.

This cycle is observed most clearly in Israel where the sequence started with a brief recession, that lasted approximately six months, there was an expansionary period in 1986 and 1987, which was in turn followed by a recession starting in the second half of 1987. Likewise, at least initially,

¹⁴ A fuller discussion of the reasons leading to this cycle is presented in Kiguel and Liviatan (1990.a). Here we only outline the main arguments.

the reduction in inflation in Mexico has not been associated with a recession, just the opposite, the economy has been growing faster than in the years preceding the Pacto. Although Mexico has not yet experienced a recessionary phase, this can not be ruled out for the near future. The initial costs of bringing down inflation were also small in the not-persistent programs, which also started with an improvement in the fiscal balance and high interest rates (e.g. Austral plan, Krieger Vasena program, etc.).¹⁵

The relatively small initial costs of bringing down inflation in heterodox programs stands in contrast with those of money based orthodox stabilization programs (i.e. programs that rely on tight money for stopping inflation). The Chilean program of the mid-seventies is one example of a money based stabilization.¹⁶ The costs in that program came early on in the form of a deep recession and massive unemployment.

In heterodox stabilization programs the costs of stopping inflation usually appear later on. The first stage, while tight controls are in place, is the easy part. This is the period in which inflation falls with little or even no costs in terms of unemployment. The problems start later on, when controls are relaxed, and the appreciation of the domestic currency leads to a recession, a loss of competitiveness that hurts the export sector, and to

¹⁵ The populist programs are clearly different in this respect. They start with a very expansionary phase in which output is driven by increases in aggregate demand resulting mainly from expansionary monetary and fiscal policies. This brisk expansionary phase in populist programs stands in contrast to the initial recession observed in most persistent and not-persistent heterodox.

¹⁶ For a description of this program see for example Edwards and Edwards (1987) and Corbo and Solimano (1990).

high interest rates that are necessary to maintain attractive rates of return on domestic assets (on an ex-ante basis) to avoid capital flight.

The difficulties for disinflation arise later on because the overvaluation that took place during the expansionary period needs to be corrected without losing control of the main nominal anchor: the exchange rate. While a large devaluation could restore competitiveness, the trade-off of this scheme is the loss of confidence about the government's willingness to sustain the stabilization program. A large devaluation could be read as an indication that the government is not willing to pay the costs resulting from overvaluation and instead is ready to accept a rekindle of inflation.

The two successful heterodox programs of the eighties have experienced a period of overvaluation. Both Israel and Mexico have continued to use the exchange rate as the nominal anchor, but neither of them has been able to overcome this difficulty yet despite the adoption of different strategies. Israel opted for unannounced step devaluations (mostly in the order of 10 percent) to avoid further appreciation, while Mexico opted for a preannounced crawling peg (of the type used in the Southern Cone in the late seventies).

Gains from the Olivera-Tanzi Effect in Reversed

One advantage of the heterodox approach is that the rapid reduction in inflation early on can have favorable effects on various aspects of the program. On the fiscal side, there are gains derived from the Olivera-Tanzi effect working on reverse. This consideration is more important in countries where inflation is high, such as those that adopted the heterodox shocks in the eighties. The size of these gains are difficult to measure, in Israel it was estimated to be around 1.5 percent of GDP, while in the Austral plan it

amounted to around 2 percent of GDP. There were additional gains, especially in the Austral plan, from raising public enterprise prices at the outset to levels that greatly improved the finances of these firms.

These gains, while potentially important, should be treated with caution because they are not a "true" signal of the fiscal effort. A program that bases most of the fiscal improvement simply on the gains from this effect is likely to fail, since the lower deficit will remain in place only if the government succeeds in keeping inflation low. Any shock that destabilizes inflation will increase the deficit making the inflation process self-sustained. In addition, to the extent that public sector enterprise prices are not adjusted during the period of controls, there is also a deterioration in their finances. This means that the gains from the reversed Olivera-Tanzi effect should be a relatively small part of the fiscal adjustment. In Israel, for example, it is estimated that this represented a quarter of the improvement in the fiscal accounts; while in Mexico it was not very important. In the Austral plan, on the other hand, a large part of the improvement in the fiscal accounts resulted from the reversed Olivera-Tanzi effect in conjunction with the increase in public sector enterprise prices.

Credibility on the Fiscal Side

There are two reasons why the initial fall in inflation can help in establishing credibility on the fiscal side. First, as we mentioned in section III, the government can use the freeze to prevent a persistence in domestic inflation (due to lack of credibility) that would lead to distortions in relative prices, while it performs the fiscal adjustment. Second, low inflation makes it easier in practice to calculate the size of the budget deficit and in this sense it can make this process more

transparent.¹⁷ It is difficult under high inflation to know the size of the budget deficit. For example, there is more room under high inflation for using accounting tricks to mask the true state of the fiscal accounts. Sharon (1990) argues that in Israel the reduction in inflation was instrumental to keep track of the evolution of the fiscal accounts. In addition, there are difficulties in calculating real interest rates, since they depend on the choice of the deflator (i.e. it could be actual (ex-post) or the expected (ex-ante) rate of inflation).

Add Momentum to Stabilization

A fourth possible advantage of the heterodox approach is that the initial fall in inflation might add momentum to introduce additional measures to strengthen the program. Cuts in government expenditures or increases in taxes that are difficult to accept while inflation remains high could be better received if undertaken to support a low rate of inflation that is already there. In the Austral plan, for example, the Alfonsín government received widespread support during the first months of the program, enough to implement additional measures to make the initial fiscal adjustment more robust. This opportunity was lost, however, perhaps because it was thought at the time that the initial fall in inflation could be maintained without any further actions.

The experience of the Austral plan indicates that the quick reduction in inflation could in fact work either way. It could help the adjustment if the government is determined to undertake it, but it could also postpone adjustment if the early, transitory success is taken as evidence that stabilization is there to stay.

¹⁷ This point is discussed at length in Tanzi (1989).

Disadvantages of Using Controls

Common Criticisms

A first disadvantage is that controls that they could lead to disregard the improvement in the fiscal accounts; controls could become a substitute for the fiscal adjustment. The good initial results on inflation and the small costs in terms of unemployment create a tendency for complacency on the fiscal side that potentially undermines the success of the program. Populist programs are an extreme case, as they try to gain price stability without fiscal adjustment. This was the case in the Cruzado plan and the Peruvian program where the combination of controls and a policy of excess demands rapidly led to repressed inflation, widespread shortages, and to the emergence of black markets. In the end, of course, there was an explosion in prices. In Peru this led to hyperinflation, while in Brazil to an outburst in inflation that was stopped through a new round of controls.

