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Stabilization and Liberalization Policies in Eastern Europe: Lessons From Latin America

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Policy reform in many developing countries is proving difficult, in part due to a lack of understanding of the dynamics of changes. This research discusses some Latin American lessons on stabilization that can be useful in better understanding the policy options available to the former socialist nations. The four most important macroeconomic problems faced by the former socialist economies are: (1) alternative ways of dealing with the monetary overhang and rationing; (2) fiscal equilibrium and the reduction of inflation; (3) the use of fixed nominal exchange rates to anchor the anti-inflationary process; and (4) the role of indexation and labor markets in the adjustment process. The following solutions are suggested: a monetary reform is preferred to a price jump in eliminating the money overhang; a tax system not vulnerable to inflation should be created to avoid fiscal imbalances; exchange rate based stabilization programs carry a danger of provoking a major overvaluation, suggesting that a starting point should be one of undervaluation; and efforts to deindex the labor market should be maintained throughout the stabilization process.

I. Introduction

In many ways 1989 and 1990 have been magical years, as we have seen the end of the Cold War and the beginning of an exciting period of political and economic reconstruction in Eastern Europe, and an era that promises great opportunities for the world economy. As they abandon the doctrines and policies of Communism, the nations of Eastern Europe face the immense challenge of implementing an efficient and effective transition to a market-oriented economic regime. What makes the transitional issue particularly difficult is that the peoples of the Eastern European nations have placed their hopes of a dramatically rapid improvement in their standard of living on the implementation of the market-oriented reforms. To the extent that these reforms fail, or if the transition is perceived as being unduly costly, disillusionment and frustration will settle in, generating serious social and political unrest with unpredictable consequences.

In designing policy packages for the transition to free-markets, the Eastern European countries face three main problems: First, how to stabilize their economies, achieving internal and external macroeconomic balance; second, how to implement the structural and market-oriented reforms in an orderly and effective way; and third, how to proceed with the privatization process. In dealing with these important questions the political leaders and their technical advisers have had to confront two particularly pressing issues related to the speed of sequencing of reforms. With respect to stabilization policies, the most important controversies refer to: (1) how to solve the situation of monetary overhang -- either through a monetary reform or an adjustment of the price level; (2) whether the anti-inflationary program should be based on an exchange rate or monetary anchor; and (3) the extent to which the labor market should be reformed and deindexed.

In terms of structural, market-oriented reforms, the key questions are how fast and in what sequence the opening of the external sector and the creation of a domestic financial market should take place. In this area the issue of bankruptcy laws has also been hotly debated. Finally, with regard to privatization the key discussions have centered on whether firms should be sold or transferred to the public, or how fast this process should take place, and on whether foreign investors should be allowed to participate in the participation.[1]

Reform packages have been rapidly implemented in Poland and Yugoslavia since early 1990, and are now beginning to be implemented in Czechoslovakia. The liberalization and stabilization programs in Poland and Yugoslavia exhibit a number of striking similarities.[2] Both countries, for instance, freed prices, devalued abruptly, and decided to rely on a major price level adjustment to solve the monetary overhang problem. The two countries immediately declared (partial) convertibility of their currencies, and subsequently fixed the nominal exchange rate in an attempt to provide an anchor for the price system. While in Poland the fixed rate policy continues to the time of this writing, in Yugoslavia a (substantial) devaluation was implemented in the first week of 1991. Both countries increased interest rates as a way to control aggregate demand, and announced (but not quite implemented) tough bankruptcy laws. Additionally, they both partially deindexed wages in an effort to reduce inflation inertia. Also, in both nations there have been announcements of sweeping privatization that have not yet materialized in any significant way.

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[1] On controversies regarding the Eastern European reforms, see, for example, Hinds (1990), Lipton and Sachs (1990) and Nordhaus (1990).

[2] For an illuminating comparison see Covicelli and Rocha (1990).

In spite of some clear successes, such as a reduction in inflation in the second and third quarters of 1990, the (initial) elimination of the black market premium and the generation of a trade surplus, both Poland and Yugoslavia are currently facing some serious problem. Although inflation is lower than in the first months of the programs it is, especially in Poland, still significantly higher than expected. In Yugoslavia the republics have challenged the central authority's austerity adjustment programs. Unemployment has climbed rapidly and industrial production has plummeted. In light of these results, a number of observers are asking themselves whether other (former) socialist nations, and the USSR in particular, should follow similar programs or if, on the contrary, they should implement alternative paths.

Although strictly speaking the Eastern European experiments have no direct precedents, there are some historical episodes that can shed some light and provide important lessons on individual aspects of the free market transformations. For instance the post-World War II European experience with monetary overhang and monetary reforms offers potentially important lessons on how to tackle a situation of major monetary disequilibrium cum rationing. Also, the large number of stabilization attempts in Latin America during the last four decades provide a wealth of lessons -- both positive and negative -- on different aspects of anti-inflationary programs.

From a historical and comparative perspective the largely successful stabilization and liberalization experiences in Chile and Mexico in the last 15 years offer particularly important lessons for Eastern European leaders and their advisors. In both of these countries inflation has been significantly reduced, the external sector has been practically open to free trade, dynamic domestic financial markets have been created, vigorous privatization programs have been enacted, and an increasingly strong record of growth has

been established. In fact as can be seen from Figure 1, Chile, Mexico (and Bolivia) have recently been able to (partially) conquer extreme inflations.[3] An important difference between the Chilean and Mexican experiences is that while in Chile stabilization was very gradual, the reduction of inflation to manageable levels was achieved quite rapidly in Mexico: while in Chile it took 25 quarters to reduce inflation from its peak to below 5% per quarter, in Mexico it only took 6 quarters to accomplish this task.[4]

The purpose of this paper is to discuss some Latin American lessons on stabilization that can be useful to better understand the policy options available to the former socialist nations. Although the analysis focuses on stabilization, I also make some reference to privatization and other market-oriented policies. Throughout the discussion I mostly concentrate on the case of Chile. The reasons for focusing on Chile are several: first in 1973 Chile faced initial conditions that are as close to those of Eastern Europe as they can possibly be; second, during the last 15 years Chile experimented with a series of alternative policies, providing a fascinating laboratory of sorts; third, in contrast with many other Latin American episodes, Chile's policies in the 1970s and 1980s dealt with both stabilization and liberalization (including a major privatization program); and finally, Chile represents a successful transition from a highly inflationary

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[3]The main difference between these three cases is that while in Mexico and Chile stabilization has been accompanied by recovery and growth, Bolivia has remained basically stagnant. Also, due to Bolivia's lower level of development, lessons derived from its experience are less valuable for Eastern Europe.

[4]Notice, however, that this comparison is in a way unfair since the peak quarterly rate of inflation was much higher in Chile than in Mexico. In Chile this peak was achieved in the second quarter of 1974, where inflation reached 98.3%, in Mexico the peak was in the second quarter of 1983 with a rate of inflation of 23.4%.

and tightly controlled economy into a market-oriented and stable one. The degree of success of the Chilean experience is clearly underscored by the fact that the newly elected democratic government of President Patricio Aylwin has decided to maintain in place the vast majority of the economic reforms implemented during the Pinochet regime.[5] Politically, of course, the crucial difference between Chile and Eastern Europe is that while Chile's reforms were undertaken by dictatorial rule, the Eastern European programs are being carried out by (mostly) democratic governments. This difference, in fact, should not be underestimated in comparing the specific experiences in these two regions. Some of the policies implemented in Chile may prove to be too unpopular to sustain in a democratic regime.

Another key difference between Chile and Eastern Europe is that in 1973 Chile had already in place a large number of fundamental market-oriented institutions. In fact, in spite of the decades of government intervention and controls, Chileans had basically lived under a controlled market system. This, of course, means that the challenge faced by the Eastern European nations is tremendous: creating market institutions from scratch is a task of Herculean proportions that shouldn't be underestimated.

The rest of the paper is organized as follows: in Section II, I deal at an analytical level with four of the most important macroeconomic problems faced by the former socialist economies embarked on stabilization programs: (1) alternative ways of dealing with the monetary overhang and rationing; (2) fiscal equilibrium and the reduction of inflation; (3) the use of fixed nominal exchange rates as an anchor in the anti-inflationary policy; and (4) the role of indexation and labor markets in

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[5] On the way the new democratic government has dealt with the Pinochet economic legacy, see Edwards and Edwards (1991).

the adjustment process. In Section III, I discuss some important Chilean (and Mexican) lessons regarding these four important areas of the stabilization programs. In this section I argue that there are some very important stabilization lessons from Latin America for Easter Europe. In Section IV I provide the conclusions, including some remarks on structural reforms and privatization policies.

II. Stabilization and Liberalization in Eastern Europe: Problems, Controversies and Policies

The initial conditions faced by reformers in Eastern Europe and the USSR can best be described as chaotic and unsustainable.[6] In almost every country -- including those already embarked in adjustment programs -- the combination of a growing monetary overhang with declining labor productivity has been translated into widespread rationing of consumer (and other) goods, and seriously misaligned relative prices. This problem has been compounded by the fact that increasingly large fiscal deficits have been monetized putting additional pressure on the macroeconomy, generating an extremely critical balance of payments condition and making the repressed inflation particularly difficult to handle. Table 1 contains some basic data on the performance of these economies in the second half of the 1980s. The fact that in a number of these countries the observed rates of inflation were rather low in 1989 is not a sign of financial stability but, on the contrary, it is a reflection of the fact that the substantial accumulated monetary increases have not been allowed to reflect themselves on price increases. The result of this has been repressed inflation and an aggravation of the well-known generalized scarcity and rationing.

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[6] A serious problem in evaluating the initial conditions in the Eastern European countries is that the data available are extremely poor.