Overadjustment on the fiscal side is helpful in signalling the intentions of the government.¹⁸ Because populist programs abuse controls, heterodox programs need to do more on the fiscal side to show that they are indeed different from the former. In addition, the a fiscal overadjustment is required to support a situation of overall excess supplies which is critical in these programs to avoid shortages during the period of controls. In practice, the difference between heterodox and populist programs became apparent shortly after the programs were launched. Key differences were the attitude towards real wages and to the importance of fiscal (and sometimes monetary) policy, and the fact that generalized shortages did not emerge in

¹⁸ Rodrik (1989) also makes a case for overadjustment of policies when looking at sustainability of trade policy.

heterodox programs. The distinction was not apparent in this respect, however, between persistent and not-persistent programs, because shortages did not arise in either of them, while the evolution of real wages was similar.

Another criticism on the use of controls is that they lead to misallocation of resources. In our view this is a less important issue. While this criticism is valid for countries that use controls on a long term basis, it is much weaker for heterodox programs where controls are used only temporarily. In addition, in most heterodox programs (even in the not-persistent ones) controls were not used in a rigorous manner, as firms were granted exceptions to raise prices whenever it was clear that their prices were out of line.

A third, more relevant, criticism of controls is that once implemented they are difficult to remove. While this criticism is valid for heterodox programs, it is in fact more general as it also applies to programs that announce rules for nominal variables (especially the exchange rate). It is typical of exchange rate based stabilizations to fix the exchange rate for a longer period than was initially intended. This difficulty arises because a departure from the original rule could be interpreted as a signal that the government is abandoning its nominal policies. The outcome is a period of overvaluation with its well known costs. In programs that start with price controls the two problems go together. The Uruguay program of 1968 provides useful insights in this respect.¹⁰ The program started as other heterodox programs, with a reduction in the budget deficit, a fixed exchange rate and

¹⁰ For a detailed discussion of this program see Finch (1979) or Viana (1988).

price and wage controls. The fiscal and external situations deteriorated over the years, and after some time it was clear that adjustments were needed in the program. These adjustments were postponed at that time mainly because elections were coming up and the authorities were reluctant to free prices and wages and devalue the exchange rate. Eventually, as one would have expected, the program collapsed with maxi-devaluations and record high levels of inflation. The lesson here is that even programs that appear to be heterodox early on could deviate from their original intent.

Difficulties in Assessing progress

It is always hard to determine at the outset whether a stabilization program will succeed. This is true for both orthodox and heterodox programs. In Bolivia, for example, the August 1985 successful orthodox stabilization program that brought hyperinflation to a halt was preceded by other stabilization efforts which were not distinctively different. And even this successful program confronted a serious reversal towards the end of the year when hyperinflation reemerged for a brief time.

This difficulty in recognizing successes is compounded in heterodox programs by the fact that low inflation is maintained through controls. In the absence of market determined prices it is more difficult to evaluate whether the program is working because the fundamentals are in order and low inflation is there to stay, or because controls are in place. The answer to this question must wait until controls are removed and inflation finds its new equilibrium. In the meantime, the credibility problem is bigger in a heterodox program.

V. Policy Issues

The Role of Controls: a Reassessment

The role of controls in heterodox programs is somewhat of a puzzle. Because they did not lead to shortages or marked distortions in relative prices, this could be taken as evidence that they were not binding. If they were not binding, then why were they needed? It is useful in this respect to point out that in chronic inflation countries previous programs that did not use controls always failed to bring about a sharp, rapid reduction in inflation. The fact that heterodox programs were able to achieve quick and drastic reductions in inflation indicates that controls were important for this purpose.

In our view, the main role of controls in the initial stage in heterodox programs was to coordinate the movement to low inflation.²⁰ To understand this argument we can think of an economy which initially is in a high inflation equilibrium, at full employment, where expectations are being fulfilled, and the government is using the revenue from money creation to finance its budget deficit. The inflation tax literature provides a useful analytical framework for to analyze this issue. For example, in Bruno (1989), and Bruno and Fischer (1990), there are two equilibria consistent with the same budget deficit. In figure 3 we provide a diagrammatical presentation the core of the model. The mm schedule shows the combination of real money balances and rates of inflation for which the money market clears. The ss schedule, shows the combinations of real money balances (m) and rates of inflation (π) that generate the necessary amount of inflation tax to finance the deficit. The intersections of these schedules show the two

²⁰ The role of price-wage controls as a coordinating device to bring down inflation is analyzed in more detail in Dornbusch and Simonsen (1987).

points that are consistent with the money demand schedule and the need for inflationary finance in the long run.

If the economy is initially at the high inflation equilibrium (point A), controls could be used to move the economy to the low inflation equilibrium (point B). This move does not require in principle any change in the budget deficit. Controls act as a coordinating mechanism, the announcement that controls are in place could be enough to reverse inflationary expectations thus allowing the economy to remain in the low inflation equilibrium. Notice that in this exercise shortages do not occur as there are no excess demand pressures and the economy remains at full employment. The idea that controls worked in heterodox programs because they "repressed" inflation (as in populist programs) is largely misleading, mainly because the ability to enforce controls was simply not there. Controls acted as a shock treatment, as a guideline for a prompt downward revision of inflationary expectations, and this was at least credible in the short run.

The analytical framework discussed above provides only part of the story because it implicitly assumes that once the initial difficulty is handled (i.e. moving to the low inflation equilibrium) the economy will tend to stay there (i.e. it is stable). Bruno argues that the low inflation equilibrium can be made stable if supported by an appropriate fiscal adjustment. We know, however, there is an additional difficulty in sustaining low inflation: the issue of credibility nominal anchors. Thus the initial reduction in inflation is only the beginning, as persistence is needed to sustain stabilization.

When is heterodox appropriate?

Given the advantages and disadvantages of heterodox programs their use

can only be recommended in a limited number of cases. On the not recommended list we have first the non-chronic inflation countries that suddenly experienced an inflationary outburst. Examples of this are Costa Rica and the Philippines in the early eighties. Both countries traditionally had low inflation, but there was a short inflationary spiral following the devaluations undertaken in response to the debt crisis. Income policies are not a good idea in these cases because inflation is perceived (correctly) as a temporary phenomenon. The expectational component in the inflation process does not become important, and hence this episode can be cured with orthodox measures. The speed with which inflation was brought down in Costa Rica and the Philippines illustrates that this was indeed the right approach.

Hyperinflation is a second case in which the orthodox approach is preferred. The arguments for using orthodox policies in these circumstances are discussed in Kiguel and Liviatan (1988). Finally, the orthodox approach is also preferable in low and moderate inflation economies.²¹ The main reason is that controls are not likely to generate a large reduction in inflation in that contracts are typically long and staggered, as opposed to high inflation economies where they are short and highly synchronized. A freeze would leave great disparities in relative wages and prices, penalizing those with the oldest contracts. This problem is difficult to handle in practice, because it requires a large amount of information.²²

²¹ It is difficult to determine precisely the rate of inflation for this purpose. It lies somewhere between 20 percent and 100 percent.