Stabilizing the economy is, without a doubt, a clear priority in any reform program for the (former) Communist countries. Most authors have, in fact, agreed on the urgency of stabilization and on the fact that in any sequencing discussion, the implementation of an anti-inflationary program should precede most other measures. There is much less agreement, however, on how to implement such a stabilization program and on how to deal, among other things, with money overhang, the fiscal disequilibrium, the exchange rate and the labor market. In this section I analyze some of the most important controversies surrounding stabilization in former (or disappearing) socialist countries. In the next section I expand the discussion by analyzing how the recent stabilization experiences in Chile and Mexico can help better understand some of the problems faced by the Eastern European policymakers.

The implementation of stabilization programs is particularly difficult because, contrary to most modern experiences with macroeconomic crises, the USSR and Eastern European nations face both a stock and a flow macroeconomic disequilibrium. The stock disequilibrium which has generated a monetary overhang, has been the result of years of rapid money creation under generalized price controls, and declining productivity. This has provoked a situation where the actual (observed) income velocity is substantially below desired velocity of money, and where queues, and rationing are an everyday fact of life. The flow disequilibrium, on the other hand, has been the result of large (and increasing) fiscal deficits, that have been monetized.

There is virtual consensus among different analysts that a necessary early step in the reform process refers to eliminating the money overhang. At the same time there seems to be a clear understanding that the elimination of the stock excess supply of money will not eliminate the inflationary

pressures in the system. This will require, in addition, significant fiscal adjustment that will greatly reduce, if not put a complete end to the fiscal deficit and inflationary monetary finance.

II.1 Eliminating the Monetary Disequilibrium: Price Adjustment or Monetary Reform?

A situation of monetary overhang, or repressed inflation, results when increases in the stock of money take place in an environment of generalized price controls and rationing. In these circumstances not only does the economy face disequilibrium relative prices, but in addition the actual real stock of money (M/Py) exceeds the desired stock of money (M/Py)* -- where the usual notation has been used:

$$\frac{M}{Py} > \left(\frac{M}{Py}\right)^{*} \tag{1}$$

In these circumstances goods are rationed through queuing and/or a secondary black market. Clearly, then, there are "virtual" prices that clear the market for which there is no monetary disequilibrium. This, of course, does not eliminate the fact that these countries face a serious situation of repressed inflation.

An obvious, but nonetheless important implication of (1) is that there are four potential ways of solving a situation of monetary overhang: (1) a reduction of nominal money balances M through some type of monetary reform; (2) a (supposedly) once-and-for-all increase in the domestic price level P; (3) an increase in domestic real output (y); and (4) a rise in the desired quantity of money (M/Py)*.[7] The last two alternatives -- a major increase in real output and a significant increase in the demand for

[7]Naturally, a combination of these four mechanisms would also work. See Lipton and Sachs for a theoretical analysis of some of the most important aspects of monetary overhang.

money -- are impractical, and implausible; moreover, even if y and (M/Py)* do increase, this will not happen with the speed required to solve the overhang problem in the short run. This means that for all practical purposes we are left with (a discreet) price adjustment or a monetary reform as the two only practical ways to eliminate the money overhang. In both options it is implicitly assumed that relative prices are allowed to adjust rapidly and to regain equilibrium.

Interestingly enough, while in the post World War II period most European nations opted for the monetary reform route, at the present time the Eastern European nations that have embarked on adjustment have chosen to rely on the price level adjustment approach. As pointed out in Section I, both Yugoslavia and Poland decided to handle the overhang by simultaneously freeing the vast majority of prices, declaring (partial) exchange rate convertibility and engineering a major nominal devaluation.[8] Some authors have criticized the use of this approach for solving the overhang in these countries and have indicated that the best path for the Soviet Union is to undertake a significant and sweeping monetary reform.[9]

Naturally, at the textbook level both of these alternatives are perfectly equivalent. While the monetary reform operates via the numerator of (M/Py), the price level adjustment does it through the denominator. In more complicated real life economies this equivalence, however, does not

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[8] In modern Latin America the recent Collor de Mello stabilization plan in Brazil constitutes the only experience with monetary reform. However, partial reforms where a proportion of the public debt has been either blocked or transformed into lower value titles have taken place in a number of countries, including Argentina and Chile. When the first version of this paper was written, the Soviet Union had not yet implemented the 100 and 50 ruble bill confiscation process. As is pointed out below, this must have been the most clumsy monetary reform ever engineered.

[9] This point is implicitly made in Dornbusch and Wolf (1990).

hold. First, there are marked differences with respect to the administrative requirements for both policies. While a monetary reform requires a complicated and major logistic operation, the adjustment via prices is (almost) automatic.[10] Additionally, when implementing a monetary reform it has to be decided whether currency will be blocked, or confiscated. If blocked, for how long, and if confiscated, how much, and in what fashion? All of these are, of course difficult and time-consuming decisions. In fact, the most practically difficult problem associated with the implementation of a monetary reform is that the authorities have to have an approximate knowledge on the magnitude of the overhang. Miscalculations in this area can lead to serious losses in credibility.[11] The difficulty in estimating the approximate magnitude of the overhang is particularly serious in the case of Eastern European countries, where the historical data are not reliable, and where the structural and institutional reforms will affect the demand for money in an unpredictable way.[12] This problem is neatly illustrated by the fact that there are several divergent estimates on the extent of the monetary overhang in the Soviet Union. While some authors argue that an elimination of the excess supply of money in that nation will require the doubling, or even tripling of the price level, others have pointed out that a 50% adjustment

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[10]The degree of automaticity of the adjustment via the price level is particularly clear when the exchange rate is allowed to float. In both Poland and Yugoslavia, however, the exchange rate was fixed after the devaluation. I deal with this issue later.

[11]Dornbusch and Wolff (1990) argue that it is possible to compute the (approximate) magnitude of the overhang by combining historical data on some benchmark (normal) year and estimates of black market activities.

[12]Dornbusch and Wolf (1990) discuss a simple way of computing the approximate magnitude of the overhang.

will probably be enough.[13] A particularly serious problem occurs when the monetary reform is not accompanied by a very rapid price liberalization. In this case, as in the recent USSR attempt, the relaxation of repressed inflationary measures will be extremely short-lived, with the phenomenon of monetary overhang recurring quickly, and with even greater force.

An additional problem related to a monetary reform is that it may greatly affect the confidence in the domestic monetary system. To the extent that the public fears additional future confiscations or blockades, it will substitute away from domestic money and move towards real assets and foreign bank deposits. To the extent that this is indeed the case, the monetary reform per se would have generated additional macro-disequilibria, and fueled inflation. A final serious problem confronted during monetary reforms refer to the issue of fairness and distributive effects. The most straightforward way of tackling this issue is by allowing each individual to exchange up to a certain amount of old money (currency and deposits) into new money. In this way the poorer segments will be relatively protected. This was not done in the recent Soviet reform, generating serious (and possibly irreversible) loss in the confidence of the monetary system.

On the other hand, the price level adjustment alternative is not free of problems. In particular, it is unlikely that the price level will only experience the required corrective once-and-for-all jump, without having additional perverse effects on the rate of inflation. In fact, to the extent that there are (implicit or explicit) multiperiod contracts and indexation, the major price level jump required to eliminate the overhang is likely to set in motion serious inflationary pressures that will perpetuate

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[13] See, for example, the October/November 1990 issue of The International Economy; see also Nordhaus (1990), and McKinnon (1990).

themselves for several periods.[14] Moreover, to the extent that the initial price level jump generates expectations of further large price changes, desired velocity will increase and economic agents will try to anticipate (expected) future inflation putting additional pressure into the system. Dornbusch and Wolf (1990) have recently argued that attempts to solve the monetary overhang through a price level adjustment can easily degenerate into unstable situations that can even lead to a hyperinflation. The fact that both in Poland and Yugoslavia, after the initial price level adjustment, approximately 50% of deposits are still maintained in foreign currency can be interpreted as a lack of confidence on the part of the public on the future of the stabilization program.

Recently some analysts, including the staff of the International Monetary Fund, have argued that it is possible to link the elimination of the money overhang to the privatization process. This would entail exchanging the excess nominal money holdings for property titles to (some) of the newly privatized firms.[15] These proposals, however, miss the point that the elimination of the monetary overhang is a prerequisite for proceeding with almost every step in the reform process. This means that the resolution of the stock monetary disequilibrium has to take place very rapidly, and cannot wait for the legal and administrative requirements for a successful privatization to be implemented.

In sum, then, at least in principle both basic methods for handling a situation of monetary overhang entail some risks. While a monetary reform,

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[14] This will be the case even if there is partial indexation. Naturally, the more generalized indexation is, the more serious this problem will be.

[15] Hinds (1990) also discusses this possibility He is, however, quite critical about its applicability.

and especially one that errs on the estimated magnitude of the overhang, can generate serious dislocations including a loss in the credibility of the domestic monetary system, a price level adjustment can generate additional inflationary forces that, at least in theory, can explode into a hyperinflation. In fact, according to Dornbusch and Wolf (1990), four of the countries that opted for the price level adjustment in the post-World War II period, ended up facing major hyperinflations. What is clear, however, is that if the monetary reform route is chosen it is important not to use the pretext of the reform itself for delaying the freeing of prices and, thus, the correction of relative price distortions. Naturally, if prices are freed within the context of a monetary reform, their adjustment will be significantly less dramatic than if the program relies on price jumps only. In Section III, I discuss in detail the Chilean experience with the use of price level adjustments to solve its monetary overhang in late 1973. What makes the Chilean experience particularly important is that until the recent stabilization attempts in Eastern Europe, it constituted the only episode of monetary overhang elimination since the Second World War.