²² It is surprising that Tobin (1984) does not recognize these difficulties, and many of the other difficulties analyzed in this paper when he makes the case for income policies. The idea that there are costless ways of bringing down inflation is naive, especially because it ignores that these costs are the price for building reputation.

This leaves one situation in which the heterodox approach is potentially useful. Those are chronic high inflation economies such as those that opted for this policy in the eighties. There is one caveat, however: entering a heterodox program which is later on abandoned is potentially dangerous. The costs of this approach could be larger than simply postponing stabilization.

Cost of Failure

The failures of the Austral and Cruzado plans illustrates these risks. In both cases the failures were followed by a period of large inflation instability which ended up in hyperinflation.²³ (see figure 4). These similarities were not accidental. In our view, the inflation-stabilization cycles were the result of the repeated use of income policies as a stabilization instrument since the Austral and Cruzado plans. The initial programs set the stage for the recurrent use of income policies, as they showed that controls can be extremely effective to stop in inflation in the short run. However, as the private sector understood that this would be the policy followed by the government, it started to inflate price increases so as to avoid potential negative repercussions on profits from a price freeze. Anticipations of controls exacerbated inflation instability which in the end led to hyperinflation in both countries.

The hyperinflations in Argentina and Brazil in 1989 and 1990 were different from traditional hyperinflations (such as those of Europe in the 1920s and more recently in Bolivia). The main difference was the cause of these episodes --traditional hyperinflations were primarily a fiscal phenomenon while in Argentina and Brazil the non-fiscal factors mentioned

²³ For a full discussion of this topic see Kiguel and Liviatan (1990.b).

above were more important. There was also a difference in the outcomes. Neither Argentina or Brazil succeeded in stopping hyperinflation on its tracks, as in traditional episodes, despite using orthodox stabilizations programs based on very tight monetary policy and a significant fiscal adjustment (of the type used in successful programs).

Thus the heterodox era had added a new chapter in the numerous failed attempts for stopping inflation in Argentina and Brazil. It teaches that the heterodox is a one time opportunity which, if handled right and persistently, could lead to lasting stability (but not without costs). The misuse of controls, on the other hand, could destabilize inflation and make stabilization even more difficult.

VI. References

Alberro, J.L. and Ibarra, D. (1987), "Programas Heterodoxos de Estabilizacion," Estudios Economicos, Octubre de 1987.

Barro, Robert J. and David Gordon (1983.a). "A Positive Theory of Monetary Policy in a Natural Rate Model," Journal of Political Economy, Vol 19, August, pp. 589-610.

_____ (1983.b). "Rules, Discretion and Reputation in a Model of Monetary Policy," Journal of Monetary Economics, Vol 12, pp. 101-21.

Bruno, M. (1990), "Econometrics and Design of Economic Reform," Econometrica LVII, ppl 275-308.

Bruno, M. and Fischer, S., (1990), "Seigniorage, Operating Rules and the High Inflation Trap," Quarterly Journal of Economics CV, pp. 353-374.

Bruno, M. and Pitterman, (1988), "Israel's Stabilization: A Two Year Review," in Bruno et.al. (eds.), Inflation Stabilization, pp. 1-47.

Bruno, M. and Meridor, L., (1990). "The Costly Transition from Stabilization to Sustainable Growth: Israel in Its Third Phase," mimeo.

Blejer, M. and Liviatan, N. (1987), "Stabilization Strategies in Argentina and Israel, 1985-86", IMF Staff Papers, Vol. 34, no3, pp.403-38.

Blejer, Mario I. and Adrienne Cheasty. (1988) "High Inflation, Heterodox Stabilization and Fiscal Policy," World Development, Vol. 16, No.8, August, pp.867-881.

Bruno, M., G. Di Tella, R. Dornbusch and S. Fischer (1988). Inflation Stabilization, Cambridge: MIT Press.

Calvo, Guillermo (1983). "Staggered Contracts and Exchange Rate Policy," in Exchange Rates and International Macroeconomics, Jacob Frenkel editor, University of Chicago Press, pp. 235-55.

Calvo, Guillermo (1987). "On the Costs of Temporary Policies," Journal of Development Economics, Vol 27, pp. 245-62.

Cardoso, Eliana and Albert Fishlow (1989). "The Macroeconomics of Brazilian External Debt," NBER Working Paper Series, No. 3161-42.

Cardoso, Eliana and Rudiger Dornbusch. (1987) "Brazil's Tropical Plan," American Economic Review Papers and Proceedings, May.

Corbo, V. and Solimano, A. (Forthcoming), "Chile's Experience with Stabilization: Revisited," in Bruno, M. et al, Lessons of Economic Stabilization and Its Aftermath, Cambridge, Massachusetts: MIT Press.

Cukierman, Alex and Nissan Liviatan (1989). "Optimal Accommodation by Strong Policy Makers Under Incomplete Information," The Foerder Institute for Economic Research, Working Paper No. 13-89, May.

Dornbusch, Rudgier (1986). "Money, Interest Rates and Stabilization," Review of Economic Conditions in Italy, Vol.3, pp. 439-53.

Dornbusch, R. and Edwards, E. (1989), "The Macroeconomic of Populism in Latin America," PRE Working Papers, No. 316.

Dornbusch, R. and M. Simonsen (1987), "Inflation Stabilization with Incomes Policy Support, A Review of the Experience of Argentina, Brazil and Israel", Group of Thirty, New York.

Dornbusch, Rudiger and Sebastian Edwards (1989). "Economic Crisis and the Macroeconomics of Populism in Latin America: Lessons from Chile and Perú," mimeo.

Edwards S. and Edwards, A.C., (1987), Monetarism and Libaralization: The Chilean Experience, Ballinger, Publishing Company.

Finch, M.H.J. (1979). "Stabilization Policy in Uruguay since the 1950s," in Inflation and Stabilization in Latin America, R. Thorp and L. Whitehead Eds., New York: Holmes & Meier Publishers, pp.144-180.

Fischer, Stanley (1977). "Long Term Contracts, Expectations and the Optimal Money Supply," Journal of Political Economy, Vol 85, No.1 (Feb), pp. 191-205.

_____, (1983). "Indexing and Inflation," Journal of Monetary Economics, Vol 12, November, pp. 519-42.

_____, (1987). "The Israeli Stabilization Program 1985-86," American Economic Review Papers and Proceedings, May.

Foxley, Alejandro, (1980). "Stabilization Policies and Stagflation: The Cases of Brazil and Chile," World Development, Vol 8, pp. 887-912.