II.2 Fiscal Discipline and the End of Inflation

The elimination of monetary overhang will not put an end to inflation in Eastern Europe or the Soviet Union. Indeed, inflationary pressures will only come to an end if the monetization of the fiscal deficit is eradicated. This means that either fiscal deficits are reduced to levels compatible with foreign financing or that they are plainly reduced to zero. Naturally, a comprehensive approach to fiscal balance will require tackling the problem from both the revenue and expenditure side. This was indeed the plan in Poland and Yugoslavia, where the stabilization programs contemplated massive expenditure cuts -- mostly through the elimination of subsidies to state-

owned firms -- and an increase in revenues via the collection of dividends from public enterprises and higher compliancy and efficiency in tax collection. In both cases the initial fiscal adjustment was substantial, allowing a closing of the gap between revenues and outlays.[16]

Many stabilization programs, including those undertaken to date in Eastern Europe, rely on an increase in the efficiency in tax collection as an important source for closing the fiscal gap. The main idea is that once the initial measures (such as the freezing of the exchange rate) reduce inflation there will be a reversed Olivera-Tanzi effect.[17] Although there is some merit in this belief, there is a serious risk of overestimating the actual importance of this phenomenon. This will be especially so in cases where the monetary overhang is handled through a price level adjustment, and where due to the existence of indexation and medium term contracts, inflation will remain high for some time.

An efficient antidote to this problem, and one that has been tried in some Latin American nations such as Chile, is to enact an <u>indexed</u> tax system, where the corporate and other taxes are also subject to inflationary correction. An additional positive aspect of indexing the tax system is that it will tend to add credibility to the stabilization program.

The reduction, or elimination, of subsidies to firms is another important traditional channel through which the fiscal gap can be closed.[18]

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[16] See, for instance, Rocha (1990) and Covicelli and Rocha (1990).

[17] The Olivera-Tanzi effect refers to the reduction in the real value, because of collection lags, of fiscal revenues during periods of increasing inflation.

[18] In fact, for years and years IMF stabilization programs have included the elimination of subsidies as one of their most important components (see Edwards (1985)).

This measure, which has recently been undertaken in both Poland and Yugoslavia, often results in firms incurring severe losses, and in an increase in their debt, some of which will eventually become bad debt. A potential problem is how to handle these losses and low quality debt once the decision to privatize is made. One possibility is to sell the firms, including the bad debt, at a relatively low price. This reflects the fact that the companies financial conditions are not fully healthy. This was, by and large, the procedure used during the first round of Chilean stabilizations in 1973-80 (see Edwards and Edwards, 1991). Although this may be the most efficient way to proceed -- since it allows the privatization to proceed quite quickly -- it is usually politically risky.

When public firms are sold at a low price the authorities are usually bound to be accused of "giving away" the national patrimony. An alternative procedure is to "clean" the firms to be privatized from bad debt before they are offered to the public. A serious limitation of this approach is that the public enterprises bad debts are sometimes transferred to the Central Bank, transforming a fiscal deficit into a quasi-fiscal deficit.[19] If, indeed, as part of the pre-privatization strategy the authorities decide to free public firms of bad loans, a more effective procedure is to transfer them to a specially created institution and to force a central budget surplus to finance its losses. In this way the system greatly gains in transparency and efficiency.

II.3 Deindexing Labor and Other Markets

A common characteristic of very high (as opposed to hyper) inflations episodes is that the system acquires considerable inertia. This usually

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[19] This problem happened, for example, in Chile during the second round of privatization in 1985-87. See, for example, Luders (1990).

happens through (implicit or explicit) indexation and the existence of staggered contracts. The existence of these inertial forces (partially) explains why, even in cases when the monetary overhang and the monetization of the fiscal deficit are eliminated, inflation takes a long time to subside. An important initial step, then, in stabilization programs is to deindex the economy, trying to transform agents behavior from being backward-looking to being forward-looking. Ideally, this deindexation process should be broad, affecting not only wages, but also debt and other contracts. The one aspect of the system that should not be deindexed, however, is the tax system; in fact, the success of a stabilization program largely depends on the existence of a resilient tax system. In both Poland and Yugoslavia the deindexation of wages has been an important component of the initial stabilization package.[20]

The deindexation of the labor market would also play an important role in providing much needed flexibility to the labor market during the adjustment period that follows the freeing of prices and the implementation of other reforms such as the opening up of international trade. In fact, it is well-known that an important prerequisite for reducing the unemployment costs of trade liberalization structural reforms is to eliminate most wage rigidities including indexation. The reason for this is that in countries with labor intensive exports, a trade liberalization will, under most circumstances, result in a reduction in the real wage rate in the short run. Over the longer-run, however, as investment in new equipment takes place, wages will tend to increase until in the new equilibrium the new wages will tend to

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[20] On a series of interesting case studies on attempts to deindex during a stabilization program see Williamson (1985).

exceed those prevailing before the reforms.[21] If, however, the real wage is not allowed to decline in the short run, a significant increase in unemployment will take place. In that regard it is highly likely that if wages had not been deindexed the increase in unemployment in Poland (from 0% in 1989 to approximately 5.5% in September 1990), would have been even larger.

II.4 An Exchange Rate Anchor?

In both Poland and Yugoslavia, after the initial maxi-devaluation and the establishment of convertibility, the nominal exchange rate has been fixed as a way to provide an anchor for the price system. Although exchange rate based stabilizations have had a long history, they remain controversial. Many authors see a serious danger of real exchange rate overvaluation associated with these policies. This could indeed be the case if after the initial devaluation and the pegging of the nominal exchange rate, inflation continues to go on at a pace significantly higher than world inflation. In this case domestic goods would quickly lose international competitiveness and a serious balance of payments situation could evolve.

The most common cause for real exchange rate overvaluation in exchange rate based stabilization programs is that the pegging of the nominal exchange rate is mainly not accompanied by the required correction in the fundamental determinants of inflation such as the fiscal deficit and money creation. However, even if the adequate fiscal and monetary policies are put in place, there is still a serious risk of overvaluation if the economic system exhibits some inertia. This possibility can be illustrated with the following simple model of an economy with partial backward indexation based

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[21] This statement is based on the plausible assumption that in the short run capital is sector-specific. Only slowly through time can capital be reallocated across sectors. On these issues see Edwards (1988).

on Edwards and Edwards (1991):

$$\hat{P}_t = \alpha\hat{P}_{Tt} + (1-\alpha)\hat{P}_{Nt} \tag{2}$$

$$\hat{P}_{Tt} = \hat{E}_t + \hat{P}^*_{Tt} \tag{3}$$

$$D^N[(P_N/P_T)_t, Z_t] = S^N((W/P_N)_t) \tag{4}$$

$$\hat{W}_t = k\hat{P}_{t-1}. \tag{5}$$

$\hat{P}_t$ is the percentage rate of change of the domestic price level; $\hat{P}_{Tt}$ is the percentage rate of change of the price of tradables expressed in domestic currency; $\hat{P}_{Nt}$ is the rate of change of nontradable goods prices; $\hat{E}_t$ is the rate of devaluation, and $\hat{P}^*_{Tt}$ is the rate of change of the international price of tradables; D^N and S^N are the demand and supply functions for nontradable goods; W is the nominal wage rate, and $\hat{W}_t$ is its rate of change in period t; and finally, Z_t is aggregate real expenditure.[22] Equation (2) states that the rate of change of the overall price level is a weighted average of the rate of change of tradables and nontradables inflation, with α and $(1-\alpha)$ being the weights. Equation (3) links the domestic price of tradables to the world price via the nominal exchange rate. Equation (4) is the equilibrium condition for the market for nontradable goods. Demand depends negatively on relative prices and positively on aggregate real expenditure. Supply of nontradables, on the other hand, depends negatively on the product wage rate. Equation (5) is the rule of wage indexation and states that in every period nominal wages are adjusted in a percentage k of past inflation. If, as was the case in Chile, there is full backward indexation, $k = 1$, and $\hat{W}_t = \hat{P}_{t-1}$.

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[22] Naturally, this simple representation assumes that the monetary overhang situation has already been solved.

Under the assumption that as part of the stabilization program the nominal exchange rate is pegged $(\hat{E}_t = 0)$, and that aggregate expenditure does not change $(\hat{Z}_t = 0)$. We obtain the following equation for domestic inflation:

$$\hat{P}_t = \left(\frac{\alpha\epsilon+\eta}{\eta+\epsilon}\right) \hat{P}^*_{Tt} + \frac{(1-\alpha)\epsilon k}{\eta+\epsilon} \hat{P}_{t-1} \tag{6}$$

when η is the price demand elasticity for nontradables (that is, $\eta < 0$) and where ϵ is the supply elasticity of nontradables with respect to the product wage $(\epsilon < 0)$. This equation clearly captures the fact that under these circumstances the domestic rate of inflation will exhibit some inertia. The importance of this inertial force will not only depend on the extent of indexation k but also on the parameter $(1-\alpha)\epsilon/(\eta+\epsilon)$. In the case where there is 100% backward indexation $(k = 1)$ the domestic rate of inflation will eventually converge to the world rate of inflation of tradables $(\hat{P}^*_{Tt})$.

Defining the real exchange rate (e) in the standard way:

$$e_t = \frac{E_t P^*_{Tt}}{P_t}, \tag{7}$$

we find that its evolution through time will be given by:

$$\hat{e}_t = \frac{\epsilon(1-\alpha)}{\eta+\epsilon} (\hat{P}^*_{Tt} - k\hat{P}_{t-1}). \tag{8}$$

This means, then, that to the extent that the world rate of inflation $\hat{P}^*_{Tt}$ falls short of lagged inflation multiplied by the coefficient of wage indexation, the real exchange rate will be subject to an appreciation process $(\hat{e}_t < 0)$. The higher is k, the higher will be the likelihood of

a real appreciation, and eventually, of overvaluation.[23]

During 1990 both the Polish and the Yugoslavian economies have experienced important real exchange rate appreciations that have slowly, but surely, reduced the degree of competitiveness of their exports. It is difficult, however, to know whether in these countries the real exchange rate is approaching the dangerous area of overvaluation where serious damage to the country's external sector is done. The reason for this is that given the peculiarities of Eastern European trade in the past, it is difficult to use historical series to make real exchange rate comparisons. The Yugoslav authorities in fact considered that the appreciation during 1990 had reached an unacceptable level and in early 1991, decided to abandon the peg. I return to this subject in Section III in light of the Chilean and Mexican experience.

The rationale for relying on exchange rate based stabilization programs is based on two interrelated ideas: first, a fixed nominal exchange rate imposes <u>discipline</u> on the monetary and fiscal authorities, and second, a pegged nominal exchange rate reduces the expectations of inflation. Some recent work on stabilization in advanced nations has argued that the <u>credible</u> adoption of an exchange rate system with limited flexibility (or a straight fixed rate system), such as the exchange rate mechanism of the EMS, will by itself reduce inflation pressure through a change in inertial forces.[24] The key issue, of course, is whether the adoption of a fixed rate

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[23] An important feature of this model for understanding some of the potential problems associated with the current Polish and Yugoslavian programs is that to the extent that there are increases in aggregate demand ($\hat{Z}_t > 0$) fueled by increased transfers from abroad, the forces towards appreciation and, eventually real overvaluation, would increase significantly.

[24] On these issues see, for example, Giavazzi and Giovanini (1989).

is indeed credible. If this is not the case the public will speculate against the fixed rate and the Central Bank making the inflationary situation even more difficult.

Whether a specific program based on a pegged exchange rate has credibility is, to a large extent, an empirical issue that will vary from country to country and across historical settings. However, it is still possible to make some general comments on the subject. First, the degree of credibility of the policy will largely depend on the perceived coherence of the program. If the public sees that there is genuine progress on the fiscal and monetary fronts, and that some agreements between unions and firms are established, the degree of credibility on the sustainability of the fixed exchange rate will increase. Second, credibility will be much greater if there are institutional constraints that will require the government to maintain its commitment of a fixed rate, and thus of fiscal discipline. This type of institutional constraint is present in countries that join the EMS or (to a lesser extent) that have an independent Central Bank, but not so in nations that unilaterally decide to peg their nominal exchange rate, such as Poland and Yugoslavia. I'll return to this issue in greater detail in my discussion of the Chilean and Mexican experiences.

Recently some authors have investigated some of the most important real consequences of stabilization programs based on pegging the nominal exchange rate. In a comparative study of several Latin American episodes from the 1960s through the 1980s, Kiguel and Leviatan (1990) found that most exchange rate based anti-inflationary programs have been characterized by both an expansion of real activity in the initial months of the program and by a nontrivial degree of real exchange rate appreciation. Calvo and Vegh (1990) have developed an optimizing model of a small open economy to formally

compare the inflationary and real effects of exchange rate and monetary based stabilization programs.[25] In a setup with a cash in advance constraint, currency substitution and capital mobility, they find that a credible exchange rate based stabilization generates an output expansion through the permanent reduction of domestic interest rates. However, if the program lacks credibility the initial expansion of output is followed by an important recession. They also argue that the less credible the program is, the more significant will be the real effects of the stabilization program.

III. Some Latin American Lessons for Eastern Europe: Money Overhang, Exchange Rate Anchors and Deindexation

Although Chile did not become a full blown socialist country under President Salvador Allende, the initial conditions faced by the Chilean free-market reformers (sometimes called the "Chicago boys") were in more than one respect similar to those encountered in Eastern Europe. A significant repressed inflation had generated a major monetary "overhang", whose elimination some experts estimated would have required a rise in prices of approximately 500% by mid-1973.[26] In part as a consequence of this the economy was plagued by generalized scarcity, long queues and rampant black markets. The fiscal deficit -- which was fully financed by money creation -- reached 26% of GDP in 1973. Although "official" annual inflation was 700% in September of 1973, all the available evidence indicates that the economy still faced a major "stock" disequilibrium. A program of nationalization of domestic and foreign owned firms had resulted in a two-fold increase in public sector value added between 1970 and 1973. As in Poland, unemployment was virtually

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[25] This is done from a different perspective, in Fischer (1986).

[26] See Bardon (1973). Corbo and Solimano (1990) also find that in Chile there was a significant monetary overhang at the end of the Allende period.

nonexistent, while labor productivity was rapidly declining.

The main goals of the Chilean economic team in 1973 were to defeat inflation, reestablish external equilibrium and transform the economy from a tightly centralized system into a market-oriented regime. Although the political systems were very different, there are some remarkable similarities between Chile's market-oriented economic policies and those of Poland and Yugoslavia. (See Table 2 for a synoptic comparison between Chile and Poland's policies.) As in Poland and Yugoslavia, Chile eliminated the vast majority of price controls during the first week of the reforms -- more than 3,000 prices were immediately freed; prices of 39 "necessities", however, remained under loose control for some time. Very large devaluation (over 90%) was used as a way of dealing with the monetary overhang and, as in Poland, partial currency convertibility (for commercial transactions) was rapidly established. An external sector trade reform that immediately eliminated all import licenses, prohibitions and quotas, and that by 1979 had slashed import tariffs to a uniform 10% was rapidly enacted. As in Poland the initial reaction to these policies was a dramatic increase in nontraditional exports that had no precedent in history. For example, in 1974 the U.S. dollar value of non-mineral exports increased 200% with respect to 1973.

In Chile the flow macroeconomic disequilibrium was tackled by a simultaneous reduction of government expenditures and an increase in revenues. This was achieved through a sweeping tax reform that, among other things, established a 20% value added tax. As a result of these measures, by 1977 the fiscal deficit had virtually disappeared. The combination of a liberalized financial sector, with scores of newly privatized banks and insurance companies, and a restricted macroeconomic policy resulted in very high interest rates.

There are still more similarities. As in Yugoslavia and Poland, the Chilean authorities implemented an "exchange rate based" stabilization, where the fixing of the nominal exchange rate in a context of an economy open to international competition was the cornerstone of the anti-inflationary program. Also, as in the recent Eastern European programs, in a further effort to eliminate inflationary pressures, wage indexation was greatly reduced and the labor market was reformed.

In spite of all the efforts to rapidly eliminate inflation, Chile experienced substantial inertia, with price increases crawling down quite slowly. In fact, it took eight years to achieve single digit inflation: in 1981 the rate of inflation was 8.9%. Moreover, when this goal was finally achieved, the years with domestic inflation above world inflation had generated a massive overvaluation of the peso that greatly affected the economy's degree of international competitiveness. Exports began to stagnate while imports, especially of durable goods, boomed. Industrial production fell and a sense of policy sustainability began to take over the economy.

In the rest of this section I discuss in some detail some of the most important specific Chilean lessons on stabilization. In doing this I concentrate on the four issues discussed in the preceding section: (1) the elimination of money overhang; (2) the fiscal deficit and the flow macro-disequilibrium; (3) the indexation of the labor market; and (4) the use of the nominal exchange rate as an anchor. When dealing with this last important issue I formally compare the effects of the Chilean and Mexican exchange rate based stabilization programs.

III.1 Money Overhang and the Initial Stabilization Program

The economic policies of Dr. Salvador Allende during 1970-73 generated a classical situation of repressed inflation.[27] The combination of rapid increases in the quantity of money coupled with stringent price controls resulted in growing scarcity of goods, de facto rationing and a rapidly growing black market. As a result of this disequilibrium in mid-1973 the black market premium for foreign exchange surpassed 3000% (see Figure 2). Former Unidad Popular Minister Sergio Bitar has described the situation as follows:

> The black or parallel market emerged in Chile in 1972, and became increasingly important during 1973. Economic disequilibria grew more rapidly than the new control mechanisms ... The excess of aggregate demand and ... monetary expansion increased during the first half of 1972. ... Relative price distortions also fueled the black market, ... [especially] in the textile and construction sectors ... (Bitar, 1979, pp. 196-97)

Although during the last months of the Allende presidency the official rate of inflation had reached 15% per month, at the time of the coup (September 1973), there was still a substantial monetary overhang. Bardon (1973), for example, estimated in August of 1973 that in order to eliminate the overhang the price level had to increase (jump) between 400 and 560 percent. More recently, Corbo and Solimano (1990) have estimated, on the basis of demand for money regressions, that in the third quarter of 1973 the magnitude of the monetary overhang was approximately equal to 50% of total money demand. Table 3, which shows the evolution of the real quantity of money in Chile in the 1965-78 period, clearly shows the dramatic increase in M/Py experienced during the Allende years of 1971-73 and its precipitous fall immediately following the coup.

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[27] For an extraordinary insiders account of the economic policies of Allende, see Bitar (1979). For a recent analysis of the conduct of macroeconomic policy during this period see Dornbusch and Edwards (1989). See also Larrain and Meller (1991).

One of the most important priorities of the military economic team was to eliminate the monetary overhang and black markets. Interestingly enough at that time there was no discussion whatsoever on the possibility of a monetary reform; from the very beginning the decision was made to free almost all prices and to let the jump in the price level take care of the overhang. This was, in fact, done at the same time as a 90% devaluation was engineered and (partial) convertibility for commercial transactions was established. As a result of this policy, prices increased in October of 1973 by almost 90% (see Table 4).

The strategy followed during the first weeks of military rule were clearly stated by the "super" Minister Jorge Cauas in a 1974 speech:

> The generalized control of prices had created two serious problems ... [1] the proliferation of black markets, ... and ... various rationing mechanisms. ... [And 2], a totally arbitrary price structure. ... The strategy used to correct these disequilibria consisted in creating a free price system.
>
> (Mendez, 1979, p. 92, emphasis added)

The immediate effect of this measure was the overnight disappearance of black markets and rationing, followed by a precipitous fall in the premium in the parallel market for foreign exchange (Figure 2). As transactions moved back into the "overground" economy, tax collection rapidly increased providing a partial alleviation to the fiscal deficit, which in 1973 had reached the extraordinarily high level of 23% of GDP. All of this, of course, bears a remarkable similarity to the recent Eastern European episodes.

The freeing of prices and the devaluation of the nominal exchange rate was rapidly supplemented with a battery of other measures. Subsidies to public sector firms were eliminated, public employment was cut, wages in the public sector were reduced in real terms, and a process of privatization, that resulted in the transfer of 251 firms to the private sector in 1974

alone, was initiated.[28] The process of trade liberalization and financial reform were also started. During 1974 most quantitative restrictions on imports, including a 10,000 percent prior deposit, were eliminated, and an initial round of tariff reduction took place.