Foxley, Alejandro, (1983). Latin American Experiments in Neo-Conservative Economics, Berkely: University of California Press.

Helpman, Elhanan and Leonardo Leiderman (1988). "Stabilization In High Inflation Countries: Analytical Foundations and Recent Experience," Carnegie Rochester Conference Series on Public Policy, No. 28, pp. 9-84.

Heymann, Daniel. (1987), "The Austral Plan", American Economic Review, Vol.77, No 2 pp. 284-87.

Kiguel, Miguel A. (1989). "Inflation in Argentina: Stop and Go Since the Austral Plan," PPR Working Paper, No. The World Bank.

Kiguel, Miguel A. and Nissan Liviatan (1988). "Inflationary Rigidities and Orthodox Stabilization Policies: Lessons From Latin America," The World Bank Economic Review, Vol. 2, No.3 September, pp.273-298.

Kiguel, Miguel A. and Liviatan, N. (1989), "The Old and the New in Heterodox Stabilization Program," PRE Working Papers, No. .

----- (1990.a). "Some Implications of Policy Games for High Inflation Economies," PRE Working Paper, The World Bank.

----- (1990.b) "The Inflation Stabilization Cycle in Argentina and Brazil," mimeo, The World Bank.

----- (1990.c) "The Business Cycle Associated with Exchange Rate Stabilizations," mimeo, The World Bank.

Krieger Vasena, Adalbert (1987). El Programa Economico Argentino 1967/69: Un Ataque Global y Simultaneo a la Inflacion, Buenos Aires: Academia Nacional de Ciencias Economicas.

Liviatan, N. and S.Piterman (1986), "Accelerating Inflation and balance of Payments Crises: Israel 1973-1984", in The Israeli Economy, Yoram Ben-Porah Editor. Cambridge: Harvard University Press, pp.320-46.

Liviatan, Nissan (1988), "Israel's Stabilization Program: A Three year Perspective," PPR Working Papers, The World Bank, No. 91, September.

Liviatan, N. (1990), "The Process of Restoring Macroeconomic Imbalance in Israel: Lessons from the 1985 Stabilization," mimeo.

Malan, Pedro S. and Regis Bonelli (1977), "The Brazilian Economy in the Seventies: Old and New Developments," World Development, Vol. 5 Nos. 1/2, pp.19-45.

Meller, Patricio (1987). "Apreciaciones Globales y Especificas en torno del Plan Cruzado." El Trimestre Económico, Vol 54. September, 275-92.

Modiano, Eduardo M. (1988). "The Cruzado First Attempt: The Brazilian Stabilization Program of February 1986," in Inflation Stabilization, Bruno et. al. editors, pp. 215-58.

Ocampo, Jose Antonio (1987), "Planes Antinflacionarios Recientes en la America Latina," El Trimestre Economico, Vol. LIV, Septiembre 1987.

Ortiz, Guillermo (1990), "Mexico Beyond the Debt Crisis, Toward Sustainable Growth with Price Stability," mimeo, January 1990.

Pazos, Felipe (1969). Medidas para Detener la Inflación crónica en America Latina, Mexico: CEMLA

Persson, Torsten and Sweder Van Wijnbergen (1989). "Signalling, Wage Controls and Monetary Disinflation Policy," Mimeo, The World Bank.

Rodrik, Dani. (1989), "Process, Promises: Credible Policy Reform Via Signalling," The Economic Journal, Vol. 99, No. 397, November 1989.

Sharon, Emanuel (1990). "Israel and the Success of the Shekel, the Key years 1984-87," in Inflation: Are We Next? Hyperinflation and Solutions in Argentina, Brazil and Israel, Pamela Falk editor, New York, Lynne Rinner Publishers.

Simonsen, Mario Henrique (1974), "The Anti-Inflation Policy," in The New Brazilian Economic, Mario Henrique Simonsen and Roberto de Oliveira Campos editors. Rio de Janeiro, Brazil: Crown Editores Internacionais.

Solimano, Andrés (1989). "Inflation and The Costs of Stabilization: Country Experiences, Conceptual Issues, and Policy Lessons," The World Bank, PPR Working Paper No. 226, July.

Tanzi, V. (1989), "Fiscal Policy and Economic Reconstruction in Latin America," IMF Working Paper, November 2, 1989.

Taylor, John. (1979) "Staggered Wage Setting in a Macro Model," American Economic Review Papers and Proceedings, vol. 69, pp. 108-13

Tobin, J. (1989), "Inflation: Monetary and Structural Causes and Cures," in Jackson, P.M. (ed.), Policies for Prosperity: Essays in Keynesian Mode. (Cambridge, Massachusetts: MIT Press).

Viana, Luis (1988). "The Stabilization Plan of 1968," mimeo, Banco Central del Uruguay.