An important component of the early policies was the attempt to shift the focus of wage setting from backward looking to forward looking. Formal wage adjustments based on past inflation, which during the Unidad Popular government had been applied with increasing frequency, were eliminated in the rest of 1973, and were replaced by a bonus system that amounted to granting two additional monthly salaries during late 1973. During 1974 there were four obligatory (economy-wide) wage adjustments for an accumulated total of 264%. During the same period the accumulated rate of inflation was 347%. In terms of exchange rate policy, after the initial devaluation a crawling peg system aimed at maintaining the real exchange rate relatively constant was enacted.[29]

As a result of the initial public sector measures the fiscal deficit was reduced by more than one half in 1974. As can be seen from Table 5, most of this fiscal adjustment came from a reduction in expenditure. In spite of this progress, at the end of 1974 the fiscal deficit still stood at almost 11% of GDP.

Although the strategy chosen by the military advisors to eliminate the money overhang succeeded in achieving its objective, it did so at a large cost. The combination of an enormously large price jump, a major devaluation, and price freedom in a country with a 40-year tradition of price

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[28] Of these, 202 were actually returned to their owners and 49 were sold. See Chapter 4 of Edwards and Edwards (1991) for details.

[29] For details see Edwards and Edwards (1991).

controls, generated substantial expectations of further inflation in the private sector. In a perceptive article, Ramos (1977) has convincingly argued that as soon as firms had the possibility (for the first time in many years) to freely set prices, they decided to anticipate expected future cost increases by raising prices by more than what fundamentals dictated. Additionally, in late 1973 the state of uncertainty was such that no one was sure whether (or when) the government would return to the decades-long tradition of fixing prices. Not surprisingly, then, firms -- which at the time faced very little foreign competition, since the trade sector had not yet been opened -- decided to face this uncertainty by over-adjusting their prices.

These expectations of high and rapid inflation were to some extent validated during the first quarter of 1974 when the government mandated a wage adjustment of 60% and implemented a devaluation with respect to the U.S. dollar of 41%. The accumulated rate of inflation during that quarter was 47%. From that point onward the Chilean inflation acquired a dynamics of its own, where firms expected high inflation and incorporated them into contracts (not only wage but also all other contracts). When in 1974 the government faced the fact that there was a large divergence between the public's expectations and its own goals, it decided to abandon its stability objectives and (partially) validated the public's expectations.[30] From that point onwards, Chilean inflation exhibited a significant degree of inertia that was mainly determined by expectations, and their validation through both exchange rate devaluations and money creation.[31] There is little doubt

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[30] See Ramos (1976).

[31] It is interesting to note that computations of the steady state rate of inflation justifiable by the fiscal deficit was significantly lower in every one of the initial years than the actual inflation. In 1974, for example, the "justified" rate of inflation was between 200-250% while actual

that the unleashing of these substantial and chaotic expectations of inflation in the aftermath of the price jump of October 1973, were largely responsible for the extraordinarily long time it took for the Chilean inflation rate to subside. This slow speed of stabilization is particularly puzzling once it is recognized that for all practical purposes by 1977 the fiscal deficit problem had been completely solved.

III.2 Tax Reform, The Fiscal Deficit and Inflation

In early 1975 a sweeping tax reform was implemented. The principal features of this reform include the replacement of a cascade sales tax with a flat rate value added tax at a 20% rate; a full indexation of the tax system; an elimination of the remaining tax exemptions and subsidies; a unification of the corporation and non-corporation income taxes into a flat business tax; and the integration of the personal and business income taxes.[32] As may be seen in Table 5 the combination of increased tax revenues and reduced government expenditure rapidly affected the fiscal deficit.

The fiscal reform of 1975 was part of a broader stabilization program aimed at "finally defeating inflation". This program was based largely on traditional monetarist views regarding inflation in closed economies and considered that money creation to finance the fiscal deficit was the basic and most fundamental cause of inflation. Consequently, this stabilization program did not consider using the exchange rate as an anti-inflationary tool. In fact it was decided to maintain a crawling peg exchange rate

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inflation exceeded 370%. The difference between these two figures can (partially) be explained by inertial forces. In 1978 the government decided to dramatically face expectations through the adoption of an exchange rate based stabilization that culminated with the fixing of the peso to the U.S. dollar in June of 1979. The most important characteristics of this program are analyzed in subsection III.2 below.

[32] See Edwards and Edwards (1991) for greater details on the reform.

system that consisted of periodically adjusting the nominal exchange rate at approximately the same rate as lagged inflation.

In June of 1976, as a means to break inflationary expectations, the government revalued the peso by 10%. Following this revaluation the process of mini-devaluations, where the nominal exchange rate (with respect to the U.S. dollar) was adjusted at approximately the same rate as past inflation, was resumed. In March 1977, in order to further break expectations, the nominal exchange rate was again revalued by 10%. Once again, this appreciation was followed by periodic devaluations that tried to compensate firms for the loss of competitiveness generated by the tariff reduction process. Although in 1976 and 1977 some progress was made in the battle against inflation, by late 1977 inflation was still very high in absolute levels -- 87%.

The revaluation of the peso of 1976 and 1977 marked the first steps toward a major change in the Chilean stabilization strategy and in the authorities' concept of the role of macroeconomic policy. In late 1977, with the rate of inflation standing at a yearly level of 84%, the government authorities argued that given the increasing open character of the Chilean economy, traditional anti-inflationary programs based on closed economy premises were becoming clearly ineffective. It was then pointed out that a drastic change in the orientation of the stabilization policy was required to make further progress against inflation. In early 1978 Chilean stabilization efforts moved from being a fiscal-based to exchange rate-based. I discuss some important aspects of this policy, including its credibility, in subsection III.4.

III.3 Labor Markets and Indexation

In the labor markets front the government early-on tried to incorporate some corrective forces.[33] The automatic wage adjustment due in October 1973 was postponed until January of 1974. During that year an effort to provide forward-looking wage adjustment was instituted. This resulted in mandated wage increases below the accumulated rate of inflation. As a result of this, in 1976 real (average) wages were 16% below their 1970 level and 30% below the peak year of 1971. Starting in July of 1977, however, a one-hundred percent plus backward indexation mechanism was put into place. This procedure required that all wages (private and public sector) be revised four times a year according to accumulated past inflation. As inflation was (slowly) declining during this period, this backward looking procedure assured that wages would automatically increase in real terms. Table 6 contains detailed information on the exact dates and magnitudes of wage adjustments.

Not only were wages fully indexed by 1976, but most other contracts also included indexation clauses. Many transactions were denominated in dollars, and with the exception of 30-day CDs all financial transactions were subject to inflation adjustment. There is little doubt that the rapid reincorporation of 100 backward indexation to Chile's economic folklore can partially account for the slow rate at which inflation was reduced.

III.4 Anchoring the System Through the Nominal Exchange Rate

In February 1978 the administration of the exchange rate completely took over as the most important anti-inflationary tool. At that time a

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[33] A crucial element in labor market developments during this period is the dismantling of the Chilean labor movement. For political reasons the immense majority of union leaders were persecuted. Union activities were reduced to mere symbolism.

novel policy of preannouncing a declining rate of devaluation for a fairly long period of time (up to a year) was introduced as a way of further reducing the rate of inflation. This system, popularly known as the tablita, deliberately set the starting declining rate of devaluation at a lower rate than ongoing inflation. With the trade reform having virtually eliminated the most important barriers, it was expected that this system of preannounced devaluations would have two important effects on inflation. First, it was thought that it would channel inflationary expectations downward. Second, and more important, it was expected that the system would work in a way similar to a textbook-type fixed exchange rate regime, imposing price discipline into the economy. It was, in fact, thought that domestic inflation would rapidly converge to the level of world inflation plus the rate of devaluation of the peso.

In June 1979, with inflation standing at an annual rate of 34%, the government put an end to the system of a preannounced declining rate of devaluation and fixed the exchange rate at 39 pesos per dollar. It was expected that this move to a fixed rate would reinforce and accelerate the purchasing power parity type convergence of domestic to world inflation.

When the tablita was adopted in early 1978, and again when the peso was pegged to the dollar in June of 1979, it was decided not to alter the wage indexation mechanism. Paradoxically then, while the authorities expected price setters and other agents to form forward-looking expectations, they maintained a crucial market linked to a rigidly mechanical backward indexation regime. This decision resulted in the maintenance of an important

component of the inertial forces in the system.[34]

III.4.1 Exchange Rate Pegging and Real Exchange Rate Overvaluation

Contrary to what was expected by the architects of the open economy stabilization plan, after the exchange rate was fixed in mid-1979, the domestic rate of inflation did not rapidly converge to its world counterpart. Table 7 contains data for 1978-83 on the behavior of the rate of nominal devaluation with respect to the U.S. dollar, of two measures of U.S. inflation, and of the Chilean rate of inflation. In fact, the use of the exchange rate as a stabilization tool helped generate a steady real appreciation, or real overvaluation, of the peso, which, among other things, greatly hurt the degree of competitiveness of firms producing goods in the tradable sector, including nontraditional exports.

Figure 3 shows the evolution of Chile's (bilateral) real exchange rate from 1963 through 1983. Three things stand out from this figure. First, following the fixing of the nominal exchange rate in mid-1979, the RER experienced a sustained real appreciation. Second, when the rate was pegged (and even when the tablita was first adopted in 1978), the RER was relatively low (appreciated) with respect to its 1975-76 levels. This means that there wasn't much of a cushion for the exchange rate to fall, without generating an overvaluation, during the transition to price stability. This, in fact, contrasts with the Mexican experience where prior to embarking on the exchange rate preannouncement program and the Solidarity Pact,

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[34] Besides the adoption of a fixed exchange rate regime, another important development took place during 1979. Steps toward the liberalization of capital flows were taken, when in June of that year commercial banks were allowed to greatly increase their ratio of foreign liabilities to equity. This relaxation of capital inflows resulted in massive borrowing from abroad and paved the way to Chile's debt crisis. I have argued in Edwards (1985) that the massive inflow of foreign capital was one of the fundamental causes of real exchange rate overvaluation in Chile.

the real exchange rate was undervalued.[35] As a result of this, the subsequent real exchange rate appreciation observed in Mexico has not resulted until this time in a situation of real exchange rate appreciation.

The third interesting characteristic of Figure 3 is that there is a clear structural break in the real exchange rate behavior in Chile. Throughout 1974-84, in spite of broad fluctuations, the real exchange rate was at all times significantly higher than at any time during the previous 10 years. Two main "real" events that greatly affected the behavior of "fundamentals" are behind the major real depreciation that took place between 1965-73 and 1979: First, there was a drastic liberalization of international trade, which eliminated all quantitative restrictions and reduced import tariffs from an average of more than 100% to a uniform 10% level (Edwards and Cox-Edwards, 1987). Second, there was a steep, and apparently permanent, deterioration of Chile's terms of trade; during 1975-79 the average real price of Chile's main export, copper, was 41% below its 1965-73 average.

An important aspect of exchange rate based programs refers to the need to monitor RER movements in order to assess whether situations of overvaluation are emerging. This, however, is not an easy task. As the fundamental determinants of the equilibrium real exchange rate changes, as has been the case in Poland and Yugoslavia, it becomes exceedingly difficult to know with any degree of certainty whether the RER is moving closer to an overvaluation situation. Under these circumstances it becomes extremely important to monitor very closely developments in the external sector, in order to capture early on any possible signs of overvaluation. In the cases of Chile

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[35] On the Mexican stabilization package see Beristain and Trigueros (1990). On a discussion of the evolution of the real exchange rate in Mexico see Edwards (1990).

and Argentina, in the late 1970s the abundance of foreign capital made the evaluation of RER conditions even more difficult, since many of the superficial signs of overvaluation such as a loss in international reserves and a black market premium were not present.[36] This situation is indeed a possible danger in Eastern Europe where temporary substantial increases in capital inflows may provide a false sense of boom, hiding potentially dangerous situations of overvaluation.

The steady process of real overvaluation of the peso since the pegging of the peso greatly hurt the performance of noncopper exports. In 1981 the dollar value of nontraditional exports dropped by 15%, while traditional noncopper exports declined by 16%. In fact, for those firms in the Corbo and Sanchez (1985) study the overvaluation of the peso was one of the most severe blows received throughout the first ten years of the experiment with market-oriented policies.

Although at this point it is too early to know whether the recent real appreciations in Poland and Yugoslavia are moving these countries into an overvaluation situation, it is clear that this is a potentially very serious problem. The economic history of Latin America has clearly shown that overvaluation, with all its concomitant effects, including the imposition of controls, is one of the most dangerous and serious economic problems.

III.4.2 Exchange Rate Anchors and Credibility: A Comparison Between Chile and Mexico

One of the goals of adopting a preannounced rate of devaluation (which could be zero) in a stabilization program is to alter the public's expectations. Indeed, if the adoption of a nominal exchange rate rule is credible

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[36] In principle, temporary increases in capital inflows will result in real exchange rate overvaluation. See Edwards (1989) for a theoretical model and some empirical evidence.

and the private sector believes that the predetermined nominal rate will impose (or assure) discipline, it will tend to alter its behavior. Ideally, in an economy suffering from significant inertial forces a credible adoption of an exchange rate rule will alter the process of expectations formation from being backward-looking to being forward-looking. This means that, with other things given, the implementation of a credible exchange rate based stabilization program will reduce the degree of persistance built into the inflation process. Contracts, under a credible exchange rate pegging will take into account the change in the exchange rate regime.

A potentially fruitful line of attack for empirically analyzing the degree of credibility of exchange rate based programs is to investigate if, once the exchange rate rule is adopted, the degree of inertia of inflation was indeed reduced. Formally this can be done by estimating an equation of the following form:

$$\pi_t = a_0 + a_1\pi_{t-1} + a_2(D\pi_{t-1}) + \Sigma b_j X_{jt-k} + u_t, \qquad (9)$$

where π_t is the rate of inflation in period t, D is a dummy variable that takes the value of 1 during the period when the exchange rate based program is in effect, and where the X_j's are other determinants of inflation. In this equation the coefficient a_1 captures the degree of inertia of the inflationary process before the exchange rate based program and the coefficient $(a_1 + a_2)$ is our measure of persistence once the exchange rate anchor is used. Under a credible program, then, we would expect the a_2 to be significantly negative. A zero value, or even worse a positive value of a_2, would suggest that the program lacked credibility and that it failed to alter the public's expectations and perception of the system's dynamics.

A number of variations of equation (9) were estimated using quarterly data for Chile. In these estimates two alternative dummy variables were used: the first one (D1) took a value of one between the second quarter of 1978, when the program of preannouncing the rate of devaluation was first implemented, and the first quarter of 1982. In the second case (D2) the dummy variable took a value of one between the third quarter of 1979 and the first quarter of 1982. That is, D2 covers only the period when the nominal exchange was strictly fixed. With respect to the other determinants of inflation (the X_j in equation (9)), current and lagged values of a number of variables were considered including the rate of devaluation, the rate of growth of domestic credit and the rate of growth of money. Although most equations were estimated for the period comprised between the first quarter of 1974 and the first quarter of 1982 -- that is, the last quarter of a fixed exchange rate -- a number of other time periods were also considered.

In every regression run the coefficient of $D\pi_{t-1}$ turned out to be insignificantly positive, indicating that the adoption of the exchange rate rule did not alter the degree of inflationary inertia in the system. The following is an example of the type of result obtained (t-statistics in parentheses):[37]

$$\pi_t = \underset{(-0.869)}{-0.031} + \underset{(8.923)}{0.754}\,\pi_{t-1} + \underset{(0.669)}{0.249}\,D2\pi_{t-1} + \underset{(1.352)}{0.123}\,DEV_t$$

$$+ \underset{(3.001)}{0.076}\,DEV_{t-1} - \underset{(-0.990)}{0.133}\,GM_t + \underset{(2.255)}{0.266}\,GM_{t-1} \qquad (10)$$

$\bar{R}^2 = 0.965$

Durbin's h = 0.289

D.W. = 1.910

Period: 74Q1-82Q1

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[37] This equation was estimated using OLS. When instrumental variables were used the results were not affected in any significant way.

where DEV is the rate of devaluation and where GM is the rate of growth of M1.

In order to further test whether the adoption of the fixed exchange rate in June of 1979 had an effect on the inflation process, a number of tests on the structural stability of inflation equations of the type of (9) were performed. If, indeed the shift from an accommodating adjustable exchange rate regime to a rigidly predetermined one is credible, it would be expected that the inflation equation would capture a change in regime. However, these stability tests were supportive of the dummy variable results reported previously, and showed no structural break in the inflation equation. For example, in the case of equation (10) the Chi-square statistic for structural stability had a value of $\chi^2(6) = 2.23$, indicating that there is no evidence of a change in the inflationary regime in mid-1979.

The above evidence, then, strongly suggests that the adoption of a predetermined exchange rate in Chile was not associated with a change in the nature of the inflationary process that one expects from a credible policy.[38] In particular, expectations and contract practices (e.g., indexation) do not seem to have been affected in a significant way. As a consequence the degree of inflationary inertia remained unchanged after the adoption of the exchange rate based program.

Equations of the type of (9) were also estimated for Mexico. The Mexican program differs from the Chilean case in a very important respect: while in Chile the stabilization program was based solely on fiscal restraint and a predetermined (and then fixed) nominal exchange rate, in the

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[38] This, of course, does not mean that the fixing of the exchange rate did not have some effect on inflation. Naturally, to the extent that devaluation enters the inflation equation, a lower DEV will generate a lower π.

case of Mexico incomes policies became a central element of the anti-inflationary package, supplementing the exchange rate rule and the fiscal adjustment. Indeed in late 1987 with the establishment of the Pacto de Solideridad, unions, entrepreneurs and the government worked out a politically and economically feasible plan for defeating inflation: price and wage guidelines became important elements of this program.[39]

The key question, then, is whether a program which combines the use of the exchange rate as an anchor with incomes policies is more credible -- and thus is able to alter the dynamics of inflation -- than a program that relies exclusively on the exchange rate anchor.[40] In order to investigate this a number of equations based on (9) were estimated using quarterly data for Mexico for the period 1979-90. As in the Chilean regressions the dummy variable was defined for two alternative periods: D3 takes a value of one between the second quarter of 1988 and the second quarter of 1990, while D4 takes a value of 1 from the first quarter of 1989 (when the Pacto was first renewed) and the second quarter of 1990.

In every equation estimated the coefficient of $D\pi_{t-1}$ turned out to be significantly negative, indicating that the adoption of the preannounced exchange rate system, and the other policies in the Pacto, were credible, significantly changing the dynamics of inflation. The following equation illustrates the type of results obtained:

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[39] See Beristain and Trigueros (1990) for a useful description.

[40] The implicit assumption is that in both cases the fiscal side has been corrected. This was indeed the case both in Chile and Mexico.

$$\pi_t = \underset{(-0.417)}{0.002} + \underset{(20.778)}{0.845}\,\pi_{t-1} - \underset{(-4.222)}{0.197}\,D3\pi_{t-1} + \underset{(3.551)}{0.077}\,DEV_t$$

$$+ \underset{(2.233)}{0.059}\,DEV_{t-1} + \underset{(1.476)}{0.046}\,GM_t + \underset{(1.852)}{0.059}\,GM_{t-1}$$

$\bar{R}^2 = 0.964$

Durbin's h = 1.321

D.W. = 1.621

Period: 79Q1-90Q1

The estimated autoregressive term for the Pacto period is equal to 0.648, only 75% of its value during the rest of the period. Although it is not possible to make generalizations at this point, these contrasting results between Chile and Mexico are quite suggestive, indicating that the adoption of an exchange rate rule on its own need not alter the dynamics of inflation, if it is not supplemented by a battery of accompanying income policies that provide (politically acceptable) guidelines to prices and wages.