TABLE 1

Mexico: Macroeconomic Indicators, 1980-1988

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
1. Inflation, Devaluation and Interest (Percent in Annual Terms)										
a. CPI Inflation	28.3	28.0	58.9	101.9	55.5	57.7	86.2	131.8	114.2	20.0
b. Official Devaluation	0.9	6.5	150.2	112.9	39.7	53.2	137.9	23.5	64.7	8.2
c. Interest rate on loans	20.7	28.6	40.4	56.8	51.1	56.1	60.9	66.7	67.8	20.5
d. CPI Inflation (Dec. to Dec.)	29.8	28.7	98.9	80.8	59.2	63.7	105.7	159.2	51.7	19.7
e. Official Devaluation (Dec. to Dec.)	2.2	12.6	258.3	49.1	33.8	93.0	148.5	139.3	11.5	18.3
2. Monetary Statistics (Percent)										
a. M1- Percent of GDP	11.2	10.8	10.9	8.4	8.1	7.8	7.3	6.5	5.8	6.2
b. M2- Percent of GDP	30.1	33.6	37.4	33.2	33.7	31.2	35.9	37.8	31.4	34.5
c. Seigniorage - M1	2.7	2.7	4.2	2.4	3.0	2.5	2.9	3.5	2.1	1.0
d. M1- Rate of Change	33.4	33.3	54.1	41.4	62.8	53.8	72.1	129.7	56.1	40.1
e. M2- Rate of Change	45.8	53.7	78.6	61.4	70.4	46.7	100.2	159.4	69.0	49.3
f. Monetary Base	41.1	45.1	90.4	58.1	54.1	17.5	47.7	70.3	42.3	10.6
g. Consolidated Monetary System Domestic Credit	39.0	48.8	100.9	56.4	51.2	69.2	101.0	104.2	n.a.	n.a.
h. The Central Bank Domestic Credit	37.0	48.5	157.6	41.7	31.1	49.0	61.3	13.7	n.a.	n.a.
3. Aggregate Demand (Percent of GDP at current prices)										
a. Private Consumption	65.1	64.4	61.6	60.9	63.1	64.5	68.5	65.6	70.0	69.7
b. Public Consumption	10.0	10.7	10.5	8.8	9.2	9.2	9.0	6.7	6.5	9.0
c. Investment	24.8	26.4	22.9	17.8	18.0	21.2	18.7	18.6	19.2	20.0
d. Exports	10.7	10.4	15.3	19.0	17.4	15.4	17.2	19.7	16.0	15.2
4. Economic Activity (Percent Change in Real Terms)										
a. GDP growth	8.3	7.9	-0.6	-5.3	3.7	2.8	2.0	1.4	1.1	2.9
b. Unemployment	4.5	4.2	4.1	6.7	6.0	4.8	4.3	3.9	3.8	n.a.
c. Private Consumption	7.5	7.4	-2.5	-5.4	3.3	4.2	-1.4	-0.9	1.9	5.1
d. Public Consumption	9.5	10.3	2.0	2.7	6.8	-2.3	0.1	-0.5	-0.9	-1.0
e. Investment	14.9	16.2	-16.8	-28.3	6.4	8.2	-12.0	-0.7	n.a.	n.a.
f. Exports	8.1	11.6	21.6	13.8	5.7	-4.0	1.5	12.2	n.a.	n.a.
5. Relative Prices Indices (1980=100)										
a. Real Wage	100.0	109.5	105.7	72.7	67.2	70.0	64.7	63.0	62.0	63.3
b. Real Exchange Rate	100.0	84.2	115.2	123.7	102.5	98.5	145.1	157.5	130.3	118.4
c. Terms of Trade	100.0	106.5	105.2	96.5	97.2	98.3	63.8	n.a.	n.a.	n.a.
6. External Sector (Million of US\$)										
a. Trade Balance	-2830.0	-4099.0	6795.0	13782.0	12941.0	9451.0	4599.0	8433.3	1754.3	-662.6
(i) Exports	18066.0	19038.0	21230.0	22312.0	24196.0	21663.0	18031.0	20656.2	20857.6	22746.9
(ii) Imports	18996.0	24037.0	14435.0	8550.0	11255.0	12212.0	12432.0	12222.9	18903.4	23409.7
b. Current Account Balance	-8162.0	-13897.0	-8218.0	5419.0	4238.5	1236.7	-1672.7	3988.5	-2442.8	-5449.4
c. Current Account- Percent of GDP	-4.4	-5.8	-3.7	3.8	2.5	0.7	-1.3	2.7	-1.8	-2.5
d. International Reserve Change	1151.0	1012.0	3188.0	-3117.0	-3384.0	2423.0	-132.0	9929.4	-7127.0	271.5
7. Public Sector (Percent of GDP)										
a. Total Expenditure	33.5	39.7	44.5	41.0	39.3	39.9	45.3	45.5	41.3	35.9
b. Expenditure excluding Interest Payments	30.0	34.7	36.3	28.6	27.4	28.4	28.7	25.8	24.5	22.7
c. Total Revenue	28.9	26.7	28.9	32.9	32.2	31.2	30.3	30.6	29.8	30.5
d. Total Deficit	6.6	13.0	15.6	8.1	7.1	8.7	15.0	14.9	11.5	5.4
e. Operational Deficit	5.6	11.7	8.3	1.3	0.6	1.0	1.8	-2.0	4.5	1.7
f. Primary Deficit	3.1	6.0	7.4	-4.3	-4.8	-3.3	-2.2	-5.0	-5.9	-6.3
g. Domestic Public Debt	8.8	10.7	12.8	18.5	18.0	16.8	26.4	22.2	20.5	25.0
g. Foreign Public Debt	18.8	20.0	38.9	43.0	36.8	37.0	59.9	67.2	48.9	41.8

- Note: 1. Seigniorage = $M1(t) - M1(t-1) / GDP(t)$
 2. Real wage is the purchasing power in relation to the overall consumer price index
 3. Interest rate on loans is the average cost of funds compound annually.
 4. Consolidated monetary system domestic credit is line 32 in IFS.
 The Central Bank domestic credit is total claims on the government and private sector less government deposit.
 5. Primary Deficit = $7(b) - 7(c)$

Sources: Banco de Mexico except:

4(b) CEPAL

4(c,d,e,f) from The World Bank, National Account Data Base

5(a) Mexico National Minimum Salary Commission

6(a) IFS

7(e) The World Bank

1985-89 From REC 1990

5(c) the World Bank

2(a,f) and 6(d) IFS

7(f,g) Informe Anual 1987, Banco de Mexico

FIGURE 1a.
CPI INFLATION AND OFFICIAL DEVALUATION

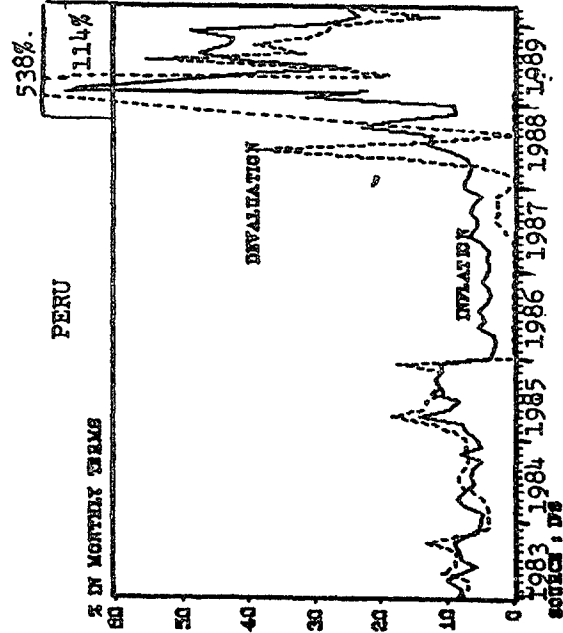
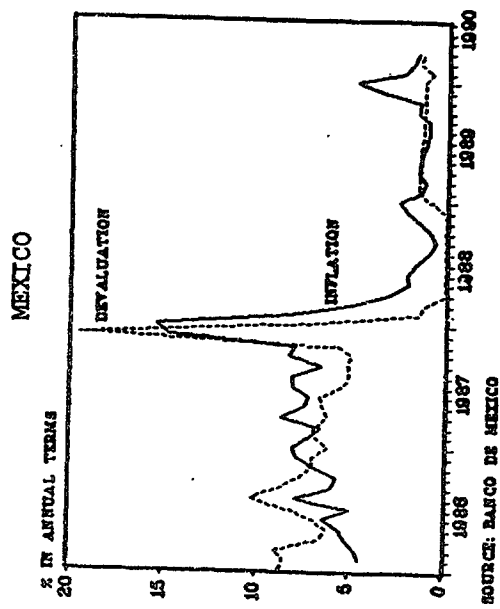
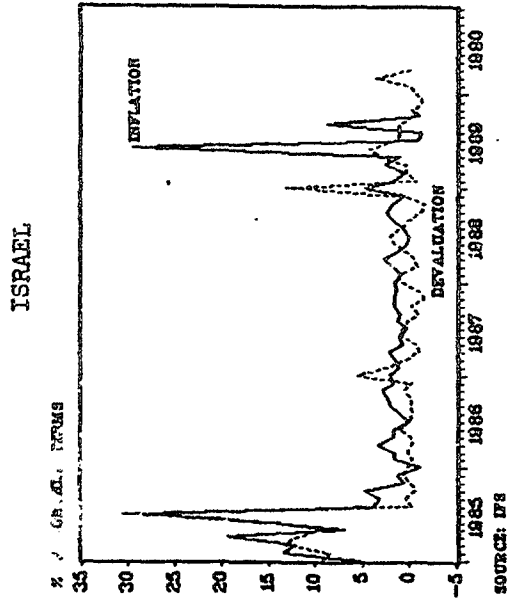
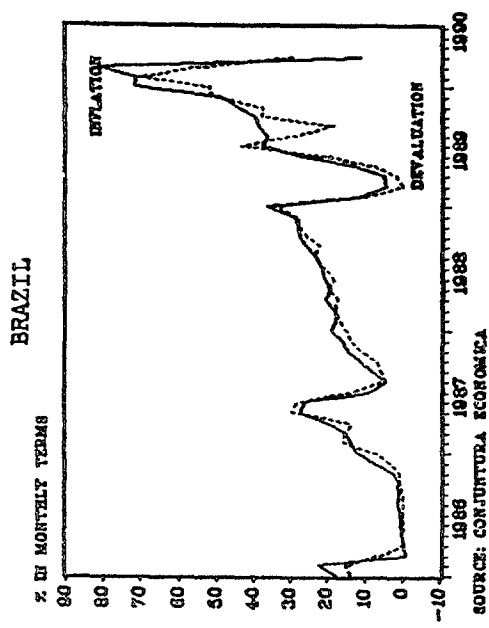
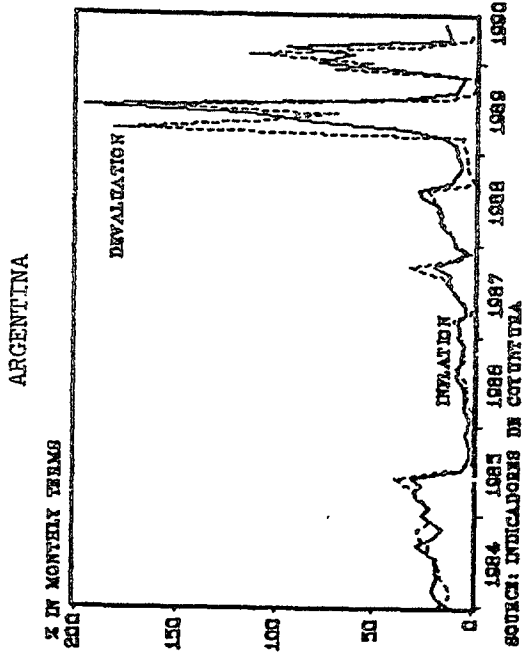


FIGURE 1b

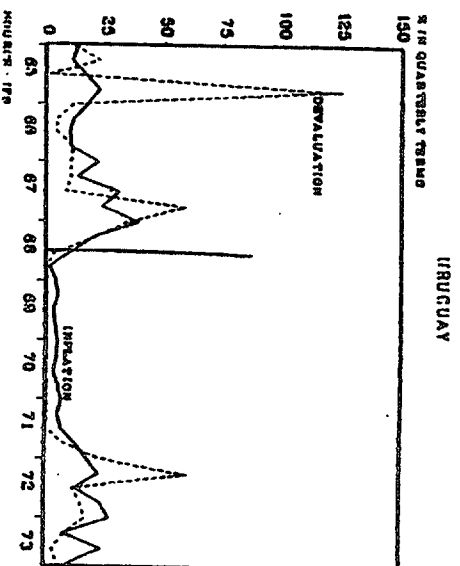
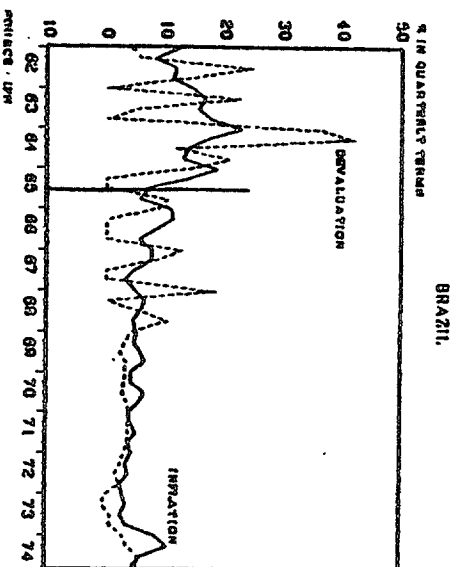
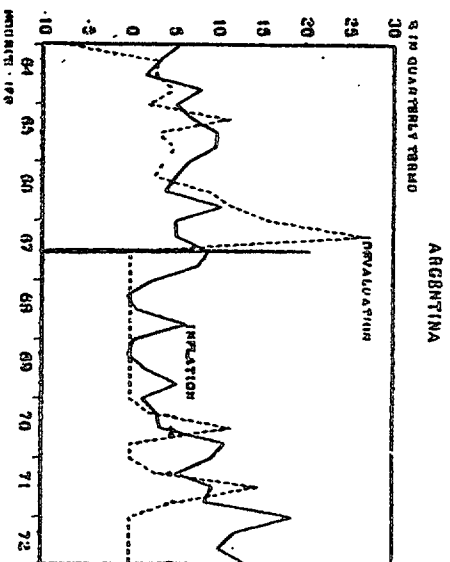