IV. Concluding Remarks

In this paper I have analyzed some of the most important stabilization policy problems faced by the USSR and the Eastern European nations: (a) how to deal with the monetary overhang; (b) how to face the fiscal deficit problems; (c) the deindexation issue; and (d) the question of exchange rate anchors. With respect to each of these areas I have discussed some lessons stemming from the Latin American experience with stabilization and anti-inflationary policies. Although in doing this I have focused mostly on the case of Chile -- a country whose initial economic conditions somewhat resembled those encountered in Eastern Europe -- I have also dealt with the Mexican experience.

The most important conclusions of this study can be summarized as follows:

(1) The reliance on a major price level jump to eliminate the monetary overhang in Chile in October of 1973 proved to be costly. Expectations of inflation became high and chaotic, with firms and other agents adjusting their prices in anticipation of expected further inflation. These expectations, plus the rapid full indexation of the economy, were translated into a system with a high degree of inertia, and thus in an extremely long path towards price stability.

In retrospect, it seems apparent that a monetary reform -- possibly one that would have based on combined currency blocking -- would have resulted in a smoother and less traumatic transition.[41] Under this alternative policy the monetary reform would have been immediately followed by a relaxation of (most) prices and a devaluation. The freeing of prices would have allowed a correction in relative price distortions but would not have resulted in the type of traumatic jump in the price level that was, in fact, observed. Also, after the monetary reform the required discreet devaluation would have been much smaller than what was actually observed.

(2) There is no doubt that fiscal adjustment is a crucial requirement for achieving stability. An important component of this adjustment is to create a tax system that is not vulnerable to inflation itself. The sophisticated inflation adjustment clauses introduced to the Chilean tax system in late 1974 greatly helped that country to eliminate the public sector imbalances. The creation of this type of system in Eastern Europe seems to be an important element for achieving a stable macroeconomic environment.

(3) Efforts to deindex the labor market -- delinking wage increases from past inflation -- should be maintained throughout the stabilization

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[41] Arguably the blocked funds could have been used to create some long maturity instruments in the emerging financial market.

program. In Chile, the return to full backward looking indexation in late 1976 added considerable inertia to the inflationary process. Whether a deindexation program will indeed be feasible will depend on political consensus. Whether this type of policy is politically possible in Eastern Europe is not yet clear.

(4) The adoption of an exchange rate based stabilization program, where the nominal exchange rate is either pegged, or its rate of change is predetermined at a rate below ongoing inflation, carries a serious danger of provoking a major overvaluation. This can even happen if the fiscal deficit is fully under control as in the case of Chile. This suggests then that in instances when exchange rate pegging indeed becomes part of the anti-inflation program, the initial starting point should be one of undervaluation as in Mexico in 1988.

(5) The most important goal of the adoption of a predetermined nominal exchange rate as part of a stabilization program is to alter the dynamics of the inflationary process. More specifically, a <u>credible</u> adoption of an exchange rate rule will reduce the degree of inertia in the system. An empirical comparison between the Chilean and Mexican cases show that while in the former the adoption of the exchange rate rule did not affect the inertial forces built in the system, in Mexico the degree of persistence in inflation was significantly reduced. The main difference in these two experiences is that in Mexico the exchange rate rule was supplemented with other incomes policies.

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TABLE 1

Economic Conditions In The USSR And Eastern Europe In 1989

	Estimated Real GDP (1986=100)	Growth In Industrial Output in 1989[a]	Inflation Rate in 1989
Bulgaria	99.8	0.0%	11.4%
Czechoslovakia	104.0	0.0%	1.8%
Hungary	101.4	-3.6%	16.9%
Poland	97.9	-4.2%	640.0%
Rumania	99.5	n.a.	n.a.
USSR	105.5	0.0%	5.7%
Yugoslavia	98.4	-1.0%	2795.0%

[a]Refers to adjust (as opposed to official) data.

Source: Directorate of Intelligence, Central Intelligence Agency (CIA), 1990.

TABLE 2

Policies for Stabilization and Market-Oriented Reform:

A Comparison Between Chile in the 1970s and Poland in the 1990s

	Chile	Poland
A.	Price and Wage Rate Policies	
	• More than 3000 previously controlled prices were freed in October of 1973. Initially only 30 goods continue to have controlled prices.	• Most prices freed during first week of January of 1990.
	• From Oct. 1973 to July 1975 partial and lagged wage indexation; between July 1975 and Aug. 1981, full defacto indexation	• Limited and lagged wage indexation.
B.	Exchange Rate Policy	
	• Sept. 12, 1972 official devaluation of the peso of 85%. Number of exchange rates reduced from 13 to 3 and then to 1. Partial convertibility (current account only).	• Jan. 1, 1990, official devaluation of the Zloty by 46%. Exchange rate unification. Partial convertibility (current account only)
	• A crawling peg system was followed until Feb. 1978. From Feb. 1978 to June 1979 the rate of devaluation was preannounced at a rate below ongoing inflation. In June 1979 exchange rate was fixed to the dollar as a way to provide an anchor to the anti-inflation program.	• Exchange rate is fixed to dollar as a way to provide an anchor to the stabilization program.
C.	Fiscal and Monetary Policies	
	• In 1974 a fiscal reform that indexed the tax system implemented a broad VAT at a 20% rate and eliminated most exonerations, was enacted. Broad expenditure cuts. Fiscal deficit was reduced from 25% of GDP in 1973 to 2% in 1975.	• Fiscal adjustment attempted, mainly through reduction in expenditures on subsidies. Target for 1990 calls for an adjustment of the fiscal accounts of 5% of GDP.
	• Significant tightening in monetary control was attempted early on. However, during 1974 reserves accumulation became an important source of money creation. Interest rates were freed and were very high until 1980.	• Control of net domestic assets of Central Bank. • Interest rates raised by more than 4 times to 35% per month.

Table 2 (cont.)

Chile	Poland
D. Trade Policy	
• Rapid elimination of quotas, licenses and prohibitions.	• Rapid elimination of quotas and licenses.
• Sweeping tariff reform that slashed tariffs from approximately 100% in 1973 to 20% in 1976 and 10% by 1979.	• Reduction of import tariffs.
E. Privatization	
• Rapid process of privatization of banks and firms nationalized during the Allende period. Banks privatized first. Foreigners participation limited in the privatization process. However, a flexible FDI statute was enacted.	• Plans drawn, little done (yet).

TABLE 3

The Evolution of Real Money in Chile:

1965-1978

(percent)

	$\frac{M1}{Py}$	$\frac{M3}{Py}$
1965	7.9	11.1
1966	8.4	11.5
1967	8.1	11.6
1968	7.9	10.6
1969	7.7	11.0
1970	8.1	11.4
1971	12.2	16.5
1972	13.1	16.9
1973	10.1	12.5
1974	5.1	6.3
1975	4.2	6.8
1976	4.0	8.0
1977	4.9	10.7
1978	6.0	15.9

Source: Ministerio de Hacienda y Credito Publico.

TABLE 4

Inflation In Chile:

1973-1978

(monthly percent increases in the CPI)*

	1973	1974	1975	1976	1977	1978
January	10.3	14.1	13.9	10.5	5.9	1.8
February	4.1	24.5	16.5	10.1	5.8	2.4
March	6.2	14.2	21.2	13.5	6.1	2.9
April	10.2	15.3	20.8	11.9	4.7	2.6
May	19.4	8.7	16.0	9.8	3.8	2.1
June	15.6	20.8	19.8	12.3	3.3	2.0
July	15.3	11.5	9.3	8.9	3.9	2.5
August	17.1	10.9	8.9	5.5	3.4	2.8
September	16.9	12.8	9.2	7.6	3.7	2.9
October	87.6	18.9	8.4	6.7	4.2	1.9
November	5.7	9.7	8.2	3.8	2.2	1.3
December	4.7	6.5	7.1	5.1	3.1	1.5
Dec. to Dec.	508.1	375.9	340.7	174.3	63.5	30.3

*These data refer to official inflation. For a discussion of alternative measures of inflation in Chile see Edwards and Edwards (1991).

Source: National Bureau of Statistics.

TABLE 5

Fiscal Deficit and Inflation In Chile:

1970-1983

Year	Inflation Rate % (December-December	% GDP	% GDP	% GDP
1970	34.9	28.1	25.2	2.9
1971	34.5	32.4	21.2	11.2
1972	216.7	32.2	18.7	13.5
1973	605.9	44.7	20.1	24.6
1974	369.2	32.4	21.9	10.5
1975	343.2	27.4	24.8	2.6
1976	197.9	25.8	23.5	2.3
1977	84.2	24.9	23.1	1.9
1978	37.2	23.8	23.0	.9
1979	38.0	23.1	24.7	-1.7
1980	31.2	25.0	25.5	-.6
1981	9.9	23.7	26.7	-3.0
1982	20.7	29.0	26.7	-2.3
1983	23.1	28.4	24.6	3.8

Sources: Column A is taken from Yañez (1978) for years 1970-72 and 1979-82 as published in Banco Central De Chile, Boletin Mensual (various issues); from Cortazar and Marshall (1980) for 1973-78. Columns B through D are taken from de Castro (1981).