FIGURE 2

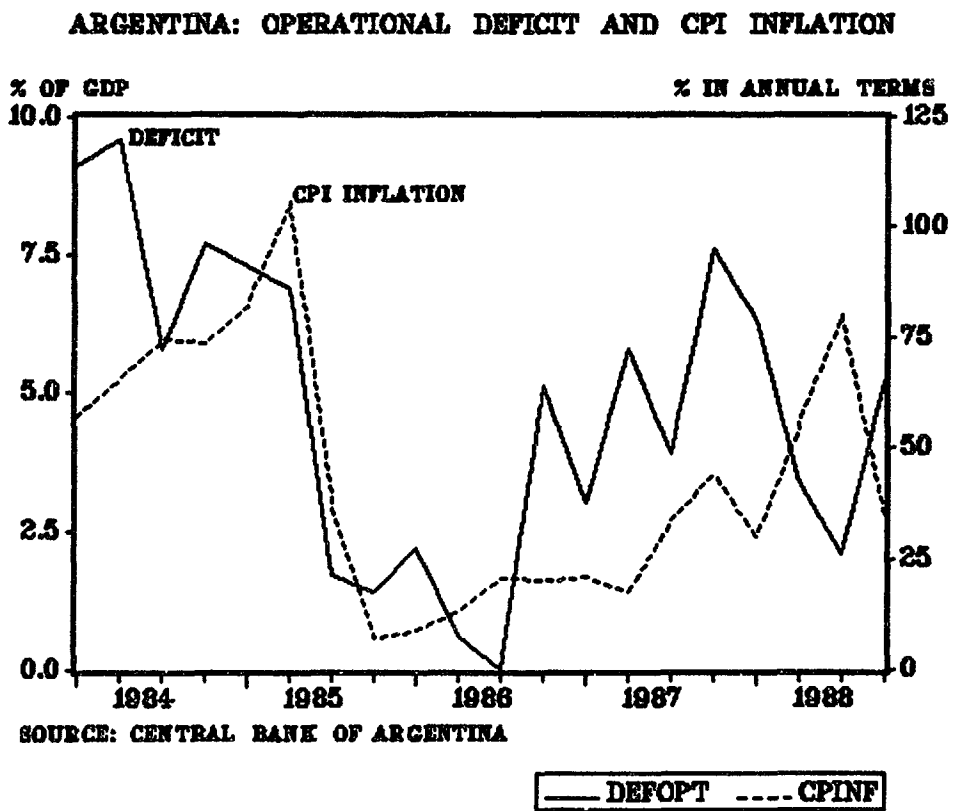


FIGURE 3

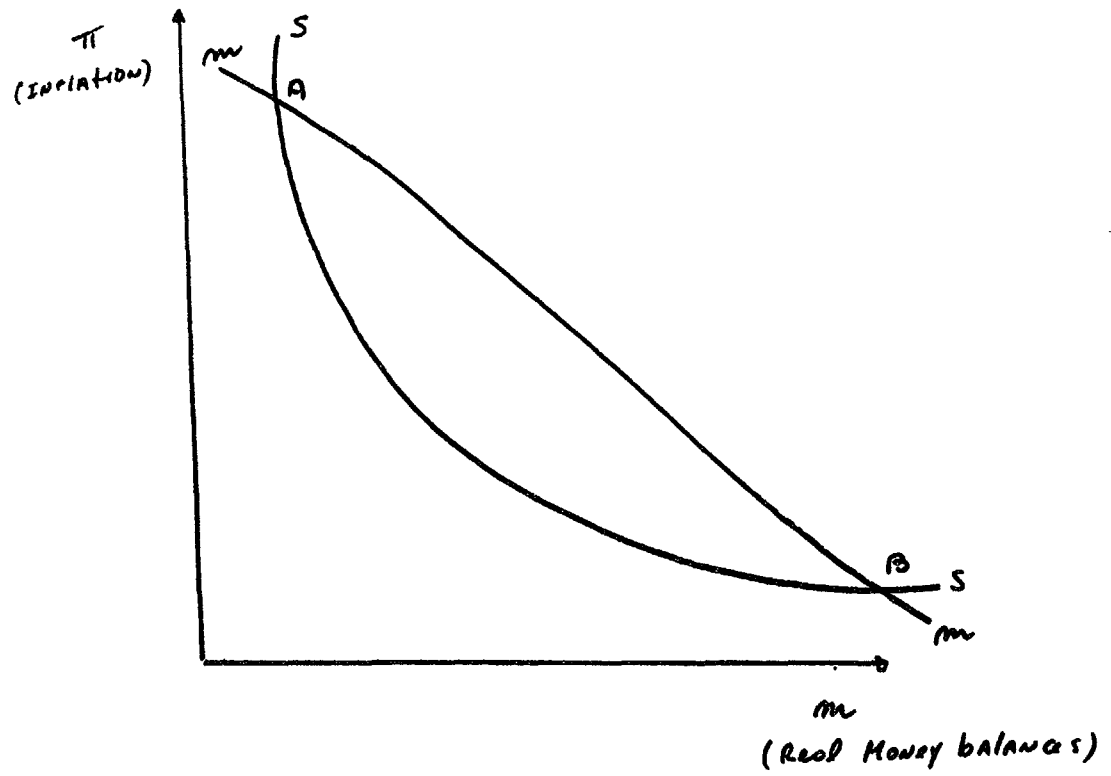
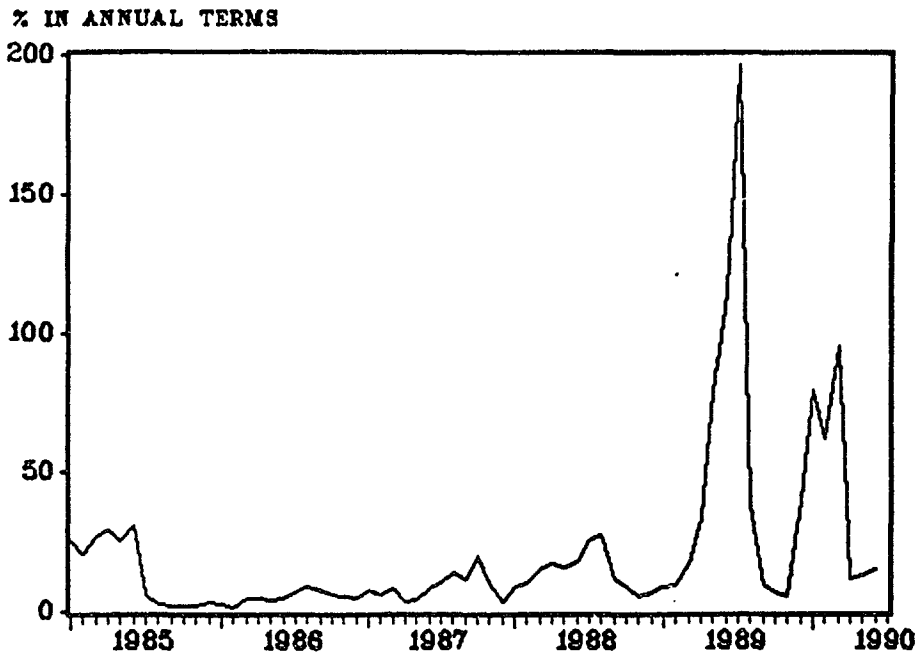
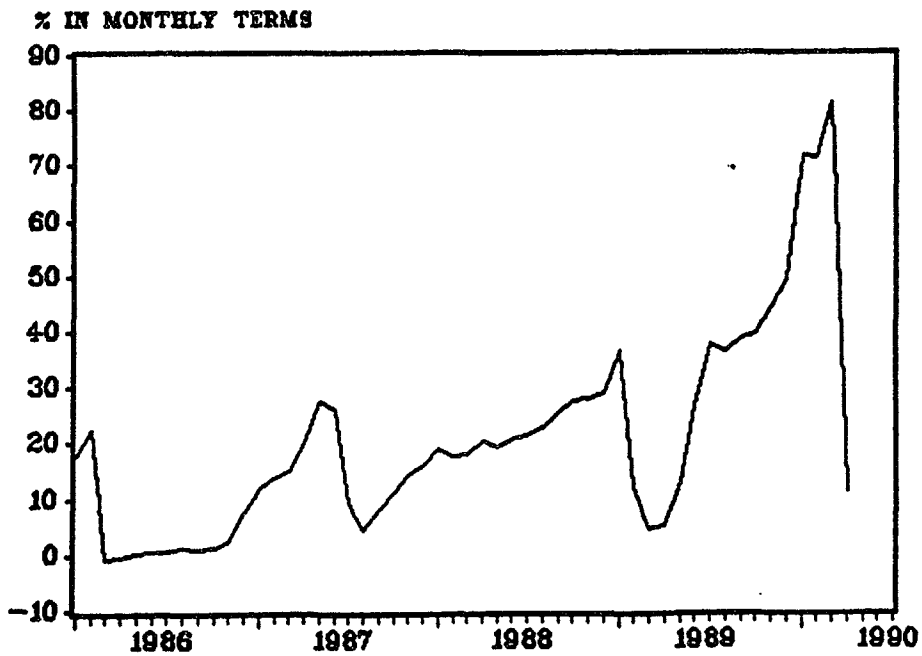


Figure 4
CPI Inflation
Argentina



Brazil



PRE Working Paper Series

	<u>Title</u>	<u>Author</u>	<u>Date</u>	<u>Contact for paper</u>
WPS648	Who Paid the Bill? Adjustment and Poverty in Brazil, 1980-95	M. Louise Fox Samuel A. Morley	April 1991	WDR Office 31393
WPS649	An Observation on the Bias in Clinic-based Estimates of Malnutrition Rates	Margaret E. Grosh Kristin Fox Maria Jackson	April 1991	B. Diallo 30997
WPS650	Administrative Valuation of Soviet Agricultural Land: Results Using Lithuanian Production Data	Karen Brooks	April 1991	C. Spooner 30464
WPS651	Taxation of Financial Assets in Developing Countries	Christophe Chamley	April 1991	A. Bhalla 37699
WPS652	Demographic Response to Economic Shock	Kenneth Hill	April 1991	WDR Office 31393
WPS653	The Effects of Option-Hedging on the Costs of Domestic Price Stabilization Schemes	Donald F. Larson Jonathan Coleman	April 1991	D. Gustafson 33714
WPS654	Reflections on Credit Policy in Developing Countries: Its Effect on Private Investment	Mansoor Dailami Marcelo Giugale	April 1991	M. Raggambi 37657
WPS655	Interest Rate Policy in Egypt: Its Role in Stabilization and Adjustment	Mansoor Dailami Hinh T. Dinh	April 1991	M. Raggambi 37657
WPS656	Relative Deprivation and Migration: Theory, Evidence, and Policy Implications	Oded Stark J. Edward Taylor	April 1991	M. Felix 33724
WPS657	Distributional Aspects of Debt Adjustment	Ishac Diwan Thierry Verdier	April 1991	S. King-Watson 33730
WPS658	Fiscal Policy with Fixed Nominal Exchange Rates: Côte d'Ivoire	Christophe Chamley Hafez Ghanem	April 1991	Raquel Luz 34303
WPS659	Inflation and Growth in the Transition from Socialism: The Case of Bulgaria	Andrés Solimano	April 1991	E. Khine 37471
WPS660	The Development of the Colombian Cut Flower Industry	José A. Mendez	May 1991	N. Artis 37947
WPS661	The Bretton Woods Agencies and Sub-Saharan Africa in the 1990s: Facing the Tough Questions	Richard E. Feinberg	May 1991	S. King-Watson 33730

PRE Working Paper Series

	<u>Title</u>	<u>Author</u>	<u>Date</u>	<u>Contact for paper</u>
WPS662	Trends in Social Indicators and Social Sector Financing	Jacques van der Gaag Elene Makonnen Pierre Englobert	May 1991	B. Rosa 33751
WPS663	Bank Holding Companies: A Better Structure for Conducting Universal Banking?	Samuel H. Talley	May 1991	Z. Seguis 37665
WPS664	Should Employee Participation Be Part of Privatization?	Barbara W. Lee	May 1991	G. Orraca-Tetteh 37646
WPS665	Microeconomic Distortions: Static Losses and their Effect on the Efficiency of Investment	Ramón López	May 1991	WDR Office 31393
WPS666	Agriculture and the Transition to the Market	Karen M. Brooks José Luis Guasch Avishay Braverman Csaba Csaki	May 1991	C. Spooner 30464
WPS667	VERs Under Imperfect Competition and Foreign Direct Investment: A Case Study of the U.S.-Japan Auto VER	Jaime de Melo David Tarr		
WPS668	Inflation Tax and Deficit Financing in Egypt	Hinh T. Dinh Marcelo Giugale	May 1991	L. Santano 80553
WPS669	Are High Real Interest Rates Bad for World Economic Growth	Nemat Shafik Jalaleddin Jalali	May 1991	M. Divino 33739
WPS670	Inflation Adjustments of Financial Statements: Application of International Accounting Standard 29	Yaaqov Goldschmidt Jacob Yaron	May 1991	C. Spooner 30464
WPS671	Lessons from the Heterodox Stabilization Programs	Miguel A. Kiguel Nissan Liviatan	May 1991	E. Khine 39361
WPS672	The Macroeconomics of Public Sector Deficits: The Case of Ghana	Roumeen Islam Deborah L. Wetzel	May 1991	R. Luz 34303
WPS673	The Macroeconomics of Public Sector Deficits: The Case of Pakistan	Nadeem U. Haque Peter Montiel	May 1991	R. Luz 34303