TABLE 6

Wage Indexation In Chile:

1974-1980 (percentages)

(1) Period	(2) Accumulated Inflation	(3) End of Period Mandated Nominal Wage Increase
10/1/73-1/1/74	107.7%	50.0%[b,d]
1/1/74-5/1/74	87.1	61.1[b]
5/1/75-7/1/74	31.3	34.5
7/1/75-10/1/74	39.5	24.1
10/1/75-12/1/74	30.4	35.2
12/1/75-3/1/75	41.4	33.1
3/1/75-7/1/75	103.2	71.0
7/1/75-9/1/75	19.0	24.0
9/1/75-12/1/75	28.1	28.0
12/1/75-3/1/76	30.2	32.0
3/1/76-7/1/76	56.8	39.0
7/1/76-9/1/76	14.8	26.0
9/1/76-12/1/76	19.2	18.0
12/1/76-3/1/77	17.8	19.0
3/1/77-7/1/77	19.2	18.0
7/1/77-12/1/77	18.7	18.0
12/1/77-3/1/78	7.5	8.0
3/1/78-7/1/78	10.0	10.0
7/1/78-12/1/78	11.9	12.0
12/1/78-3/1/79	5.5	6.0
3/1/79-7/1/79	10.8	11.0
7/1/79-12/1/79	18.0	18.0
12/1/79-4/1/80	9.4	8.0
4/1/80-10/1/80	13.9	14.0[c]
10/1/80-8/1/81	14.3	14.0[c]
8/1/81-7/1/83	37.1	5.0[c,e]
7/1/83-1/1/84	11.8	15.0[c]

Table 6 (cont.)

[a]Corresponds to the official CPI.

[b]Corresponds to increase in minimum wage.

[c]Not binding for workers subject to collective bargaining.

[d]Between October 1973 and January 1974 two bonuses were paid. Their nominal value was equal to the April 1973 taxable salary.

[e]The 23.4% loss in real income was partially offset by four bonuses of 30%, 15%, 15%, and 15% of current wages paid in September, October, November, and December 1983.

Source: Banco Central de Chile (1984) and A. Edwards (1985).

TABLE 7

1978-1983 (percentage)

	Annualized Rate Of Devaluation With Respect To U.S. Dollar	Annualized U.S. WPI Rate of Inflation	Annualized U.S. CPI Rate of Inflation	Annualized Rate of Inflation (CPI)
1978	21.4	9.6	9.1	37.2
1979	14.9	14.9	13.3	38.0
1980	0	12.3	12.4	31.2
1981	0	5.6	8.9	9.5
1982	88.3	1.5	3.9	20.7
1983	19.2	1.8	3.8	23.1

Sources: All data refer to December to December rates of change.

Columns A and D are from Table 2-1.

Columns B and C are from the IMF International Financial Statistics.

FIGURE 2

CHILE: THE BLACK MARKET IN DOLLARS

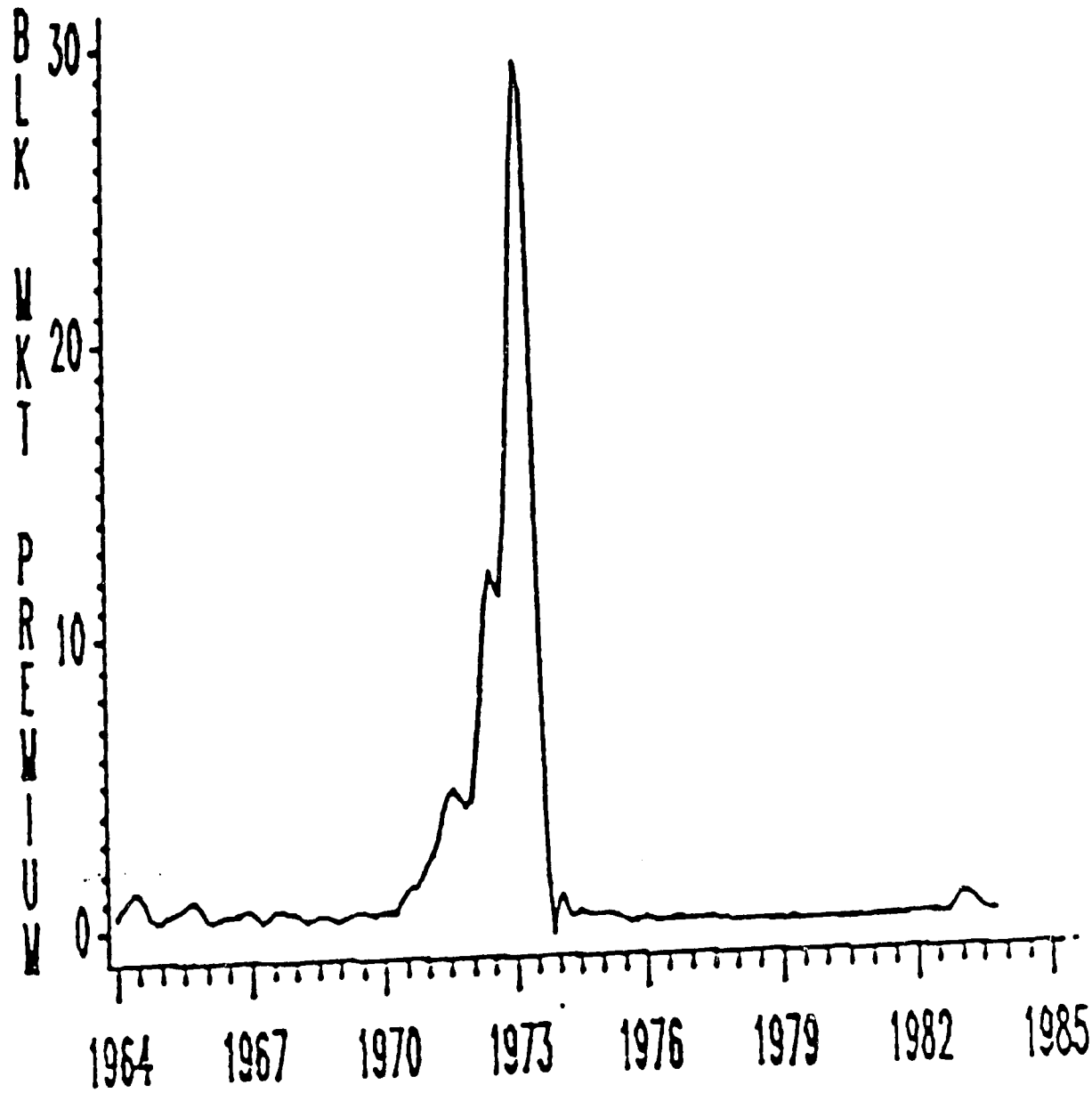
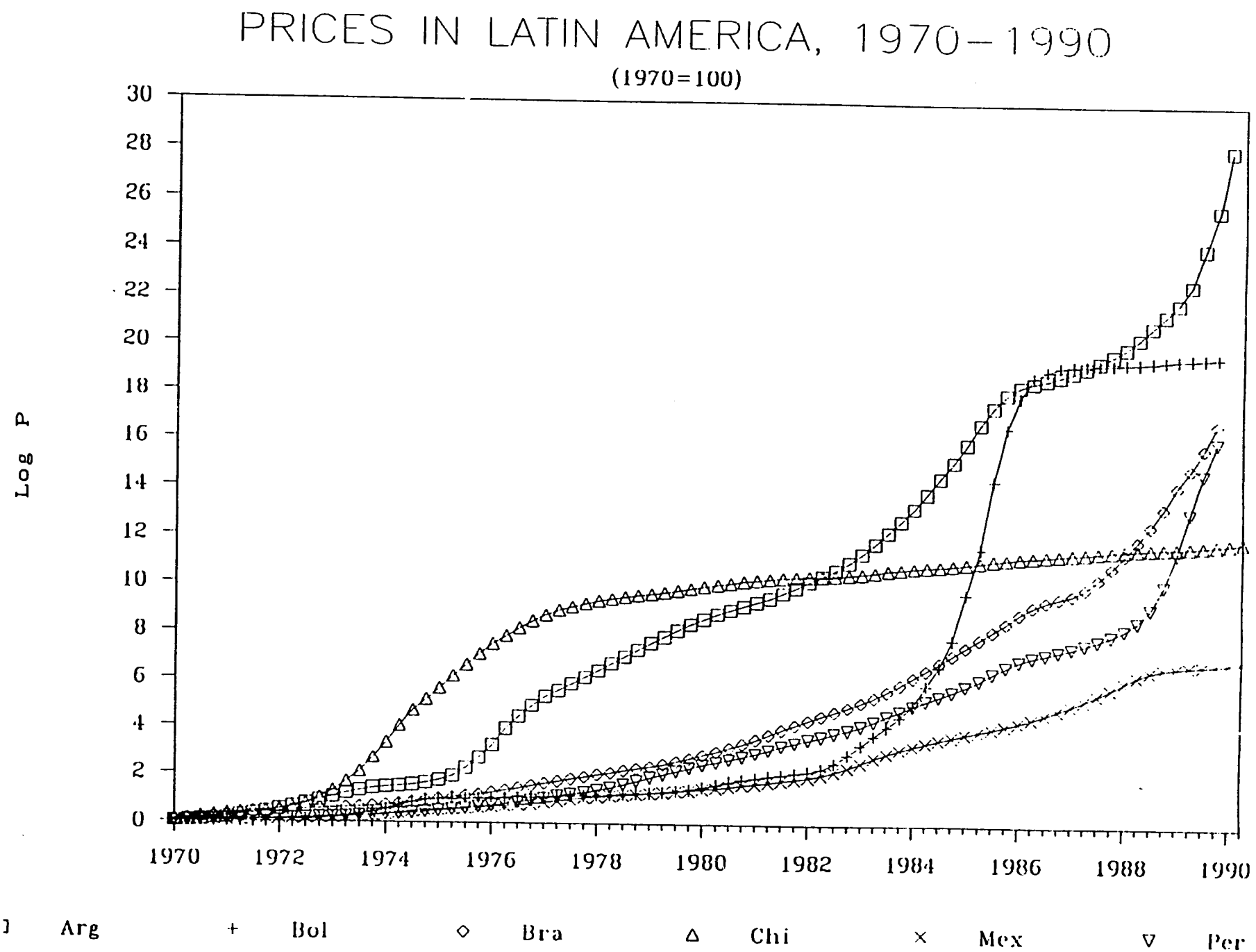


FIGURE 1


PRICES IN LATIN AMERICA, 1970–1990
(1970=100)
Log P
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
Arg
Bol
Bra
Chi
Mex
Per

56